

**NEC**

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# **NEAX<sup>®</sup> 2400 IPX**

## **Circuit Card Manual**

**OCTOBER, 2000**

**NEC America, Inc.**



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This page is for your notes.

# CHAPTER 1 INTRODUCTION

## 1. GENERAL

This manual provides circuit card descriptions for the NEAX2400 IPX system.

This manual is for those persons involved in system setup and administration activities for the NEAX2400 IPX. For each circuit card the following items are explained:

- General function
- Slot to mount the circuit card
- Precautions for mounting the card
- Location of the electronic devices on the card surface
- Description of the LED
- Description of the switches
- Physical interface

The circuit cards explained in this manual are divided into two categories, the Control Circuit Cards and the Line/Trunk Circuit Cards. You can easily define the card category by the pull tab color of the circuit card.

- Control Circuit Card

White or red pull tab circuit cards are categorized as control circuit card. Also, the circuit cards in the Central Processor Rack (CPR) have white or red pull tabs.

- Line/Trunk Circuit Card

Blue or yellow pull tab circuit cards are categorized as line/trunk circuit cards.

**Note:** *This manual is intended to describe only the basic line/trunk interface circuit cards of the NEAX2400 IPX. When you use circuit cards not shown in this manual, you may refer to the NEAX2400 ICS Circuit Card Manual with the following changes:*

- *The line/trunk circuit card shown in the above mentioned manual is compatible with NEAX2400 IPX; however, the exceptions are PA-CS02-C (2AT1) and PA-CS08B (H/MATI).*
- *The external appearance of PIM U (which is the standard port interface module of NEAX2400 IPX) is the same as the PIM J of the NEAX2400 ICS.*
- *The PCM highway running in PIM is different. More details are explained in this manual's section on PH-PC36 (MUX).*

## **2. MOUNTING LOCATION OF CIRCUIT CARD**

The control circuit cards for the 1 IMG system should be mounted in their dedicated slots as shown in [Figure 1-1](#). The control circuit cards for the 4 IMG system should be mounted in their dedicated slots as shown in [Figure 1-2](#). The control circuit cards for the IPX-U system should be mounted in their dedicated slots as shown in [Figure 1-3](#) and [1-4](#).

As a general rule, the blue pull tab line/trunk circuit cards are mounted in the universal slots that are located in Slots 04 - 12 and 15 - 23 of the Port Interface Module (PIM).

The yellow pull tab line/trunk circuit cards (MISC) are mounted in Slots 00 - 02 of the LPM.

Additional GT/LANI cards are mounted in the CPR.

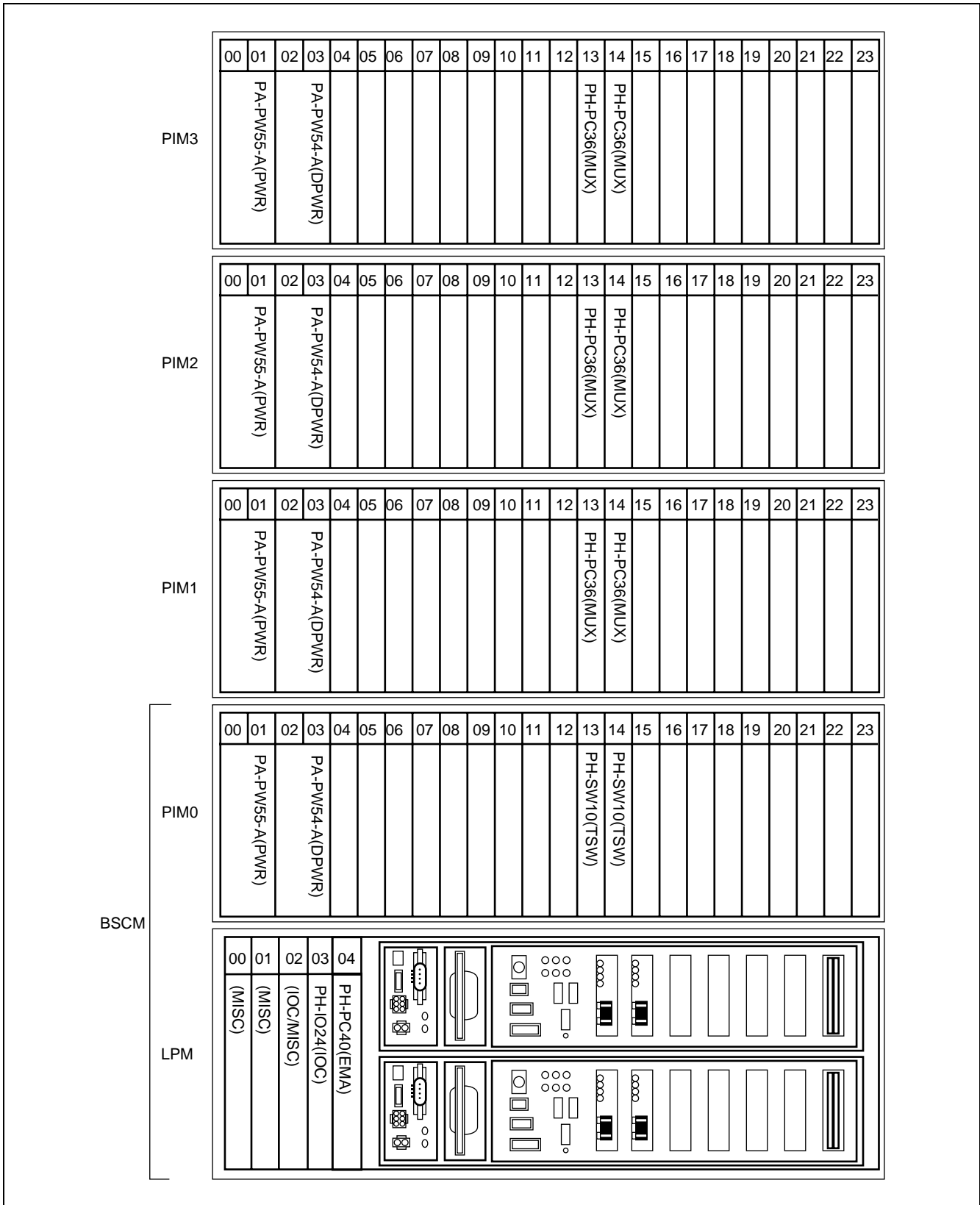


Figure 1-1 Card Mounting Slot for the 1 IMG System

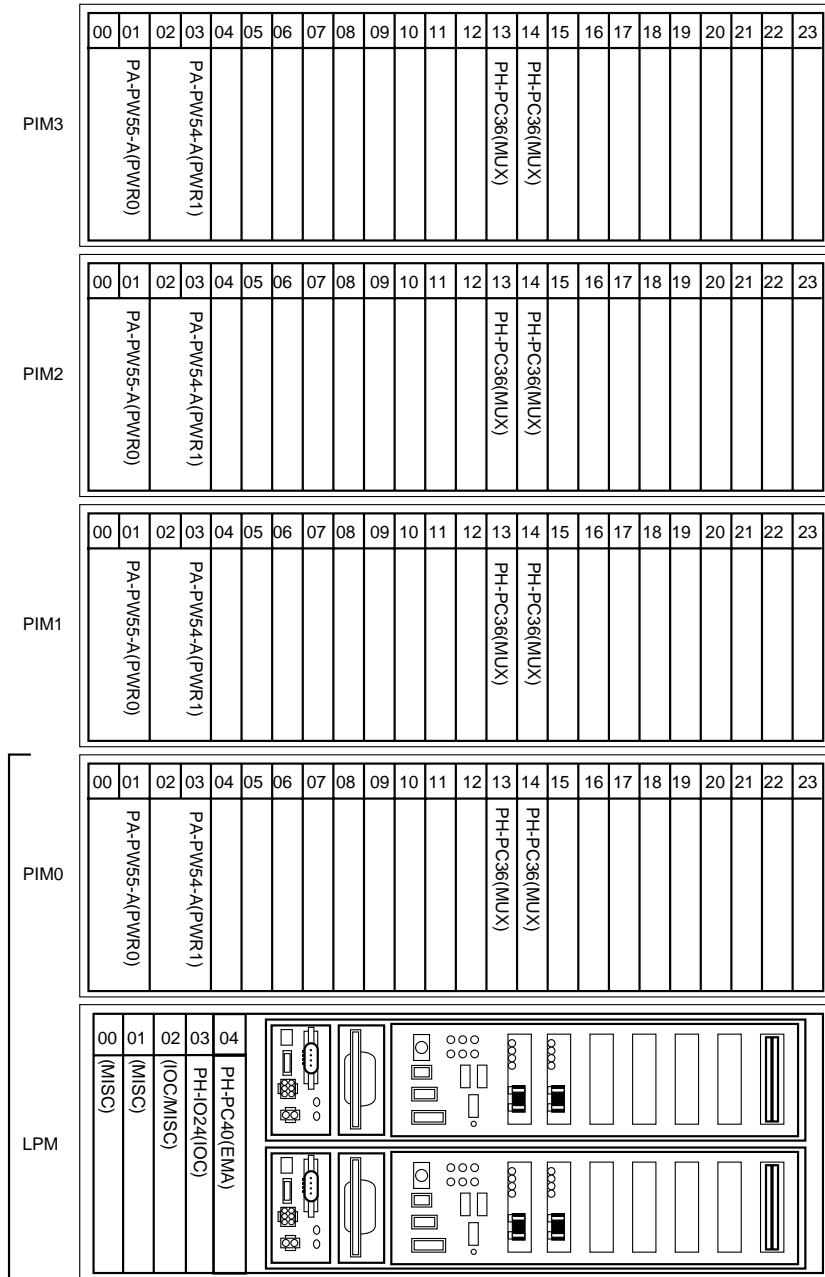
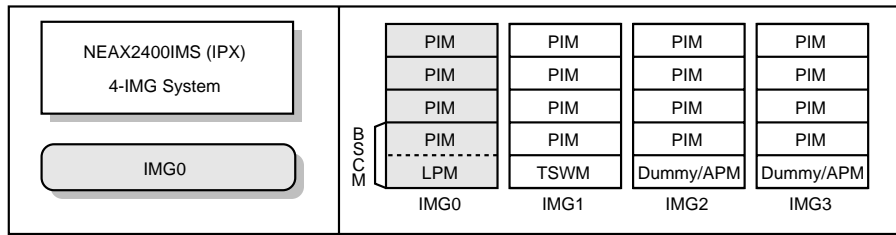


Figure 1-2 Card Mounting Slot for the 4 IMG System (1/4)

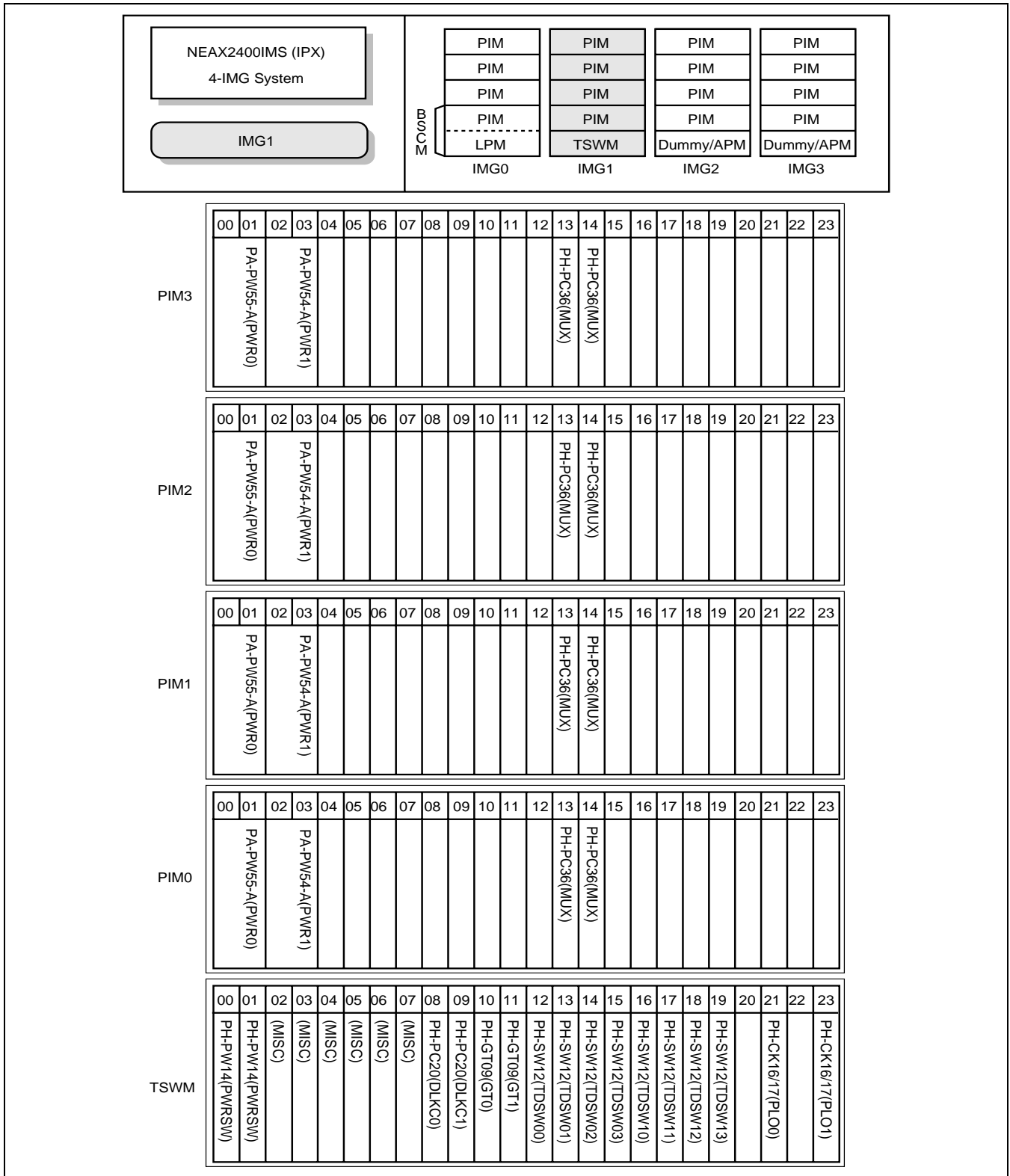
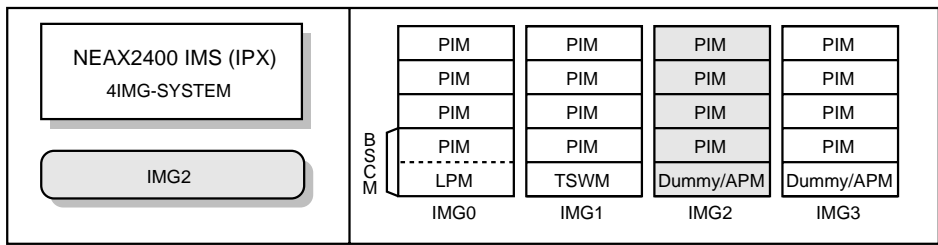


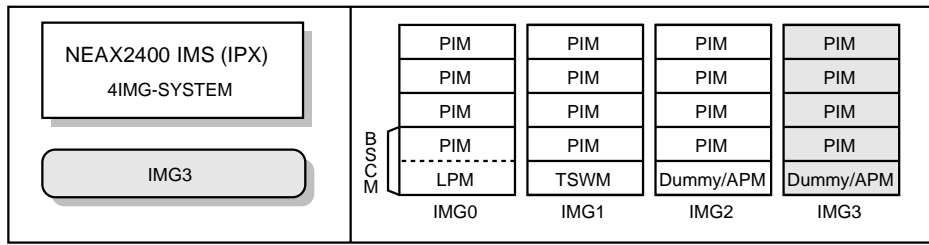
Figure 1-2 Card Mounting Slot for the 4 IMG System (2/4)



PIM3	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM2	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM1	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM0	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
Dummy/APM	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

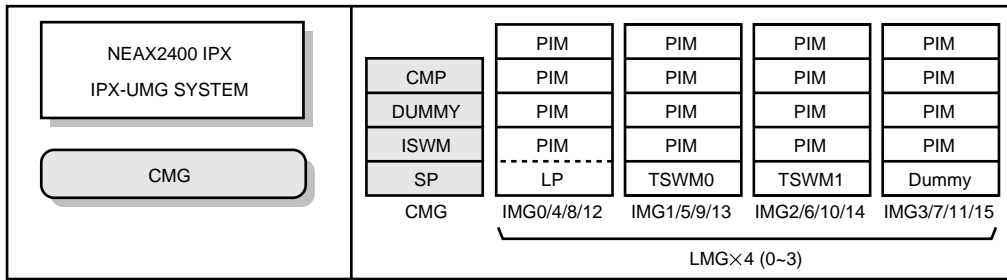
Figure 1-2 Card Mounting Slot for the 4 IMG System (3/4)





	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM3	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM2	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM1	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM0	PA-PW55-A(PWR0)		PA-PW54-A(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
Dummy/APM																								

Figure 1-2 Card Mounting Slot for the 4 IMG System (4/4)



**Note:** The 2nd IOC card (optional) may be mounted in the slot.

**Figure 1-3 Card Mounting Slot for the IPX-U System (1/5)**

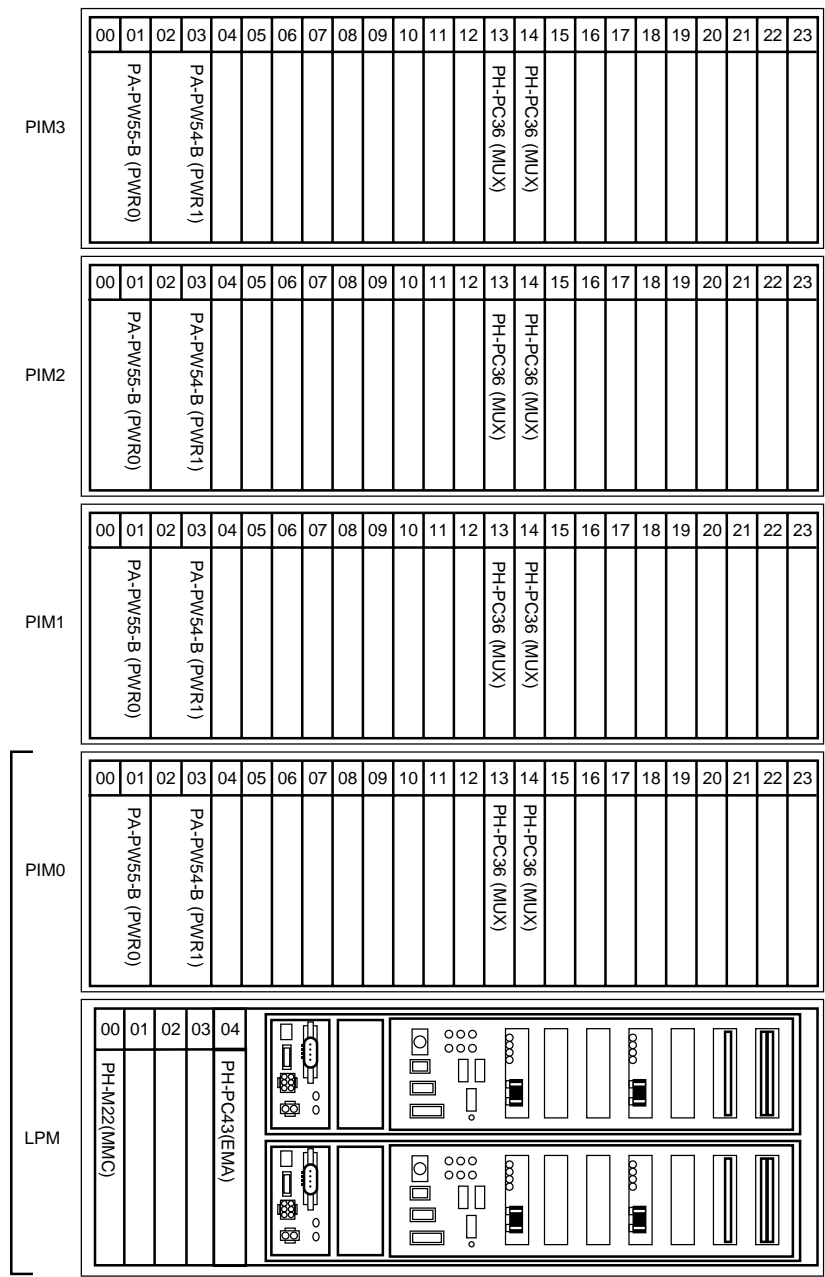
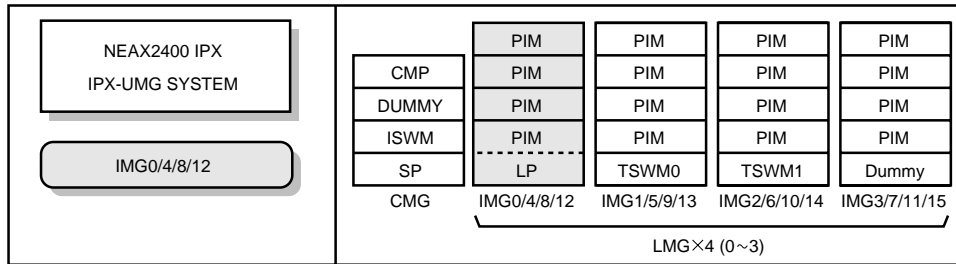
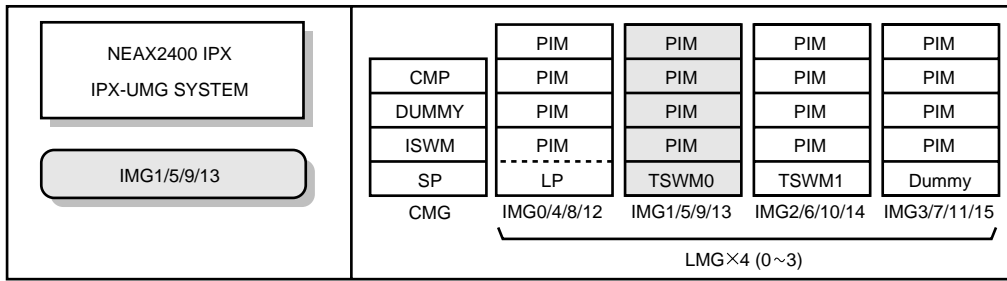
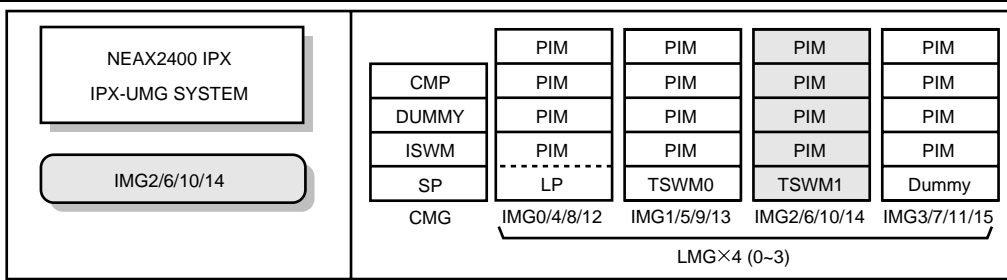


Figure 1-3 Card Mounting Slot for the IPX-U System (2/5)



PIM3	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)			PA-PW54-B (PWR1)										PH-PC36 (MUX)	PH-PC36 (MUX)									
PIM2	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)			PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)								
PIM1	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)			PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)								
PIM0	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)			PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)								
TSWM0	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PH-PW14 (PWR5W)	PH-PW14 (PWR5W)	(MISC)	(MISC)	(MISC)	(MISC)	(MISC)	(MISC)	PH-PC20 (DLKC0)	PH-PC20 (DLKC1)	PH-GT09 (GT0)	PH-GT09 (GT1)	PH-SW12 (TSW00)	PH-SW12 (TSW01)	PH-SW12 (TSW02)	PH-SW12 (TSW03)	PH-SW12 (TSW10)	PH-SW12 (TSW11)	PH-SW12 (TSW12)	PH-SW12 (TSW13)	PH-CK16-A/17-A (PLO0)	PH-CK16-A/17-A (PLO1)		

Figure 1-3 Card Mounting Slot for the IPX-U System (3/5)



	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM3	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM2	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM1	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM0	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
TSWM1	PH-PW14 (PWRSSW0)	PH-PW14 (PWRSSW1)										PH-GT09 (GT0)	PH-GT09 (GT1)	PH-SW12 (TSW00)	PH-SW12 (TSW01)	PH-SW12 (TSW02)	PH-SW12 (TSW03)	PH-SW12 (TSW10)	PH-SW12 (TSW11)	PH-SW12 (TSW12)	PH-SW12 (TSW13)	PH-CK18 (CLK0)	PH-CK18 (CLK1)	

Figure 1-3 Card Mounting Slot for the IPX-U System (4/5)

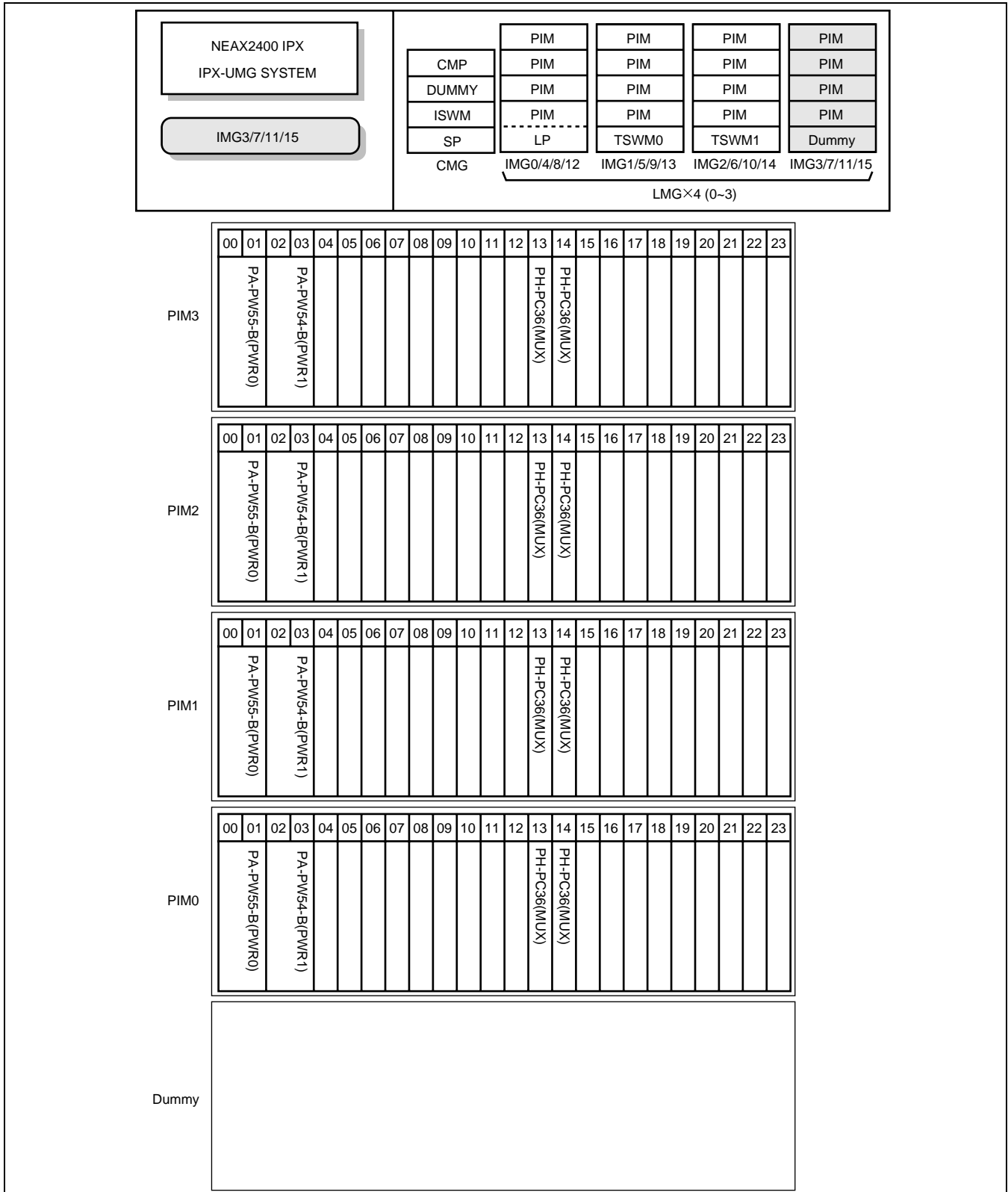
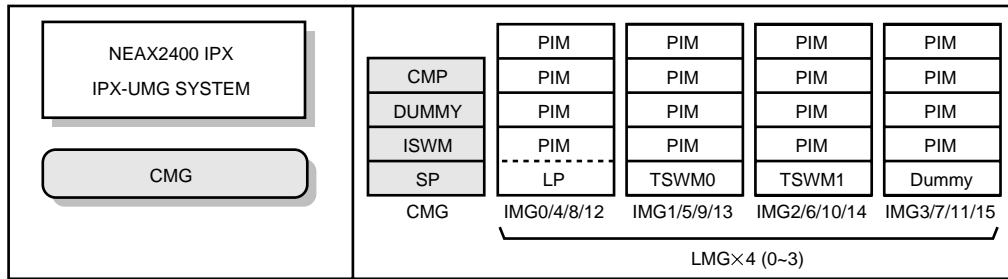


Figure 1-3 Card Mounting Slot for the IPX-U System (5/5)



CMP	00	PH-M22 (MMC)			PZ-PC22 (LANI)	PZ-PC22 (LANI)	PZ-ME44 (MEM)	PZ-ME44 (MEM)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)
	01											
	02											
	03											
04	PH-PC43 (EMA)			PZ-PC22 (LANI)	PZ-PC22 (LANI)	PZ-ME44 (MEM)	PZ-ME44 (MEM)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)	
FANU												
DUMMY												
ISWM												
ISWM	00	PWRSW0 (PH-PW14)			PZ-PC23 (LANI)	PZ-PC23 (LANI)	PZ-PC19 (LANI)	PZ-PC19 (LANI)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)
	01											
	02											
	03											
04	PH-PC43 (EMA)			PZ-PC23 (LANI)	PZ-PC23 (LANI)	PZ-PC19 (LANI)	PZ-PC19 (LANI)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)	
05												
06												
07												
SP	08	PH-IO24 (IOC) Note			PZ-PC23 (LANI)	PZ-PC23 (LANI)	PZ-PC19 (LANI)	PZ-PC19 (LANI)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)
	09											
	10											
	11											
SP	12	PH-DK10 (DSPC)			PZ-PC23 (LANI)	PZ-PC23 (LANI)	PZ-PC19 (LANI)	PZ-PC19 (LANI)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)
	13											
	14											
	15											
SP	16	PH-DK10 (DSPC)			PZ-PC23 (LANI)	PZ-PC23 (LANI)	PZ-PC19 (LANI)	PZ-PC19 (LANI)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)
	17											
	18											
	19											
SP	20	PH-DK10 (DSPC)			PZ-PC23 (LANI)	PZ-PC23 (LANI)	PZ-PC19 (LANI)	PZ-PC19 (LANI)	PZ-GT13 (ISAGT)	PZ-GT13 (ISAGT)	PZ-M565 (ISAGTA)	PZ-M565 (ISAGTA)
	21											
	22											
	23											

**Note:** The 2nd IOC card (optional) may be mounted in this slot.

**Figure 1-4 Card Mounting Slot for the IPX-UMG System (1/5)**

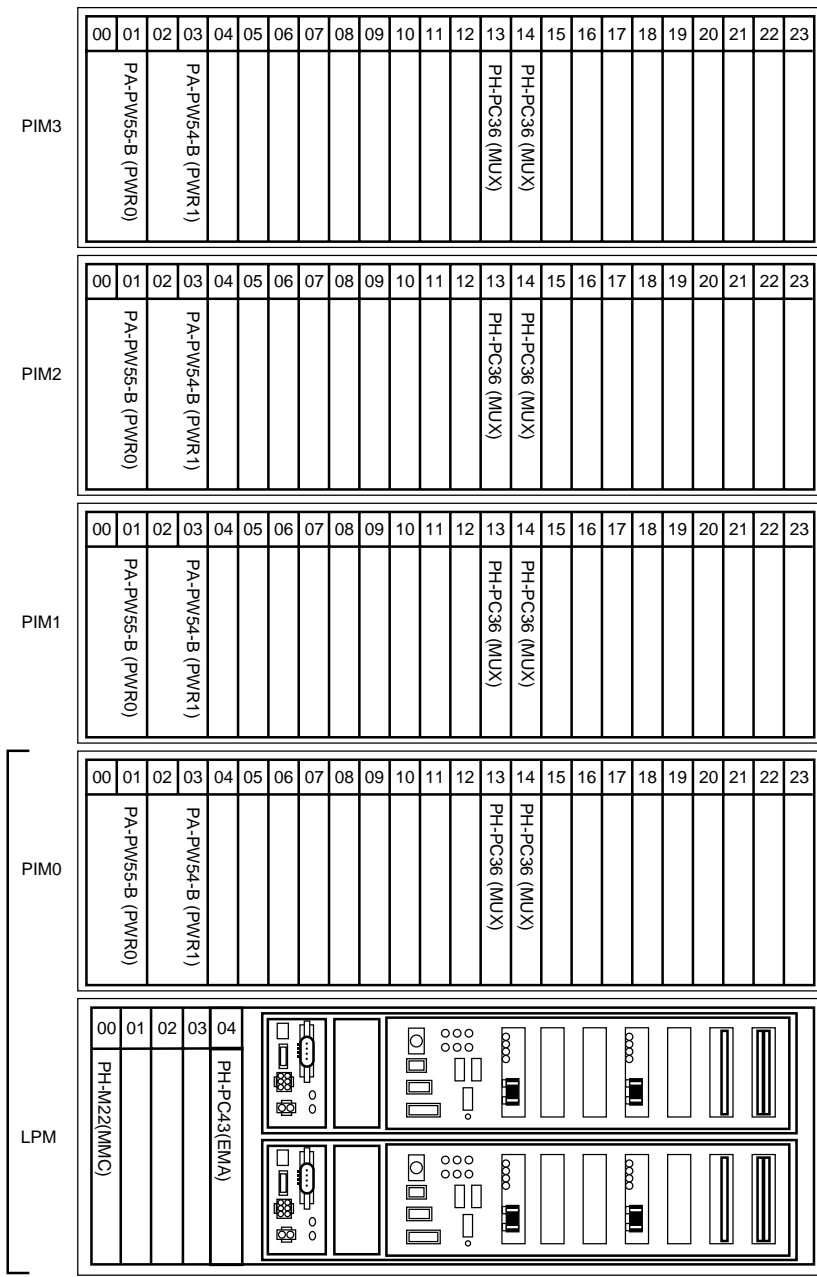
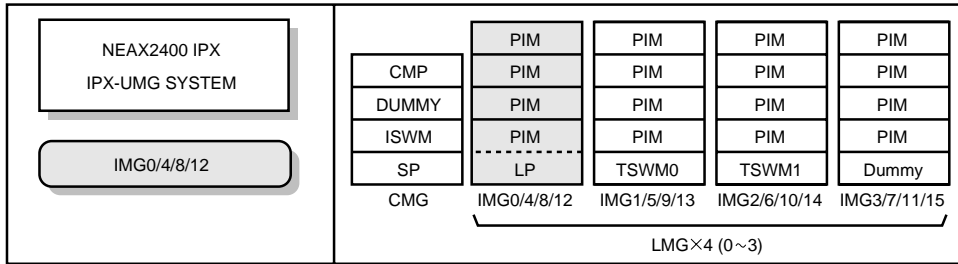
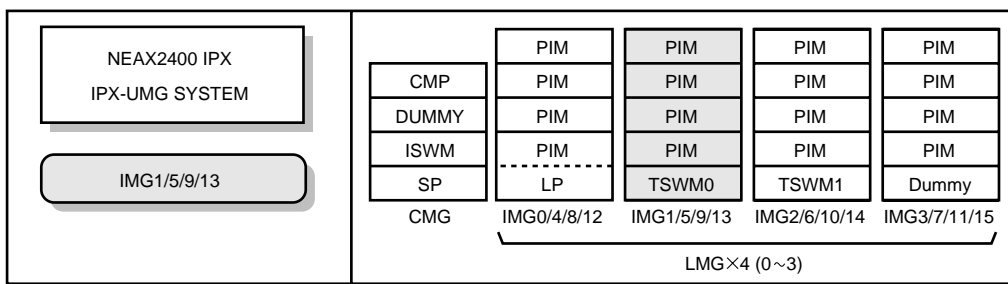


Figure 1-4 Card Mounting Slot for the IPX-UMG System (2/5)





PIM3	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)		PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)									

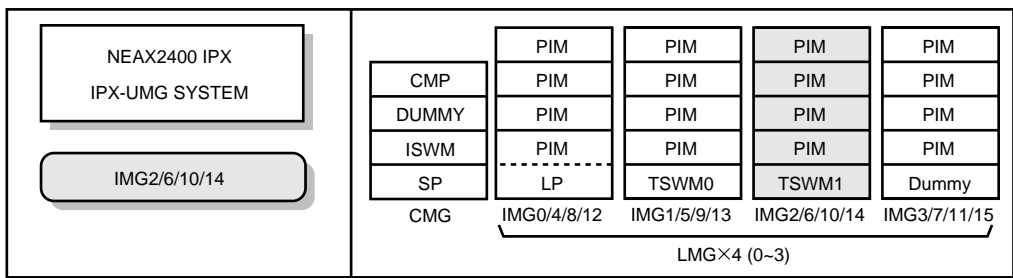
PIM2	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)		PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)									

PIM1	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)		PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)									

PIM0	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PA-PW55-B (PWR0)		PA-PW54-B (PWR1)											PH-PC36 (MUX)	PH-PC36 (MUX)									

TSWMO	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	PH-PW14 (PWR/RSW)	PH-PW14 (PWR/RSW)	(MISC)	(MISC)	(MISC)	(MISC)	(MISC)	(MISC)	PH-PC20 (DLKC0)	PH-PC20 (DLKC1)	PH-GT09 (GTO)	PH-GT09 (GT1)	PH-SW12 (TSW00)	PH-SW12 (TSW01)	PH-SW12 (TSW02)	PH-SW12 (TSW03)	PH-SW12 (TSW10)	PH-SW12 (TSW11)	PH-SW12 (TSW12)	PH-SW12 (TSW13)	PH-CK16-A17-A (PLO0)	PH-CK16-A17-A (PLO1)		

Figure 1-4 Card Mounting Slot for the IPX-UMG System (3/5)



	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM3	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM2	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM1	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
PIM0	PA-PW55-B(PWR0)		PA-PW54-B(PWR1)											PH-PC36(MUX)	PH-PC36(MUX)									
TSWM1	PH-PW14 (PWRSW0)	PH-PW14 (PWRSW1)											PH-GT09 (GT0)	PH-GT09 (GT1)	PH-SW12 (TSW00)	PH-SW12 (TSW01)	PH-SW12 (TSW02)	PH-SW12 (TSW03)	PH-SW12 (TSW10)	PH-SW12 (TSW11)	PH-SW12 (TSW12)	PH-SW12 (TSW13)	PH-CK18 (CLK0)	PH-CK18 (CLK1)

Figure 1-4 Card Mounting Slot for the IPX-UMG System (4/5)

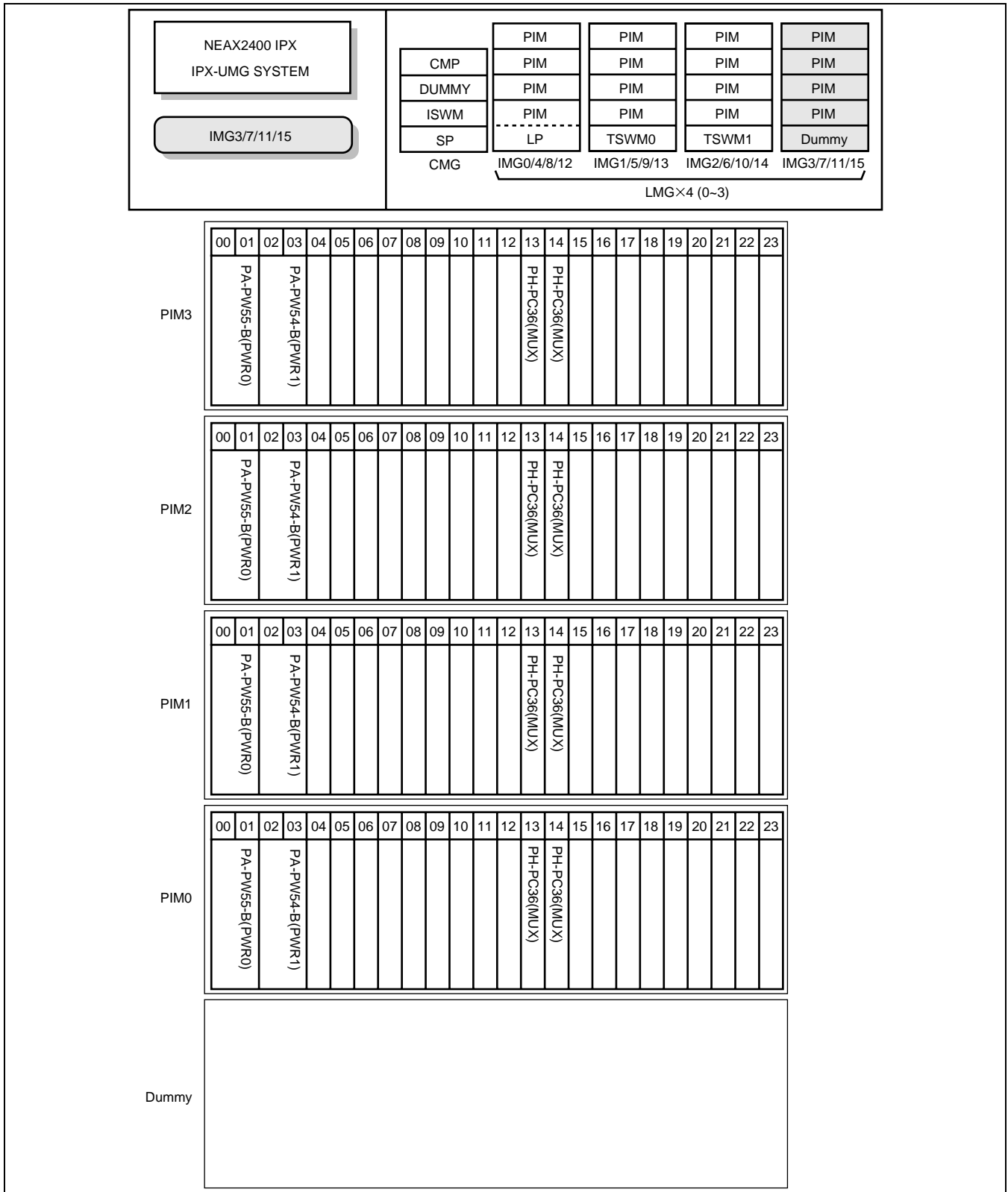


Figure 1-4 Card Mounting Slot for the IPX-UMG System (5/5)

This page is for your notes.

## CHAPTER 2 CONTROL CIRCUIT CARD REFERENCE

This chapter explains the following items for each Control Circuit Card.

- General Function

Explains the general function and purpose of each control circuit card.

- Mounting Location/Condition

Explains the mounting location (mounting module name and slot number, etc.) for each circuit card. If there are any conditions pertaining to mounting the circuit cards, they are also explained.

- Face Layout of Lamps, Switches, and Connectors

The locations of the lamps, switches, and connectors provided on each circuit card are illustrated by a face layout.

- Lamp Indications

The names, colors, and indication states of lamps mounted on each circuit card are listed.

- Switch Settings

Each circuit card's switches are listed with their names, switch numbers, their setting and its meaning, standard setting, etc.

- External Interface

If the lead outputs of the circuit card are provided by an LT connector, the relation between the mounting slots and the LT connectors is illustrated by an LT Connector Lead Face Layout. If the lead outputs are provided by other than an LT connector, or are provided by the circuit card front connector, the connector lead locations and the connecting routes are shown.

In addition, a Switch Setting Sheet, which may be used to record the switch settings, is provided at the end of the explanation for each circuit card.

## SN1695 CPRBF-A CPU Board

### 1. General Function

The CPR in 1-IMG, 4-IMG, and IPX-U system consists of the following components.

- (a) CPU BOARD: Contains the Main Processor Unit (MPU), ROM, and 128 to 256 Mbyte of Random Access Memory (RAM). This board may also contain the ISAGT (PZ-GT13/PZ-GT20) on its Industrial Standard Architecture (ISA) bus, and LANI (PZ-PC19) on the Peripheral Component Interconnect (PCI).
- (b) DSP: Contains the CPR switches and the CPR status indicator lamps.
- (c) FDD/HDD: Floppy Disk Drive (FDD) and Hard Disk Drive (HDD) are mounted on a circuit card, which, if necessary, can be extracted and/or inserted while the system is in operation.
- (d) PWR: Supplies the operating power to the CPR and also the MISC slots of the LPM.

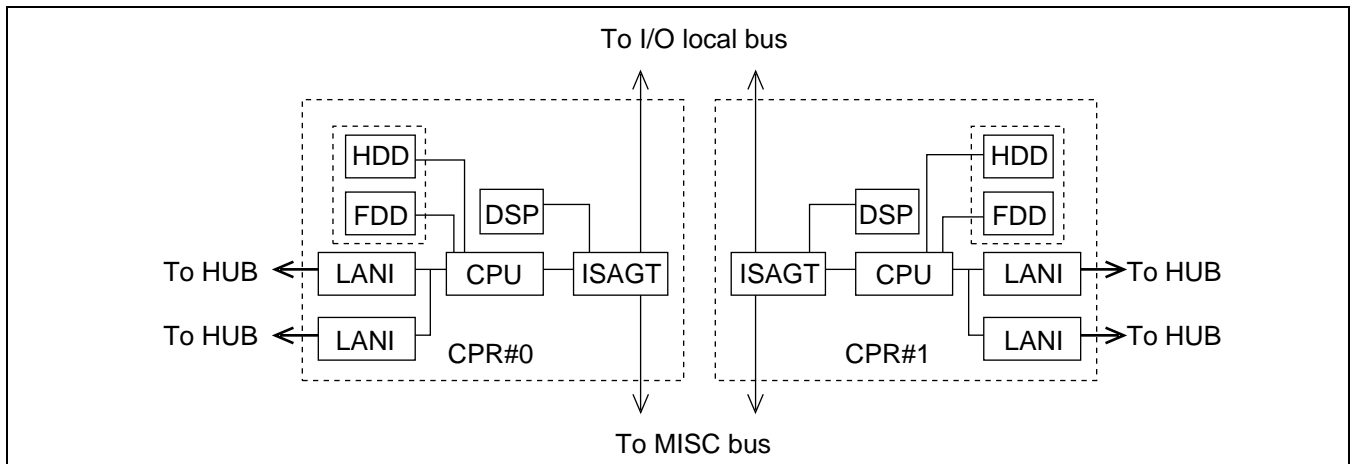


Figure 2-1 Location of SN1695 CPRBF-A (CPR)

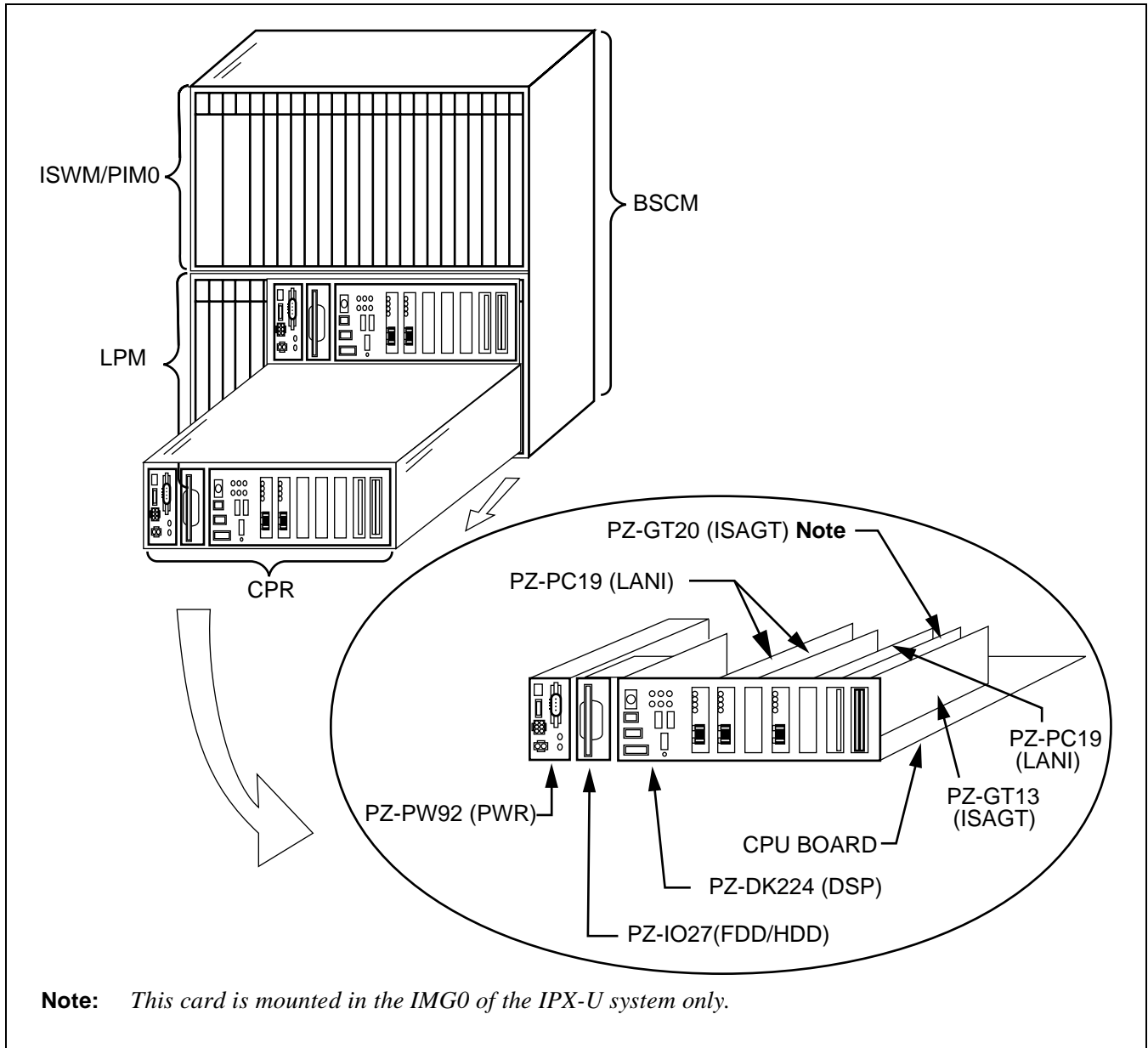
The CPR in IPX-UMG system consists of the following components.

- (a) CPU BOARD: Contains System Processor Unit (SP)/Common Main Processor Unit (CMP)/Local Processor Unit (LP), ROM, and 128 to 256 Mbyte of Random Access Memory (RAM). This board may also contain PCI MEM (PZ-ME44), the ISAGT (PZ-GT13/PZ-GT20/PZ-M565) on its Industrial Standard Architecture (ISA) bus, and LANI (PZ-PC19/PZ-PC22/PZ-PC23) on the Peripheral Component Interconnect (PCI).
- (b) DSP: Contains the CPR switches and the CPR status indicator lamps.
- (c) FDD/HDD: Floppy Disk Drive (FDD) and Hard Disk Drive (HDD) are mounted on a circuit card, which, if necessary, can be extracted and/or inserted while the system is in operation. **Note**
- (d) PWR: Supplies the operating power to the CPR and also the MISC slots of the SP/CMP/LP.

**Note:** *FDD/HDD is not mounted on the CPR of CMP/LP in IPX-UMG system.*

2. Mounting Location/Condition

The CPR is composed of the CPU BOARD, DSP, FDD/HDD, and PWR and is located in the Local Processor Module (LPM) as shown in [Figure 2-2](#). Since the CPR provides the Industrial Standard Architecture (ISA) bus and Peripheral Component Interconnect (PCI) bus, the ISAGT and LANI cards are located in those busses respectively.



**Figure 2-2 CPR Location**



When the SN1695 CPRBF-A is used in the IPX-UMG system, the CPR is mounted on each processor module (SP, CMP, and LPs) as shown in Figure 2-3. As to the mounting location of PWR, FDD/HDD, DSP, and other circuit cards within the CPR, refer to Figure 2-5.

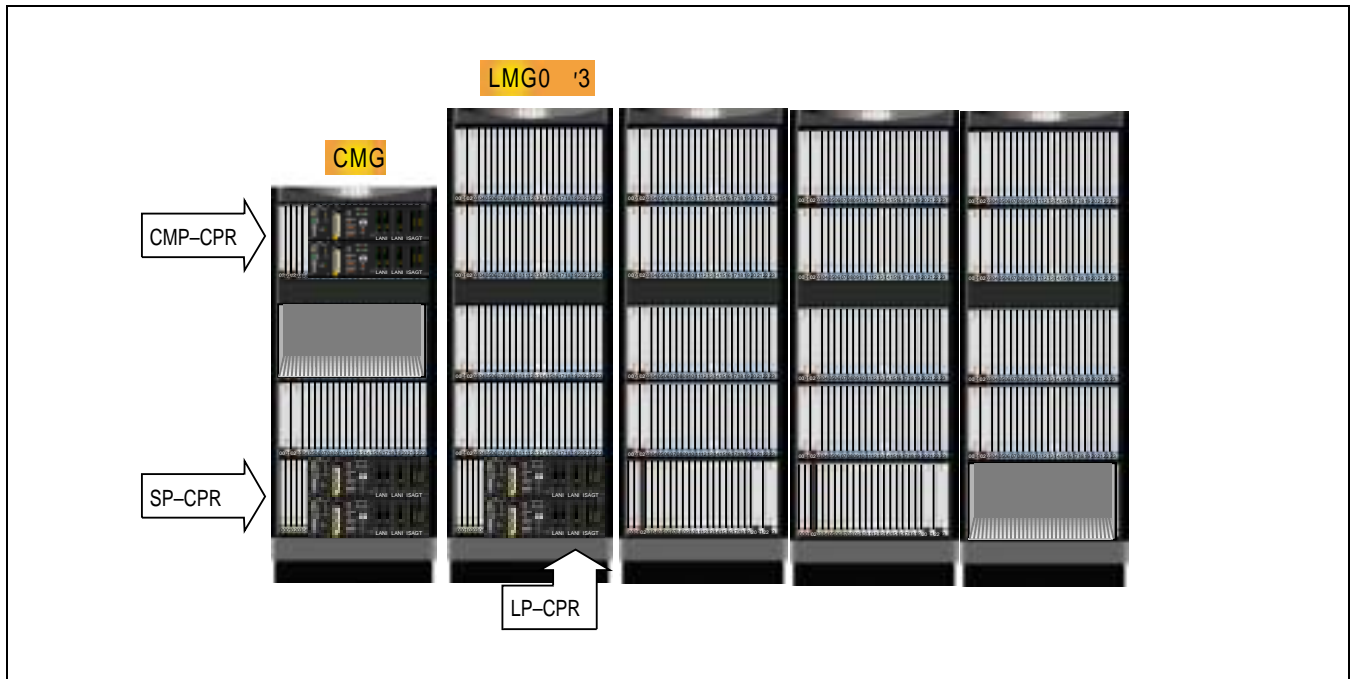


Figure 2-3 The SN1695 CPRBF-A in the IPX-UMG System

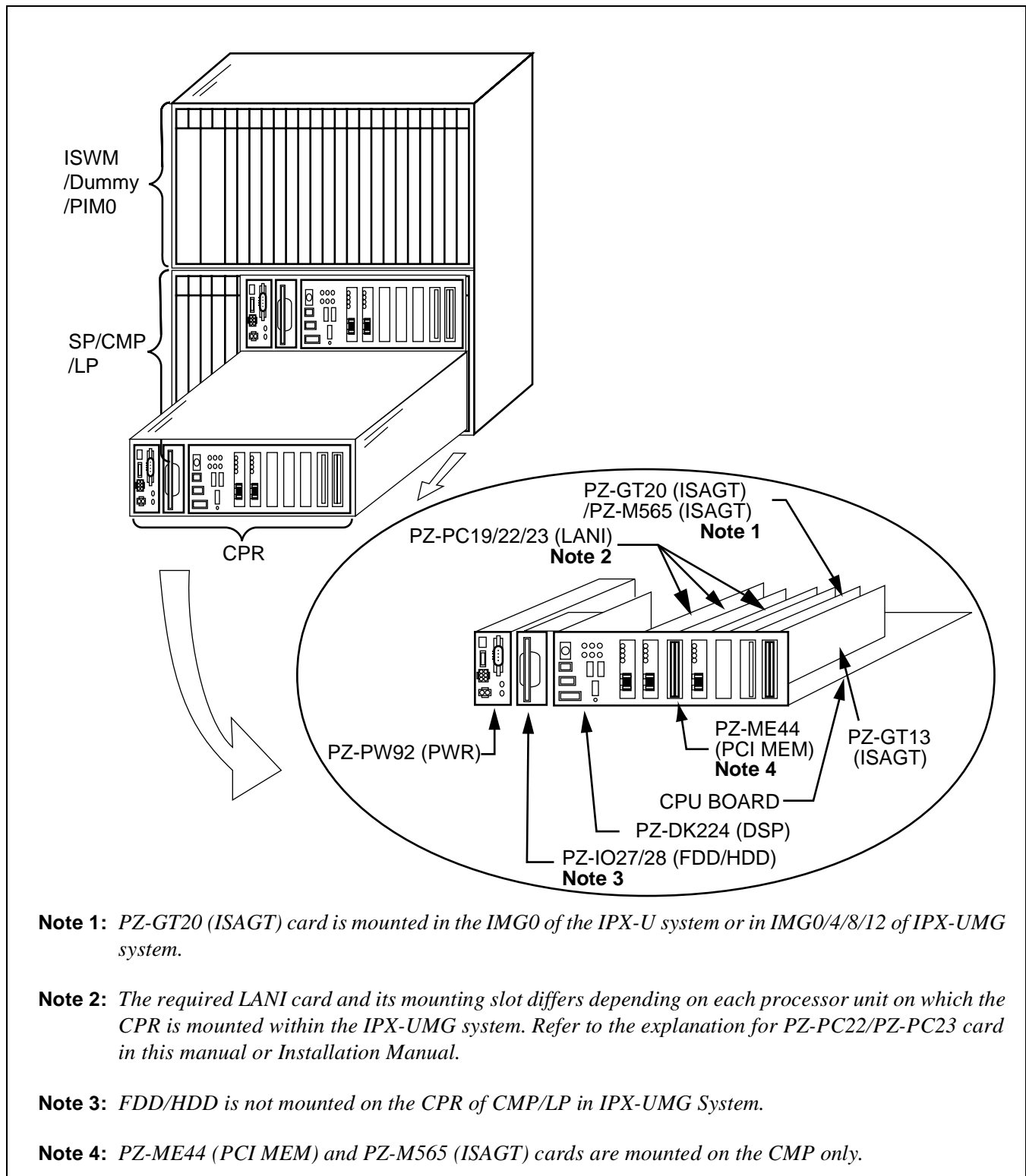


Figure 2-4 CPR Location for IPX-UMG System

3. Face Layout of Lamps, Switches, and Connectors

The CPR contains the following lamps, switches and connectors.

Slots 0-3 provide the Peripheral Component Interconnect (PCI) bus, and Slots 4-6 are the Industrial Standard Architecture (ISA) bus.

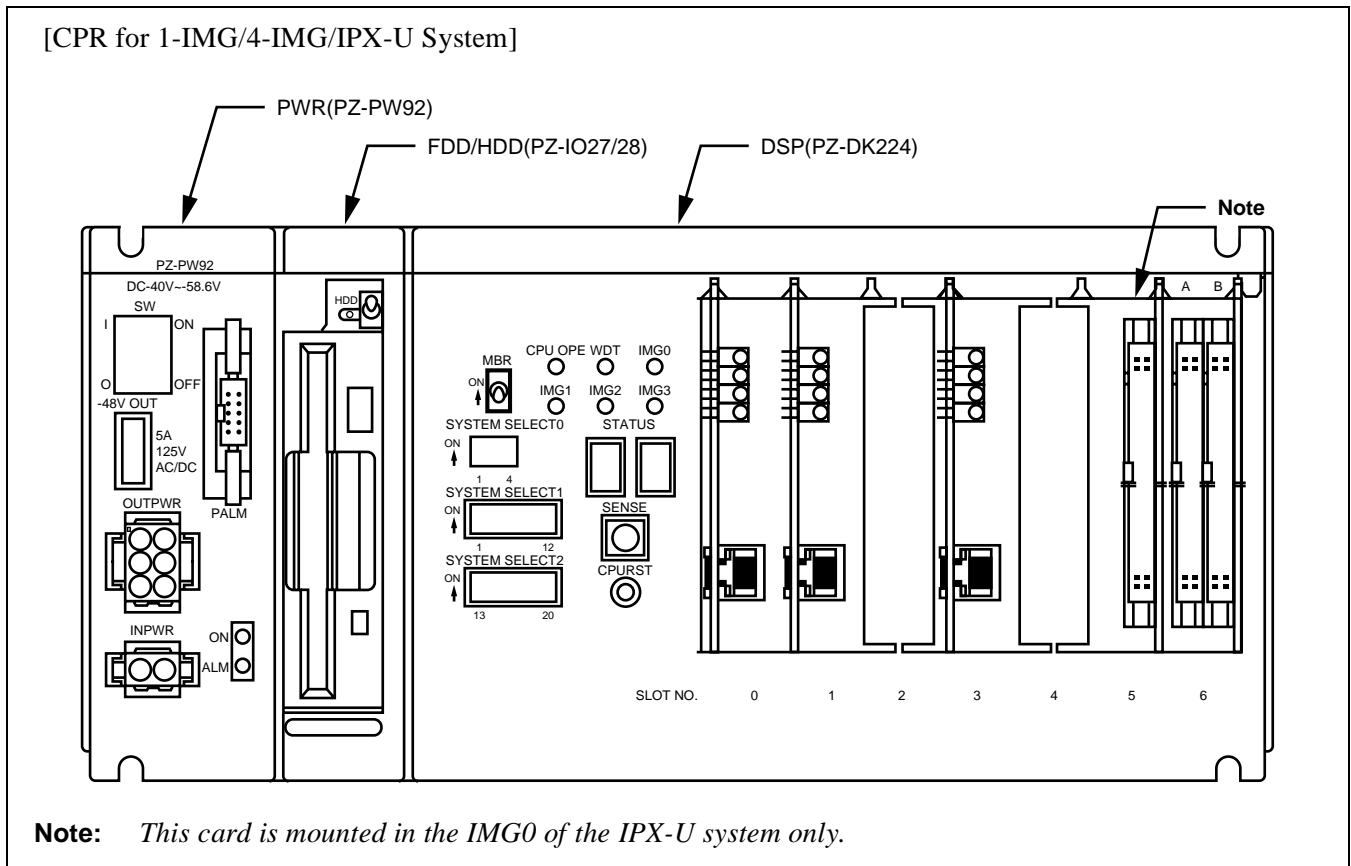


Figure 2-5 Front View of CPR

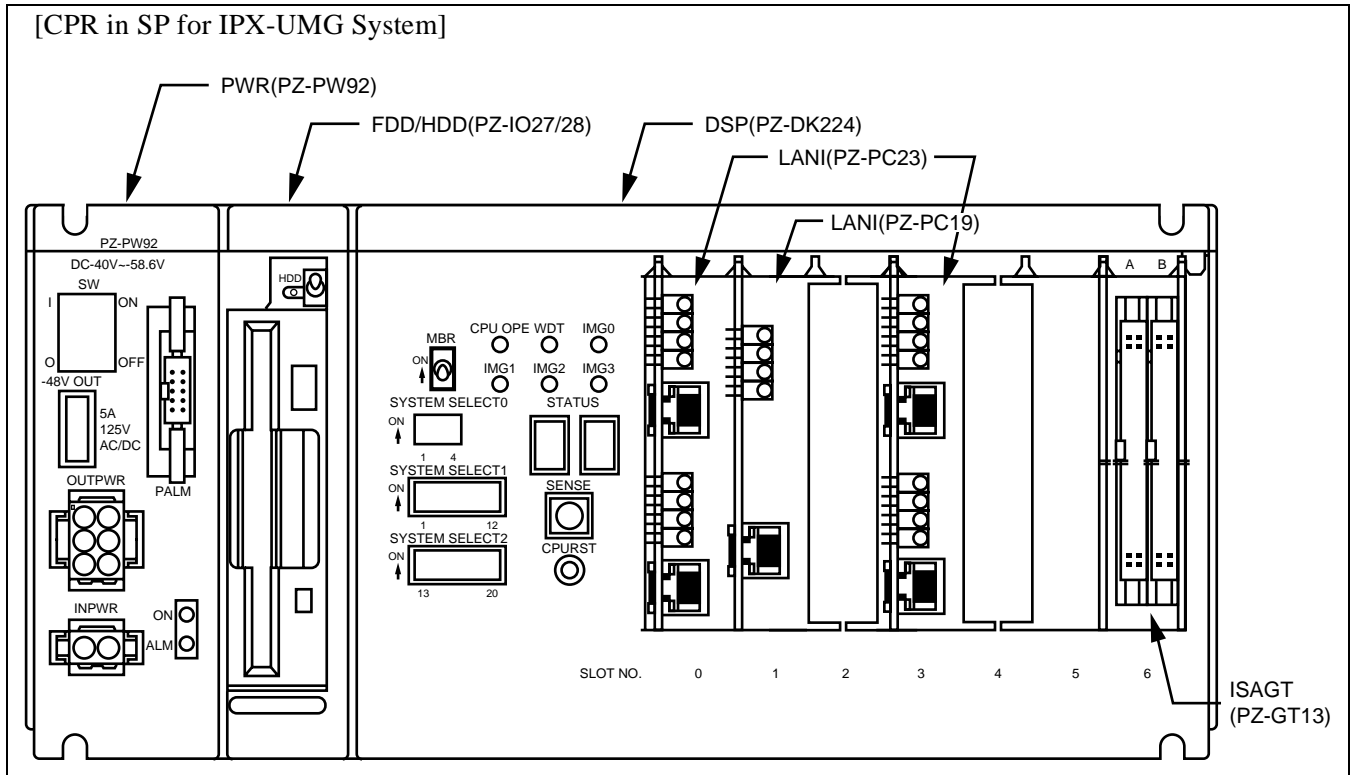


Figure 2-6 Front View of CPR in SP for IPX-UMG System

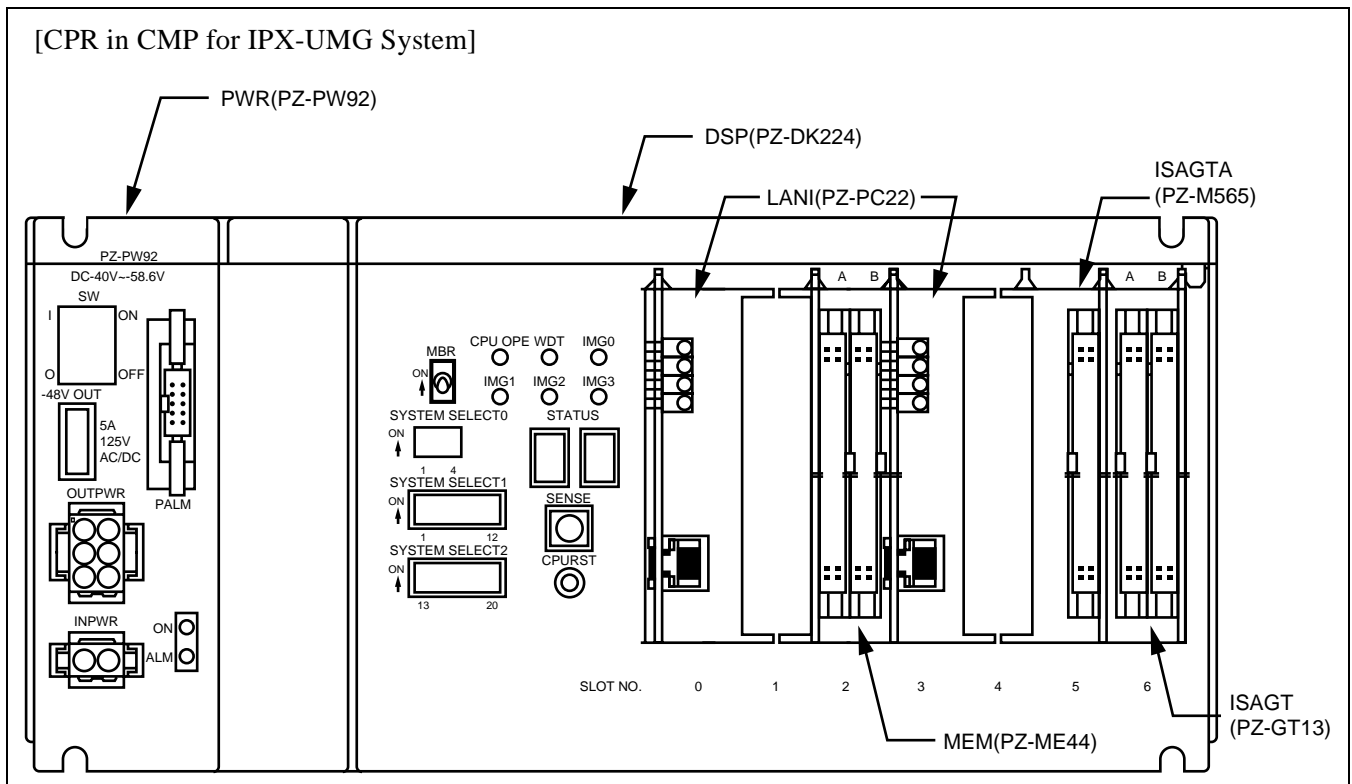


Figure 2-7 Front View of CPR in CMP for IPX-UMG System

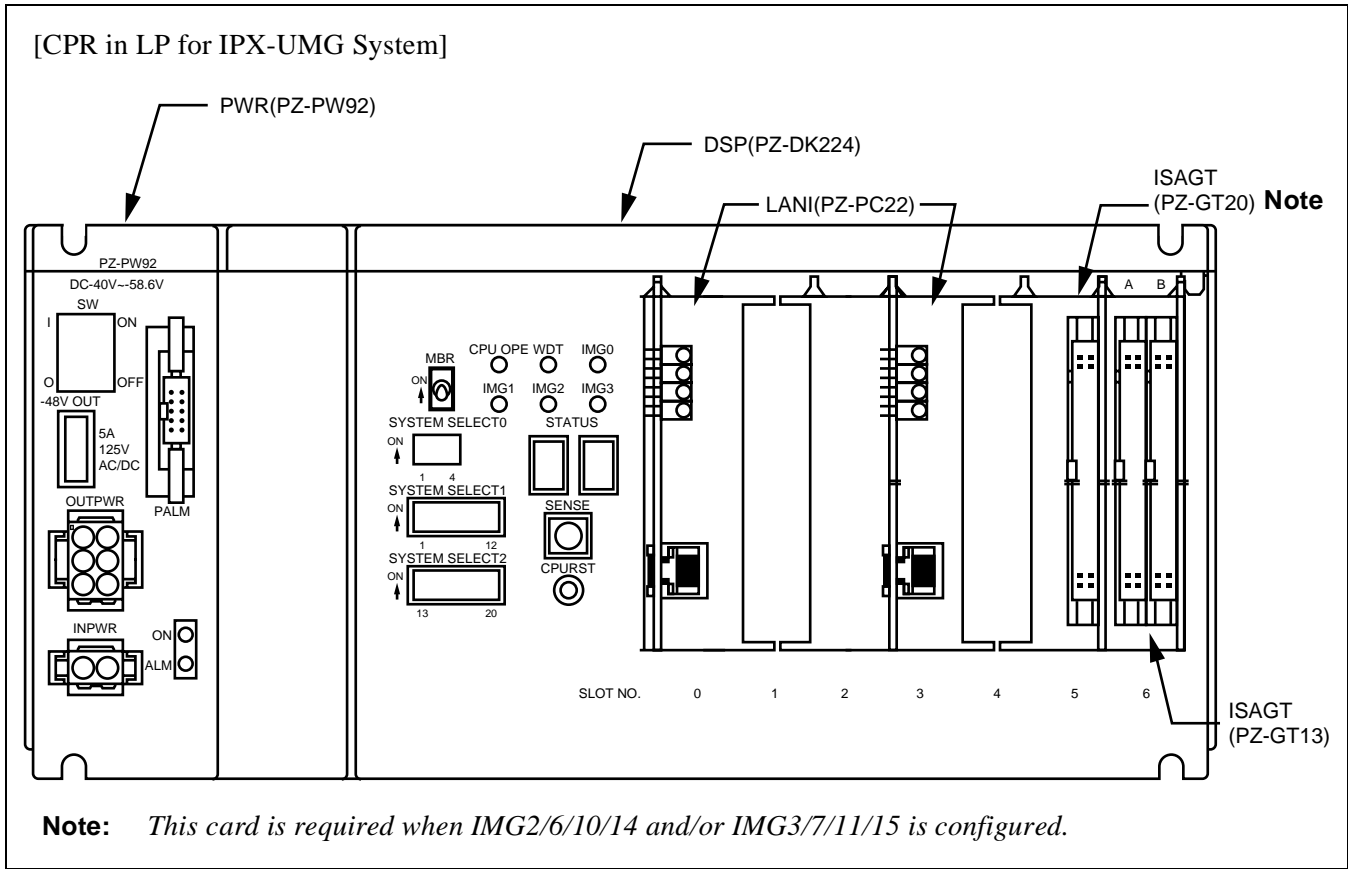


Figure 2-8 Front View of CPR in LP for IPX-UMG System

4. Lamp Indications

Lamp Indications vary depending on the node. The following shows the lamp indications for the CPR in the IMG for 1-IMG, 4-IMG, and IPX-U system.

[Lamp Indications for 1-IMG/4-IMG/IPX-U System]

LAMP NAME	COLOR	DESCRIPTION
ON (PWR)	Green	Lights green when the PWR is supplied.
ALM (PWR)	Red	Lights red when the PWR is abnormal.
HDD (FDD/HDD)	Red	Lights red while the HDD or FDD is being accessed.
WDT (DSP)	Red	Lights red when Watch-dog Timer (WDT) time-out has occurred.
CPU OPE (DSP)	Green	Lights green when the CPU is in active state.
CPU OPE (DSP)	Green	Lights green when the CPU is in active state.
IMG0 (DSP)	Green	Flashes green when PZ-GT13 (located in Slot 6) is in operation.
IMG1 (DSP)	Green	Flashes green when IMG1 is mounted. <b>Note</b>
IMG2 (DSP)	Green	Flashes green when IMG2 is mounted. <b>Note</b>
IMG3 (DSP)	Green	Flashes green when IMG3 is mounted. <b>Note</b>

**Note:** No lamp indication in STBY mode.

The following shows lamp indications for the CPR in the ISW.

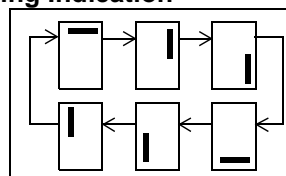
LAMP NAME	COLOR	DESCRIPTION
ON (PWR)	Green	Lights green when the PWR is supplied.
ALM (PWR)	Red	Lights red when the PWR is abnormal.
HDD (FDD/HDD)	Red	Lights red while the HDD or FDD is being accessed.
WDT (DSP)	Red	Lights red when Watch-dog Timer (WDT) time-out has occurred.
CPU OPE (DSP)	Green	Lights green when the CPU of the ISW is in active state.
IMG0 (DSP)	Green	Lights green when the CPU of the ISW is in active state.
		Flashes green when the CPU of the ISW is in stand-by state.
IMG1 (DSP)	Green	Lights green when the TSW1 of the ISW is used. <b>Note</b>
IMG2 (DSP)	Green	Lights green when the TSW2 of the ISW is used. <b>Note</b>
IMG3 (DSP)	Green	Lights green when the TSW3 of the ISW is used. <b>Note</b>

**Note:** No lamp indication in STBY mode.

LAMP NAME	DESCRIPTION			
STATUS (DSP)	Two sets of "7-segment LED" show the CPR processing status. The CPR processing status is determined by the SENSE switch settings, and the new processing status starts when the CPURST switch is pressed. The 7-segment LED indication on each CPR processing status is listed below.			
	SENSE	STATUS		DESCRIPTION
		LEFT	RIGHT	
	1	Not used	"F" "c" "d"	1. When Program Install The HD in the CPR is initialized and the program is installed. (These three processes execute) "F" indicated during HD format. "c" indicated when copying data from FD to HD "d" indicated while making the directory on the HD
		Not used	"1"	2. When Program Load After program installation, the program should be transferred from the HD to memory. "1" is indicated during this process.
		"0-9"	"0-9"	3. On-line active CPR The active CPR which is in ON LINE status indicates the CPU occupancy rate by percentage. (00-99%)
	2	Not used	"S" "b" "y"	4. On-line stand-by CPR The stand-by CPR which is in ON LINE status indicates "S," "b," "y"
		Not used	"1" → "0"	5. Program & Office data load "1" indicated during the Program and Office data transfer from the HD to the memory "0" indicated during the Office data load
	3	Not used	"c"	"c" indicated when copying the data from FD to HD
	4	Not used	"d"	"d" indicated while making the directory on the HD
5	Not used	"1" → "0"	The CPR is starting-up with ON LINE (OAI memory clear restart). "1" indicated during the Program load. "0" indicated during the process.	
6	Not used	"F"	"F" indicated during HD format.	
C	Not used	"H"	The CPR is starting-up OFF LINE. "H" indicated during the ROM data loading.	

**Note:** The segment spinning indication shows a processing status has completed successfully, or "E" indicates the processing failed.

**Segment Spinning Indication**



The following shows the lamp indication for the CPR in the SP, CMP, and LP for IPX-UMG system.

[Lamp Indications for the CPR in SP]

LAMP NAME	COLOR	DESCRIPTION
ON (PWR)	Green	Lights green when the PWR is supplied.
ALM (PWR)	Red	Lights red when the PWR is abnormal.
HDD (FDD/HDD)	Red	Lights red while the HDD or FDD is being accessed.
WDT (DSP)	Red	Lights red when Watch-dog Timer (WDT) time-out has occurred.
CPU OPE (DSP)	Green	Lights green when the CPU of the SP is in active state.
IMG0 (DSP)	Green	Remains OFF when the CPU is in active state.
		Flashes green when the CPU is in stand-by state.
IMG1 (DSP)	Green	Not used.
IMG2 (DSP)	Green	Not used.
IMG3 (DSP)	Green	Not used.

[Lamp Indications for the CPR in CMP]

LAMP NAME	COLOR	DESCRIPTION
ON (PWR)	Green	Lights green when the PWR is supplied.
ALM (PWR)	Red	Lights red when the PWR is abnormal.
WDT (DSP)	Red	Lights red when Watch-dog Timer (WDT) time-out has occurred.
CPU OPE (DSP)	Green	Lights green when the CPU of the CMP is in active state.
IMG0 (DSP)	Green	Lights green when the CPU is in active state.
		Flashes green when the CPU is in stand-by state.
IMG1 (DSP)	Green	Lights green when the TSW1 in the ISWM of CMG is used. <b>Note</b>
IMG2 (DSP)	Green	Lights green when the TSW2 in the ISWM of CMG is used. <b>Note</b>
IMG3 (DSP)	Green	Lights green when the TSW3 in the ISWM of CMG is used. <b>Note</b>

**Note:** *No lamp indication in STBY mode.*



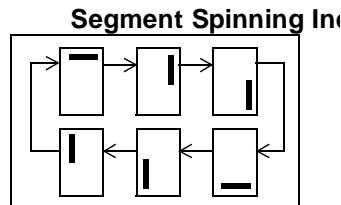
[Lamp Indications for the CPR in LP]

LAMP NAME	COLOR	DESCRIPTION
ON (PWR)	Green	Lights green when the PWR is supplied.
ALM (PWR)	Red	Lights red when the PWR is abnormal.
WDT (DSP)	Red	Lights red when Watch-dog Timer (WDT) time-out has occurred.
CPU OPE (DSP)	Green	Lights green when the CPU is in active state.
IMG0 (DSP)	Green	Flashes green when PZ-GT13 (located in Slot 6) is in operation.
IMG1 (DSP)	Green	Flashes green when IMG1/5/9/13 is mounted. <b>Note</b>
IMG2 (DSP)	Green	Flashes green when IMG2/6/10/14 is mounted. <b>Note</b>
IMG3 (DSP)	Green	Flashes green when IMG3/7/11/15 is mounted. <b>Note</b>

**Note:** *No lamp indication in STBY mode.*

LAMP NAME	DESCRIPTION				
STATUS (DSP)	Two sets of "7-segment LED" show the CPR processing status. The CPR processing status is determined by the SENSE switch settings, and the new processing status starts when the CPURST switch is pressed. The 7-segment LED indication on each CPR processing status is listed below.				
	SENSE	STATUS		DESCRIPTION	
		LEFT	RIGHT		
	0	"0-9"	"0-9"	1. On-line active CPR The active CPR which is in ON LINE status indicates the CPU occupancy rate by percentage. (00-99%)	When the "EMA SUP" switch is "OFF" on the PH-PC43 (EMA) card.
	Not used	Not used	"S" "b" "y"	2. On-line stand-by CPR The stand-by CPR which is in ON LINE status indicates "S," "b," "y"	
	Not used	Not used	"0-F"	3. Both active and stand-by CPR The setting of SENSE switch is indicated.	When the "EMA SUP" switch is "ON" on the PH-PC43 (EMA) card.
	Not used	Not used	"1" → "0"	4. Program & Office data load "1" indicated during the Program and Office data transfer from the HD to the memory "0" indicated during the Office data load	
	1	Not used	"F" "c" "d"	1. When Program Install The HD in the CPR is initialized and the program is installed. (These three processes execute) "F" indicated during HD format. "c" indicated when copying data from FD (Basic Software #1) to HD "d" indicated while making the directory on the HD	
	Not used	Not used	"1"	2. When Program Load After program installation, the program should be transferred from the HD to memory. "1" is indicated during this process.	
	3	Not used	"c"	"c" indicated when copying the data from FD to HD	
5	Not used	"1" → "0"	The CPR is starting-up with ON LINE (OAI memory clear restart). "1" indicated during the Program load. "0" indicated during the process.		
C	Not used	"H"	The CPR is starting-up OFF LINE. "H" indicated during the ROM data loading.		

**Note:** The segment spinning indication shows a processing status has completed successfully, or indicates "E" meaning the processing failed.



5. Switch Settings

[for 1-IMG/4-IMG/IPX-U System]

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW (PWR)	—	ON	×	PWR is supplied to the CPR.
		OFF		PWR is not supplied to the CPR.
MB <b>Note</b> (FDD/HDD)	—	ON (Up)		Make-busy of the FDD/HDD.
		OFF (Down)	×	Normal setting.
MBR (DSP)	—	ON (Up)		Make-busy Request of the CPR in which GT is located.
		OFF (Down)	×	Normal setting.
CPURST (DSP)	—	—		Execute the CPR processing according to the SENSE setting.
SYSTEM SELECT0 (DSP)	1	OFF	×	Not used.
	2	OFF	×	Not used.
	3	OFF	×	Not used.
	4	ON		Watchdog Timer time-out is not detected.
		OFF	×	Watchdog Timer time-out is detected.
SYSTEM SELECT1 (DSP)	1	ON		PCI Card (Slot 0) MBR ON.
		OFF		PCI Card (Slot 0) MBR OFF.
	2	ON		PCI Card (Slot 1) MBR ON.
		OFF		PCI Card (Slot 1) MBR OFF.
	3	ON		PCI Card (Slot 2) MBR ON.
		OFF		PCI Card (Slot 2) MBR OFF.
	4	ON		PCI Card (Slot 3) MBR ON.
		OFF		PCI Card (Slot 3) MBR OFF.
	5~7	OFF	×	Fixed to "OFF."
	8	ON		IPX-U System
OFF			1IMG/4IMG System	
SYSTEM SELECT2 (DSP)	1~8	OFF	×	Not used.

**Note:** *Make-busy of this circuit card is not allowed while the Floppy Disk Drive or Hard Disk Drive is being accessed.*

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
SENSE (DSP) Note	1		The following three processes are executed at the FDD/HDD. <ul style="list-style-type: none"> <li>• HD formatted</li> <li>• File copied from FDD to HD</li> <li>• Directory created on the HD</li> </ul>
	2	×	On-line mode.
	3		File copied from FDD to HD within the FDD/HDD.
	4		Directory created on the HD of the FDD/HDD.
	5		OAI memory cleared, and the CPR started up in ON LINE mode by loading the ROM data.
	6		HD format of the FDD/HDD.
	C		The CPR starts up in OFF LINE mode by loading the ROM data.

**Note:** *The SENSE switch designates the CPR processing status. The new processing status starts when the CPRRST switch on the DSP is pressed while setting the SENSE switch.*

[for IPX-UMG System]

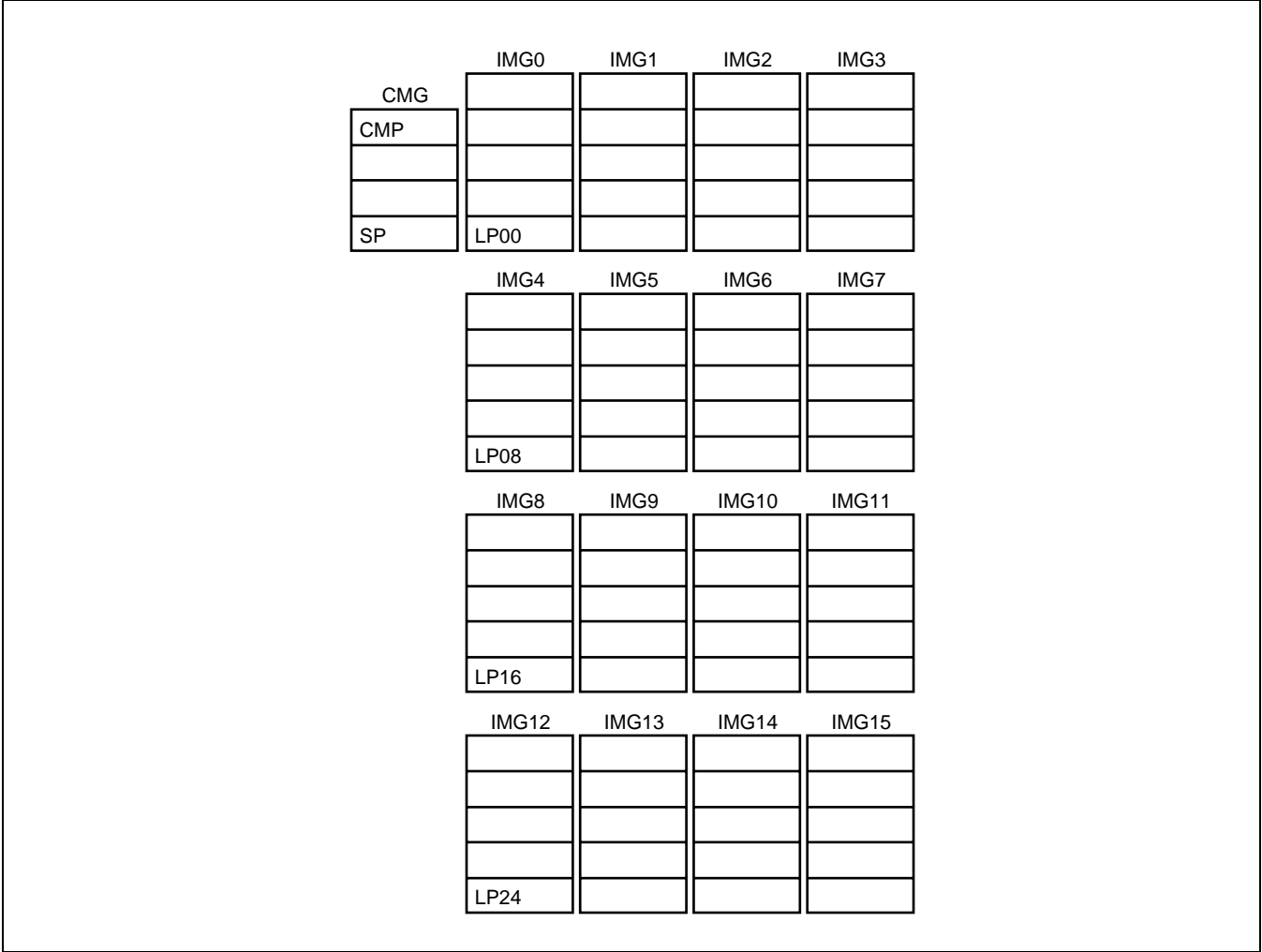
SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW (PWR)	—	ON	×	PWR is supplied to the CPR.
		OFF		PWR is not supplied to the CPR.
MB <b>Note</b> (FDD/HDD)	—	ON (Up)		Make-busy of the FDD/HDD.
		OFF (Down)	×	Normal setting.
MBR (DSP)	—	ON (Up)		Make-busy Request of the CPR in which GT is located.
		OFF (Down)	×	Normal setting.
CPURST (DSP)	—	—		Execute the CPR processing according to the SENSE setting.
SYSTEM SELECT0 (DSP)	1	ON	×	Fixed to “ON.”
	2	OFF	×	Fixed to “OFF.”
	3	ON		High Density system configuration (one LP controls two IMGs)
		OFF	×	Standard system configuration (one LP controls four IMGs)
	4	ON		Watchdog Timer time-out is not detected.
		OFF	×	Watchdog Timer time-out is detected.
SYSTEM SELECT1 (DSP)	1	ON		PCI Card (Slot 0) MBR ON.
		OFF		PCI Card (Slot 0) MBR OFF.
	2	ON		PCI Card (Slot 1) MBR ON.
		OFF		PCI Card (Slot 1) MBR OFF.
	3	ON		PCI Card (Slot 2) MBR ON.
		OFF		PCI Card (Slot 2) MBR OFF.
	4	ON		PCI Card (Slot 3) MBR ON.
		OFF		PCI Card (Slot 3) MBR OFF.
5~7	OFF	×	Fixed to “OFF.”	
8	ON	×	Fixed to “ON.”	

**Note:** *Make-busy of this circuit card is not allowed while the Floppy Disk Drive or Hard Disk Drive is being accessed. This switch is used on the CPR mounted in SP only.*

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																						
SYSTEM SELECT2 (DSP)	1~4	OFF	×	Not used.																																																						
	5~8			Physical PBI Number (Equipment Number) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>SW5</th> <th>SW6</th> <th>SW7</th> <th>SW8</th> <th>PBI No.</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>PBI 02 (SP)</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>PBI 04 (CMP)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>PBI 30 (LP 00)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>PBI 38 (LP 04) <b>Note</b></td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>PBI 40 (LP 08)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>ON</td> <td>PBI 48 (LP 12) <b>Note</b></td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>PBI 50 (LP 16)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>ON</td> <td>PBI 58 (LP 20) <b>Note</b></td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>PBI 60 (LP 24)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>PBI 68 (LP 28) <b>Note</b></td> </tr> </tbody> </table> <p><b>Note 1:</b> <i>Physical PBI No. must be the same on the CPR of system #0 and #1 in dual configuration.</i></p> <p><b>Note 2:</b> <i>This setting is required when the system applies High Density system configuration (i.e., a LP controls two IMGs) only.</i></p>	SW5	SW6	SW7	SW8	PBI No.	ON	ON	ON	ON	PBI 02 (SP)	ON	ON	ON	OFF	PBI 04 (CMP)	OFF	OFF	OFF	OFF	PBI 30 (LP 00)	OFF	OFF	OFF	ON	PBI 38 (LP 04) <b>Note</b>	OFF	OFF	ON	OFF	PBI 40 (LP 08)	OFF	OFF	ON	ON	PBI 48 (LP 12) <b>Note</b>	OFF	ON	OFF	OFF	PBI 50 (LP 16)	OFF	ON	OFF	ON	PBI 58 (LP 20) <b>Note</b>	OFF	ON	ON	OFF	PBI 60 (LP 24)	OFF	ON	ON	ON
SW5	SW6	SW7	SW8	PBI No.																																																						
ON	ON	ON	ON	PBI 02 (SP)																																																						
ON	ON	ON	OFF	PBI 04 (CMP)																																																						
OFF	OFF	OFF	OFF	PBI 30 (LP 00)																																																						
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OFF	ON	OFF	ON	PBI 58 (LP 20) <b>Note</b>																																																						
OFF	ON	ON	OFF	PBI 60 (LP 24)																																																						
OFF	ON	ON	ON	PBI 68 (LP 28) <b>Note</b>																																																						

**Note:** This switch setting is valid when the “EMA SUP” switch is ON (UP side).

**Note:** Refer to the following figure and table for the PBI Number and the Equipment Number for IPX-UMG system. The same PBI Number must be assigned to both #0 and #1 processors in dual configuration.



Processor Name	PBI No.	CPU Accommodation	Equipment No.
SP	02	●	15
CMP	04	●	14
LP00 (IMG0)	30	●	0
LP08 (IMG4)	40	●	2
LP16 (IMG8)	50	●	4
LP24 (IMG12)	60	●	6

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
SENSE (DSP) <b>Note 1</b>	0 <b>Note 2</b>	×	On-line mode.
	1 <b>Note 2</b>		The following three processes are executed at the FDD/HDD. <ul style="list-style-type: none"> <li>• HD formatted</li> <li>• File copied from FDD to HD</li> <li>• Directory created on the HD</li> </ul>
	3 <b>Note 2</b>		File copied from FDD to HD/Connection Hold Restart. <b>Note 3</b>
	5 <b>Note 2</b>		OAI memory cleared, and the CPR started up in ON LINE mode by loading the ROM data.
	C <b>Note 2</b>		The CPR starts up in OFF LINE mode by loading the ROM data.

**Note 1:** *The SENSE switch designates the CPR processing status. The new processing status starts when the CPRRST switch on the DSP is pressed while setting the SENSE switch.*

**Note 2:** *This switch is used on the CPR mounted in SP only.*


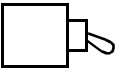
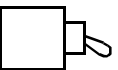
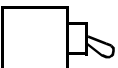
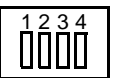
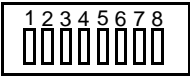
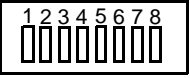

**Note 3:** *Connection Hold Restart is proceeded by initializing the system with the TOPU key.*



6. External Interface

See the NEAX2400 IPX Installation Manual.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
SW (PWR)	 ON OFF	
MB (PWR:PZ-PW106)	 ON ↑	
MB (FDD/HDD)	 ON ↑	
MBR (DSP)	 ON ↑	
SYSTEM SELECT0 (DSP)	 ON ↑	
SYSTEM SELECT1 (DSP)	 ON ↑	
SYSTEM SELECT2 (DSP)	 ON ↑	
SENSE (DSP)		

**PH-GT09**  
**Gate**

1. General Function

The PH-GT09 (GT) circuit card provides both the TSW I/O Local bus and the MISC bus interface. The CPR controls TSW, PLO, DLKC, and MISC via the ISAGT and GT.

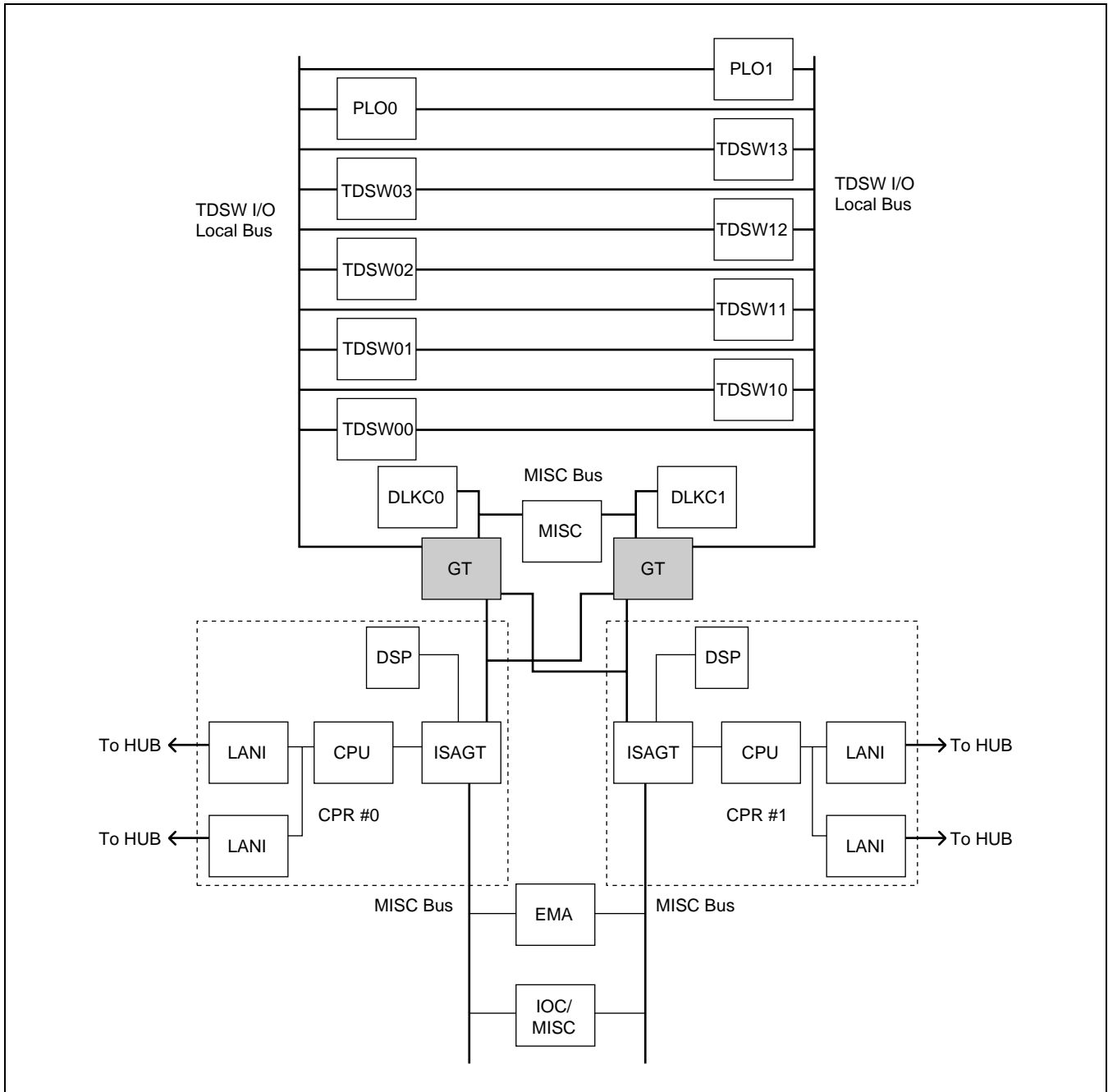


Figure 2-9 Location of PH-GT09 (GT) Card in the System

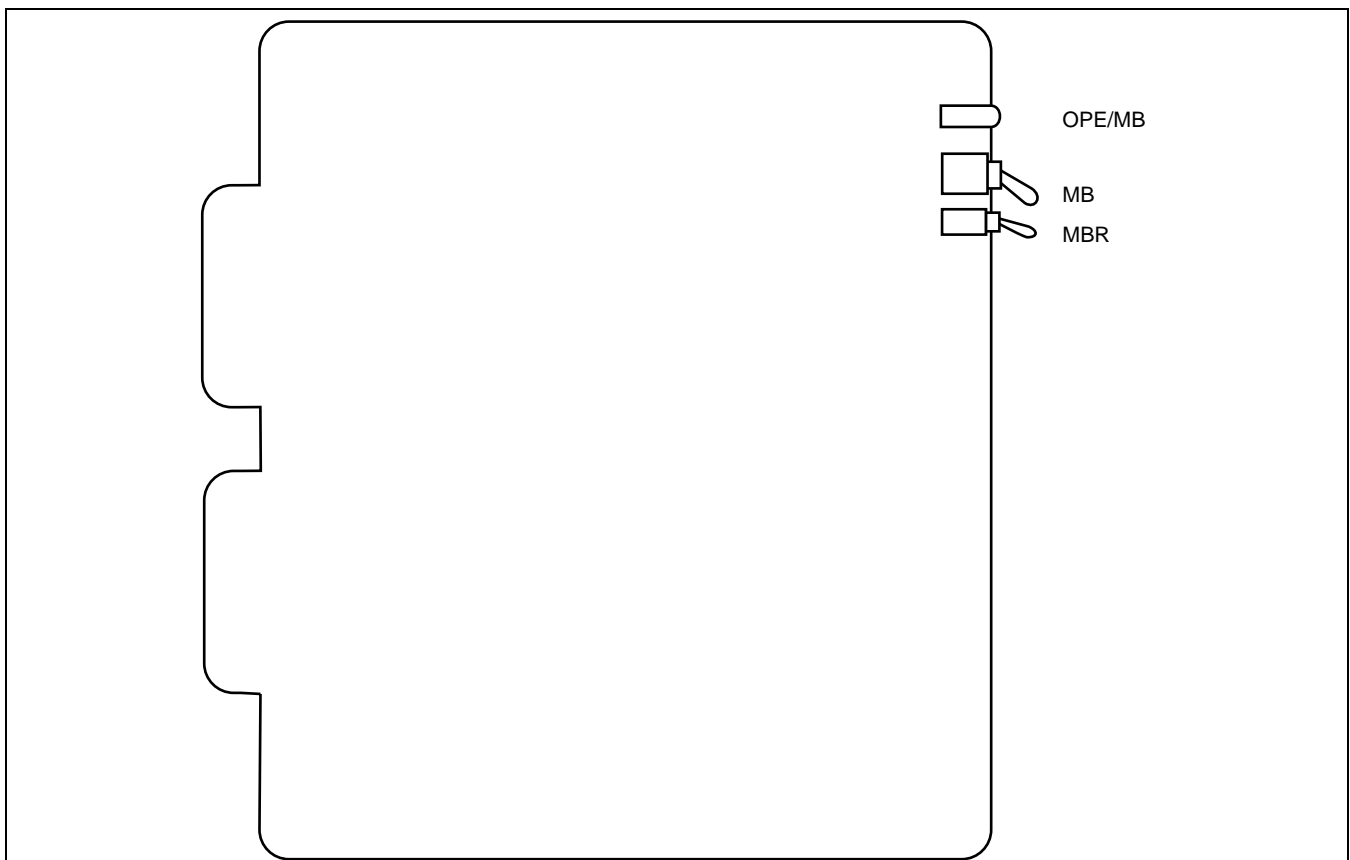
2. Mounting Location/Condition

This circuit card is mounted in the TSWM of the slot shown below.

Mounting Module										TSWM														
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
										GT0	GT1													

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 2-10](#).



**Figure 2-10 Face Layout of PH-GT09 (GT)**

**PH-GT09**

Gate

## 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE/MB	Green	Remains lit while this circuit card is in ACT state.

## 5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

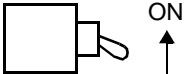
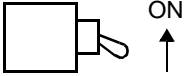
SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Make-busy of circuit card
	DOWN	×	Normal setting
MBR <b>Note</b>	UP		When the ACT side of GT's MBR switch is flipped, the ST-BY side of TSW, DLKC, and GT is forced to switch over the ACT side. (When the TSW is dual configuration.)
	DOWN	×	Normal setting.

**Note:** Prior to extracting the GT card, flip the MBR switch on and then flip the MB switch on.

## 6. External Interface

See the NEAX2400 IPX Installation Manual.

## 7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
MBR		

# PH-GT10 Input Output Gate

## 1. General Function

The PH-GT10 circuit card provides the TSW I/O bus interface allowing the CPU board to control the TSW, HSW, and PLO cards in the Inter-node Switch Module (ISWM) of the ISW/CMG. This circuit card also is equipped with the copy function to be consistent with the data of TSW I/O bus in both systems (single/dual). This circuit card is used for the IPX-U/IPX-UMG system.

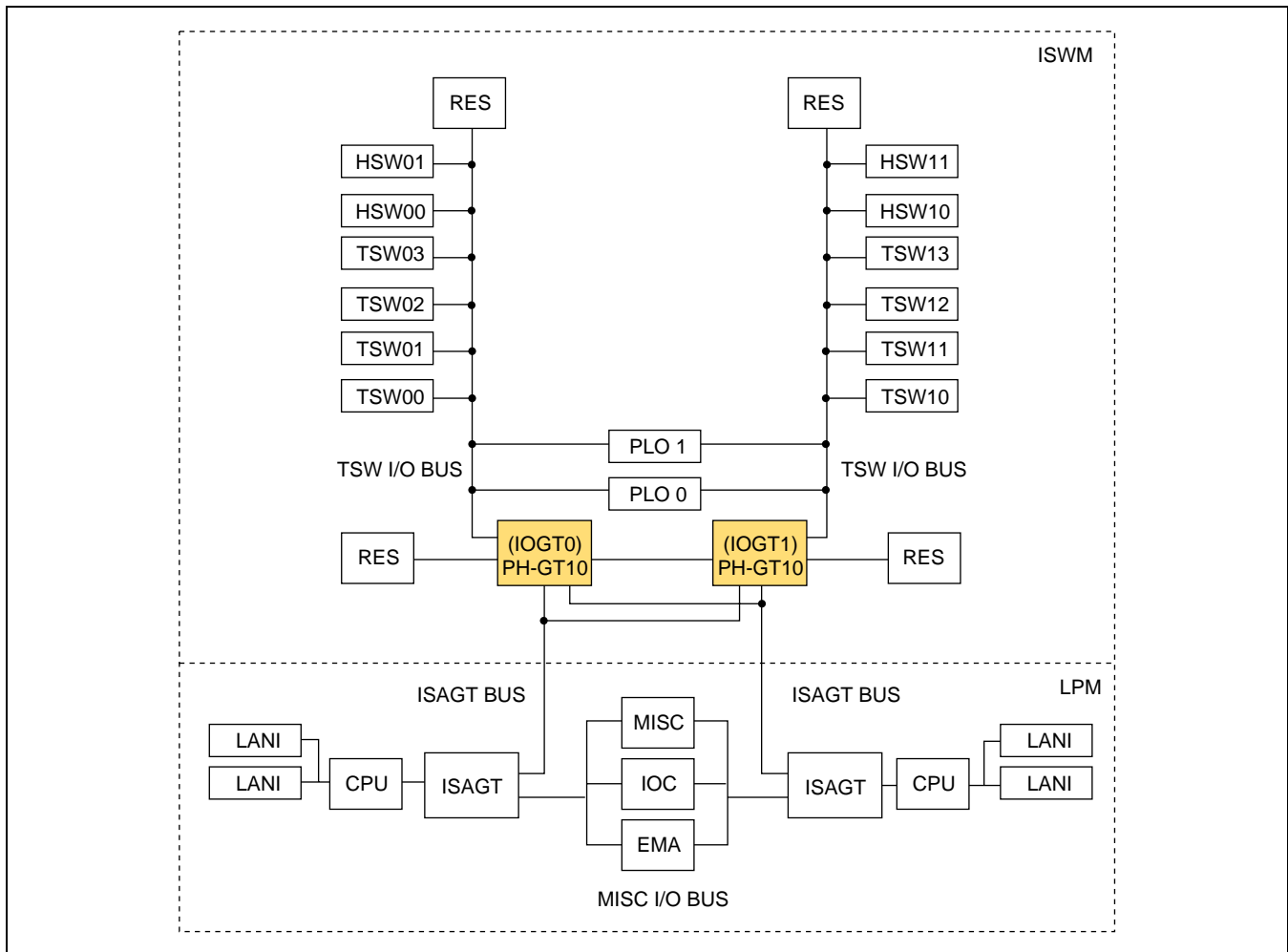
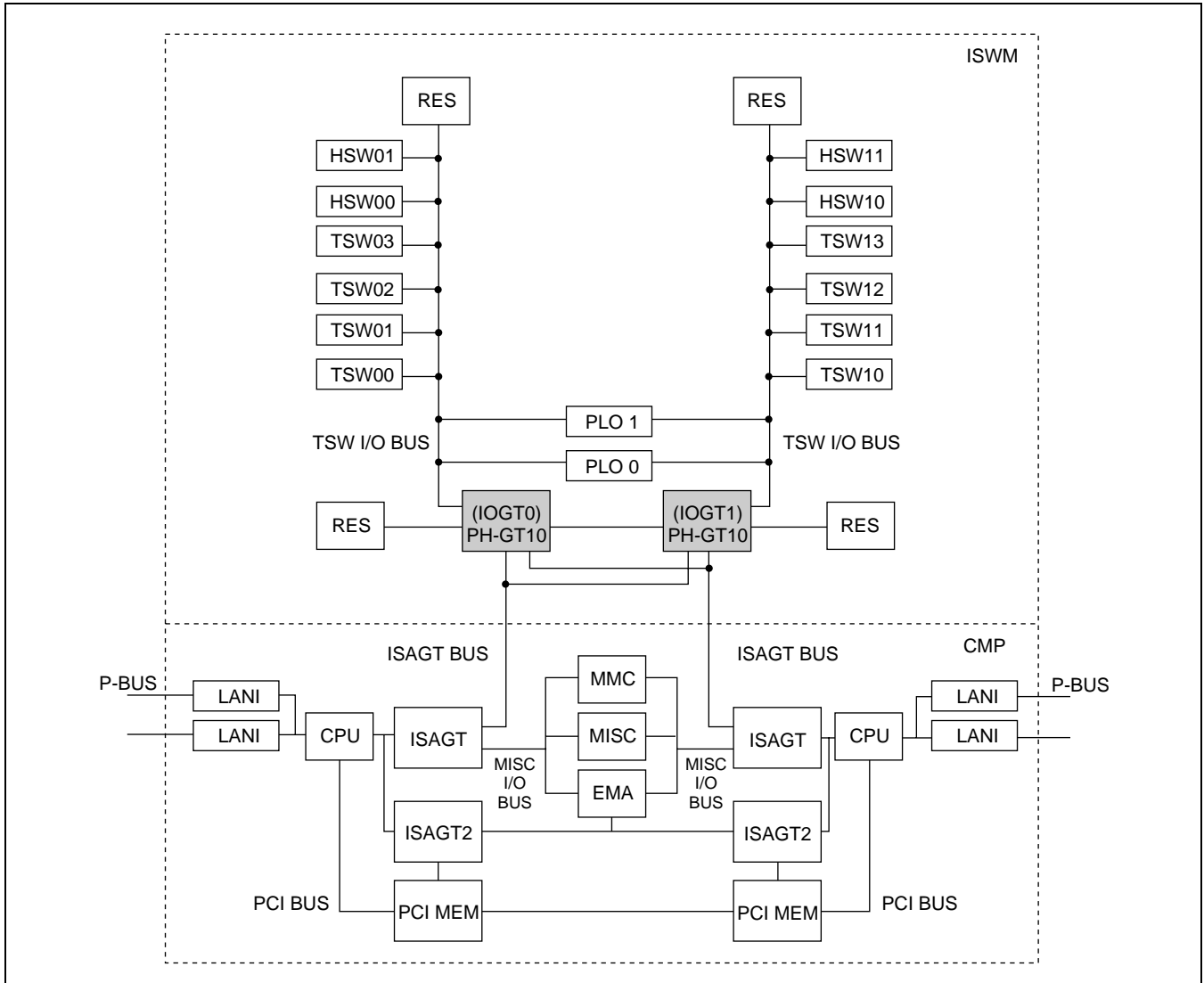


Figure 2-11 Location of PH-GT10 (IOGT) for IPX-U System



**Figure 2-12 Location of PH-GT10 (IOGT) for IPX-UMG System**

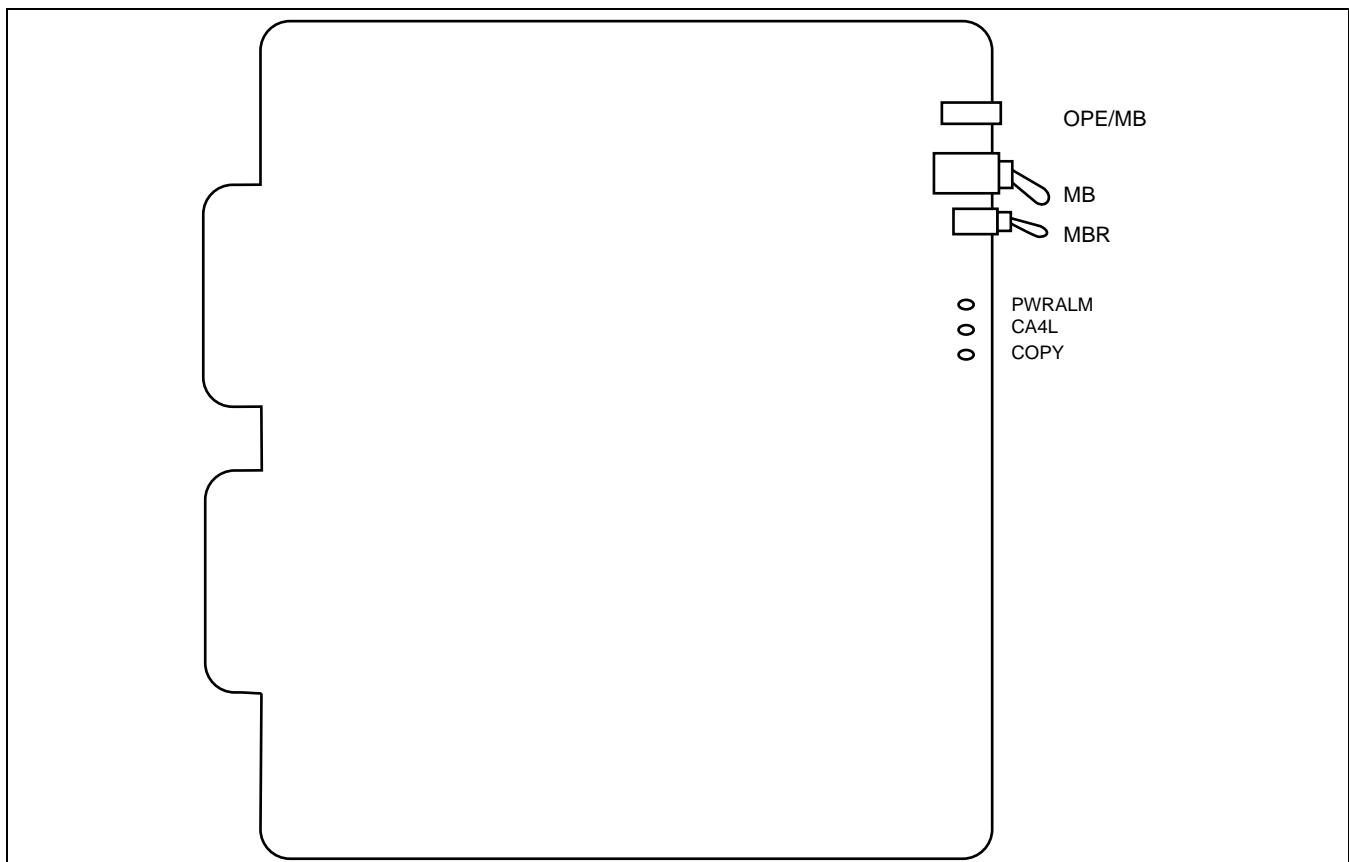
2. Mounting Location/Condition

This circuit card can be mounted in the shaded slots shown below.

Mounting Module		ISWM																						
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 2-13](#).



**Figure 2-13 Face Layout of PH-GT10 (IOGT)**

**PH-GT10**  
Input Output Gate

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	MEANING
OPE/MB	Green	Lights when this circuit card is in ACT state.
	OFF	This circuit card is in ST-BY state.
	Red	Lights when this circuit card is in Make-busy state.
PWRALM	Red	Lights when On-Board Power Supply for this circuit card is abnormal.
CA4L	Red	Lights when 4 MHz clock supplied for Local I/O Bus is faulty.
COPY	Green	Lights when this circuit card is in COPY mode.

5. Switch Settings

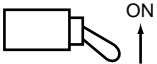
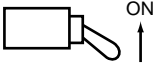
Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit Card Make-busy
	DOWN	×	Circuit Card Make-busy cancel
MBR	UP		Make-busy request
	DOWN	×	Make-busy request cancel

6. External Interface

See the NEAX2400 IPX Installation Manual.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
MBR		



## PA-PC94 Data Link Multiplexer

### 1. General Function

This circuit card mainly provides the two functions: 1) collection of BLF/TGBL information (associated with Attendant/Desk Console operation) from DLKC cards of all nodes in an IPX-U/IPX-UMG system, and 2) distribution of the collected data to ATI cards of all nodes. While a DLKC card can manage this processing solely on an accommodated node basis, the use of this card makes possible the BLF/TGBL management even on a system basis, via the Inter-node Switch (ISW). Note that this card is mounted in a PIM of any node, and if necessary, can have an optional dual configuration.

For details on BLF/TGBL information, refer to the following service features explained in the “Feature Programming Manual”.

- Busy Lamp Field-Flexible [B-2]
- Trunk Group Busy Lamp [T-9]

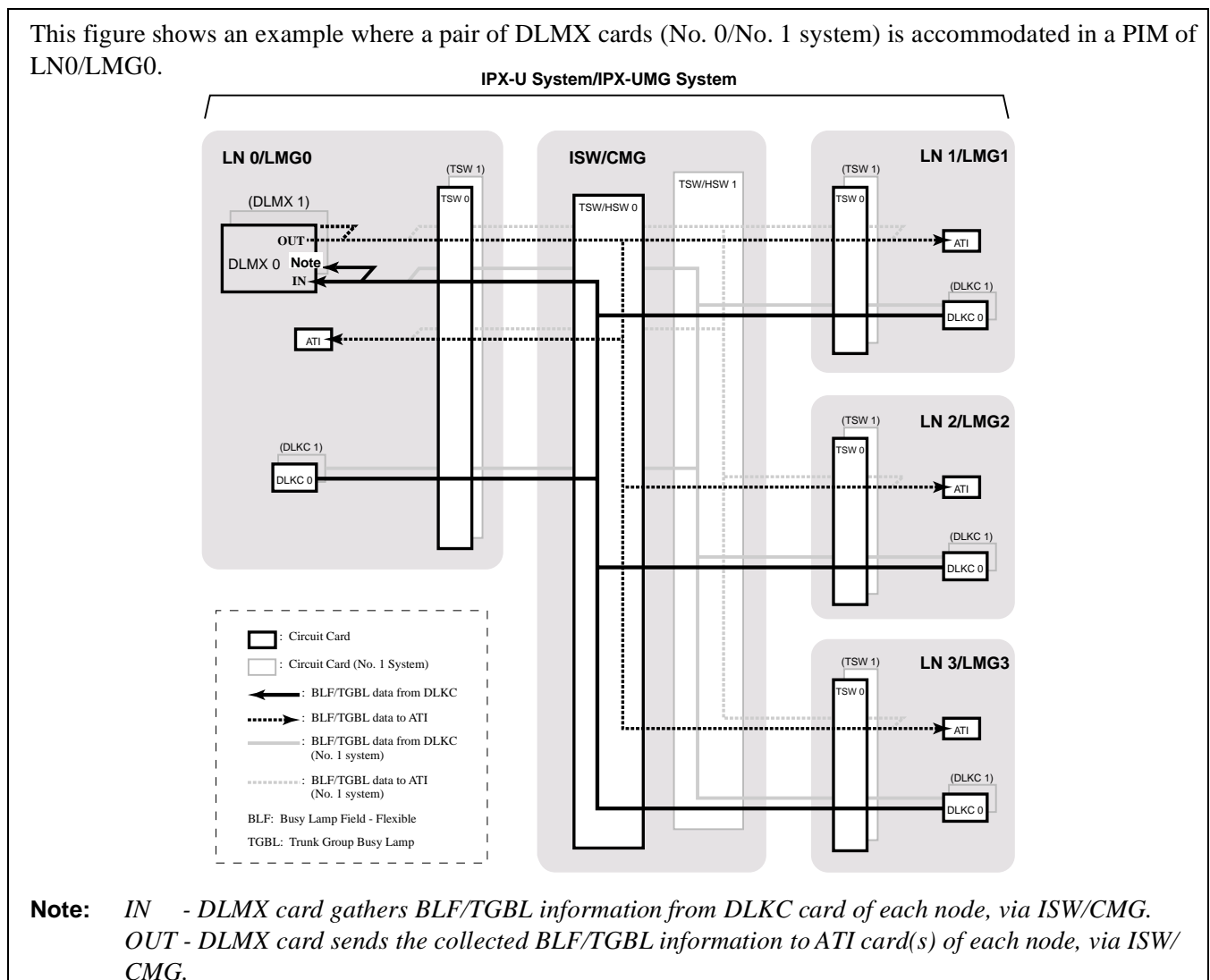
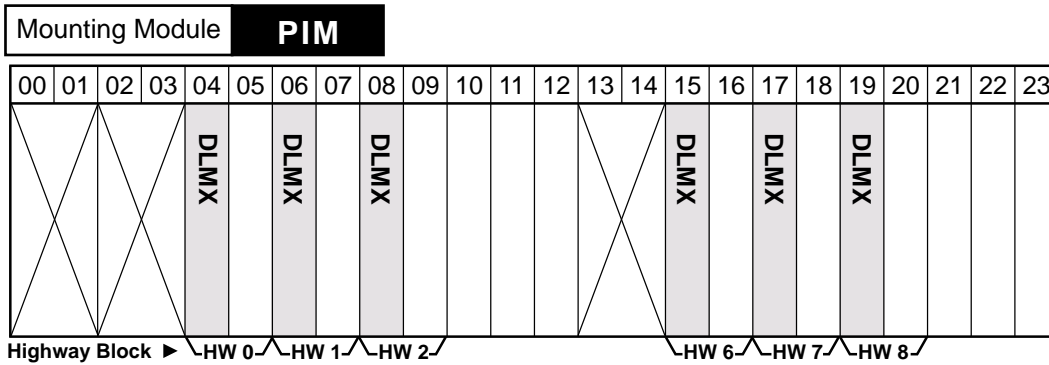


Figure 2-14 Location of PA-PC94 (DLMX)

2. Mounting Location/Condition

- When this circuit card is used in a single configuration.

Mount this circuit card in any of the shaded slots:

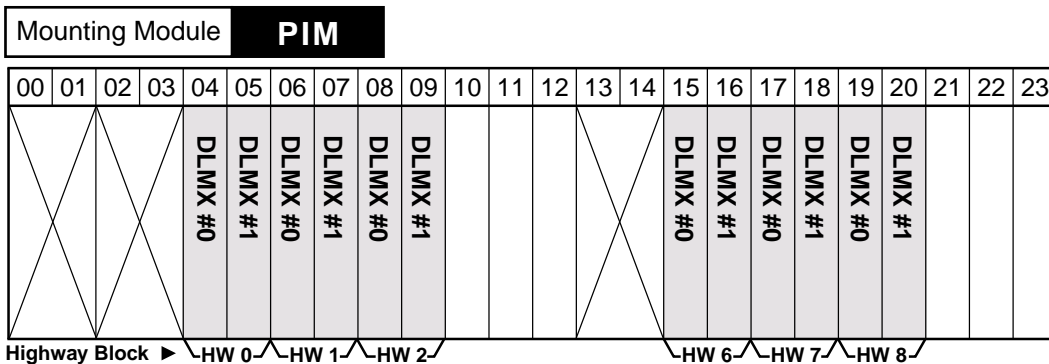


**Mounting Condition**

Mounting conditions of this circuit card are as follows:

1. This circuit card cannot be mounted in the slot 05, 07, 09, 10, 11, 12, 16, 18, 20, 21, 22, 23.
  2. This card is used in odd-number group (G) of the shaded slots above.
  3. To use this card, be sure to assign "RT=938" on the ATRK command.
  4. Do not mount another line/trunk circuit card in a slot adjoining the DLMX card within the same Highway Block (HW) (i.e. do not mount other line/trunk card in the right side of the slot where a DLMX card is mounted).
  5. Only one DLMX card can be mounted when the system is composed of single configuration.
- When this circuit card is used in a dual configuration.

Mount this circuit card in any of the shaded slots:



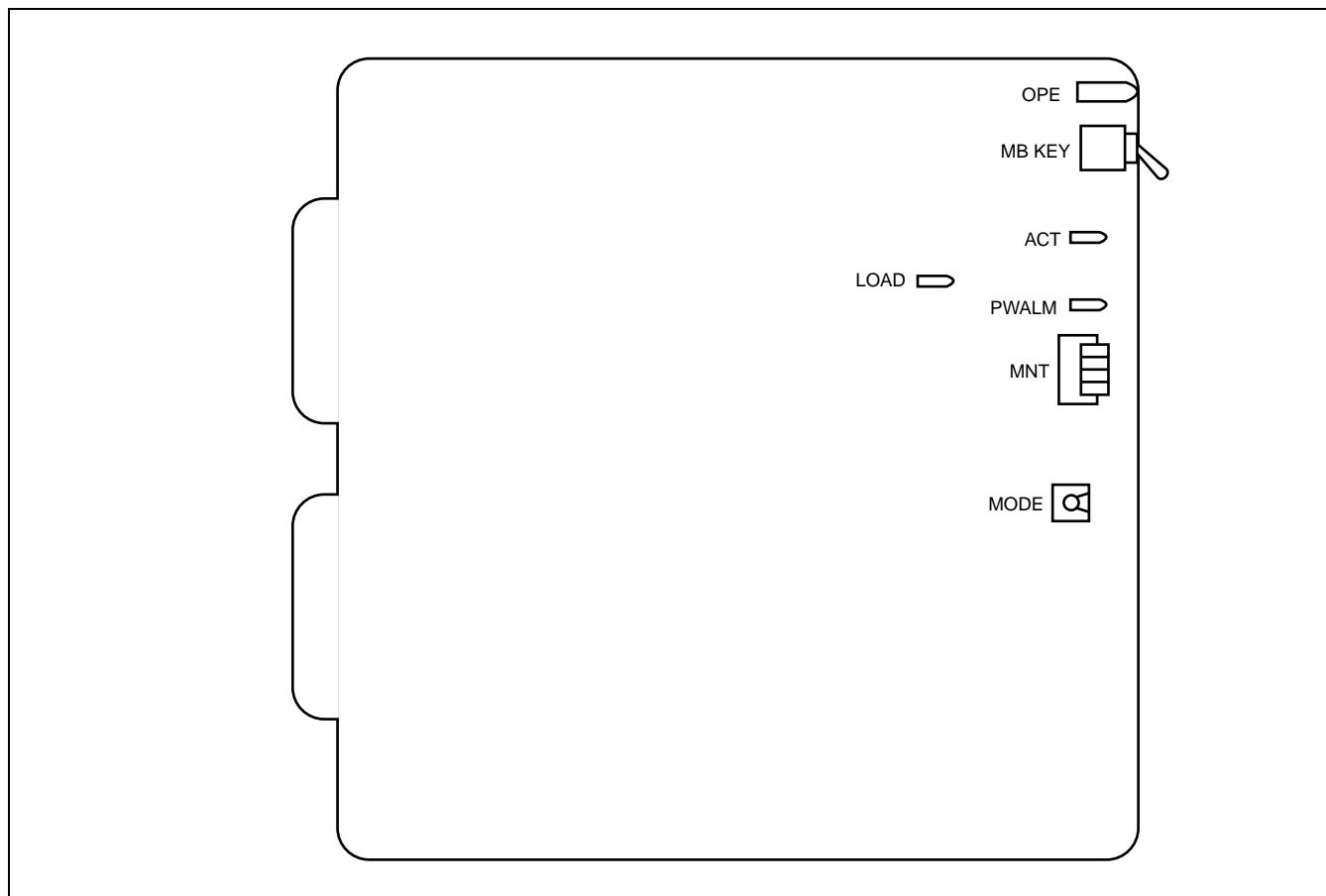
**Mounting Condition**

Mounting conditions of this circuit card are as follows:

1. A pair of DLMX card No. 0/No. 1 systems must be mounted in the same Highway Block (HW).
2. This circuit card cannot be mounted in 32-port slot (10, 11, 12, 21, 22, 23).
3. This card is used in odd-number group (G) of the shaded slots above.
4. To use this card, be sure to assign "RT=938" on the ATRK command.
5. A maximum two DLMX cards (a pair of DLMX card) can be mounted when the system is a dual configuration.

### 3. Face Layout of Lamps and Switches

The face layout of lamps and switches is shown below.



**Figure 2-15 Face Layout of PA-PC94 (DLMX)**

### 4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below:

**PA-PC94 Lamp Indications Reference**

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in normal operation.
ACT	Green	Lights when this circuit card is in a active state.
	OFF	Off when this circuit card is in a stand-by state.
LOAD	OFF	Not used.
PWALM	Red	Lights when OBP alarm

**PA-PC94**

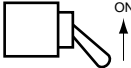
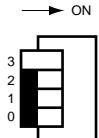

Data Link Multiplexer

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH No.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make-busy.
		DOWN		Circuit card make-busy cancel
MNT	0	OFF	×	Fixed to OFF.
	1	OFF	×	Fixed to OFF.
	2	OFF	×	Fixed to OFF.
	3	ON		Make-busy-request.
		OFF		Cancel the make-busy-request.
MODE	0		×	Standard setting. (TSW fixed connection)
	1-7			Not used.

6. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
MNT		
MODE		

## PA-PW54-A Dual Power

### 1. General Function

The PA-PW54-A (DPWR) circuit card supplies operating power to circuit cards located in the PIM. The -48 V input power source, which is converted to +5 V, -5 V, and +12 V, is distributed to each circuit card in the PIM. This card also has a Ringing Generator Unit (RGU), whose output frequency and voltage can be selected from 20 Hz, 25 Hz, 75 Vrms, 90 Vrms by switch setting on this card. In addition, a Howler Tone circuit resides on this card.

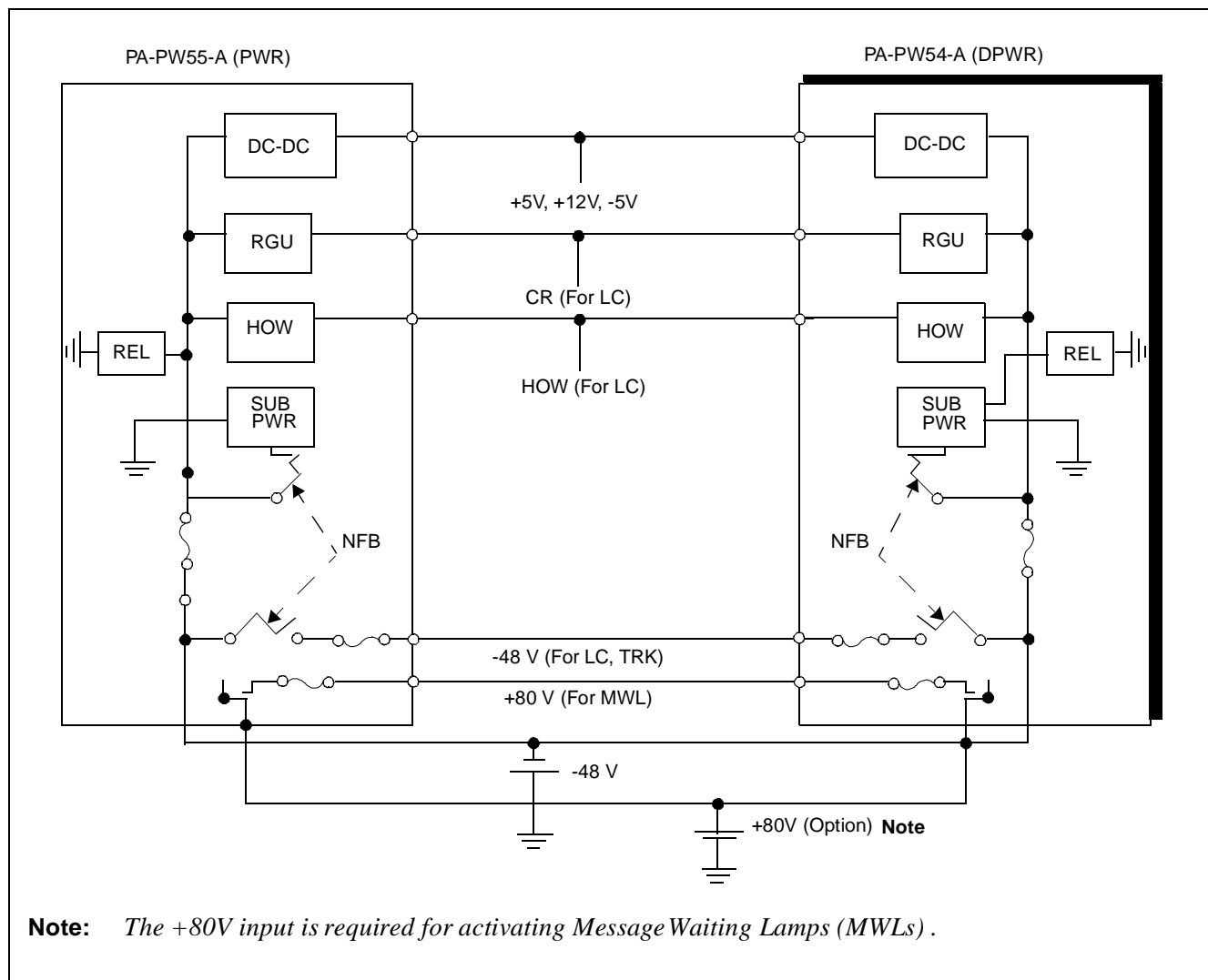


Figure 2-16 Location of PA-PW54-A (DPWR) Card in the System

**PA-PW54-A**  
Dual Power

2. Mounting Location/Conditions

This circuit card is mounted in the following slot.

Mounting Module		<b>PIM</b>																							
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
PIM		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)		DPWR (PA-PW54-A)	

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in Figure 2-17.

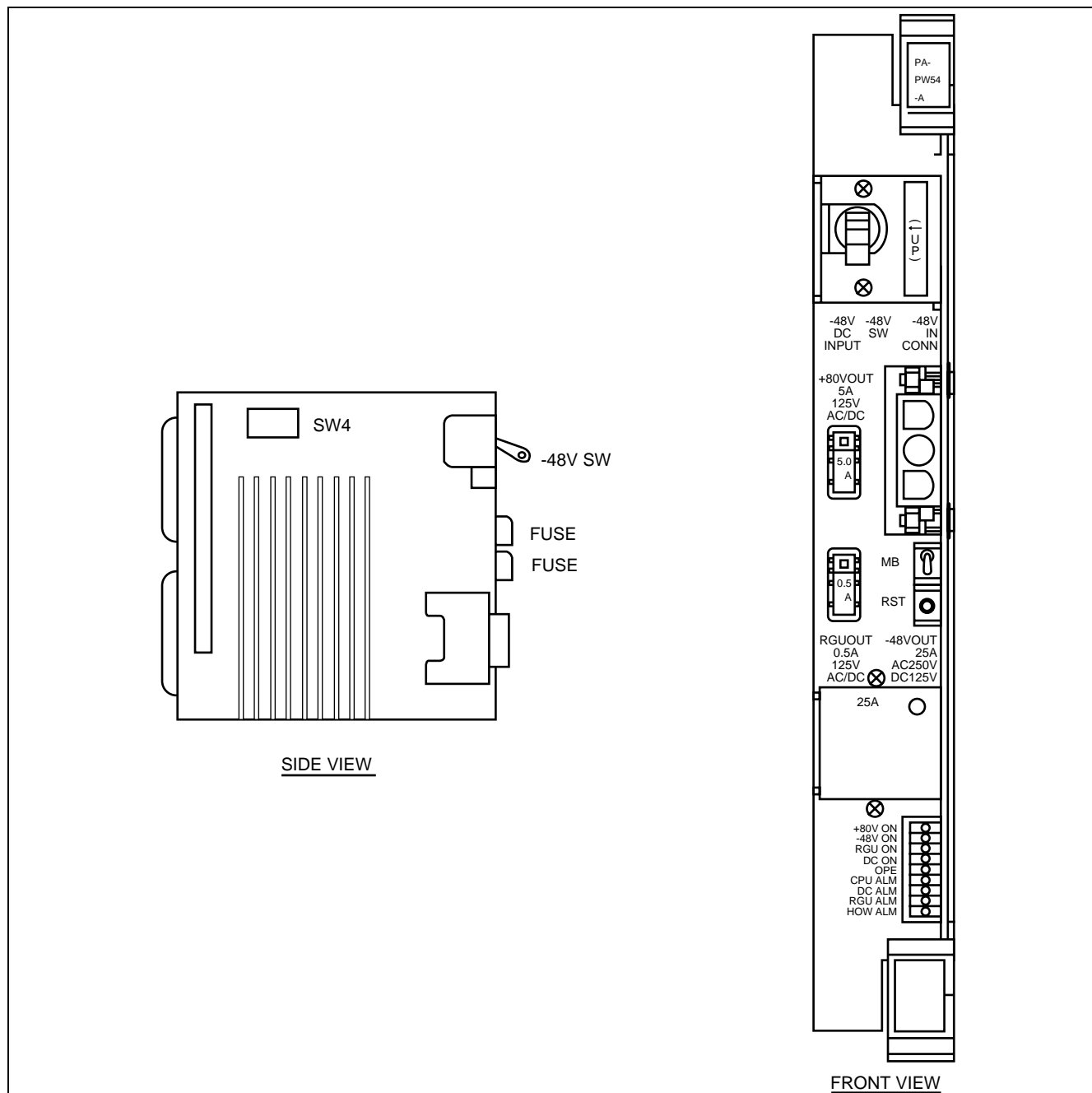


Figure 2-17 Face Layout of PA-PW54-A (DPWR) Card

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
+80V ON	Green	Remains lit while +80 V input power is being supplied.
-48 V ON	Green	Remains lit while -48 V input power is being supplied.
RGU ON	Green	Remains lit while RGU output is in progress.
DC ON	Green	Remains lit while +5 V, +12 V, and -5 V are being output normally.
OPE	Green	Lights when information exchange with the CPU is possible.
CPUALM	Red	Lights when reset of the microprocessor has been activated.
DCALM	Red	Lights when +5 V, +12 V, or -5 V outputs alarm.
RGUALM	Red	Lights when RGU voltage alarm.
HOWALM	Red	Lights when howler alarm.

5. Switch Settings

This circuit card has the following switches.

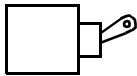
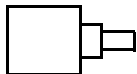
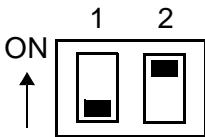
SWITCH NAME	SWITCH No.	SETTING	STANDARD SETTING	DESCRIPTION
-48V SW	—	ON	×	-48 V input power is supplied.
		OFF		-48 V input power is not supplied.
RESET	—	PUSH		Hardware reset of the circuit card.
		—	×	Normal setting.
MB	—	ON		Make-busy of the circuit card.
		OFF	×	Normal setting.
SW4	1	ON		Frequency of Ringing Signal :25 [Hz]
		OFF	×	Frequency of Ringing Signal :20 [Hz]
	2	ON	×	Voltage of Ringing Signal: 90 [Vrms]
		OFF		Voltage of Ringing Signal: 75 [Vrms]

6. External Interface

No cable connections are required.



7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
-48 V		
RESET		
MB	DOWN	Circuit card Make-busy cancel
SW4		20 [Hz] 90 [Vrms]

## PA-PW54-B Dual Power

### 1. General Function

The PA-PW54-B (DPWR) circuit card supplies operating power to circuit cards accommodated in the PIM. The -48V input power source, which is converted to +5V, -5V, and +12V, is distributed to each circuit card in the PIM. This card is also equipped with a Ringing Generator Unit (RGU), whose output frequency and voltage can be selected among 20Hz, 25Hz, 75Vrms, 90Vrms by switch setting on this card. In addition, a Howler Tone circuit resides on this card.

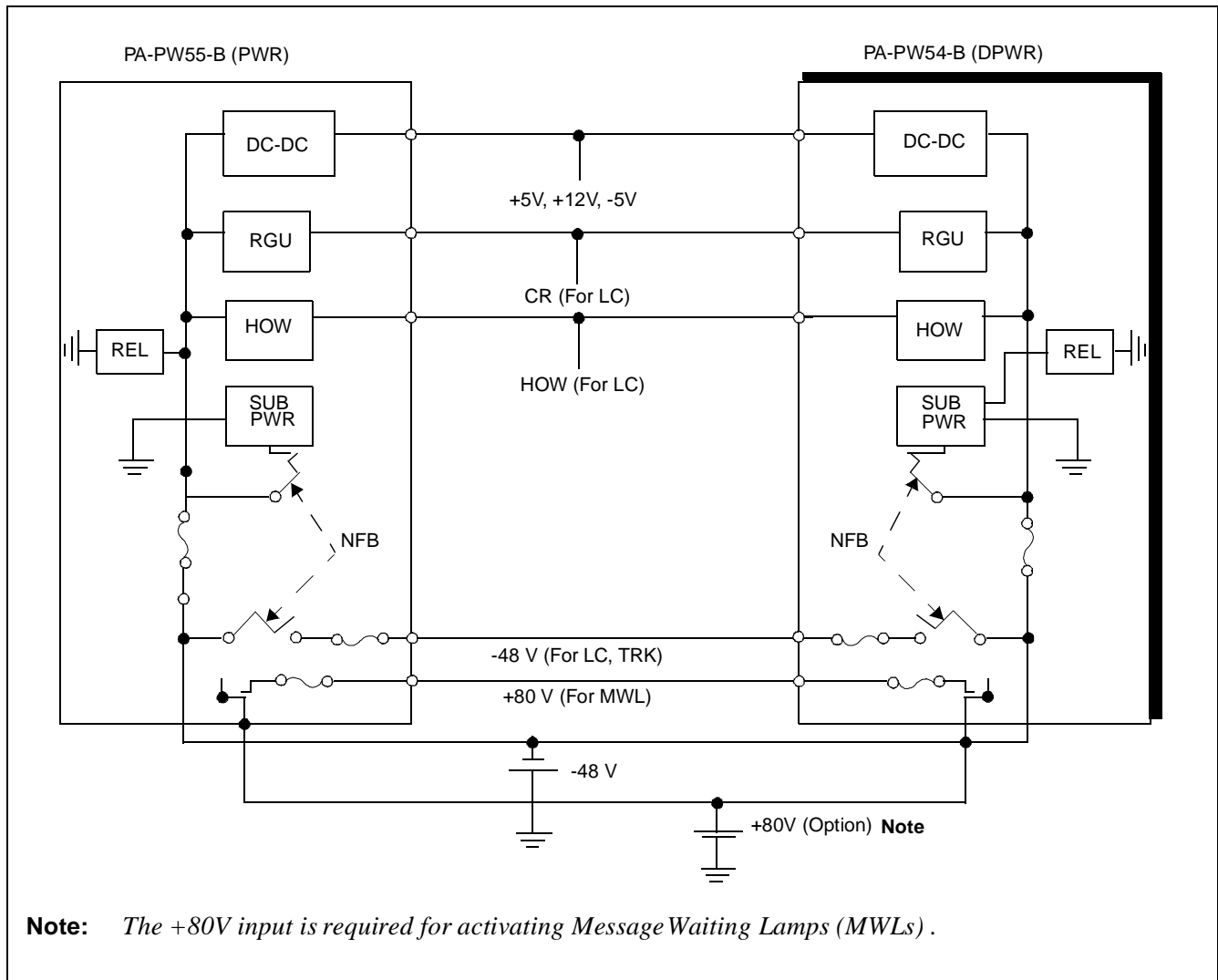


Figure 2-18 Location of PA-PW54-B (DPWR) Card within the System

2. Mounting Location/Conditions

This circuit card is mounted in the following slot.

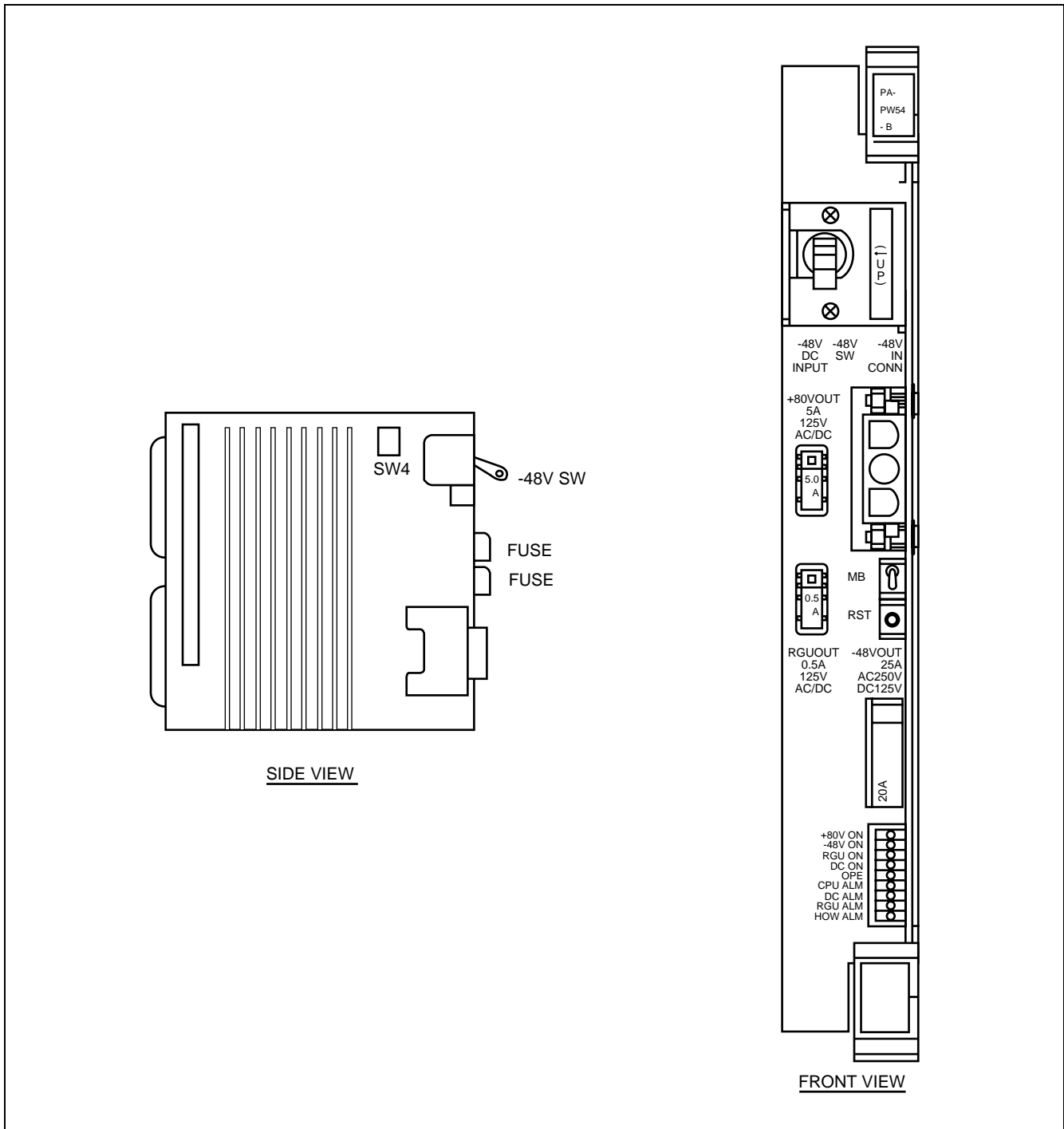
Mounting Module	<b>PIM</b>
-----------------	------------

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM	X		DPWR (PA-PW54-B)										X											

**PA-PW54-B**  
Dual Power

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 2-19](#).



**Figure 2-19 Face Layout of PA-PW54-B (DPWR) Card**

#### 4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
+80V ON	Green	Remains lit while +80 V input power is being supplied.
-48 V ON	Green	Remains lit while -48 V input power is being supplied.
RGU ON	Green	Remains lit while RGU output is in progress.
DC ON	Green	Remains lit while +5 V, +12 V, and -5 V are being output normally.
OPE	Green	Lights when information exchange with the CPU is possible.
CPUALM	Red	Lights when reset of the microprocessor has been activated.
DCALM	Red	Lights in the case of +5 V, +12 V, or -5 V outputs alarm.
RGUALM	Red	Lights in the case of RGU voltage alarm.
HOWALM	Red	Lights in the case of howler alarm.

#### 5. Switch Settings

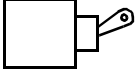
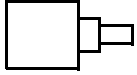
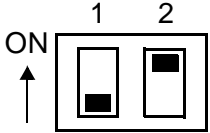
This circuit card has the following switches.

SWITCH NAME	SWITCH No.	SETTING	STANDARD SETTING	DESCRIPTION
-48V SW	—	ON	×	-48V input power is supplied.
		OFF		-48V input power is not supplied.
RESET	—	PUSH		Hardware reset of the circuit card.
		—	×	Normal setting
MB	—	ON		Make busy of the circuit card.
		OFF	×	Normal setting
SW4	1	ON		Frequency of Ringing Signal :25 [Hz]
		OFF	×	Frequency of Ringing Signal :20 [Hz]
	2	ON	×	Voltage of Ringing Signal: 90 [Vrms]
		OFF		Voltage of Ringing Signal: 75 [Vrms]

#### 6. External Interface

No cable connections are required.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
-48 V		
RESET		
MB	DOWN	Circuit card make busy cancel
SW4		20 [Hz] 90 [Vrms]

## PA-PW55-A Power

### 1. General Function

The PA-PW55-A (PWR) circuit card supplies operating power to circuit cards located in the PIM. The -48 V input power source, which is converted to +5 V, -5 V, and +12 V, is distributed to each circuit card in the associated PIM. This card also has a Ringing Generator Unit (RGU), whose output frequency and voltage can be selected from 20 Hz, 25 Hz, 75 Vrms, 90 Vrms by switch setting on this card. In addition, a Howler Tone circuit resides on this card.

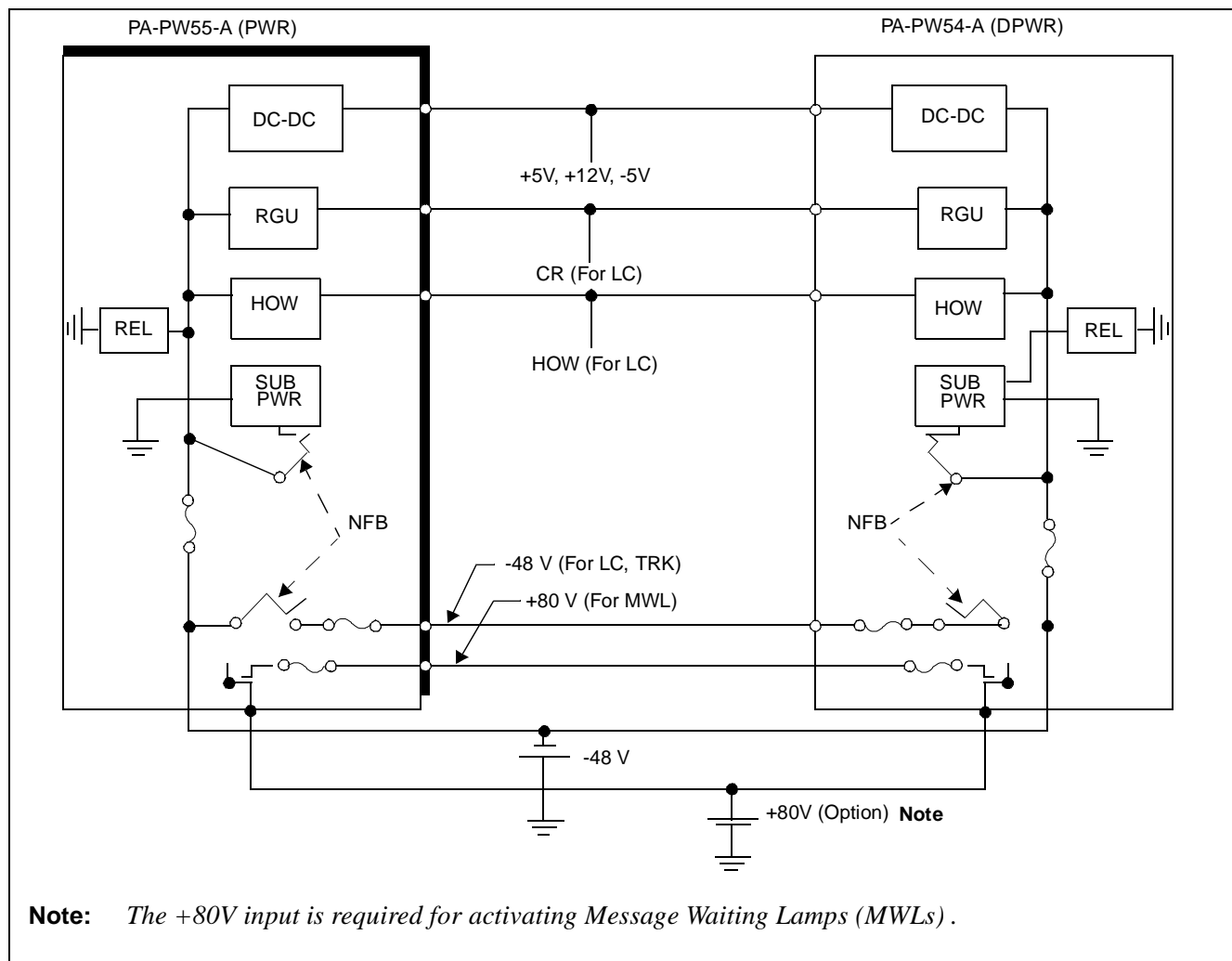


Figure 2-20 Location of PA-PW55-A (PWR) Card in the System

**PA-PW55-A**  
Power

2. Mounting Location/Conditions

This circuit card is mounted in the following slots.

Mounting Module		PIM																								
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
PIM	PWR (PA-PW55-A)																									



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown below.

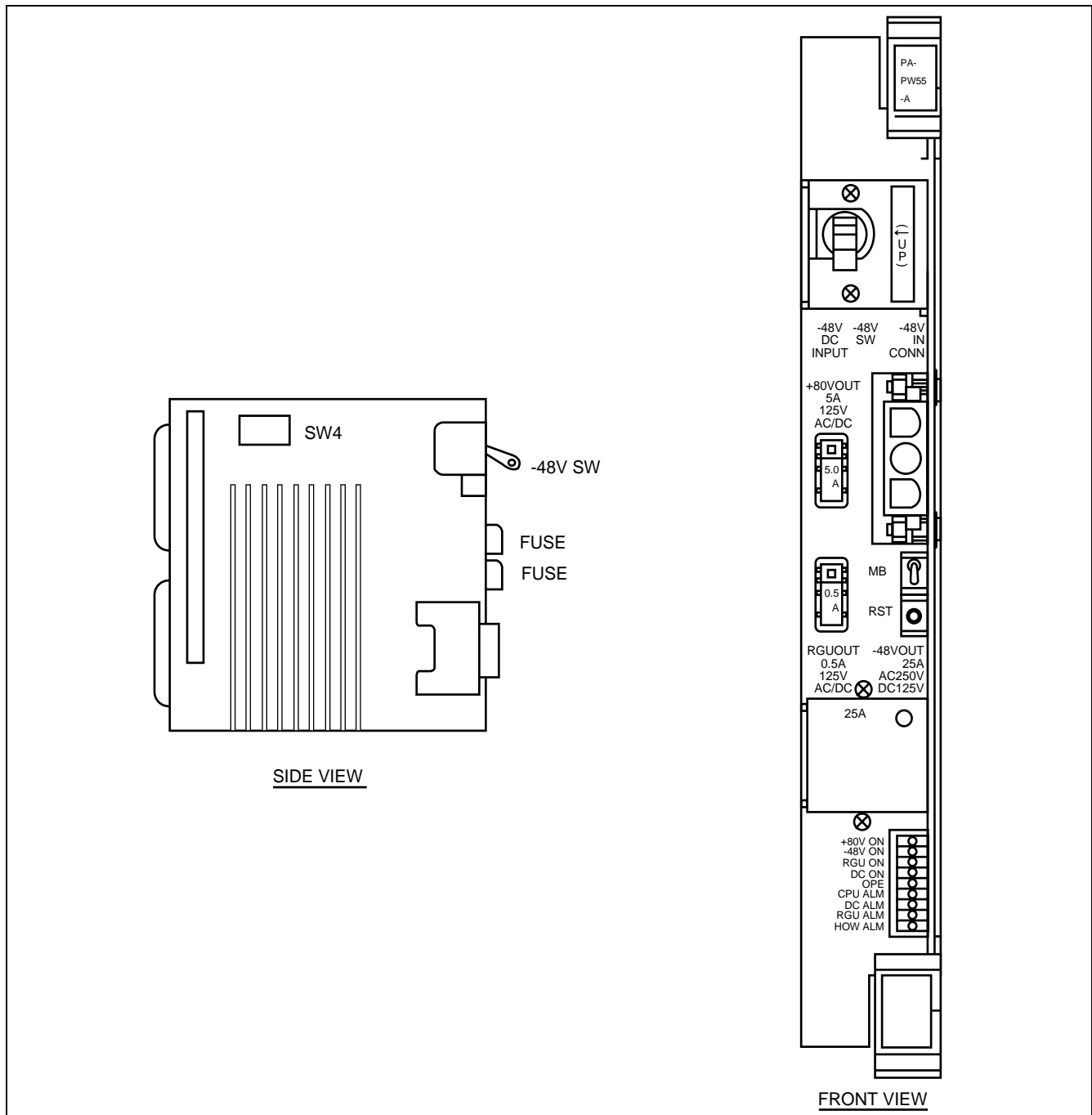


Figure 2-21 Face Layout of PA-PW55-A Card

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
+80V ON	Green	Remains lit while +80 V input power is being supplied.
-48 V ON	Green	Remains lit while -48 V input power is being supplied.
RGU ON	Green	Remains lit while RGU output is in progress.
DC ON	Green	Remains lit while +5 V, +12 V, and -5 V are being output normally.
OPE	Green	Lights when information exchange with the CPU is possible.
CPUALM	Red	Lights when reset of the microprocessor has been activated.
DCALM	Red	Lights when +5 V, +12 V, or -5 V outputs alarm.
RGUALM	Red	Lights when RGU voltage alarm.
HOWALM	Red	Lights when howler alarm.

5. Switch Settings

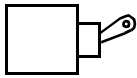
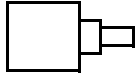
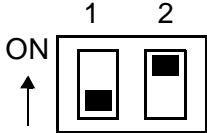
This circuit card has the following switches.

SWITCH NAME	SWITCH No.	SETTING	STANDARD SETTING	DESCRIPTION
-48 V SW		ON	×	-48 V input power is supplied.
		OFF		-48 V input power is not supplied.
RESET		PUSH		Hardware reset of the circuit card.
		—	×	Normal setting
MB	—	ON		Make-busy of the circuit card.
		OFF	×	Normal setting
SW4	1	ON		Frequency of Ringing Signal :25 [Hz]
		OFF	×	Frequency of Ringing Signal :20 [Hz]
	2	ON	×	Voltage of Ringing Signal: 90 [Vrms]
		OFF		Voltage of Ringing Signal: 75 [Vrms]

6. External Interface

No cable connections are required.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
-48 V		
RESET		
MB	DOWN	Circuit card Make-busy cancel.
SW4		20 [Hz] 90 [Vrms]

## PA-PW55-B Power

### 1. General Function

The PA-PW55-B (PWR) circuit card supplies operating power to circuit cards accommodated in the PIM. The -48V input power source, which is converted to +5V, -5V, and +12V, is distributed to each circuit card in the associated PIM. This card is also equipped with a Ringing Generator Unit (RGU), whose output frequency and voltage can be selected among 20Hz, 25Hz, 75Vrms, 90Vrms by switch setting on this card. In addition, a Howler Tone circuit resides on this card.

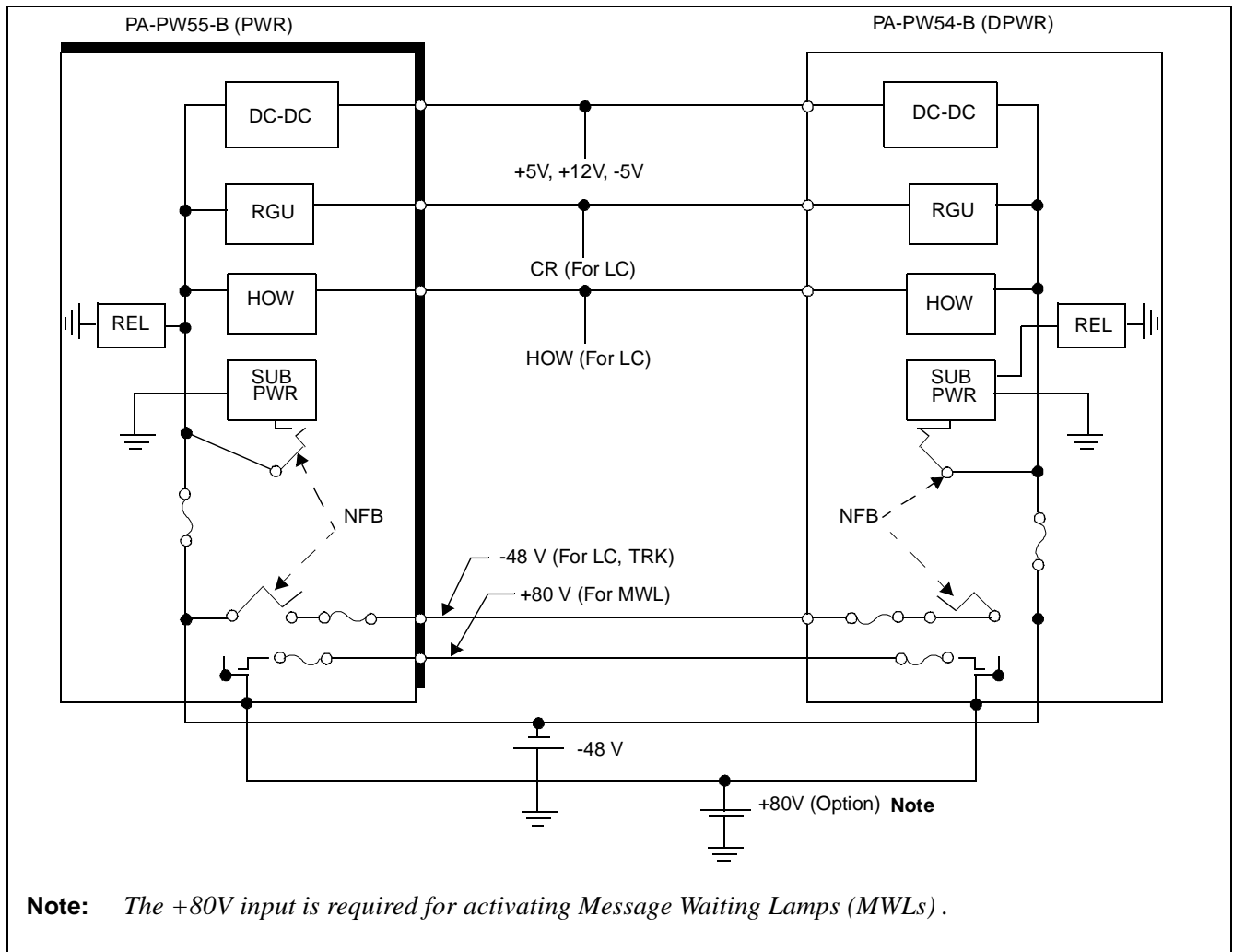


Figure 2-22 Location of PA-PW55-B (PWR) Card in the System

2. Mounting Location/Conditions

This circuit card is mounted in the following slots.

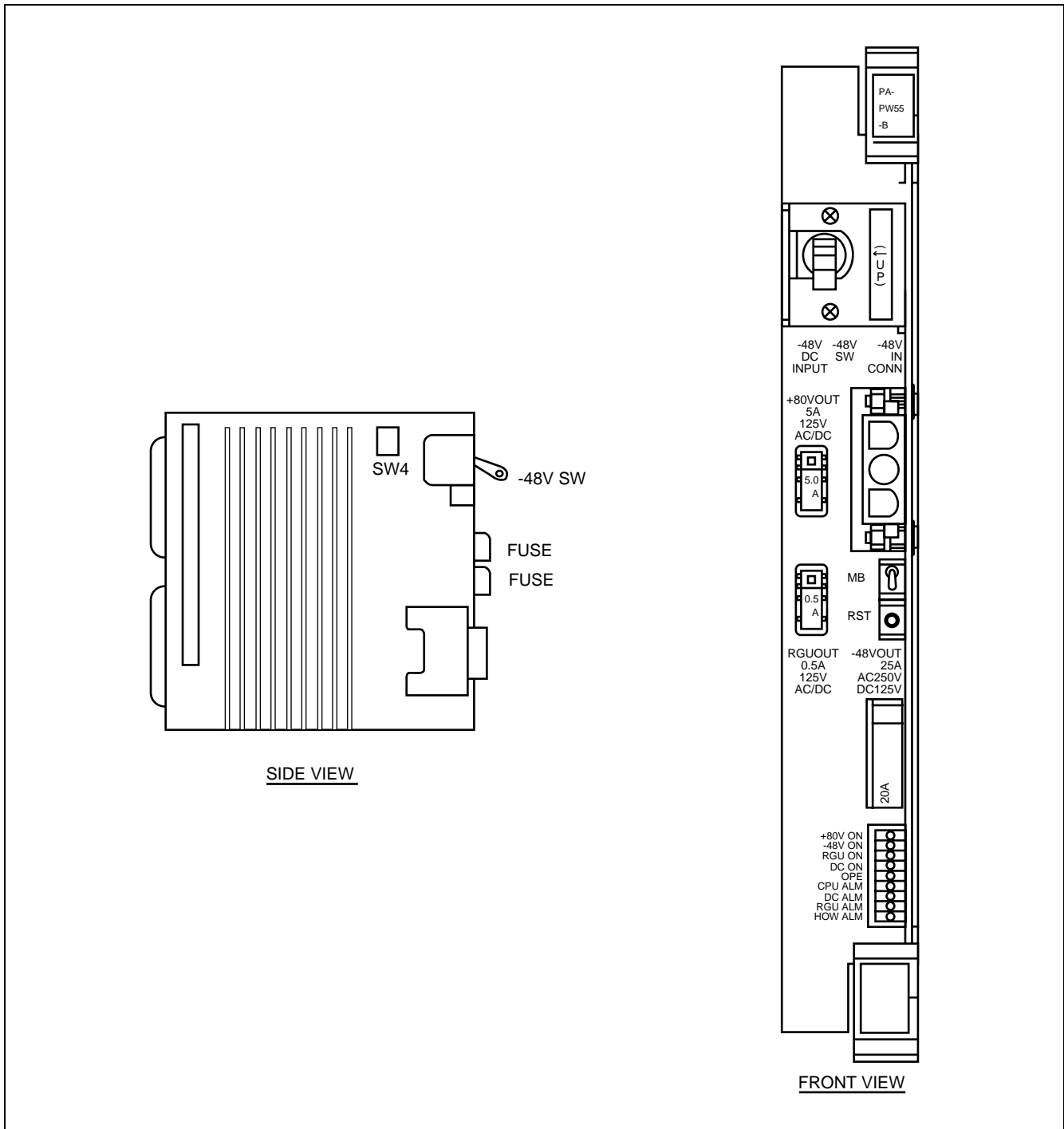
Mounting Module **PIM**

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM (PA-PW55-B) PWR																								

**PA-PW55-B**  
Power

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 2-23](#).



**Figure 2-23 Face Layout of PA-PW55-B Card**

#### 4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
+80V ON	Green	Remains lit while +80 V input power is being supplied.
-48 V ON	Green	Remains lit while -48 V input power is being supplied.
RGU ON	Green	Remains lit while RGU output is in progress.
DC ON	Green	Remains lit while +5 V, +12 V, and -5 V are being output normally.
OPE	Green	Lights when information exchange with the CPU is possible.
CPUALM	Red	Lights when reset of the microprocessor has been activated.
DCALM	Red	Lights in the case of +5 V, +12 V, or -5 V outputs alarm.
RGUALM	Red	Lights in the case of RGU voltage alarm.
HOWALM	Red	Lights in the case of howler alarm.

#### 5. Switch Settings

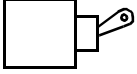
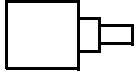
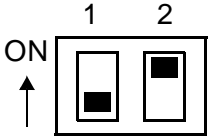
This circuit card has the following switches.

SWITCH NAME	SWITCH No.	SETTING	STANDARD SETTING	DESCRIPTION
-48V SW		ON	×	-48V input power is supplied.
		OFF		-48V input power is not supplied.
RESET		PUSH		Hardware reset of the circuit card.
		—	×	Normal setting
MB	—	ON		Make busy of the circuit card.
		OFF	×	Normal setting
SW4	1	ON		Frequency of Ringing Signal :25 [Hz]
		OFF	×	Frequency of Ringing Signal :20 [Hz]
	2	ON	×	Voltage of Ringing Signal: 90 [Vrms]
		OFF		Voltage of Ringing Signal: 75 [Vrms]

#### 6. External Interface

No cable connections are required.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
-48 V		
RESET		
MB	DOWN	Circuit card make busy cancel
SW4		20 [Hz] 90 [Vrms]



## **PH-DK10**

### **Display Panel Controller**

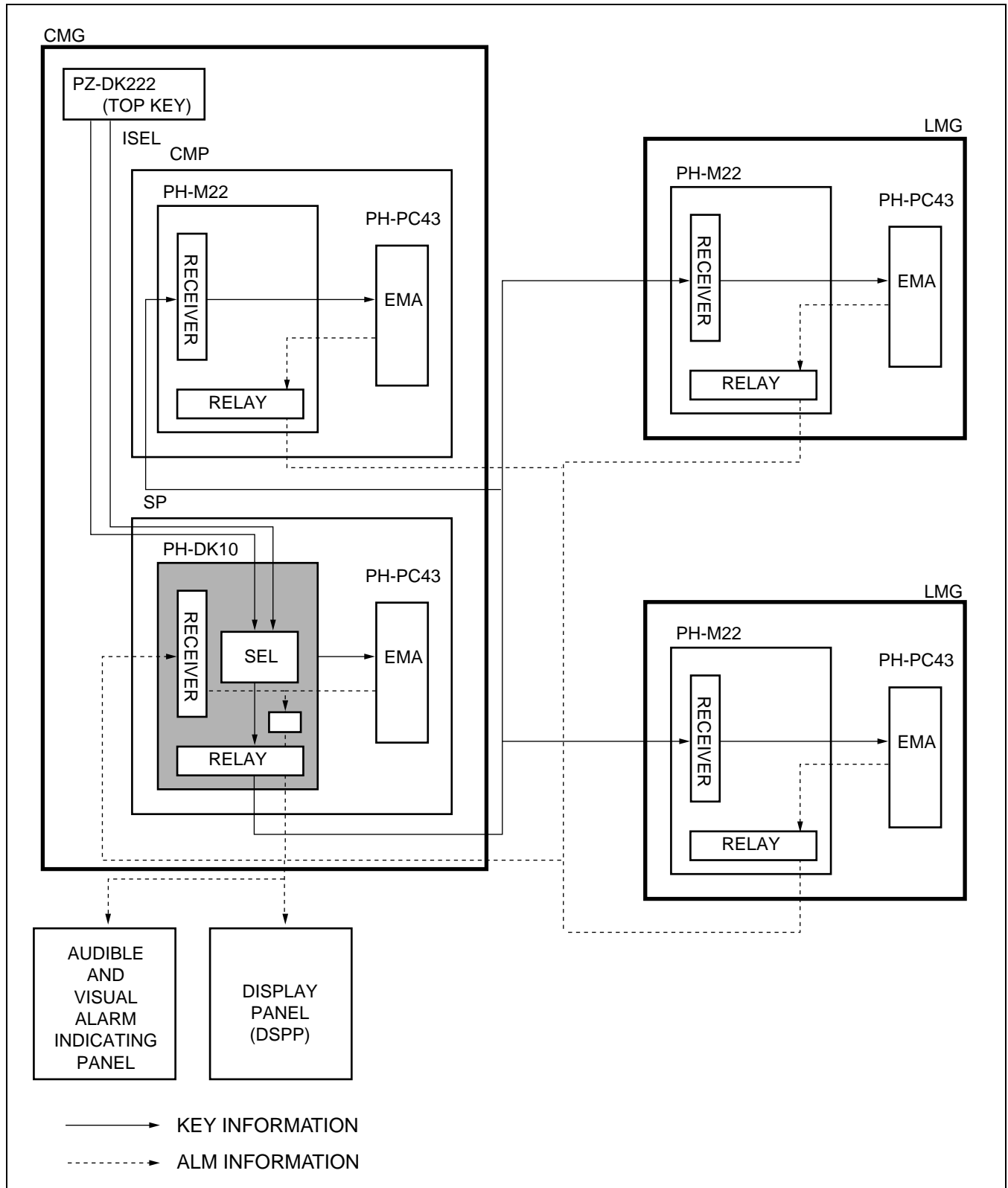
#### 1. General Function

The main functions of the PH-DK10 card are as follows:

- (a) to send out the system operating status, alarm and clock information to the Display Panel.
- (b) to collect the MJ/MN/SUP alarm information occurs on CMG and each LMG. In addition, by the collected internal alarm information, this card controls the Audible and Visual Alarm Indicating Panel.
- (c) to collect the key information on the TOPU of CMG, then output it to EMA.
- (d) to send out the Non-Maskable Interruption (NMI) signal from this card on the CMG to each LP. Additionally, this card activates the communication between the processor in each LP and CMP, SP.

This circuit card is used in the IPX-UMG system.

Refer to the next page for the location of this circuit card within the system.



**Figure 2-24** Location of PH-DK10 (DSPC)

2. Mounting Location/Condition

This circuit card can be mounted in slot No.00 on SP of CMG.

Mounting Module					SP
00	01	02	03	04	CPRAS-A
DSPC					
					CPRAS-A

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 2-25](#).

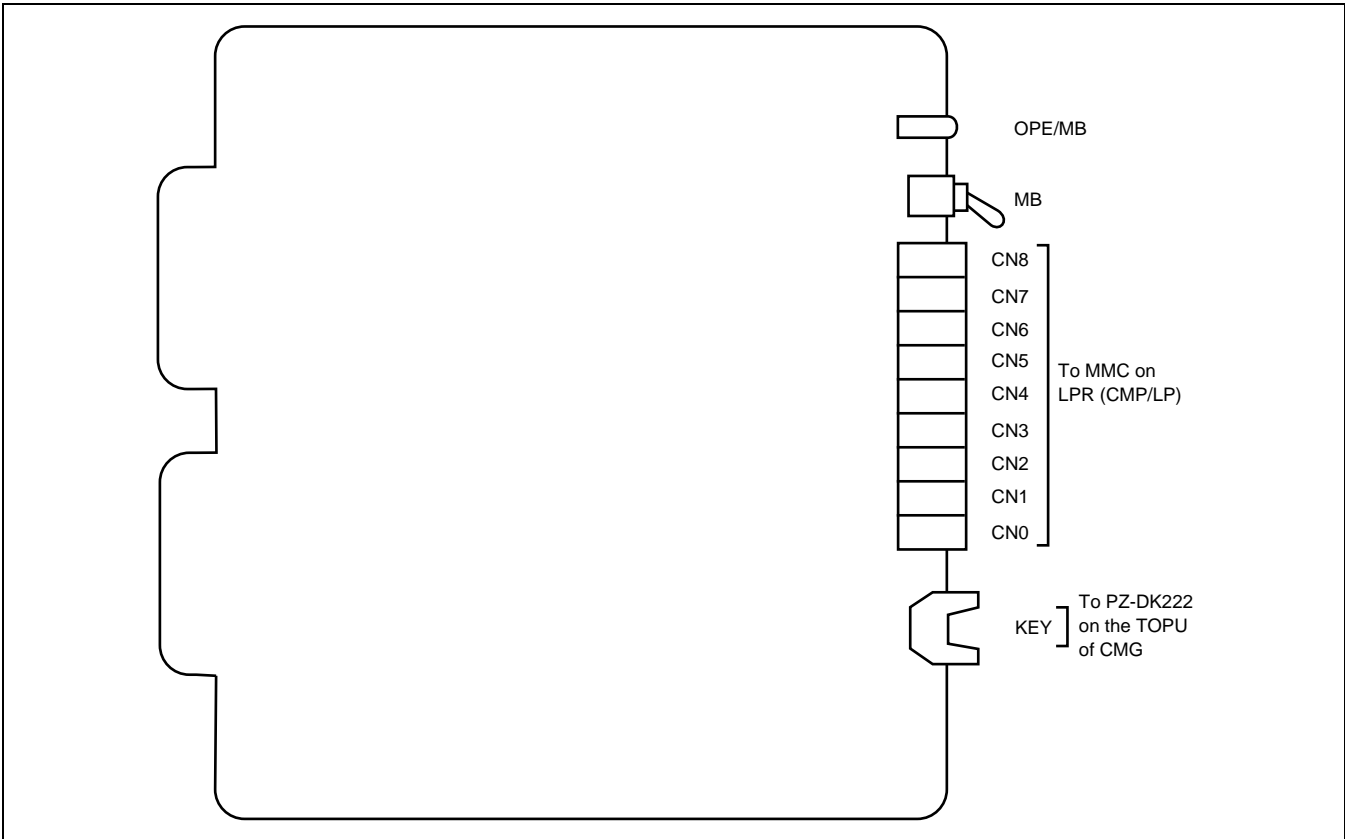


Figure 2-25 Face Layout of PH-DK10 (DSPC)

**PH-DK10**

Display Panel Controller

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE/MB	Green	Lights when this circuit card is in operation.
	Red	Lights when this circuit card is in Make Busy state.

5. Switch Settings

Switch settings for this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit Card Make-busy
	DOWN	×	Circuit Card Make-busy cancel

6. External Interface

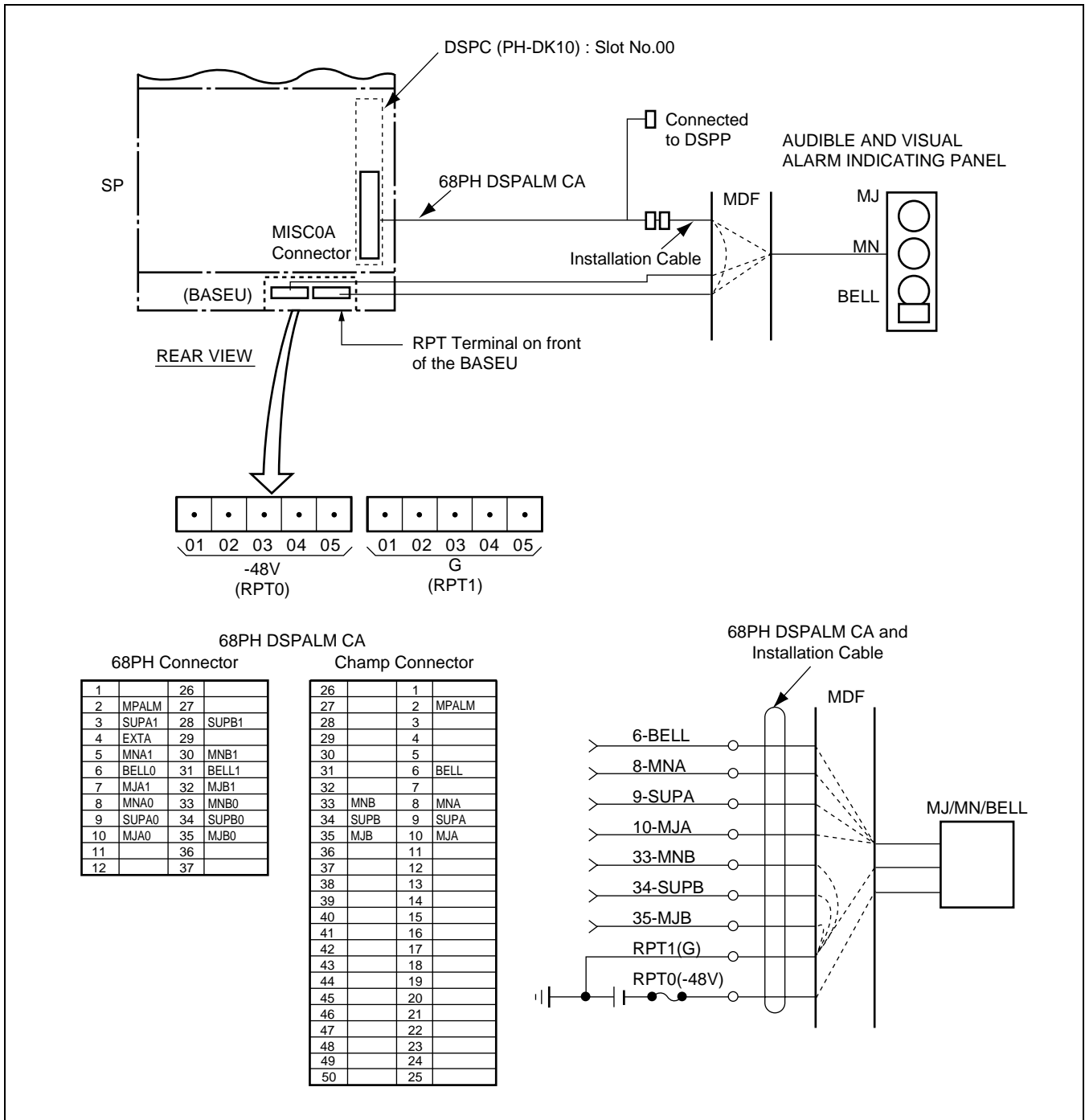
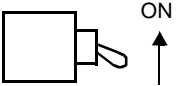


Figure 2-26 Connection of Alarm Indicating Panel

**PH-DK10**  
Display Panel Controller

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		

# PH-IO24 Input/Output Controller

## 1. General Function

The PH-IO24 (IOC) circuit card supplies the system with a serial interface, which conforms to RS-232C, between external equipment such as the Maintenance Administration Terminal (MAT), Station Message Detail Recording System (SMDR), Message Center Interface (MCI), Property Management System (PMS). The relationship between the IOC card and the associated cards is as follows, when the CPU is in dual configuration.

**Note:** *Firmware SP-3290 IO24 LV2 PROG-A is required in the Hotel system for PMS and Hotel Printer.*

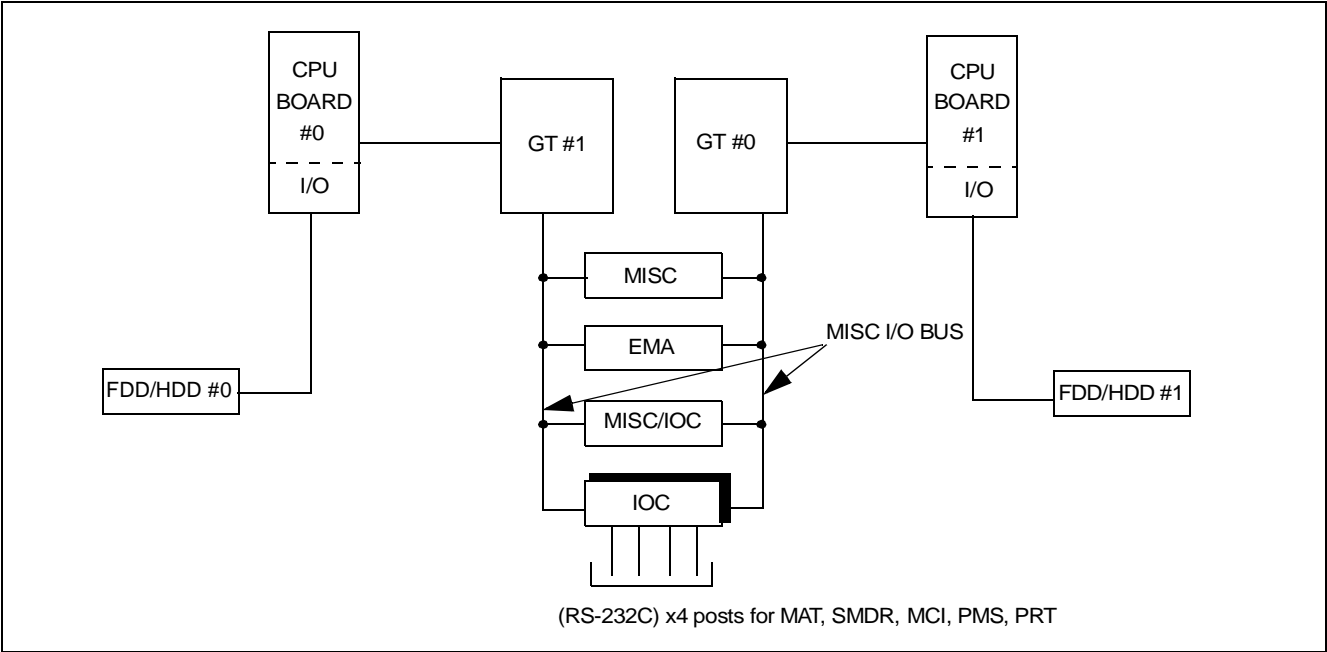


Figure 2-27 Location of PH-IO24 (IOC) Card in the System

**PH-IO24**  
Input/Output Controller

2. Mounting Location/Condition

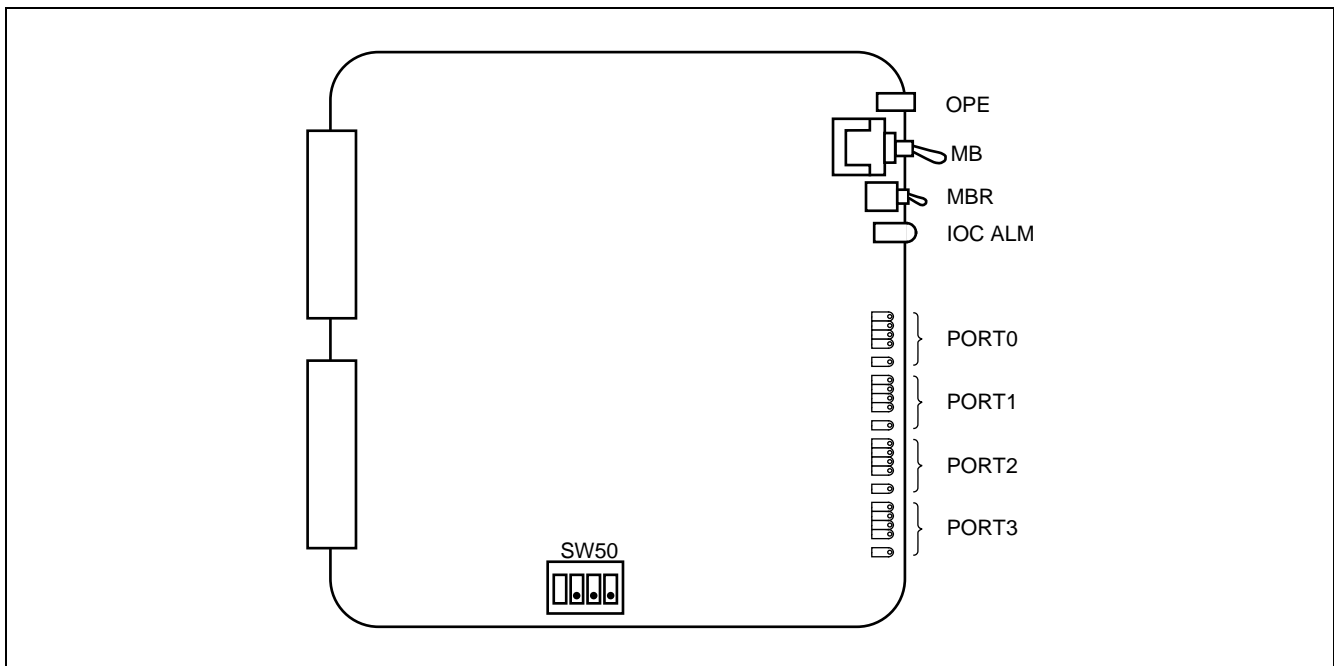
The IOC cards can be placed in the shaded slots (02, 03) as shown below.

**Note:** *Firmware SP-3290 IO24 LV2 PROG-A is required in the Hotel system for PMS and Hotel Printer.*

Mounting Module					LPM
00	01	02	03	04	
		IOC#1	IOC#0		

3. Face Layout of Lamps, Switches and Connectors

The face layout of lamps, switches and connectors on this circuit card is shown in [Figure 2-28](#).



**Figure 2-28 Face Layout of PH-IO24 (IOC) Card**



#### 4. Lamp Indications

The table below shows lamp indications on this circuit card.

LAMP NAME	COLOR	DESCRIPTION
OPE/MB	Green	This circuit card is operating normally.
	Red	This circuit card is placed in the Make-busy state.
IOC ALM	Red	Clock down WDT alarm occurs to the microprocessor.
PORT0 - PORT3		RS-232C signal status indication.      n = port number (0-3)
SDn	Green	SD: Send Data
RDn	Green	RD: Receive Data
ERn	Green	ER: Equipment Ready
DRn	Green	DR: Data Ready
CDn	Green	CD: Carrier Detect

#### 5. Switch Settings

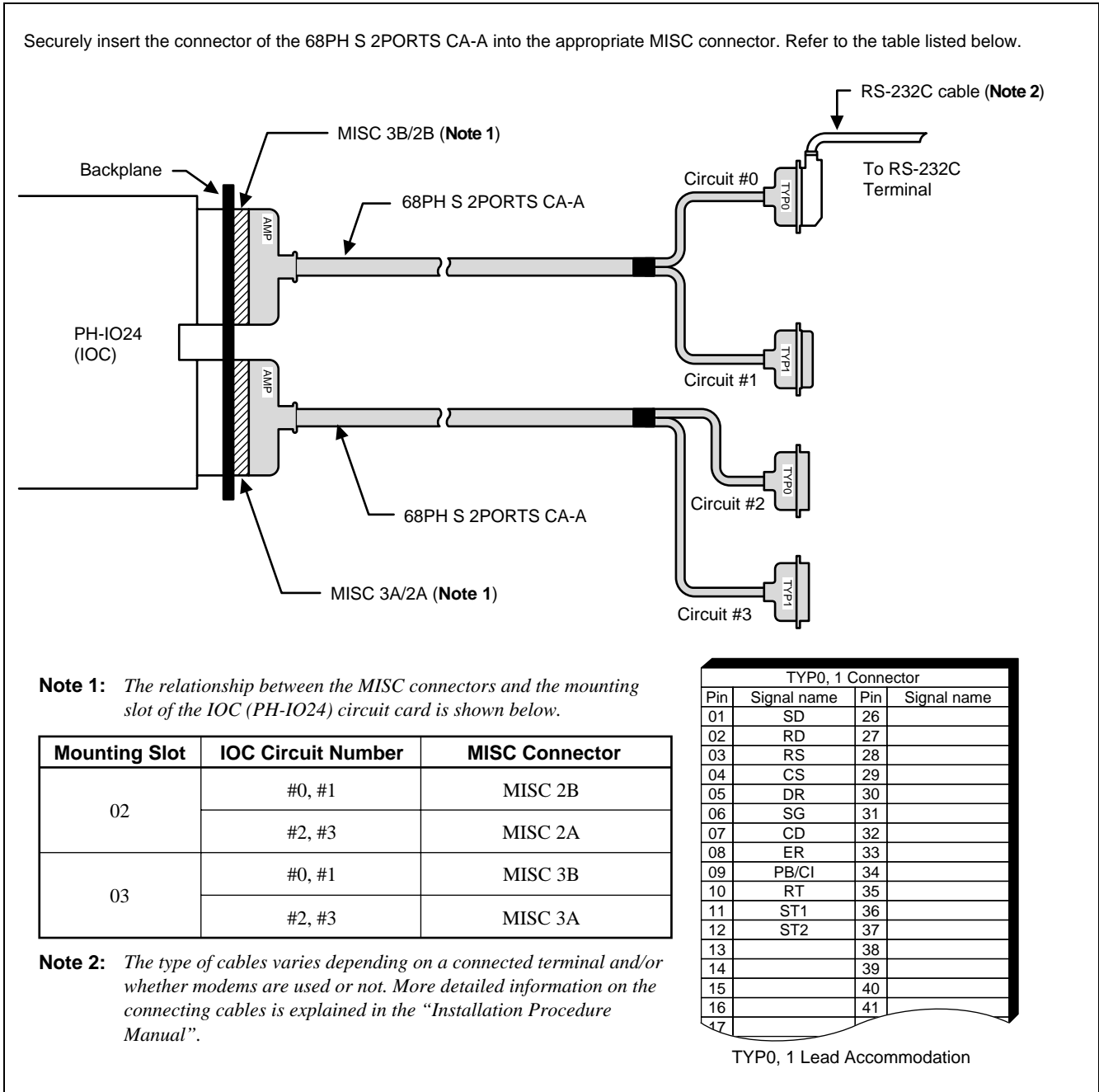
The following is a brief description of the switches on this circuit card. When a switch has a standard setting, it is indicated with “x” in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	DESCRIPTION
MB		Up		The circuit card is placed into Make-busy status.
		Down	x	Cancellation of Make-busy.
MBR		Up		The circuit card is placed into Make-busy request status.
		Down	x	Cancellation of Make-busy Request.
SW50	1	ON		This circuit card is used as the extended I/O circuit card #1.
		OFF		This circuit card is used as the extended I/O circuit card #0.
	2	ON		Not used (For Business System Only).
		OFF	x	
	2	ON		Free Wheeling with ACK signal (For Hotel System Only).
		OFF	x	Free Wheeling.
	3	ON		Not used.
		OFF	x	
	4	ON		Not used.
		OFF	x	

**PH-IO24**  
Input/Output Controller

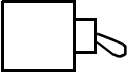
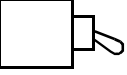
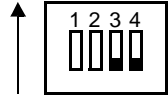
6. External Interface

As illustrated in [Figure 2-29](#), the 68PH S 2PORTS CA-A cable is required to connect external equipment such as the MAT, SMDR, MCI, and PRT.



**Figure 2-29 External Cable Connection for PH-IO24 (IOC)**

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
MBR		
SW50	<p>ON</p> 	<p>Meaning of SW50-1:</p> <p>ON: This card is used as the No. 1 circuit card. OFF: This card is used as the No. 0 circuit card.</p>

PH-M22  
MMC

1. General Function

The main functions of the PH-M22 circuit card are as follows:

- to collect key setting information on the TOPU of the ISW and send the information to the ISW/the other LNs, depending on the ISEL key setting on the ISW. (for IPX-U system)
- to collect various alarm information from all the IMGs/ISW and activate MJ/MN LED on the TOPU display. (for IPX-U system)
- to send out the key information to EMA within the same LMG (for IPX-UMG system)
- to collect the external MJ/MN alarm information output by EMA in each LMG (for IPX-UMG system)

This circuit card is used for the IPX-U/IPX-UMG system.

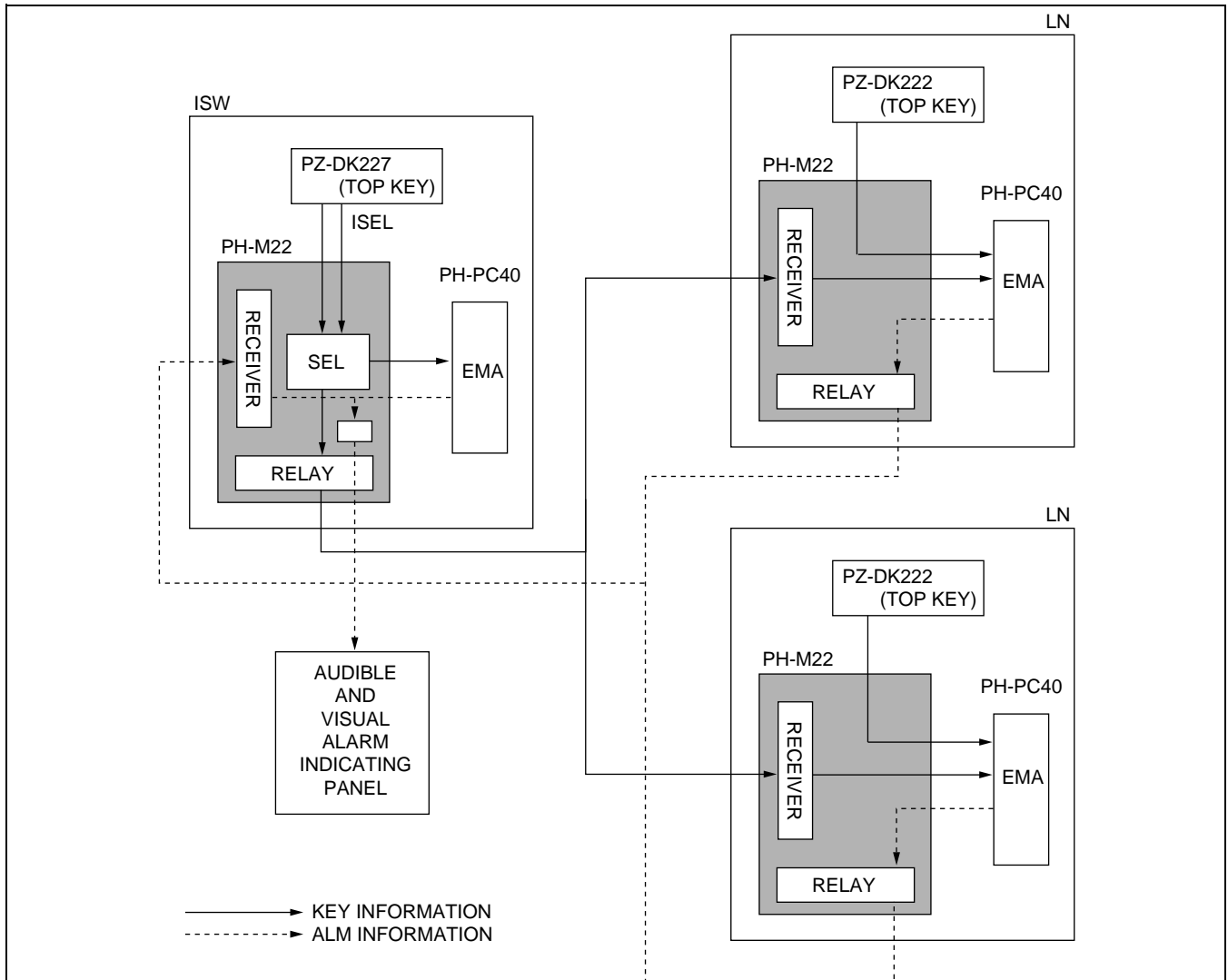


Figure 2-30 Location of PH-M22 (MMC) in IPX-U System

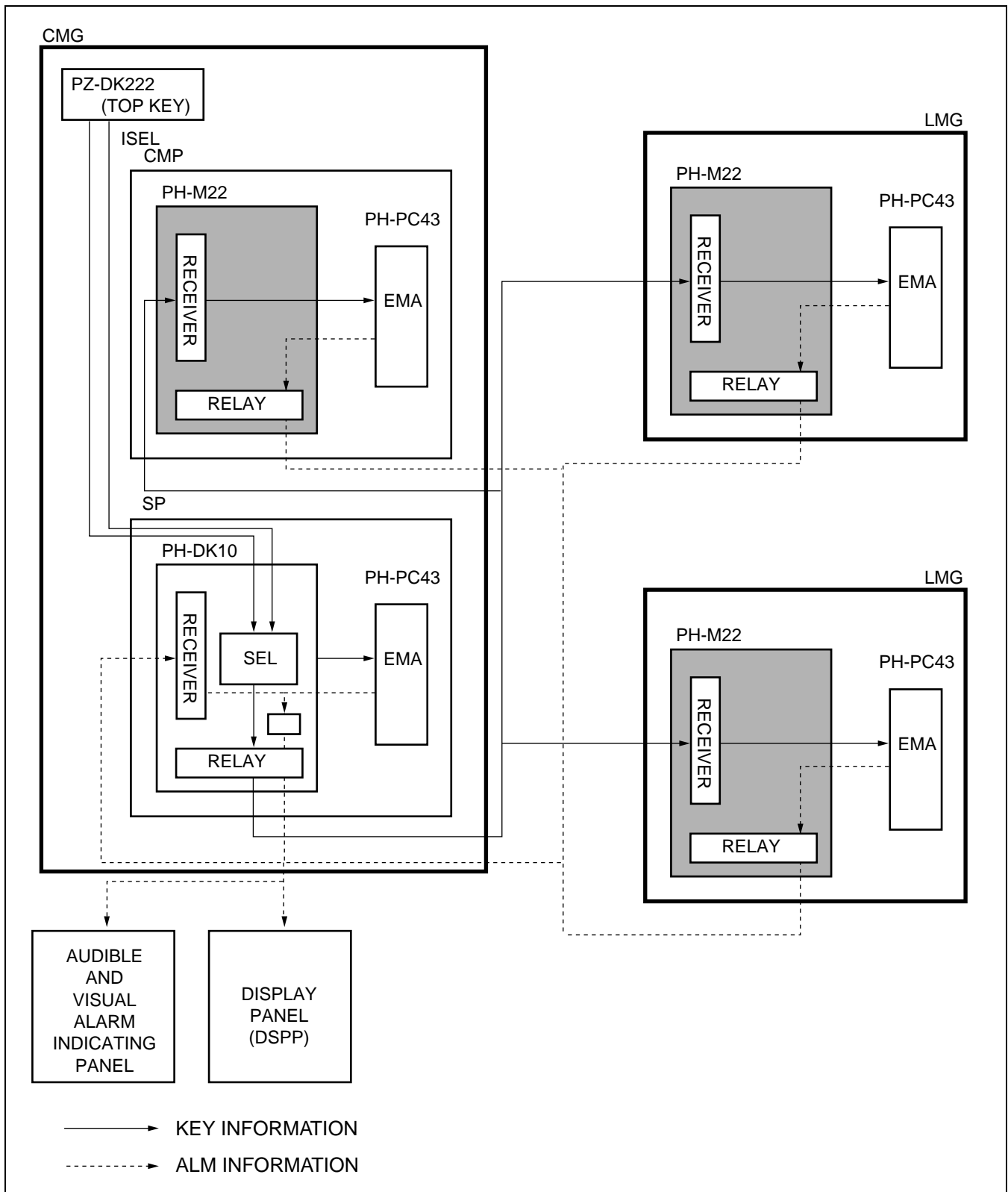


Figure 2-31 Location of PH-M22 (MMC) in IPX-UMG System

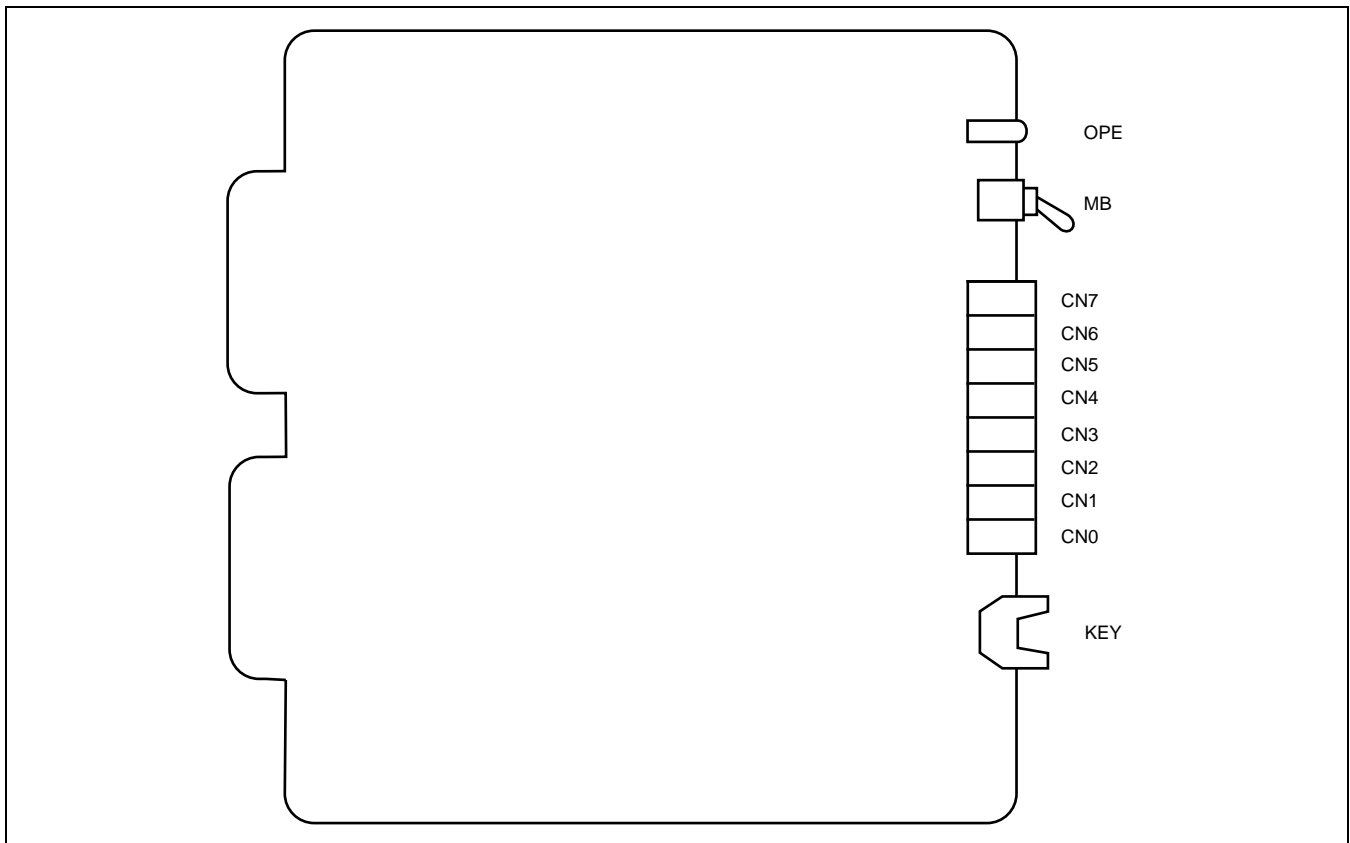
2. Mounting Location/Condition

This circuit card can be mounted in the shaded slots shown below.

Mounting Module					<b>LPM/CMP/LP</b>
00	01	02	03	04	
MMC					CPRAQ-A/CPRAS-A
					CPRAQ-A/CPRAS-A

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 2-32](#).



**Figure 2-32 Face Layout of PH-M22 (MMC)**

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Lights when this circuit card is in operation.

5. Switch Settings

Switch settings for this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit Card Make-busy
	DOWN	×	Circuit Card Make-busy cancel

6. External Interface

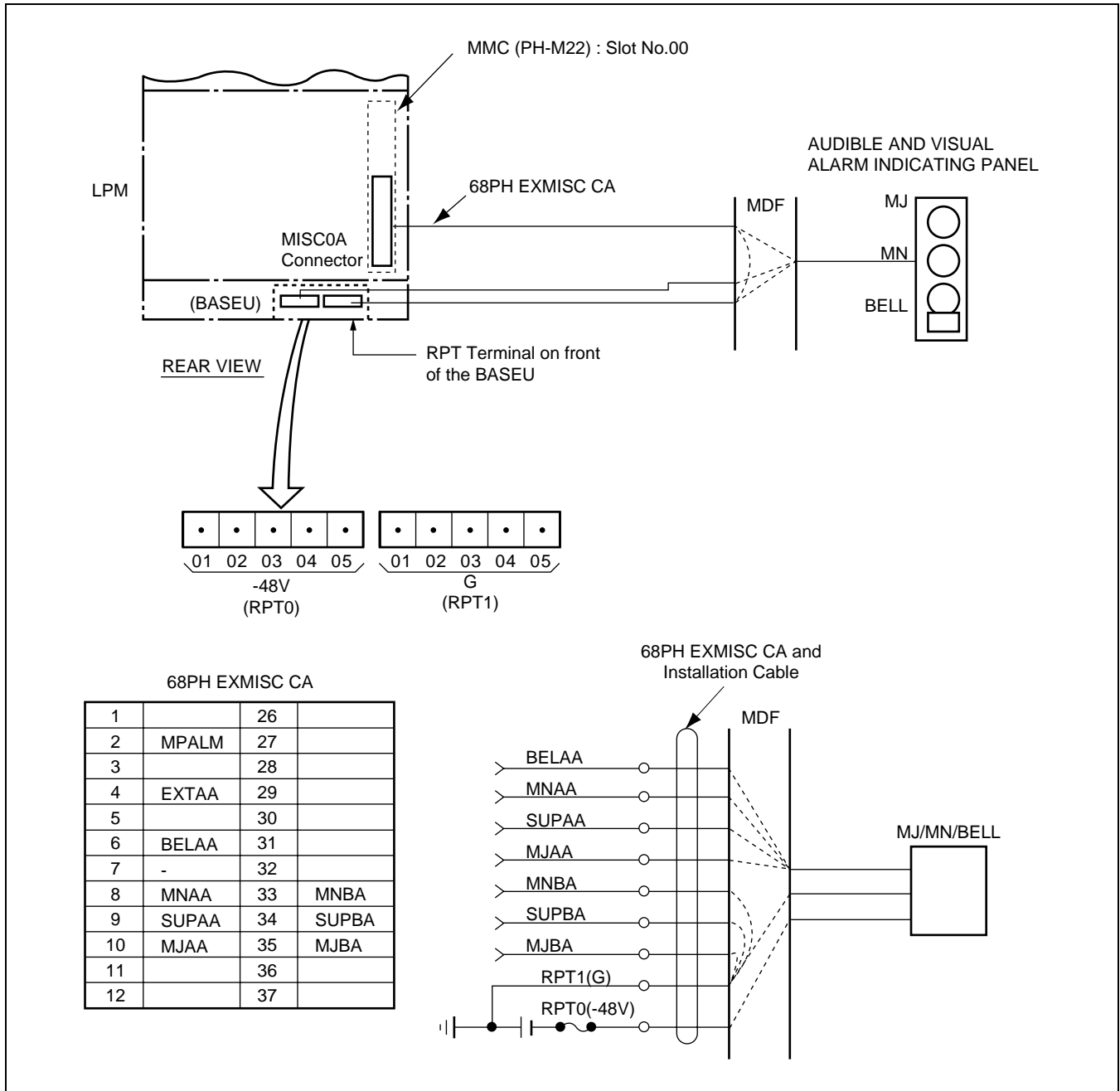
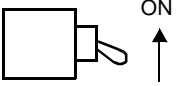


Figure 2-33 Connection of Alarm Indicating Panel

**Note:** External connection for Alarm Indicator is not used in IPX-UMG system.



7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		<b>Note:</b> <i>Normal operating mode is down.</i>

## PH-M16 Line Test

### 1. General Function

This circuit card controlled by CPU is used for line test of a subscriber's line. The circuit card supports sending Howler Tone to external test equipment, besides the circuit card can detect or send various tones, and send PB (DTMF) signal for automatic trunk test.

**Note:** A system cannot send Howler Tone during line test. The number of available lines within the line test/automatic trunk test at the same time is only one.

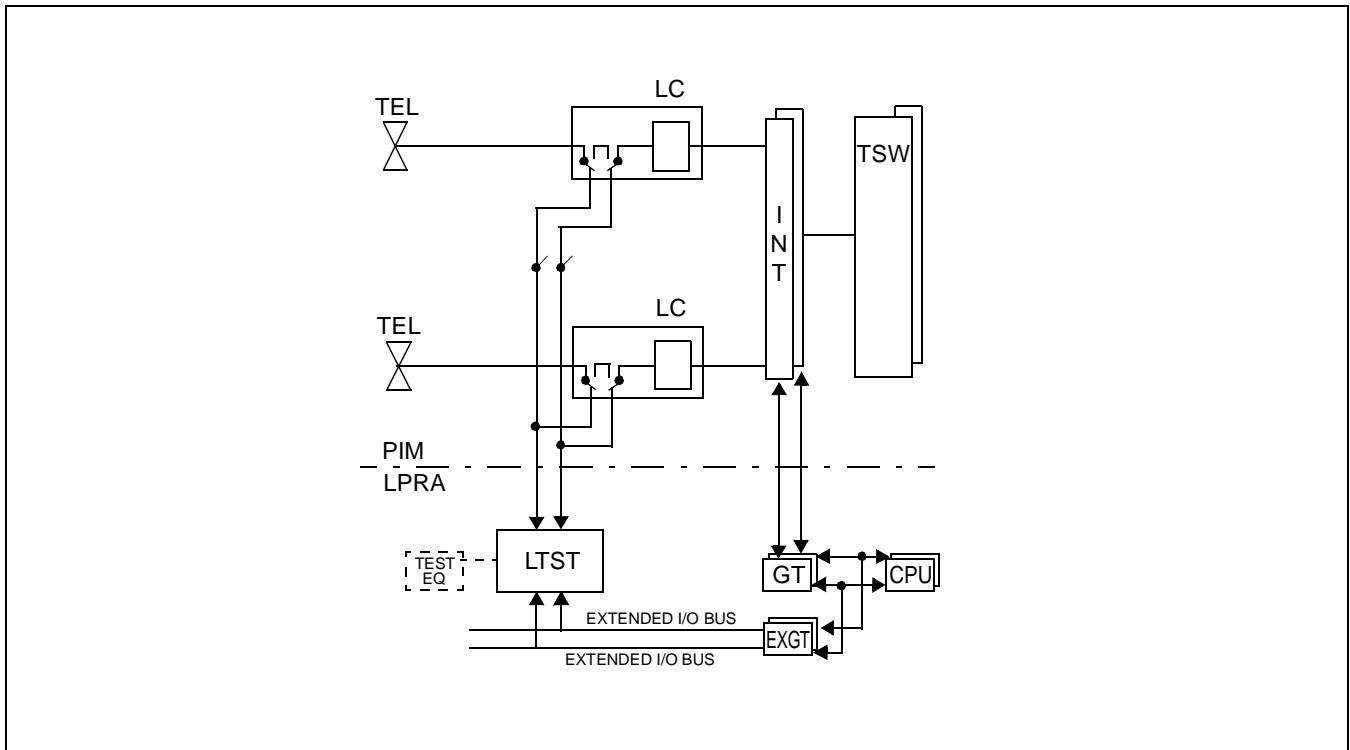


Figure 2-34 Location of PH-M16 (LTST) Card Within the System

2. Mounting Location/Condition

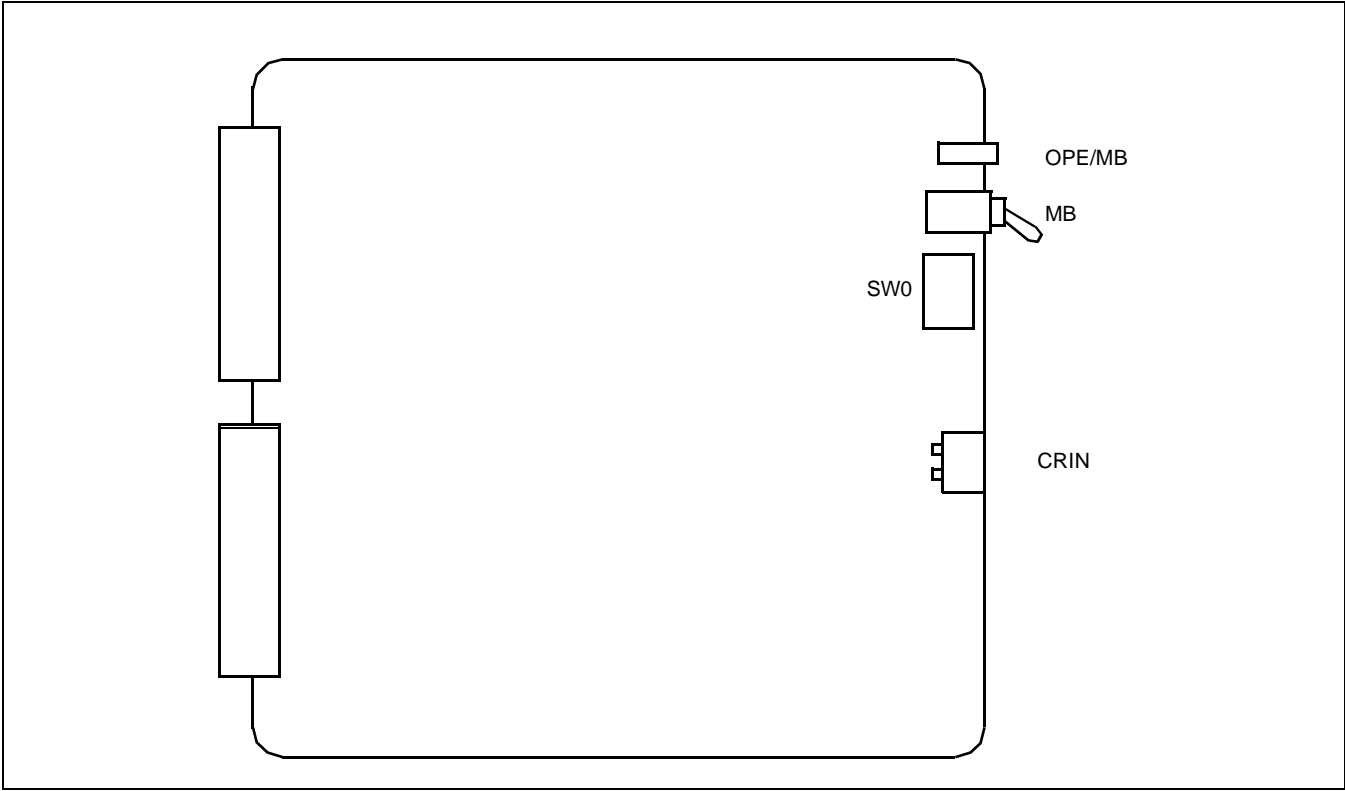
The LTST circuit card can be accommodated in the shaded slots (00, 01, 02) as shown below:

**Note:** *IPX: Slot 00, Slot 01, Slot 02.*  
*IPX-U: Slot 01, Slot 02 (Considering PH-M22 MMC)*

Mounting Module					<b>LPM</b>
00	01	02	03	04	
PH-M16	PH-M16	PH-M16			

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 2-35](#).



**Figure 2-35 Face Layout of PH-M16 (LTST) Card**

**Note:** *CRIN is used to connect with CRIN test equipment.*

4. Lamp Indications

LAMP NAME	COLOR	DESCRIPTION
OPE/MB	Green	This circuit card is operating in normal mode.
	Red	This circuit card is Make-busy.

5. Switch Settings

SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING																																			
MB		UP		Circuit card Make-busy																																			
		DOWN		Circuit card Make-busy cancel																																			
SW0	1	ON	×	Setting of a condition of DT detection (440Hz+350Hz)																																			
	2	ON	×	Setting of a condition of RBT detection (440Hz+480Hz)																																			
	3	ON		Time of PB (DTMF) signal sending (67 msec.)																																			
		OFF	×	Time of PB (DTMF) signal sending (133 msec.)																																			
	4	ON		Setting of M-wire control which is concerned with sending test tone of ODT (Set soft control or E-wire loop-back)																																			
		OFF		Setting of M-wire control which is concerned with sending test tone of ODT (Set soft control only)																																			
	5			<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5">BASIC INTERVAL TIMER</th> </tr> <tr> <th colspan="5">SW0</th> </tr> <tr> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>TIME</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>8μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>16μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>32μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>64μ</td> </tr> </tbody> </table>	BASIC INTERVAL TIMER					SW0					5	6	7	8	TIME	ON	OFF	OFF	OFF	8μ	ON	ON	OFF	OFF	16μ	ON	ON	ON	OFF	32μ	ON	ON	ON	ON	64μ
	BASIC INTERVAL TIMER																																						
	SW0																																						
	5	6	7		8	TIME																																	
ON	OFF	OFF	OFF	8μ																																			
ON	ON	OFF	OFF	16μ																																			
ON	ON	ON	OFF	32μ																																			
ON	ON	ON	ON	64μ																																			
6																																							
7																																							
8																																							

6. External Interface

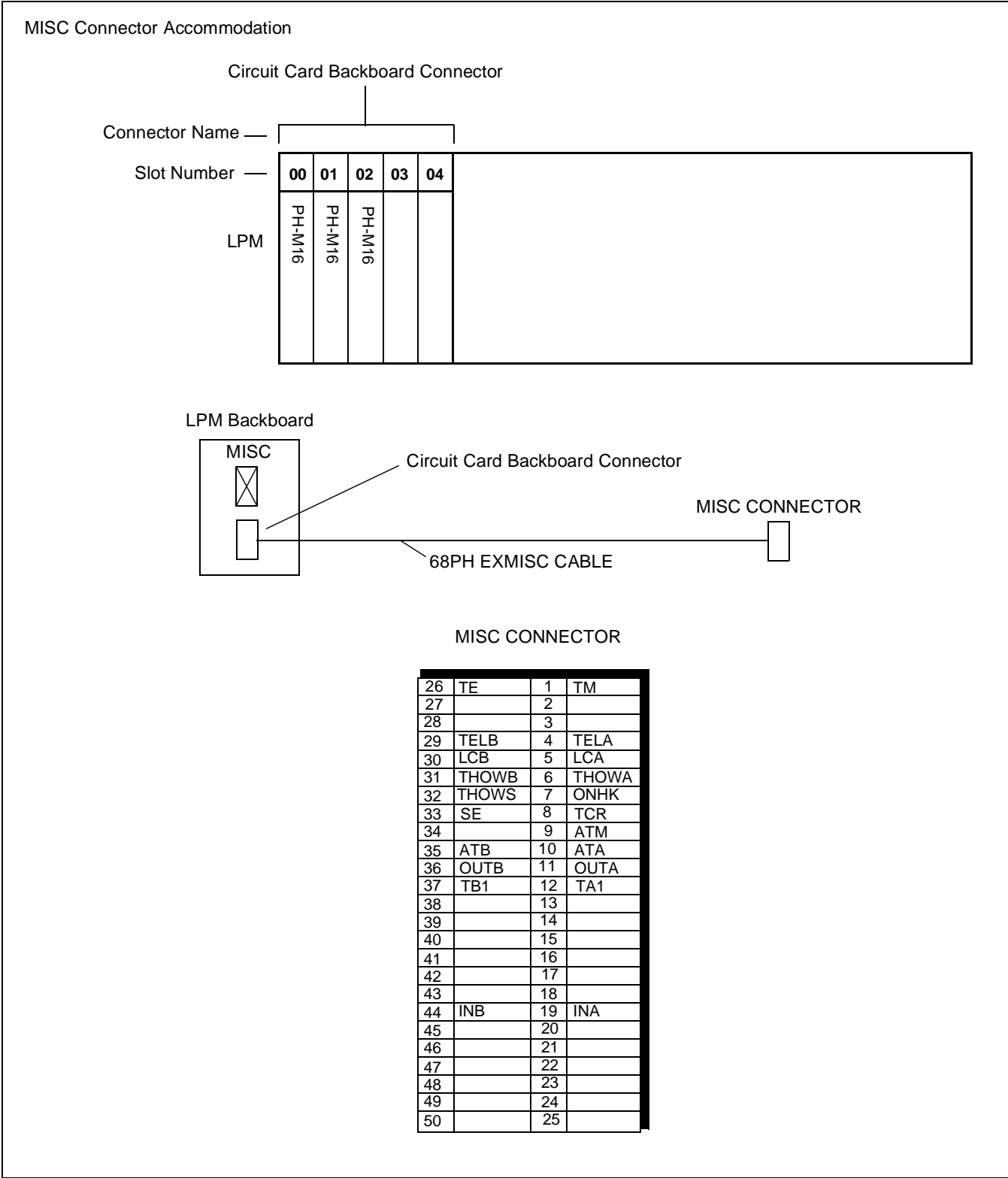


Figure 2-36 LT Connector Lead Accommodation

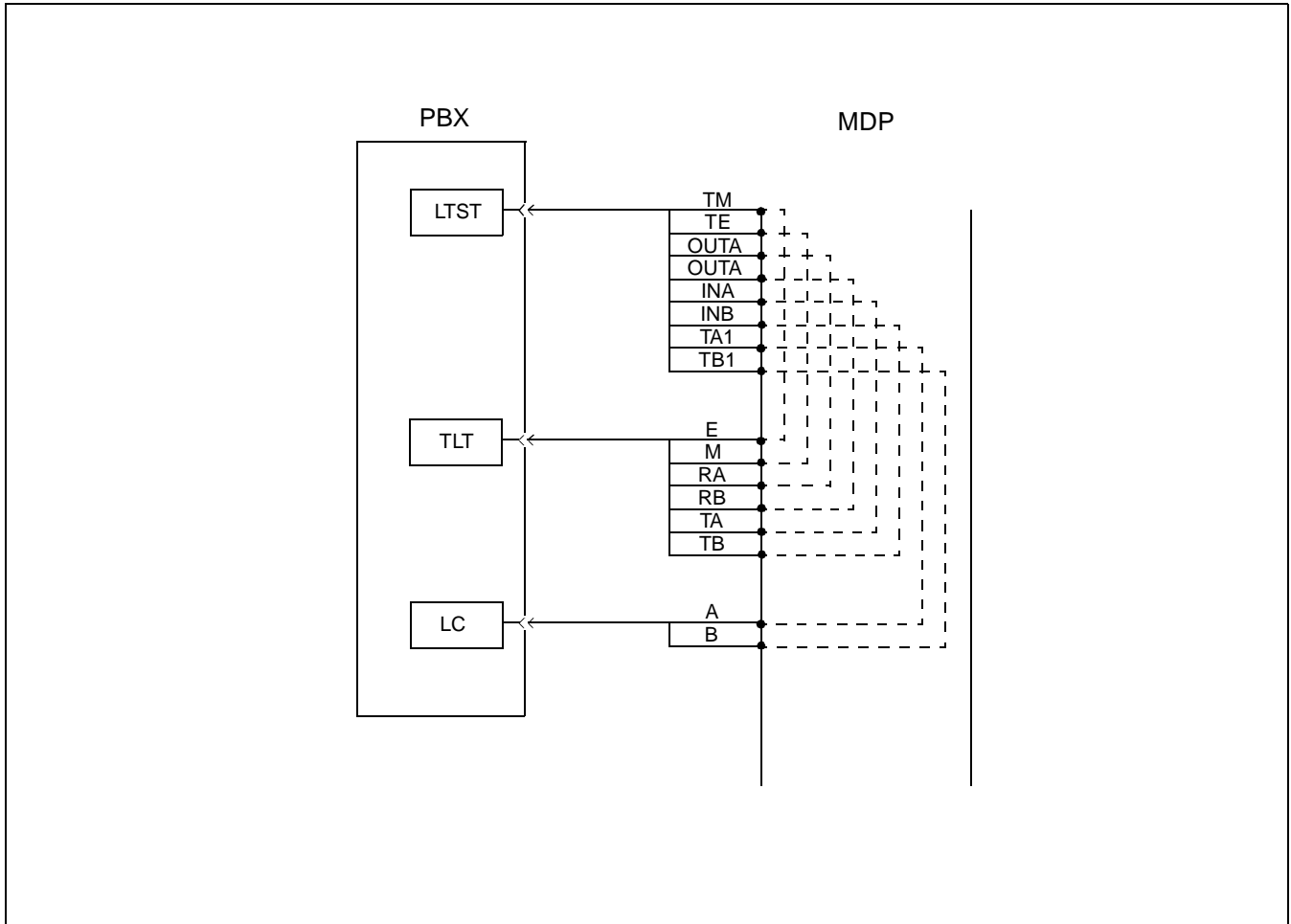


Figure 2-36 Connecting Route Diagram

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW0		

## PH-PC36 Multiplexer

### 1. General Function

The PH-PC36 (MUX) circuit card is an interface card for mounting line circuits and/or trunks. In between the CPR and the Port Microprocessor (PM) of the line/trunk circuit, this circuit card provides an interface for PM control and management by the CPU. Likewise in between the TSW and the line circuit/trunks, this circuit card provides an interface for multiplexing/de-multiplexing of voice Pulse Code Modulation (PCM) information and digital data information.

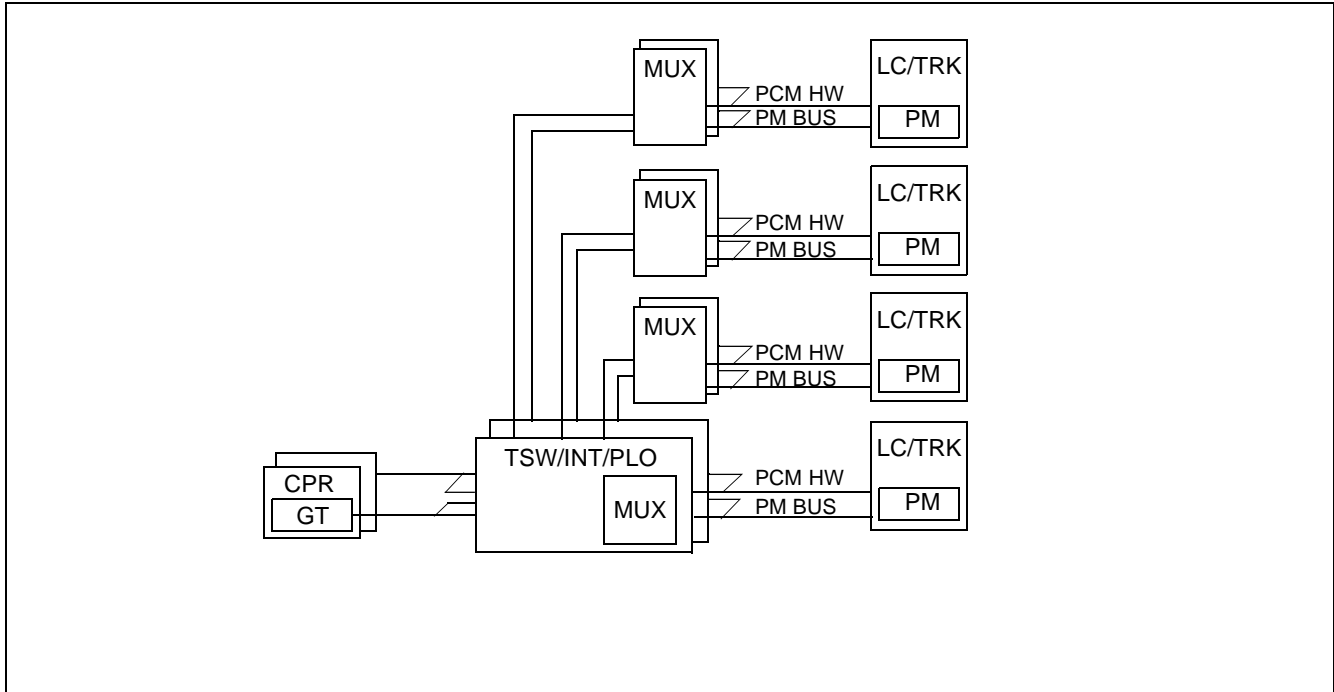
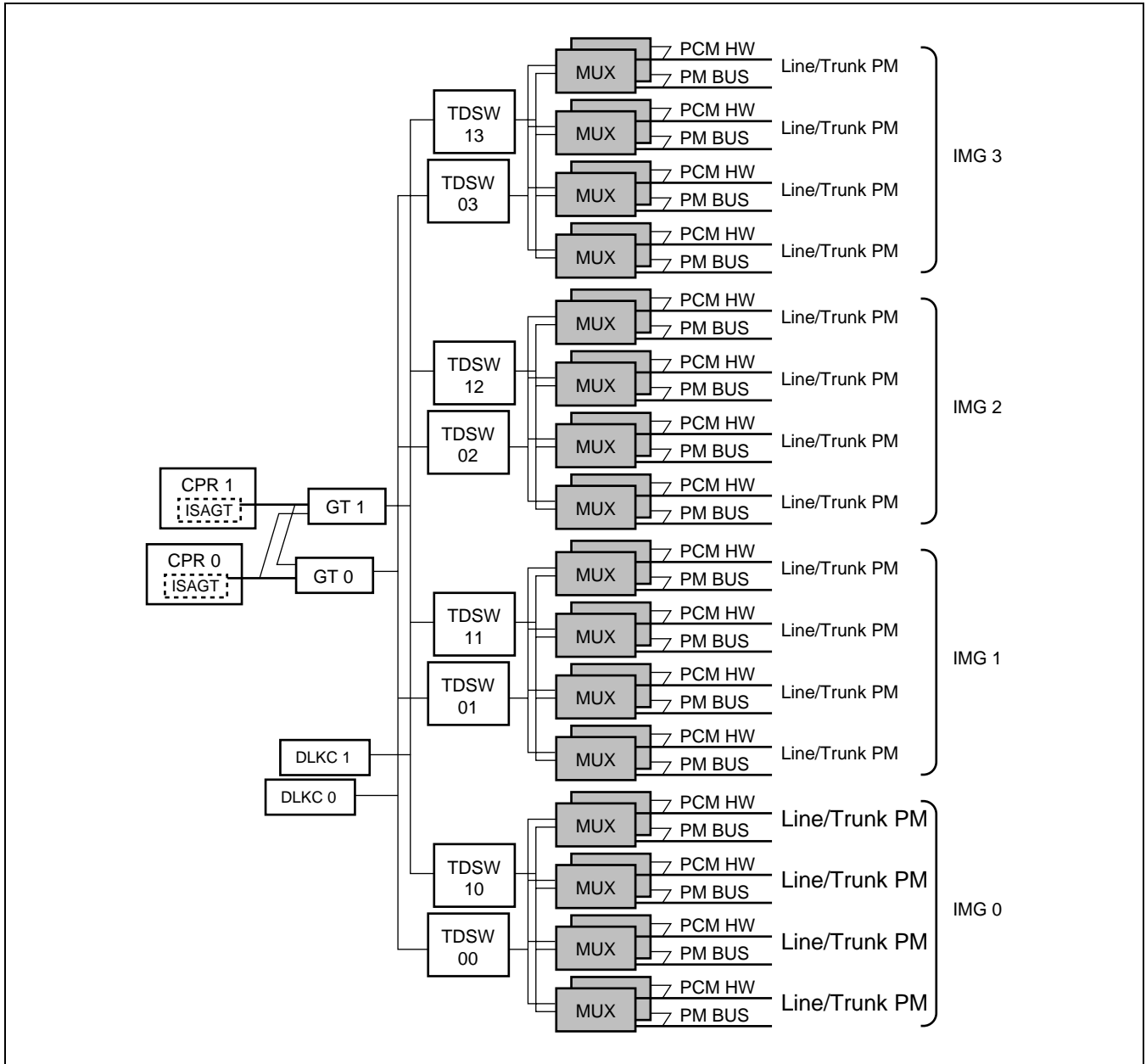


Figure 2-37 Location of PH-PC36 (MUX) Card in the 1 IMG System



**Figure 2-38 Location of PH-PC36 (MUX) Card in the 4 IMG System**



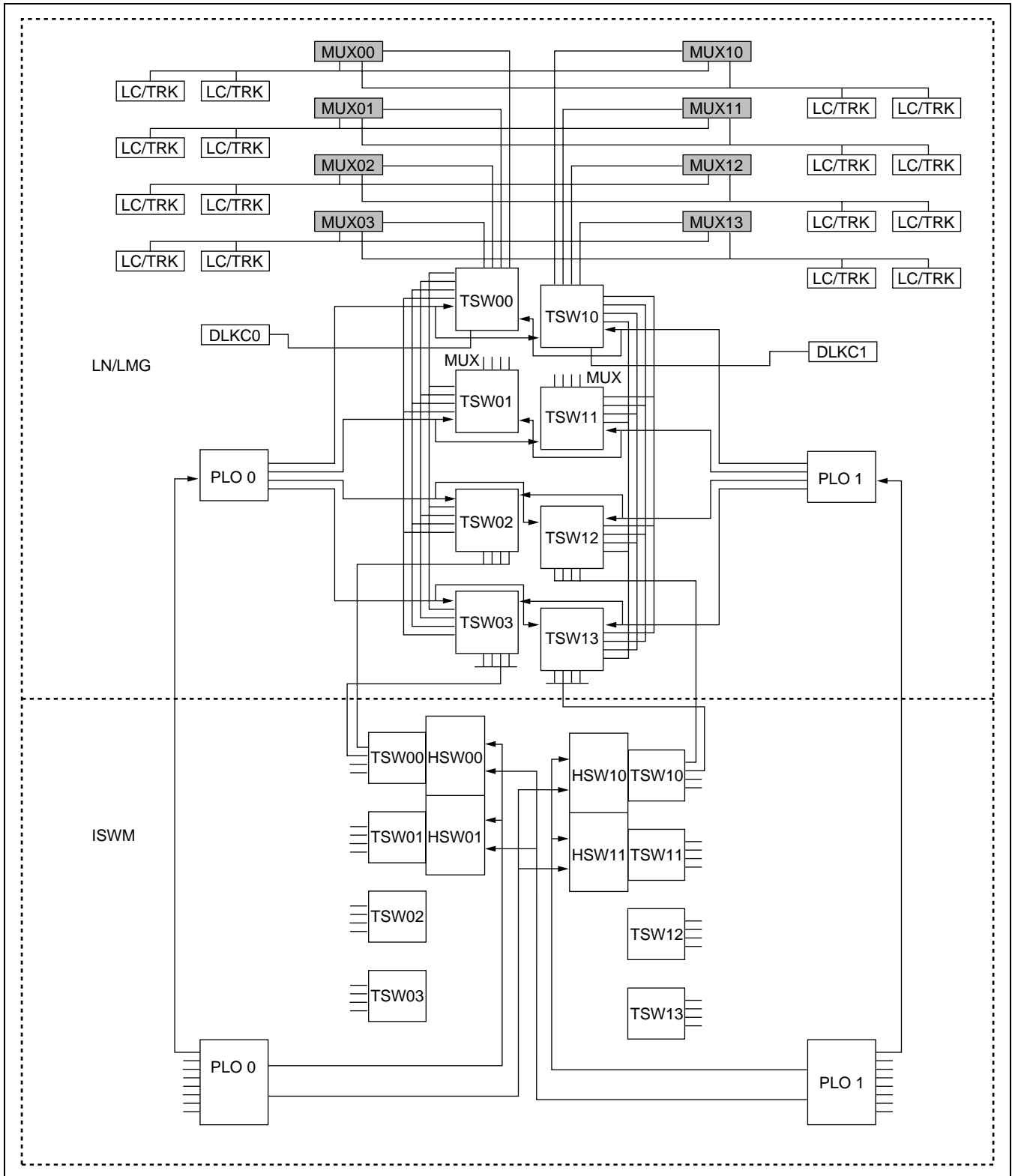


Figure 2-39 Location of PH-PC36 (MUX) Card in the IPX-U/IPX-UMG System

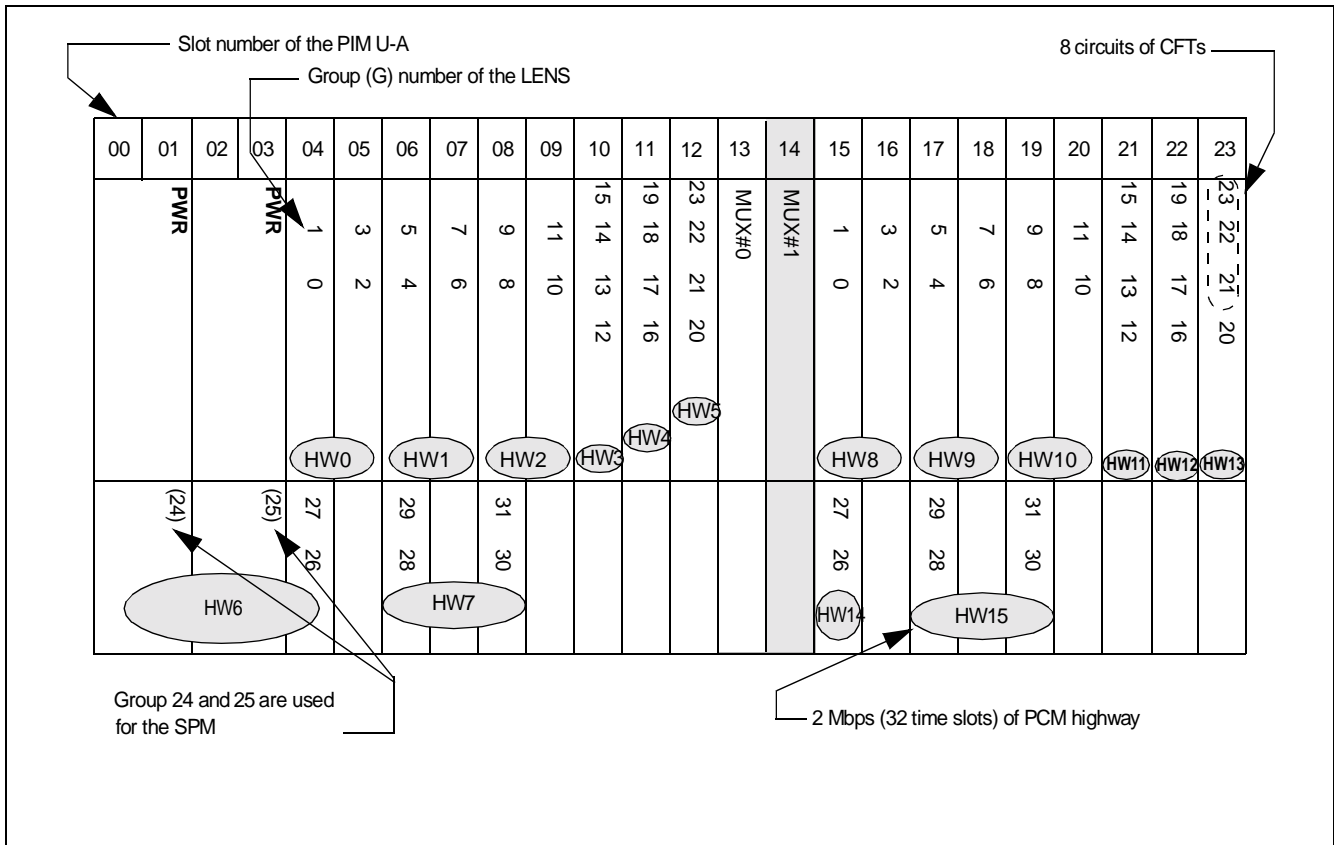
The PCM highway running is illustrated in Figure 2-40. There are sixteen 2 Mbps PCM highways (HW0 - HW15) in the PIM. Each PCM highway runs from a card slot to the MUX circuit card. For instance, highway number zero (HW0) appears in Slot 04 and also Slot 05, thus the HW0 carries the PCM of the Group number 0, 1, 2 and 3.

Likewise, the HW6, 7, 14, 15 cover the group numbers 24 through 31. However, the time slots of Group number 24 and 25 are exclusively used for the Speech Path Memory (SPM).

All highways in the PIM lead to a MUX card, so 512 time slots (32 time slots per highway × 16 highways = 512 time slots) of PCM are multiplexed/de-multiplexed at a MUX and sent/received to/from the TSW circuit card across the 32.786 Mbps of the Low Voltage Differential Signaling (LVDS).

Also the MUX card provides the PM bus interface. The CPR controls and administrates the PM of the line/trunk circuit card via the TSW and the MUX.

In addition, this circuit card supports 3-Party Conference (CFT) function and is equipped with eight circuits of 3-Party Conference. The CFT appear in Time Slots 8 through 31 of the HW13 (Group 21 - 23).



**Figure 2-40 PCM Highway Running**

2. Mounting Location/Condition

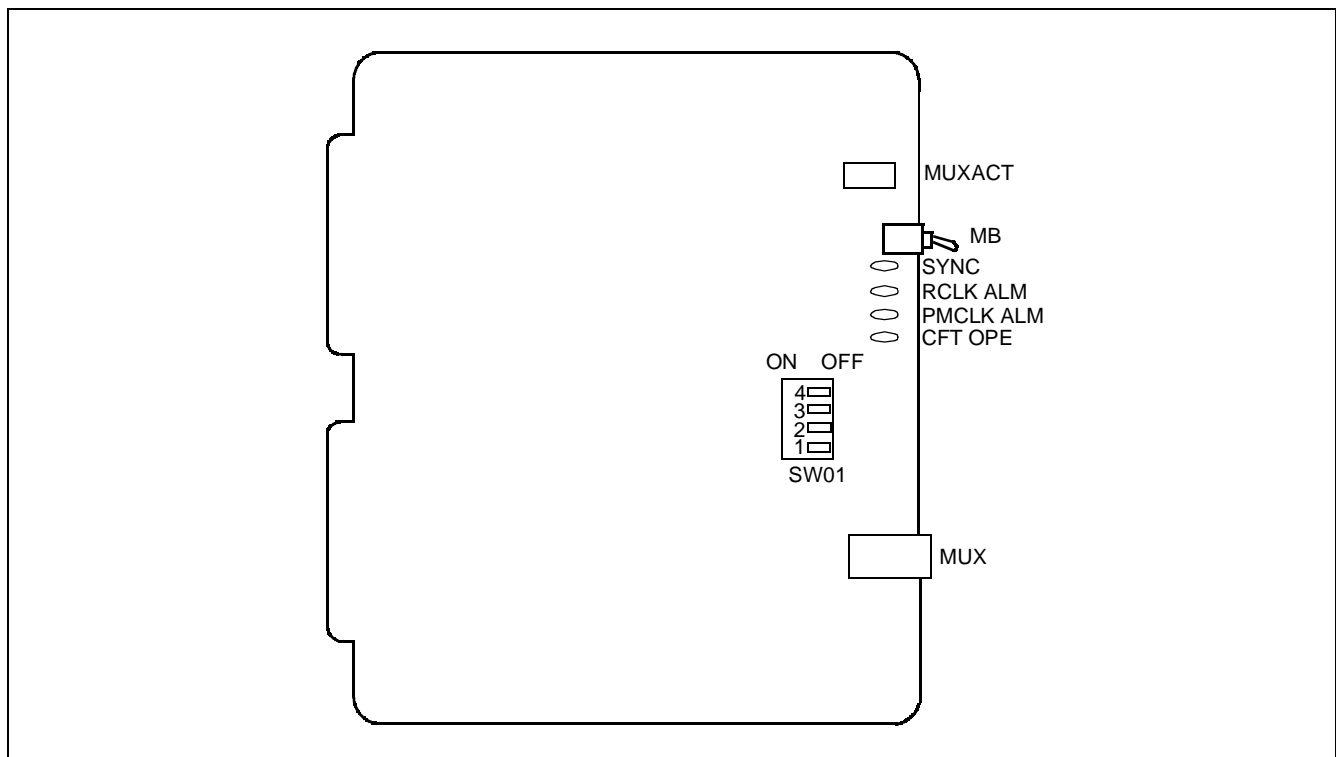
For the 1 IMG system, the PH-PC36 (MUX) card is mounted in the PIM 1, 2, and 3.

For the 4 IMG system, the PH-PC36 (MUX) card is required in all PIMs.

PIM	Mounting Module		PIM																						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
														MUX #0	MUX #1										

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 2-41](#).



**Figure 2-41 Face Layout of PH-PC36 (MUX)**

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
MUX ACT	Green	Remains lit while this circuit card is in ACT state.
SYNC	Green	Lights when 32 Mbps Frame Head (FH) synchronization is established between the MUX and TSW.
RCLK ALM	Red	Lights when the 32 Mbps clock signals (which is supplied by TSW) loss has occurred.
PMCLK ALM	Red	Lights when either the following clock signals output failure has occurred. <ul style="list-style-type: none"> <li>• 2 Mbps clock signals (which supplies to the line/trunks)</li> <li>• Frame Head signal</li> <li>• 4 Mbps clock signals</li> </ul>
CFT OPE	Green	Lights when the CFT circuit is valid.

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card Make-busy.
		DOWN	×	Circuit card Make-busy cancel.
SW01	1	ON		3-Party Conference Function (CFT) is valid.
		OFF		3-Party Conference Function (CFT) is invalid.
	2	ON		Setting of A-Law in the CFT function block.
		OFF	×	Setting $\mu$ -Law in the CFT function block.
	3	OFF	×	Not used.
	4	OFF	×	Not used.

6. External Interface

For the 1 IMG system, the cable connections between the MUX and the TSW are illustrated in [Figure 2-42](#).

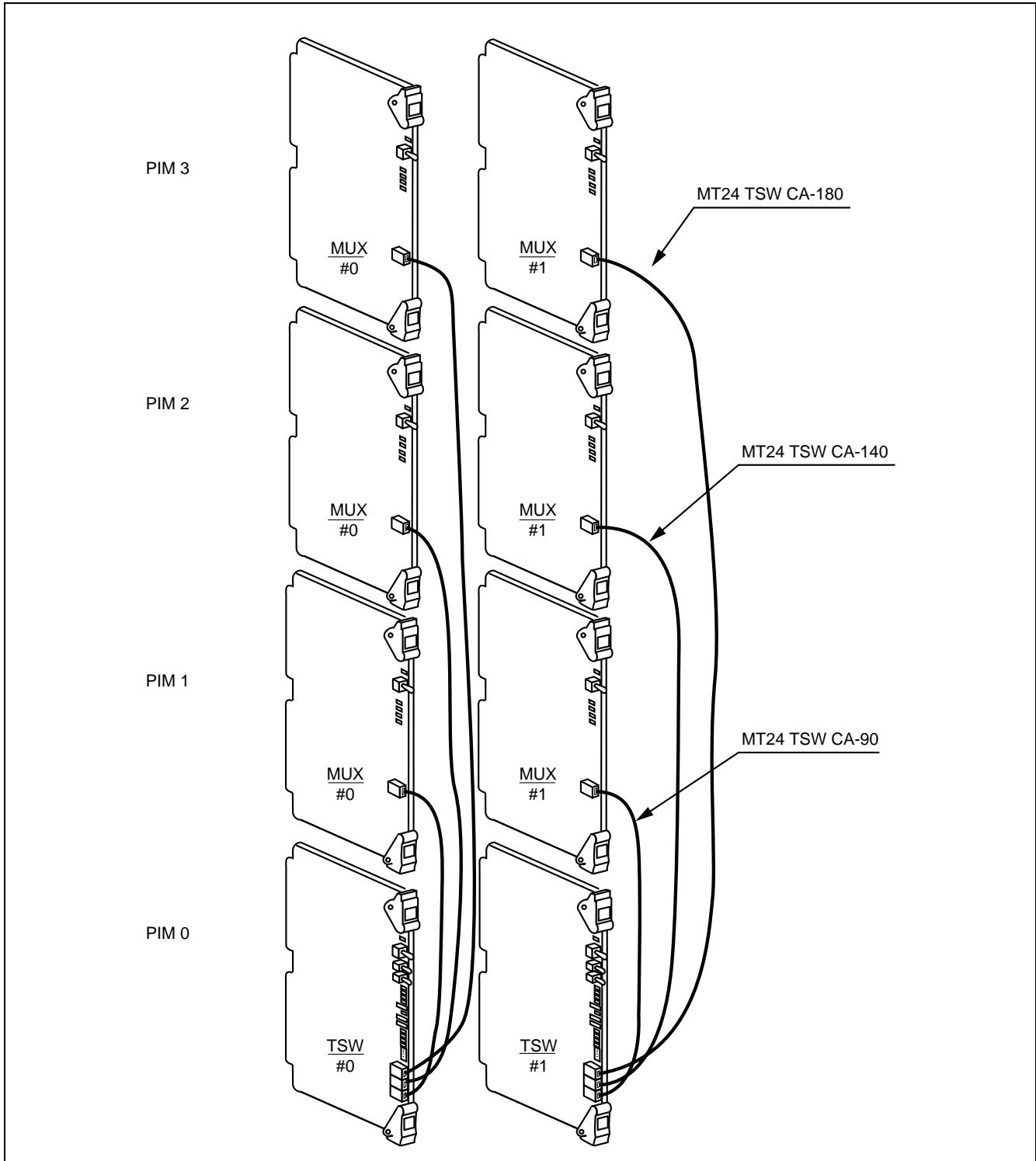
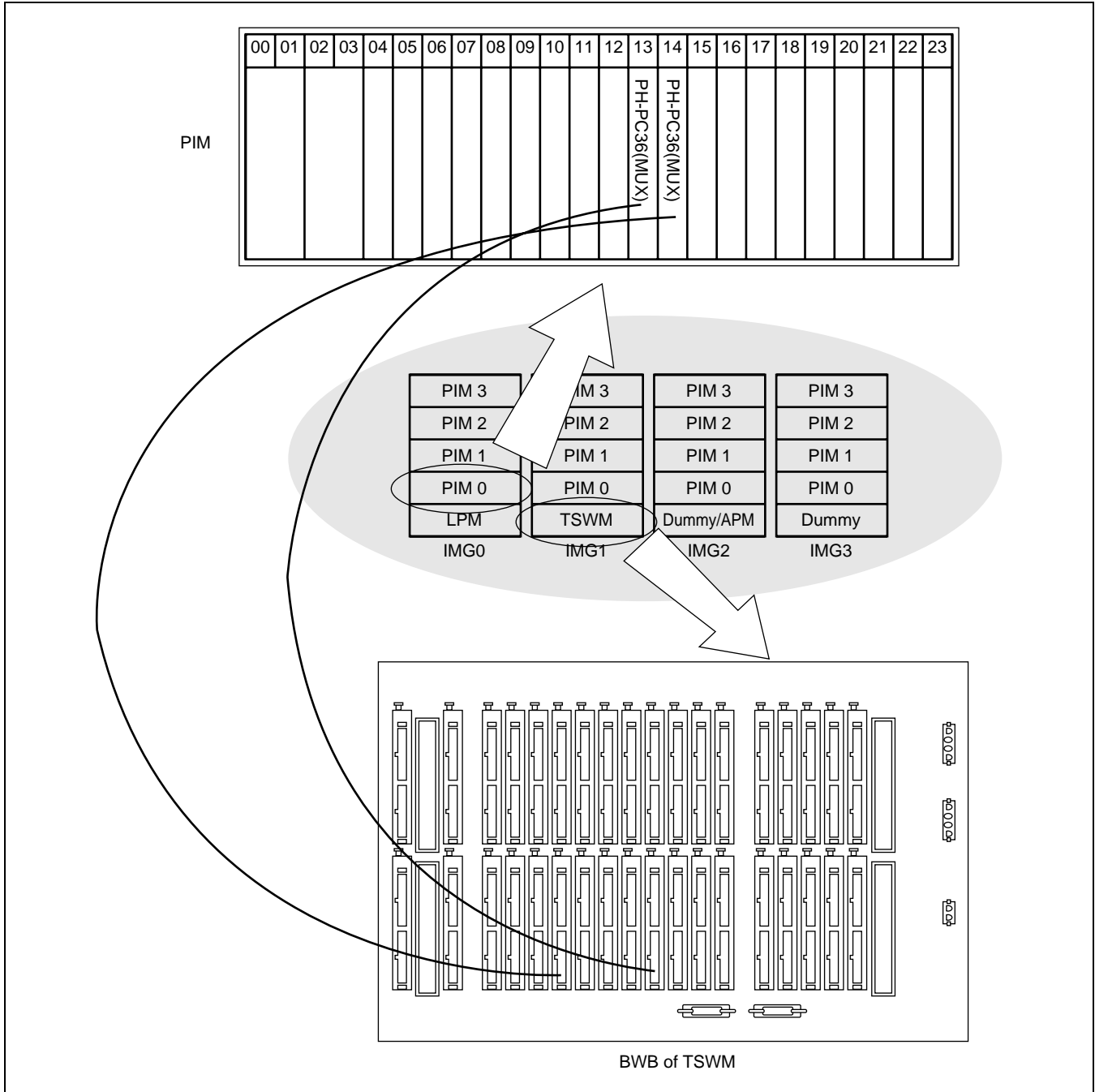


Figure 2-42 External Interface for PH-PC36

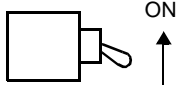

**PH-PC36**  
Multiplexer

The cable connections between the MUX and the TSW are illustrated in [Figure 2-43](#). As seen in this illustration, the cable connected to the front of the MUX leads to the “MUX###” connector on the Back Wired Board (BWB) of the TSWM. See the NEAX2400 IPX Installation Manual for more details.



**Figure 2-43 Cable Connections between the MUX and the TSW**

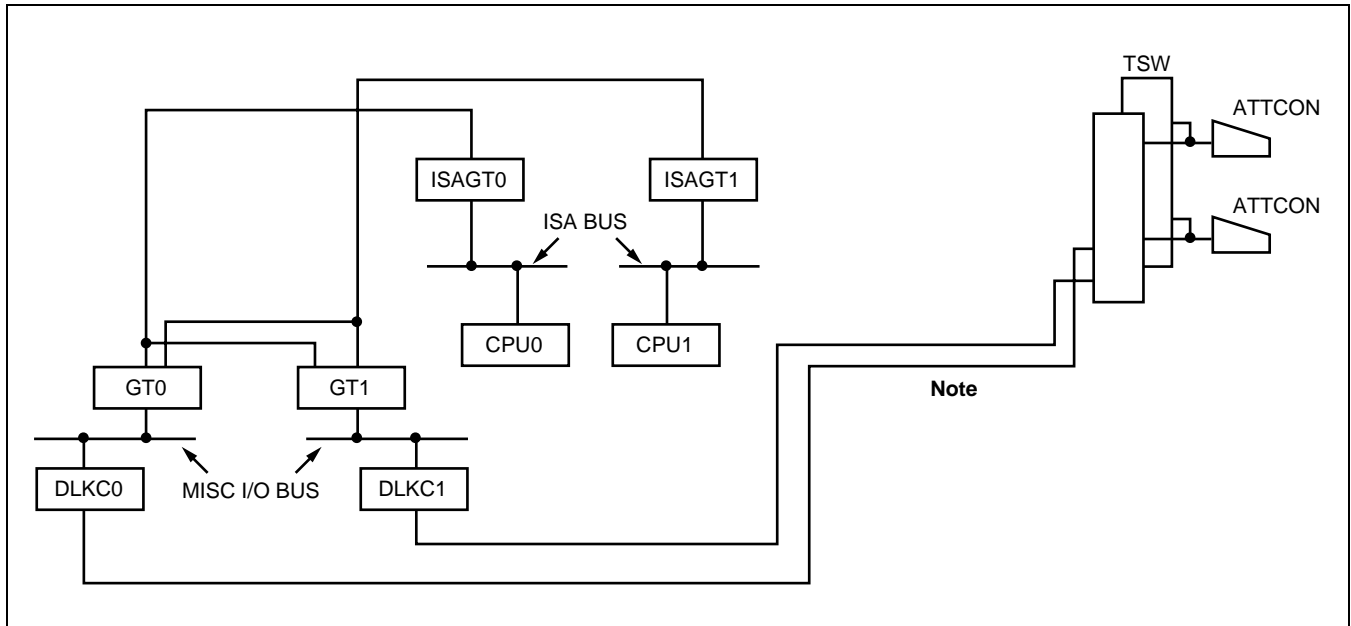
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW01		

**PH-PC20**  
**Data Link Controller**

1. General Function

This circuit card simultaneously provides all Attendant Consoles (ATTs) in the system (except the 1-IMG system) with information such as the termination/answer/release (abandoned) information of ATT calls, or the station idle/busy information through the TSW system link.



**Figure 2-44 Location of PC-PH20 in the System**

**Note:** *MG = 01/03/05/07, Unit = 2, Group = 25, Level = 6-7 are used to input the information into TSW by the DLKC.*

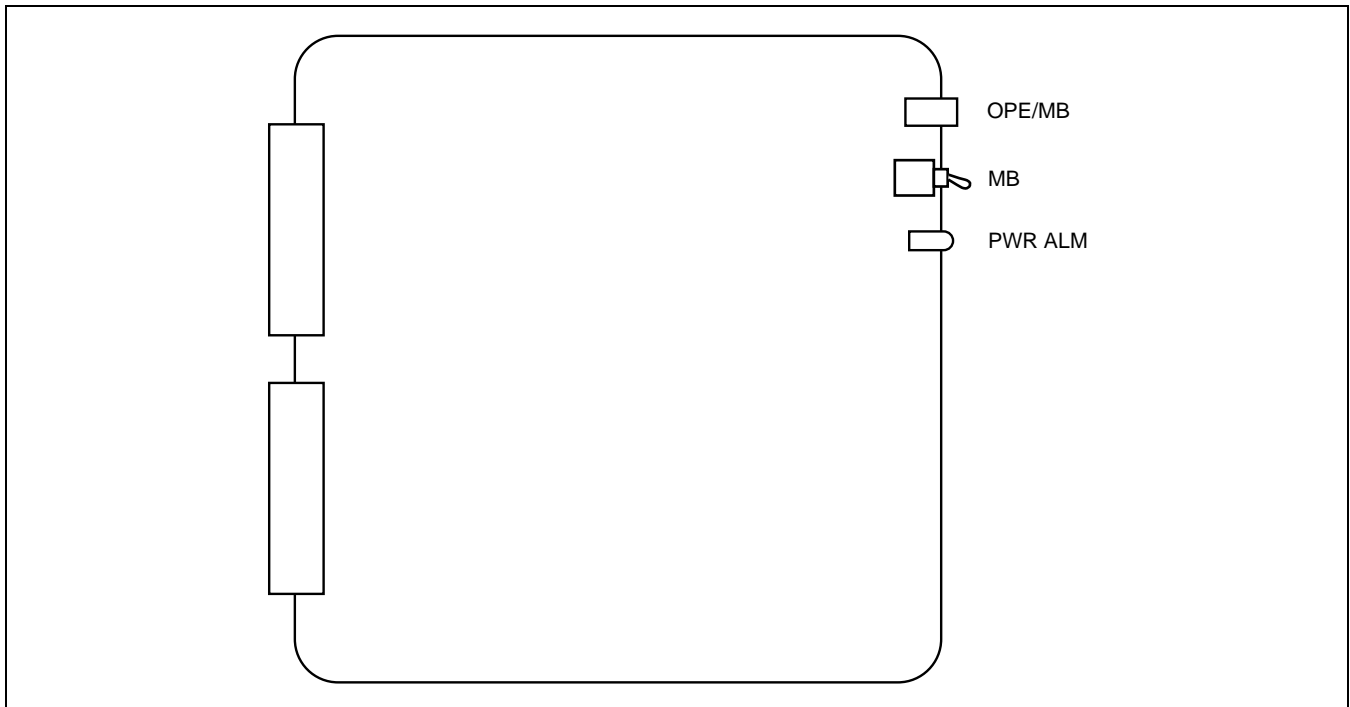
2. Mounting Location/Conditions

Mounting Module		<b>TSWM</b>																						
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
								DLKC#0	DLKC#1															



### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches and connectors of this circuit card is shown in [Figure 2-45](#).



**Figure 2-45 Face Layout of the PC-PH20 Card**

### 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE/MB	Green	Remains lit while this circuit card is in ACT state.
	Red	Remains lit while this circuit card is in Make-busy state or when the firmware is abnormal.
PWR ALM	Red	Lights when the On-Board Power Supply located on this circuit card is abnormal.

### 5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card Make-busy.
		DOWN		Circuit card Make-busy cancel.

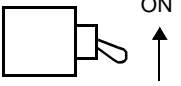
### 6. External Interface

**PH-PC20**

Data Link Controller

No cable connections are required.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB	 A diagram of a rectangular switch with a knob on the right side. To the right of the knob is an upward-pointing arrow with the word "ON" above it.	

# PH-PC45 Emergency Alarm Controller

## 1. General Function

The PH-PC45 (EMA) circuit card detects various kinds of alarms which might occur in the system, and sends out information about the detected alarm to the circuits concerned. This circuit card can activate the system MJ/MN LEDs on the TOPU. Additionally, this card can control the active/stand-by status of the CPU in the case of dual configuration. For the 1 IMG system, this circuit card has the Music-On-Hold sending function, too.

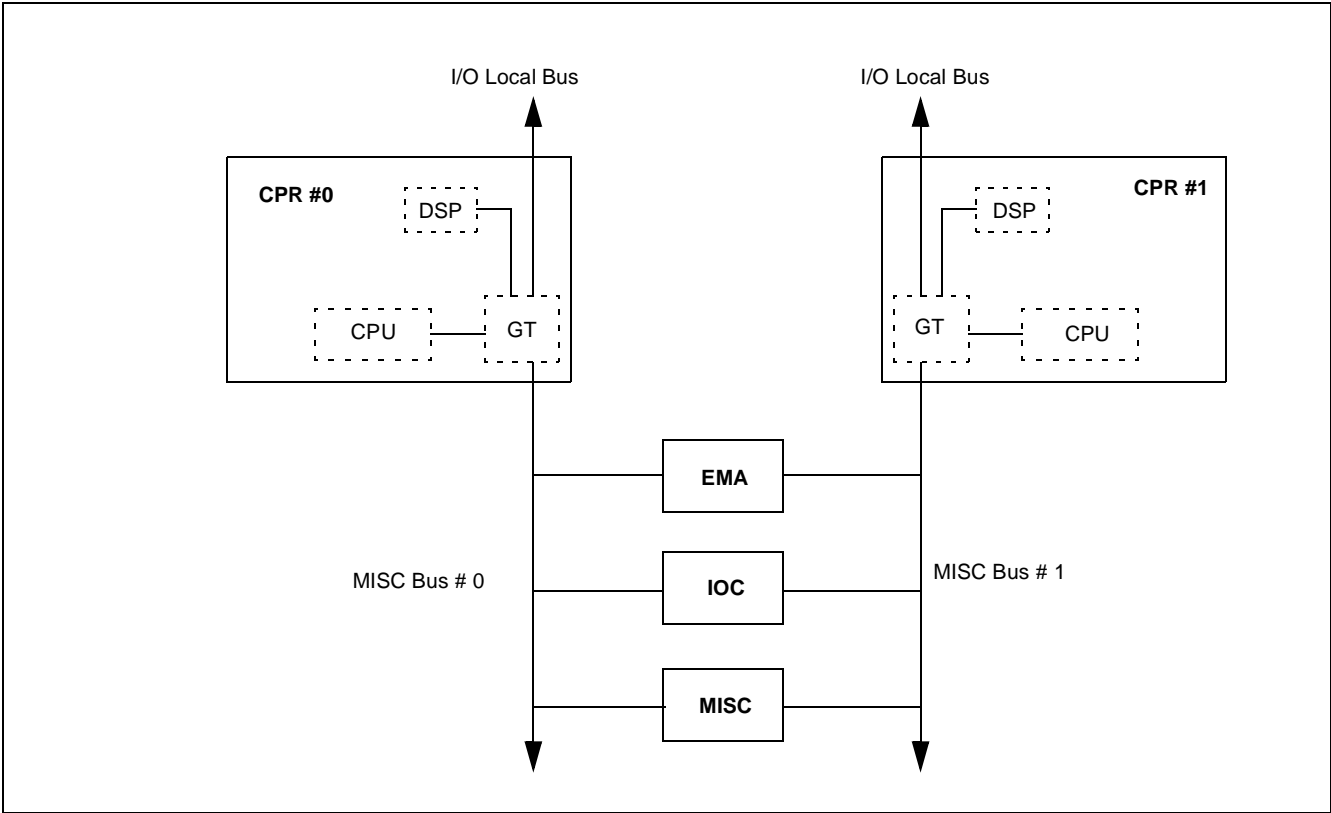
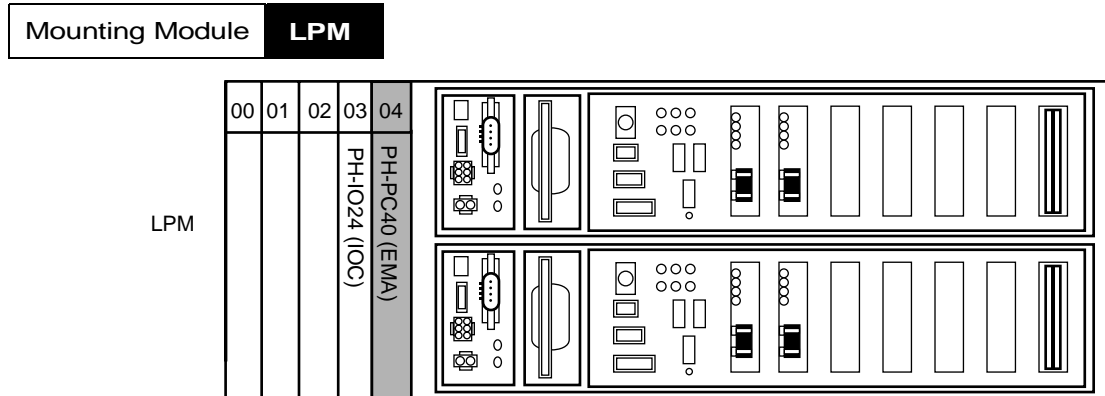


Figure 2-46 Location of PH-PC45 (EMA) Card in the System

**PH-PC45**  
Emergency Alarm Controller

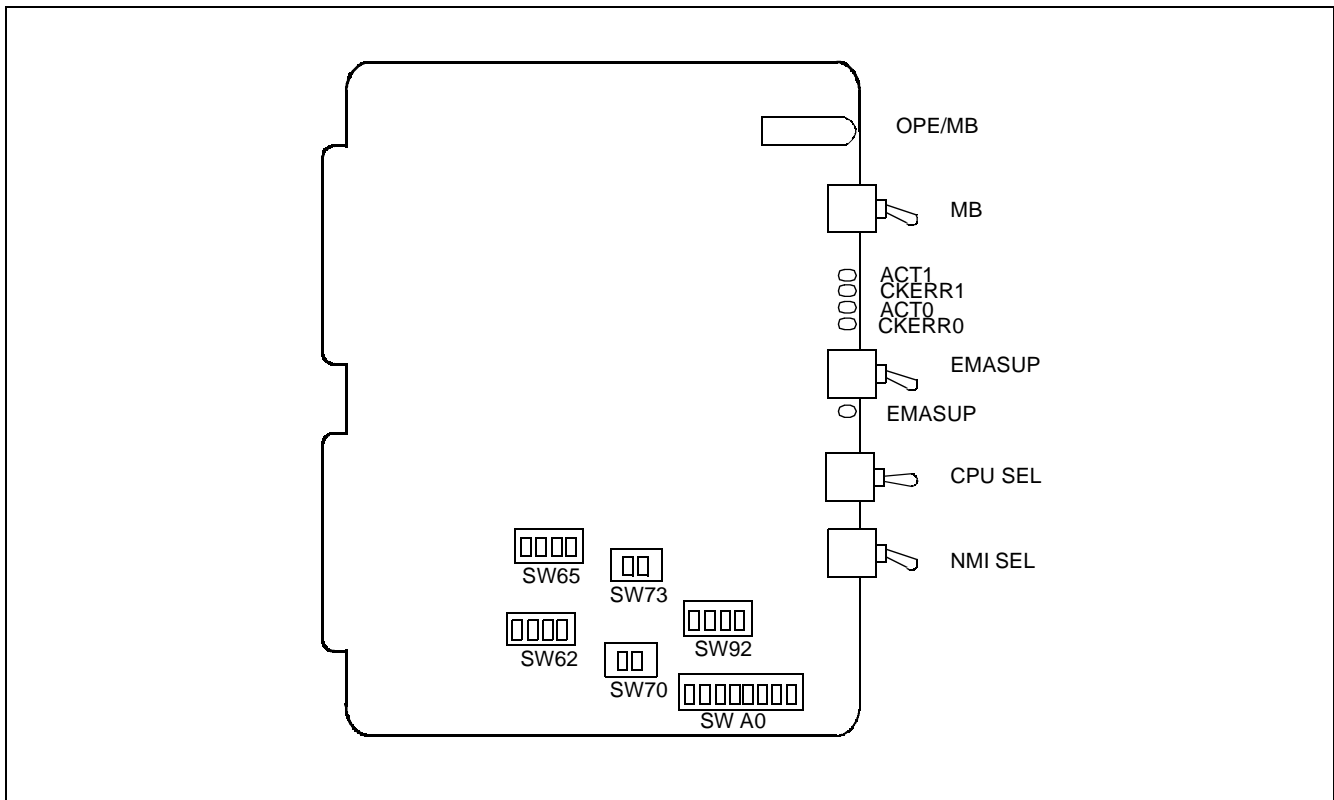
2. Mounting Location/Condition

The PH-PC45 (EMA) card is mounted in Slot 04 of the LPM, as shown below.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 2-47](#).



**Figure 2-47 Face Layout of the PH-PC45 (EMA) Card**

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE/MB	Green	Indicates the circuit card is operating normally.
	Red	Indicates the circuit card is in a Make-busy state.
ACT1	Green	CPU #1 is in the ACT state.
CKERR 1	Red	CPU #1 clock failure has occurred.
ACT0	Green	CPU #0 is in the ACT state.
CKERR 0	Red	CPU #0 clock failure has occurred.
EMSUP	Green	Disable the CPU change-over. (When EMSUP key is set upward .)
	OFF	Enable to the CPU change-over.

5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Make-busy of the circuit card.
	DOWN		Normal setting.
EMASUP	UP		Make-busy of the CPU change-over circuit.
	DOWN	×	Normal setting.
CPUSEL	UP		Forced activating the CPU #1.
	MIDDLE	×	Denial of the forced CPU selection. <b>Note</b>
	DOWN		Forced activating the CPU #0.
NMISEL	UP		Outputs the Non-Maskable Interruption (NMI) signal to the CPU when a fault occurs.
	DOWN	×	Outputs the RST (Reset) signal to the CPU when a fault occurs.

**Note:** Set CPUSEL switch downward, if a single CPU system.

**PH-PC45**  
Emergency Alarm Controller

SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING															
SW62	1	ON		Power Shut Down (PSDN) function (used in Australia only)															
		OFF	×																
	2	ON																	
		OFF	×																
	3	ON																	
		OFF	×																
	4	ON																	
		OFF	×																
				<table border="1"> <thead> <tr> <th>SW62</th> <th>ON</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>SW62-1</td> <td>IMG#0 valid</td> <td>IMG0# invalid</td> </tr> <tr> <td>SW62-2</td> <td>IMG#1 valid</td> <td>IMG1# invalid</td> </tr> <tr> <td>SW62-3</td> <td>IMG#2 valid</td> <td>IMG2# invalid</td> </tr> <tr> <td>SW62-4</td> <td>IMG#3 valid</td> <td>IMG3# invalid</td> </tr> </tbody> </table>	SW62	ON	OFF	SW62-1	IMG#0 valid	IMG0# invalid	SW62-2	IMG#1 valid	IMG1# invalid	SW62-3	IMG#2 valid	IMG2# invalid	SW62-4	IMG#3 valid	IMG3# invalid
SW62	ON	OFF																	
SW62-1	IMG#0 valid	IMG0# invalid																	
SW62-2	IMG#1 valid	IMG1# invalid																	
SW62-3	IMG#2 valid	IMG2# invalid																	
SW62-4	IMG#3 valid	IMG3# invalid																	
SW65	1	ON	×	Output the CPU-ACT Signal to the another EMA (when this circuit card is used in the one frame stack configuration).															
		OFF		CPU-ACT Signal does not output.															
	2	ON		Not used.															
		OFF	×	Not used.															
	3	ON		Dual CPU configuration.															
		OFF		Single CPU configuration.															
	4	ON	×	PZ-DK223 (or PZ-DK173) is used for the DSPP on the TOPU.															
		OFF		PZ-DK179 is used for the DSPP on the TOPU.															
SW70	1	ON		External music on hold source (FM lead) is used.															
		OFF		Internal music on hold source IC is used.															
	2	ON		Output the alarm information for the external indicator (used in Australia only).															
		OFF	×	Alarm information does not output.															
SW73	1	ON	×	Power Failure Transfer (PFT) control is valid.															
		OFF		PFT control is invalid.															
	2	ON	×	μ-law PCM CODEC is applied for the music.															
		OFF		A-law PCM CODEC is applied for the music.															

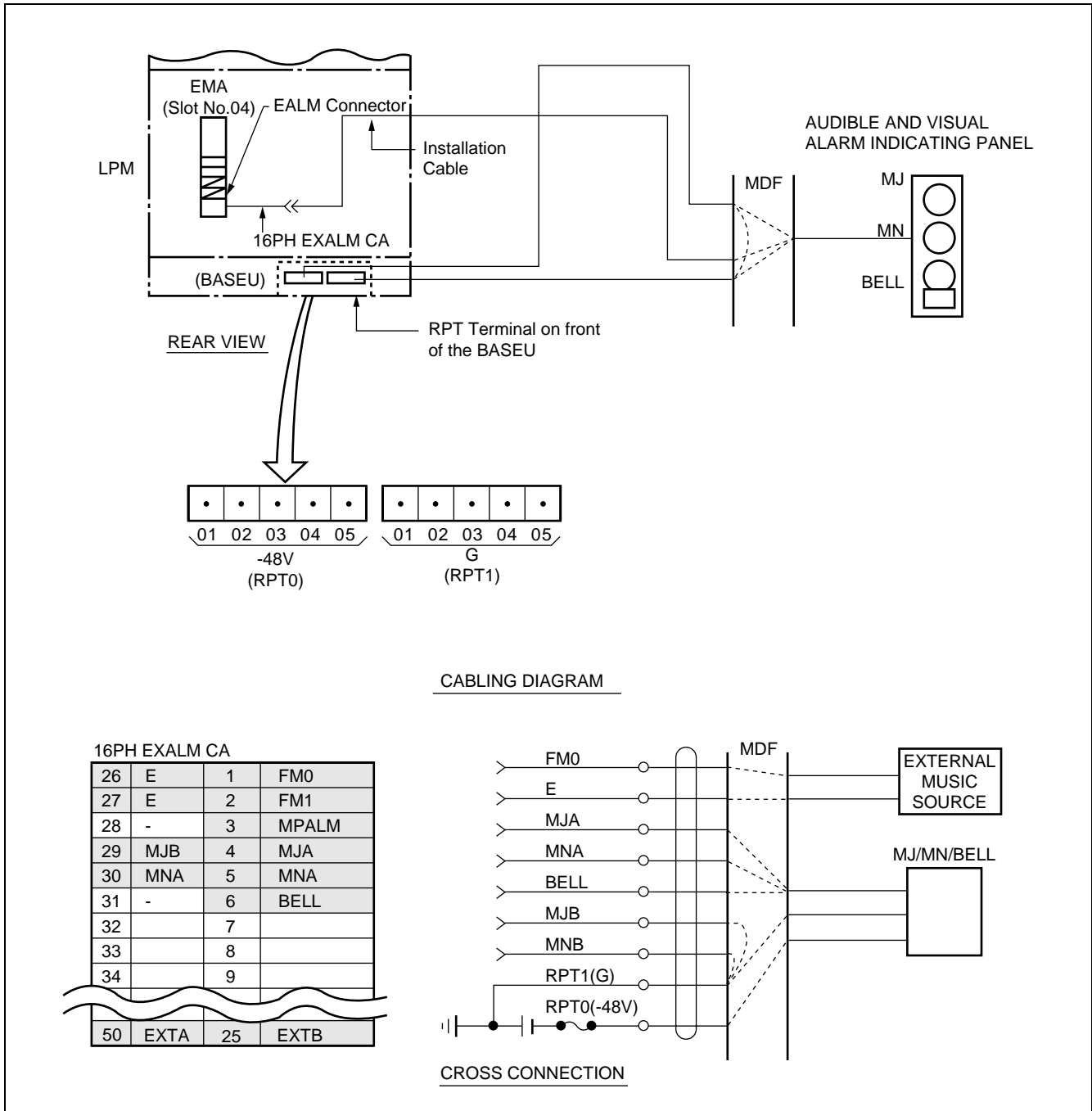
SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING	
<b>SW92</b> <b>Note</b>	1	<b>SW92-1</b>	<b>SW92-2</b>	<b>Impedance of the External Music Source 0 (FM 0)</b>	
		OFF	OFF	600 Ω	
		ON	OFF	8.2 Ω	
	2	OFF	ON	47K Ω	
		<b>SW92-1</b>	<b>SW92-2</b>	<b>Impedance of the External Music Source 1 (FM 1)</b>	
		OFF	OFF	600 Ω	
	3	ON	OFF	8.2 Ω	
		OFF	ON	47K Ω	
		<b>SWA0-1</b>	<b>SWA0-2</b>	<b>SWA0-3</b>	<b>MUSIC</b>
	1	OFF	OFF	OFF	Für Elise
		ON	OFF	OFF	Maiden's prayer
		Don't care	OFF	ON	Buzzer
Don't care		ON	OFF	Chime	
<b>SWA0</b> <b>Note</b>	4	ON		Not used	
		OFF	×	Not used	
	5	MUSIC CH1 selection. The kind of music varies depending on the melody IC located on this circuit card.			
	6				
	7				
	8	ON		Not used	
		OFF	×	Not used	

**Note:** SW92 and SWA0 are used in the 1 IMG system only.

**PH-PC45**  
Emergency Alarm Controller

6. External Interface

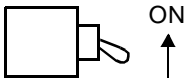
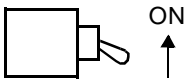
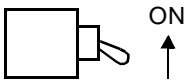
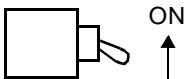
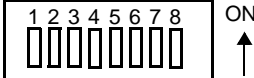
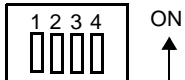



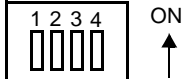
External equipment may be connected to this circuit card. The physical connection diagram for the external equipment for Music-On-Hold and External Alarm is shown in [Figure 2-48](#).



**Figure 2-48 Connection of Alarm Indicating Panel and Music on Hold**



7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
EMA-SUP		
CPU-SEL		
NMI-SEL		
SWA0		
SW62		
SW65		
SW70		
SW73		
SW92		

## PH-PW14 Power Switch

### 1. General Function

This circuit card is a power supply card that supplies DC -48 V operating power to the circuit cards mounted in the TSWM. It also provides the DC-DC converter function which generates output power DC+5 V, -5 V, and +12 V to MISC slots.

The two PWR SWs cards make the power supply redundant.

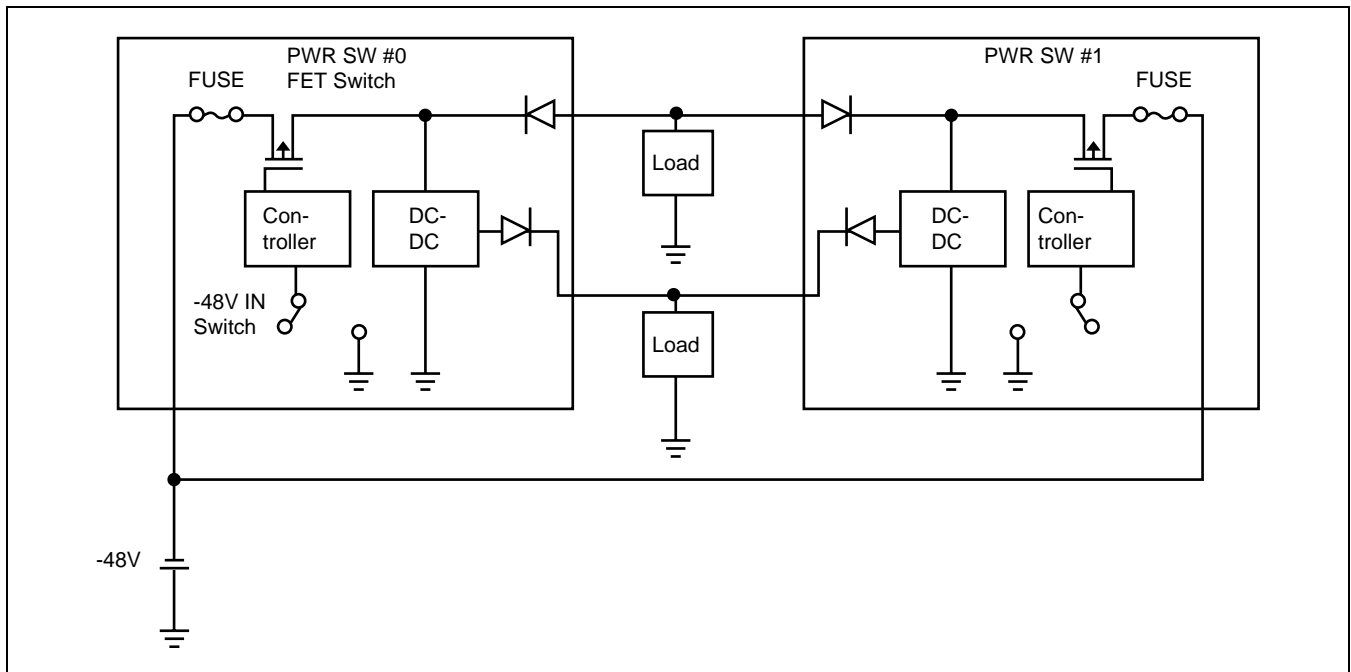


Figure 2-49 -48 V Output Circuit Diagram

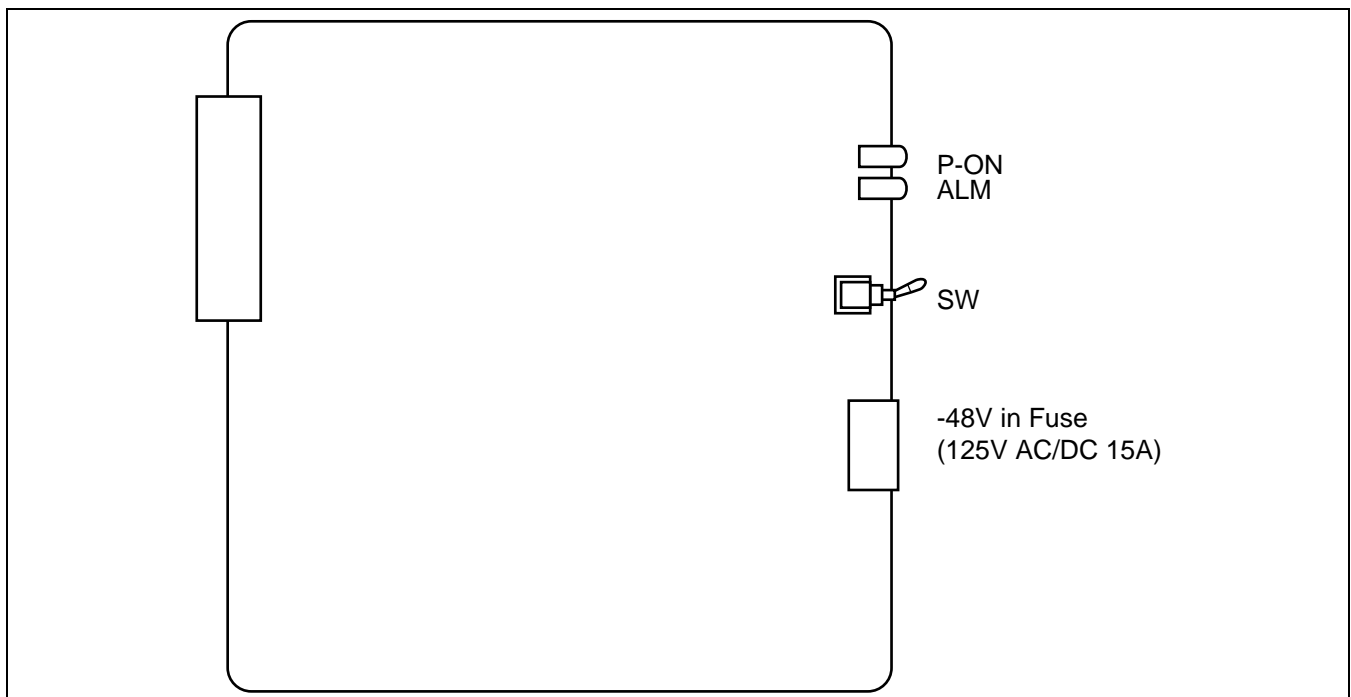
2. Mounting Location/Conditions

This circuit card is mounted in the following shaded slots (00, 01).

Mounting Module		TSWM/ISWM																					
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PWR SW#0	PWR SW#1																						

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors for this circuit card is shown in [Figure 2-50](#).



**Figure 2-50 Face Layout of the PH-PW14 Card**

**PH-PW14**

## Power Switch

## 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
P-ON	Green	Remains lit while this circuit card is operating.
ALM	Red	Lights when SW switch is set at OFF position or it is faulty.

## 5. Switch Settings

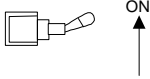
Standard settings for various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW		ON	×	The card supplies the operating power to various circuit cards.
		OFF		

## 6. External Interface

No cable connections are required.

## 7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
	00 01	SW		-48 V operating power is supplied to various circuit cards.

## PH-SW10 Time Division Switch

### 1. General Function

This circuit card combines the Time Division Switch (TSW) with INT, PLO, MUX, and CFT.

The TSW capacity is 2048×2048 time slots, and it allows non-block switching for the maximum IPX configuration. The INT is an intermediate circuit of the CPR which controls and administrates the Port Microprocessor (PM) of line/trunk circuit cards via the PM BUS.

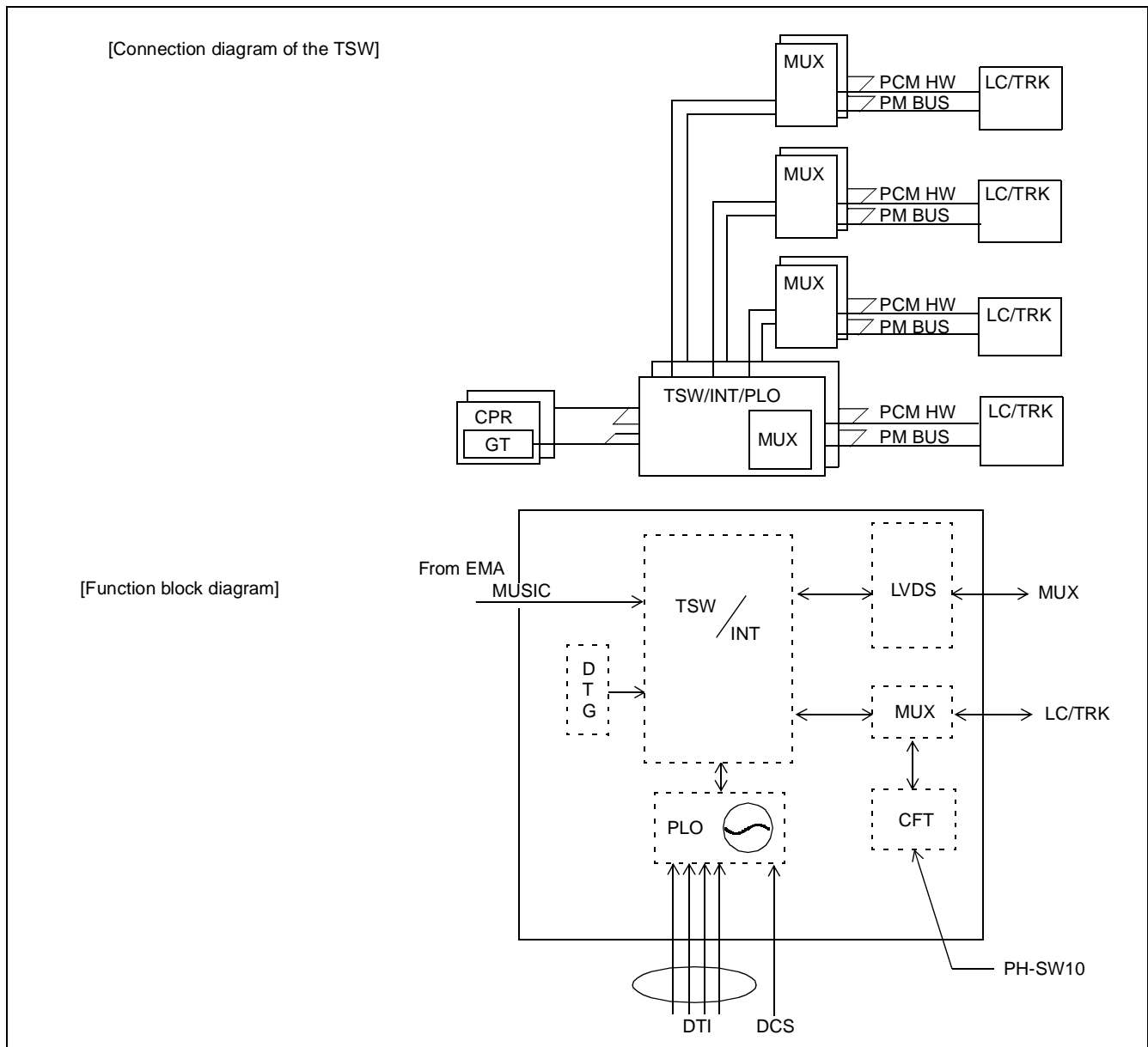
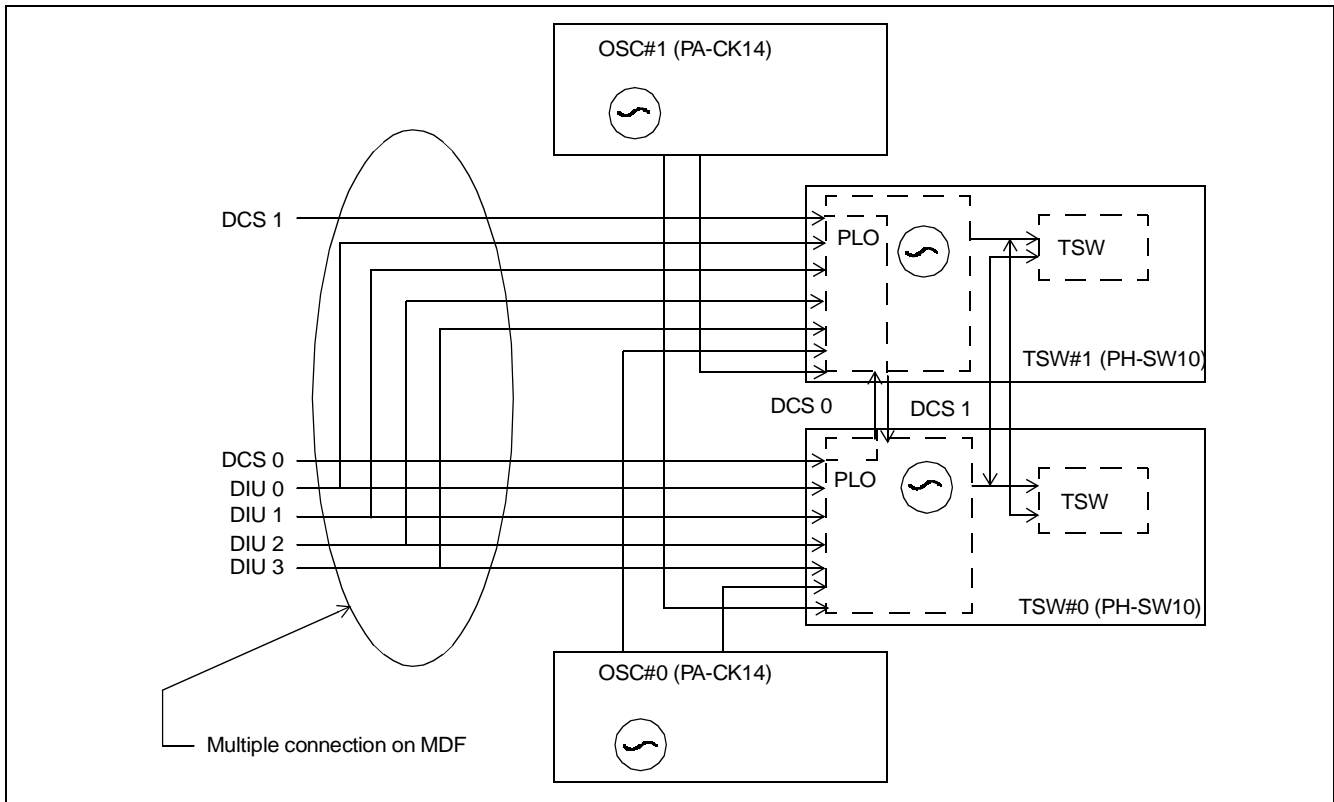


Figure 2-51 Location of PH-SW10 (TSW) Card in the System

Figure 2-52 shows the clock signal routing around the Phase Locked Oscillator (PLO).



**Figure 2-52 PLO Function Diagram**

When the system operates as the clock source office of the digital network, the OSC (PA-CK14) card is required, and the OSC supplies the high-precision clock signals ( $\pm 0.3$  ppm deviation) for the base clock of the PLO. When the system operates as the clock subordinate office, the TSW internal oscillator ( $\pm 5$  ppm deviation) can be the base clock of the PLO. The source clock of the subordinate office is either the digital clock supply (DCS) or the digital interface clock (DIU0 - DIU3). When the clock source failure has occurred, the PLO chooses another clock source automatically in the order of:

1. DCS0
2. DCS1
3. DIU0
4. DIU1
5. DIU2
6. DIU3
7. Drifting with the TSW internal oscillator

The PLO can output the clock signals (CLK) and the frame head signals (FH) as follows:

- 32.768 MHz CLK
- 8 KHz FH
- 5 msec × “n” FH (for wireless module).

The MUX performs multiplexing/de-multiplexing of the 2 Mbps PCM highways running in PIM 0, and it sends/receives the PCM to/from the TSW, and operates like the MUX card of PIM 1/2/3.

This circuit card includes the Digital Tone Generator (DTG) and hold tone (MUSIC) insertion circuit. The TONE ROM located on this circuit card contains the audible tone, and the hold tone is supplied from the EMA card. In addition, the designated time slot of PCM (Speech Path Memory: SPM) can be inserted as a tone/music voice prompt. (For example, you can join the SPM and a DAT port by the nailed down connection, and the DAT's voice prompt is given to the system instead of ordinary tone/music.)

Additionally, this circuit card supports the CFT (3-Party Conference) function and is equipped with eight circuits of 3-Party Conference Trunk.

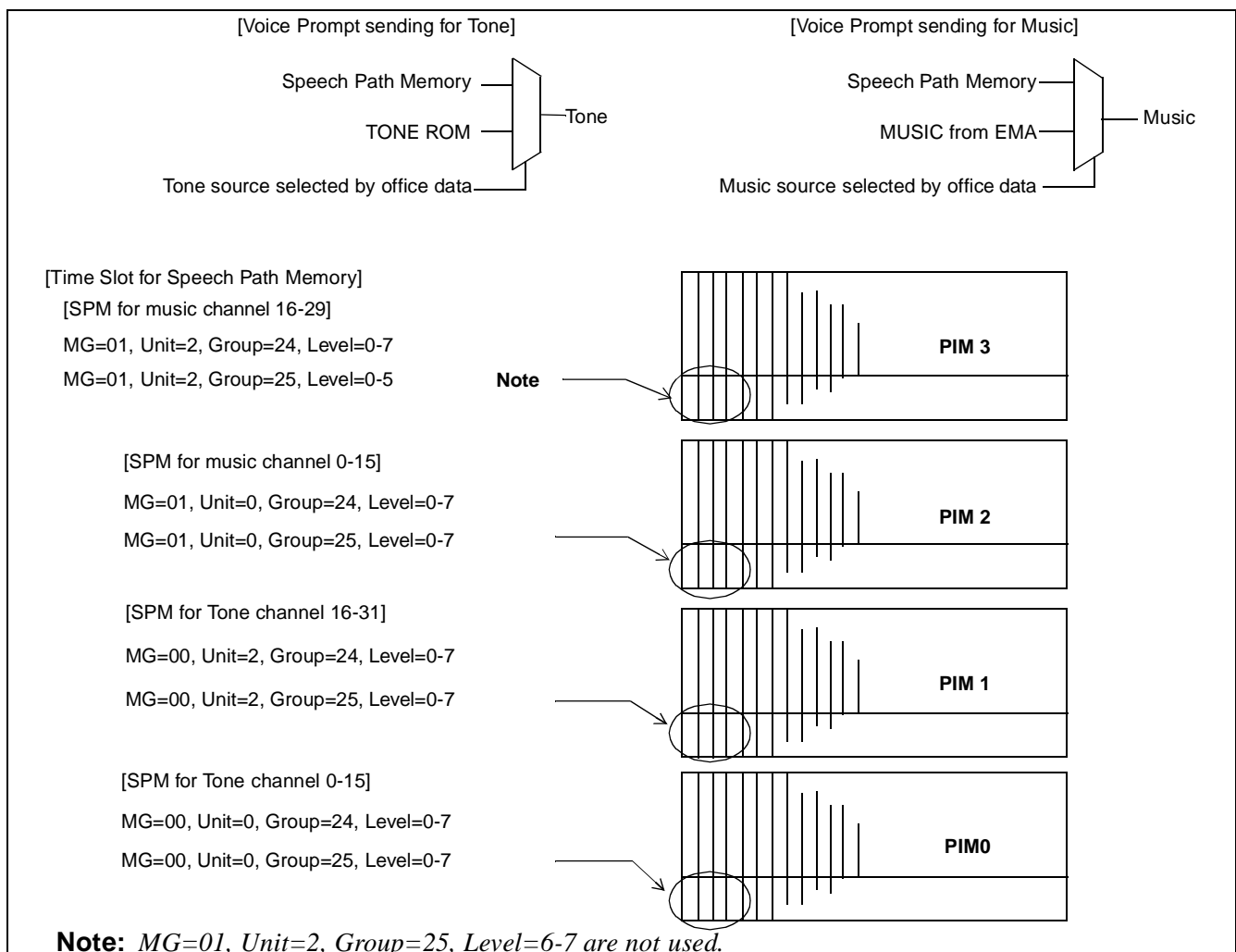


Figure 2-53 Voice Prompting

**PH-SW10**  
Time Division Switch

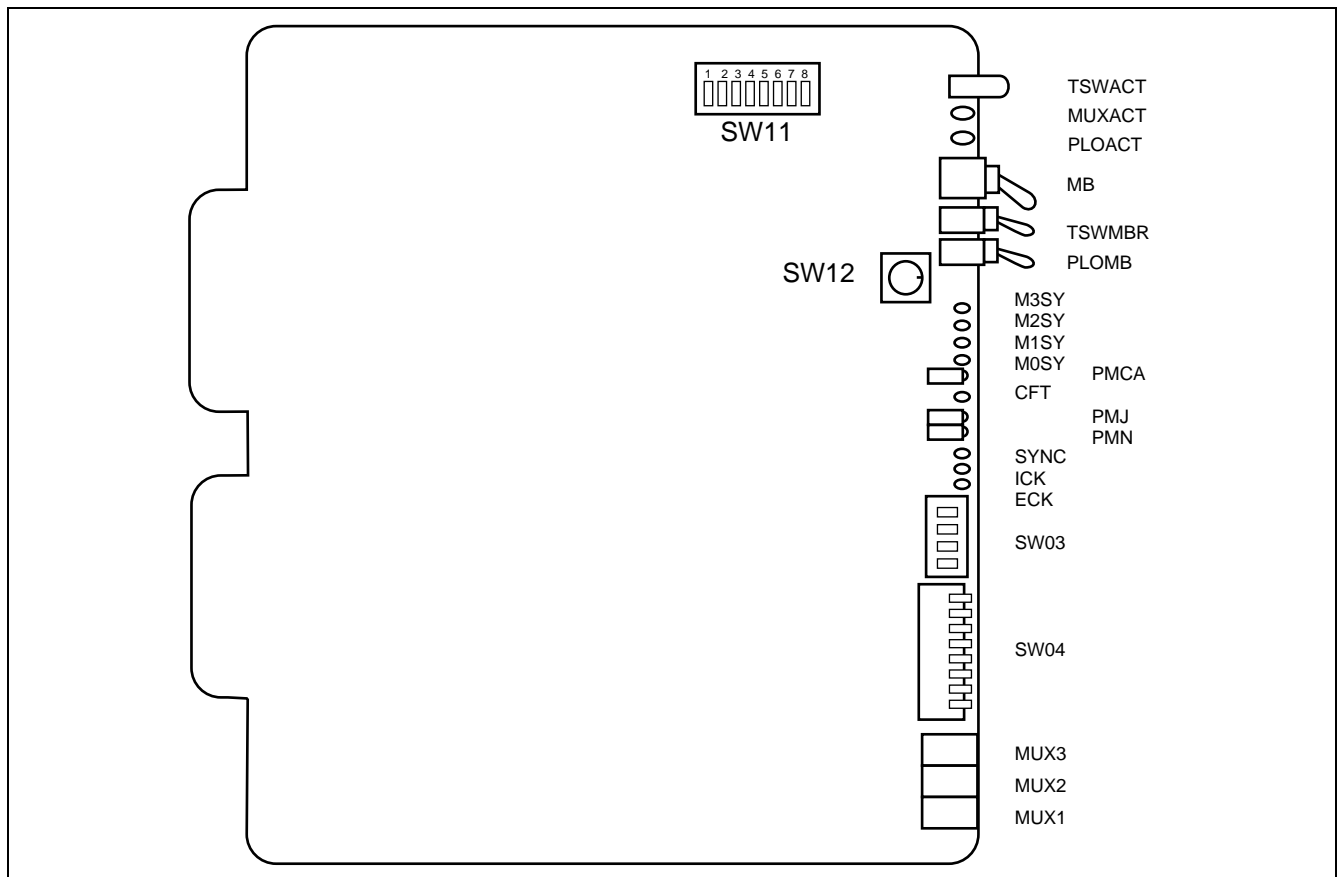
2. Mounting Location/Condition

This circuit card is mounted in PIM number zero (0) of the slot shown below.

Mounting Module	PIM																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM0														TSW #0	TSW #1									

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches and connectors is shown in [Figure 2-54](#).



**Figure 2-54 Face Layout of PH-SW10 (TSW)**



#### 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
TSWACT	Green	Remains lit while the TSW block is in ACT state.
	Red	Remains lit while the TSW block is in Make-busy state.
	Off	Remains off while the TSW block is ST-BY side.
MUXACT	Green	Remains lit while MUX block is in ACT state.
PLOACT	Green	Remains lit while PLO block is in ACT state.
M3SY	Green	Lights when MUX #3 synchronization has been established.
M2SY	Green	Lights when MUX #2 synchronization has been established.
M1SY	Green	Lights when MUX #1 synchronization has been established.
M0SY	Green	Lights when MUX #0 synchronization has been established.
PMCA	Red	Lights when the PM/PCM bus clock FH failure has occurred.
CFT	Green	Lights when the CFT circuit is valid.
PMJ	Red	<p>Lights when the following MJ fault has occurred:</p> <ul style="list-style-type: none"> <li>• All of the clock supply routes have failed when the system operates as the clock subordinate office</li> <li>• 32.768 MHz output clock failure</li> <li>• 8 KHz output FH failure</li> <li>• 5 msec × “n” output FH failure</li> <li>• Input Frame Pulse (FP) failure (FP is supplied by the SYNC card)</li> <li>• Both internal OSC (±5 ppm deviation) and high-precision clock signals (±0.3 ppm deviation) have failed when the system operates as the clock source office</li> </ul>
PMN	Yellow	<p>Lights when the following MN fault has occurred:</p> <ul style="list-style-type: none"> <li>• One or more (but not all) DTI/DCS clock supply routes have failed</li> <li>• Drifting failure</li> <li>• Internal OSC (±5 ppm) failure</li> <li>• High-precision clock signals (±0.3 ppm) failure</li> </ul>

**PH-SW10**  
Time Division Switch

LAMP NAME	COLOR	STATE
SYNC	Green	Remains lit while the system is synchronized with the network.
	OFF	Remains off when any of the following have occurred. <ul style="list-style-type: none"> <li>• DCS clock failure when receiving the clock signals from the DCS.</li> <li>• DTI clock failure when receiving the clock signals from the DTI.</li> <li>• Drifting failure</li> </ul>
ICK	Green	Lights when the TSW (PA-SW10) internal oscillator is operating normally. <b>Note 1:</b> <i>The ICK LED will illuminate even when the internal PLO circuit is operational.</i>
ECK	Green	Lights when the high-precision clock signals are received from OSC circuit card (PA-CK14). <b>Note 2:</b> <i>The ICK LED will not illuminate when the PA-CK14 is operational.</i>

5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
TSWMBR	UP		TSW Make-busy request.
	DOWN	×	TSW Make-busy request cancel.
PLOMBR	UP		PLO Make-busy request.
	DOWN	×	PLO Make-busy request cancel.
SW12	1-F	1	Fixed to "1."

SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING
SW03	1	ON		3-Party Conference Trunk (CFT) is valid.
		OFF		3-Party Conference Trunk (CFT) is invalid.
	2	ON		Setting of A-law in the CFT function block.
		OFF	×	Setting of $\mu$ -law in the CFT function block.
	3	OFF	×	Fixed.
	4	ON		Only MUX function is valid (If this card is mounted in PIM 1/2/3). <b>Note</b>
OFF		×	TSW/INT/PLO/MUX are valid (When this card is mounted in PIM 0).	
SW04	1	ON		DIU 0 is used as the DTI clock supply route zero.
		OFF		DIU 0 is not used.
	2	ON		DIU 1 is used as the DTI clock supply route one.
		OFF		DIU 1 is not used.
	3	ON		DIU 2 is used as the DTI clock supply route two.
		OFF		DIU 2 is not used.
	4	ON		DIU 3 is used as the DTI clock supply route three.
		OFF		DIU 3 is not used.
	5	ON	×	1.5 M clock for DIU 0
		OFF		2 M clock for DIU 0
	6	ON	×	1.5 M clock for DIU 1
		OFF		2 M clock for DIU 1
	7	ON	×	1.5 M clock for DIU 2
		OFF		2 M clock for DIU 2
	8	ON	×	1.5 M clock for DIU 3
		OFF		2 M clock for DIU 3

**Note:** When MUX card mode (SW03-4 ON), only MUX and CFT functions are valid. MUX 1 is used for a connection to TSW (Don't use MUX 2, 3). The LED of MUXACT, MOSY, CFT, and PMCA are valid, other LED is not lit. In this mode, only SW03 is valid.

**PH-SW10**  
Time Division Switch

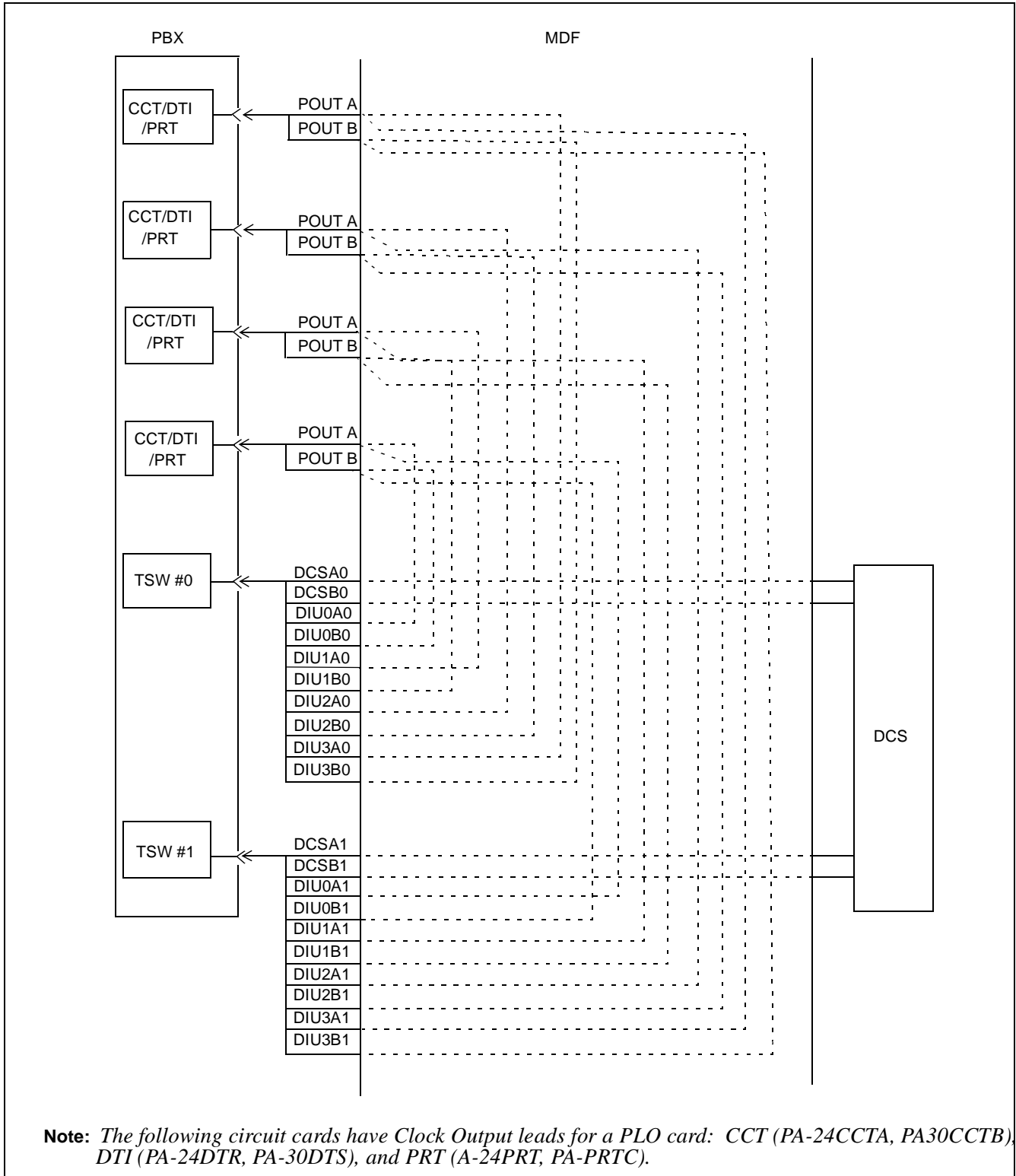
SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW11	1	ON		PLO operates as the clock subordinate office.
		OFF		PLO operates as the clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used.
		OFF		Digital Clock Supply route zero (DCS 0) is not used.
	3	ON		Digital Clock Supply route one (DCS 1) is used.
		OFF		Digital Clock Supply route one (DCS 1) is not used.
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF		8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF		When clock source failure has occurred in all supply routes, the PLO continues outputting the current phase clock.
	6	ON		This card is associated with SYNC (PA-CK16) card and 5 m Frame Pulse (FP) is supplied by the SYNC card.
		OFF		This card is not associated with SYNC (PA-CK16) card.
	7	ON		(The last byte data of the DTG ROM is "FE")
		OFF	×	(The last byte data of the DTG ROM is "FF")
	8	OFF	×	Not used

6. External Interface

When this circuit card is used in “clock subordinate office,” clock signals from DTI, CCT, PRT must be extracted. See [Figure 2-56](#) for more information. When this circuit card is used in “clock source office,” cable connections are not necessary.

Mounting Module	<b>PIM</b>		
26	DCSB0	1	DCSA0
27	DIU0B0	2	DIU0A0
28	DIU1B0	3	DIU1A0
29	DIU2B0	4	DIU2A0
30	DIU3B0	5	DIU3A0
31	SYN0B0	6	SYN0A0
32	SYN1B0	7	SYN1A0
33		8	
34		9	
35		10	
36		11	
37		12	
38		13	
39		14	
40		15	
41		16	
42	DCSB1	17	DCSA1
43	DIU0B1	18	DIU0A1
44	DIU1B1	19	DIU1A1
45	DIU2B1	20	DIU2A1
46	DIU3B1	21	DIU3A1
47	SYN0B1	22	SYN0A1
48	SYN1B1	23	SYN1A1
49		24	
50		25	

Figure 2-55 PLO Connector Leads Location



**Figure 2-56 Connecting Route Diagram**

The front cable connections are shown in [Figure 2-57](#).

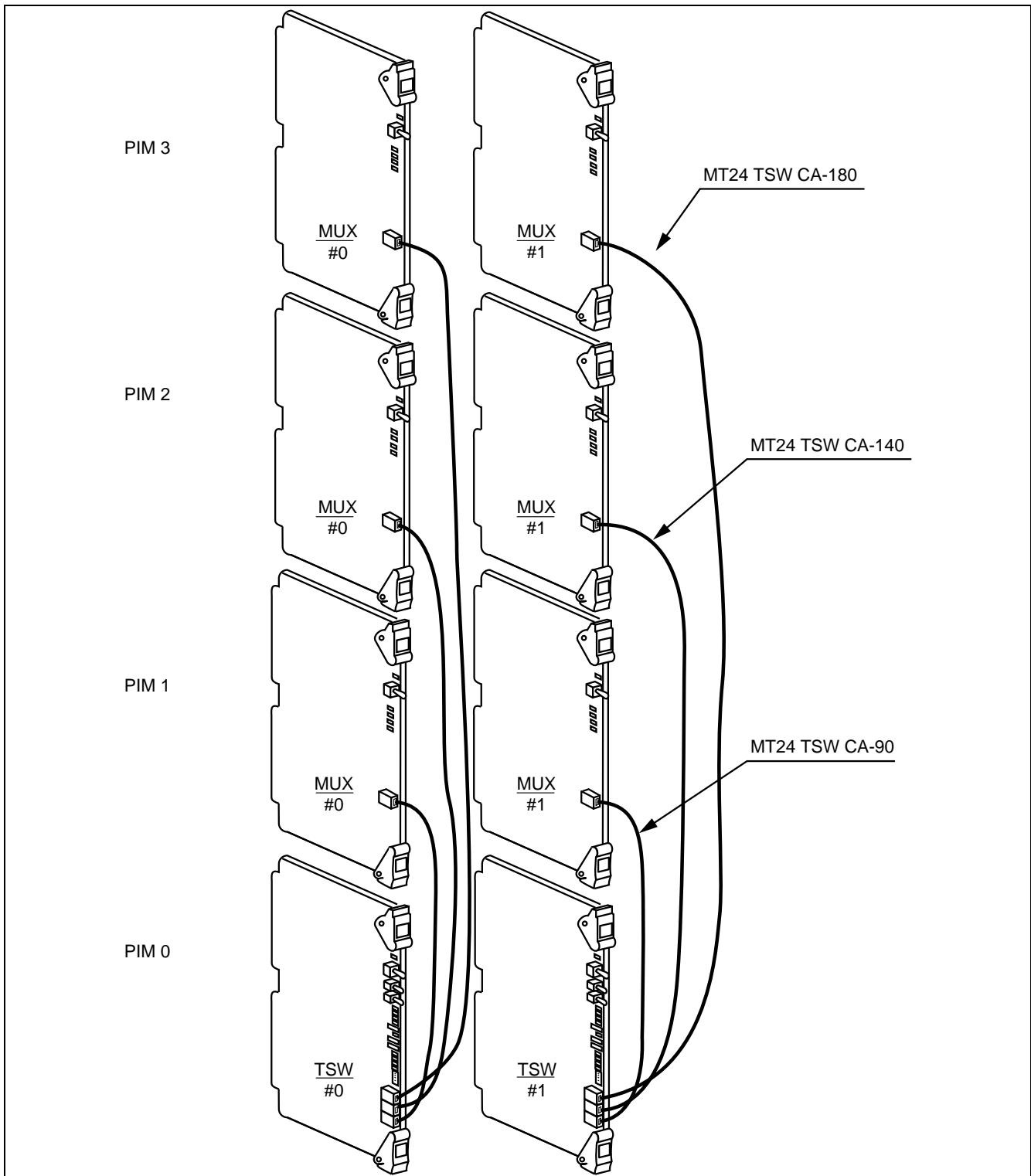
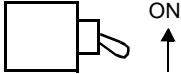
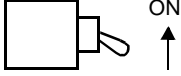
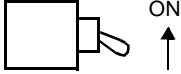
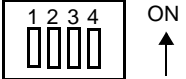
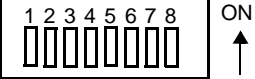
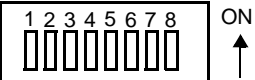



Figure 2-57 Front Cable Connections for PH-SW10

**PH-SW10**  
Time Division Switch

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
TSWMBR		
PLOMB		
SW03		
SW04		
SW11		
SW12		



## PH-SW12 Time Division Switch

### 1. General Function

This circuit card provides the Time Division Switch (TSW) and INT function for the system. Each TSW card is capable of  $8192 \times 2048$  Time Slot (TS) switching for an Interface Module Group (IMG). Four cards allow  $8192 \times 8192$  TS switching for the 4 IMG configuration.

The INT is an intermediate circuit of the CPR which controls and administers the Port Microprocessor (PM) for line/trunk circuit cards.

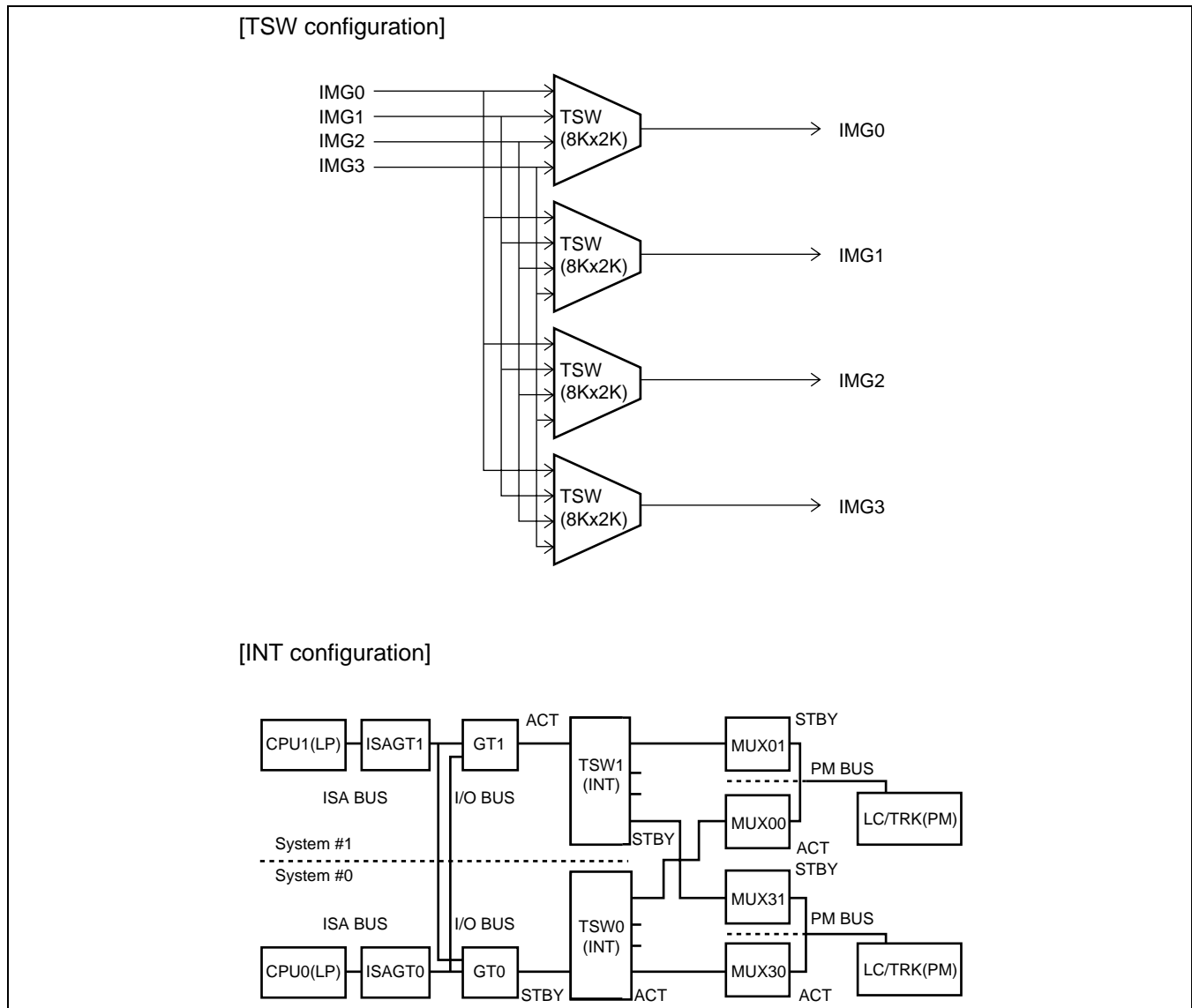
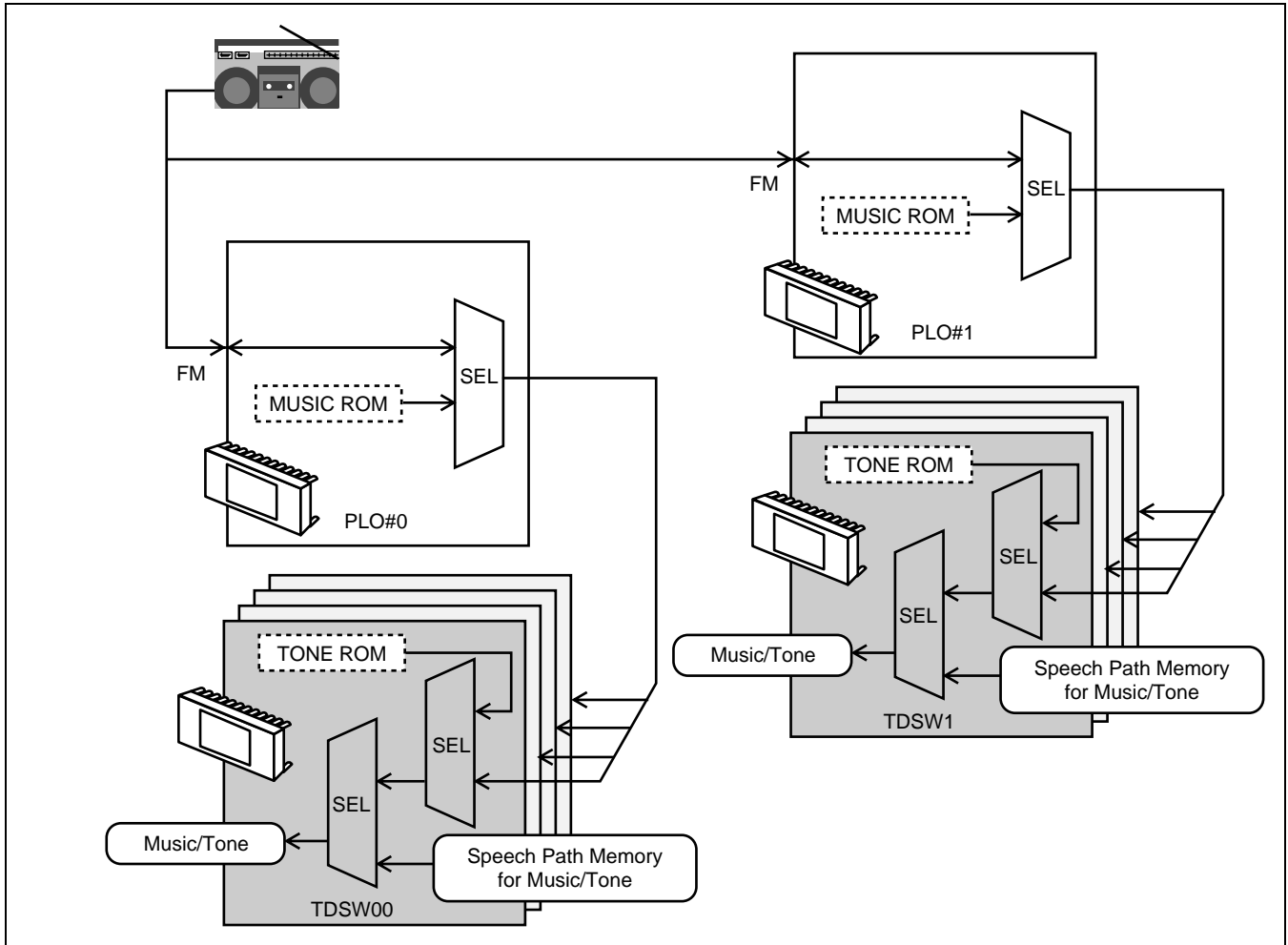


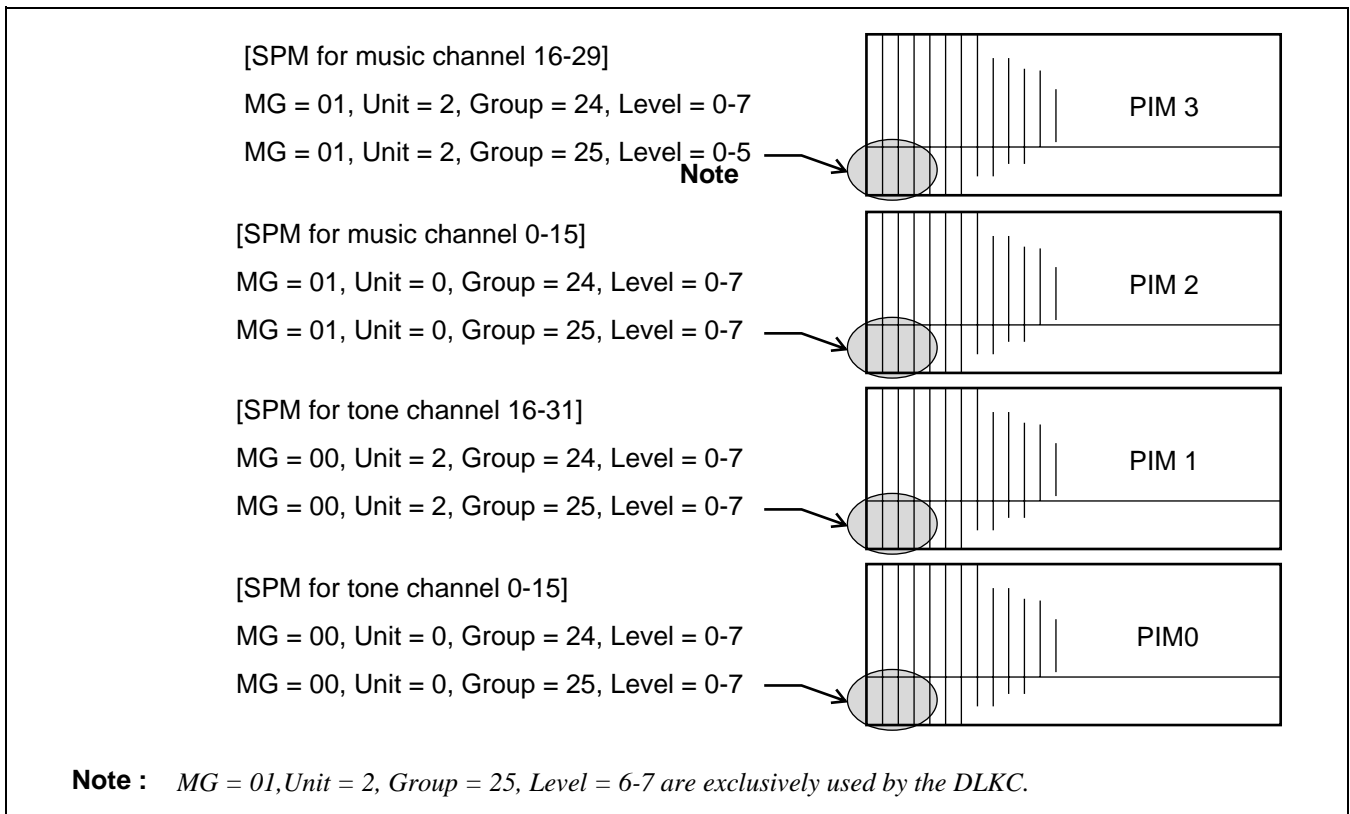
Figure 2-58 TSW Configuration

**PH-SW12**  
Time Division Switch

The TONE ROM located on this circuit card contains the audible tones, such as Dial Tone, Busy Tone, Ring Back Tone, etc. The music on hold source, either the MUSIC ROM or the external source via FM lead, is located on the PLO card. The tone and the music are inserted into their time slot at this circuit card. Additionally, this circuit card provides the Voice Prompt function that inserts the designated time slot of PCM (Speech Path Memory : SPM) into the tone or music time slot.



**Figure 2-59 Music/Tone Insertion**



**Figure 2-60 Speech Path Memory (SPM) for Voice Prompt Function**

2. Mounting Location/Condition

This circuit card is mounted in the TSWM of the slot shown below. The IPX-U system accommodates two TSWMs (TSWM0/1).

Mounting Module **TSWM**

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TSWM													TSW 00	TSW 01	TSW 02	TSW 03	TSW 10	TSW 11	TSW 12	TSW 13				

**PH-SW12**

## Time Division Switch

The definitions for the TSW00 - TSW03/TSW10 - TSW13 are listed below.

- 4-IMG System

<b>SYMBOL</b>	<b>SYSTEM</b>	<b>CONTROLLED IMG</b>
TSW00	0	IMG 0
TSW01		IMG 1
TSW02		IMG 2
TSW03		IMG 3
TSW10	1	IMG 0
TSW11		IMG 1
TSW12		IMG 2
TSW13		IMG 3

- IPX-U system

This card is mounted in the TSWM0/1 for the IPX-U system.

- For the card in TSWM0

<b>SYMBOL</b>	<b>SYSTEM</b>	<b>FUNCTION</b>	<b>CONTROLLED IMG</b>
TSW00	0	Collects the PCM data	IMG 0
TSW01			IMG 1
TSW02		Sends the PCM data to the ISW	IMG 0
TSW03			IMG 1
TSW10	1	Collects the PCM data	IMG 0
TSW11			IMG 1
TSW12		Sends the PCM data to the ISW	IMG 0
TSW13			IMG 1

- For the card in TSWM1

SYMBOL	SYSTEM	FUNCTION	CONTROLLED IMG
TSW00	0	Collects the PCM data	IMG 2
TSW01			IMG 3
TSW02		Sends the PCM data to the ISW	IMG 2
TSW03			IMG 3
TSW10	1	Collects the PCM data	IMG 2
TSW11			IMG 3
TSW12		Sends the PCM data to the ISW	IMG 2
TSW13			IMG 3

### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 2-61](#).

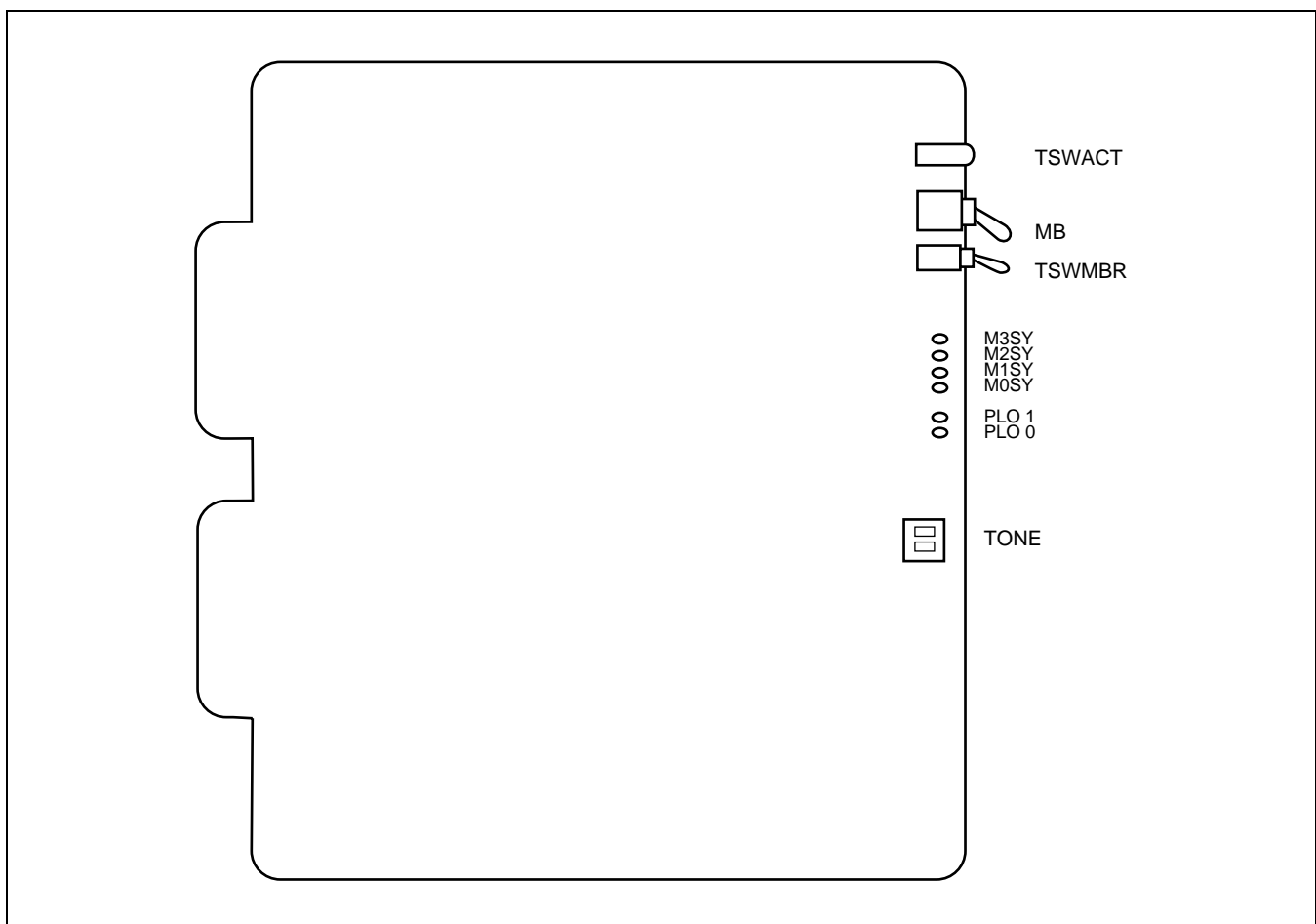


Figure 2-61 Face Layout of PH-SW12 (TSW)

**PH-SW12**

## Time Division Switch

## 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
TSWACT	Green	Remains lit while the TSW block is in ACT state.
	Red	Remains lit while the TSW block is in Make-busy state.
	Off	Remains off while the TSW block is ST-BY side.
M3SY	Green	Lights when MUX #3 synchronization has been established.
M2SY	Green	Lights when MUX#2 synchronization has been established.
M1SY	Green	Lights when MUX#1 synchronization has been established.
M0SY	Green	Lights when MUX#0 synchronization has been established.
PLO 1	Green	Lights when the Frame Head signal and clock signals are received from the PLO 1.
PLO 0	Green	Lights when the Frame Head signal and clock signals are received from the PLO 0.

## 5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

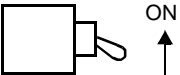
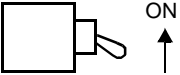
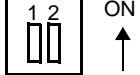
SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
TSWMBR	UP		TSW Make-busy request.
	DOWN	×	TSW Make-busy request cancel.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
TONE	1	OFF	×	Fixed.
	2	ON		(The last byte data of the DTG ROM is "FE.")
		OFF	×	(The last byte data of the DTG ROM is "FF.")

## 6. External Interface

See the NEAX2400 IPX Installation Manual for information about the cable connection to MUX.

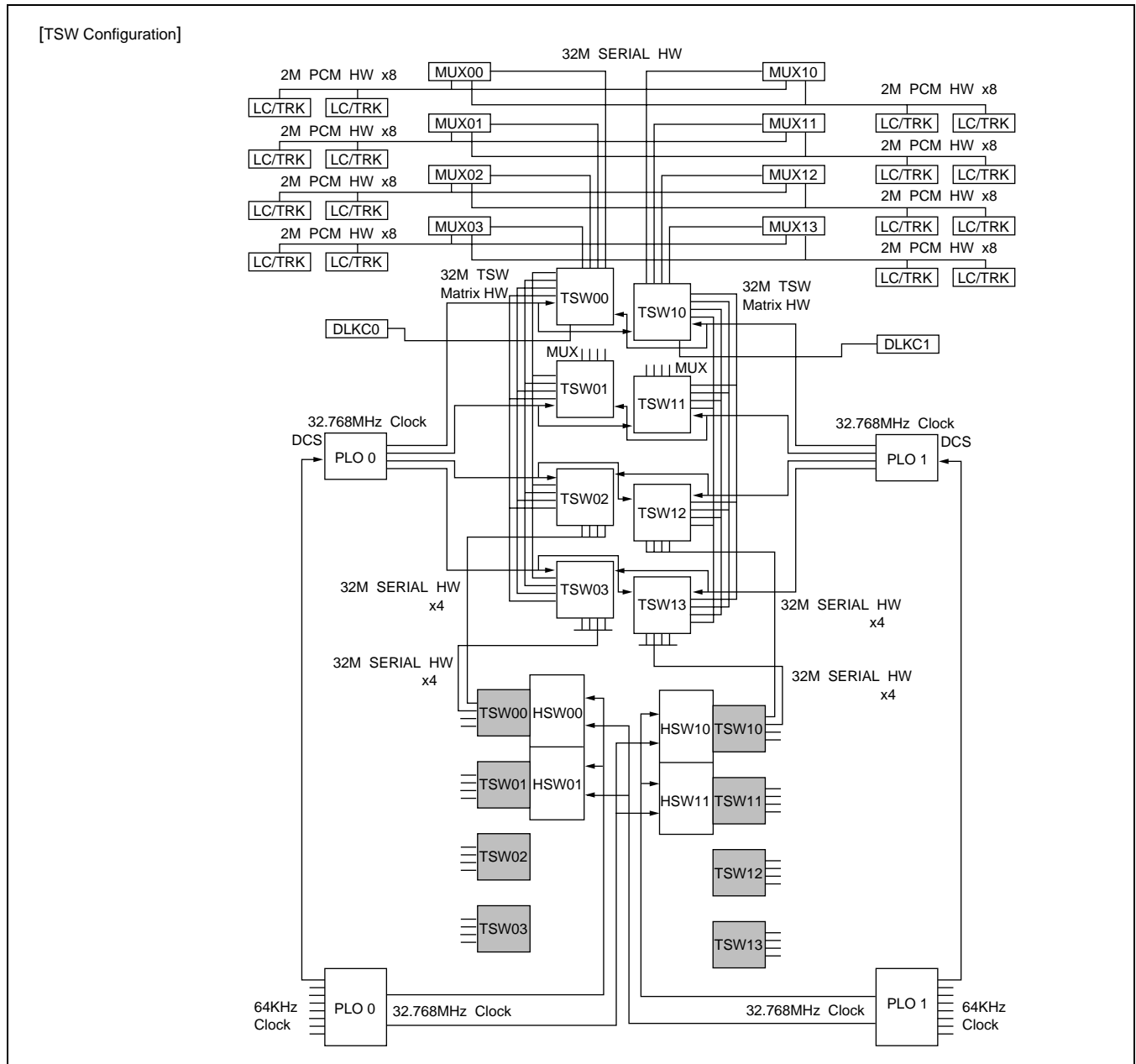
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
TSWMBR		
TONE		

**PU-SW00/PU-SW00-A**  
Time Division Switch

1. General Function

The PU-SW00/PU-SW00-A circuit card provides the Time division Switch (TSW) and INT function for the IPX-U/IPX-UMG system. Each circuit card provides switching for a Local Node (LN) and four PU-SW00/PU-SW00-A cards and two PU-SW01 (HSW) cards achieve a maximum of 32,768 time slot (TS) switching for four (4) LNs/LMGs. This circuit card is located in ISWM of the ISW/CMG.



**Figure 2-62 Location of PU-SW00/PU-SW00-A (TSW)**



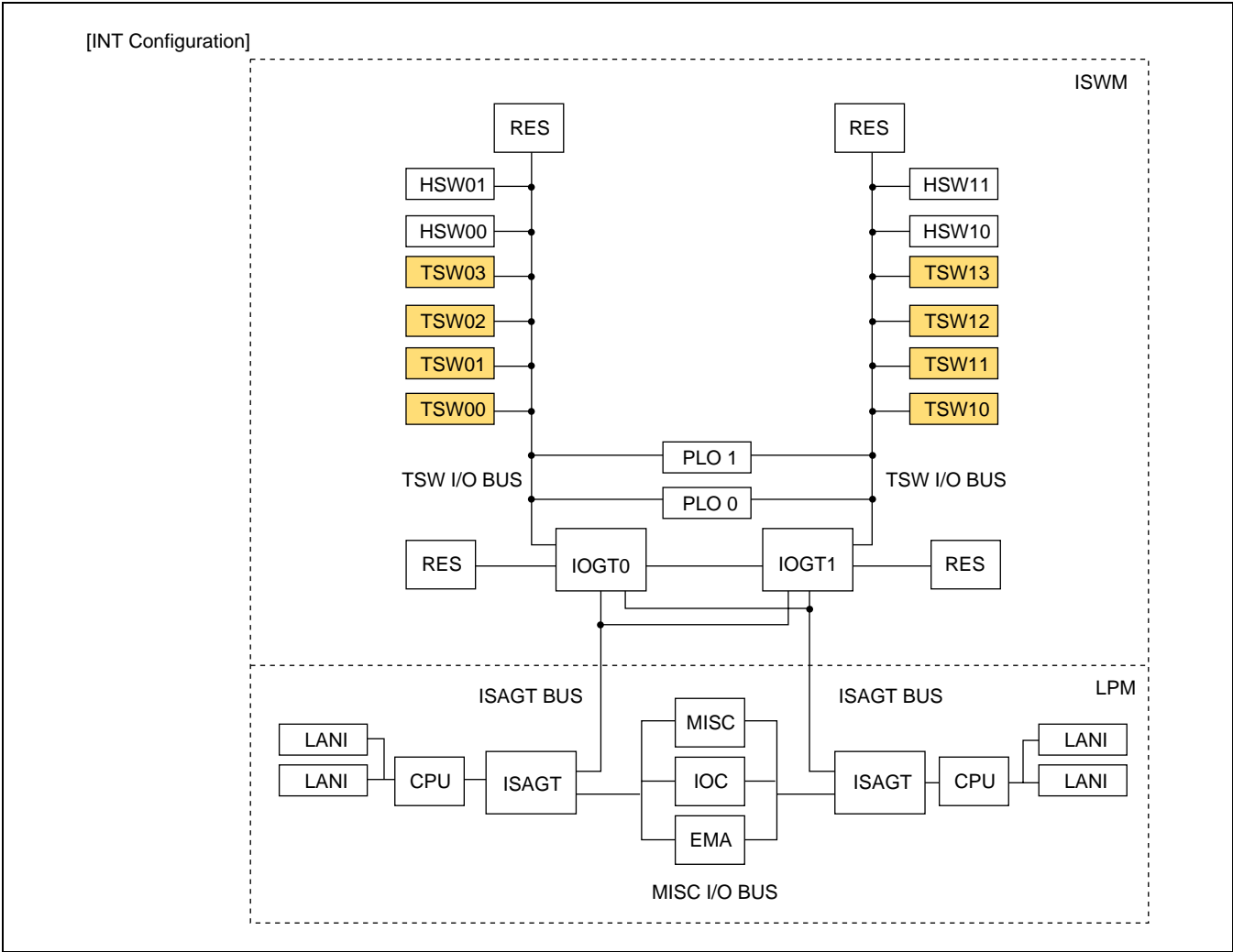
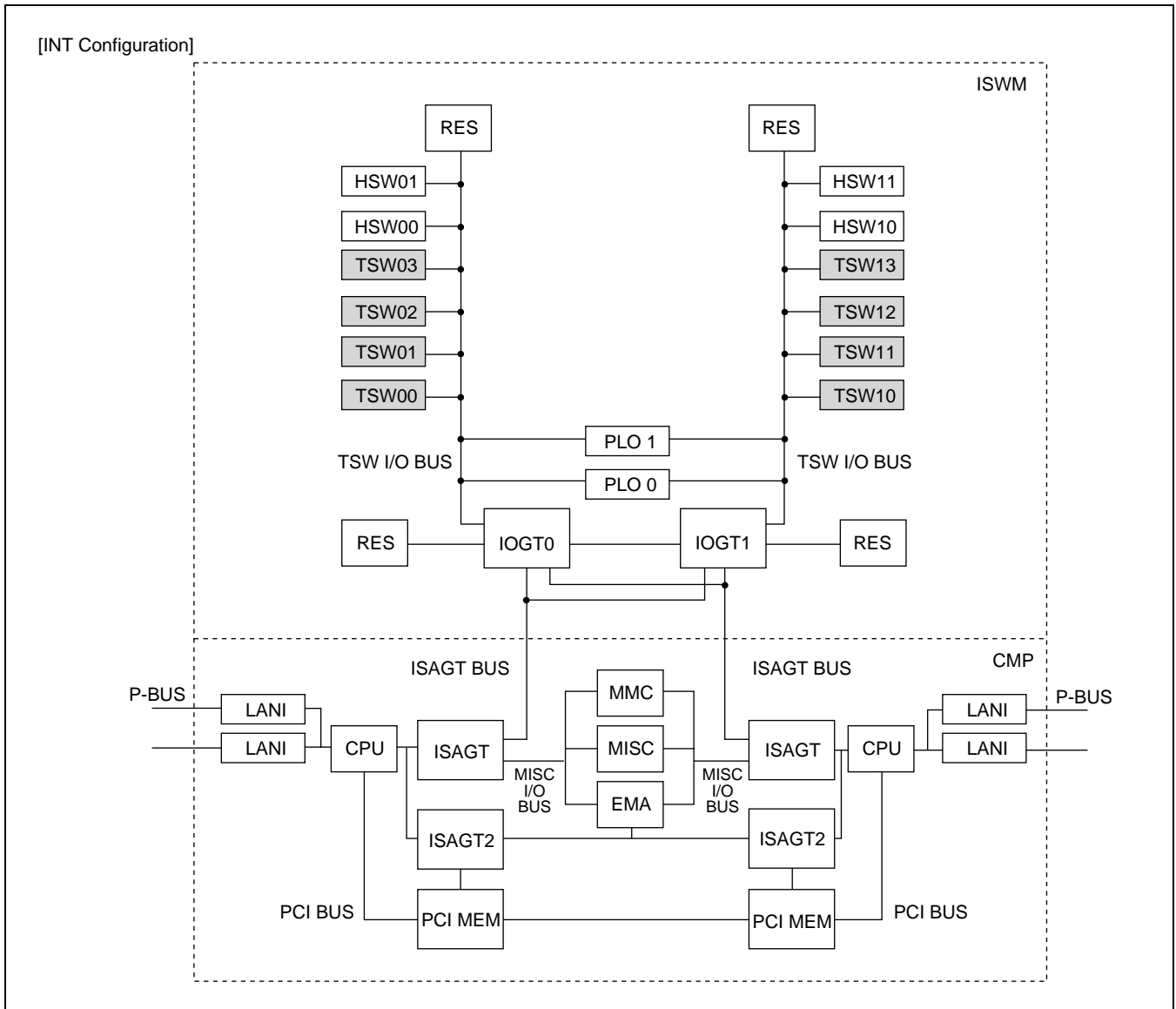


Figure 2-63 Location of PU-SW00/PU-SW00-A (TSW) for IPX-U System



**Figure 2-63 Location of PU-SW00/PU-SW00-A (TSW) for IPX-UMG System**

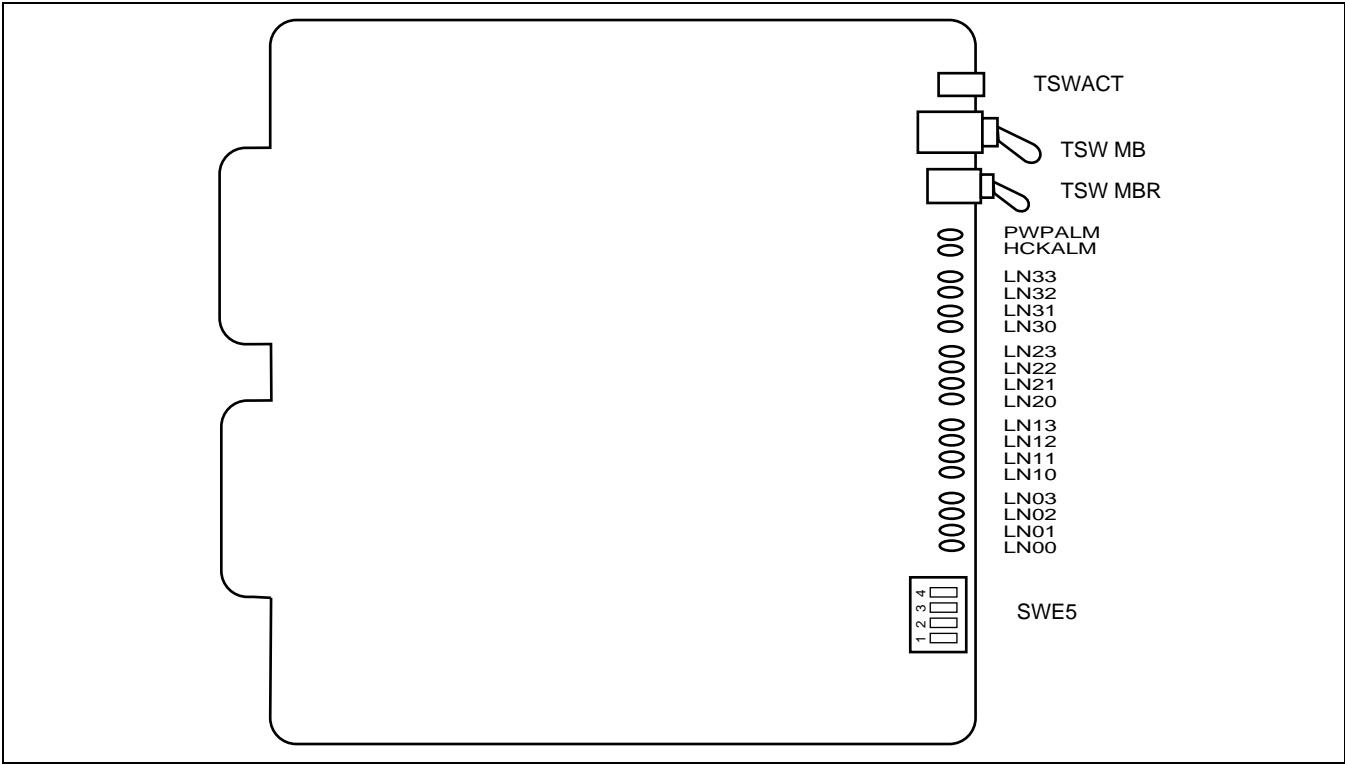
2. Mounting Location/Condition

This circuit card can be mounted in the shaded slots shown below.

Mounting Module		ISWM																					
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
				TSW (00)	TSW (01)	TSW (02)	TSW (03)							TSW (10)	TSW (11)	TSW (12)	TSW (13)						

3. Face Layout of lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 2-64](#).



**Figure 2-64 Face Layout of PU-SW00/PU-SW00-A (TSW)**

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

<b>LAMP NAME</b>	<b>COLOR</b>	<b>STATE</b>
TSWACT	Green	Lights when the TDSW block is active.
	Red	Lights when the TDSW block is in Make-busy state.
PWPALM	Red	Lights when the On-Board Power Supply (+5V) for this circuit card is abnormal.
HCKALM	Red	Lights when clock failure (clock down or FH output failure) occurs on the HSW card.
LN33	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN32	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN31	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN30	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN23	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN22	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN21	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN20	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN13	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN12	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN11	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN10	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN03	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN02	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN01	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.
LN00	Green	Lights when this circuit card is synchronized with the corresponding TSW/MUX of LN/LMG.

5. Switch Settings

Switch settings for this circuit card are shown in the table below.

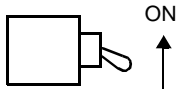
SWITCH NAME	SETTING	STANDARD SETTING	MEANING
TSW MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
TSW MBR	UP		Circuit card Make-busy request.
	DOWN	×	Circuit card Make-busy request cancel.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SWE5	1	ON	×	LN (Local Node)/LMG (Local Module Group) connection mode.
		OFF		MUX connection mode.
	2	OFF	×	Not used.
	3	OFF	×	Not used.
	4	OFF	×	Not used.

6. External Interface

See the NEAX2400 IPX Installation Manual.

7. Switch Setting Sheet

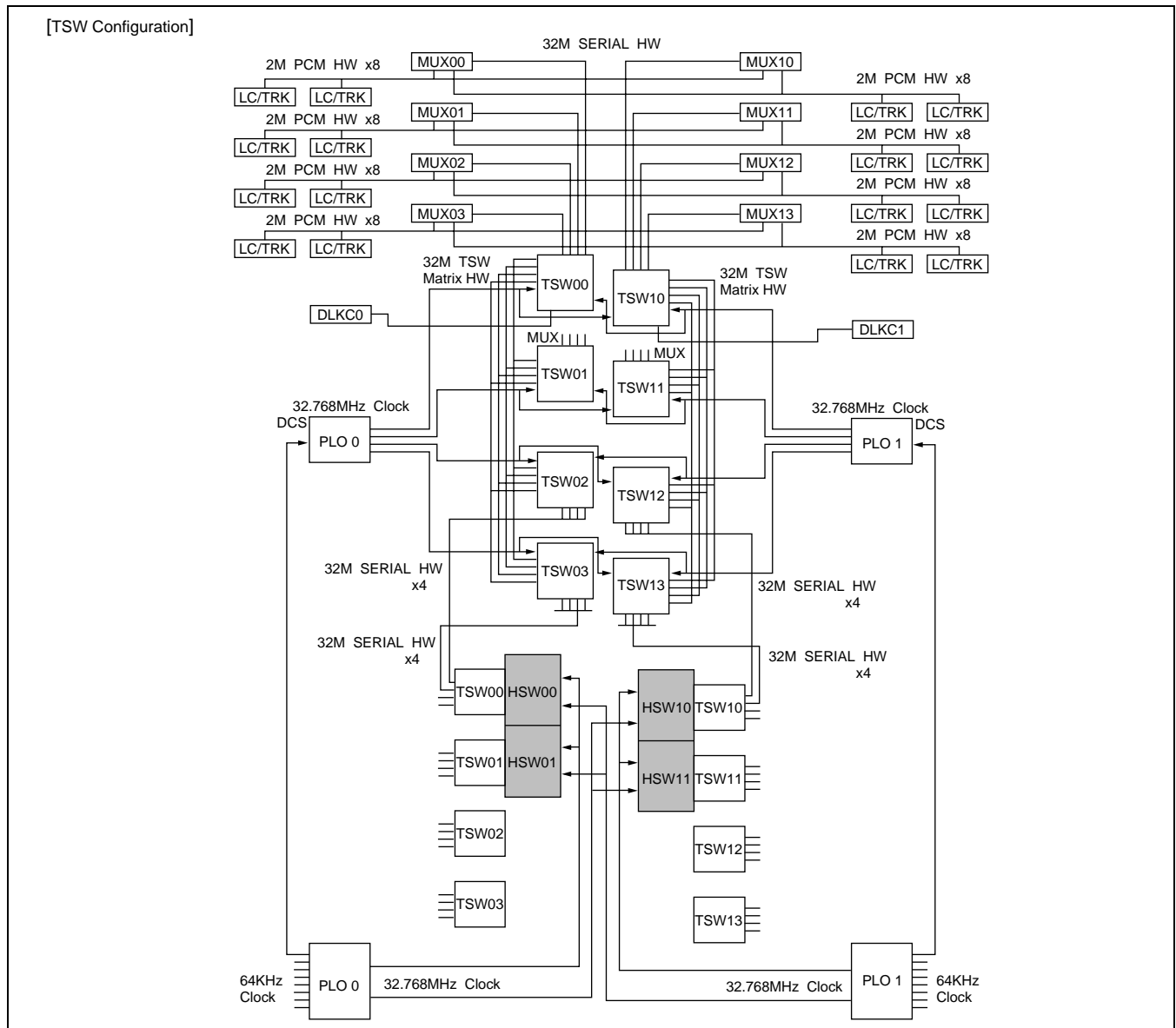
SWITCH NAME	SWITCH SHAPE	REMARKS
TSW MB		
TSW MBR		

**PU-SW01**  
**Highway Switch**

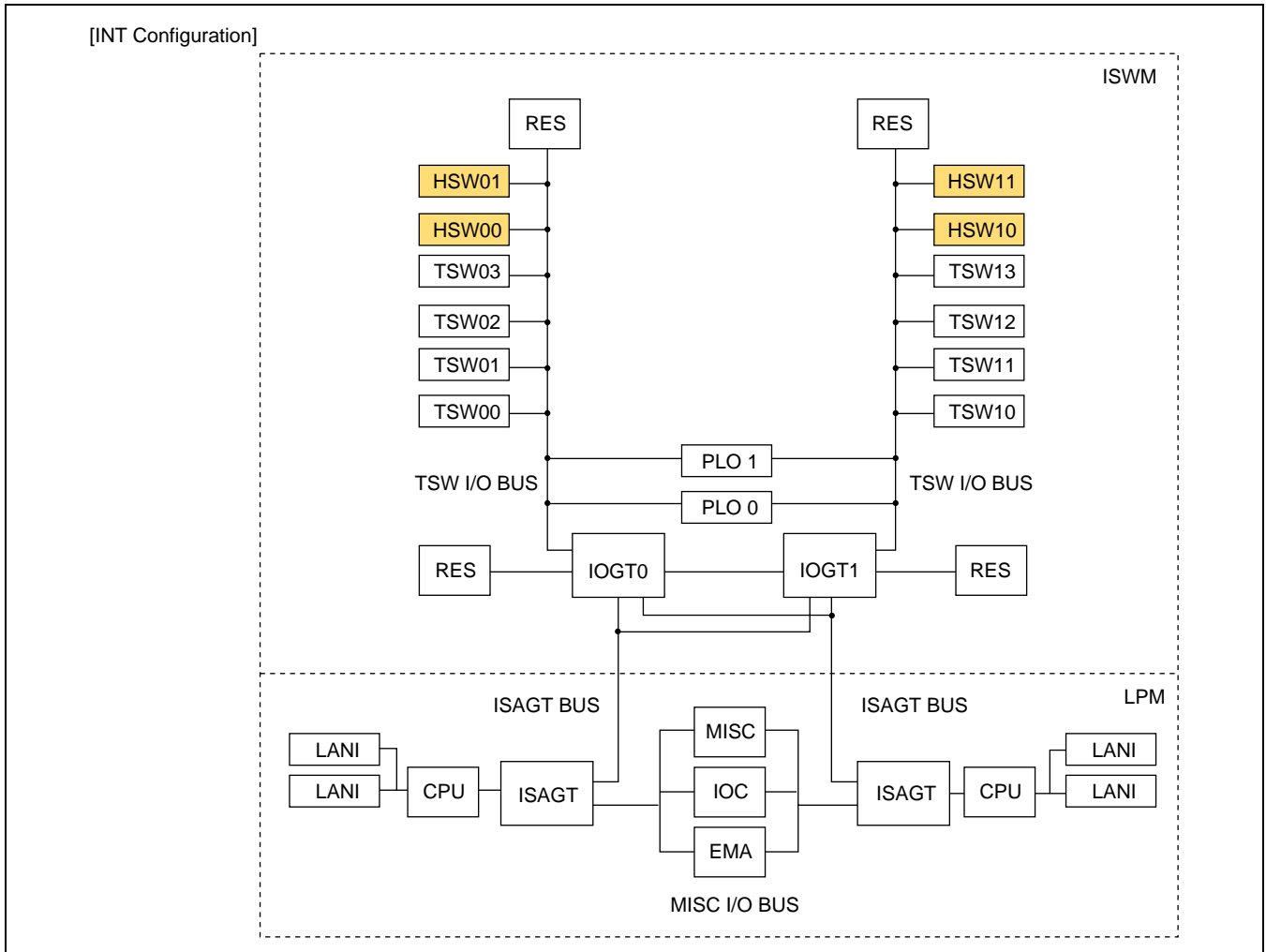
1. General Function

The PU-SW01 circuit card, which is used for the IPX-U/IPX-UMG system, supports the following functions.

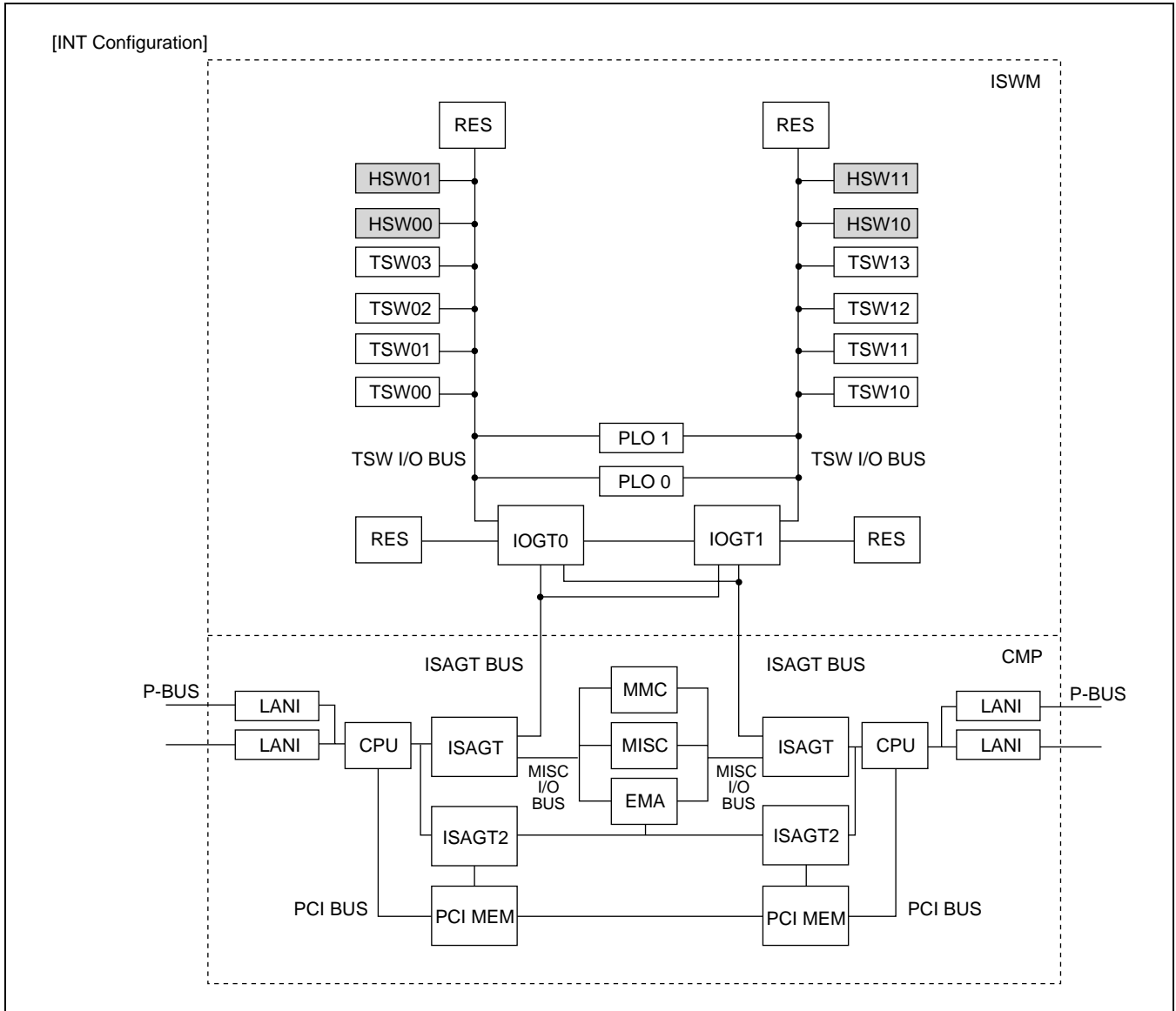
- (a) The switch composition is T-T-S-T (T: Time division, S: Space division, T: Time division), and the space division is composed with this circuit card.
- (b) This circuit card collects the 16 highways of PCM data from and sends 8 highways to TSW by one card. It is used to perform 16 highways switching by 2 PU-SW01 cards.



**Figure 2-65 Location of PU-SW01 (HSW)**



**Figure 2-65 Location of PU-SW01 (HSW) for IPX-U System**



**Figure 2-65 Location of PU-SW01 (HSW) for IPX-UMG System**



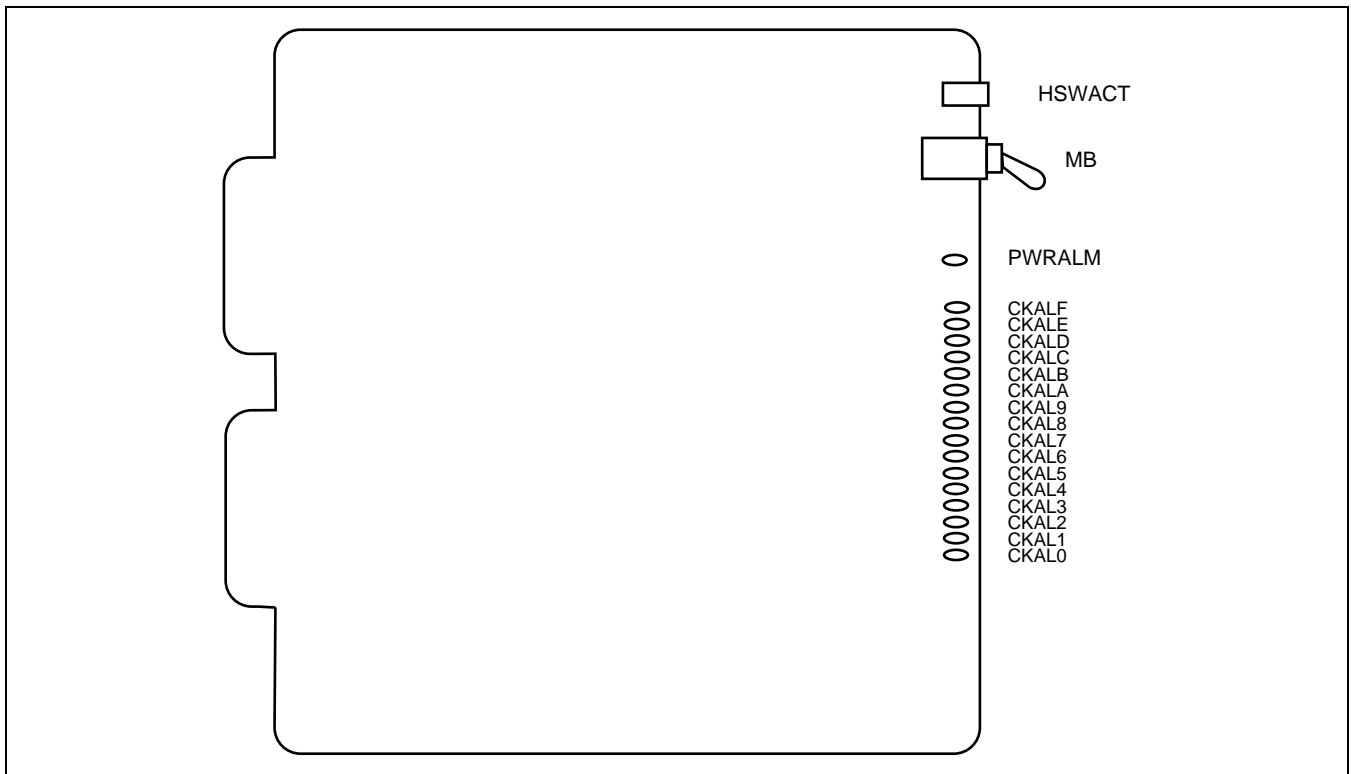
2. Mounting Location/Condition

This circuit card is mounted in ISWM located in the ISW/CMG. The mounted slots are the shaded parts shown below.

Mounting Module		ISWM																		
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	
		HSW (00)	HSW (01)															HSW (10)	HSW (11)	

3. Face Layout of lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 2-66](#).



**Figure 2-66 Face Layout of PU-SW01 (HSW)**

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
HSWACT	Green	Lights when the HSW block is active.
	Red	Lights when the HSW block is in Make-busy state.
PWPALM	Red	Lights when the On-Board Power Supply (-48 V) for this circuit card is abnormal.
CKALF	Green	Lights when the clock/Frame Head signals are sent from #15 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #15 circuit of TSW in ISWM.
CKALE	Green	Lights when the clock/Frame Head signals are sent from #14 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #14 circuit of TSW in ISWM.
CKALD	Green	Lights when the clock/Frame Head signals are sent from #13 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #13 circuit of TSW in ISWM.
CKALC	Green	Lights when the clock/Frame Head signals are sent from #12 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #12 circuit of TSW in ISWM.
CKALB	Green	Lights when the clock/Frame Head signals are sent from #11 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #11 circuit of TSW in ISWM.
CKALA	Green	Lights when the clock/Frame Head signals are sent from #10 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #10 circuit of TSW in ISWM.
CKAL9	Green	Lights when the clock/Frame Head signals are sent from #09 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #09 circuit of TSW in ISWM.
CKAL8	Green	Lights when the clock/Frame Head signals are sent from #08 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #08 circuit of TSW in ISWM.
CKAL7	Green	Lights when the clock/Frame Head signals are sent from #07 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #07 circuit of TSW in ISWM.
CKAL6	Green	Lights when the clock/Frame Head signals are sent from #06 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #06 circuit of TSW in ISWM.
CKAL5	Green	Lights when the clock/Frame Head signals are sent from #05 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #05 circuit of TSW in ISWM.
CKAL4	Green	Lights when the clock/Frame Head signals are sent from #04 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #04 circuit of TSW in ISWM.

LAMP NAME	COLOR	STATE
CKAL3	Green	Lights when the clock signal is sent normally from #03 circuit of TSW in ISWM.
	Off	Goes off when the clock failure occurs on #03 circuit of TSW in ISWM.
CKAL2	Green	Lights when the clock/Frame Head signals are sent from #02 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #02 circuit of TSW in ISWM.
CKAL1	Green	Lights when the clock/Frame Head signals are sent from #01 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #01 circuit of TSW in ISWM.
CKAL0	Green	Lights when the clock/Frame Head signals are sent from #00 circuit of TSW in ISWM.
	Off	Goes off when the clock/Frame Head signals are not sent from #00 circuit of TSW in ISWM.

5. Switch Settings

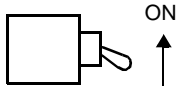
Switch settings on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.

6. External Interface

No cable connections are required.

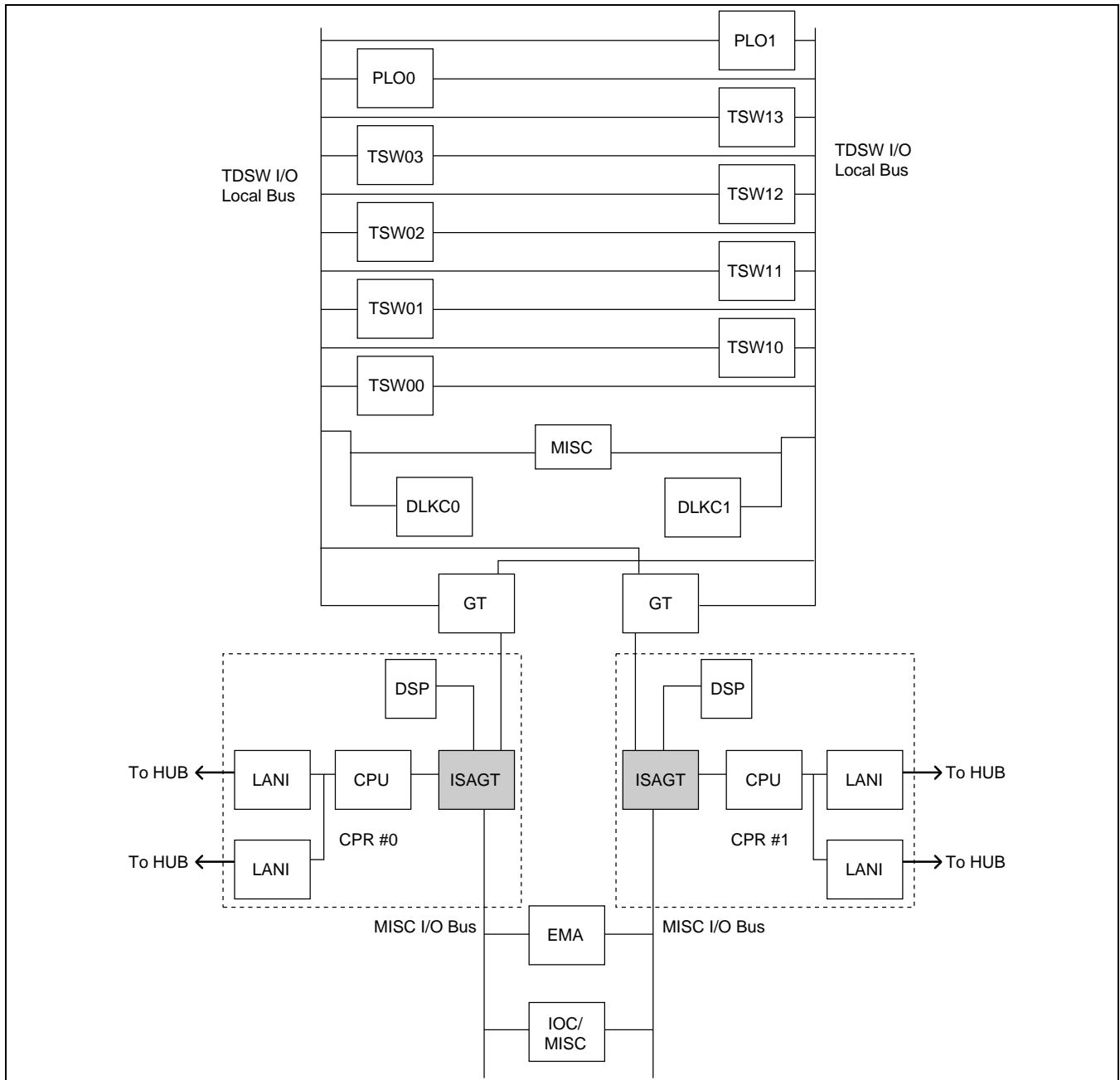
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		

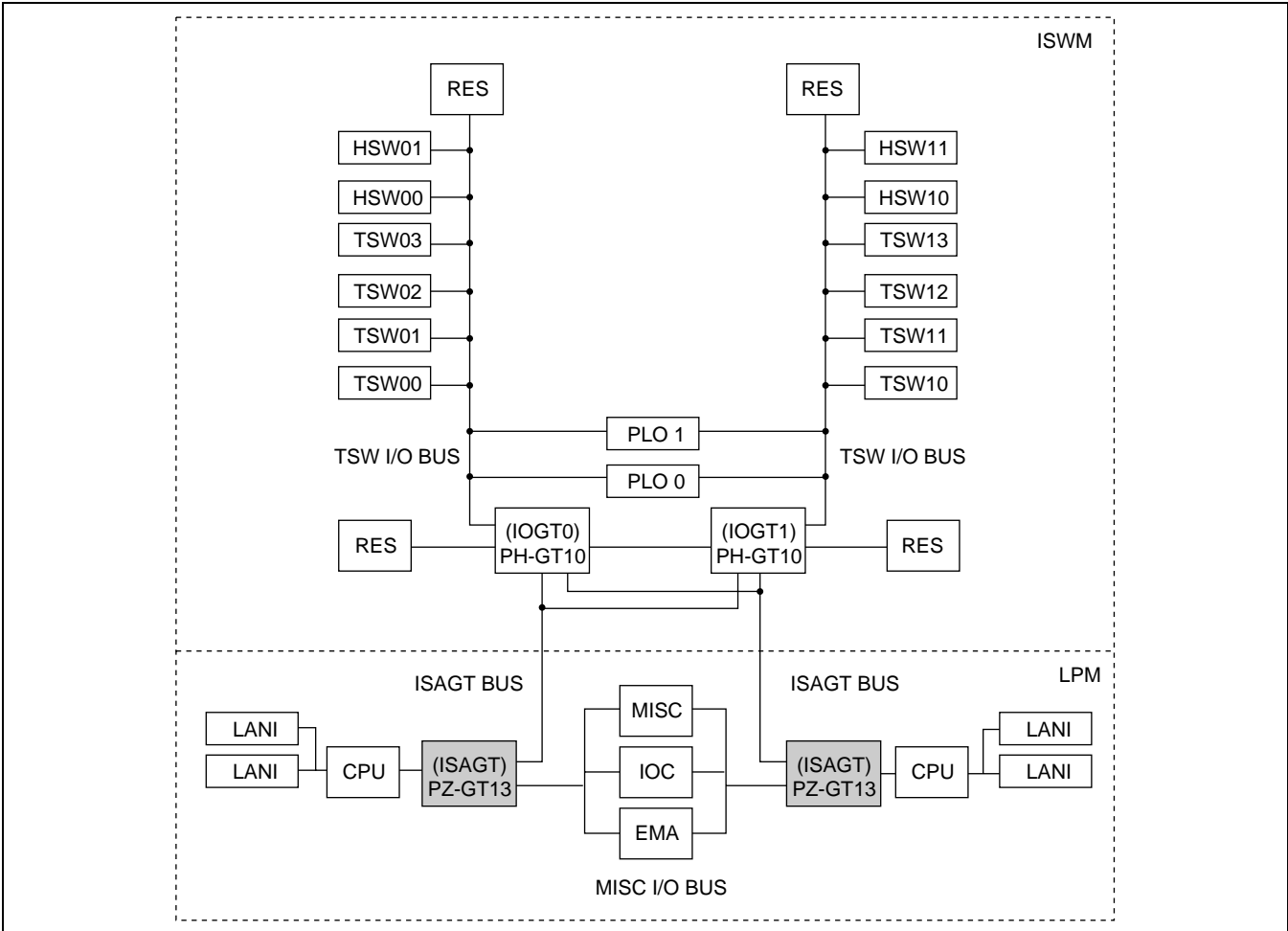
**PZ-GT13**  
**Industrial Standard Architecture Gateway**

1. General Function

The PZ-GT13 (ISAGT) circuit card controls the TSDW, DLKC, PLO etc. using the PH-GT09 (GT) in the TSWM. This card also provides the MISC I/O bus interface, which permits a microprocessor on the CPR to control EMA and IOC/MISC. The Industrial Standard Architecture (ISA) bus is used to connect this circuit card onto the CPR.



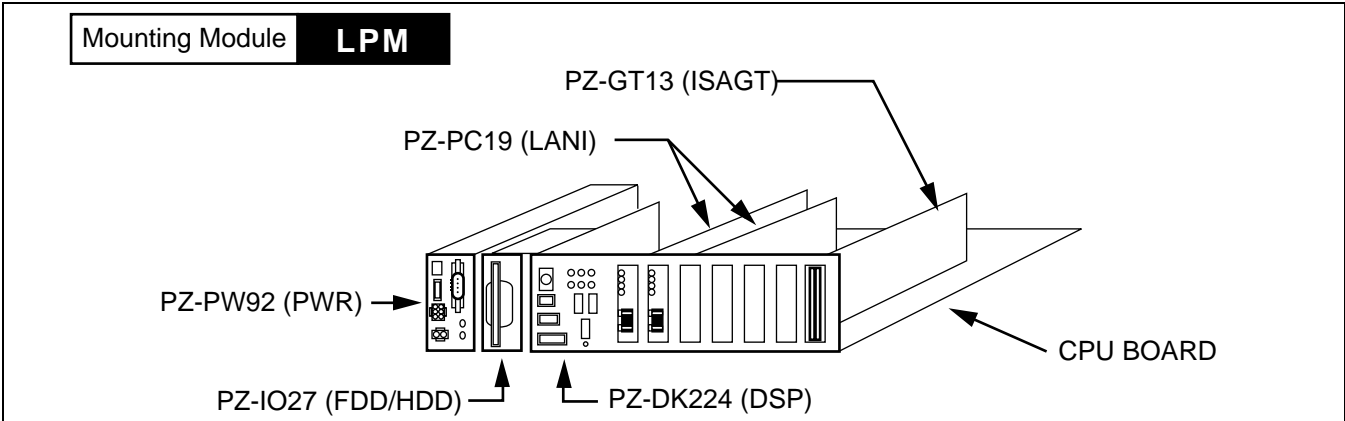
**Figure 2-67 Location of PZ-GT13 (ISAGT)**



**Figure 2-68 Location of PZ-GT13 (ISAGT) in the IPX-U System (ISW)**

2. Mounting Location/Condition

The PZ-GT13 is located on the ISA bus which is allocated in the CPR as shown in [Figure 2-69](#).



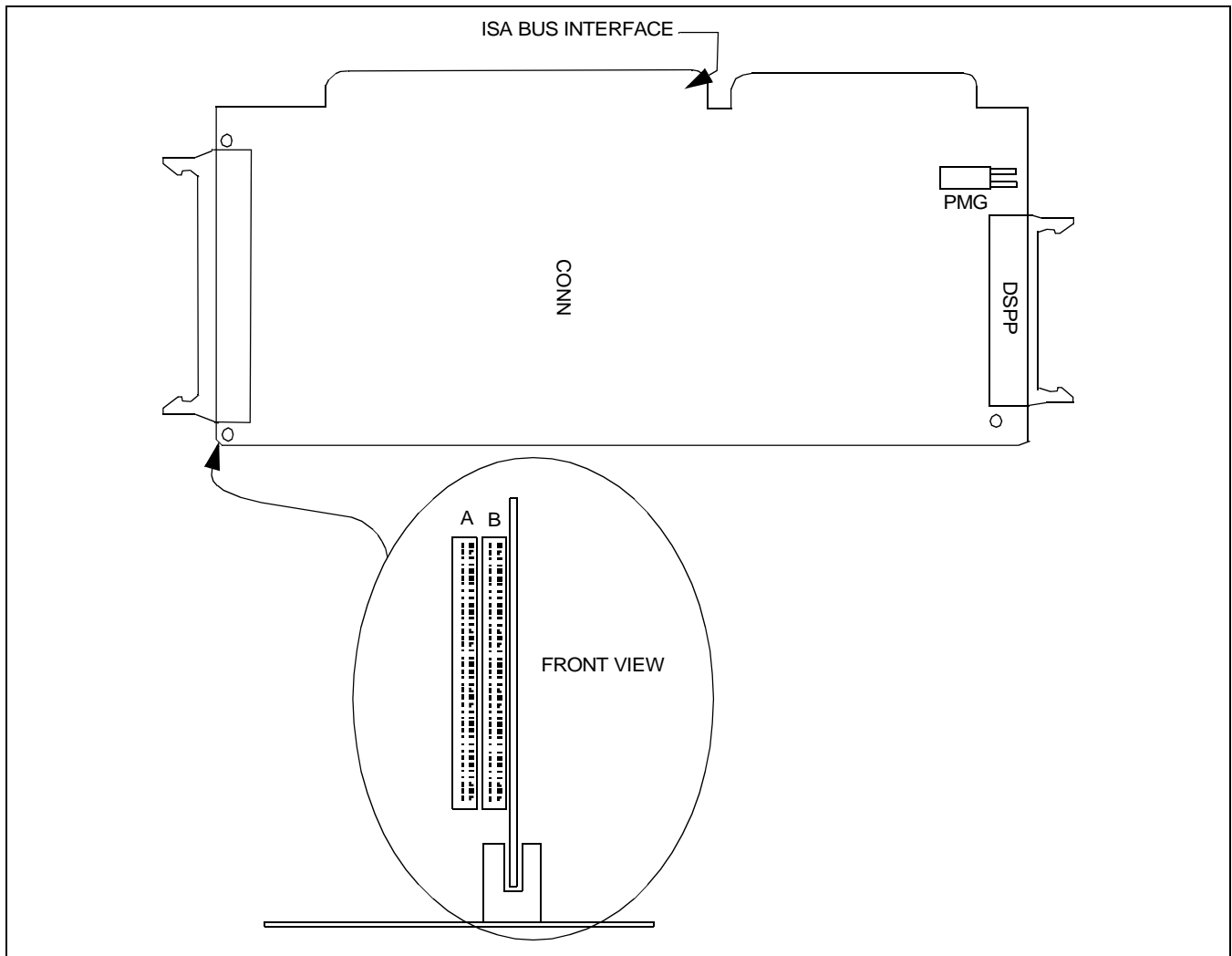
**Figure 2-69 External Interface for PZ-GT13**

## PZ-GT13

### Industrial Standard Architecture Gateway

#### 3. Face Layout of Connectors

The face layout of connectors is shown in [Figure 2-70](#). There are no lamps or switches on this circuit card.



**Figure 2-70 Face Layout of PZ-GT13 (ISAGT)**

#### 4. External Interface

This card has no lamps.

#### 5. Switch Settings

No switch settings are required.

#### 6. External Interface

See the NEAX2400 IPX Installation Manual.

#### 7. Switch Setting Sheet

No switch settings are required.

# PZ-GT16 Industrial Standard Architecture Gateway

## 1. General Function

The PZ-GT16 (ISAGT) circuit card provides both the I/O Local bus and the MISC bus interface, which permits a microprocessor on the CPR to control the lower echelons of circuit cards. The Industry Standard Architecture (ISA) bus is used to connect this circuit card onto the CPR.

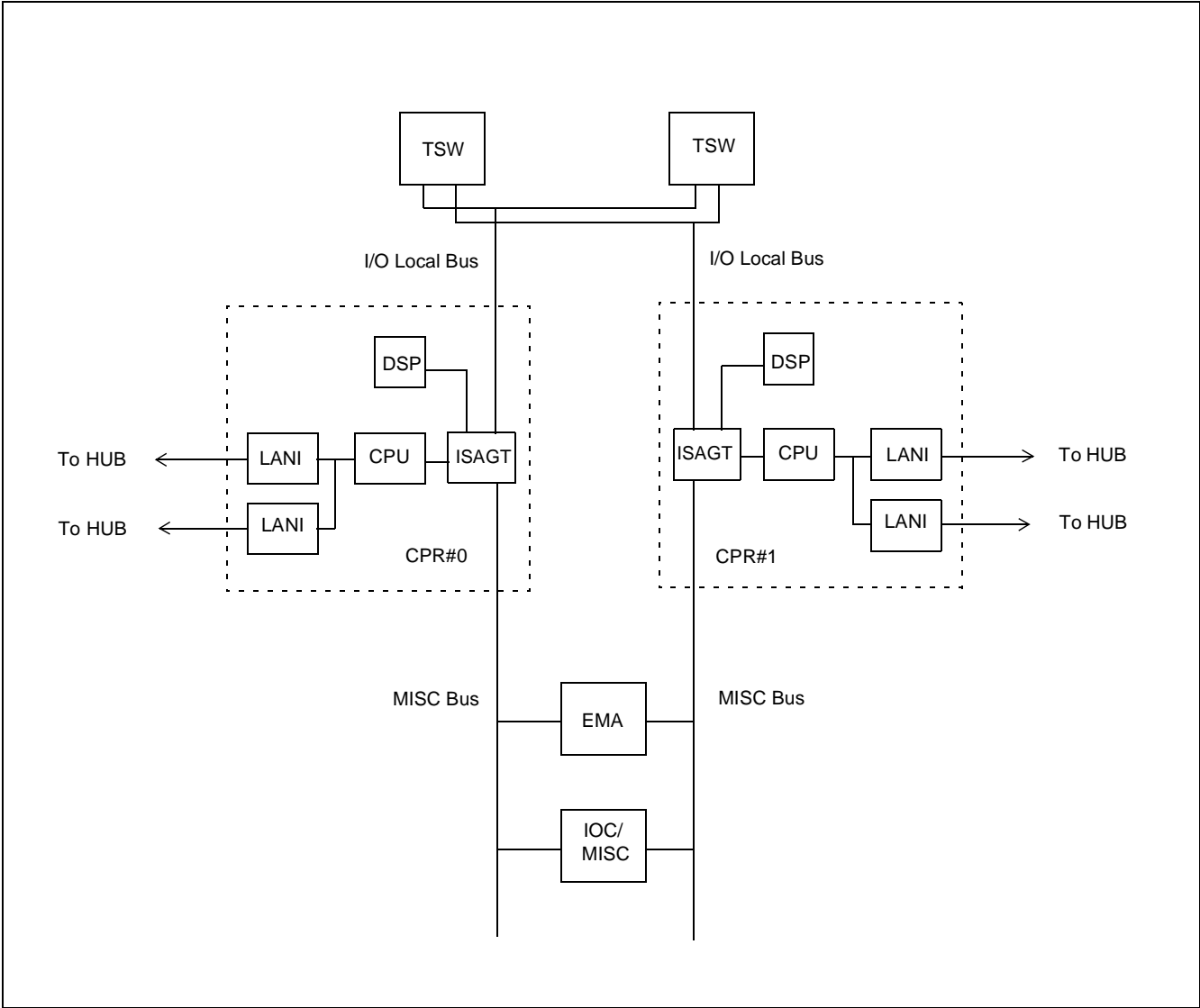


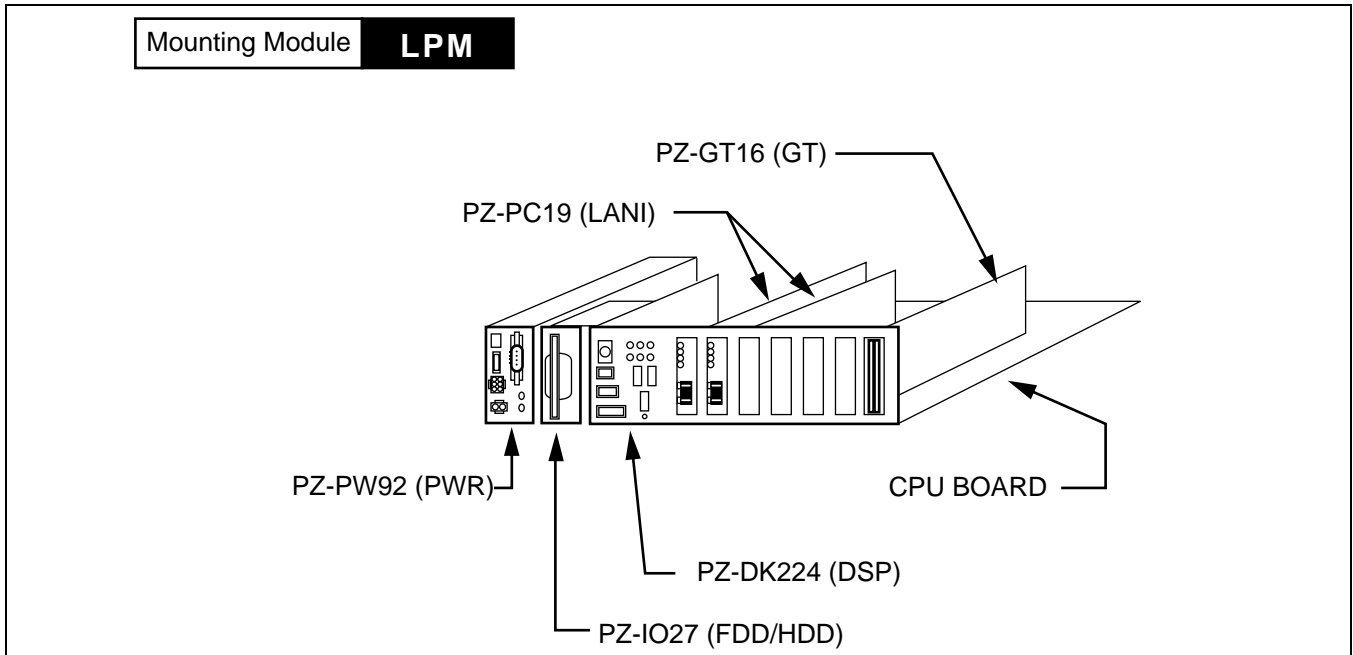
Figure 2-71 Location of PZ-GT16 (ISAGT)

**PZ-GT16**

Industrial Standard Architecture Gateway

2. Mounting Location/Condition

The PZ-GT16 (ISAGT) is located on the ISA bus, which is allocated in the CPR as shown in [Figure 2-72](#).



**Figure 2-72 External Interface for PZ-GT16**



3. Face Layout of Connectors

The face layout of connectors is shown in [Figure 2-73](#). There are no lamps or switches on this circuit card.

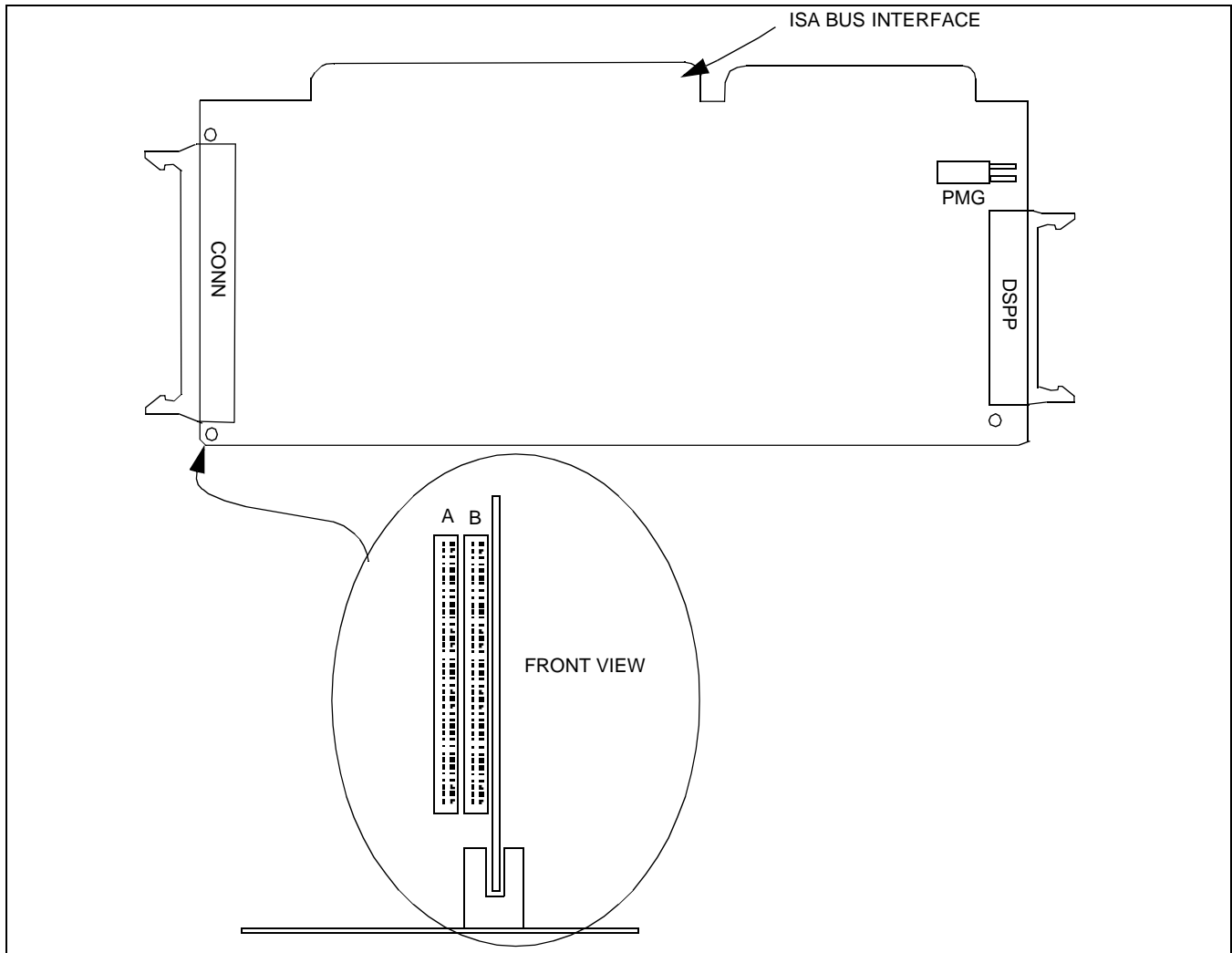


Figure 2-73 Face Layout of PZ-GT16 (ISAGT)

4. Lamp Indications

This card contains no lamps.

5. Switch Settings

No switch settings are required.

6. External Interface

See the NEAX2400 IPX Installation Manual.

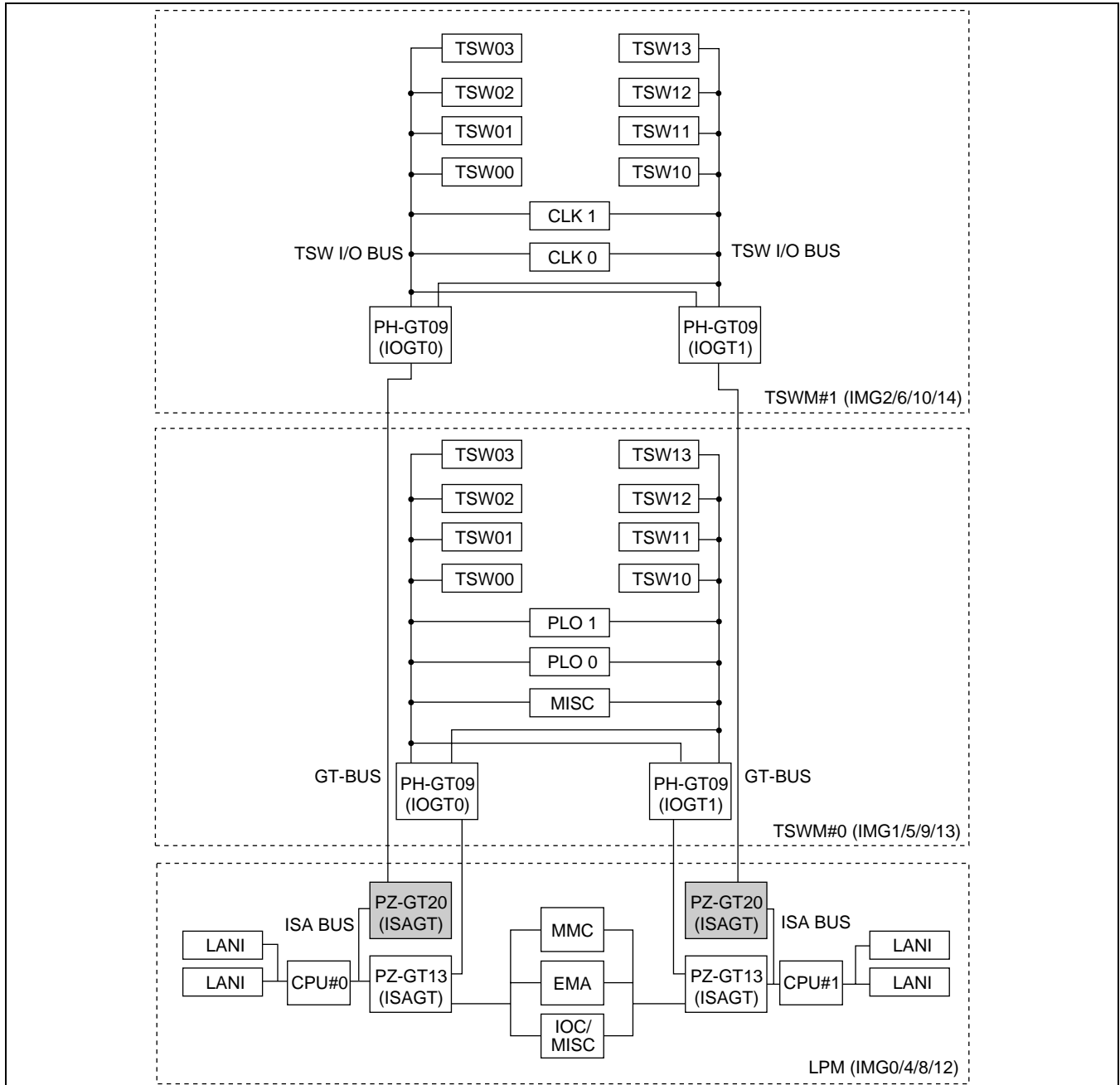
7. Switch Setting Sheet

No switch settings are required.

**PZ-GT20**  
 Industry Standard Architecture Gateway

1. General Function

The main function of the PZ-GT20 circuit card is to connect the Industry Standard Architecture (ISA) bus located on the CPU and the Local I/O bus, permitting the microprocessor on the CPU to control the TSW, MUX cards of IMG2, 3/6, 7/10, 11/14, 15 via the PH-GT09 card in the TSWM1. This circuit card is used for the IPX-U/IPX-UMG system.



**Figure 2-74 Location of PZ-GT20 (ISAGT)**

2. Mounting Location/Condition

The PZ-GT20 resides on the ISA bus that is located in the CPR as shown in [Figure 2-75](#).

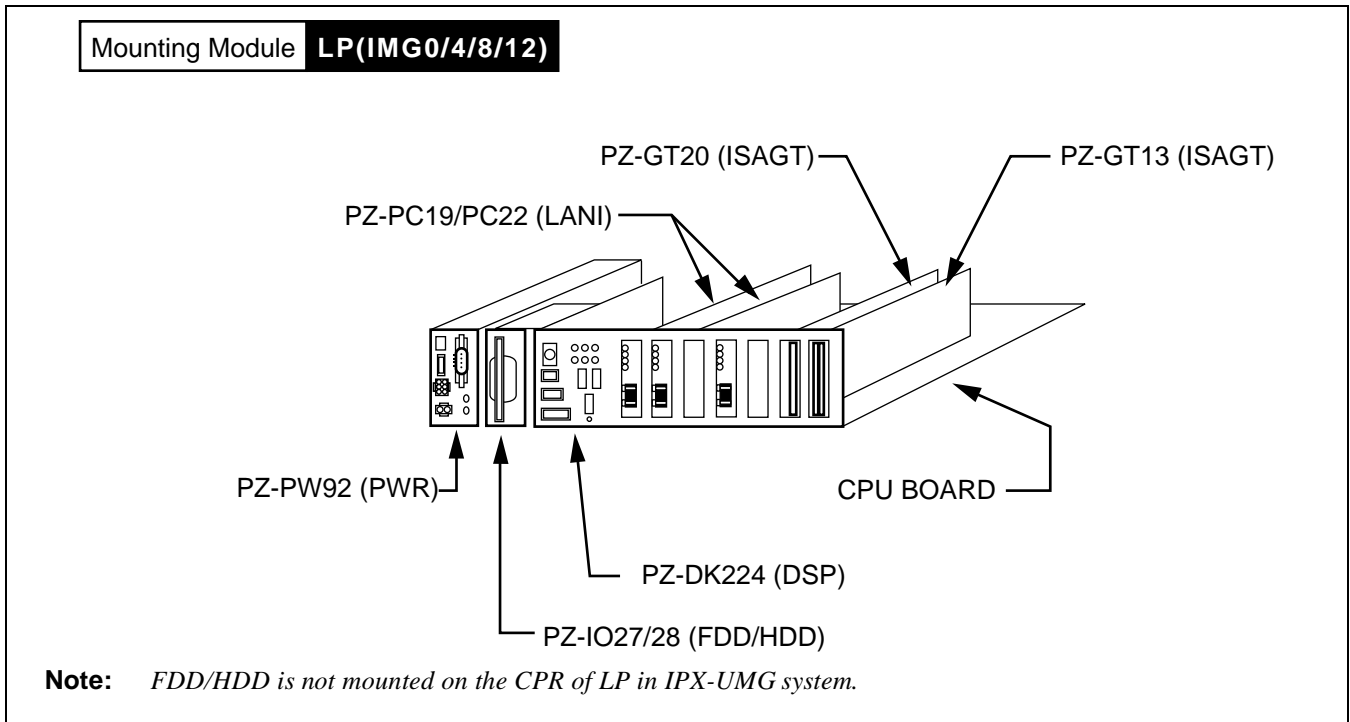


Figure 2-75 External Interface for PZ-GT20

3. Face Layout of Connectors

The face layout of connectors are shown in [Figure 2-76](#). There are no lamps or switches on this circuit card.

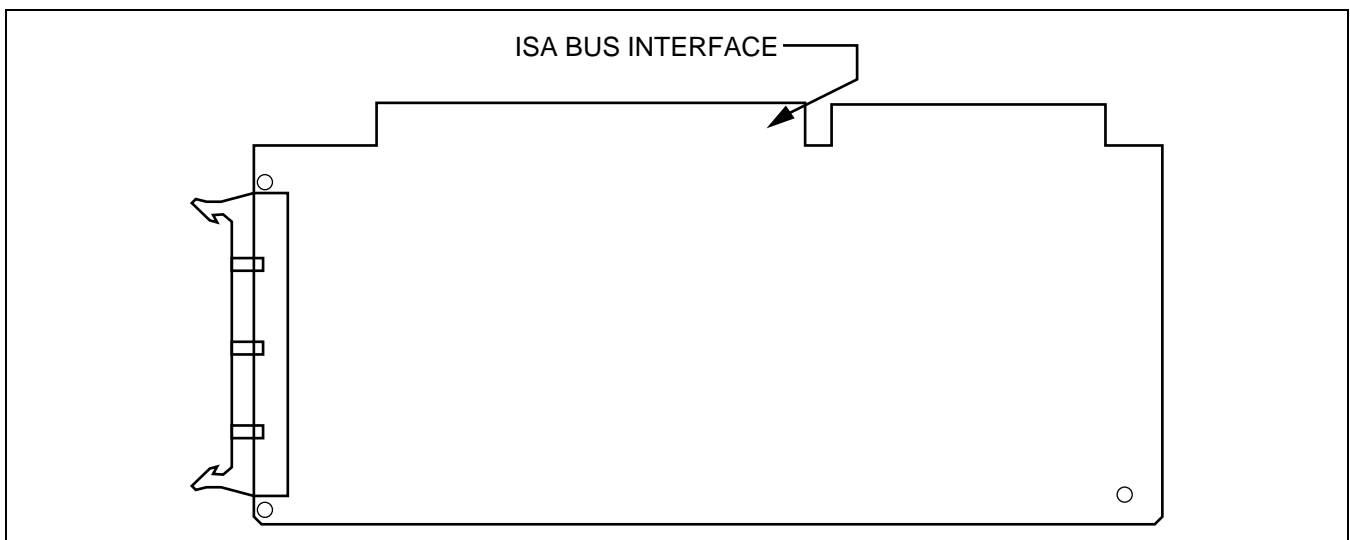


Figure 2-76 Face Layout of PZ-GT20 (ISAGT)

**PZ-GT20**

## Industry Standard Architecture Gateway

## 4. External Interface

This card contains no lamps.

## 5. Switch Settings

No switch settings are required.

## 6. External Interface

See the NEAX2400 IPX Installation Manual.

## 7. Switch Setting Sheet

No switch settings are required.

# PZ-M565 Industry Standard Architecture Gateway

## 1. General Function

This circuit card has the relay functions as mentioned below:

- (a) to receive the NMI (Non-Maskable Interruption) signal from the PZ-ME44 (PCI MEM) card, then output it to ISA Bus.
- (b) to receive the ACT signal from the EMA card, then output it to PZ-ME44 (PCI MEM) card.

This card is used in IPX-UMG system connecting the two cards on CPU#0 and #1 in CMP with a bus cable.

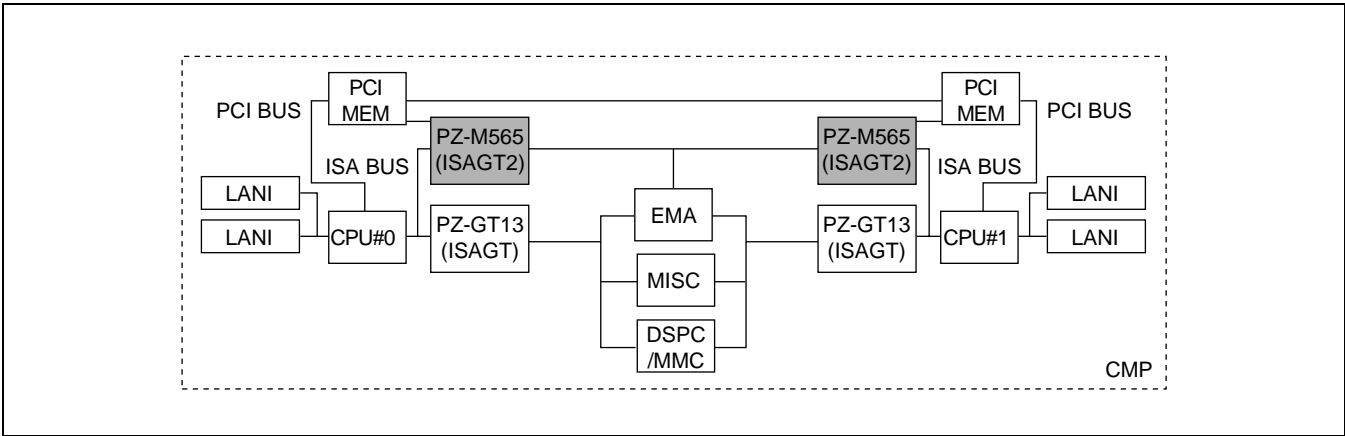


Figure 2-77 Location of PZ-M565 (ISAGT) Card in the System

## 2. Mounting Location/Condition

The PZ-M565 (ISAGT) card is mounted in PCI Slot No.05 on CPU Board within the CMP of IPX-UMG system as shown in Figure 2-78.

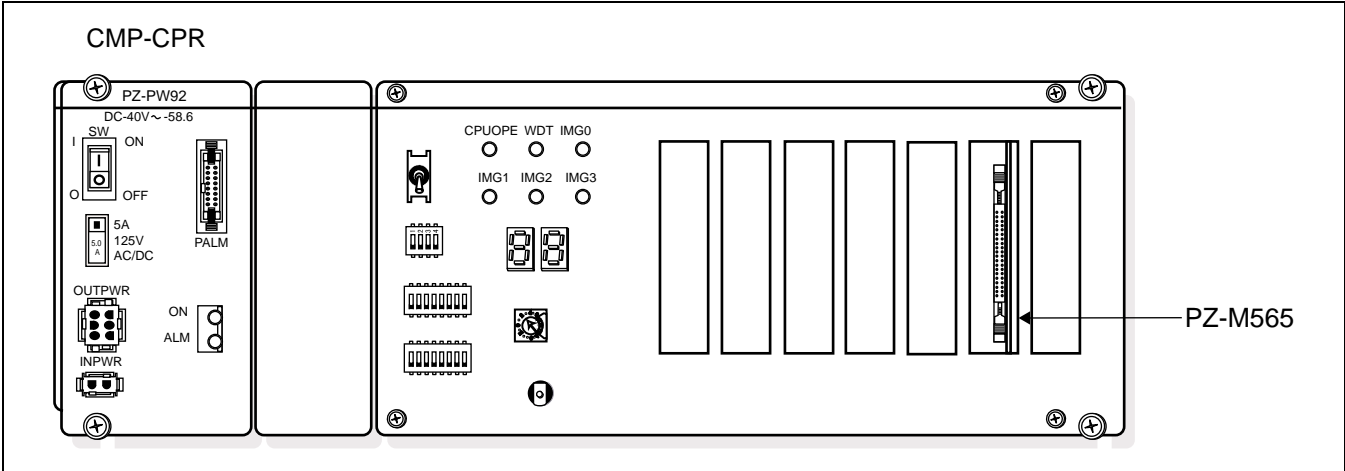


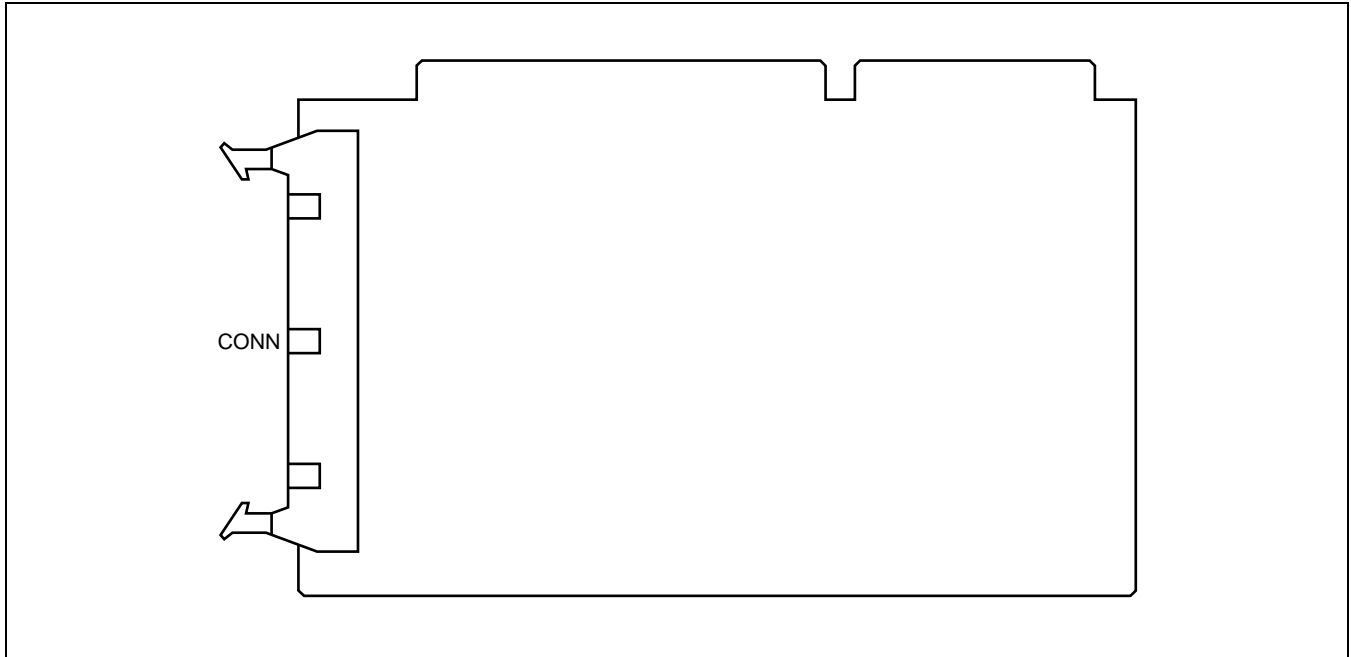
Figure 2-78 External Interface for PZ-M565

## PZ-M565

### Industry Standard Architecture Gateway

#### 3. Face Layout of Connectors

The face layout of connectors is shown below.



**Figure 2-79 Face Layout of PZ-M565 (ISAGT) Card**

#### 4. Lamp Indications

This card contains no lamps.

#### 5. Switch Settings

No switch settings are required.

#### 6. External Interface

See the NEAX 2400 IPX-UMG Installation Manual.

#### 7. Switch Setting Sheet

No switch settings are required.

## PZ-ME44 PCI Memory

### 1. General Function

Mounted on CPU Board of CMP in IPX-UMG system, this circuit card provides the Memory Copy function related to ACT/ST-BY system changeover.

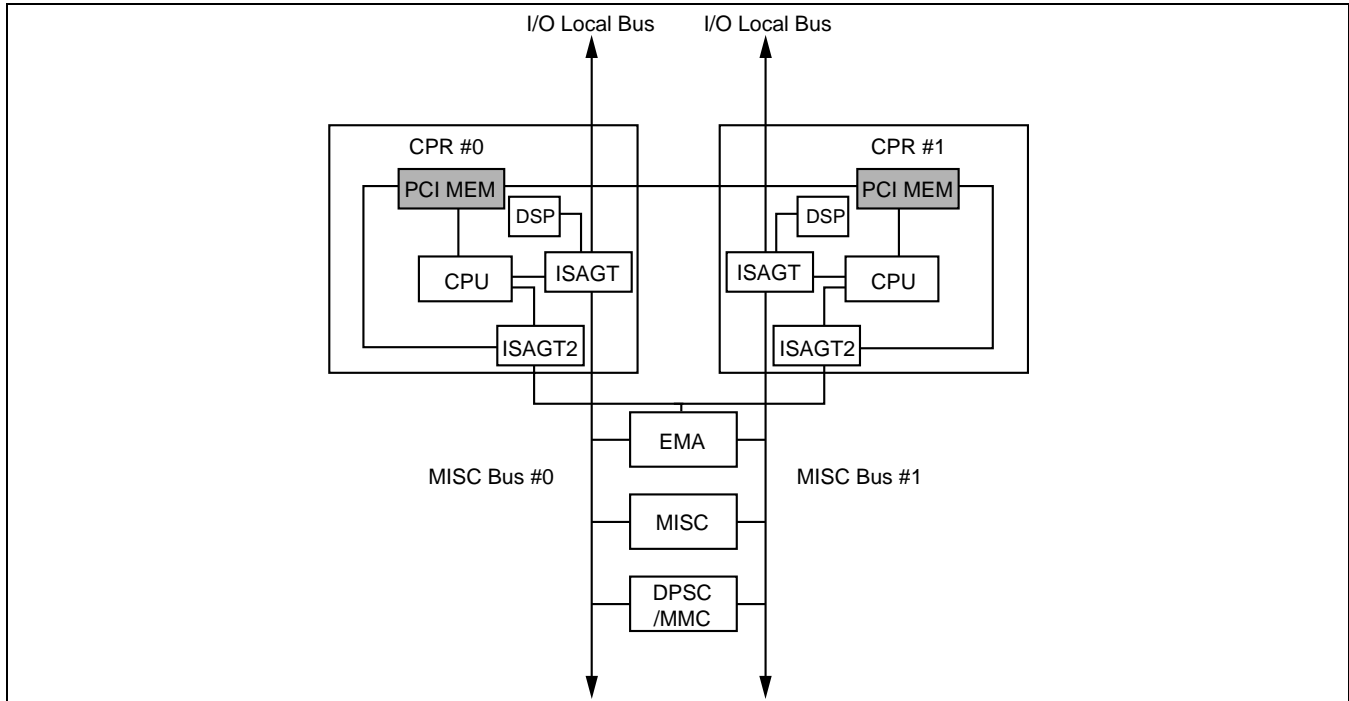


Figure 2-80 Location of PZ-ME44 (PCI MEM) Card in the System

### 2. Mounting Location/Condition

The PZ-ME44 (PCI MEM) card is mounted in PCI Slot No. 02 on CPU Board of CMP as shown in [Figure 2-81](#).

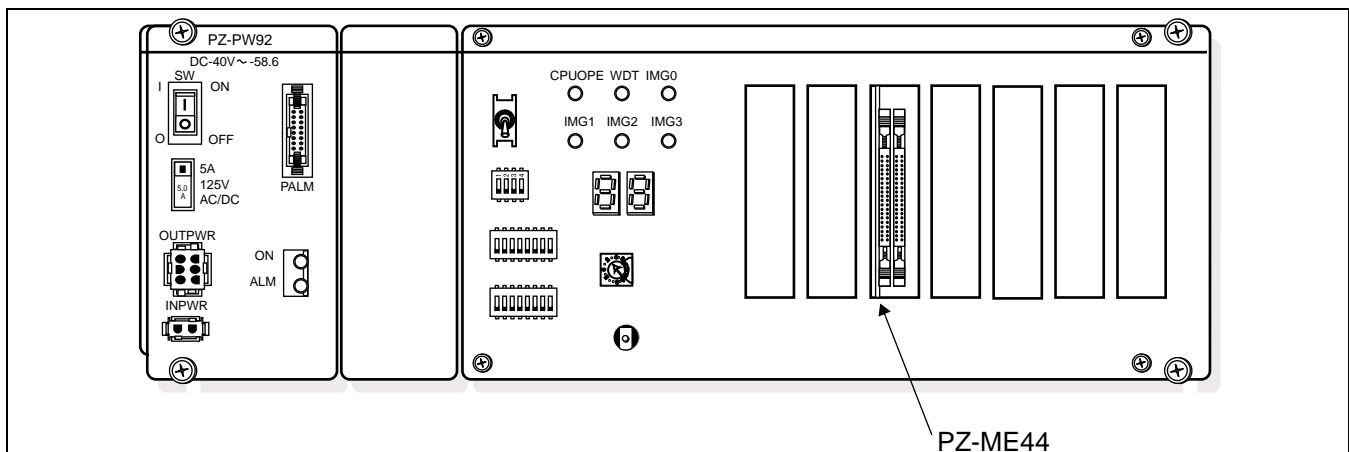
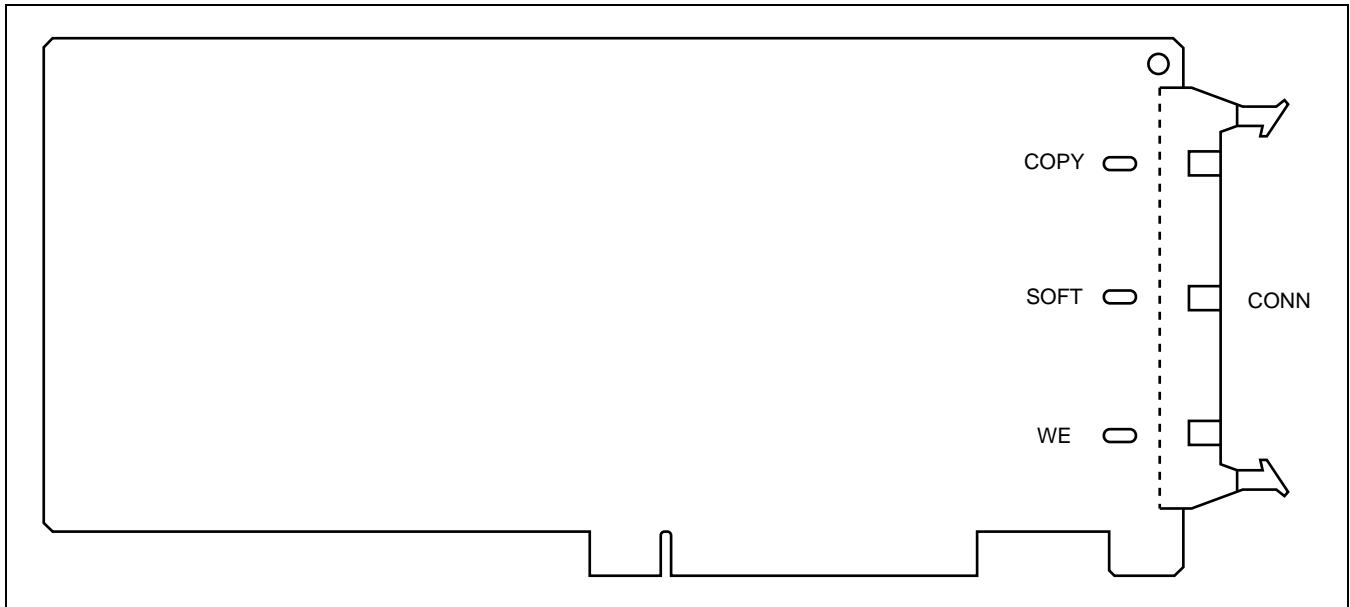


Figure 2-81 External Interface for PZ-M44

3. Face Layout of Connectors

The face layout of connectors and lamps is shown in [Figure 2-82](#).



**Figure 2-82 Face Layout of PZ-ME44 (PCI MEM) Card**

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	DESCRIPTION
COPY	Green	Copy mode
	OFF	Self mode
SOFT	Green	Normally operating in copy mode (Valid when “copy” lamp lights)
	OFF	Remains OFF during ACT → STBY memory copy
WE	Green	Lights when Memory writing

5. Switch Settings

No switch settings are required.

6. External Interface

See the NEAX2400 IPX-UMG Installation Manual.

7. Switch Setting Sheet

No switch settings are required.



# PZ-PC19 Local Area Network Interface

## 1. General Function

The PZ-PC19 (LANI) circuit card provides the interface for the 10-BASE-T and the Peripheral Component Interconnect (PCI) Bus. The microprocessor on the CPR sends/receives the Fusion Link Data and/or Maintenance Administration Terminal (MAT) data across the LAN interface (LANI).

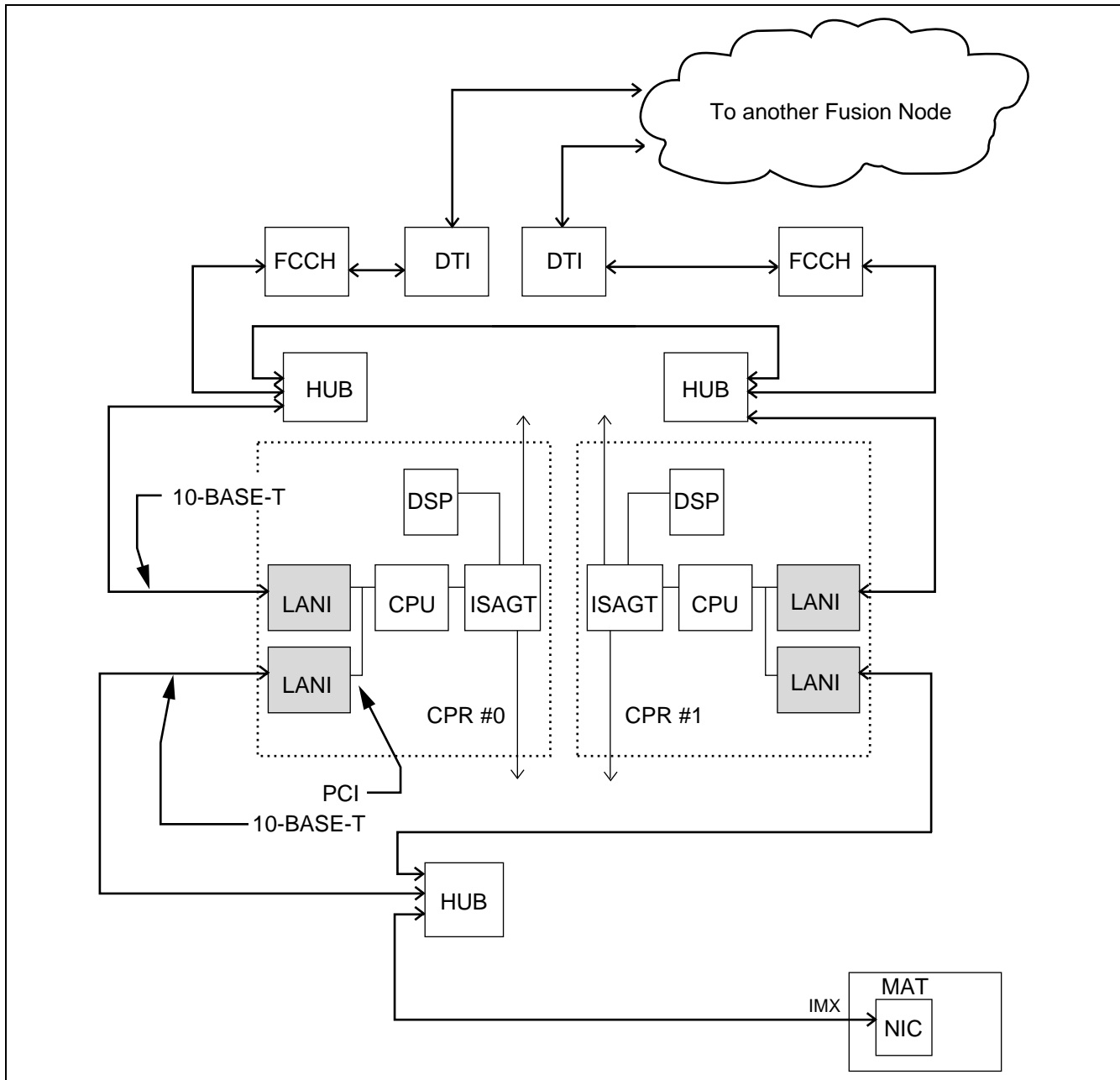


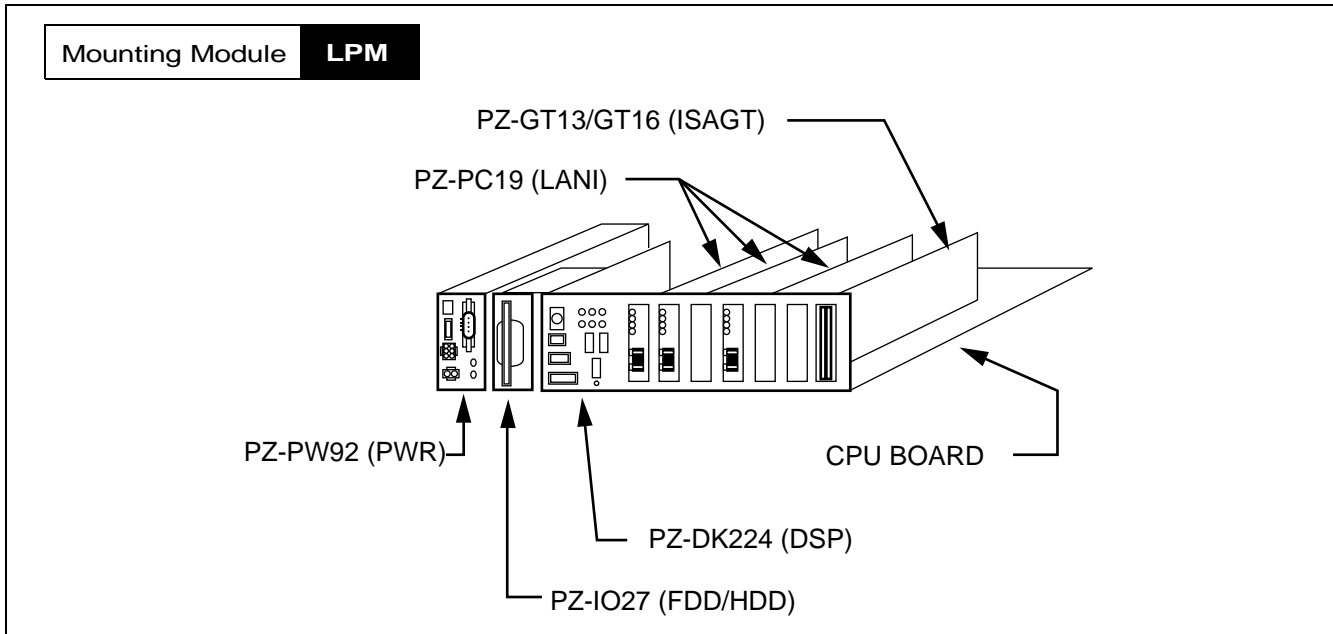
Figure 2-83 Location of PZ-PC19 (LANI)

## PZ-PC19

### Local Area Network Interface

#### 2. Mounting Location/Condition

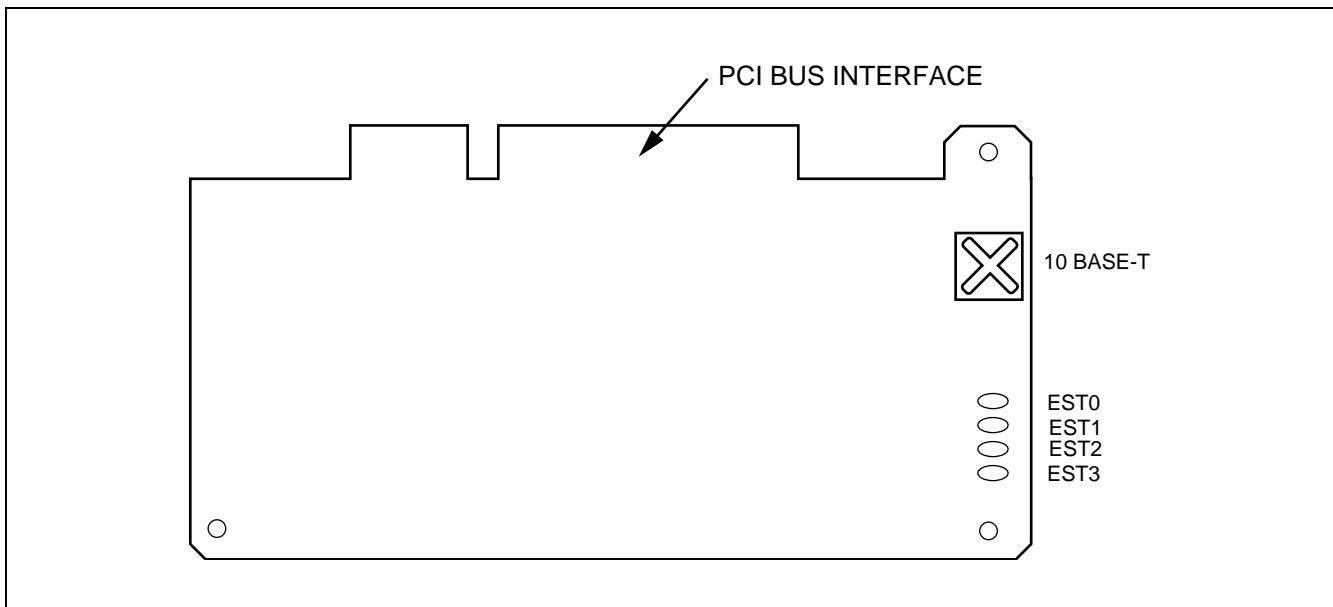
The PZ-PC19 (LANI) is located on the PCI bus in the CPR as shown in [Figure 2-84](#).



**Figure 2-84 External Interface for PZ-PC19**

#### 3. Face Layout of Lamps, Switches and Connectors

The face layout of lamps, switches and connectors is shown in [Figure 2-85](#).



**Figure 2-85 Face Layout of PZ-PC19 Card**

#### 4. Lamp Indications

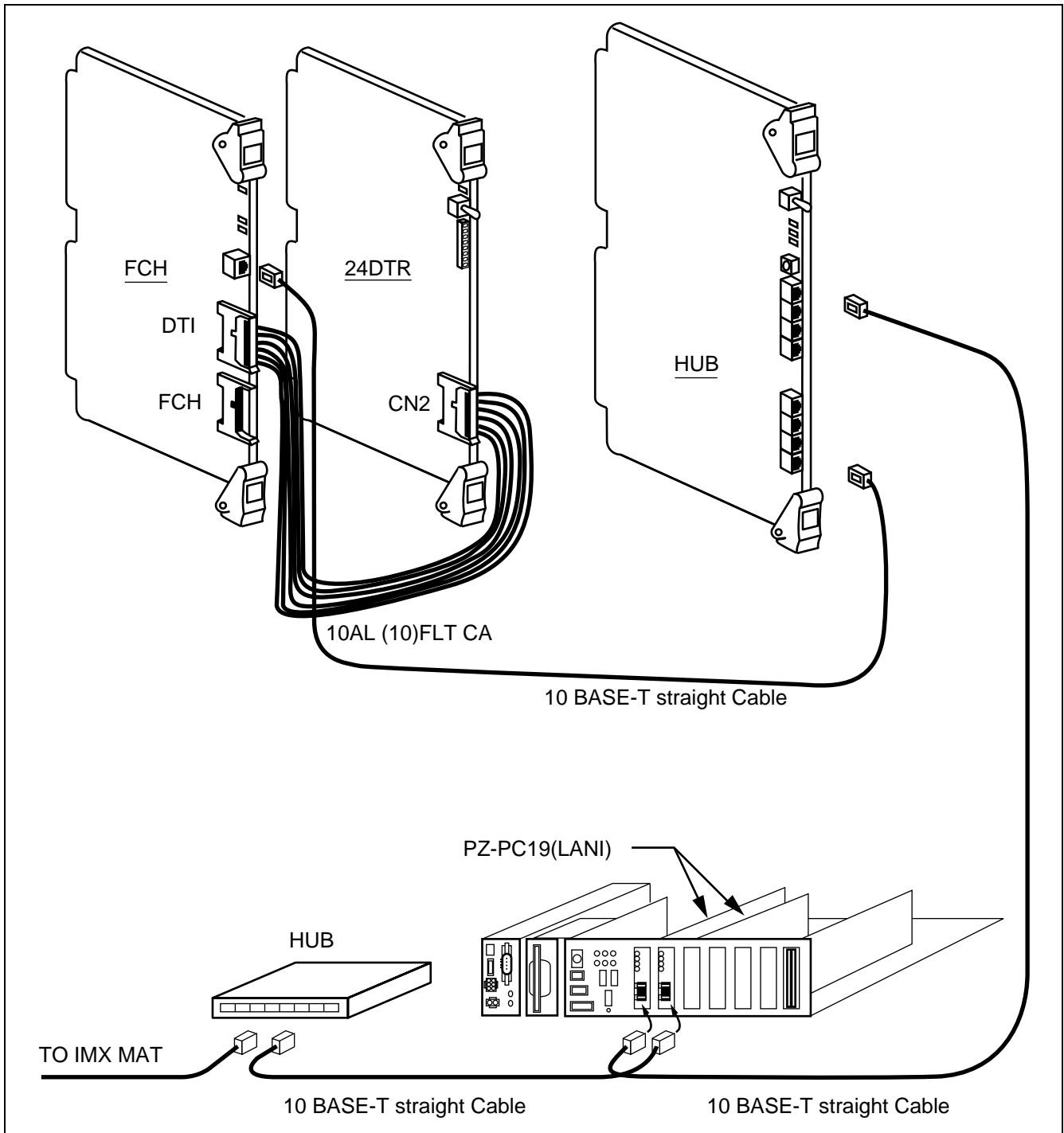
Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	DESCRIPTION
EST0	Green	Layer 1 link has established.
EST1	Green	Data packet sending/receiving.
EST2	Red	Layer 1 link failure.
EST3	Yellow	Data packet collision has occurred.

#### 5. Switch Settings

No switch settings are required.

6. External Interface



**Figure 2-86 Cable Connections for PZ-PC19**

7. Switch Setting Sheet

No switch settings are required.

# PZ-PC22 Local Area Network Interface

## 1. General Function

The PZ-PC22 (LANI) circuit card is a single port Ether card that builds up Fusion link or Ether LAN corresponding to 10BASE-T/100BASE-TX. The card is mounted on the Peripheral Component Interconnect (PCI) bus slot in the CPR, and provides the interface to the Processor bus.

This card is mounted on the CPR of CMP/LP in the IPX-UMG system.

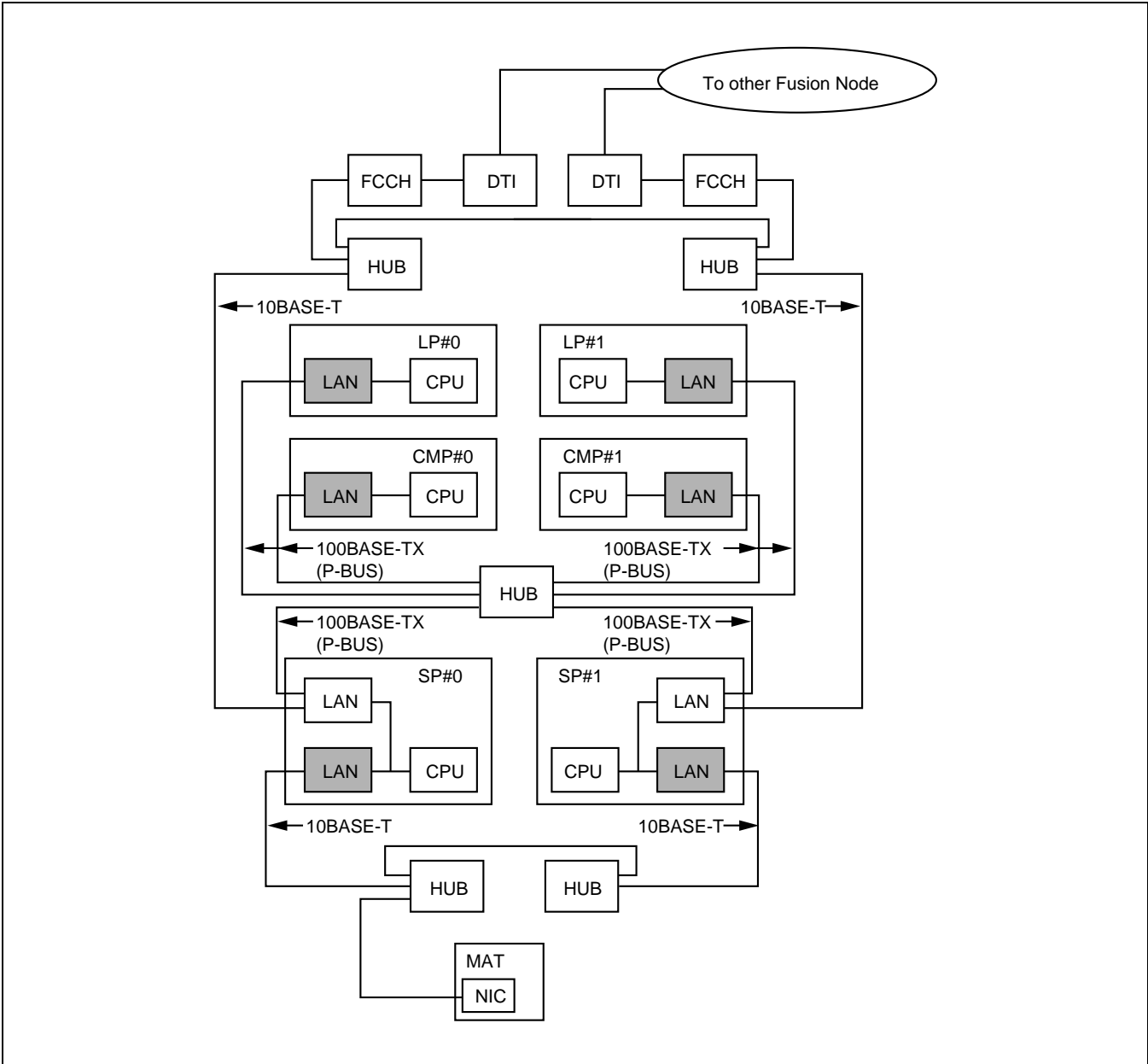


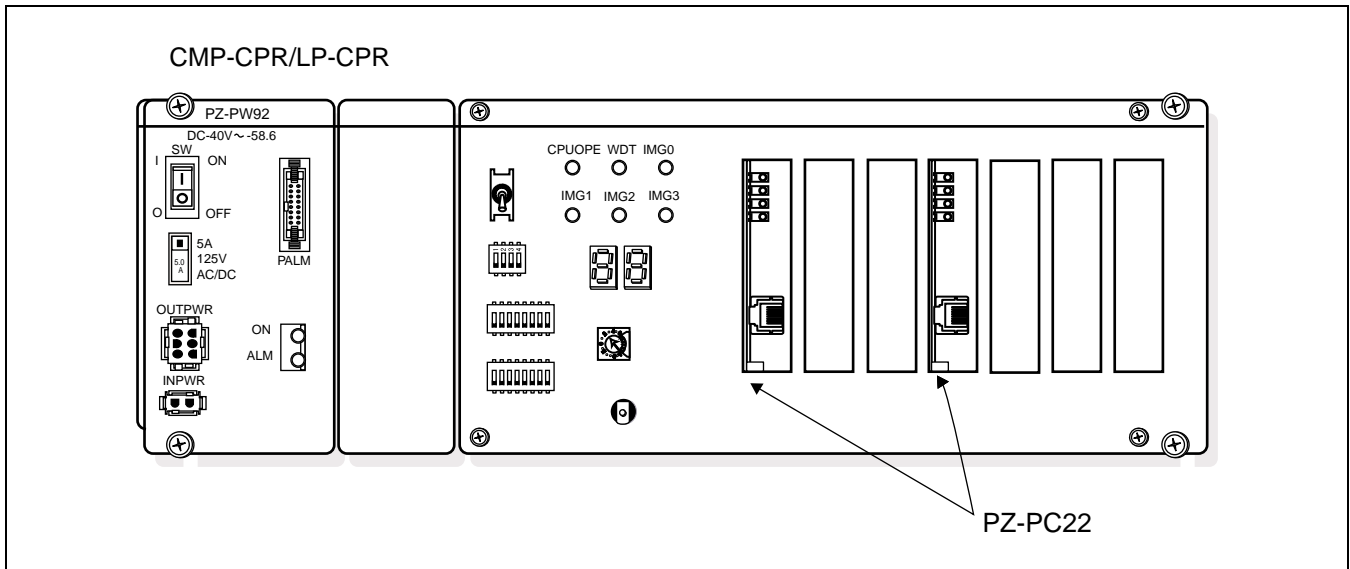
Figure 2-87 Location of PZ-PC22 (LANI) Card in the System

## PZ-PC22

### Local Area Network Interface

#### 2. Mounting Location/Condition

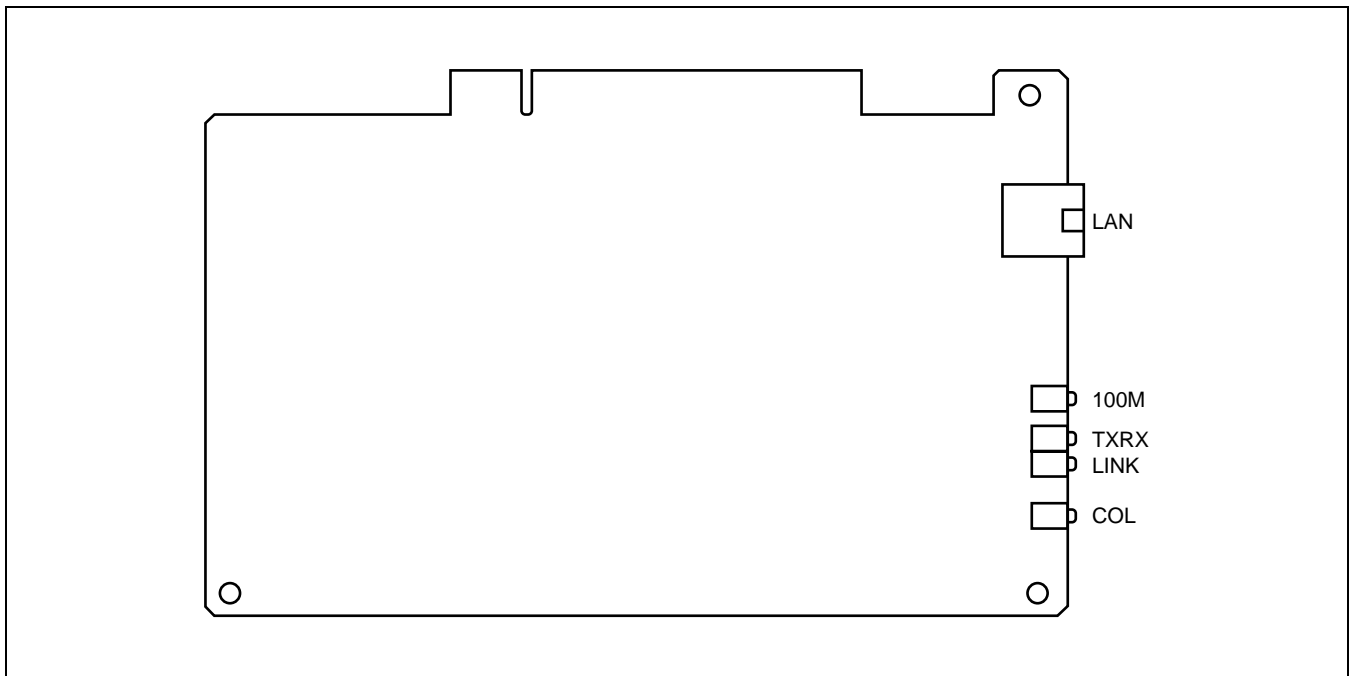
The PZ-PC22 (LANI) card is accommodated on the PCI bus in the CPR as shown in [Figure 2-88](#).



**Figure 2-88** Location of PZ-PC22

#### 3. Face Layout of Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 2-89](#).



**Figure 2-89** Face Layout of PZ-PC22 (LANI) Card

#### 4. Lamp Indications

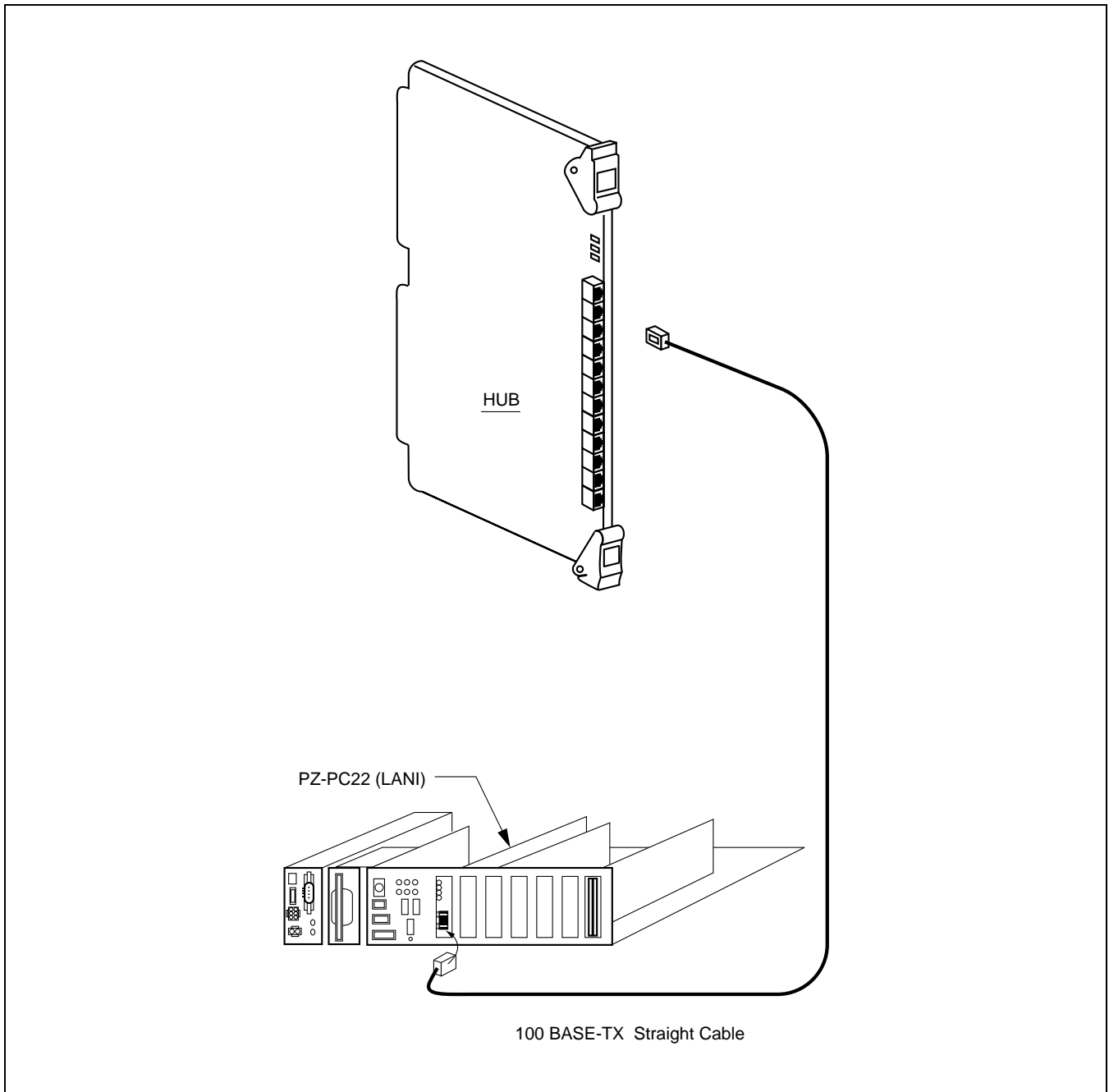
The contents of lamp indications on this circuit card are shown in the table below.

<b>LAMP NAME</b>	<b>COLOR</b>	<b>DESCRIPTION</b>
100M	Green	100MHz mode
TXRX	Green	Data packet sending/receiving
LINK	Green	Link has been established.
COL	Yellow	Data packet collision has occurred.

#### 5. Switch Settings

No switch settings are required.

6. External Interface



**Figure 2-90 External Interface for PZ-PC22 (LANI)**

7. Switch Setting Sheet

No switch settings are required.



# PZ-PC23 Local Area Network Interface

## 1. General Function

The PZ-PC23 (LANI) circuit card is a multiple ports Ether card that builds up Fusion link or external Ether LAN corresponding to 10BASE-T/100BASE-TX. In the IPX-UMG system, one connector is used for Ethernet, and the other for Fusion link. The card is mounted on the Peripheral Component Interconnect (PCI) bus slot within the CPR, and provides the interface to the Processor bus or Fusion link.

This card is mounted on the CPR of SP in the IPX-UMG system.

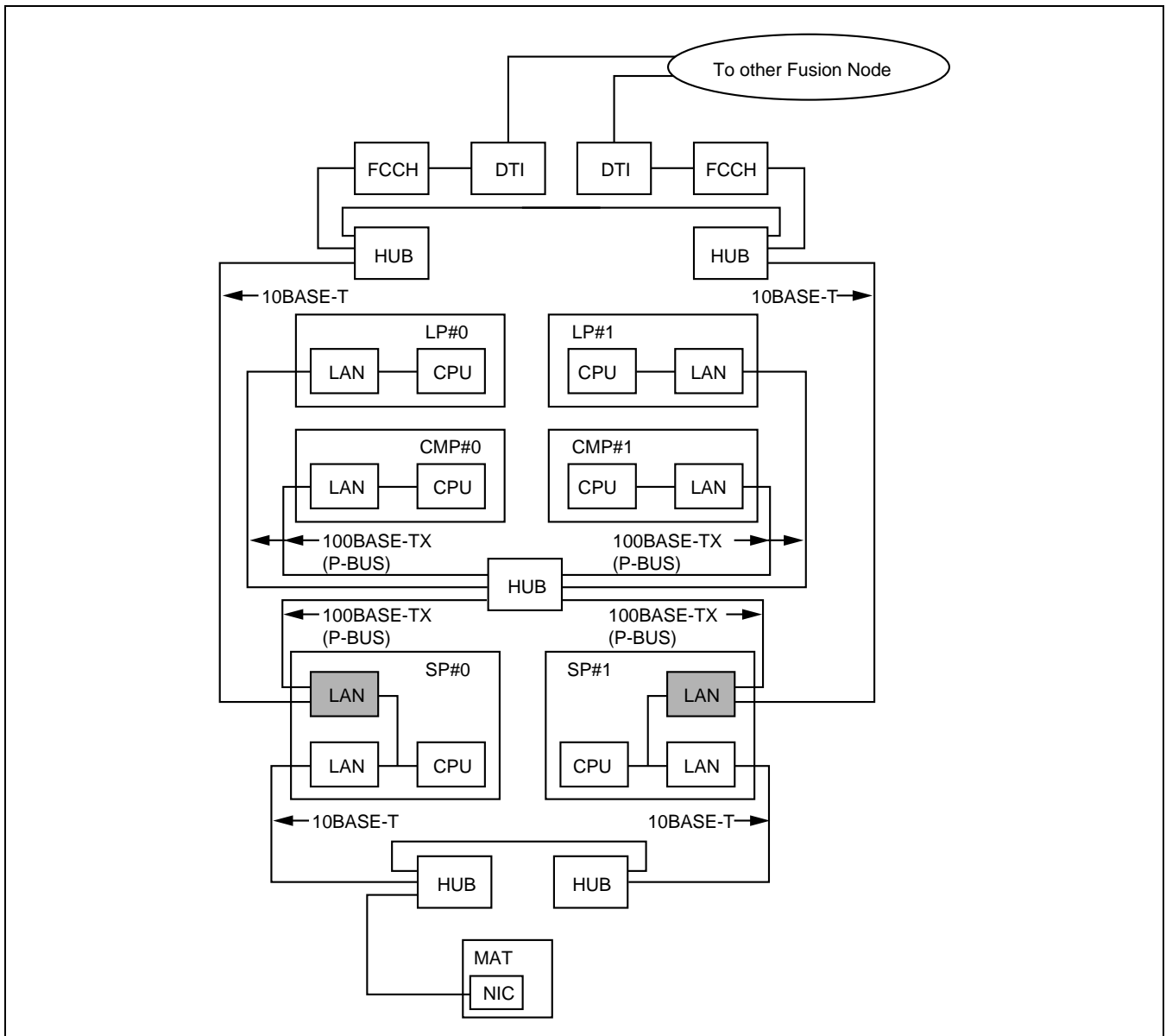


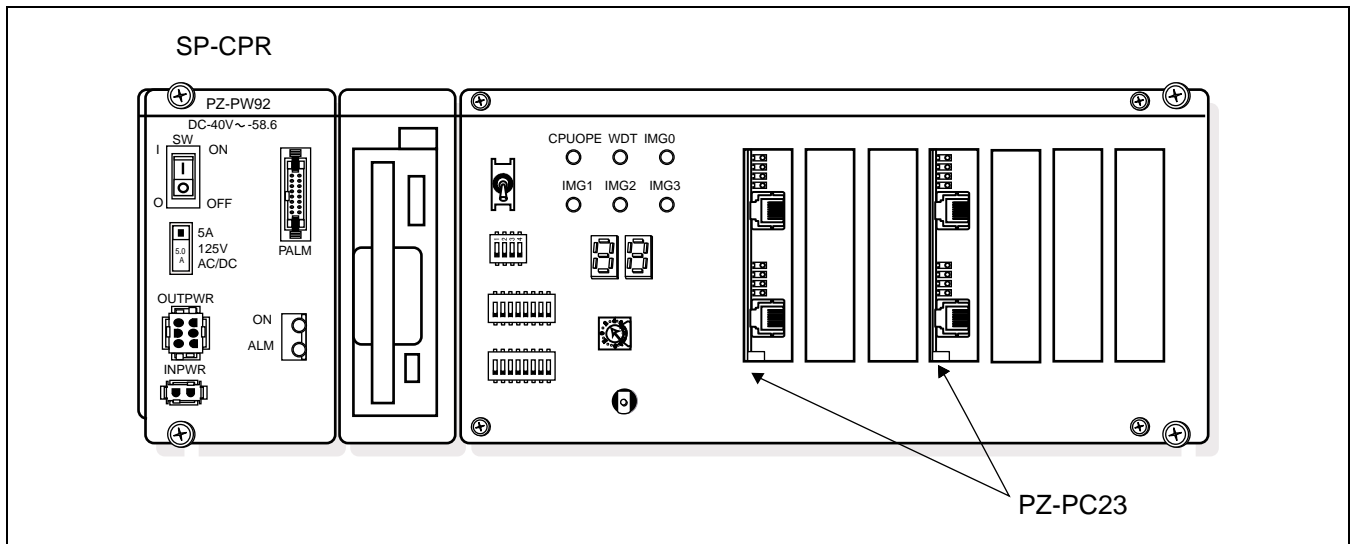
Figure 2-91 Location of PZ-PC23 (LANI) Card in the System

## PZ-PC23

### Local Area Network Interface

#### 2. Mounting Location/Condition

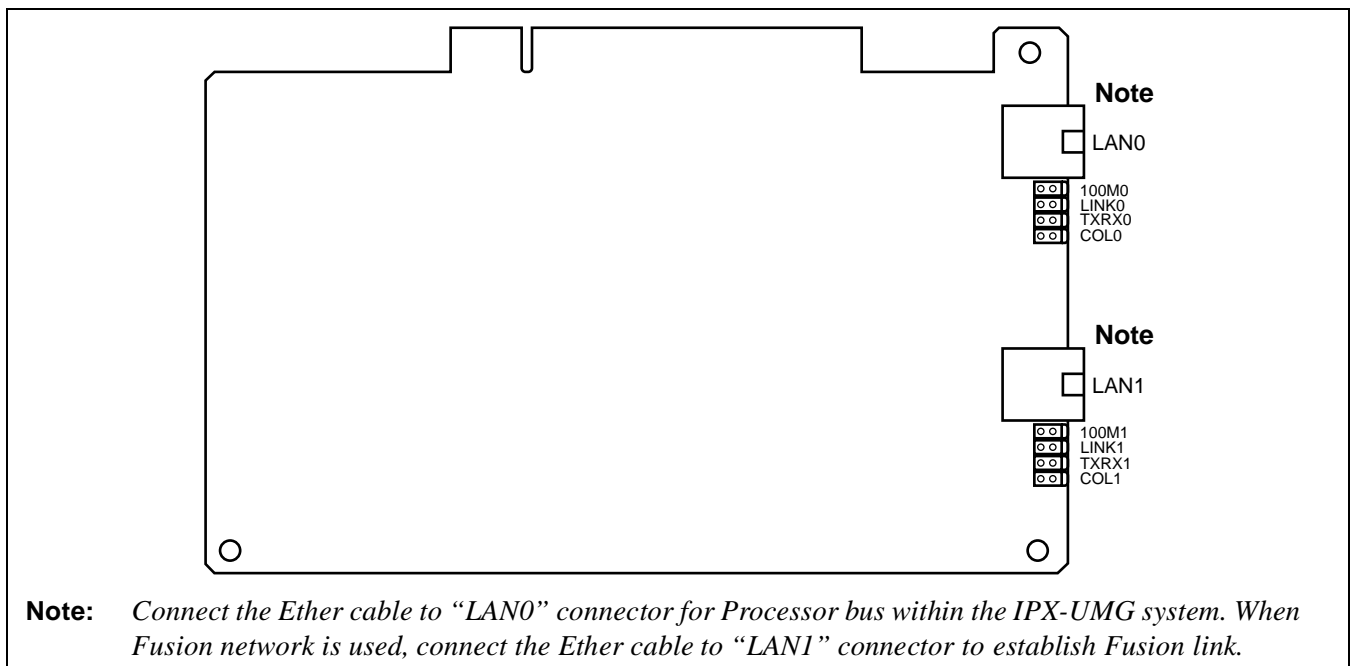
The PZ-PC23 (LANI) card is accommodated on the PCI bus Slot No.0 and No.3 in the CPR of SP as shown in [Figure 2-92](#).



**Figure 2-92 Location for PZ-PC23**

#### 3. Face Layout of Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 2-93](#).



**Figure 2-93 Face Layout of PZ-PC23 (LANI) Card**

#### 4. Lamp Indications

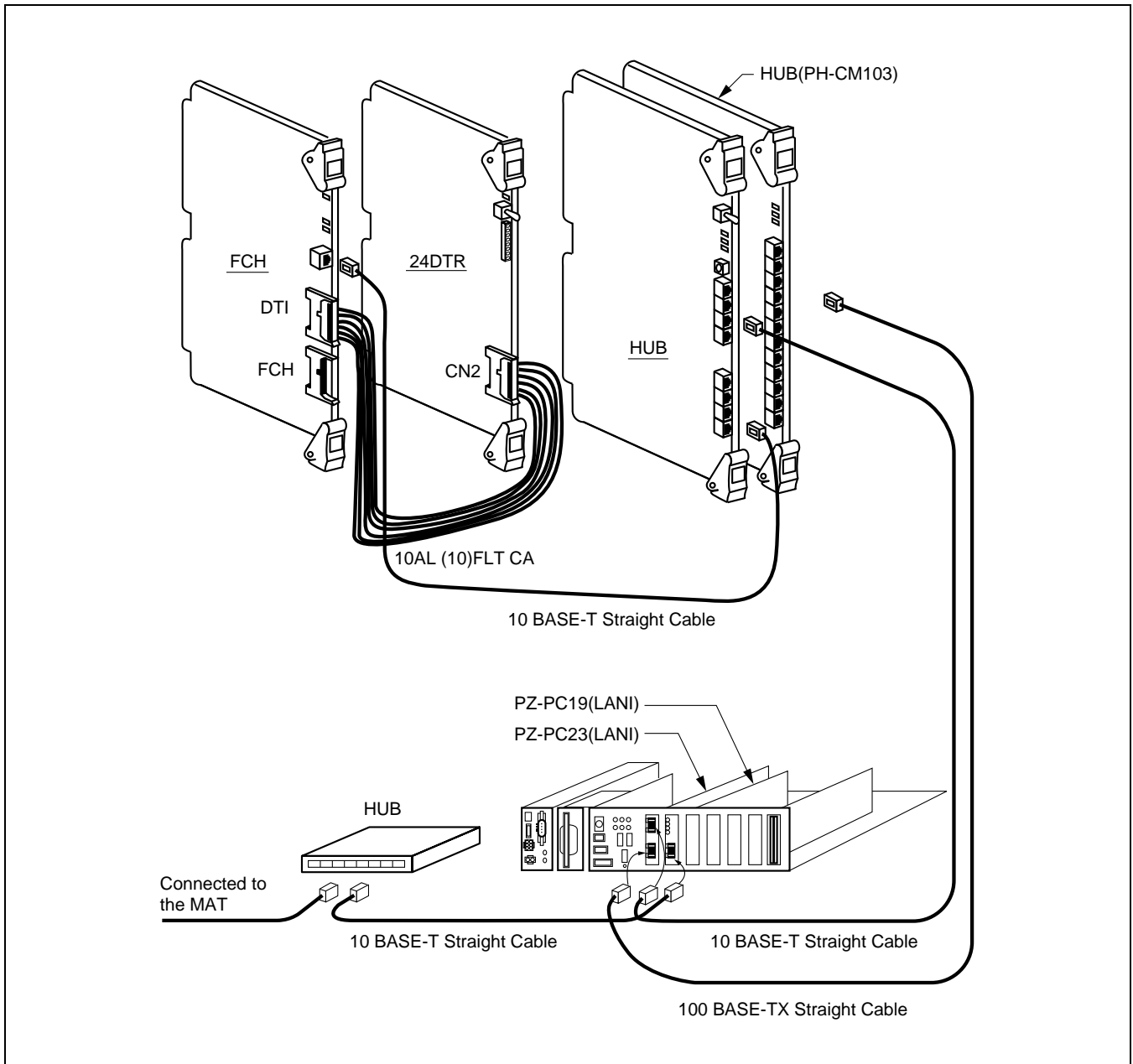
The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	DESCRIPTION
100M0/1	Green	100MHz mode
LINK0/1	Green	Link has been established.
TXRX0/1	Green	Data packet sending/receiving
COL0/1	Yellow	Data packet collision has occurred.

#### 5. Switch Settings

No switch settings are required.

6. External Interface



**Figure 2-94 External Interface for PZ-PC23 (LANI)**

7. Switch Setting Sheet

No switch settings are required.

## CHAPTER 3 LINE/TRUNK CIRCUIT CARD REFERENCE

### 1. GENERAL

This chapter explains the following items about circuit cards.

- General Function

Explains the general function and purpose for each control circuit card.

- Mounting Location/Condition

Explains the mounting location (mounting module name and slot number, etc.) of each circuit card. If there are any conditions pertaining to mounting the circuit cards, they are also explained.

- Face Layout of Lamps, Switches, and Connectors

The locations of the lamps, switches, and connectors provided on each circuit card are illustrated by a face layout.

- Lamp Indications

Names, colors, and indication states of lamps mounted on each circuit card are listed.

- Switch Settings

Each circuit card's switches are listed with their names, switch numbers, setting and its meaning, standard setting, etc.

- External Interface

If the lead outputs of the circuit card are provided by an LT connector, the relation between the mounting slots and the LT connectors is illustrated by an LT Connector Lead Face Layout. If the lead outputs are provided by other than an LT connector, or are provided by the circuit card front connector, the connector lead locations and the connecting routes are shown.

In addition, a Switch Setting Sheet is provided at the end of the explanation of circuit cards.

**PA-CFTB**  
**8-party Conference Trunk**

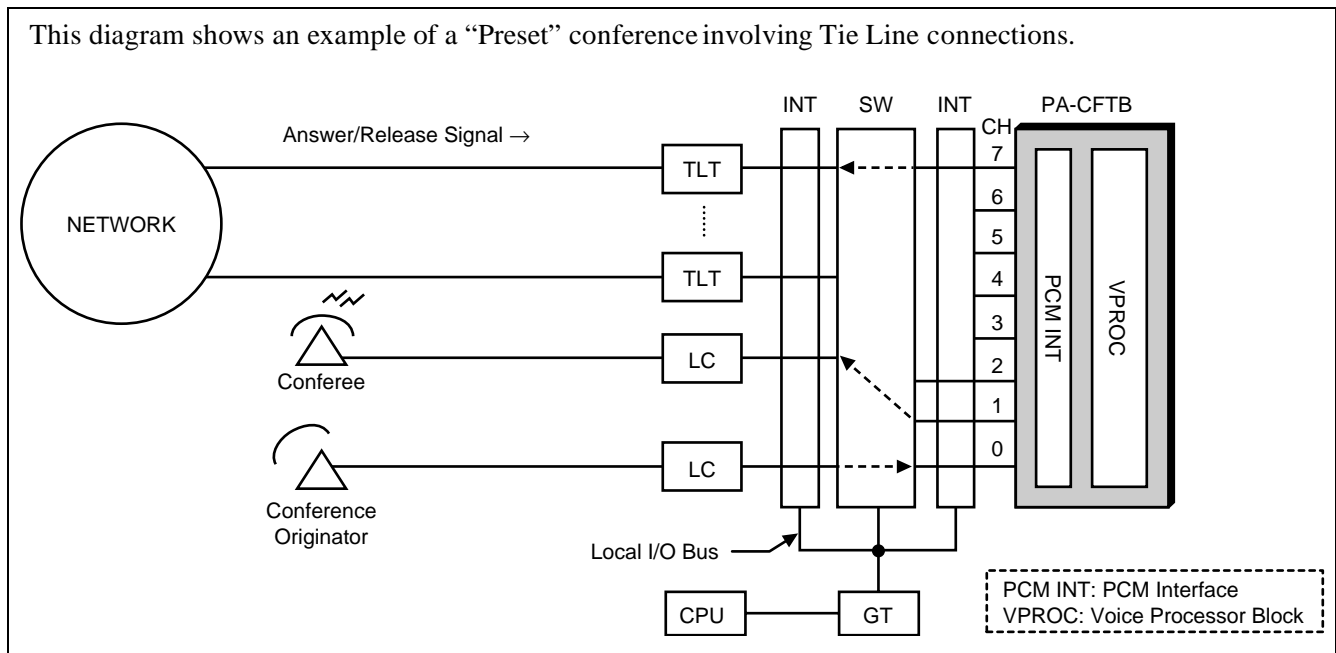
1. General Function

The PA-CFTB (CFT) circuit card provides an interface for establishing a conference, which is made up of a maximum of eight parties.

A maximum of seven Tie Lines can participate in a conference when the associated trunks can receive an answer signal and a release signal from the distant switching system. On the other hand, in the case of a C.O. line, one C.O. line can be connected even if the public switching system cannot send an answer signal and/or release signal. Note that a Tie Line and a C.O. Line cannot take part in a conference at the same time. The card adopts “N-1 addition” method for establishing a conference.

**Note:** This circuit card is used for following features:

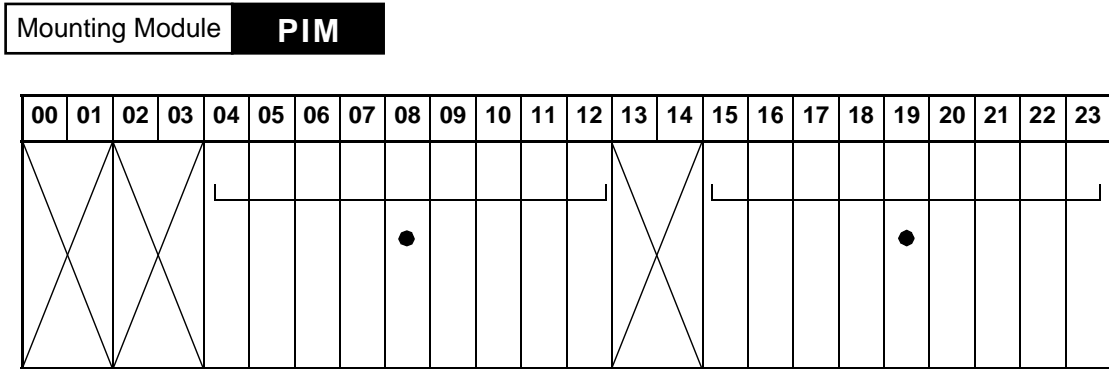
- Station-Controlled Conference (Refer to Feature Programming Manual [S-56])
- Attendant-Controlled Conference (Refer to Feature Programming Manual [A-2])
- Add On Conference-8 Party (Refer to Feature Programming Manual [A-121])
- Group Call-Automatic Conference (20-party) (Refer to Wireless System Manual)



**Figure 3-1 Location of PA-CFTB (CFT) within the System**

2. Mounting Location/Condition

The PA-CFTB (CFT) card can be mounted in any universal slot as shown below.

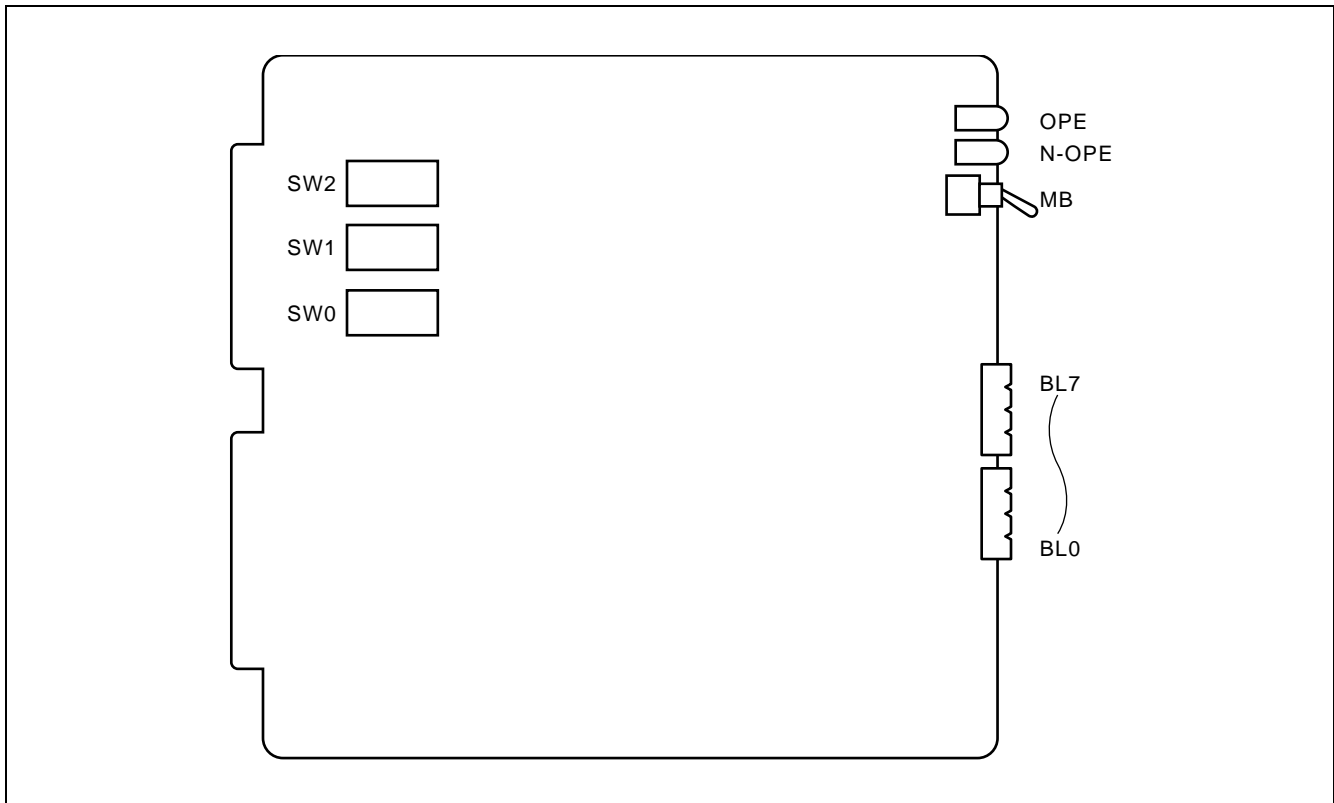


**Note:** ● Indicates universal slots for line/trunk circuit cards.

**PA-CFTB**  
8-party Conference Trunk

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-2](#).



**Figure 3-2 Face Layout of PA-CFTB (CFT)**

4. Lamp Indications

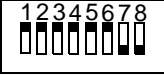
The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
BL0	Red	BL-lamp remains lit while the corresponding circuit is busy.
BL7	Flash	BL-lamp flashes when the corresponding circuit is busy.





5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW0 	1	ON	×	Fixed in the system
		OFF		
	2	ON	×	Fixed in the system
		OFF		
	3	ON	×	Fixed in the system
		OFF		
	4	ON	×	Fixed in the system
		OFF		
	5	ON	×	Fixed in the system
		OFF		
	6	ON	×	Fixed in the system
		OFF		
	7	ON		
		OFF	×	Fixed in the system
	8	ON		
		OFF	×	Fixed in the system

**PA-CFTB**  
8-party Conference Trunk

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW1 	1	ON	×	Fixed in the system
		OFF		
	2	ON	×	Fixed in the system
		OFF		
	3	ON	×	Fixed in the system
		OFF		
	4	ON	×	Fixed in the system
		OFF		
	5	ON	×	Fixed in the system
		OFF		
	6	ON	×	Fixed in the system
		OFF		
	7	ON	×	Fixed in the system
		OFF		
	8	ON		
		OFF	×	Fixed in the system
SW2 	1	ON	×	μ-law PCM encoder
		OFF		A-law PCM encoder
	2	ON		Conference connection is set up by PB tel.
		OFF		Conference connection is not set up by PB tel.
	3	ON		When port Microprocessor (PM) is SP-388, SP-457, SP-863, SP-990, SP-1114.
		OFF		When Port Microprocessor (PM) is SP-519, SP-1141.
	4	OFF	×	Not used
	5	OFF	×	Not used
	6	OFF	×	Not used

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING															
SW2	7	ON		CFTB Insertion Loss (PAD value) Setting <table border="1"> <thead> <tr> <th>SW2-7</th> <th>SW2-8</th> <th>PAD [dB]</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>3</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>6</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>9</td> </tr> </tbody> </table>	SW2-7	SW2-8	PAD [dB]	OFF	OFF	0	OFF	ON	3	ON	OFF	6	ON	ON	9
		SW2-7	SW2-8		PAD [dB]														
	OFF	OFF	0																
	OFF	ON	3																
ON	OFF	6																	
ON	ON	9																	
OFF																			
8	ON																		
	OFF																		

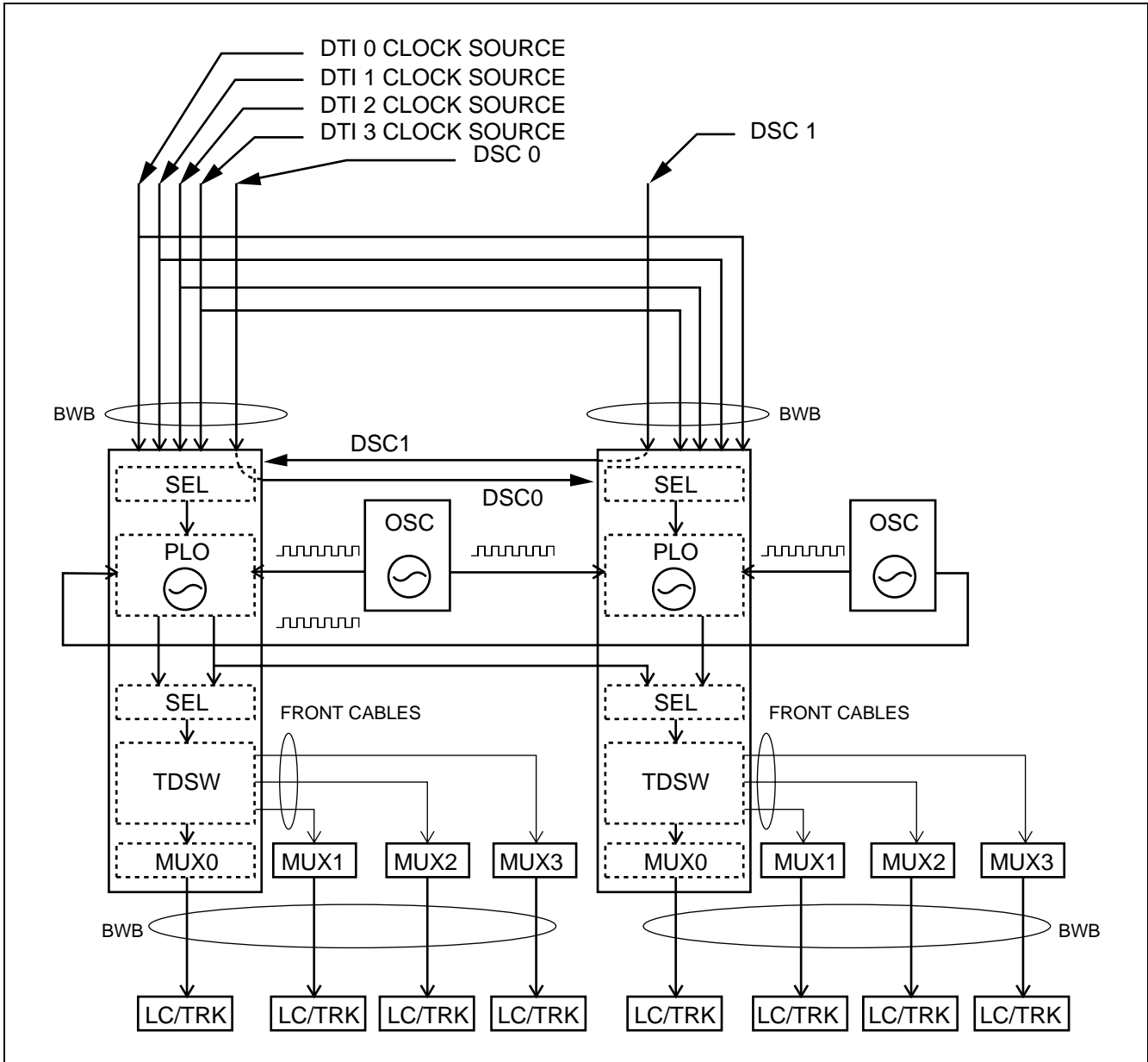
6. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW0	ON 	
		SW1	ON 	
		SW2	ON 	
		MB	DOWN	Circuit card make busy cancel

**PA-CK14  
Oscillator**

1. General Function

The PLO block of the TSW card generates its base clock signals, and adjusts their phase with the source clock signals so the PLO can send the synchronized clock signals to the TSW. When the 1 IMG system is a clock-subordinate-office of the digital network, the base clock accuracy of the PLO/ PH-SW10 ( $\pm 5$  ppm deviation) is sufficient. However, the more high-precision base clock signals are required at the clock-source-office, as this circuit card provides --- PA-CK14 ( $\pm 0.3$  ppm deviation). When this circuit card is mounted, the 1 IMG system selects the PA-CK14 (OSC) clocks as the base clock of the PLO.



**Figure 3-3 Location of PA-CK14 (OSC) Card in the System**

2. Mounting Location/Condition

The PA-CK14 (OSC) is located in Port Interface Module number zero (PIM 0). The card mounted in slot number 09 works as the primary OSC, 17 for the secondary OSC.

Mounting Module	PIM																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
PIM0										OSC#0								OSC#1						

**Note:** This card occupies two slots.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 3-4](#).

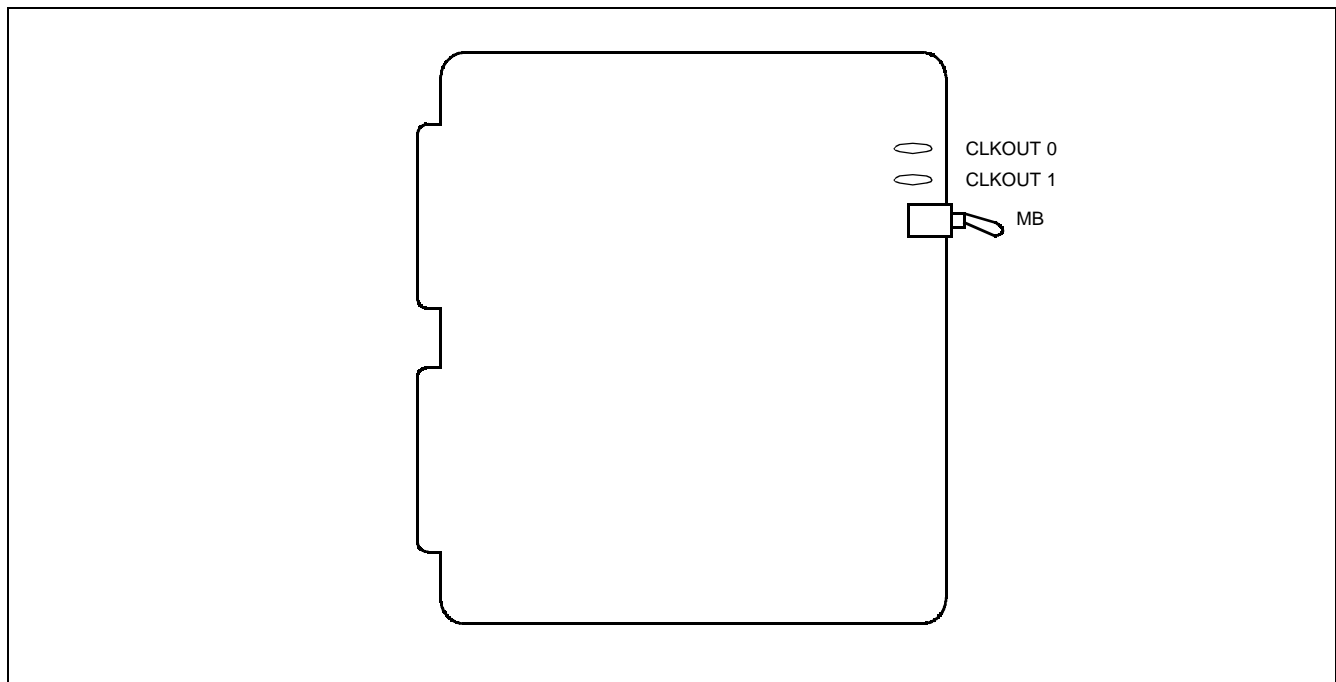


Figure 3-4 Face Layout of PA-CK14 (OSC) Card

**PA-CK14**  
Oscillator

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
CLKOUT0	Green	Lights when OSC card delivers the clock signals to TSW#0.
CLKOUT1	Green	Lights when OSC card delivers the clock signals to TSW#1.

5. Switch Settings

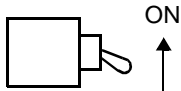
Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	ON		Make-busy of the circuit card.
	OFF	×	Normal setting.

6. External Interface

Since the base clock signals are delivered through the printed-wiring on the Back Wired Board (BWB) of PIM 0, this circuit card does not require any external cabling.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		

# PH-CK16 Phase Lock Oscillator

## 1. General Function

This circuit card, used together with a direct digital interface circuit card, sets up network synchronization with the network. With this circuit card, the 4 IMG system can be a clock subordinate office of the digital network. As seen in Figure 3-5, the PLO can be redundant regardless of the system switching network selection.

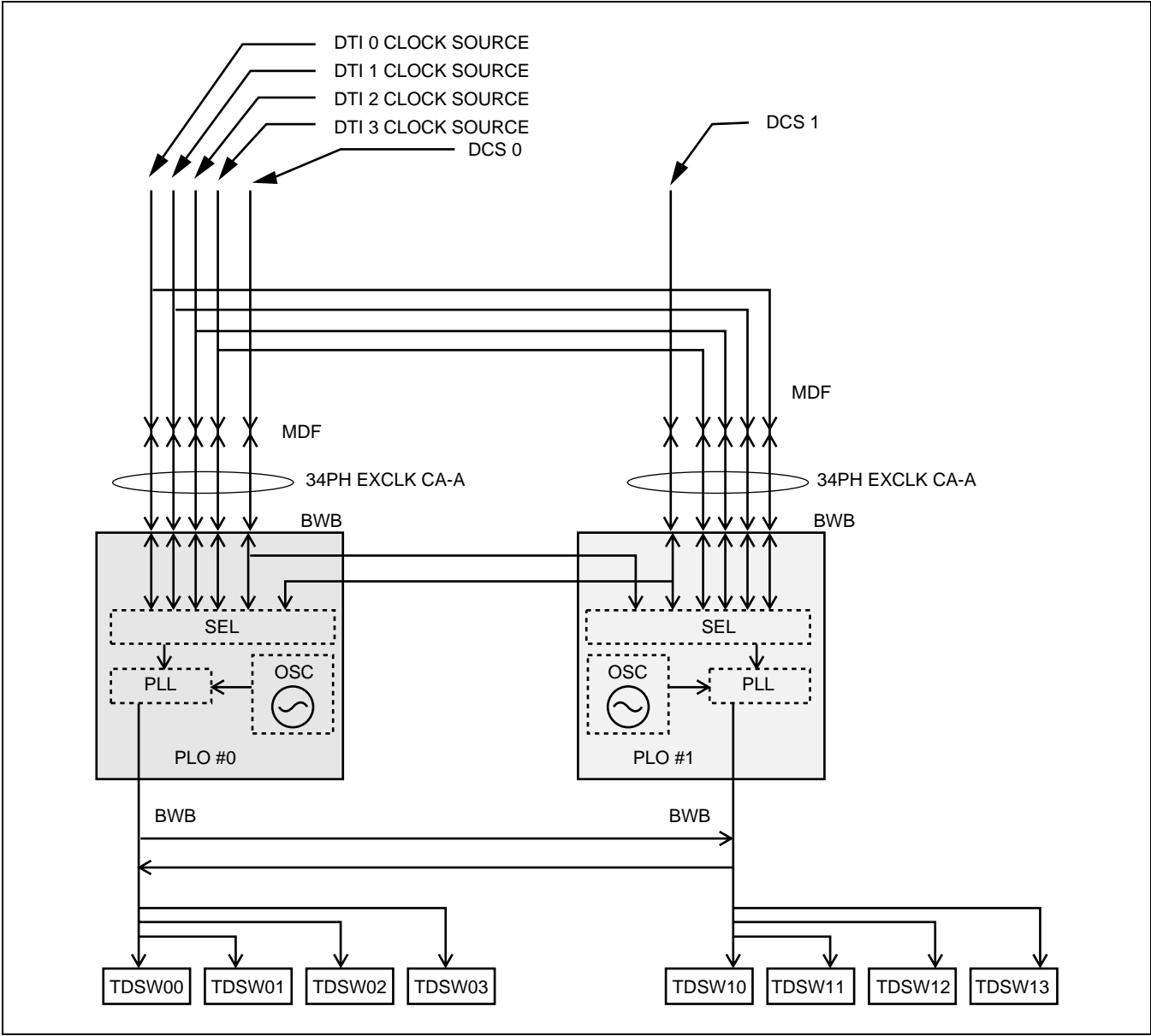


Figure 3-5 Location of PH-CK16 (PLO) Card in the System

## **PH-CK16**

### **Phase Lock Oscillator**

The source clock of the clock subordinate office is either the digital clock supply (DCS) or the digital interface clock (DIU0 - DIU3). When clock source failure has occurred, the PLO chooses another clock source automatically in the order of:

1. DCS
2. DIU0
3. DIU1
4. DIU2
5. DIU3
6. PLO changeover or the PLO internal oscillator drifting

The PLO can output the clock signals (CLK) and the frame head signals (FH) as follows:

- 32.768 MHz CLK
- 8 KHz FH
- 5 msec × “n” FH



The MUSIC ROM located on this circuit card also contains the hold tone, and is supplied to the TSW circuit card. When an external music on hold is applied to the 4 IMG system, this circuit card provides the interface for the external hold tone source.

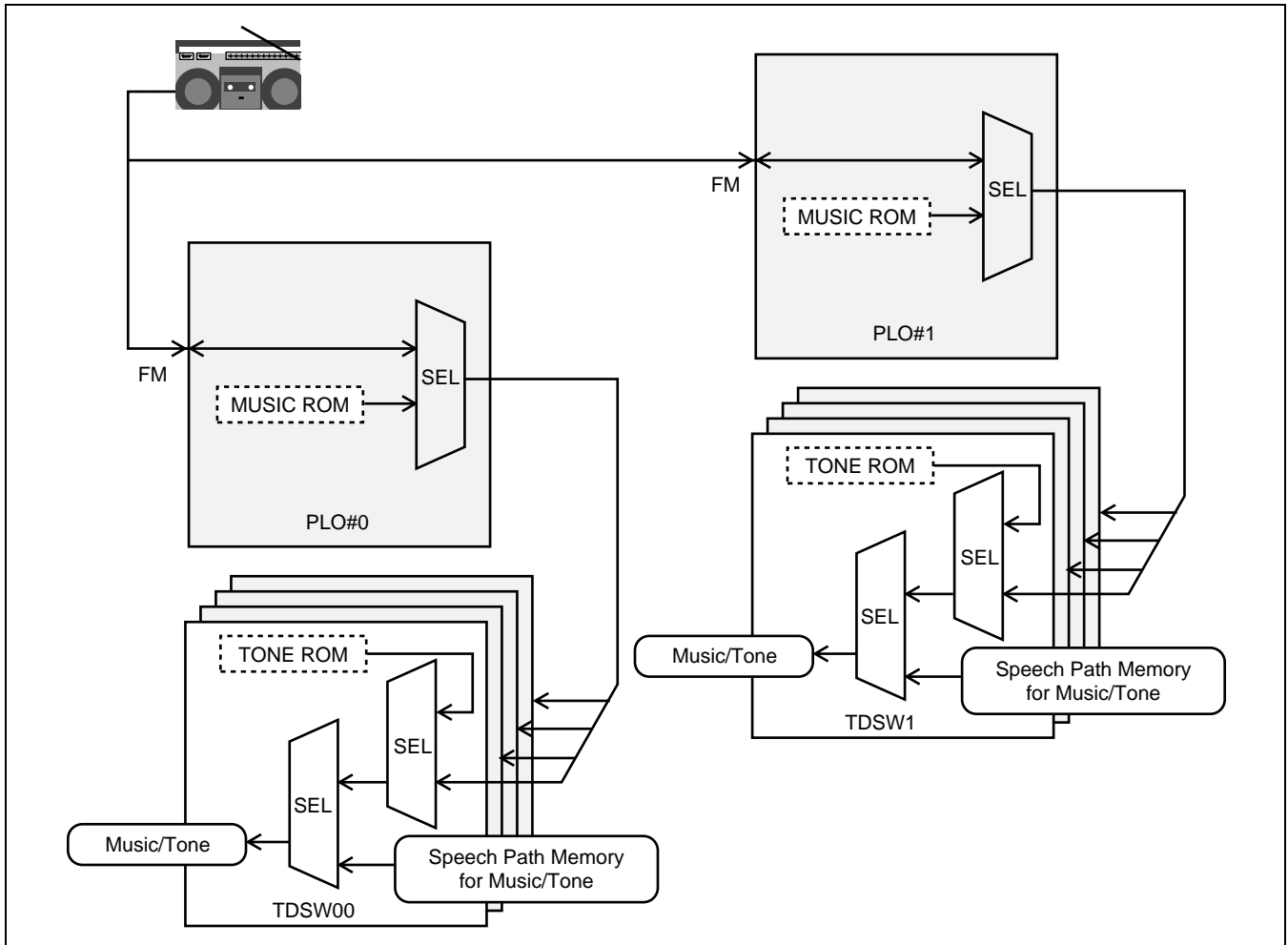


Figure 3-6 Music Source

**PH-CK16**  
Phase Lock Oscillator

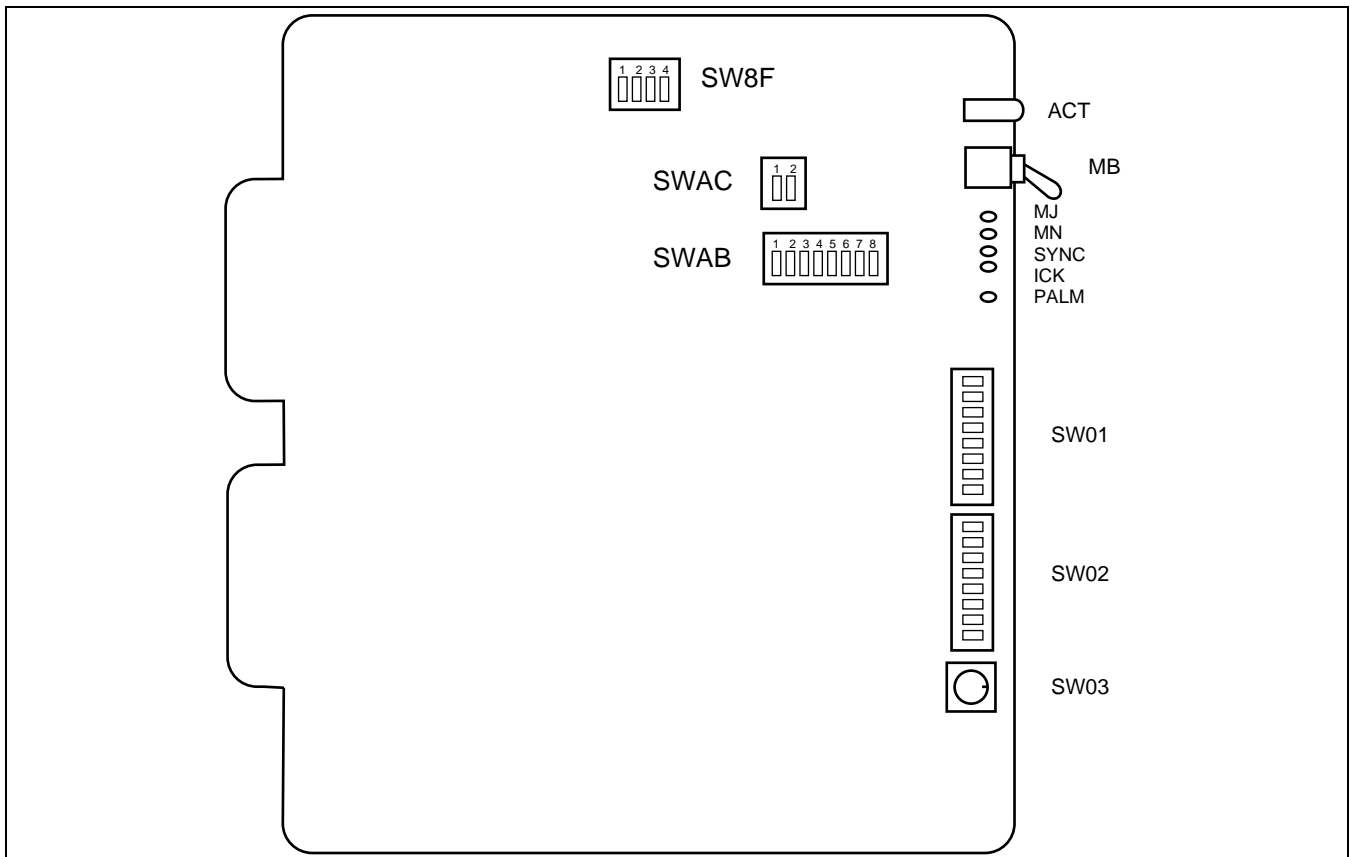
2. Mounting Location/Condition

This circuit card is mounted in the TSWM of the slot shown below.

Mounting Module										TSWM																	
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
																						PLO 0				PLO 1	

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 3-7](#).



**Figure 3-7 Face Layout of PH-CK16 (PLO)**

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
ACT	Green	Remains lit while this circuit card is in active state.
	Off	Remains off while this circuit card is in stand-by state.
MJ	Red	<p>Lights when the following MJ fault has occurred:</p> <ul style="list-style-type: none"> <li>• All of the clock supply routes have failed when the system operates as the clock subordinate office</li> <li>• 32.768 MHz output clock failure</li> <li>• 8 KHz output FH failure</li> <li>• 5 msec × “n” output FH failure</li> <li>• Input Frame Pulse (FP) failure (FP is supplied by the SYNC card)</li> <li>• Internal OSC (<math>\pm 5</math> ppm deviation) has failed when the system operates as the clock source office</li> </ul>
MN	Red	<p>Lights when the following MN fault has occurred:</p> <ul style="list-style-type: none"> <li>• One or more (but not all) DTI/DCS clock supply routes have failed</li> <li>• Drifting failure</li> <li>• Internal OSC (<math>\pm 5</math> ppm deviation) failure</li> </ul>
SYNC	Green	Remains lit while the system is synchronized with the network.
	OFF	<p>Remains off when either of the following has occurred:</p> <ul style="list-style-type: none"> <li>• DCS clock failure when receiving the clock signals from the DCS.</li> <li>• DTI clock failure when receiving the clock signals from the DTI.</li> <li>• Drifting failure</li> </ul>
ICK	Green	Lights when the internal oscillator is operating normally.
PALM	Red	Remains lit when power is abnormal.

**PH-CK16**

## Phase Lock Oscillator

## 5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
SW03	1 - F	1	Fixed to "1."

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW01	1	ON	×	Clock subordinate office.
		OFF		Clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used.
		OFF		Digital Clock Supply route zero (DCS 0) is not used.
	3	ON		Digital Clock Supply route one (DCS 1) is used.
		OFF		Digital Clock Supply route one (DCS 1) is not used.
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF		8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF		When clock source failure has not occurred in all supply routes, the PLO continues outputting the current phase clock.
	6	ON		This circuit card is associated with SYNC (PA-CK16) card and 5 m Frame Pulse (FP) is supplied by the SYNC card.
		OFF		This circuit card is not associated with SYNC (PA-CK16) card.
	7	ON		A-law CODEC is used for the hold music.
		OFF	×	μ-law CODEC is used for the hold music.
	8	OFF	×	Not used.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING												
SW02	1	ON		DIU 0 is used as the DTI clock supply route zero.												
		OFF		DIU 0 is not used.												
	2	ON		DIU 1 is used as the DTI clock supply route one.												
		OFF		DIU 1 is not used.												
	3	ON		DIU 2 is used as the DTI clock supply route two.												
		OFF		DIU 2 is not used.												
	4	ON		DIU 3 is used as the DTI clock supply route three.												
		OFF		DIU 3 is not used.												
	5	ON	×	1.5 M clock for DIU 0												
		OFF		2 M clock for DIU 0												
	6	ON	×	1.5 M clock for DIU 1												
		OFF		2 M clock for DIU 1												
	7	ON	×	1.5 M clock for DIU 2												
		OFF		2 M clock for DIU 2												
	8	ON	×	1.5 M clock for DIU 3												
		OFF		2 M clock for DIU 3												
SWAC	1	ON		External hold tone source is used via FM lead.												
		OFF	×	MUSIC ROM is used as the hold tone.												
	2	OFF	×	Not used.												
SW8F	1	<table border="1"> <thead> <tr> <th>SW8F-1</th> <th>SW8F-2</th> <th>Impedance of the External Music Source 0 (FM 0)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>47K Ω</td> </tr> </tbody> </table>			SW8F-1	SW8F-2	Impedance of the External Music Source 0 (FM 0)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω	OFF	ON	47K Ω
		SW8F-1	SW8F-2	Impedance of the External Music Source 0 (FM 0)												
	OFF	OFF	600 Ω													
	ON	OFF	8.2 Ω													
	OFF	ON	47K Ω													
	2	<table border="1"> <thead> <tr> <th>SW8F-3</th> <th>SW8F-4</th> <th>Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>47K Ω</td> </tr> </tbody> </table>			SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω	OFF	ON	47K Ω
		SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)												
	OFF	OFF	600 Ω													
ON	OFF	8.2 Ω														
OFF	ON	47K Ω														
3	<table border="1"> <thead> <tr> <th>SW8F-3</th> <th>SW8F-4</th> <th>Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>47K Ω</td> </tr> </tbody> </table>			SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω	OFF	ON	47K Ω	
	SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)													
OFF	OFF	600 Ω														
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4	<table border="1"> <thead> <tr> <th>SW8F-3</th> <th>SW8F-4</th> <th>Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>47K Ω</td> </tr> </tbody> </table>			SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω	OFF	ON	47K Ω	
	SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)													
OFF	OFF	600 Ω														
ON	OFF	8.2 Ω														
OFF	ON	47K Ω														

**PH-CK16**  
Phase Lock Oscillator

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																				
SWAB	1	<table border="1"> <thead> <tr> <th>SWA0-1</th> <th>SWA0-2</th> <th>SWA0-3</th> <th>MUSIC</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>Für Elise</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>Maiden's prayer</td> </tr> <tr> <td><b>Note</b></td> <td>OFF</td> <td>ON</td> <td>Buzzer</td> </tr> <tr> <td><b>Note</b></td> <td>ON</td> <td>OFF</td> <td>Chime</td> </tr> </tbody> </table>			SWA0-1	SWA0-2	SWA0-3	MUSIC	OFF	OFF	OFF	Für Elise	ON	OFF	OFF	Maiden's prayer	<b>Note</b>	OFF	ON	Buzzer	<b>Note</b>	ON	OFF	Chime
	SWA0-1	SWA0-2	SWA0-3	MUSIC																				
	OFF	OFF	OFF	Für Elise																				
	ON	OFF	OFF	Maiden's prayer																				
	<b>Note</b>	OFF	ON	Buzzer																				
	<b>Note</b>	ON	OFF	Chime																				
	2																							
	3	<b>Note:</b> <i>Don't care.</i>																						
	4	ON		Not used.																				
		OFF	×	Not used.																				
5	MUSIC CH1 selection. The kind of music varies depending on the melody IC located on this circuit card.																							
6																								
7																								
8	ON		Not used.																					
	OFF	×	Not used.																					

6. External Interface

When this circuit card is located in the TSWM, connect 34PH EXCLK CA-A to the EXCLK0/EXCLK1 connectors on the backplane of the TSWM.

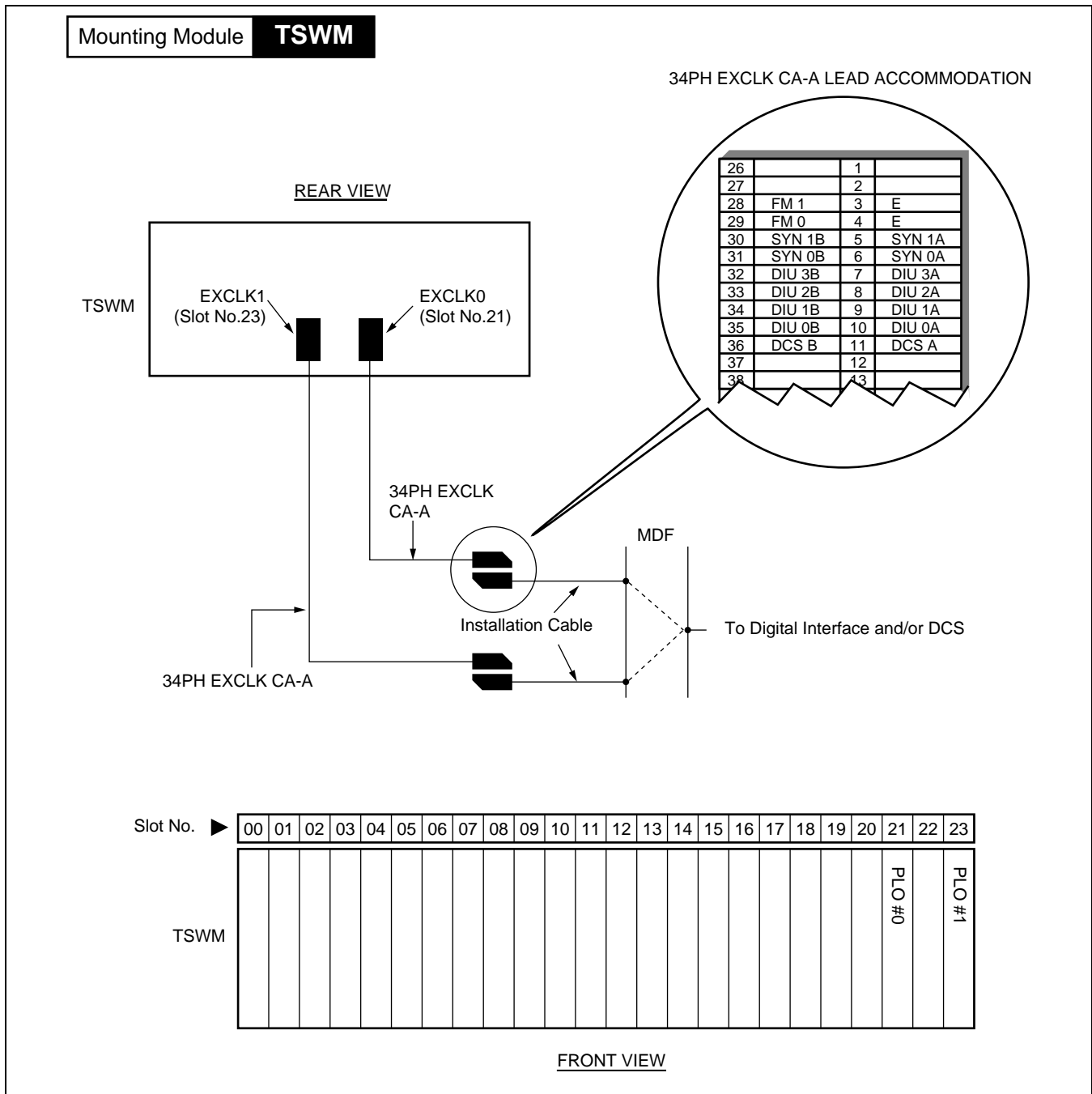
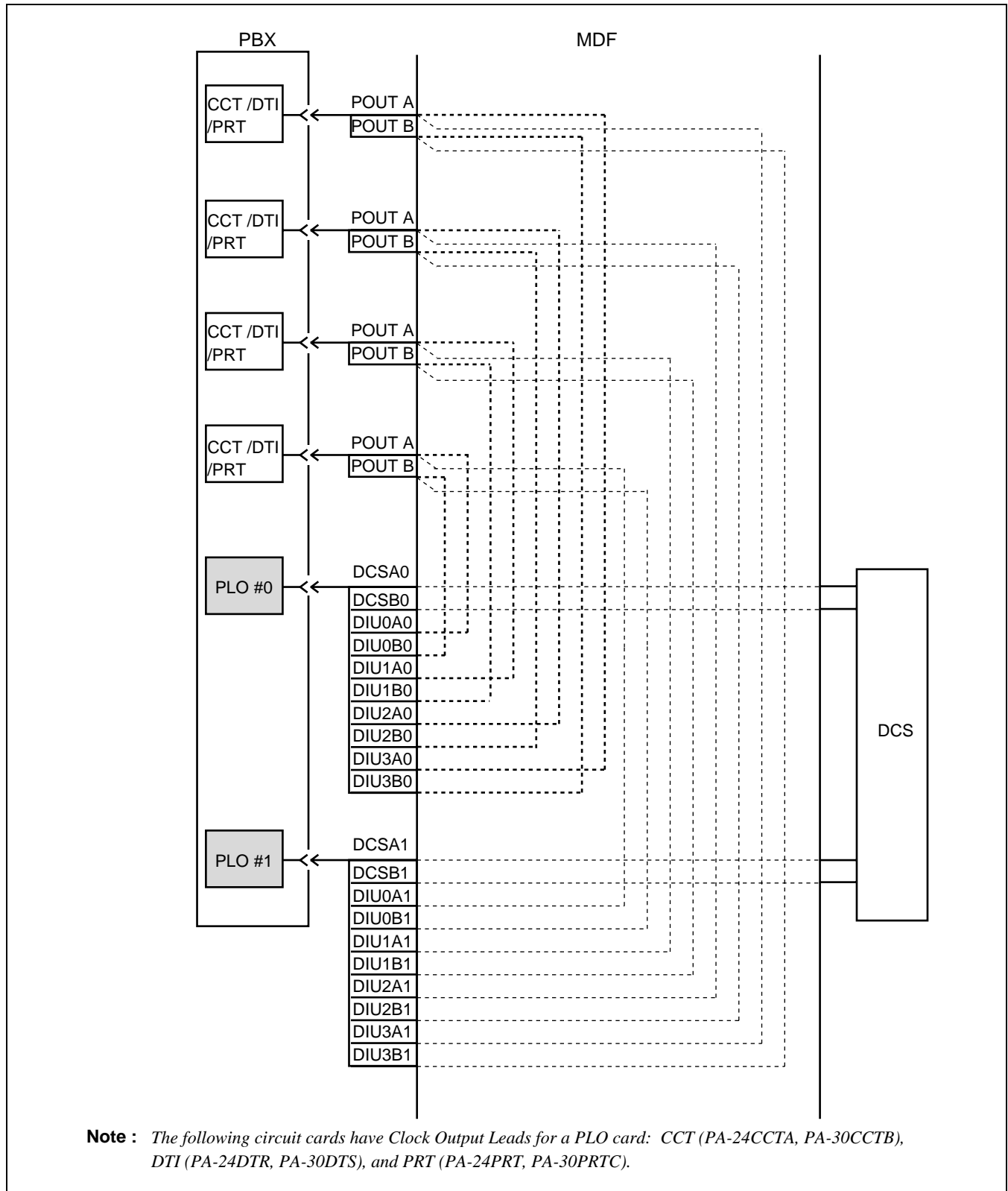


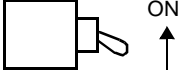
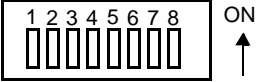
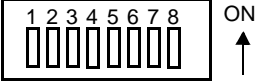

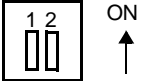
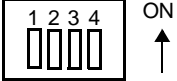
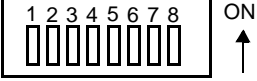
Figure 3-8 LT Connector Lead Location of PLO (TSWM)



**Figure 3-9 Connecting Route Diagram**



7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW01		
SW02		
SW03		
SWAC		
SW8F		
SWAB		

## PH-CK16-A Phase Lock Oscillator

### 1. General Function

This circuit card, used with a direct digital interface circuit card, sets up network synchronization. With this circuit card, the system can be a clock subordinate office of the digital network. As seen in [Figure 3-10](#), the PLO can be redundant regardless of the system switching network selection.

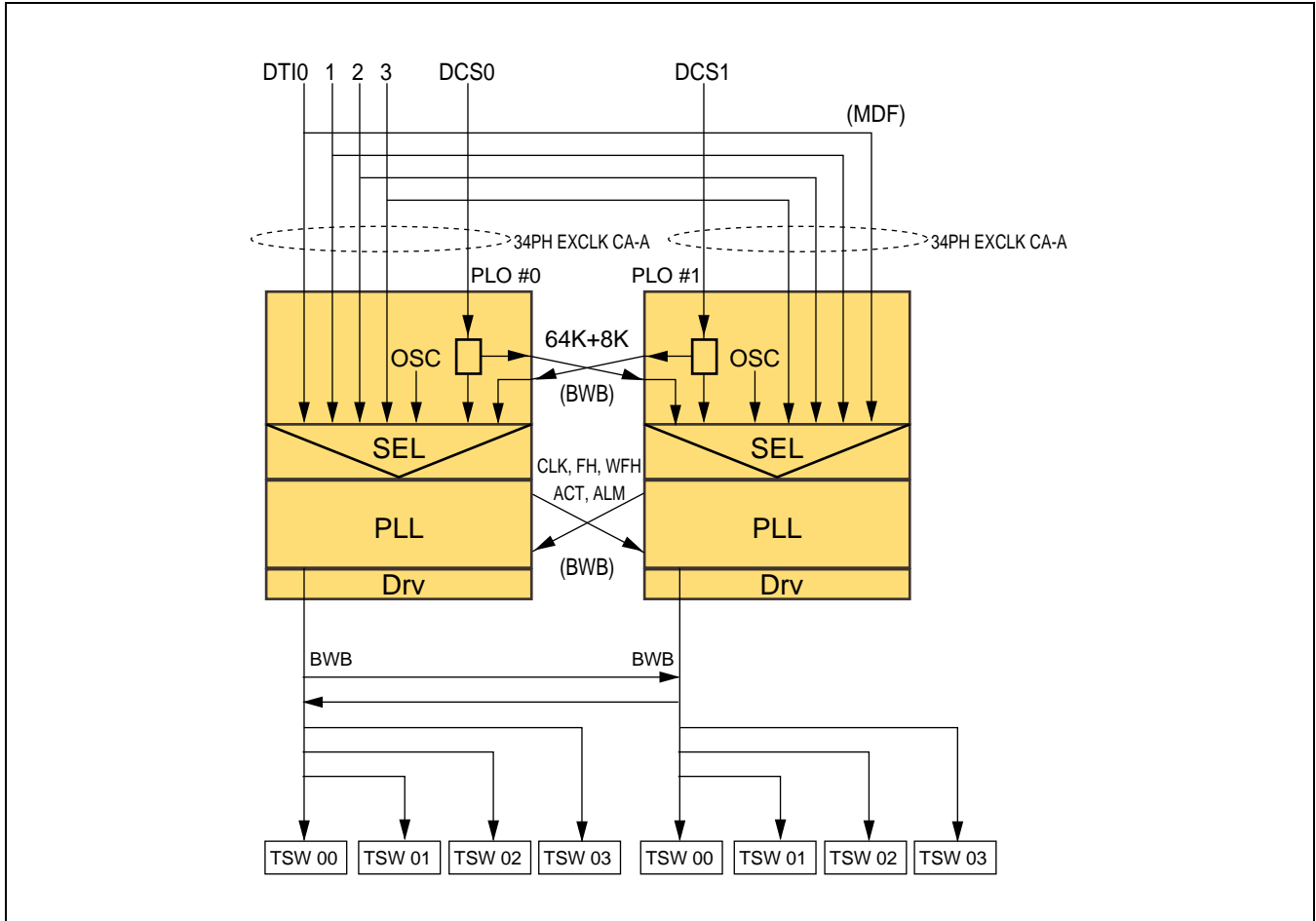


Figure 3-10 Location of PH-CK16-A (PLO) in 4-IMG System

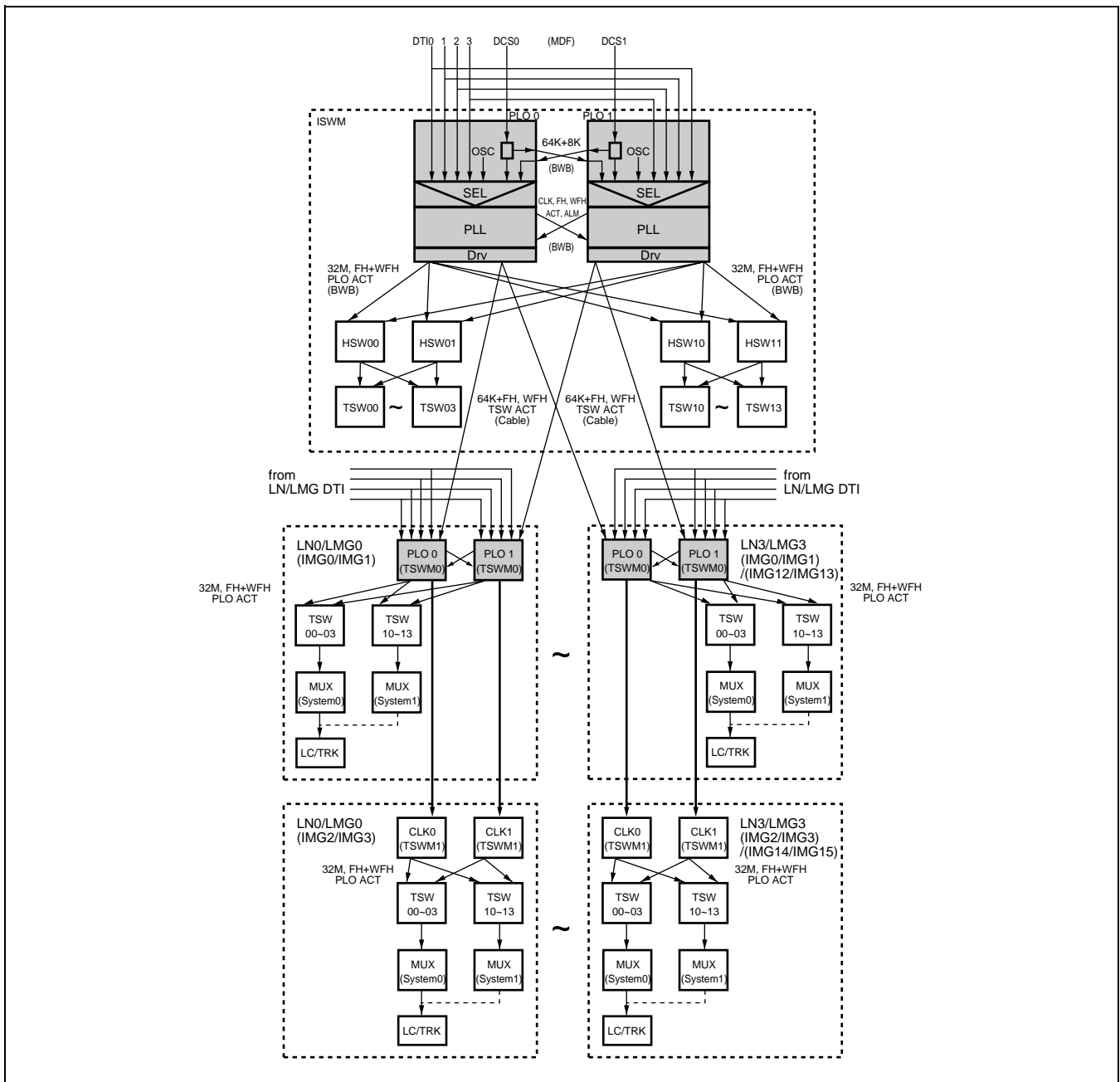


Figure 3-11 Location of PH-CK16-A (PLO) in IPX-U/IPX-UMG System

**PH-CK16-A**  
Phase Lock Oscillator

2. Mounting Location/Condition

This circuit card can be mounted in the shaded slots shown below.

<For 4-IMG System>

Mounting Module <b>TSWM(IMG1)</b>																								
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
																						PLO (#0)		PLO (#1)

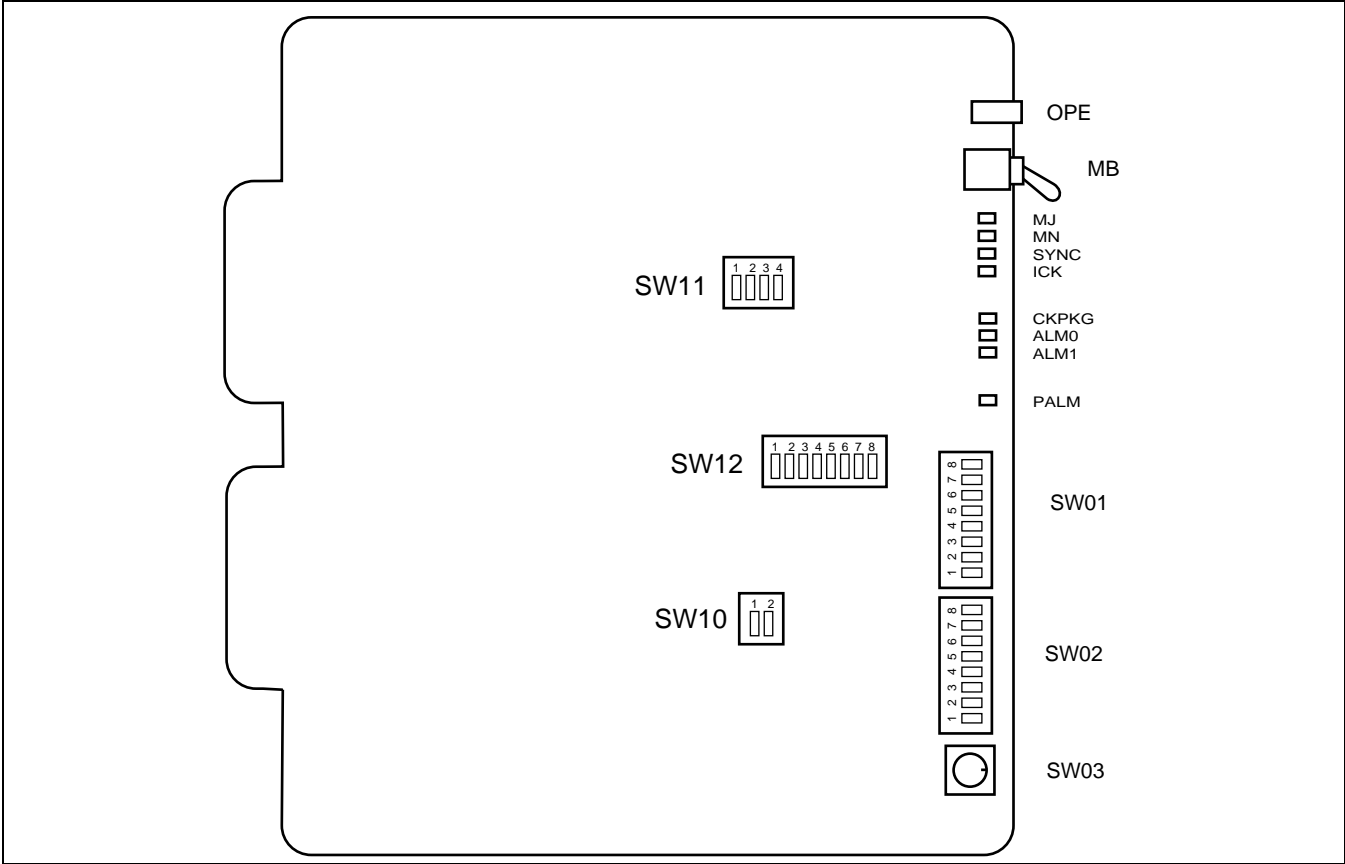
<For IPX-U/IPX-UMG System>

Mounting Module <b>ISWM</b>																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
									PLO (#0)				PLO (#1)						

Mounting Module <b>TSWM0(IMG1/5/9/13)</b>																								
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
																						PLO (#0)		PLO (#1)

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 3-12](#).



**Figure 3-12 Face Layout of PH-CK16-A (PLO)**

**PH-CK16-A**  
Phase Lock Oscillator

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below:

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in active state.
MJ	Red	Lights when the following MJ fault has occurred: <ul style="list-style-type: none"> <li>All of the clock supply routes have failed when the system operates as the clock subordinate office</li> <li>32.768 MHz output clock failure (including CLK card)</li> <li>8 KHz output clock failure (including CLK card)</li> <li>Input Frame Pulse (FP) failure (FP is supplied by the SYNC card) Internal OSC (<math>\pm 5</math> ppm deviation) has failed when the system operates as the clock source office</li> </ul>
MN	Red	Lights when the following MN fault has occurred: <ul style="list-style-type: none"> <li>One or more (but not all) DTI/DCS clock supply route has failed</li> <li>Drifting failure</li> <li>Internal OSC (<math>\pm 5</math> ppm deviation) failure</li> </ul>
SYNC	Green	Remains lit while the system is synchronized with the network.
ICK	Green	Lights when the internal oscillator is operating normally.
CKPKG <b>Note</b>	Green	Lights when the CLK card in TSWM1 is in normal operation.
ALM0 <b>Note</b>	Red	Lights when clock failure has occurred in the CLK card.
ALM1 <b>Note</b>	Red	Lights when FH failure has occurred in the CLK card.
PALM	Red	Remains lit when the On-Board Power Supply is abnormal.

**Note:** *This lamp is effective when this card is mounted in TSWM0 of the IPX-U/IPX-UMG system. When this card is mounted in ISWM, this lamp is not used.*

5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
SW03	1 - F	1	Fixed to "1".

The key setting of “SW01” differs depending on the mounting location.

[Mounted in ISWM of IPX-U/IPX-UMG System or TSWM of 4-IMG System]

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW01	1	ON	× Note 1	Clock subordinate office.
		OFF		Clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used.
		OFF	× Note 1	Digital Clock Supply route zero (DCS 0) is not used.
	3	ON		Digital Clock Supply route one (DCS 1) is used.
		OFF	× Note 1	Digital Clock Supply route one (DCS 1) is not used.
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF	× Note 1	8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF	× Note 1	When clock source failure has occurred, the PLO keeps on outputting the current phase clock.
	6	ON		This circuit card is used with SYNC (PA-CK16) card and 5m Frame Pulse (FP) is supplied by the SYNC card.
		OFF	× Note 1	This circuit card is not used with SYNC (PA-CK16) card.
	7	ON		A-law CODEC is used for Music-on-Hold.
		OFF	×	μ-law CODEC is used for Music-on-Hold.
8	OFF	×	Fixed to “OFF” (Not used).	

**Note:** When this card is used in the 4-IMG or ISWM of the IPX-U/IPX-UMG system, specify the clock source (DCS or DTI) according to the clock network configuration for the office.

**Note 1:** This standard setting is applicable when this card is mounted in ISWM of the IPX-U/IPX-UMG system.

**PH-CK16-A**  
Phase Lock Oscillator

[Mounted in TSWM0 of IPX-U/IPX-UMG System]

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW01	1	ON	×	Clock subordinate office. (Fixed)
		OFF		Clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used. (In case this circuit card is accommodated as #0 system.)
		OFF		Digital Clock Supply route zero (DCS 0) is not used. (In case this circuit card is accommodated as #1 system.)
	3	ON		Digital Clock Supply route one (DCS 1) is used. (In case this circuit card is accommodated as #1 system.)
		OFF		Digital Clock Supply route one (DCS 1) is not used. (In case this circuit card is accommodated as #0 system.)
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF	×	8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF	×	When clock source failure has not occurred, the PLO keeps on outputting the current phase clock.
	6	ON	×	This circuit card is associated with SYNC (PA-CK16) card and 5m Frame Pulse (FP) is supplied by the SYNC card. (Fixed to "ON")
		OFF		This circuit card is not associated with SYNC (PA-CK16) card.
	7	ON		A-law CODEC is used for Music-on-Hold.
		OFF	×	μ-law CODEC is used for Music-on-Hold.
8	OFF	×	Fixed OFF (Not used).	



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW02 <b>Note 2</b>	1	ON		DIU 0 is used as the DTI clock supply route zero.
		OFF		DIU 0 is not used.
	2	ON		DIU 1 is used as the DTI clock supply route one.
		OFF		DIU 1 is not used.
	3	ON		DIU 2 is used as the DTI clock supply route two.
		OFF		DIU 2 is not used.
	4	ON		DIU 3 is used as the DTI clock supply route three.
		OFF		DIU 3 is not used.
	5	ON	×	1.5 M clock for DIU 0.
		OFF		2 M clock for DIU 0.
	6	ON	×	1.5 M clock for DIU 1.
		OFF		2 M clock for DIU 1.
	7	ON	×	1.5 M clock for DIU 2.
		OFF		2 M clock for DIU 2.
	8	ON	×	1.5 M clock for DIU 3.
		OFF		2 M clock for DIU 3.
SW10	1	ON		External hold tone source is used via FM lead.
		OFF	×	MUSIC ROM is used as the hold tone.
	2 <b>Note 3</b>	ON		CLK card is not used.
		OFF		CLK card is used.

**Note 2:** *When this card is mounted in TSWM0 of the IPX-U system, the DCS clock from the ISWM is used. The DTI clock can also be used as an alternate clock supply route in case of DCS clock failure.*

**Note 3:** *When this card is mounted in ISWM, set to “ON (=CLK card is not used).”*

*If mounted in TSWM0 on LN/LMG,*

- *set to “OFF” if TSWM1 (CLK card, PH-CK18) on the same LN/LMG is used.*
- *set to “ON” if TSWM1 (CLK card, PH-CK18) on the same LN/LMG is not used.*

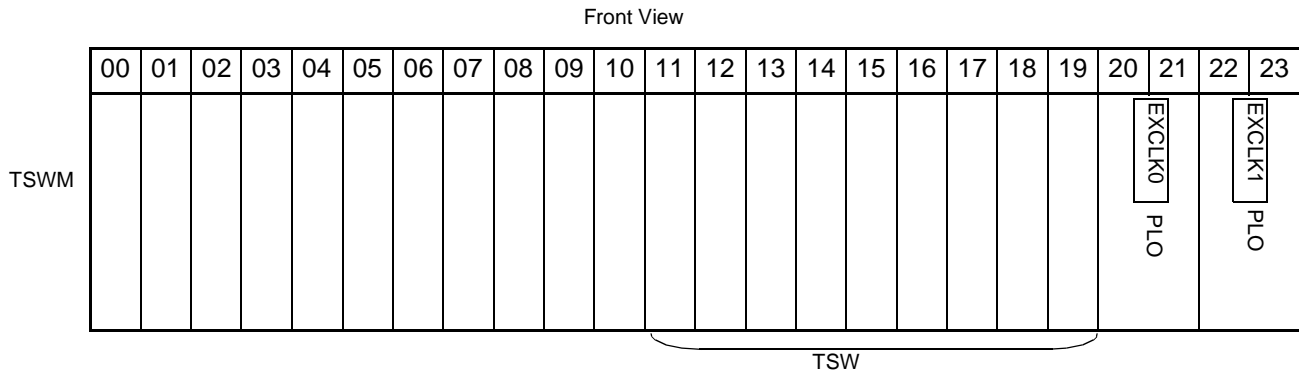
SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																			
SW11	1	<table border="1"> <thead> <tr> <th>SW11-1</th> <th>SW11-2</th> <th>Impedance of the External Music Source 0 (FM 0)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> </tbody> </table>		SW11-1	SW11-2	Impedance of the External Music Source 0 (FM 0)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω											
		SW11-1	SW11-2	Impedance of the External Music Source 0 (FM 0)																			
		OFF	OFF	600 Ω																			
	ON	OFF	8.2 Ω																				
	2	OFF	ON	47K Ω																			
		<table border="1"> <thead> <tr> <th>SW11-3</th> <th>SW11-4</th> <th>Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>47K Ω</td> </tr> </tbody> </table>			SW11-3	SW11-4	Impedance of the External Music Source 1 (FM 1)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω	OFF	ON	47K Ω							
	SW11-3	SW11-4	Impedance of the External Music Source 1 (FM 1)																				
	OFF	OFF	600 Ω																				
ON	OFF	8.2 Ω																					
OFF	ON	47K Ω																					
3	<table border="1"> <thead> <tr> <th>SW11-3</th> <th>SW11-4</th> <th>Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>47K Ω</td> </tr> </tbody> </table>			SW11-3	SW11-4	Impedance of the External Music Source 1 (FM 1)	OFF	OFF	600 Ω	ON	OFF	8.2 Ω	OFF	ON	47K Ω								
	SW11-3	SW11-4	Impedance of the External Music Source 1 (FM 1)																				
OFF	OFF	600 Ω																					
ON	OFF	8.2 Ω																					
OFF	ON	47K Ω																					
SW12	1	<table border="1"> <thead> <tr> <th>SW12-1</th> <th>SW12-2</th> <th>SW12-3</th> <th>MUSIC</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>Für Elise</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>Maiden's prayer</td> </tr> <tr> <td>Don't Care</td> <td>ON</td> <td>OFF</td> <td>Buzzer</td> </tr> <tr> <td>Don't Care</td> <td>OFF</td> <td>ON</td> <td>Chime</td> </tr> </tbody> </table>		SW12-1	SW12-2	SW12-3	MUSIC	OFF	OFF	OFF	Für Elise	ON	OFF	OFF	Maiden's prayer	Don't Care	ON	OFF	Buzzer	Don't Care	OFF	ON	Chime
		SW12-1	SW12-2	SW12-3	MUSIC																		
		OFF	OFF	OFF	Für Elise																		
		ON	OFF	OFF	Maiden's prayer																		
	Don't Care	ON	OFF	Buzzer																			
	Don't Care	OFF	ON	Chime																			
	2	<table border="1"> <tbody> <tr> <td>ON</td> <td></td> <td>Not used.</td> </tr> <tr> <td>OFF</td> <td>×</td> <td>Not used.</td> </tr> </tbody> </table>			ON		Not used.	OFF	×	Not used.													
		ON		Not used.																			
	OFF	×	Not used.																				
	3	<table border="1"> <tbody> <tr> <td>ON</td> <td></td> <td>Not used.</td> </tr> <tr> <td>OFF</td> <td>×</td> <td>Not used.</td> </tr> </tbody> </table>			ON		Not used.	OFF	×	Not used.													
ON			Not used.																				
OFF	×	Not used.																					
5	MUSIC (CH1) selection. The music varies depending on the melody IC located on this circuit card.																						
6																							
7																							
8	<table border="1"> <tbody> <tr> <td>ON</td> <td></td> <td>Not used.</td> </tr> <tr> <td>OFF</td> <td>×</td> <td>Not used.</td> </tr> </tbody> </table>		ON		Not used.	OFF	×	Not used.															
	ON		Not used.																				
OFF	×	Not used.																					

6. External Interface

PLO leads appear on the LT connectors labeled EXCLK0 and EXCLK1.

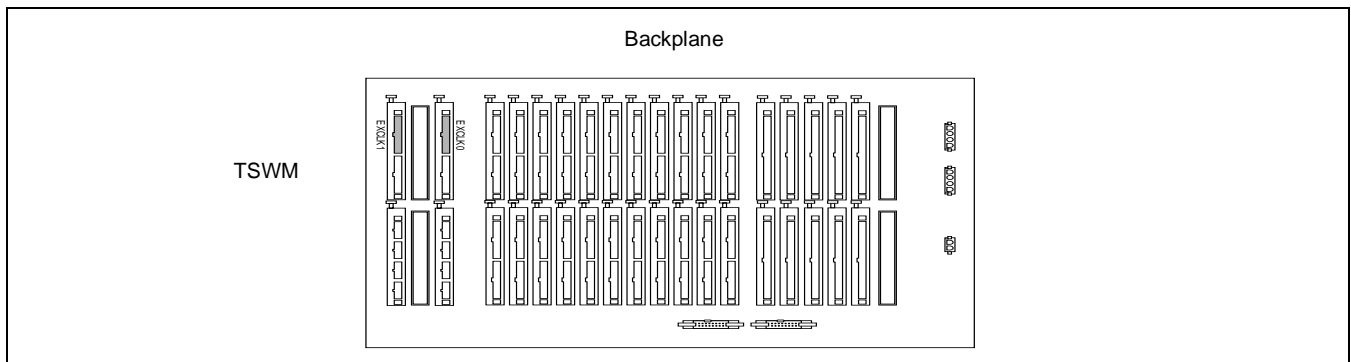
- PLO mounting slots

The PLO card is mounted in Slots 21 and 23 of TSWM.



- LT cable connectors

Connect the LT cables to the connectors labeled EXCLK0 and EXCLK1 on the TSWM backplane.

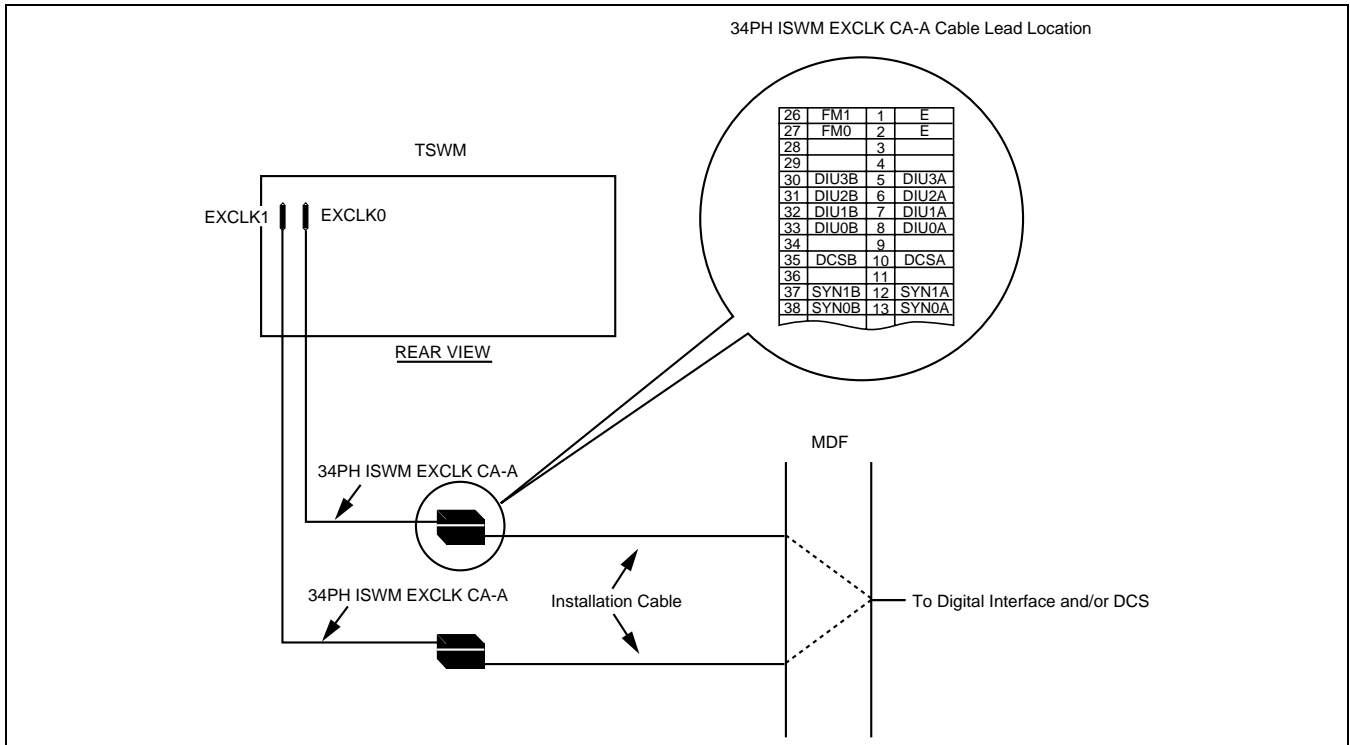


**Figure 3-13 PLO Pin Assignments for Receiving Clock (4 IMG System) (1/2)**

**PH-CK16-A**  
Phase Lock Oscillator

- EXCLK0/EXCLK1 connector Pin Assignment

Pins are assigned as follows on the EXCLK0/EXCLK1 connectors. When the clock is distributed from a digital interface, use one pair of DIUxxx in one of the four inputs. (There are a maximum of four inputs.) DIU leads have the following precedence: DIU0xx (high) → DIU3xx (low).

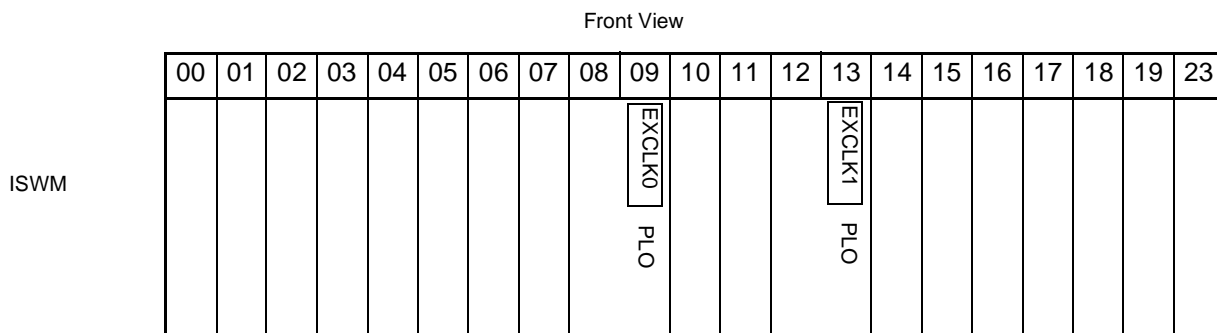


**Figure 3-13 PLO Pin Assignments for Receiving Clock (4 IMG System) (2/2)**

PLO input leads appear on the LT connectors labeled EXCLK0 and EXCLK1.

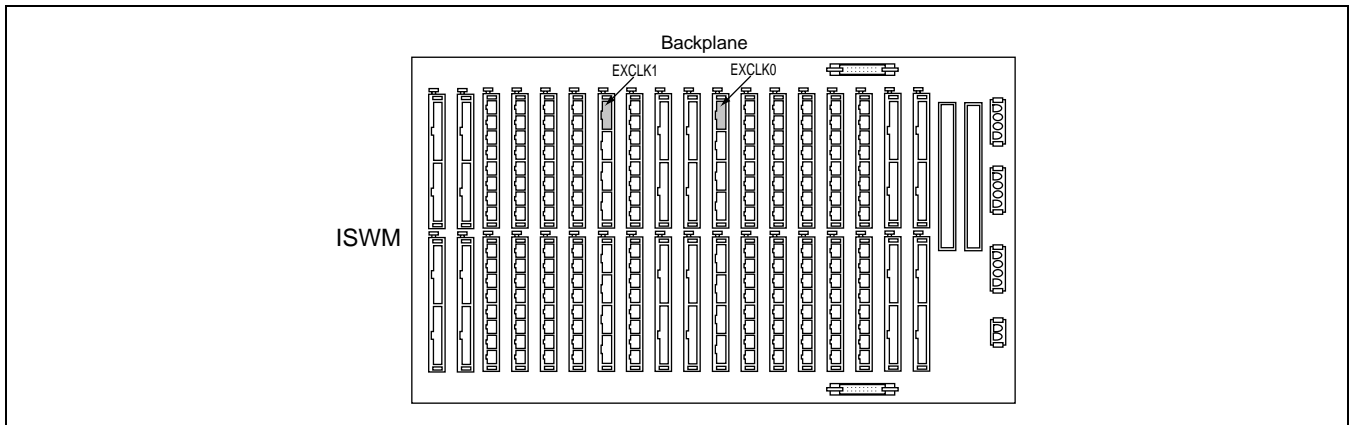
- PLO mounting slots

The PLO card is mounted in Slots 09 and 13 of ISWM.



- LT cable connectors

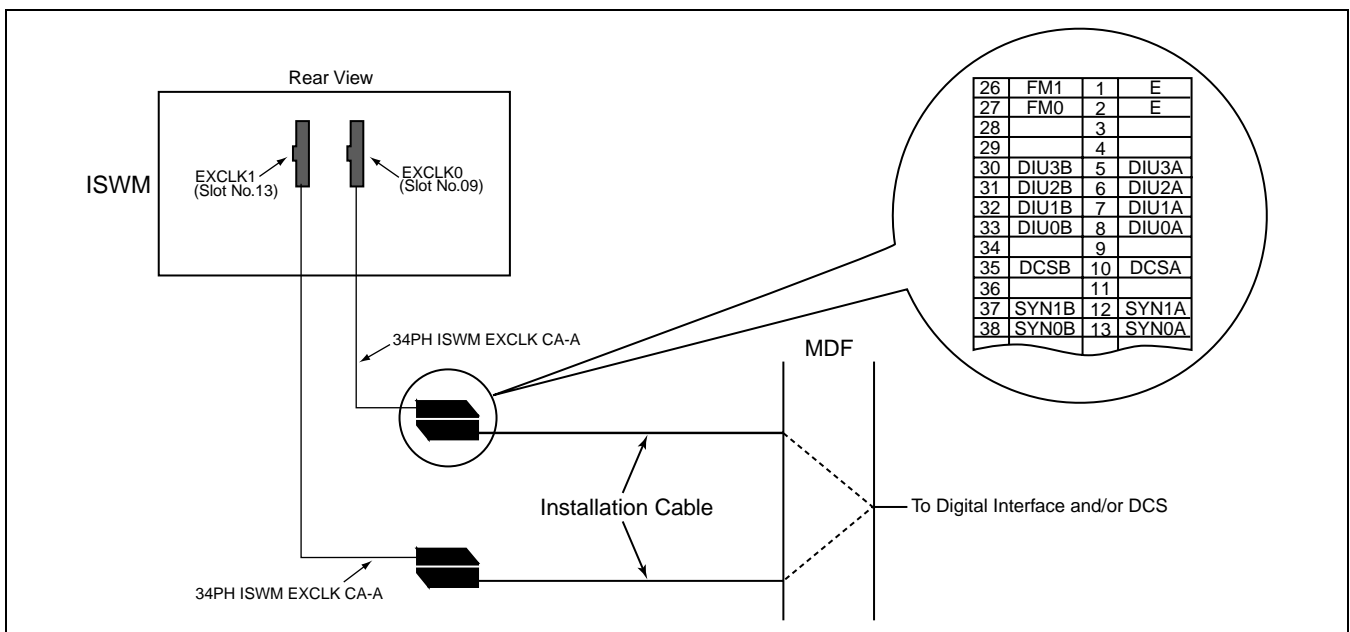
Connect LT cables to the connectors labeled EXCLK0 and EXCLK1 on the ISWM backplane.



**Figure 3-14 PLO Pin Assignment for Receiving Clock (ISWM) (1/2)**

- EXCLK0/EXCLK1 connector Pin Assignment

Pins are assigned as follows on the EXCLK0/EXCLK1 connectors. When the clock is distributed from a digital interface, use one pair of DIUxxx in one of four inputs. (There are a maximum of four inputs.) DIU leads have the following precedence: DIU0xx (high) → DIU3xx (low).

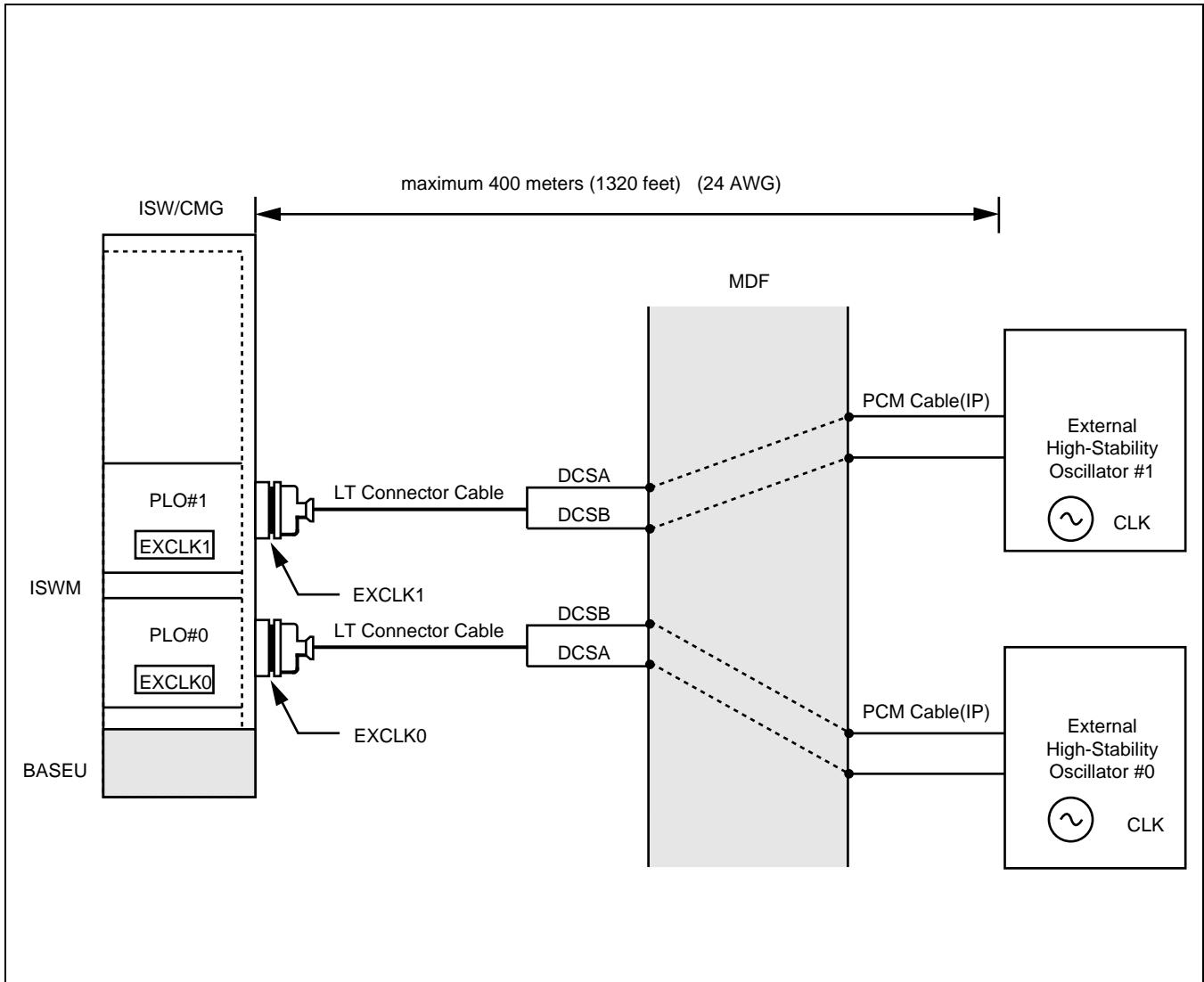


**Figure 3-14 PLO Pin Assignment for Receiving Clock (ISWM) (2/2)**

**PH-CK16-A**  
Phase Lock Oscillator

- Cable Connection Diagram

Provide the following wiring at the MDF. The connection diagram in [Figure 3-15](#) shows an example of a system with the PLO cards in dual configuration.



**Figure 3-15 Cable Connection Diagram (ISWM) for Accepting Synchronization Clocks from an External High-Stability Oscillator**

Figure 3-16 shows an example of distributing clock from a digital interface in LN/LMG. This example assumes that the Digital Trunk POUT leads are used as the first clock distribution route.

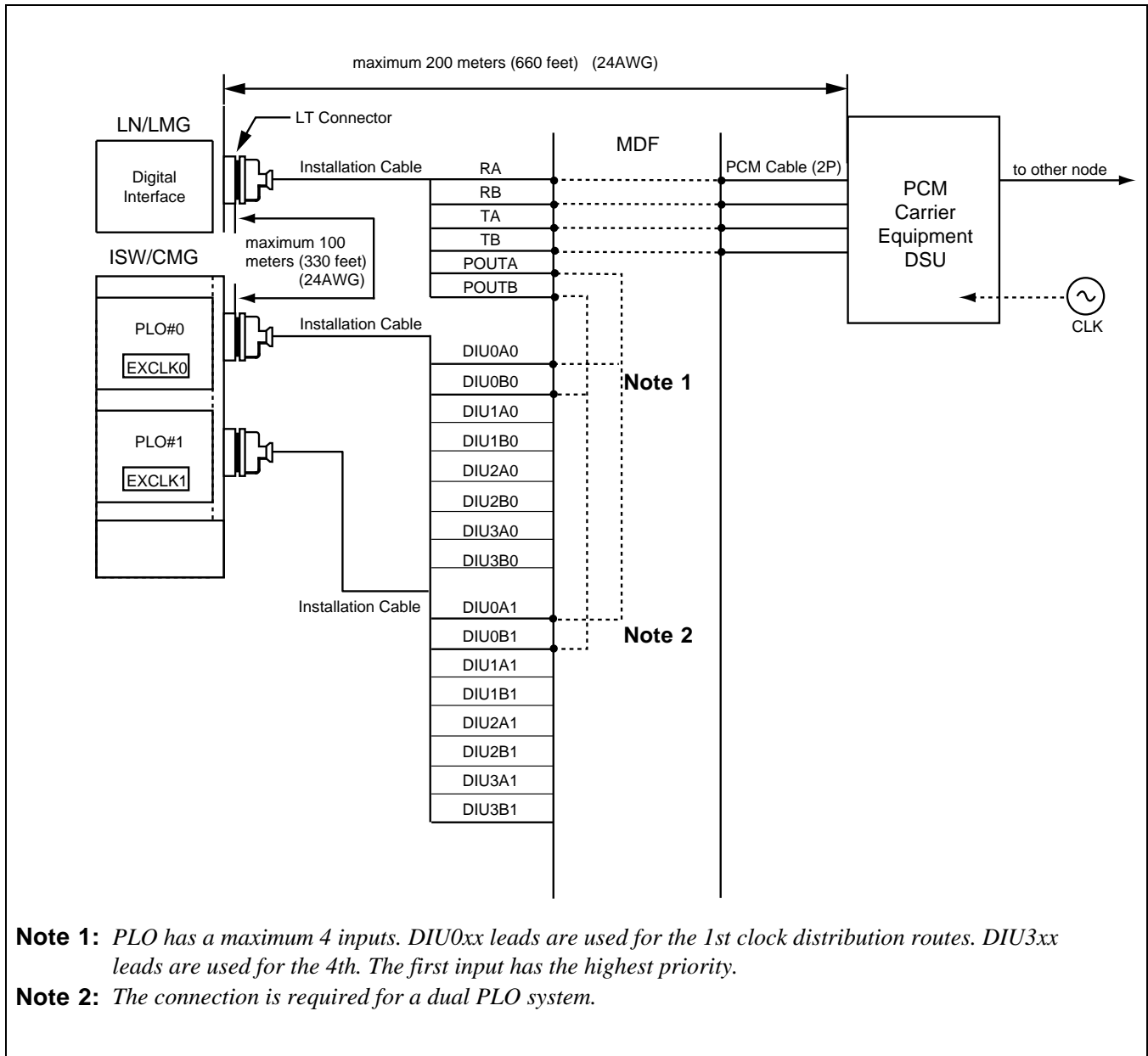
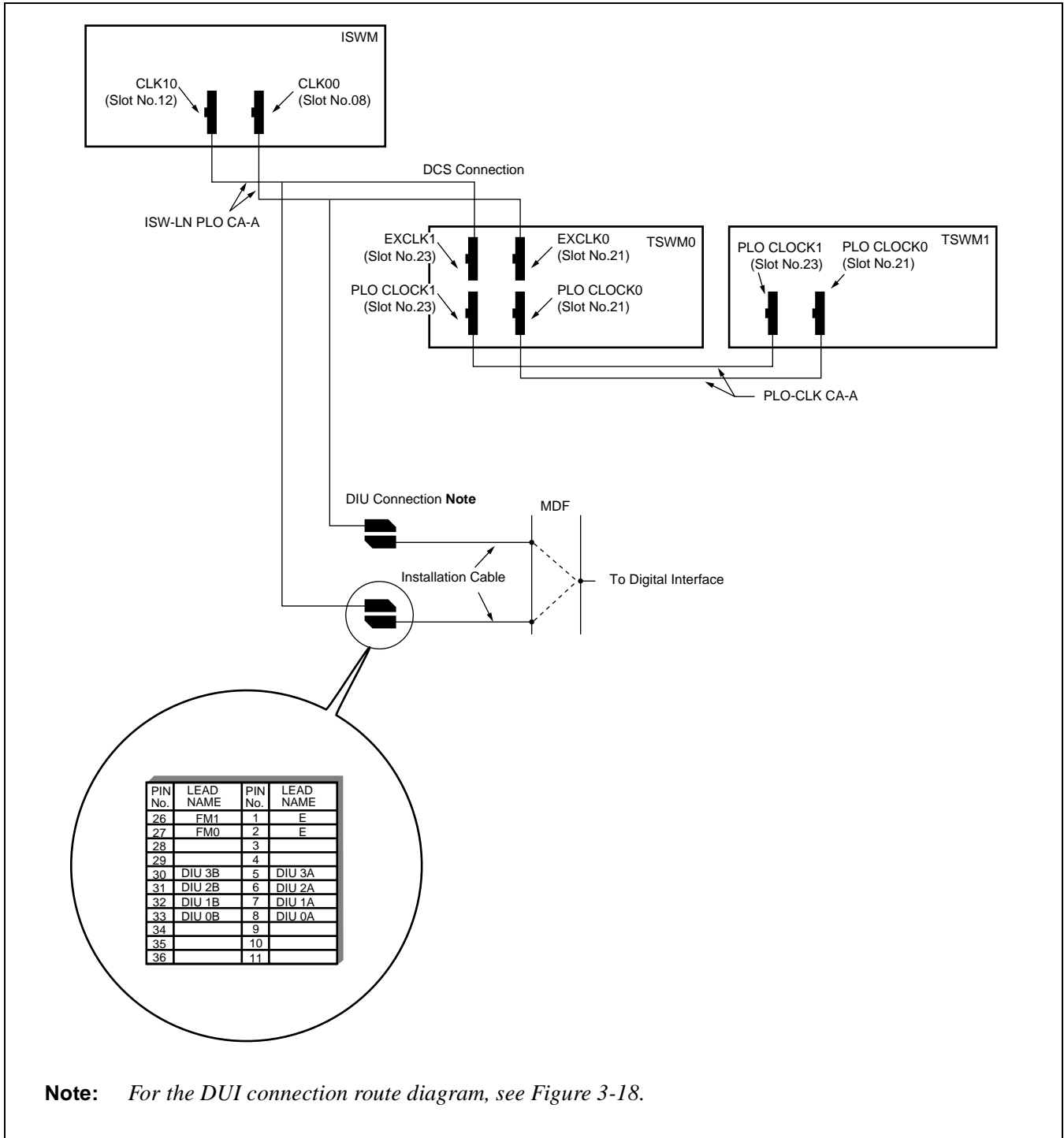


Figure 3-16 Cable Connection Diagram (ISWM) for Receiving Clock from Digital Interface

**PH-CK16-A**  
Phase Lock Oscillator



**Figure 3-17 LT Connector Lead Location of PLO (ISWM-TSWM0/1)**



Figure 3-18 shows an example of distributing clock from a digital interface. This figure assumes that the Digital Trunk POUT leads are used as the first clock distribution route. (This connection is not required for IPX-UMG system.)

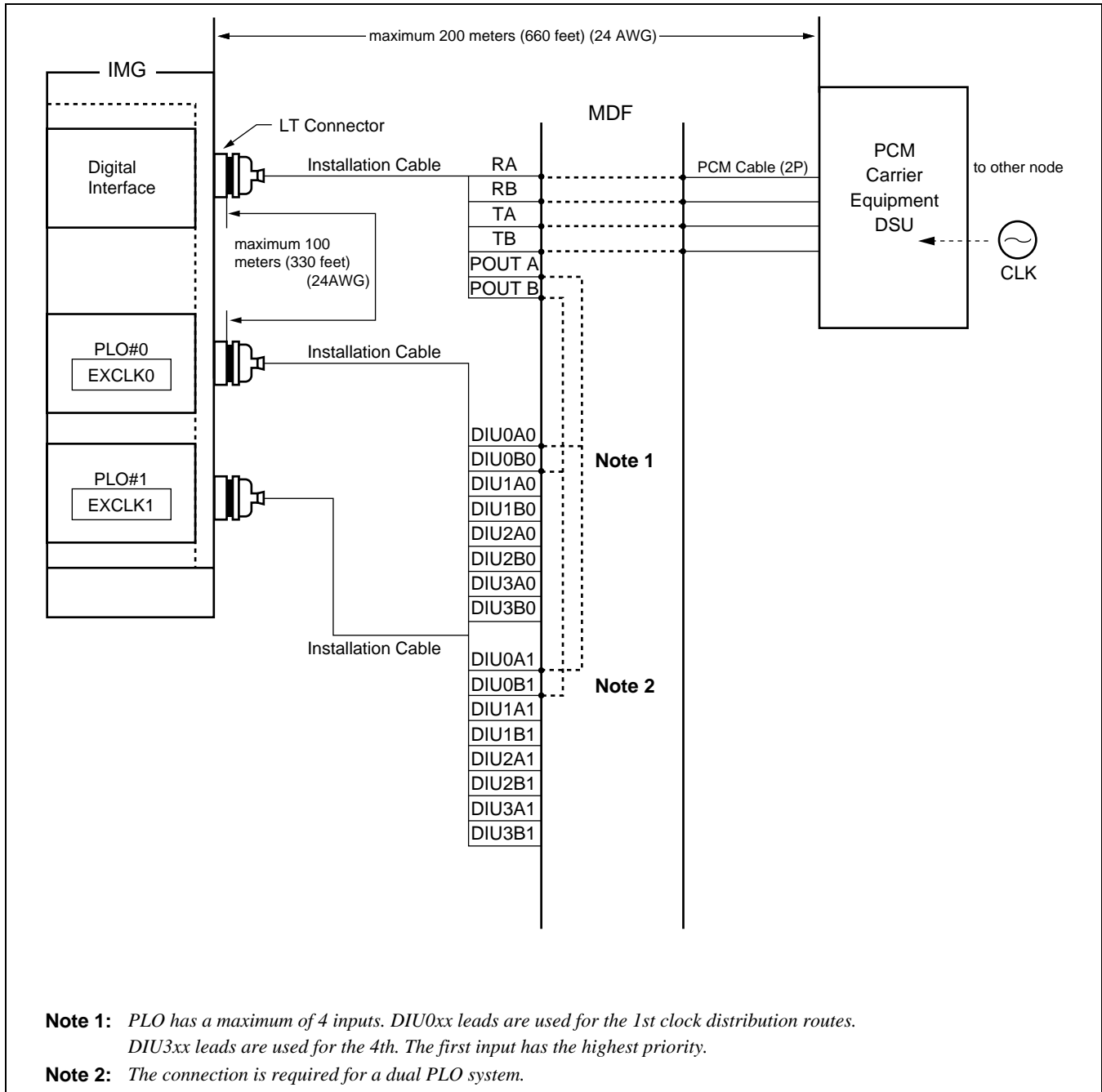
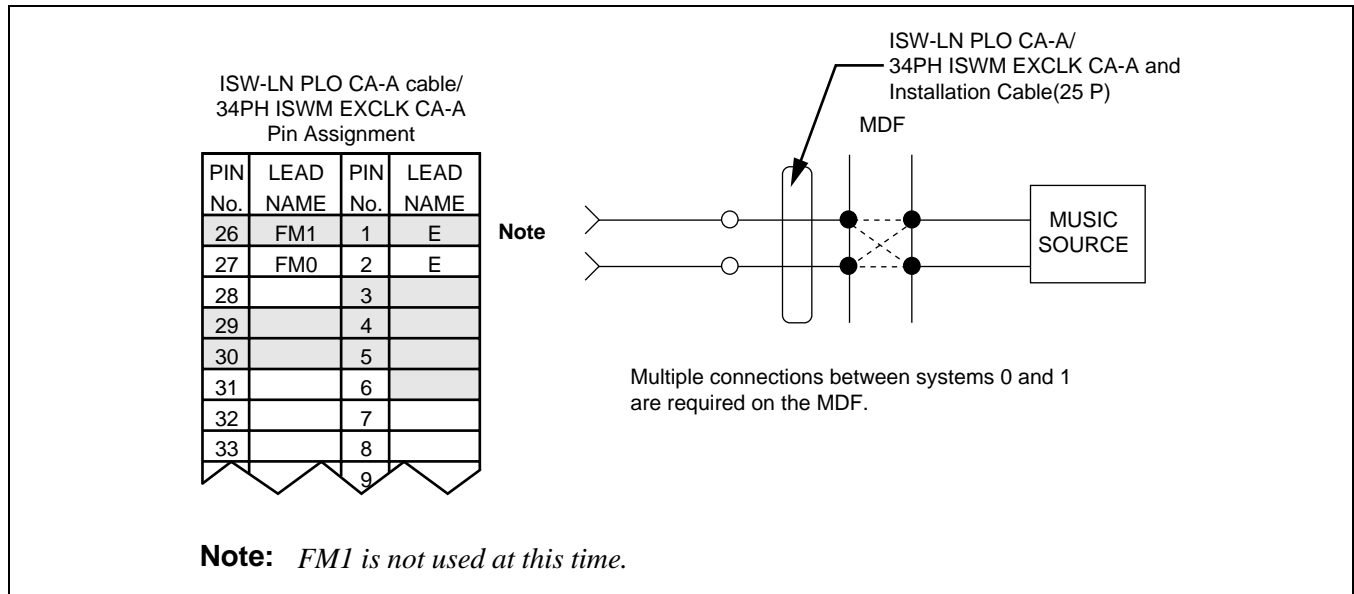


Figure 3-18 Cable Connection Diagram (4-IMG System/LN) for Receiving Clock from Digital Interface



**Figure 3-19 Connection of External Music-On-Hold**

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	
MB		
SW01		
SW02		
SW03		
SW10		
SW11		
SW12		

# PH-CK17 Phase Lock Oscillator

## 1. General Function

This circuit card, used together with a direct digital interface circuit card, sets up network synchronization with the network. Since this circuit card provides a high precision base clock oscillator, the 4 IMG system can be a clock source office for the digital network. As seen in Figure 3-20, the PLO can be redundant regardless of the system switching network selection.

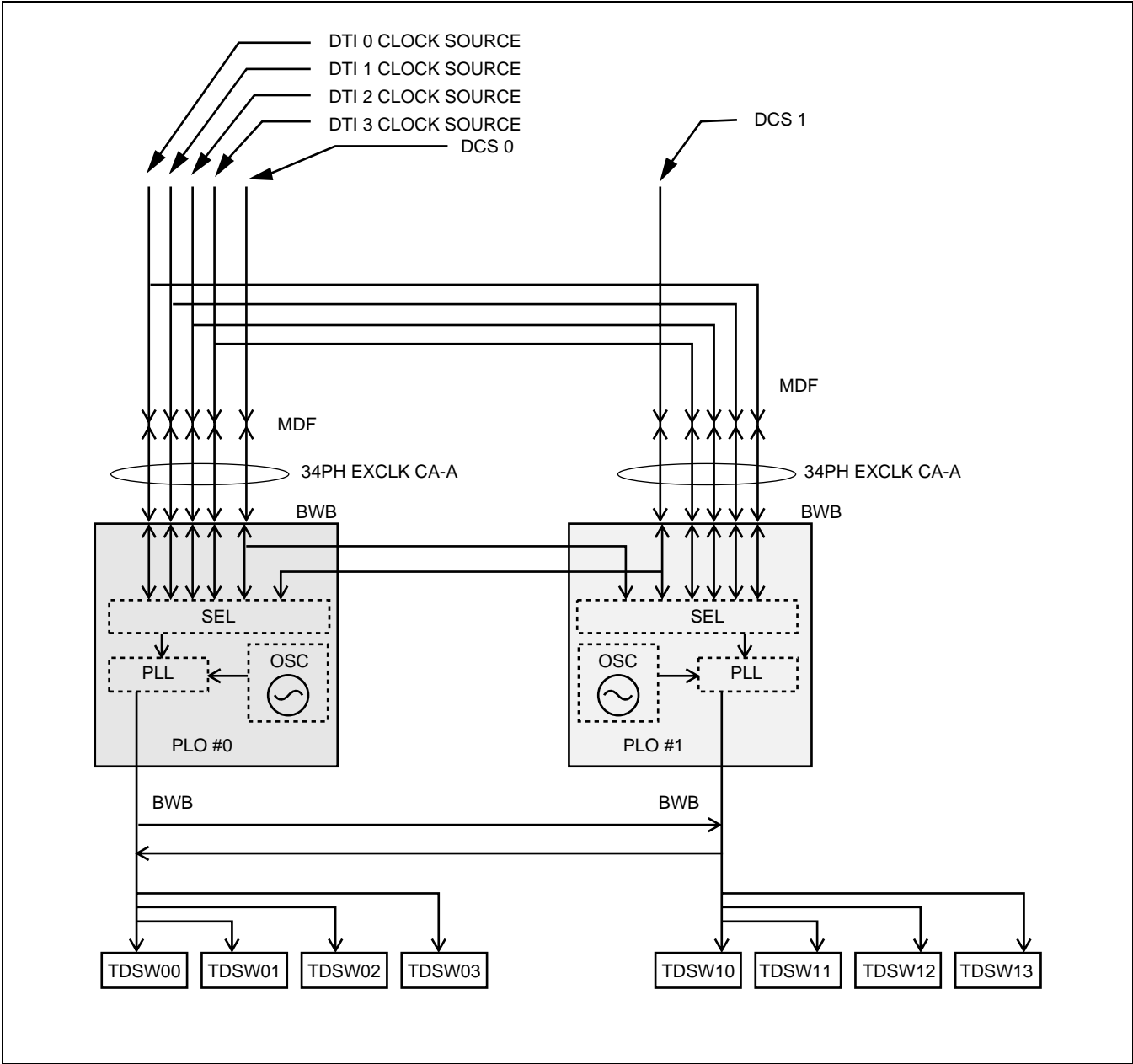


Figure 3-20 Location of PH-CK17 (PLO) Card in the System

## **PH-CK17**

### **Phase Lock Oscillator**

The source clock of the clock subordinate office is either the digital clock supply (DCS) or the digital interface clock (DIU0 - DIU3). When clock source failure has occurred, the PLO chooses another clock source automatically in the order of:

1. DCS
2. DIU0
3. DIU1
4. DIU2
5. DIU3
6. PLO changeover or the PLO internal oscillator drifting

The PLO can output the clock signals (CLK) and the frame head signals (FH) as follows:

- 32.768 MHz CLK
- 8 KHz FH
- 5 msec × “n” FH

The MUSIC ROM also located on this circuit card contains the hold tone, and is supplied to the TSW circuit card. When an external music on hold is applied to the 4 IMG system, this circuit card provides the interface for the external hold tone source.

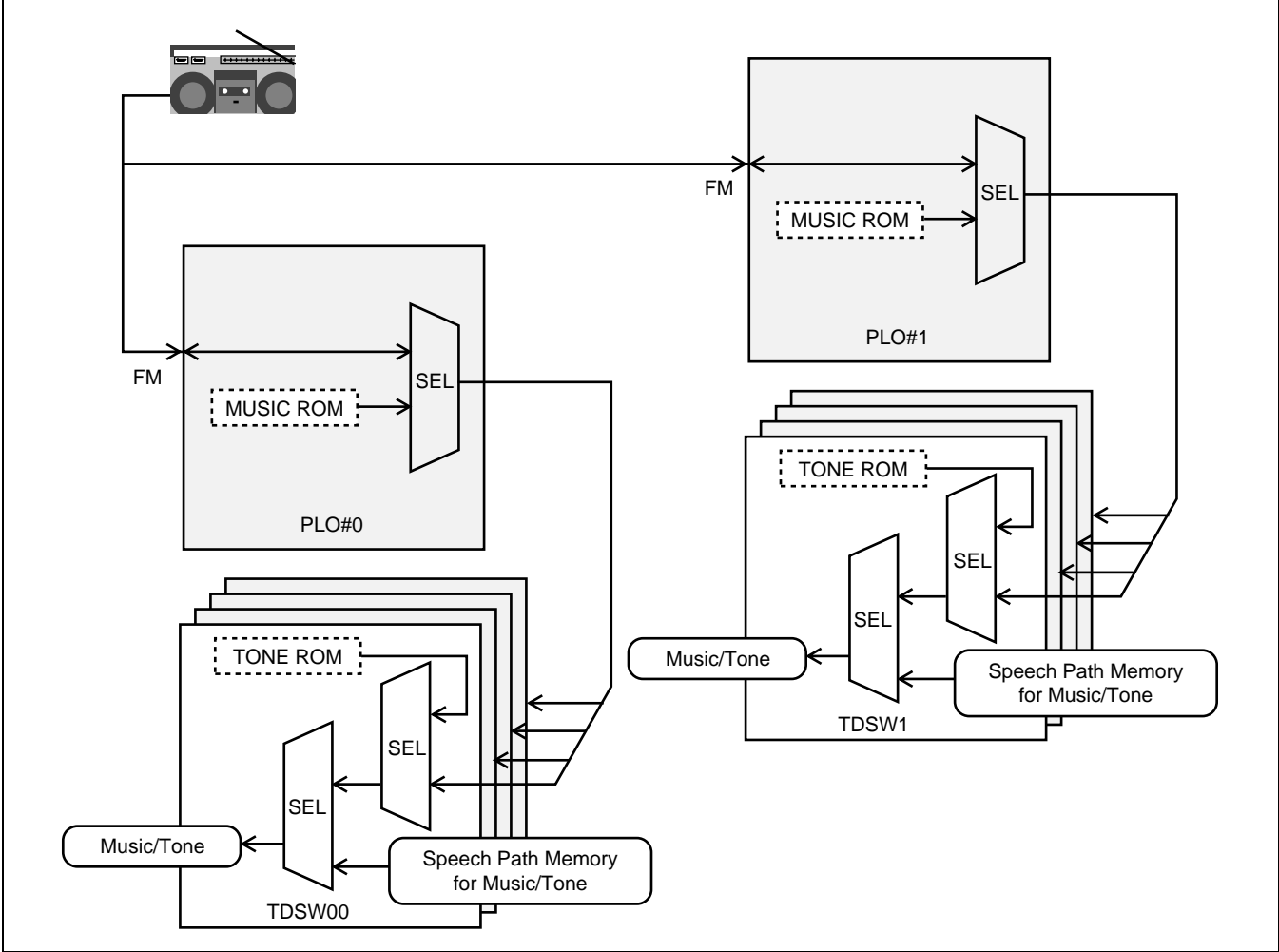


Figure 3-21 Music Source

**PH-CK17**  
Phase Lock Oscillator

2. Mounting Location/Condition

This circuit card is mounted in the TSWM of the slot shown below.

Mounting Module		TSWM																							
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TSWM																									
																							PLO 0	PLO 1	

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 3-22](#).

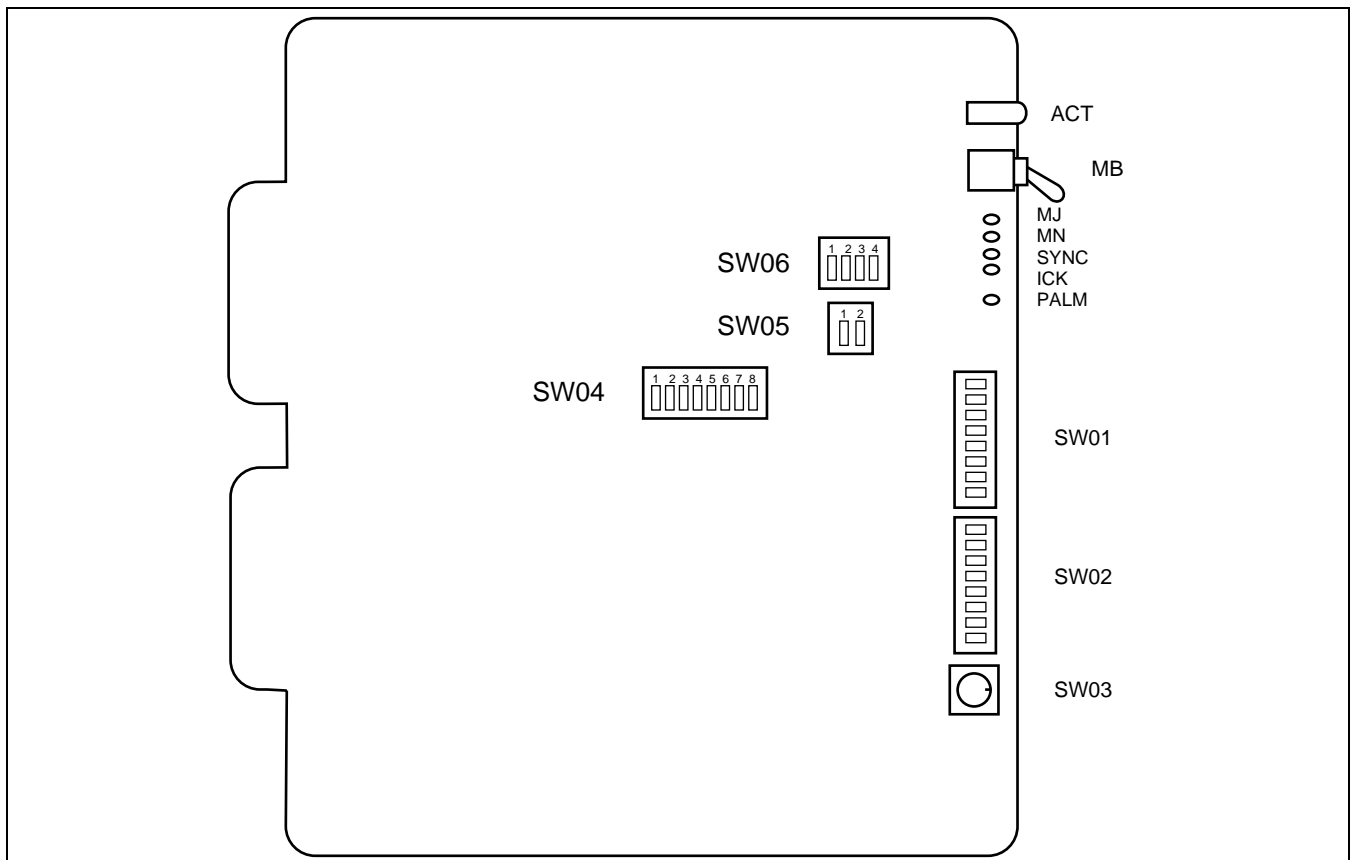


Figure 3-22 Face Layout of PH-CK17 (PLO)

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
ACT	Green	Remains lit while this circuit card is in active state.
	Off	Remains off while this circuit card is in stand-by state.
MJ	Red	<p>Lights when the following MJ fault has occurred:</p> <ul style="list-style-type: none"> <li>• All of the clock supply routes have failed when the system operates as the clock subordinate office.</li> <li>• 32.768 MHz output clock failure.</li> <li>• 8 KHz output FH failure.</li> <li>• 5 msec × “n” output FH failure.</li> <li>• Input Frame Pulse (FP) failure (FP is supplied by the SYNC card).</li> <li>• Internal OSC (<math>\pm 0.3</math> ppm deviation) has failed when the system operates as the clock source office.</li> </ul>
MN	Red	<p>Lights when the following MN fault has occurred:</p> <ul style="list-style-type: none"> <li>• One or more (but not all) DTI/DCS clock supply routes failed.</li> <li>• Drifting failure.</li> <li>• Internal OSC (<math>\pm 0.3</math> ppm deviation) failure.</li> </ul>
SYNC	Green	Remains lit while the system is synchronized with the network.
	OFF	<p>Remains off when either of the following has occurred.</p> <ul style="list-style-type: none"> <li>• DCS clock failure when receiving the clock signals from the DCS.</li> <li>• DTI clock failure when receiving the clock signals from the DTI.</li> <li>• Drifting failure.</li> </ul>
ICK	Green	Lights when the internal oscillator is operating normally.
PALM	Red	Remains lit when power is abnormal.

**PH-CK17**

## Phase Lock Oscillator

## 5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
SW03	1 - F	1	Fixed to "1."

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW01	1	ON		Clock subordinate office.
		OFF		Clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used.
		OFF		Digital Clock Supply route zero (DCS 0) is not used.
	3	ON		Digital Clock Supply route one (DCS 1) is used.
		OFF		Digital Clock Supply route one (DCS 1) is not used.
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF		8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF		When clock source failure has occurred in all supply routes, the PLO continues outputting the current phase clock.
	6	ON		This circuit card is associated with SYNC (PA-CK16 WCS) card and 5m Frame Pulse (FP) is supplied by the SYNC card.
		OFF		This circuit card is not associated with SYNC (PA-CK16 WCS) card.
	7	ON		A-law CODEC is used for the hold music.
		OFF	×	μ-law CODEC is used for the hold music.
	8	OFF	×	Not used.



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																
SW02	1	ON		DIU 0 is used as the DTI clock supply route zero.																
		OFF		DIU 0 is not used.																
	2	ON		DIU 1 is used as the DTI clock supply route one.																
		OFF		DIU 1 is not used.																
	3	ON		DIU 2 is used as the DTI clock supply route two.																
		OFF		DIU 2 is not used.																
	4	ON		DIU 3 is used as the DTI clock supply route three.																
		OFF		DIU 3 is not used.																
	5	ON	×	1.5 M clock for DIU 0																
		OFF		2 M clock for DIU 0																
	6	ON	×	1.5 M clock for DIU 1																
		OFF		2 M clock for DIU 1																
	7	ON	×	1.5 M clock for DIU 2																
		OFF		2 M clock for DIU 2																
	8	ON	×	1.5 M clock for DIU 3																
		OFF		2 M clock for DIU 3																
SW05	1	ON		External hold tone source is used via FM lead.																
		OFF	×	MUSIC ROM is used as the hold tone.																
	2	OFF		Not used.																
SW06	1	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>SW8F-1</th> <th>SW8F-2</th> <th colspan="2">Impedance of the External Music Source 0 (FM 0)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td colspan="2">600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td colspan="2">8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td colspan="2">47K Ω</td> </tr> </tbody> </table>			SW8F-1	SW8F-2	Impedance of the External Music Source 0 (FM 0)		OFF	OFF	600 Ω		ON	OFF	8.2 Ω		OFF	ON	47K Ω	
		SW8F-1	SW8F-2	Impedance of the External Music Source 0 (FM 0)																
	OFF	OFF	600 Ω																	
	ON	OFF	8.2 Ω																	
	OFF	ON	47K Ω																	
	2	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>SW8F-3</th> <th>SW8F-4</th> <th colspan="2">Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td colspan="2">600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td colspan="2">8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td colspan="2">47K Ω</td> </tr> </tbody> </table>			SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)		OFF	OFF	600 Ω		ON	OFF	8.2 Ω		OFF	ON	47K Ω	
		SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)																
	OFF	OFF	600 Ω																	
ON	OFF	8.2 Ω																		
OFF	ON	47K Ω																		
3	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>SW8F-3</th> <th>SW8F-4</th> <th colspan="2">Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td colspan="2">600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td colspan="2">8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td colspan="2">47K Ω</td> </tr> </tbody> </table>			SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)		OFF	OFF	600 Ω		ON	OFF	8.2 Ω		OFF	ON	47K Ω		
	SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)																	
OFF	OFF	600 Ω																		
ON	OFF	8.2 Ω																		
OFF	ON	47K Ω																		
4	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>SW8F-3</th> <th>SW8F-4</th> <th colspan="2">Impedance of the External Music Source 1 (FM 1)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td colspan="2">600 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td colspan="2">8.2 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td colspan="2">47K Ω</td> </tr> </tbody> </table>			SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)		OFF	OFF	600 Ω		ON	OFF	8.2 Ω		OFF	ON	47K Ω		
	SW8F-3	SW8F-4	Impedance of the External Music Source 1 (FM 1)																	
OFF	OFF	600 Ω																		
ON	OFF	8.2 Ω																		
OFF	ON	47K Ω																		

**PH-CK17**  
Phase Lock Oscillator

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																				
SW04	1	<table border="1"> <thead> <tr> <th>SWA0-1</th> <th>SWA0-2</th> <th>SWA0-3</th> <th>MUSIC</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>Für Elise</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>Maiden's prayer</td> </tr> <tr> <td><b>Note</b></td> <td>OFF</td> <td>ON</td> <td>Buzzer</td> </tr> <tr> <td><b>Note</b></td> <td>ON</td> <td>OFF</td> <td>Chime</td> </tr> </tbody> </table>			SWA0-1	SWA0-2	SWA0-3	MUSIC	OFF	OFF	OFF	Für Elise	ON	OFF	OFF	Maiden's prayer	<b>Note</b>	OFF	ON	Buzzer	<b>Note</b>	ON	OFF	Chime
	SWA0-1	SWA0-2	SWA0-3	MUSIC																				
	OFF	OFF	OFF	Für Elise																				
	ON	OFF	OFF	Maiden's prayer																				
	<b>Note</b>	OFF	ON	Buzzer																				
	<b>Note</b>	ON	OFF	Chime																				
	2																							
	3	<b>Note:</b> <i>Don't care.</i>																						
	4	ON		Not used.																				
		OFF	×	Not used.																				
5	MUSIC CH1 selection. The kind of music varies depending on the melody IC located on this circuit card.																							
6																								
7																								
8	ON		Not used.																					
	OFF	×	Not used.																					

5. External Interface

When this circuit card is located in the TSWM, connect 34PH EXCLK CA-A to the EXCLK0/EXCLK1 connectors on the backplane of the TSWM.

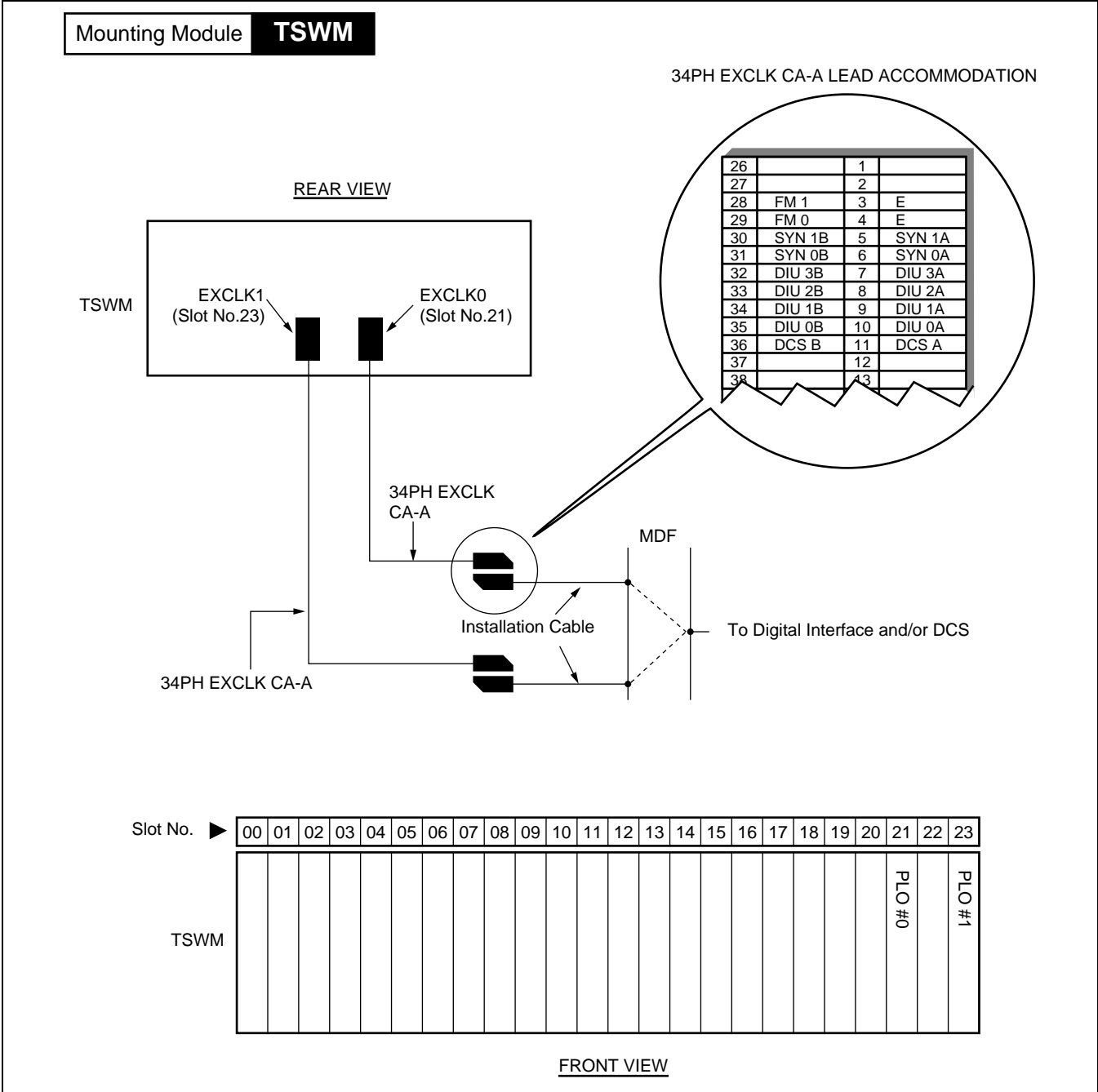
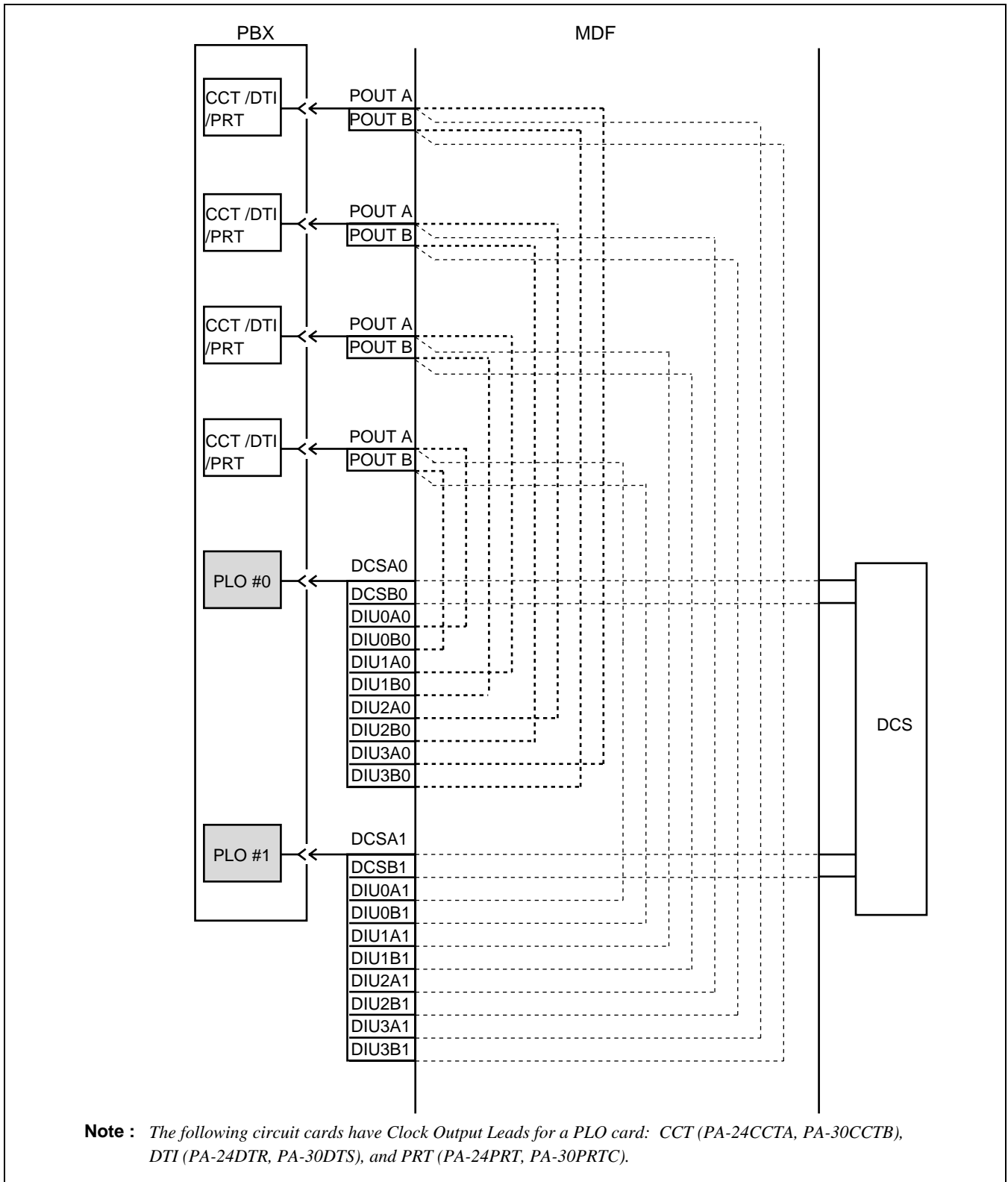
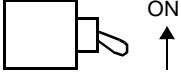
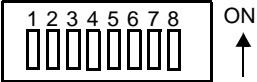
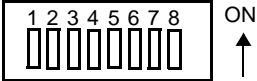

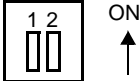

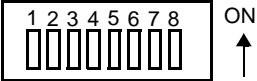


Figure 3-23 LT Connector Lead Location of PLO (TSWM)



**Figure 3-24 Connecting Route Diagram**

6. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW01		
SW02		
SW03		
SW05		
SW06		
SW04		

## PH-CK17-A Phase Lock Oscillator

### 1. General Function

This circuit card used with a direct digital interface circuit card, sets up network synchronization between networks. Since this circuit card provides a high precision base clock oscillator, the system containing this circuit card can be a clock source office of the digital network. As seen in [Figure 3-25](#), the PLO can be redundant regardless of the system switching network selection.

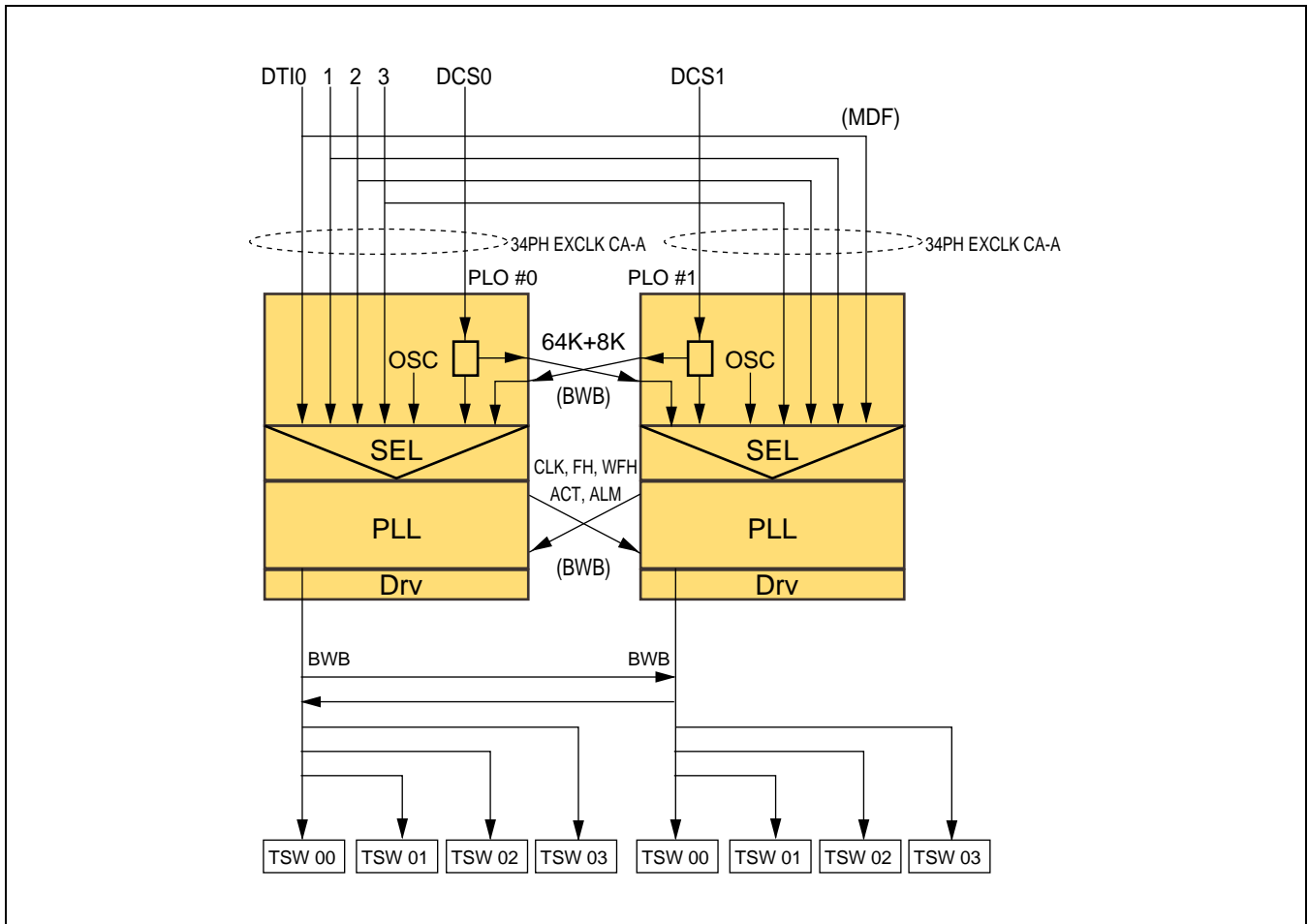


Figure 3-25 Location of PH-CK17-A in 4-IMG System

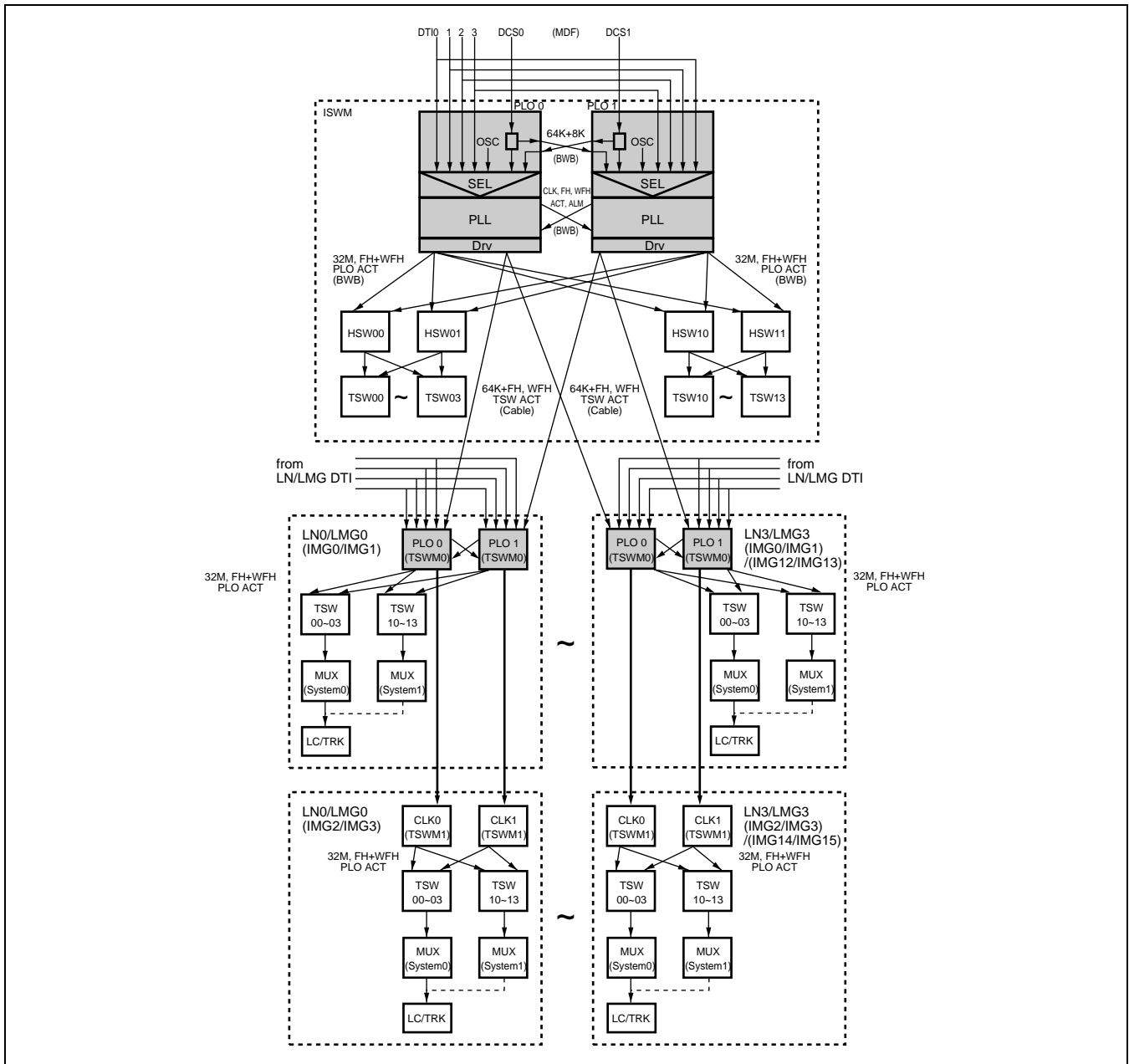


Figure 3-26 Location of PH-CK17-A (PLO) in IPX-U/IPX-UMG System

**PH-CK17-A**  
Phase Lock Oscillator

2. Mounting Location/Condition

This circuit card can be mounted in the shaded slots shown below.

This circuit card can be mounted in the shaded slots shown below.

<For 4-IMG System>

Mounting Module <b>TSWM(IMG1)</b>																							
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
																						PLO (#0)	PLO (#1)
Mounting Module <b>TSWM0(IMG1)</b>																							

<For IPX-U/IPX-UMG System>

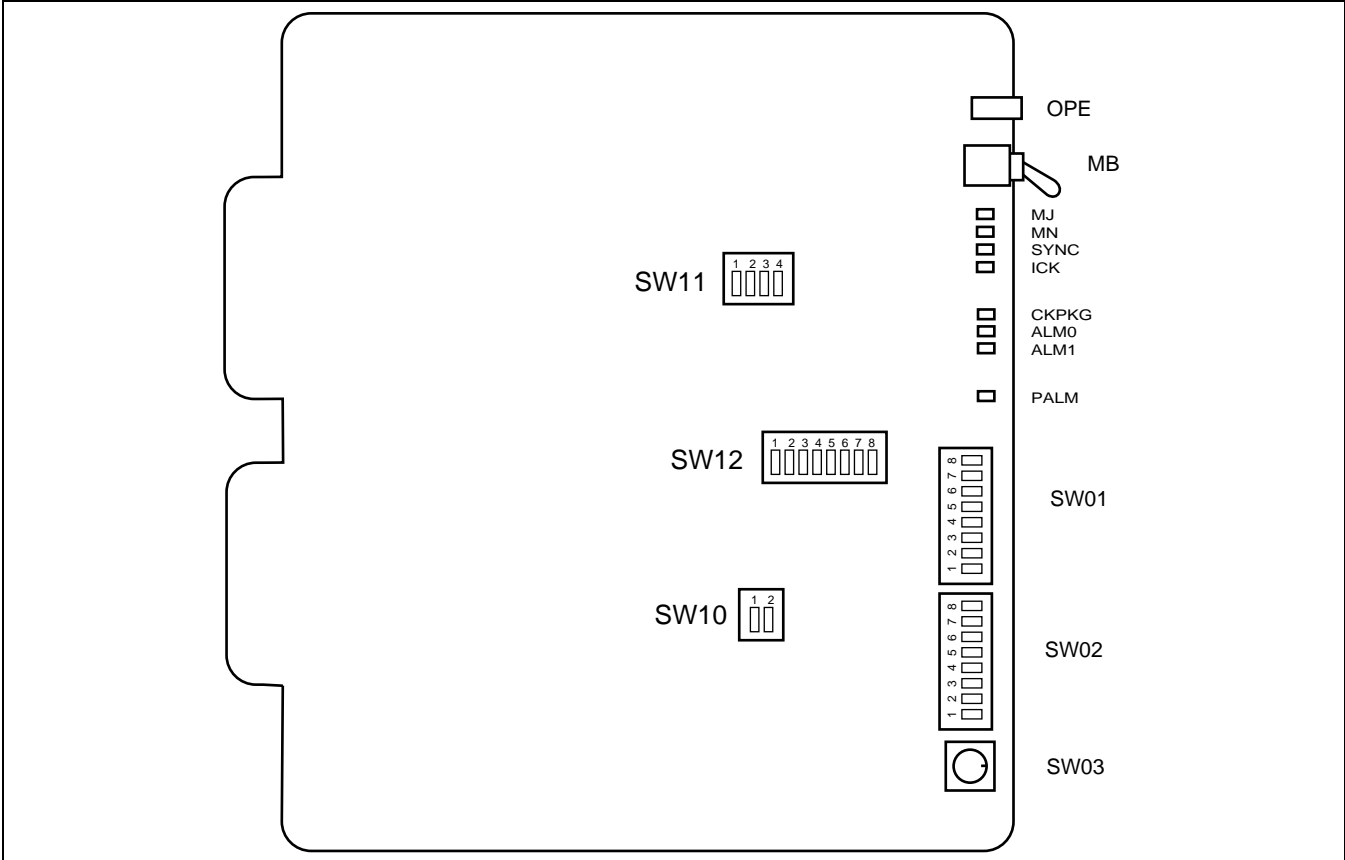
Mounting Module <b>ISWM</b>																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
								PLO (#0)				PLO (#1)							

Mounting Module <b>TSWM0(IMG1/5/9/13)</b>																							
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
																					PLO (#0)	PLO (#1)	



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 3-27](#):



**Figure 3-27 Face Layout of PH-CK17-A (PLO)**

**PH-CK17-A**  
Phase Lock Oscillator

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below:

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in active state.
MJ	Red	Lights when the following MJ fault has occurred: <ul style="list-style-type: none"> <li>• All of the clock supply routes have failed when the system operates as the clock subordinate office</li> <li>• 32.768 MHz output clock failure (including CLK card)</li> <li>• 8 KHz output clock failure (including CLK card)</li> <li>• Input Frame Pulse (FP) failure (FP is supplied by the SYNC card)</li> <li>• Internal OSC (<math>\pm 5</math> ppm deviation) have failed when the system operates as the clock source office</li> </ul>
MN	Red	Lights when the following MN fault has occurred: <ul style="list-style-type: none"> <li>• One or more (but not all) DTI/DCS clock supply routes have failed</li> <li>• Drifting failure</li> <li>• Internal OSC (<math>\pm 5</math> ppm deviation) failure</li> </ul>
SYNC	Green	Remains lit while the system is synchronized with the network.
ICK	Green	Lights when the internal oscillator is operating normally.
CKPKG <b>Note</b>	Green	Lights when the CLK card in TSWM1 is in normal operation.
ALM0 <b>Note</b>	Red	Lights when clock failure has occurred in the CLK card.
ALM1 <b>Note</b>	Red	Lights when FH failure has occurred in the CLK card.
PALM	Red	Remains lit when the On-Board Power Supply is abnormal.

**Note:** *This lamp is effective when this card is mounted in TSWM0 of the IPX-U/IPX-UMG system. When this card is mounted in ISWM, this lamp is not used.*

5. Switch Settings

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
SW03	1 - F	1	Fixed to "1."

**PH-CK17-A**  
Phase Lock Oscillator

The key setting of “SW01” differs depending on the mounting location.

[Mounted in ISWM of IPX-U/IPX-UMG System or TSWM of 4-IMG System]

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW01	1	ON	× Note 2	Clock subordinate office.
		OFF		Clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used.
		OFF	× Note 2	Digital Clock Supply route zero (DCS 0) is not used.
	3	ON		Digital Clock Supply route one (DCS 1) is used.
		OFF	× Note 2	Digital Clock Supply route one (DCS 1) is not used.
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF	× Note 2	8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF	× Note 2	When clock source failure has occurred, the PLO keeps on outputting the current phase clock.
	6	ON		This circuit card is used associated with SYNC (PA-CK16 WCS) card and 5 m Frame Pulse (FP) is supplied by the SYNC card.
		OFF	× Note 2	This circuit card is not used associated with SYNC (PA-CK16 WCS) card.
	7	ON		A-law CODEC is used for Music-on-Hold.
		OFF	×	μ-law CODEC is used for Music-on-Hold.
8	OFF	×	Fixed to “OFF” (Not used).	

**Note 1:** When this card is used in the 4-IMG or ISWM of IPX-U/IPX-UMG system, specify the clock source (DCS or DTI) according to the clock network configuration for the office.

**Note 2:** This standard setting is applicable when this card is mounted in ISWM of the IPX-U/IPX-UMG system.

[Mounted in TSWM0 of IPX-U/IPX-UMG System]

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW01	1	ON	×	Clock subordinate office. (Fixed)
		OFF		Clock source office.
	2	ON		Digital Clock Supply route zero (DCS 0) is used. (In case this circuit card is accommodated as #0 system.)
		OFF		Digital Clock Supply route zero (DCS 0) is not used. (In case this circuit card is accommodated as #1 system.)
	3	ON		Digital Clock Supply route one (DCS 1) is used. (In case this circuit card is accommodated as #1 system.)
		OFF		Digital Clock Supply route one (DCS 1) is not used. (In case this circuit card is accommodated as #0 system.)
	4	ON		8 KHz of Frame Head signals are extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
		OFF	×	8 KHz of Frame Head signals are not extracted from the DCS signals (which is composed of 64 KHz + 8 KHz).
	5	ON		When clock source failure has occurred in all supply routes, the PLO outputs the original clock of the internal oscillator.
		OFF	×	When clock source failure has occurred in all supply routes, the PLO continues outputting the current phase clock.
	6	ON	×	This circuit card is associated with SYNC (PA-CK16 WCS) card and 5 m Frame Pulse (FP) is supplied by the SYNC card. (Fixed to "ON" )
		OFF		This circuit card is not associated with SYNC (PA-CK16 WCS) card.
	7	ON		A-law CODEC is used for Music-On-Hold.
		OFF	×	μ-law CODEC is used for Music-On-Hold.
	8	OFF	×	Fixed OFF (Not used).

**PH-CK17-A**  
Phase Lock Oscillator

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW02 <b>Note 1</b>	1	ON		DIU 0 is used as the DTI clock supply route zero.
		OFF		DIU 0 is not used.
	2	ON		DIU 1 is used as the DTI clock supply route one.
		OFF		DIU 1 is not used.
	3	ON		DIU 2 is used as the DTI clock supply route two.
		OFF		DIU 2 is not used.
	4	ON		DIU 3 is used as the DTI clock supply route three.
		OFF		DIU 3 is not used.
	5	ON	×	1.5 M clock for DIU 0.
		OFF		2 M clock for DIU 0.
	6	ON	×	1.5 M clock for DIU 1.
		OFF		2 M clock for DIU 1.
	7	ON	×	1.5 M clock for DIU 2.
		OFF		2 M clock for DIU 2.
	8	ON	×	1.5 M clock for DIU 3.
		OFF		2 M clock for DIU 3.
SW10	1	ON		External hold tone source is used via FM lead.
		OFF	×	MUSIC ROM is used as the hold tone.
	<b>Note 2</b> 2	ON		CLK card is not used.
		OFF	×	CLK card is used.

**Note 1:** *When this card is mounted in TSWM0 of the IPX-U/IPX-UMG system, DCS clock from the ISWM is used. The DTI clock can also be used as an alternate clock supply route in case of DCS clock failure.*

**Note 2:** *When this card is mounted in ISWM, set to “ON (=CLK card is not used).”  
If mounted in TSWM0 on LN/LMG,*

- *set to “OFF” if TSWM1 (CLK card, PH-CK18) on the same LN/LMG is used.*
- *set to “ON” if TSWM1 (CLK card, PH-CK18) on the same LN/LMG is not used.*

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
SW11	1	SW11-1	SW11-2	Impedance of the External Music Source 0 (FM 0)	
		OFF	OFF		600 Ω
		ON	OFF		8.2 Ω
	2	OFF	ON	47K Ω	
		3	SW11-3	SW11-4	Impedance of the External Music Source 1 (FM 1)
			OFF	OFF	
	ON		OFF	8.2 Ω	
	4	OFF	ON	47K Ω	
1		SW12-1	SW12-2	SW12-3	MUSIC
		OFF	OFF	OFF	
	ON	OFF	OFF	Maiden's prayer	
	Don't Care	ON	OFF	Buzzer	
2	Don't Care	OFF	ON	Chime	
	4	ON		Not used.	
		OFF	×	Not used.	
	5	MUSIC (CH1) selection. The music varies depending on the melody IC located on this circuit card.			
6					
7					
8	ON		Not used.		
	OFF	×	Not used.		

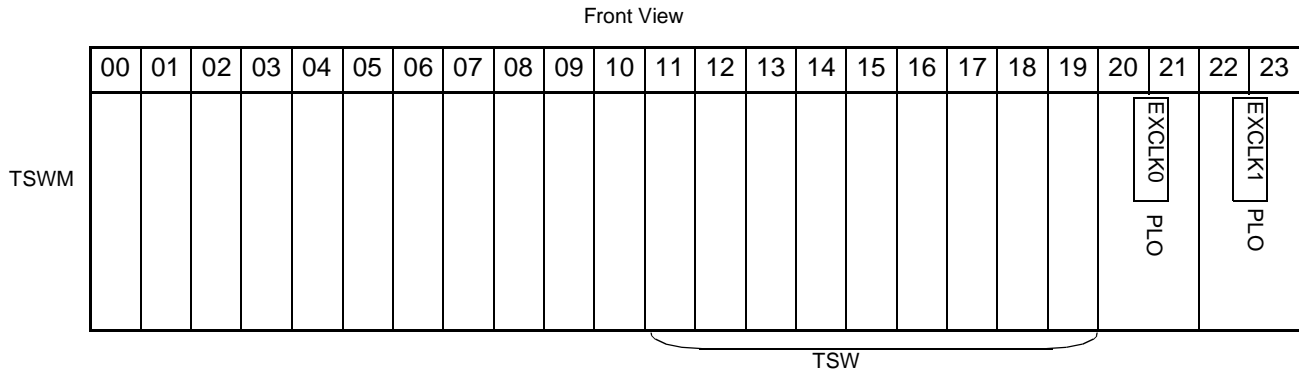
**PH-CK17-A**  
Phase Lock Oscillator

6. External Interface

PLO input leads appear on the LT connectors labeled EXCLK0 and EXCLK1

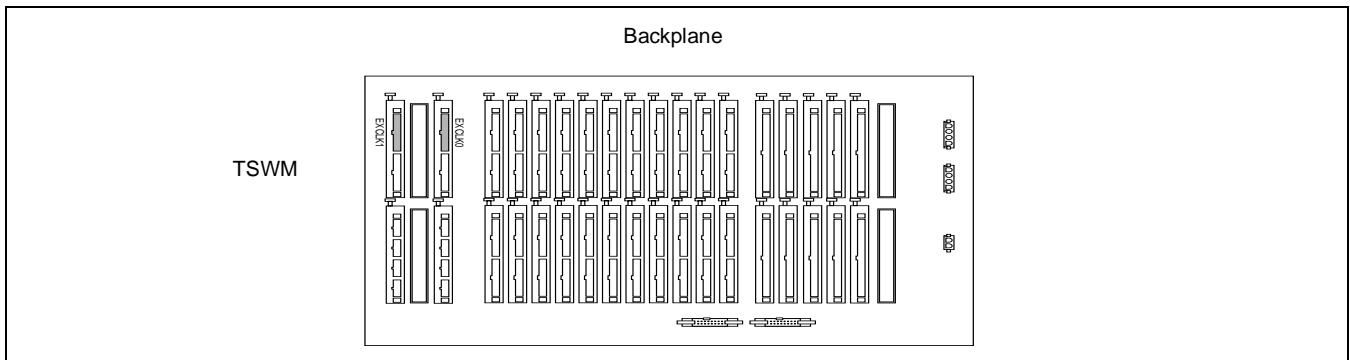
- PLO mounting slots

The PLO card is mounted in Slots 21 and 23 of TSWM.



- LT cable connectors

Connect the LT cables to the connectors labeled EXCLK0 and EXCLK1 on the TSWM backplane.

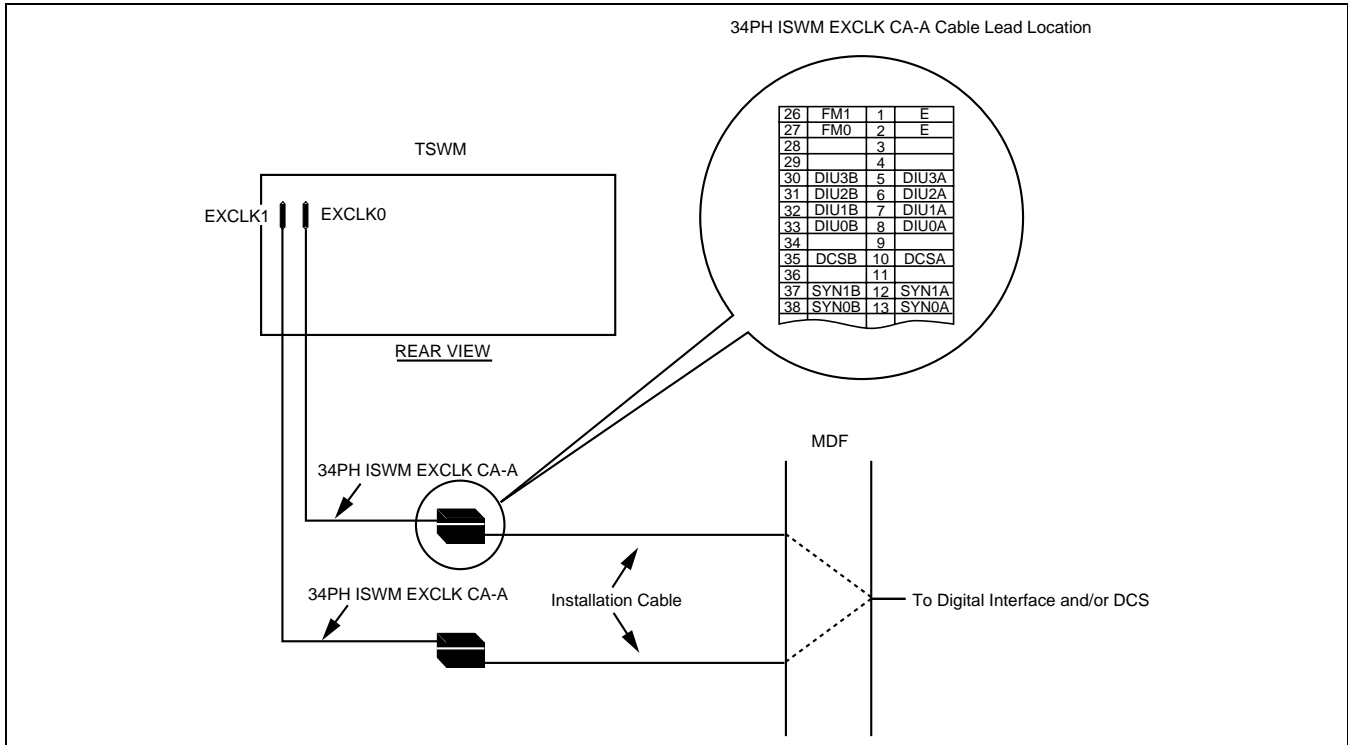


**Figure 3-28 PLO Pin Assignments for Receiving Clock (4 IMG System) (1/2)**



- EXCLK0/EXCLK1 connector Pin Assignment

Pins are assigned as follows on the EXCLK0/EXCLK1 connectors. When the clock is distributed from a digital interface, use one pair of DIUxxx in one of the four inputs. (There are a maximum of four inputs.) DIU leads have the following precedence: DIU0xx (high) → DIU3xx (low).

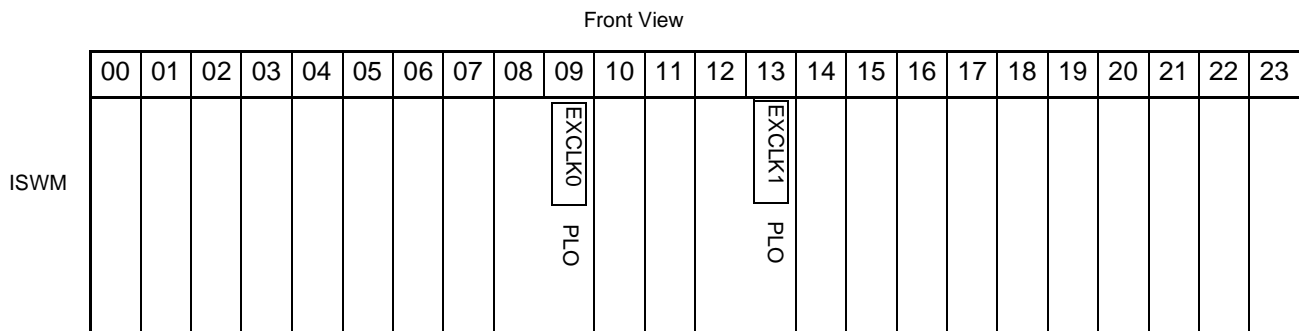


**Figure 3-28 PLO Pin Assignments for Receiving Clock (4 IMG) (2/2)**

PLO input leads appear on the LT connectors labeled EXCLK0 and EXCLK1.

- PLO mounting slots

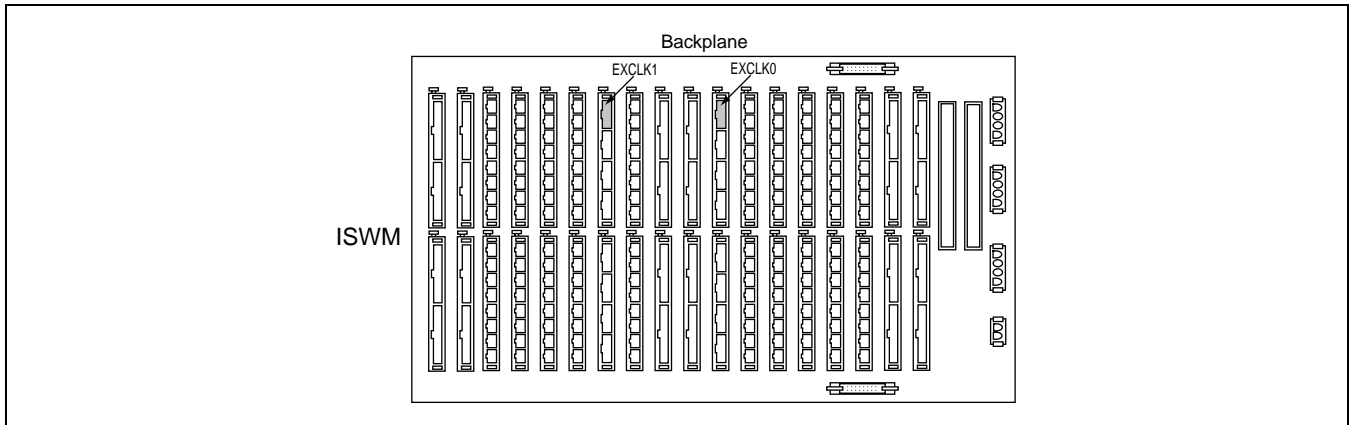
The PLO card is mounted in Slots 09 and 13 of ISWM.



**PH-CK17-A**  
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- LT cable connectors

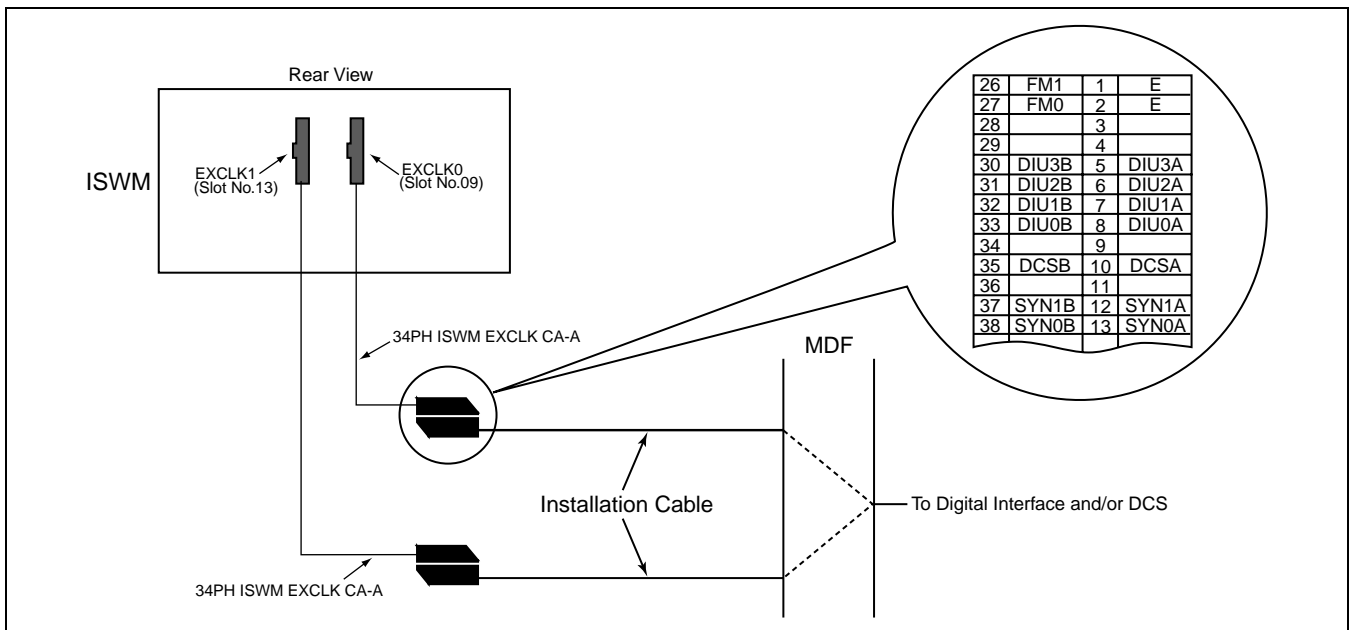
Connect LT cables to the connectors labeled EXCLK0 and EXCLK1 on the ISWM backplane.



**Figure 3-29 PLO Pin Assignment for Receiving Clock (ISWM) (1/2)**

- EXCLK0/EXCLK1 connector Pin Assignment

Pins are assigned as follows on the EXCLK0/EXCLK1 connectors. When the clock is distributed from a digital interface, use one pair of DIUxxx in one of the four inputs. (There are a maximum of four inputs.) DIU leads have the following precedence: DIU0xx (high) → DIU3xx (low).



**Figure 3-29 PLO Pin Assignment for Receiving Clock (ISWM) (2/2)**

- Cable Connection Diagram

Provide the following wiring at the MDF. The connection diagram in Figure 3-30 shows an example of a system that has the PLO cards in dual configuration.

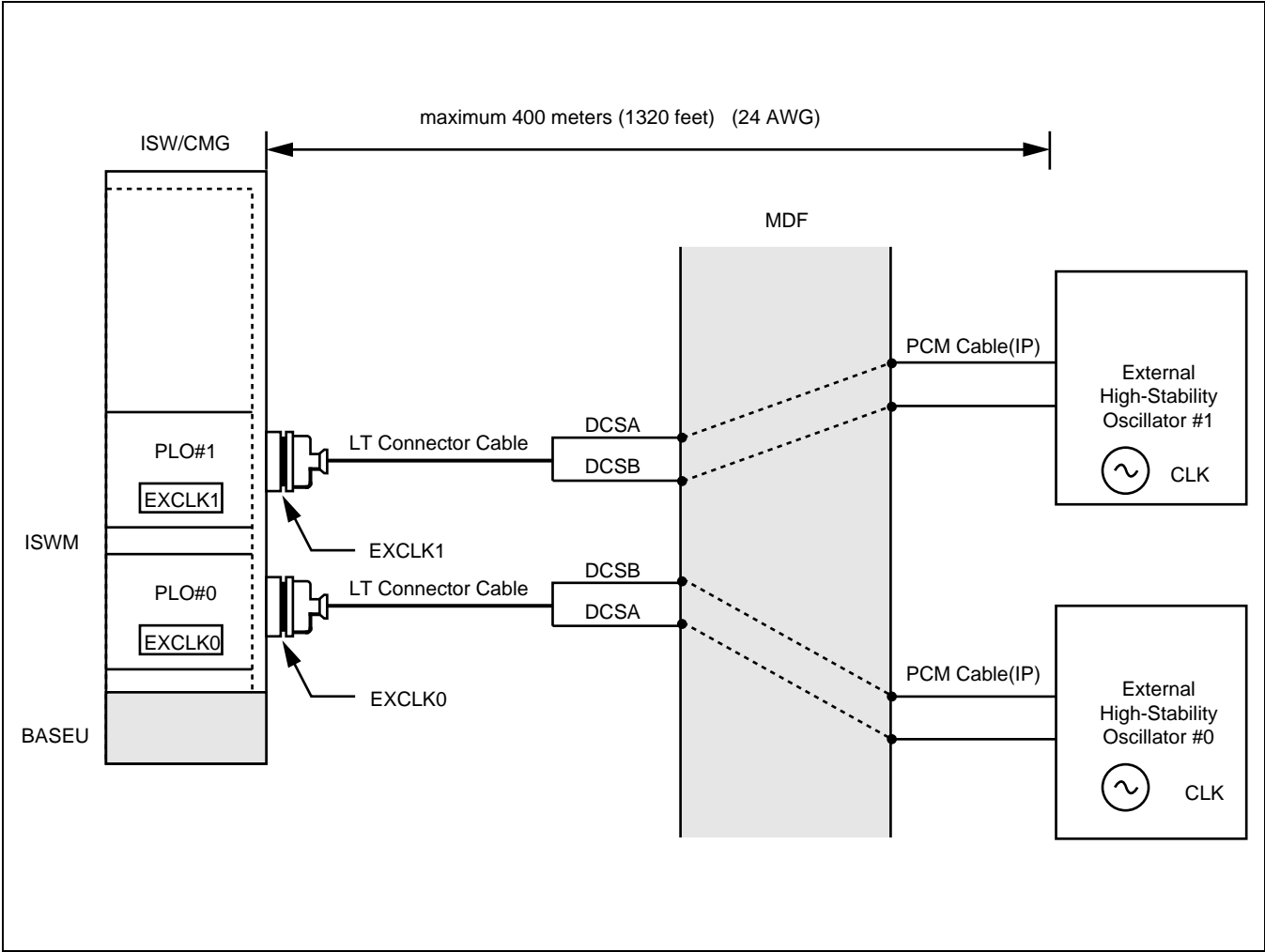
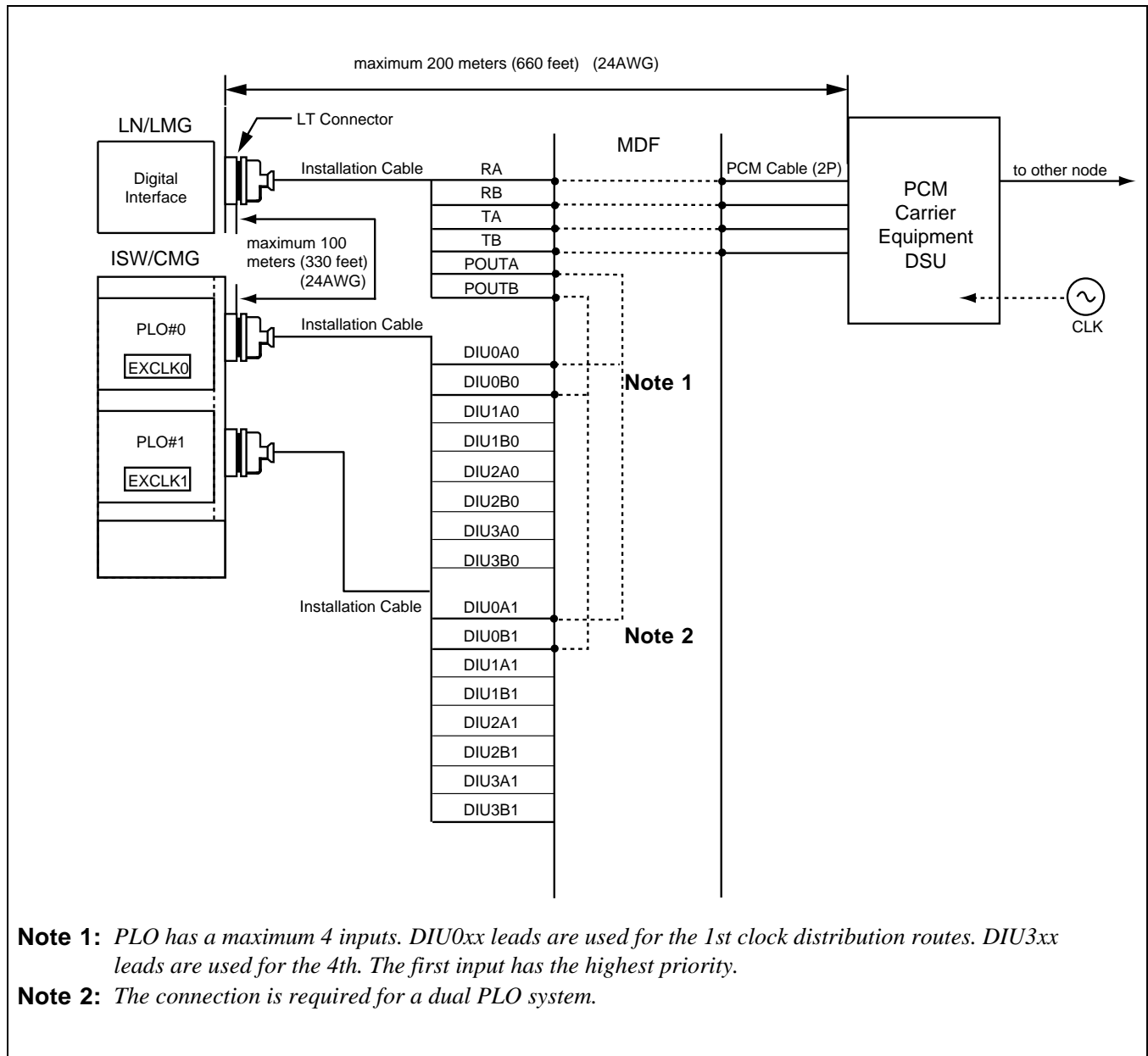


Figure 3-30 Cable Connection Diagram (ISWM) for Accepting Synchronization Clocks from an External High-Stability Oscillator

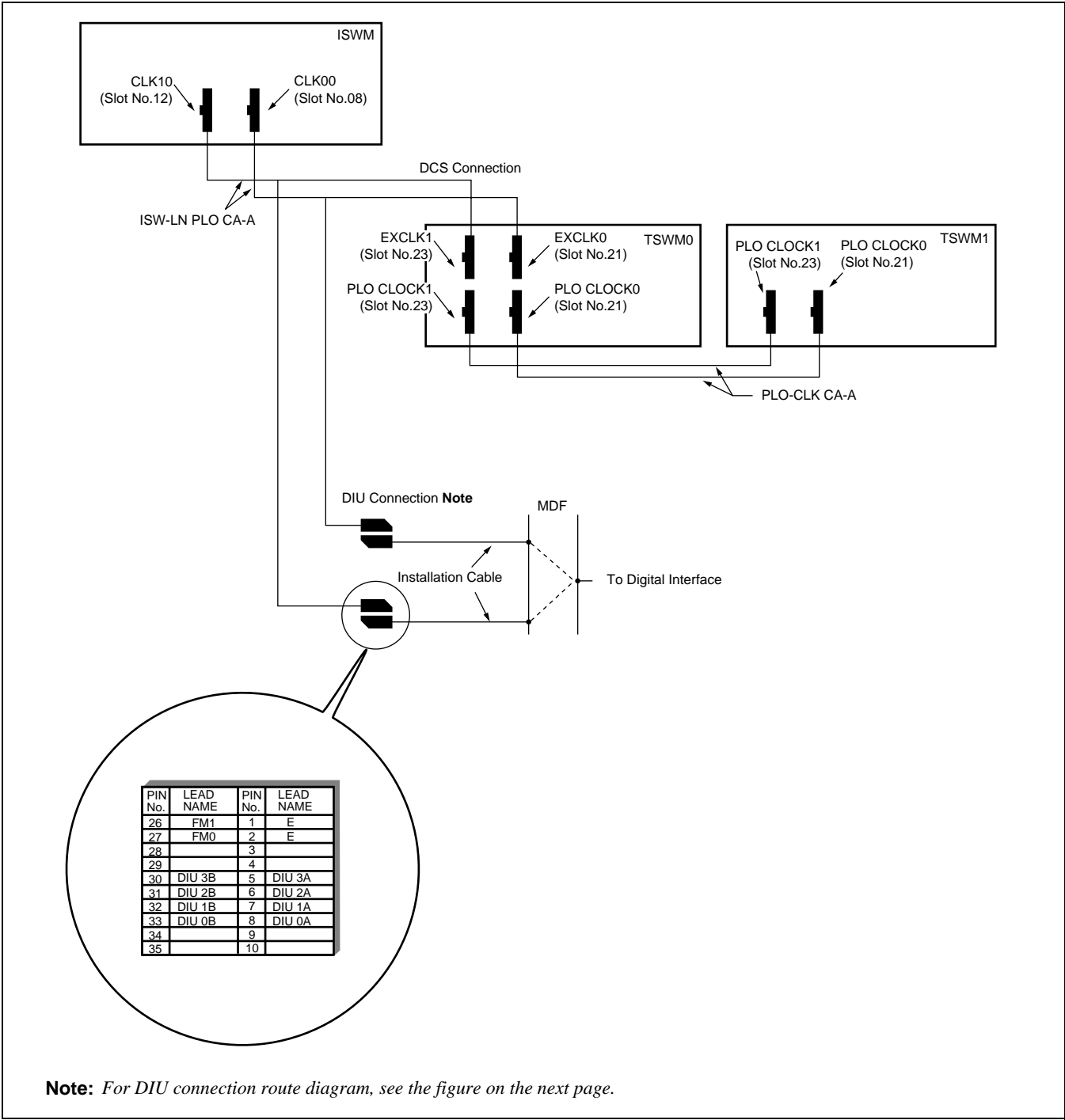
Figure 3-31 shows an example of distributing clock from a digital interface in LN/LMG. This example assumes that the Digital Trunk POUT leads are used as the first clock distribution route.



**Note 1:** PLO has a maximum 4 inputs. DIU0xx leads are used for the 1st clock distribution routes. DIU3xx leads are used for the 4th. The first input has the highest priority.

**Note 2:** The connection is required for a dual PLO system.

**Figure 3-31 Cable Connection Diagram (ISWM) for Receiving Clock from Digital Interface**

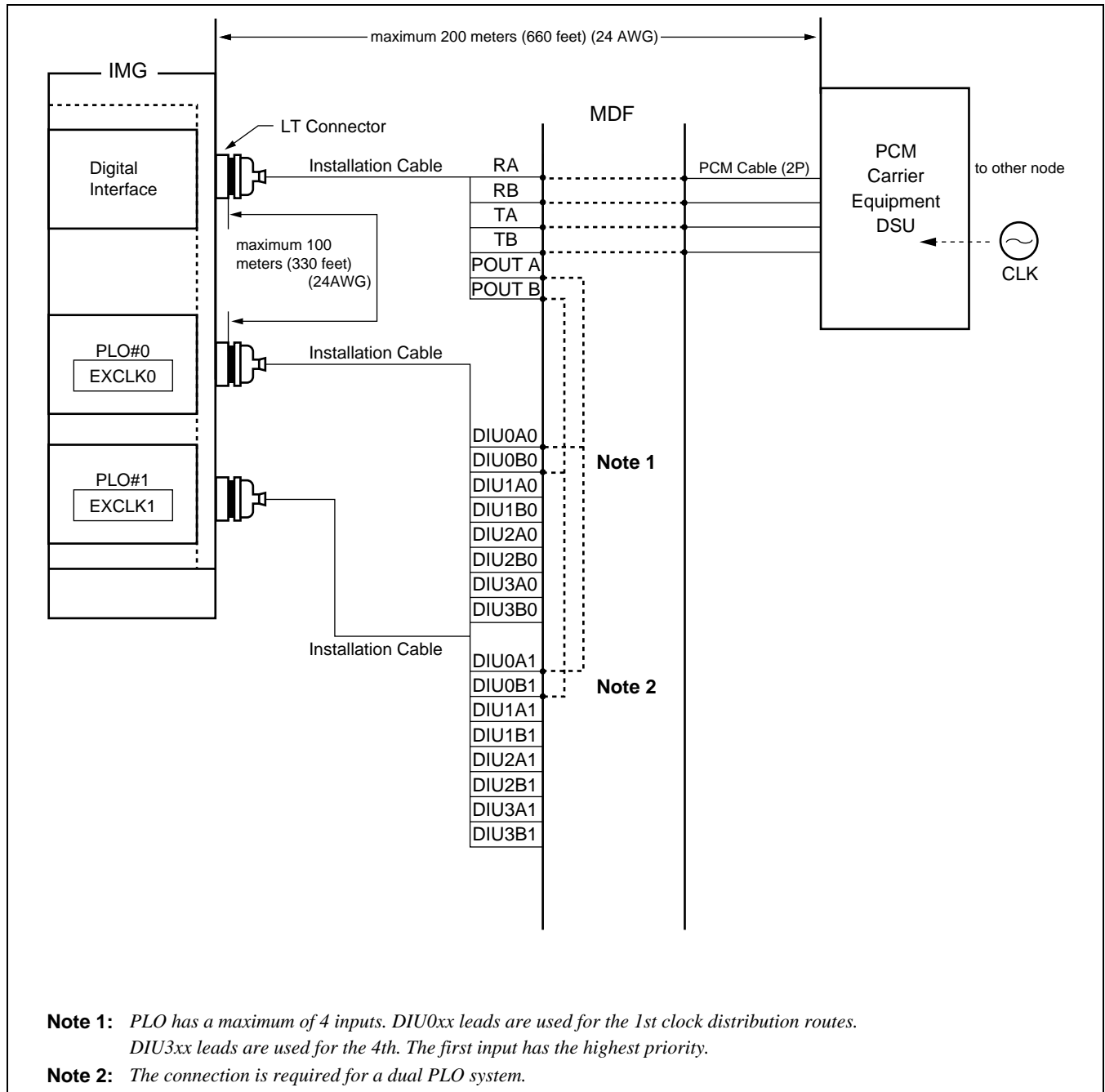


**Note:** For DIU connection route diagram, see the figure on the next page.

Figure 3-32 LT Connector Lead Location of PLO (ISWM-TSWM0/1)

**PH-CK17-A**  
Phase Lock Oscillator

Figure 3-33 shows an example of distributing clock from a digital interface. This figure assumes that the Digital Trunk POUT leads are used as the first clock distribution route. (This connection is not required for IPX-UMG system.)



**Figure 3-33 Cable Connection Diagram (4-IMG System/LN) for Receiving Clock from Digital Interface**

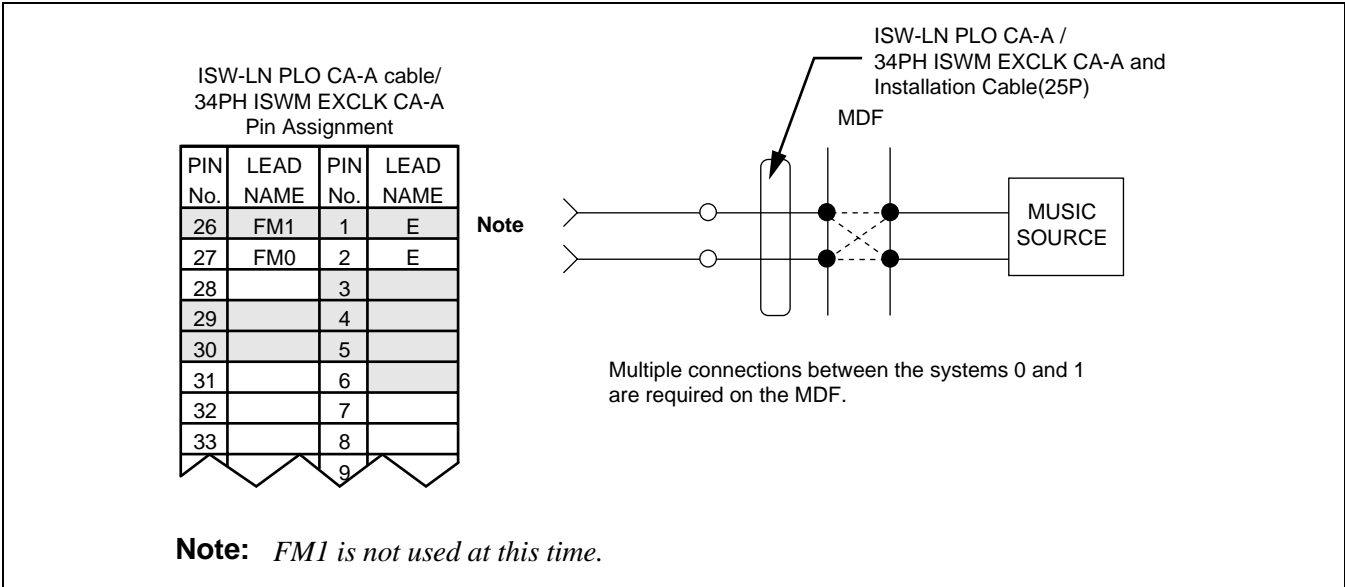
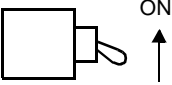
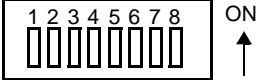
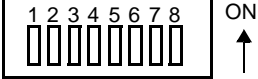

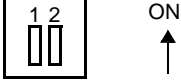
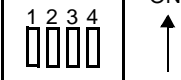
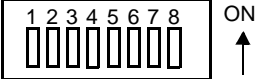


Figure 3-34 Connection of External Music-On-Hold

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	
MB		
SW01		
SW02		
SW03		
SW10		
SW11		
SW12		



# PH-CK18 Clock

## 1. General Function

This circuit card is used for the Local Node (LN) of the IPX-U system or used for the Local Module Group (LMG) of the IPX-UMG system. The main function of this circuit card is to supply basic clock signals to the system. This card receives clock signals from the Phase Lock Oscillator (PLO) located in TSWM0 of IMG1/5/9/13, distributing the following signals to the Time Division Switch (TSW) located in TSWM1 of IMG2/6/10/14.

- 32.768 MHz CLK
- 8 KHz FH
- 5 msec × “n” FH (for Wireless System)

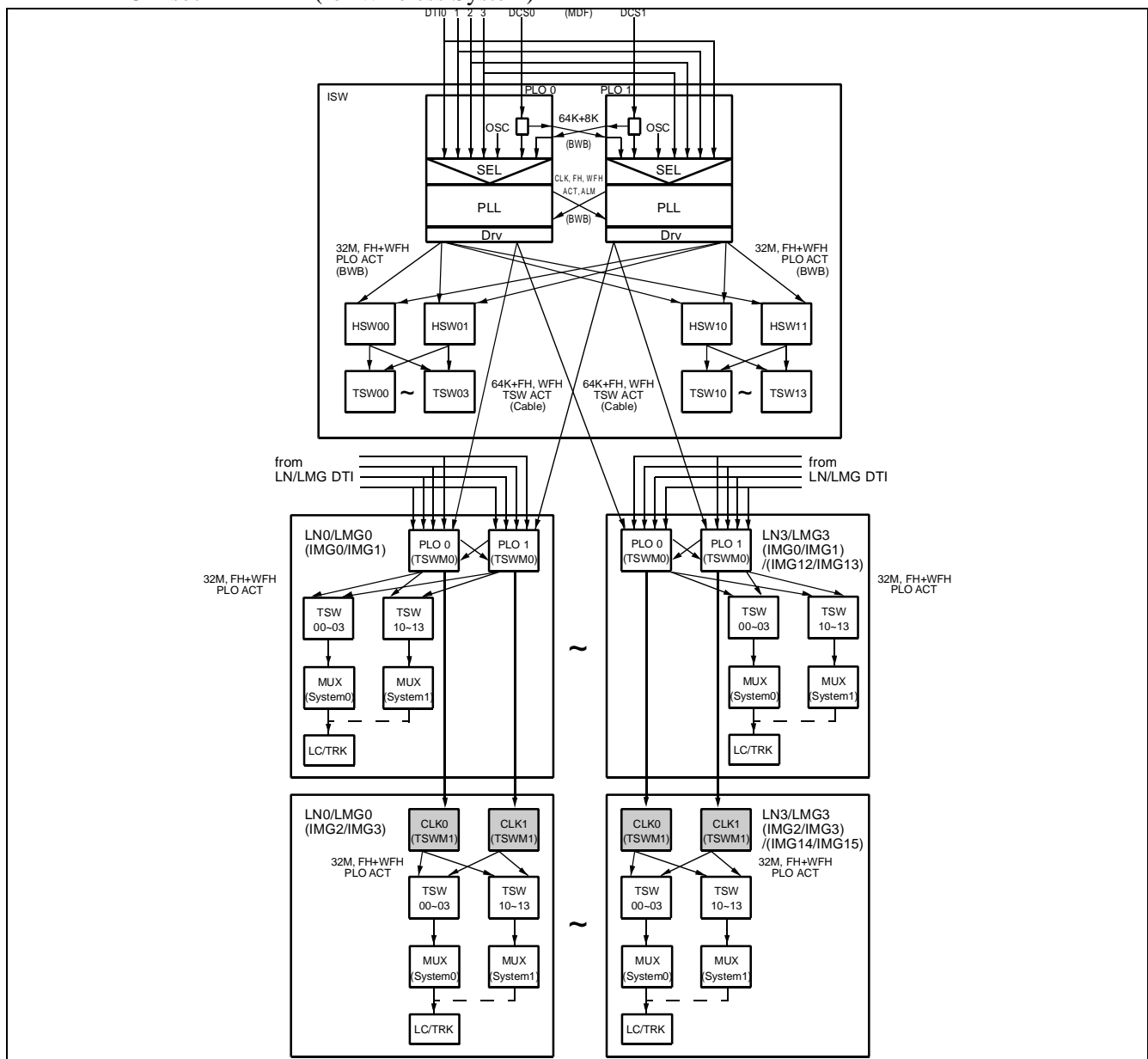


Figure 3-35 Location of PH-CK18 (CLK)

**PH-CK18**  
Clock

2. Mounting Location/Condition

Mounting locations for this circuit card are shown below.

Mounting Module		<b>TSWM1(IMG2/6/10/14)</b>																						
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
																						CLK (#0)		CLK (#1)

3. Face Layout of Lamps, Switches, and Connectors

The face layout of each lamp and switch on this circuit card is shown in the figure below:

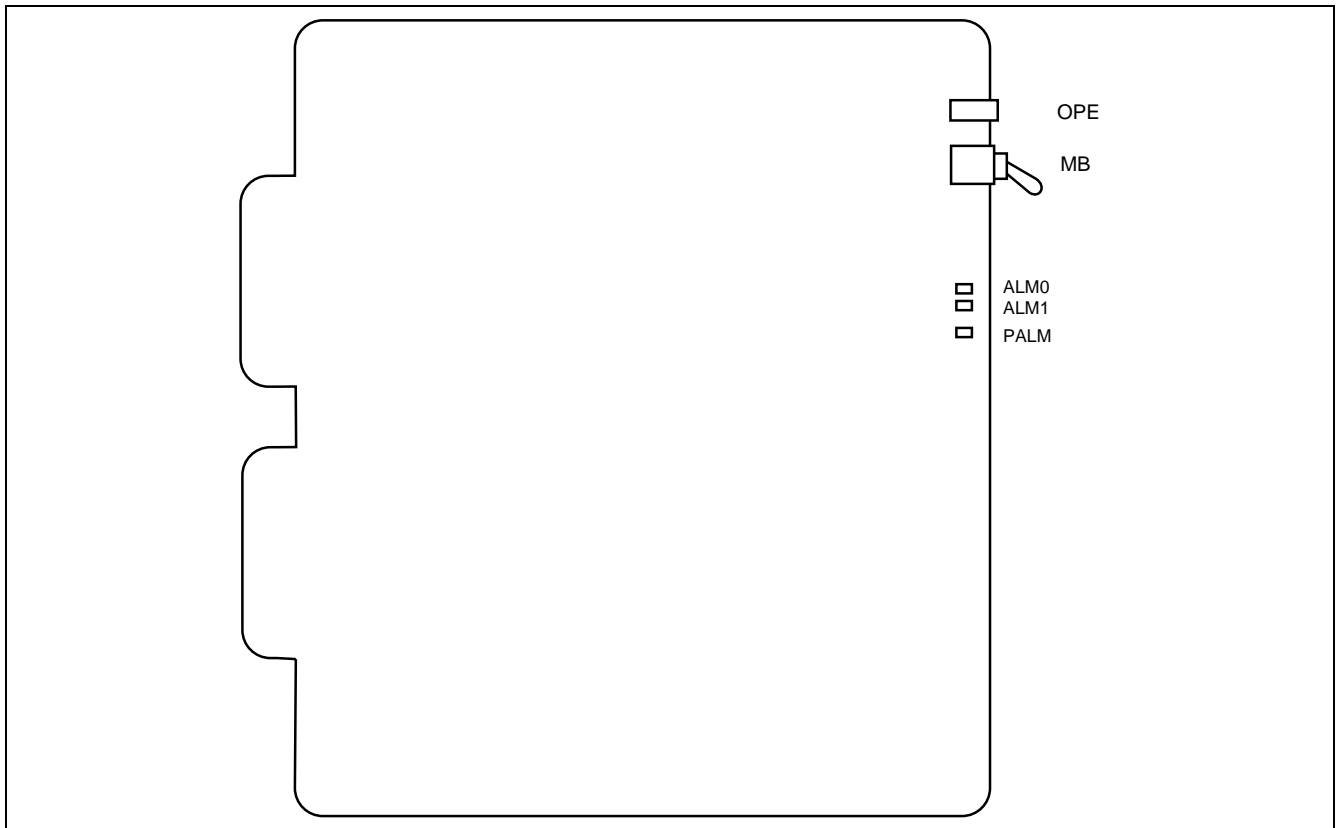


Figure 3-36 Face Layout of PH-CK18 (CLK)

4. Lamp Indications

Lamp indications for this circuit card are shown below:

<b>LAMP</b>	<b>COLOR</b>	<b>MEANING</b>
OPE	Green	Lights when this circuit card is in ACT state.
ALM 0	Red	Lights when clock signal failure has occurred.
ALM 1	Red	Lights when Frame Head signal failure has occurred.
PALM	Red	Lights when the On Board Power Supply failure has occurred.

5. Switch Settings

Switch settings for this circuit card are shown below.

<b>SWITCH NAME</b>	<b>SETTING</b>	<b>STANDARD SETTING</b>	<b>MEANING</b>
MB	ON		Circuit card Make-busy.
	OFF	×	Circuit card Make-busy cancel.

6. External Interface

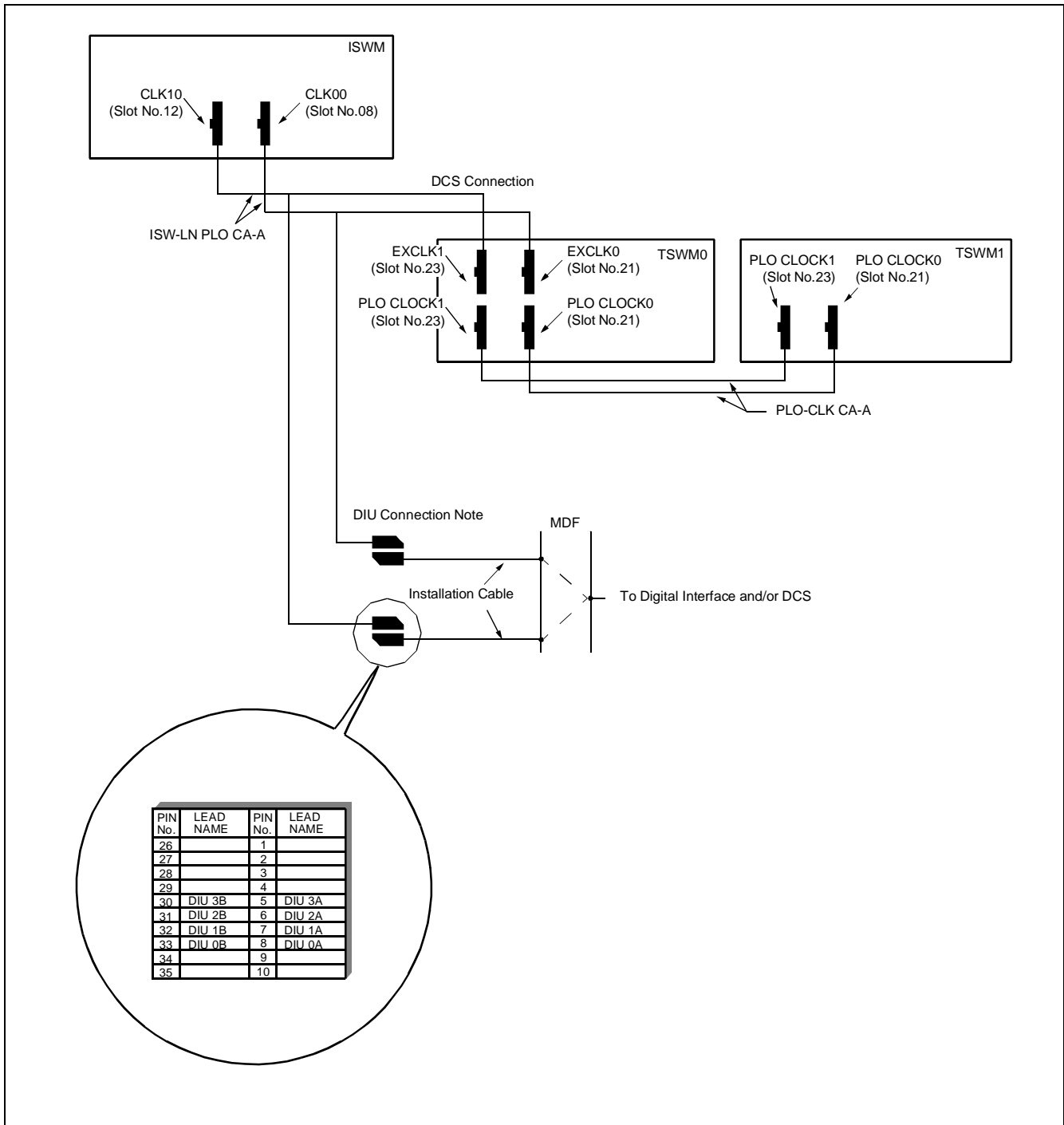
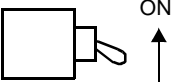


Figure 3-37 LT Connector Lead Location (ISWM-TSWM0/1)

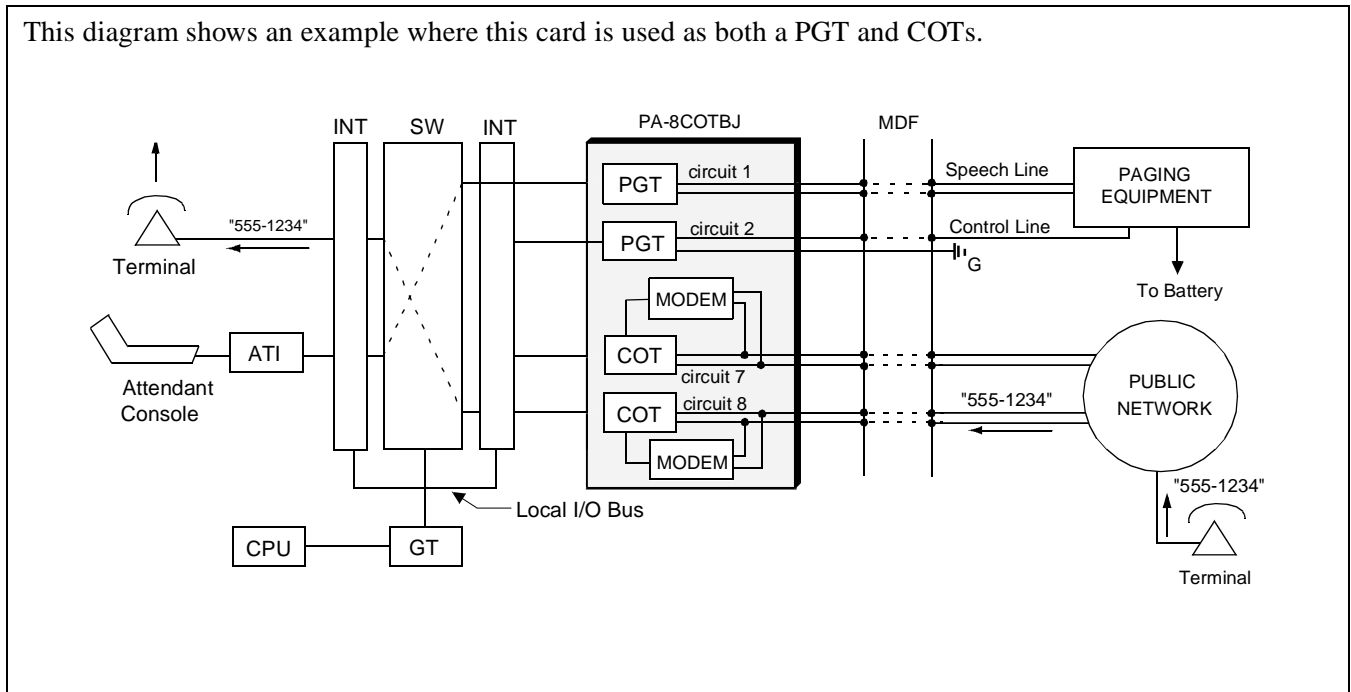
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		

**PA-8COTBJ**  
Central Office Trunk

1. General Function

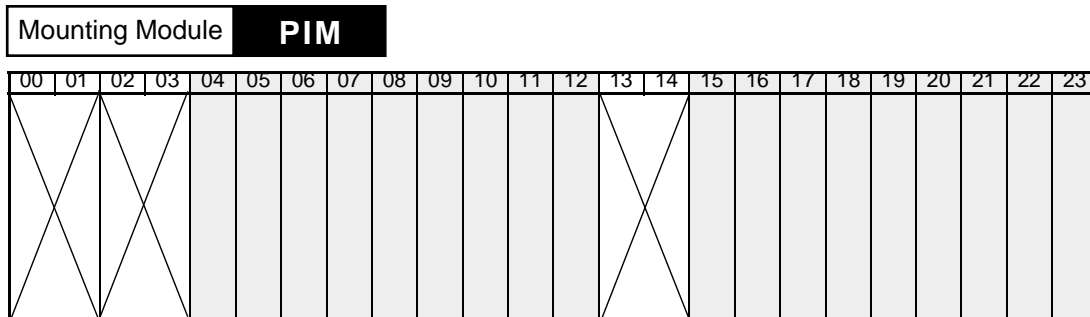
The PA-8COTBJ (8COT) circuit card provides an interface between a maximum of 8C.O. lines and the system. And this card also provides the caller ID service. Depending upon keys setting of this card, the first circuit on this card can be used as an interface for Paging Equipment. In this instance, the second circuit is also used for the purpose of activating the Paging Equipment. Example of the Paging Equipment and Caller ID service are illustrated below. In addition, the appropriate value of Terminal Impedance and Balancing Network (BNW) can be selected by key setting.



**Figure 3-38 Location of PA-8COTBJ (8COT) Card within the System**

2. Mounting Location/Condition

The PA-8COTBJ (8COT) card can be mounted in any universal slot as shown below.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in Figure 3-39.

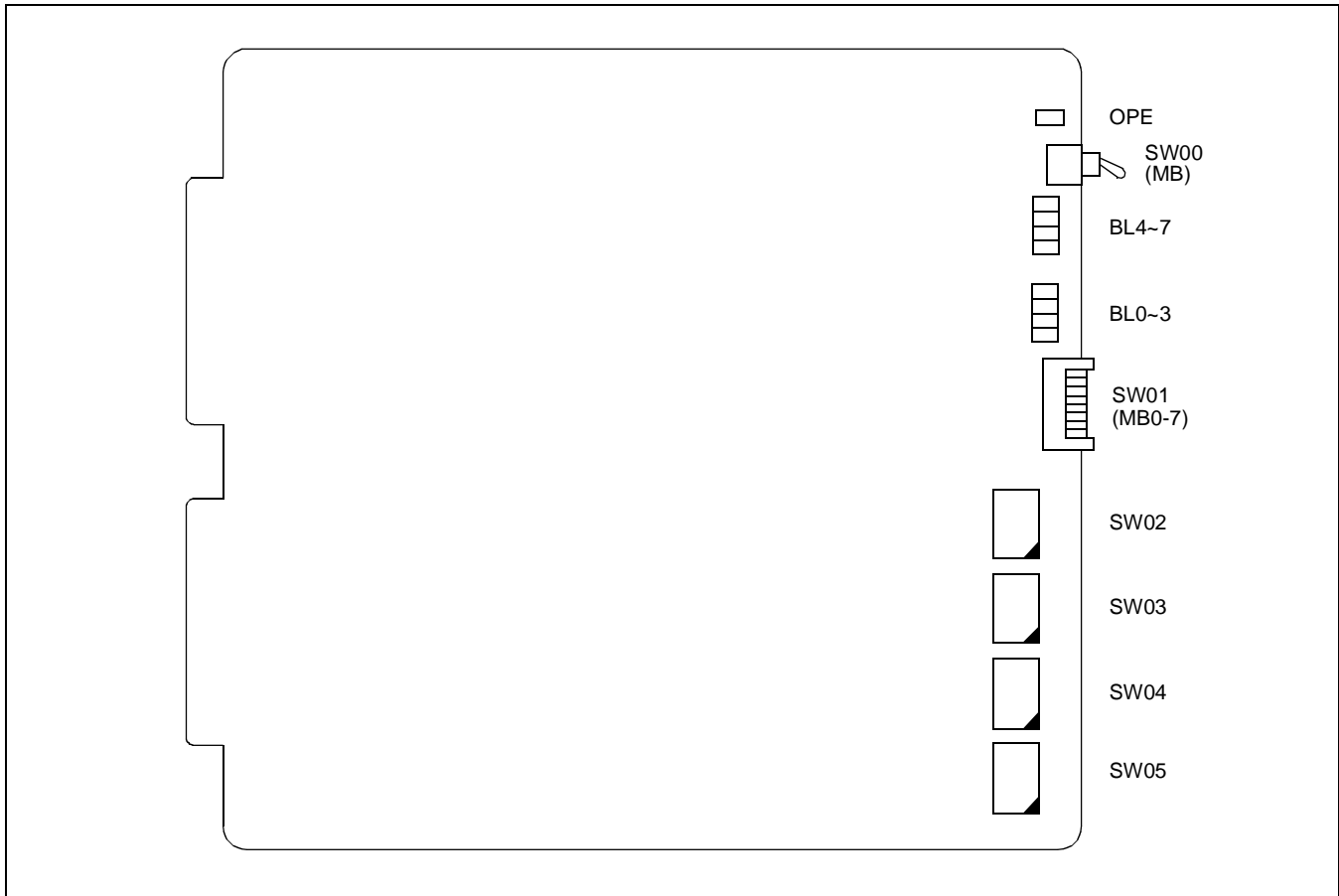


Figure 3-39 Face Layout of PA-8COTBJ (8COT)

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

**8COT Lamp Indication Reference**

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
BL0 , BL7	Green	Lights when the corresponding circuit is busy.
		Flashes to the dial pulses being sent out for an outgoing call, or the corresponding circuit is in make busy state.
	OFF	BL-lamp remains off when the corresponding circuit is idle.

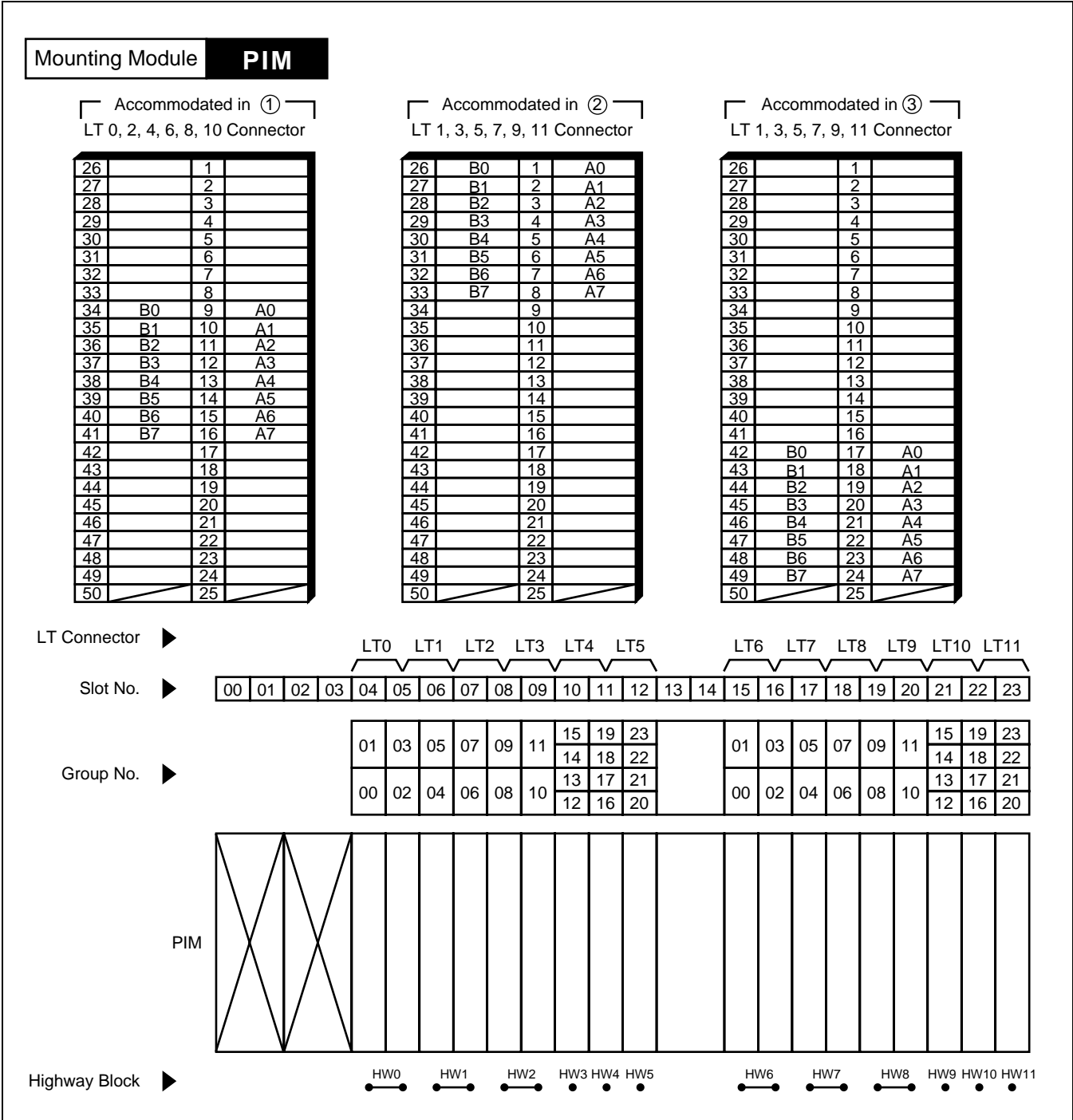
5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

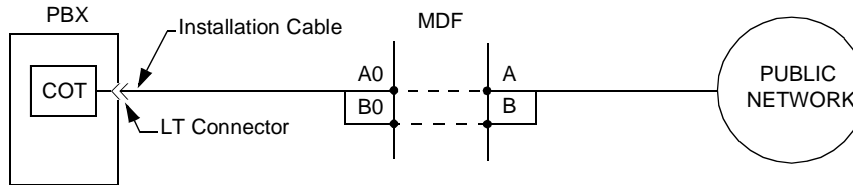
SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																						
SW00 (MB)		UP		Circuit card make busy																																						
		DOWN	×	Circuit card make busy cancel																																						
SW01 (MB0-7)		ON		Request for make-busy of the trunk circuit corresponding to MB switch.																																						
		OFF	×	Request for cancelling the make-busy of the trunk circuit corresponding to MB switch.																																						
SW02	1-4			Terminal Impedance and B.N.W.setting																																						
				<table border="1"> <thead> <tr> <th colspan="4">SW0 (SW10)</th> <th colspan="2">MEANINGS</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>B.N.W.</th> <th>Terminal Impedance</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>EIA/TIA 464-A</td> <td>600 Ω+2.16 μ</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>CCITT Q.517</td> <td rowspan="2">900 Ω+2.16 μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>900 Ω</td> </tr> <tr> <td colspan="4">Other Combinations</td> <td colspan="2">Inhibited</td> </tr> </tbody> </table>				SW0 (SW10)				MEANINGS		1	2	3	4	B.N.W.	Terminal Impedance	OFF	OFF	OFF	OFF	EIA/TIA 464-A	600 Ω+2.16 μ	OFF	ON	ON	OFF	CCITT Q.517	900 Ω+2.16 μ	ON	ON	ON	OFF	900 Ω	Other Combinations				Inhibited	
				SW0 (SW10)				MEANINGS																																		
				1	2	3	4	B.N.W.	Terminal Impedance																																	
				OFF	OFF	OFF	OFF	EIA/TIA 464-A	600 Ω+2.16 μ																																	
OFF	ON	ON	OFF	CCITT Q.517	900 Ω+2.16 μ																																					
ON	ON	ON	OFF	900 Ω																																						
Other Combinations				Inhibited																																						
SW03	1	OFF	×	Fixed to OFF (Not Used)																																						
	2	OFF	×	Fixed to OFF (Not Used)																																						
	3	OFF	×	Fixed to OFF (Not Used)																																						
	4	OFF	×	Fixed to OFF (Not Used)																																						
SW04	1	ON	×	Fixed to ON																																						
	2	OFF	×	Fixed to OFF																																						
	3	OFF	×	Fixed to OFF																																						
	4	ON		Paging Trunk is available (When this switch is set to ON, CH0 and CH1 cannot be used as CO trunks.)																																						
		OFF		Paging Trunk is not available.																																						
SW05	1	OFF	×	Fixed to OFF																																						
	2	ON	×	Fixed to ON																																						
	3	OFF	×	Fixed to OFF																																						
	4	OFF	×	Fixed to OFF																																						



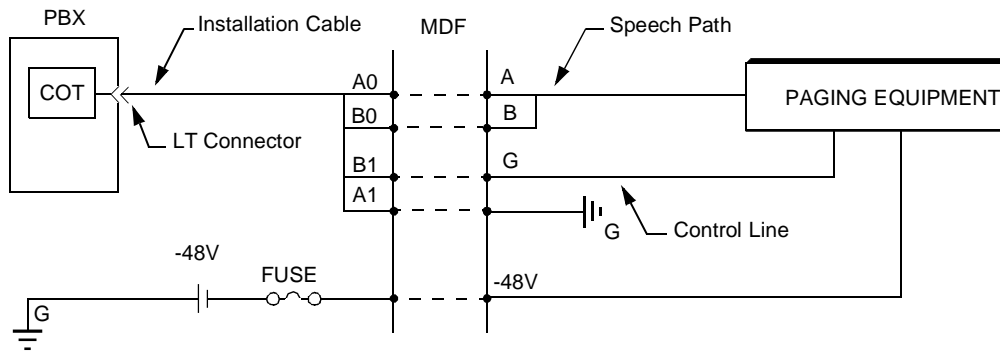
6. External Interface



- Cable Connections for a C.O. Line



- Cable Connections for Paging Equipment



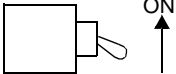
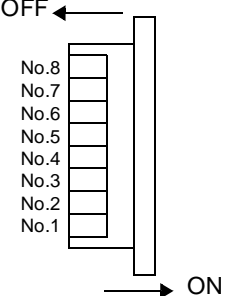


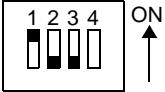
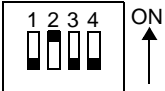
**Note:** As illustrated above, two circuits (#0, #1) are required for connecting paging equipment.

**Figure 3-41 Connecting Route Diagram**

**Table 3-1 Balancing Network and Terminal Impedance**

Balancing Network	Terminal Impedance
<p>EIA/TIA 464-A</p>	<p>600 + 2.16μ</p>
<p>900Ω</p>	
<p>CCITT Q. 517 AT&amp;T Echo Test Network</p>	

7. Switch Setting Sheet

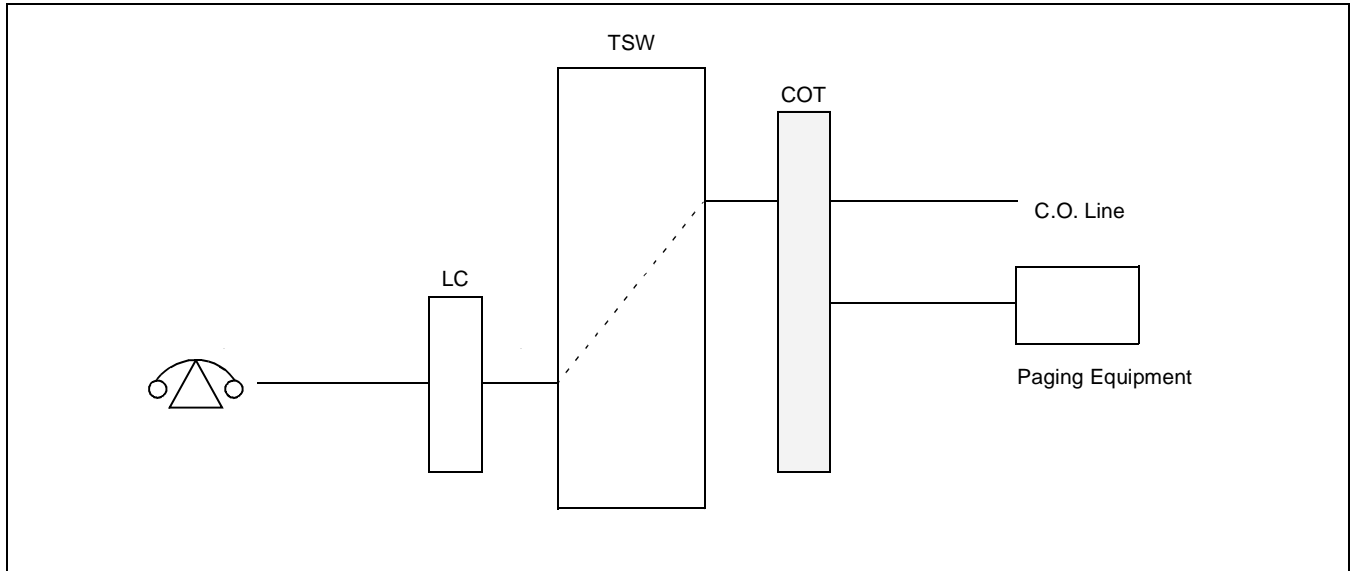
MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		UP: Circuit card make busy. DOWN: Circuit card make busy cancel.
		SW01 (MB0-7)		Make Busy switches associated with No. 0 through No. 7 Circuits. ON: Make busy on each circuit basis. OFF: Make busy cancel on each circuit basis.
		SW02		
		SW03		
		SW04		
		SW05		

**PA-16COTBE**  
**Central Office Trunk**

1. General Function

This circuit card is accommodated in the PIM and supports the following interface.

- (a) Interface with 16 C.O. lines
- (b) Interface with 14 C.O. lines and 1 Paging Equipment line.



**Figure 3-42 Location of PA-16COTBE (16COT) Card within the System**

2. Mounting Location/Condition

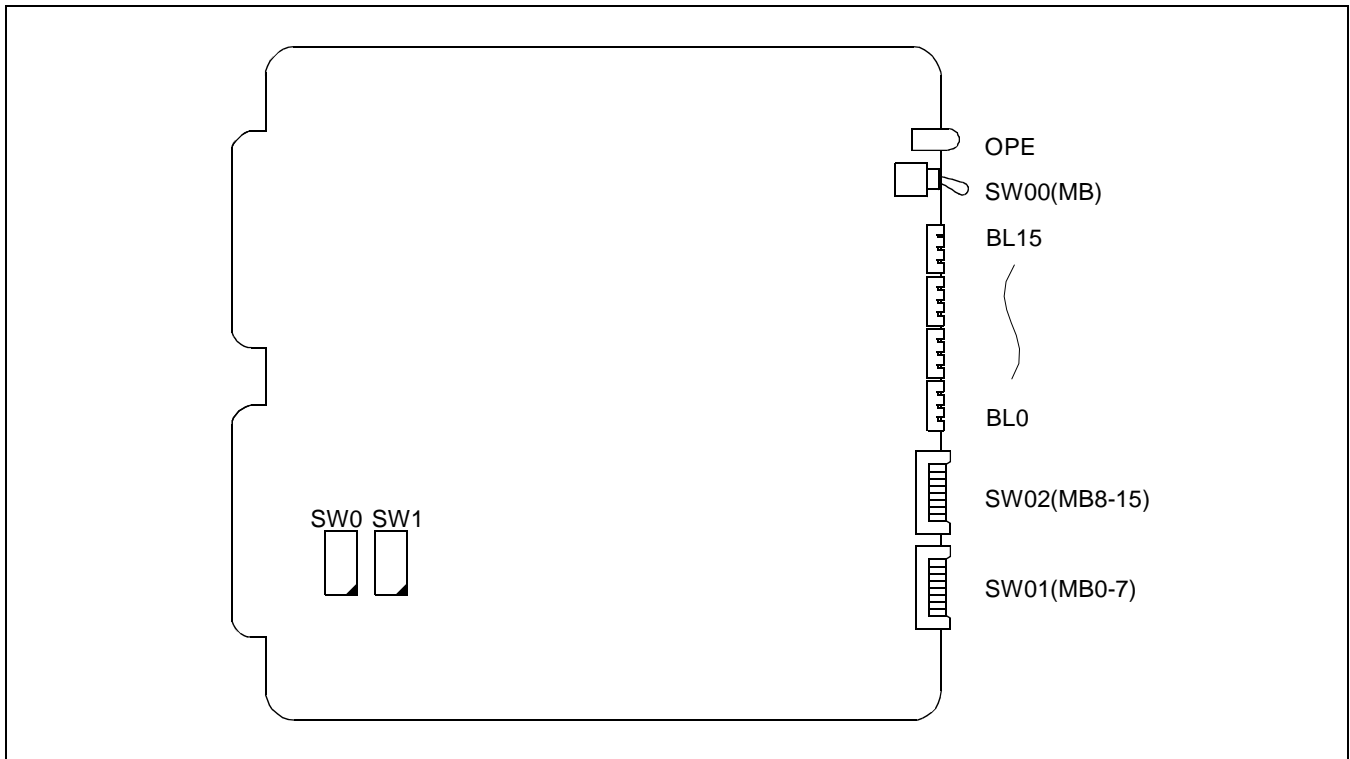
The mounting locations of this circuit card are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23

**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in [Figure 3-43](#).



**Figure 3-43 Face Layout of PA-16 COTBE (16COT)**

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
BL0 BL15	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes to the dial pulses being sent out for an outgoing call, or the corresponding circuit is in make busy state.
	OFF	BL- lamp remains off when the corresponding circuit is idle.

5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW00 (MB)		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW01 (MB0 ~ 7)	0	ON		No. 0 Circuit make busy
		OFF	×	No. 0 Circuit make busy cancel
	1	ON		No. 1 Circuit make busy
		OFF	×	No. 1 Circuit make busy cancel
	2	ON		No. 2 Circuit make busy
		OFF	×	No. 2 Circuit make busy cancel
	3	ON		No. 3 Circuit make busy
		OFF	×	No. 3 Circuit make busy cancel
	4	ON		No. 4 Circuit make busy
		OFF	×	No. 4 Circuit make busy cancel
	5	ON		No. 5 Circuit make busy
		OFF	×	No. 5 Circuit make busy cancel
	6	ON		No. 6 Circuit make busy
		OFF	×	No. 6 Circuit make busy cancel
	7	ON		No. 7 Circuit make busy
		OFF	×	No. 7 Circuit make busy cancel

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW02 (MB8 ~ 15)	0	ON		No. 8 Circuit make busy
		OFF	×	No. 8 Circuit make busy cancel
	1	ON		No. 9 Circuit make busy
		OFF	×	No. 9 Circuit make busy cancel
	2	ON		No. 10 Circuit make busy
		OFF	×	No. 10 Circuit make busy cancel
	3	ON		No. 11 Circuit make busy
		OFF	×	No. 11 Circuit make busy cancel
	4	ON		No. 12 Circuit make busy
		OFF	×	No. 12 Circuit make busy cancel
	5	ON		No. 13 Circuit make busy
		OFF	×	No. 13 Circuit make busy cancel
	6	ON		No. 14 Circuit make busy
		OFF	×	No. 14 Circuit make busy cancel
	7	ON		No. 15 Circuit make busy
		OFF	×	No. 15 Circuit make busy cancel



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																									
SW0 (SW10)	1 - 4			Terminal Impedance <table border="1"> <thead> <tr> <th colspan="4">SW0 (SW10)</th> <th>MEANING</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th></th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>600 Ω + 2.16 μF</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>900 Ω + 2.16 μF</td> </tr> <tr> <td colspan="4">Other Combinations</td> <td>Not used</td> </tr> </tbody> </table>	SW0 (SW10)				MEANING	1	2	3	4		OFF	OFF	OFF	OFF	600 Ω + 2.16 μF	OFF	ON	ON	OFF	900 Ω + 2.16 μF	Other Combinations				Not used
	SW0 (SW10)				MEANING																								
	1	2	3	4																									
OFF	OFF	OFF	OFF	600 Ω + 2.16 μF																									
OFF	ON	ON	OFF	900 Ω + 2.16 μF																									
Other Combinations				Not used																									
5, 6			Wink Signal Detection Time. <table border="1"> <thead> <tr> <th colspan="2">SW0 (SW10)</th> <th rowspan="2">Detection Time</th> </tr> <tr> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>56 ms</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>96 ms</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>136 ms</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>176 ms</td> </tr> </tbody> </table>	SW0 (SW10)		Detection Time	5	6	OFF	OFF	56 ms	ON	OFF	96 ms	OFF	ON	136 ms	ON	ON	176 ms									
SW0 (SW10)		Detection Time																											
5	6																												
OFF	OFF	56 ms																											
ON	OFF	96 ms																											
OFF	ON	136 ms																											
ON	ON	176 ms																											
7, 8			Answer Signal Detection Time. <table border="1"> <thead> <tr> <th colspan="2">SW0 (SW10)</th> <th rowspan="2">Detection Time</th> </tr> <tr> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>56 ms</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>96 ms</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>136 ms</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>176 ms</td> </tr> </tbody> </table>	SW0 (SW10)		Detection Time	7	8	OFF	OFF	56 ms	ON	OFF	96 ms	OFF	ON	136 ms	ON	ON	176 ms									
SW0 (SW10)		Detection Time																											
7	8																												
OFF	OFF	56 ms																											
ON	OFF	96 ms																											
OFF	ON	136 ms																											
ON	ON	176 ms																											

**Note:** Switch No.5-8 is only available when SP-3331 is used for E911 service. If SP-3003 is used, these switches are fixed to off.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW1 (SW11)	1	ON	×	Fixed
		OFF		
	2	ON		
		OFF	×	Fixed
	3	ON		(Call abandon detecting condition - Disconnection if ringing signal does not arrive longer than three seconds.)
		OFF	×	Fixed (Call abandon detecting condition - Disconnection if ringing signal does not arrive longer than six seconds.)
	4	ON		Availability of Paging Function - No. 0 Circuit is used as a Paging trunk (No. 1 Circuit cannot be used as a C.O. trunk)
		OFF		Availability of Paging Function - No. 0 Circuit is used as a C.O. trunk (No. 1 Circuit can be used as a C.O. trunk)
	5	ON		
		OFF	×	Fixed
	6	ON	×	Fixed
		OFF		
	7	ON		
		OFF	×	Fixed
	8	ON		
		OFF	×	Fixed

**PAD Setting**

<b>ARTD</b>	<b>APAD</b>	<b>TRANSMIT (D-A) PAD</b>	<b>RECEIVE (A-D) PAD</b>	<b>REMARKS</b>
7	15	0dB	0dB	
2	2	3dB	3dB	
3	3	6dB	6dB	
4	4	0dB	-5dB (Gain)	

6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown in Figure 3-44.

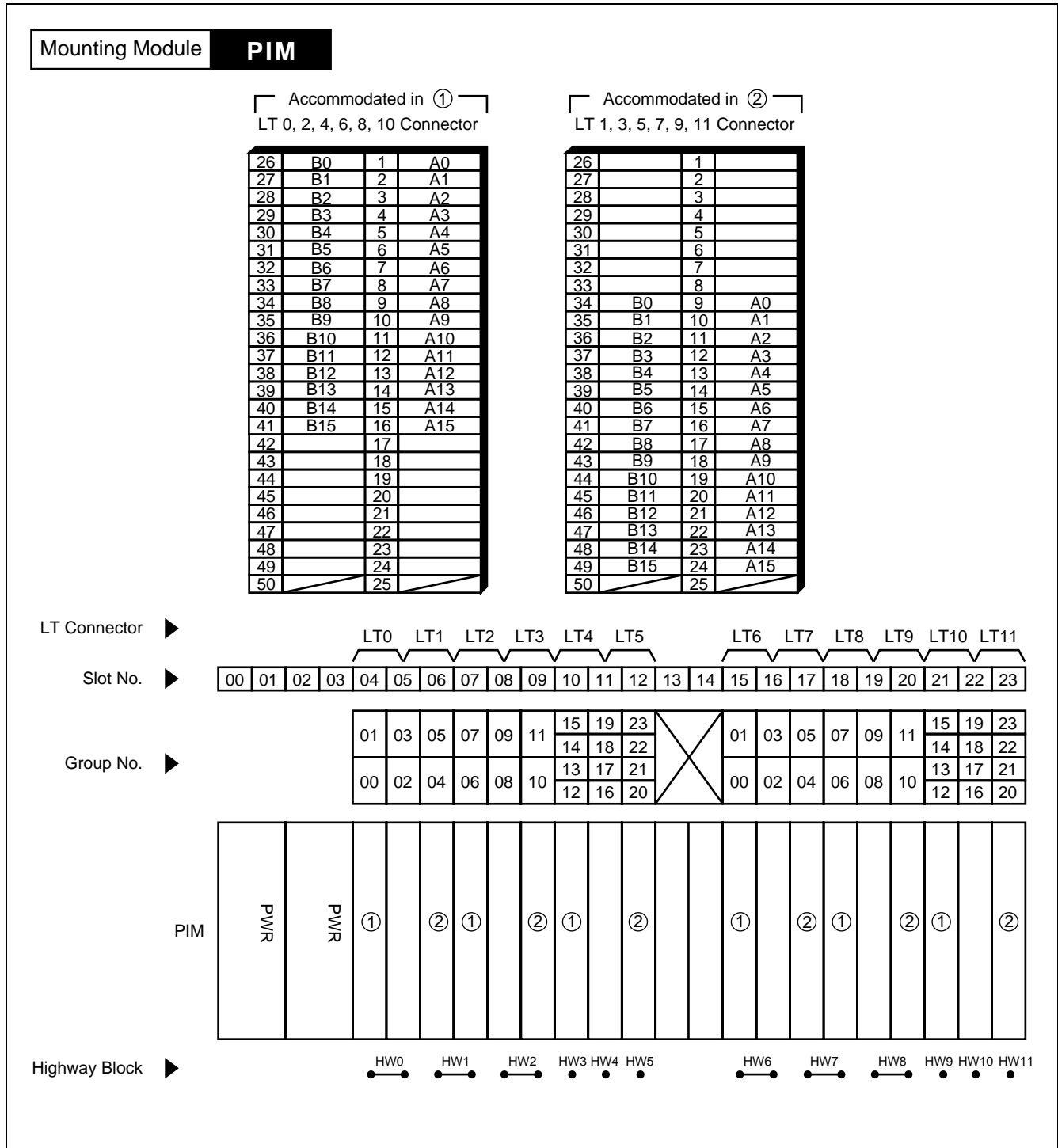


Figure 3-44 LT Connector Leads Accommodation (1/2)

Mounting Module **PIM**

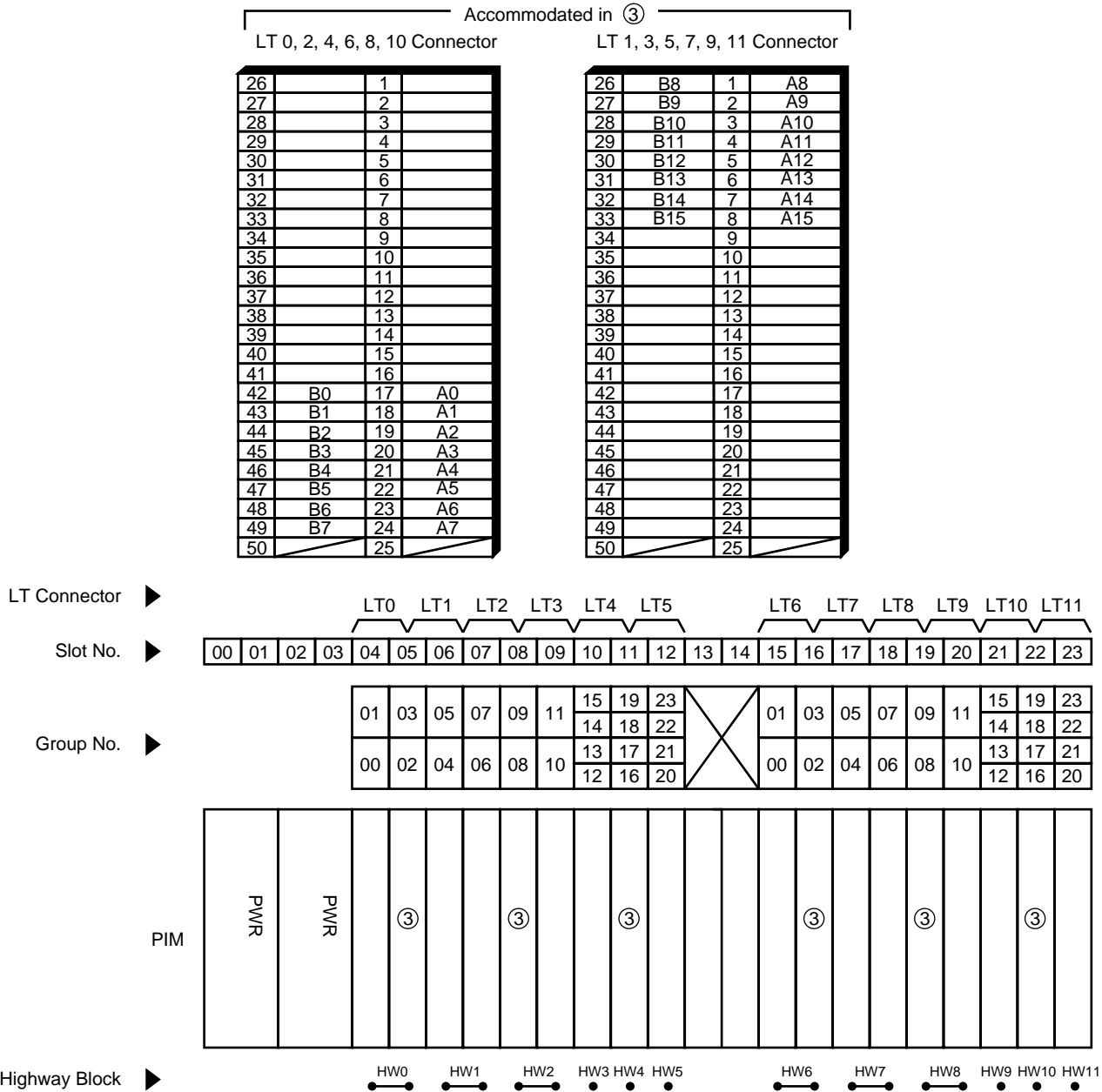


Figure 3-44 LT Connector Leads Accommodation (2/2)

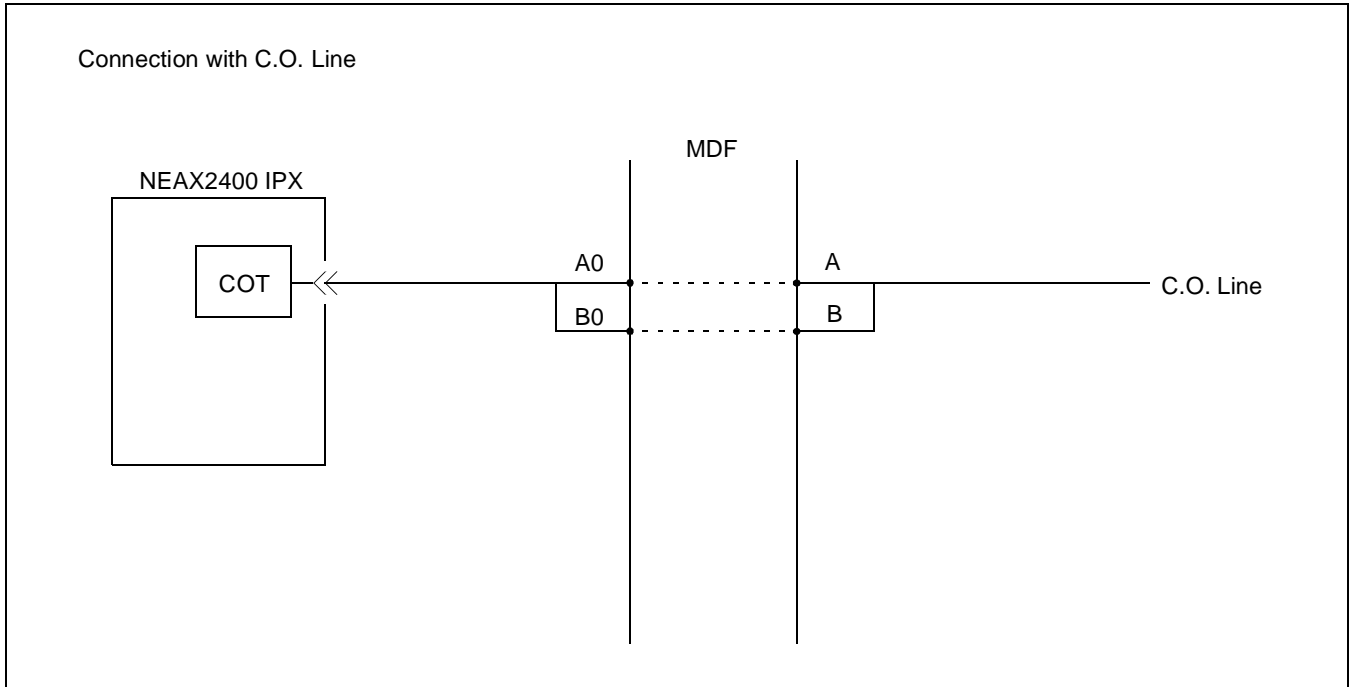


Figure 3-45 Connecting Route Diagram (1/2)

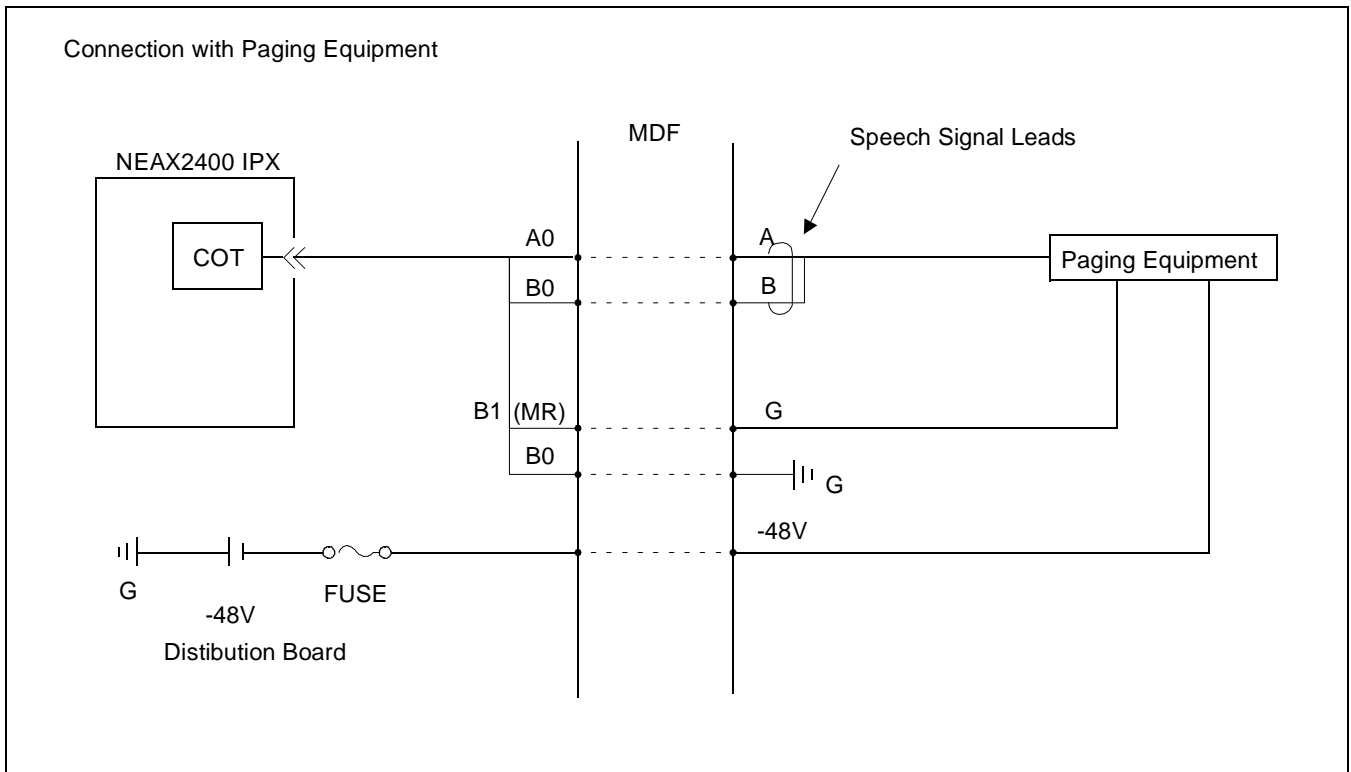
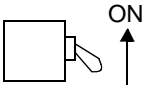
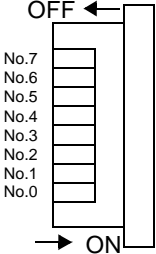
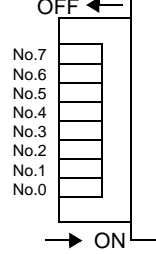

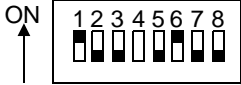


Figure 3-45 Connecting Route Diagram (2/2)

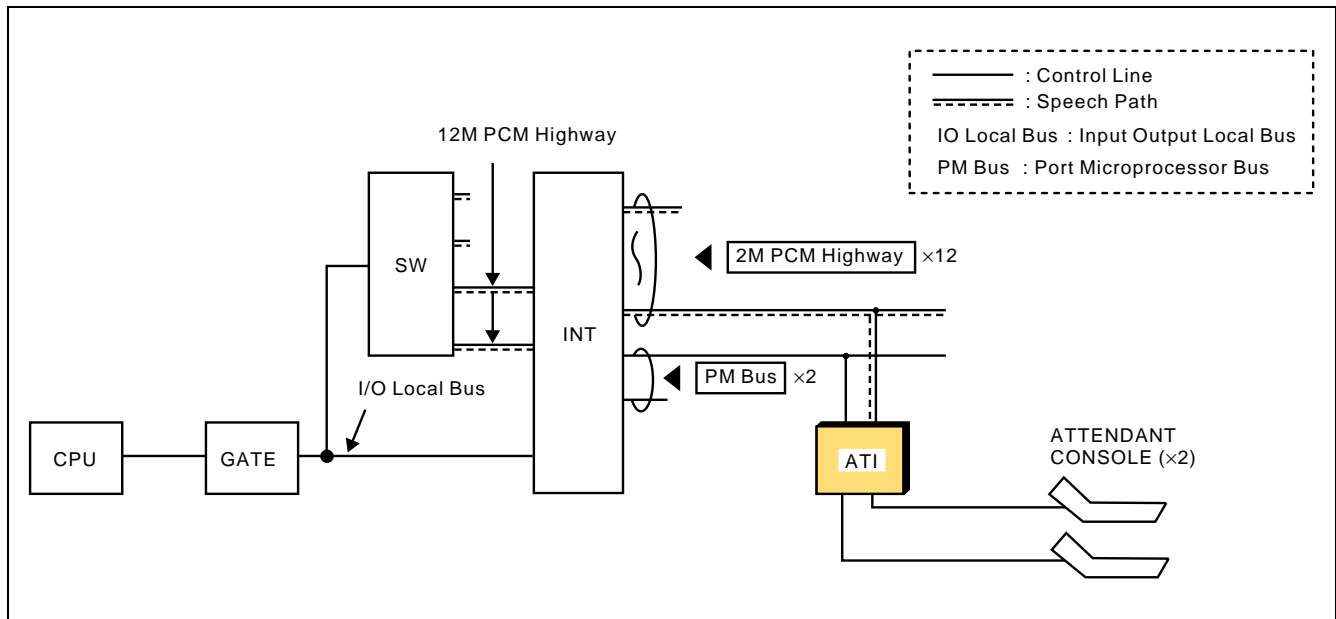
7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		UP : Circuit card make busy DOWN: Circuit card make busy cancel
		SW01 (MB0-7)		Make Busy Switches associated with No. 0 through No. 7 Circuits. ON : Make busy on each circuit basis. OFF: Make busy cancel on each circuit basis.
		SW02 (MB8-15)		Make Busy Switches associated with No. 8 through No. 15 Circuits. ON : Make busy on each circuit basis. OFF: Make busy cancel on each circuit basis.
		SW0		
		SW1		

**PA-CS02-C**  
**Attendant Interface**

1. General Function

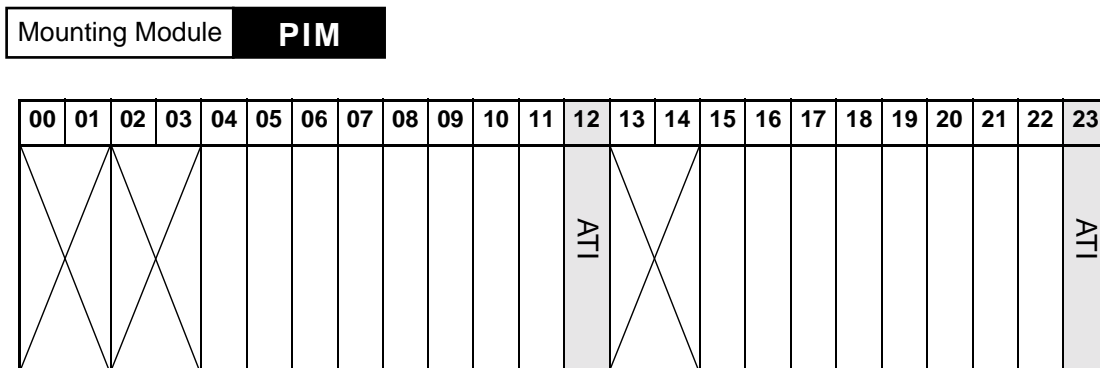
This circuit card is an attendant console (ATTCON) interface card which supports the interface function for accommodating ATTCON (maximum two sets of ATTCON per card), PM function (controlling of ATTCON and exchanging of control commands with the CPU), PB/DP sending function (sending of PB signals or DP signals under control of the PM), receiving data (ATTCON Call Termination Information) link interface function, etc. The PA-CS02-C card is exclusively for a system which adopts “μ-law” as its encoding law.



**Figure 3-46 Location of PA-CS02-C (2ATI) Card within the System**

2. Mounting Location/Condition

The PA-CS02-C (ATI) card can be mounted in the following shaded slots as shown below.





3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-47](#).

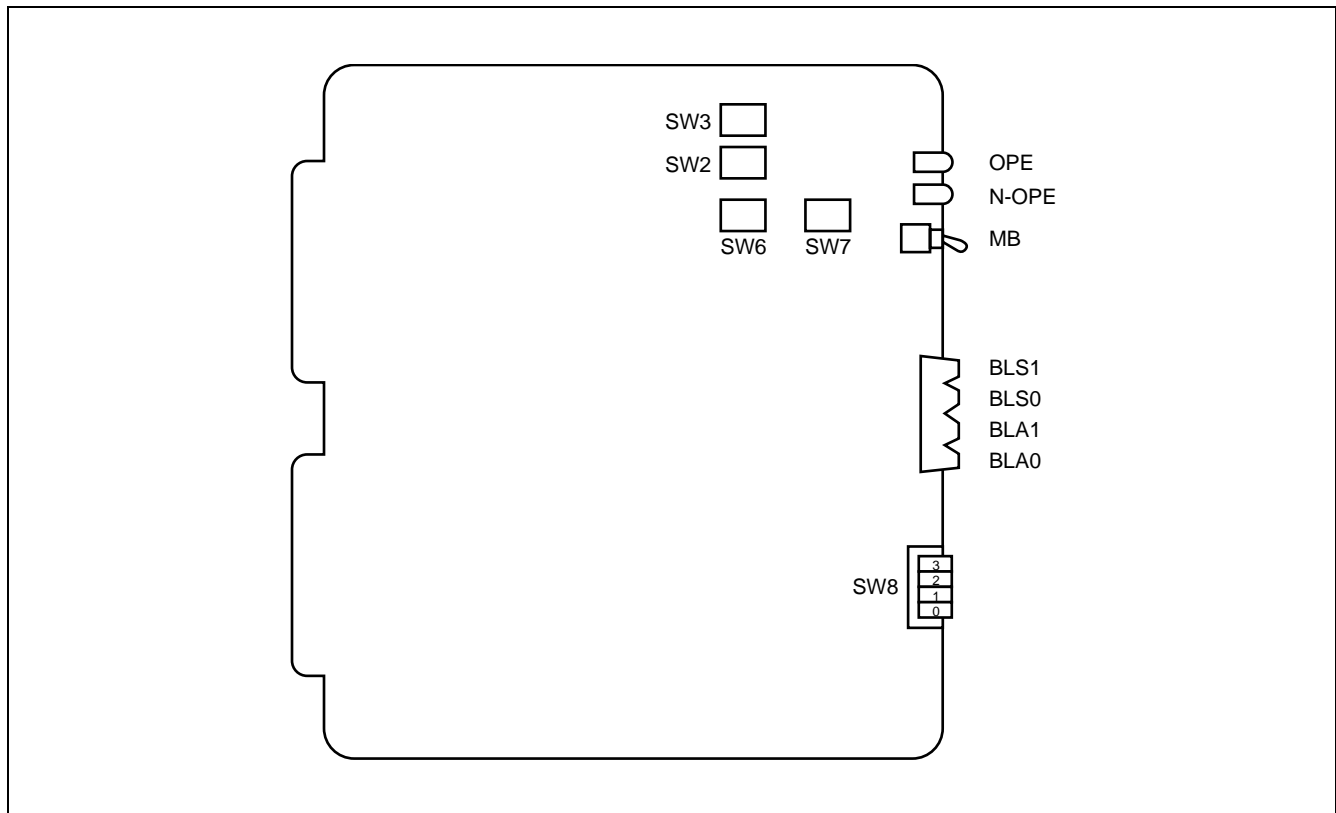


Figure 3-47 Face Layout of PA-CS02-C (2ATI)

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

**Table 3-2 ATI Card Lamp Indication**

LAMP	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
BLS0 BLS1	Red	Lights when the corresponding sender circuit is in use.
	Flash	Flashes when the corresponding sender circuit is in make-busy state or when select signals are being transmitted.
BLA0 BLA1	Red	Lights when the corresponding circuit is busy.
	Flash	Flashes when the corresponding circuit is in make-busy state.

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING		
MB	—	UP		Circuit card make busy		
		DOWN	×	Circuit card make busy cancel		
SW2 (TAS1) SW3 (TAS0)	1	<b>SETTING OF TAS CURRENT LIMIT RESISTANCE</b>				
		<b>SW2-1/ SW3-1</b>	<b>SW2-2/ SW3-2</b>	<b>SW2-3/ SW3-3</b>	<b>SW2-4/ SW3-4</b>	<b>RESISTANCE</b>
	2	ON	ON	ON	OFF	0 Ω
		OFF	ON	ON	OFF	200 Ω
		ON	OFF	ON	OFF	390 Ω
		OFF	OFF	ON	OFF	590 Ω
	3	ON	ON	OFF	OFF	820 Ω
		OFF	ON	OFF	OFF	1020 Ω
		ON	OFF	OFF	OFF	1210 Ω
		OFF	OFF	OFF	OFF	1410 Ω
	4	ON	OFF	OFF	OFF	
		OFF	OFF	OFF	OFF	

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																					
SW6 (TAS1) SW7 (TAS0)	1	<table border="1"> <thead> <tr> <th colspan="6">SETTING OF TAS SIGNALLING SYSTEM</th> </tr> <tr> <th>SW6-1/ SW7-1</th> <th>SW6-2/ SW7-2</th> <th>SW6-3/ SW7-3</th> <th>SW6-4/ SW7-4</th> <th>TAS (A WIRE)</th> <th>TAS (B WIRE)</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>-48V</td> <td>G</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>CR</td> <td>G</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>ON</td> <td>G</td> <td>G</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>LOOP</td> <td>LOOP</td> </tr> </tbody> </table>				SETTING OF TAS SIGNALLING SYSTEM						SW6-1/ SW7-1	SW6-2/ SW7-2	SW6-3/ SW7-3	SW6-4/ SW7-4	TAS (A WIRE)	TAS (B WIRE)	ON	ON	ON	ON	-48V	G	OFF	ON	OFF	OFF	CR	G	OFF	ON	OFF	ON	G	G	OFF	OFF	OFF	ON	LOOP	LOOP
	SETTING OF TAS SIGNALLING SYSTEM																																								
	SW6-1/ SW7-1					SW6-2/ SW7-2	SW6-3/ SW7-3	SW6-4/ SW7-4	TAS (A WIRE)	TAS (B WIRE)																															
	ON					ON	ON	ON	-48V	G																															
	OFF					ON	OFF	OFF	CR	G																															
	OFF					ON	OFF	ON	G	G																															
OFF	OFF	OFF	ON	LOOP	LOOP																																				
2																																									
3																																									
4																																									
SW8	0	ON		No. 0 circuit make-busy request																																					
		OFF	×	Normal setting																																					
	1	ON		No. 1 circuit make-busy request																																					
		OFF	×	Normal setting																																					
	2	OFF	×	Not used																																					
	3	OFF	×	Not used																																					

6. External Interface

Accommodation of the LT connector leads of this circuit card is as shown in [Figure 3-48](#).

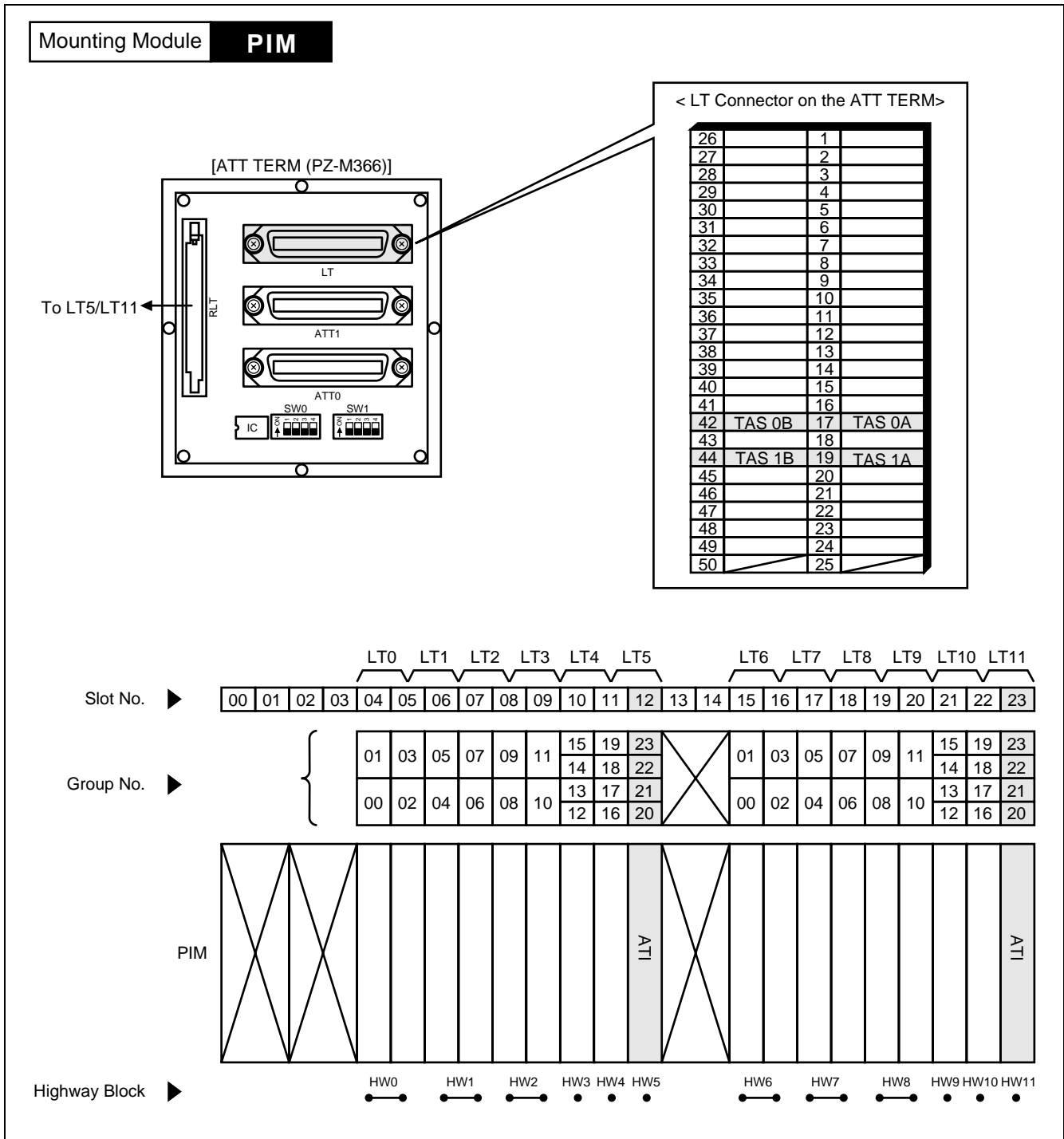
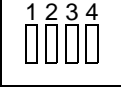

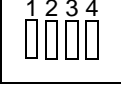
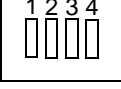
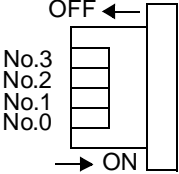


Figure 3-48 LT Connector Lead Accommodation

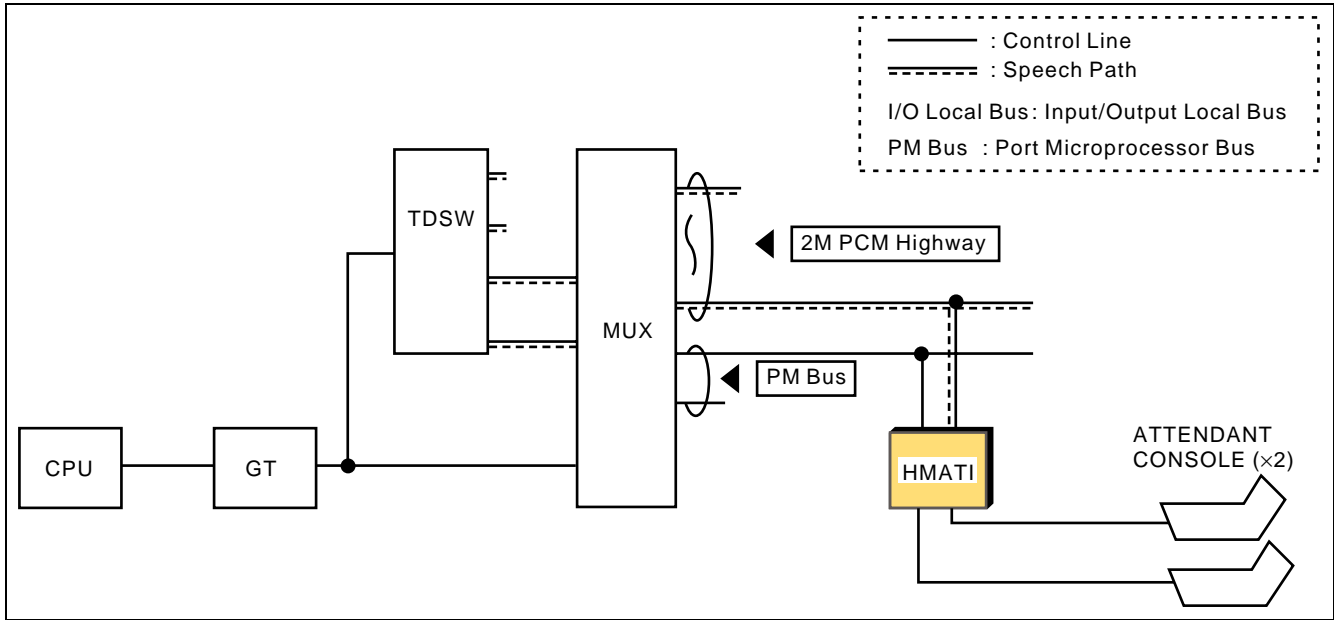
7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM	12, 23	SW2		
		SW3		
		SW6		
		SW7		
		SW8		

**PA-CS08**  
**Hotel Attendant Interface**

1. General Function

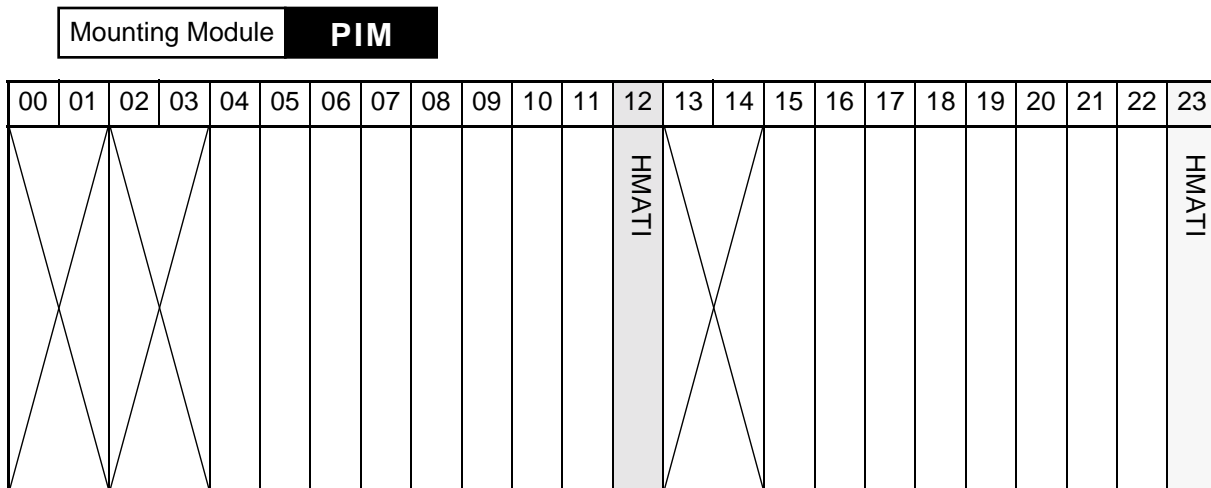
This circuit card is the Hotel Attendant Console (Hotel ATTCON) interface card that supports the interface function for the Hotel ATTCON (maximum two sets of Hotel ATTCON per card), PM function (controlling of Hotel ATTCON and exchanging of control commands with the CPU), PB/DP sending function (sending of PB signals or DP signals under control of the PM), receiving data (Hotel ATTCON Call Termination Information) link interface function, etc.



**Figure 3-49 Location of PA-CS08 (HMATI) Card in the System**

2. Mounting Location/Condition

The PA-CS08 (HMATI) card can be mounted in the shaded slots as shown below.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in Figure 3-50.

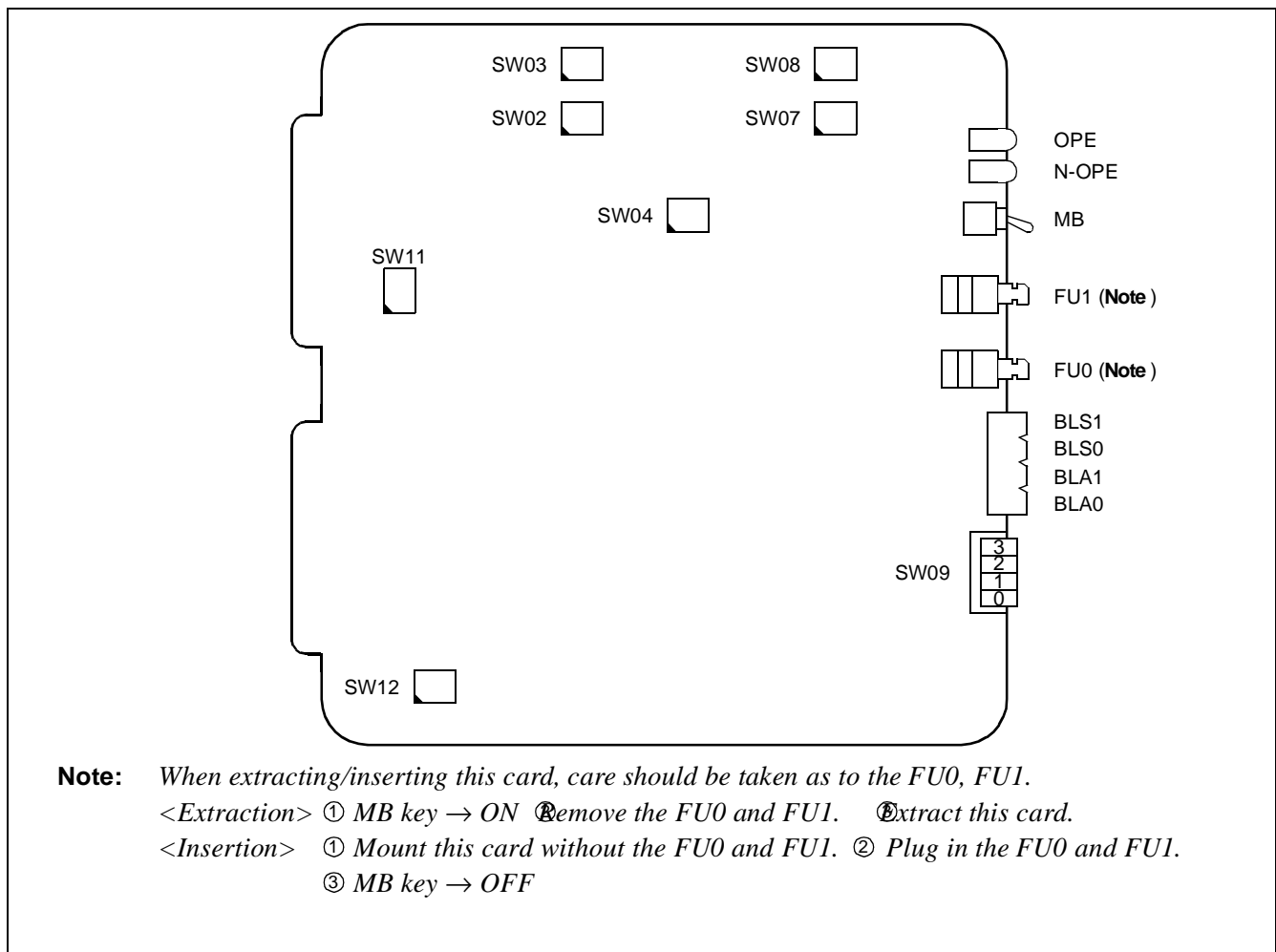


Figure 3-50 Face Layout of PA-CS08 (HMATI) Card

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in Make-busy state.
BLS0 BLS1	Red	Lights when the corresponding circuit is busy.
	Blink	Blinks when the corresponding circuit is busy. <b>Note:</b> <i>The lamp also blinks when dial signals are being sent out.</i>
BLA0 BLA1	Red	Lights when the corresponding circuit is busy.
	Blink	Blinks when the corresponding circuit is in Make-busy state.



5. Switch Settings

Standard settings for various switches on this circuit card are shown in the table below.

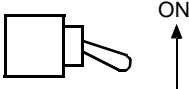
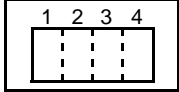
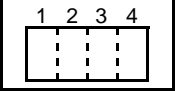
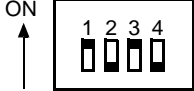
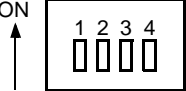
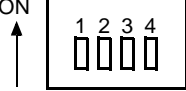
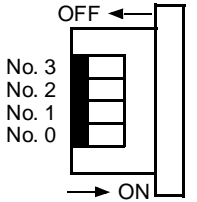
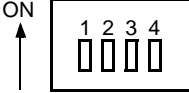
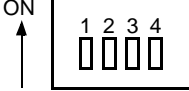
SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																		
MB		UP		Circuit card Make-busy.																																																		
		DOWN		Circuit card Make-busy cancel.																																																		
SW02 (TAS0) SW03 (TAS1)	1			<table border="1"> <thead> <tr> <th colspan="3">SETTING OF TAS SIGNALLING SYSTEM</th> </tr> <tr> <th>SWITCH</th> <th>TAS (A WIRE)</th> <th>TAS (B WIRE)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-48V</td> <td>G</td> </tr> <tr> <td>2</td> <td>CR</td> <td>G</td> </tr> <tr> <td>3</td> <td>G</td> <td>G</td> </tr> <tr> <td>4</td> <td>LOOP</td> <td>LOOP</td> </tr> </tbody> </table>	SETTING OF TAS SIGNALLING SYSTEM			SWITCH	TAS (A WIRE)	TAS (B WIRE)	1	-48V	G	2	CR	G	3	G	G	4	LOOP	LOOP																																
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2	CR	G																																																				
3	G	G																																																				
4	LOOP	LOOP																																																				
2																																																						
3																																																						
4																																																						
SW04	1	ON	×	Fixed																																																		
	2	OFF	×	Fixed																																																		
	3	ON	×	Fixed																																																		
	4	OFF	×	Fixed																																																		
SW07 (TAS0) SW08 (TAS1)	1	<table border="1"> <thead> <tr> <th colspan="5">SETTING OF TAS CURRENT LIMIT RESISTANCE</th> </tr> <tr> <th>SW7-1/ SW8-1</th> <th>SW7-2/ SW8-2</th> <th>SW7-3/ SW8-3</th> <th>SW7-4/ SW8-4</th> <th>RESISTANCE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>0 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>200 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>390 Ω</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>590 Ω</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>820 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>1020 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>1210 Ω</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>1410 Ω</td> </tr> </tbody> </table>			SETTING OF TAS CURRENT LIMIT RESISTANCE					SW7-1/ SW8-1	SW7-2/ SW8-2	SW7-3/ SW8-3	SW7-4/ SW8-4	RESISTANCE	ON	ON	ON	OFF	0 Ω	OFF	ON	ON	OFF	200 Ω	ON	OFF	ON	OFF	390 Ω	OFF	OFF	ON	OFF	590 Ω	ON	ON	OFF	OFF	820 Ω	OFF	ON	OFF	OFF	1020 Ω	ON	OFF	OFF	OFF	1210 Ω	OFF	OFF	OFF	OFF	1410 Ω
	SETTING OF TAS CURRENT LIMIT RESISTANCE																																																					
	SW7-1/ SW8-1				SW7-2/ SW8-2	SW7-3/ SW8-3	SW7-4/ SW8-4	RESISTANCE																																														
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OFF	ON	OFF	OFF	1020 Ω																																																		
ON	OFF	OFF	OFF	1210 Ω																																																		
OFF	OFF	OFF	OFF	1410 Ω																																																		
2																																																						
3																																																						
4																																																						

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW11	1	ON		
		OFF	×	Fixed
	2	ON		
		OFF	×	Fixed
	3	ON		
		OFF	×	Fixed
	4	ON		
		OFF	×	Fixed
SW12	1	ON	×	Fixed (all ON)
		OFF		
	2	ON	×	
		OFF		
	3	ON	×	
		OFF		
	4	ON	×	
		OFF		
SW9	0	ON		No. 0 System is in Make-busy request.
		OFF	×	Normal setting
	1	ON		No. 1 System is in Make-busy request.
		OFF	×	Normal setting
	2	OFF	×	Not used
	3	OFF	×	Not used

**Note:** When the PB signal is sent from the Hotel ATT, set the SW 12-1~4 ON, and assign AHSY command, INDEX 114, b7 = I.



7. Switch Setting Sheet

SWITCH	SWITCH SHAPE	REMARKS
MB		UP: Circuit card Make-busy. DOWN: Circuit card Make-busy cancel.
SW02		
SW03		
SW04		
SW07		
SW08		
SW09	 <p>(Piano Switch)</p>	SW9-2, SW9-3: Not used
SW11		
SW12		

## PA-CS08-B Hotel Attendant Interface

### 1. General Function

This circuit card is Hotel attendant console (Hotel ATTCON) interface card which supports the interface function for accommodating Hotel ATTCON (maximum two sets of Hotel ATTCON per card), PM function (controlling of Hotel ATTCON and exchanging of control commands with the CPU), PB/DP sending function (sending of PB signals or DP signals under control of the PM), receiving data (Hotel ATTCON Call Termination Information) link interface function, etc.

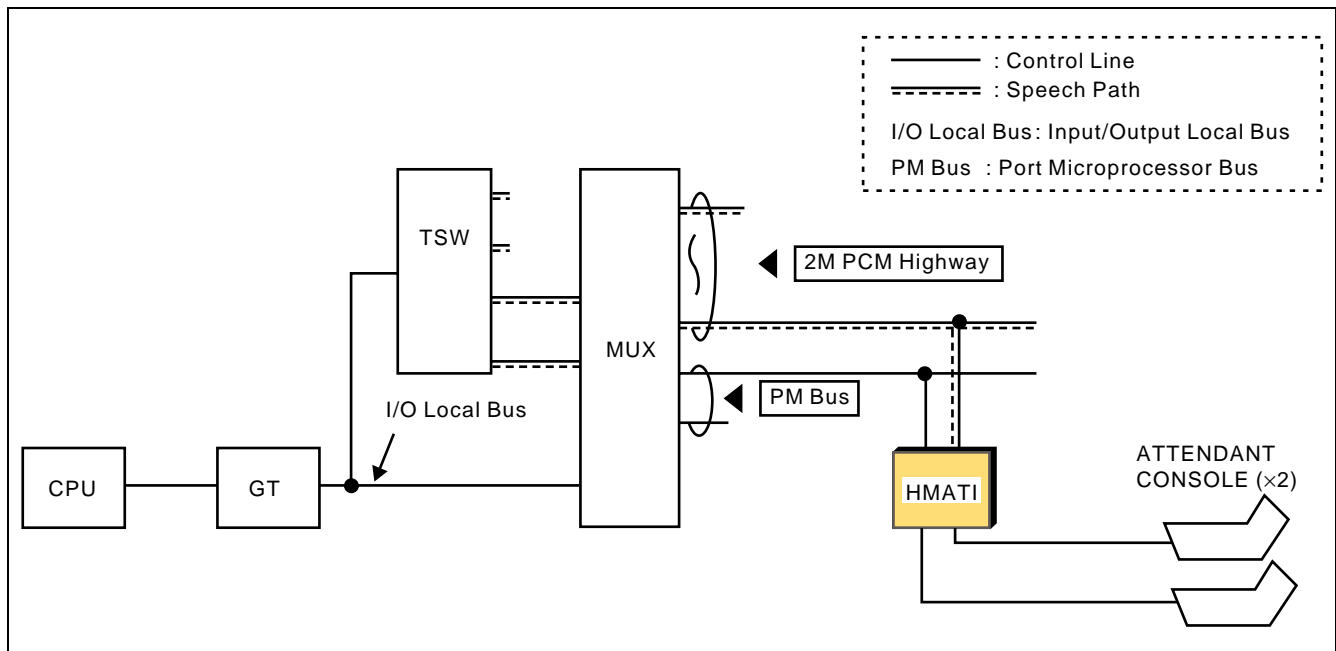


Figure 3-52 Location of PA-CS08-B (HMATI) Card within the System

**PA-CS08-B**  
 Hotel Attendant Interface

2. Mounting Location/Condition

The PA-CS08-B (HMATI) card can be mounted in the following shaded slots as shown below.

Mounting Module				<b>PIM</b>																				
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
X												HMATI	X											HMATI

### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown below.

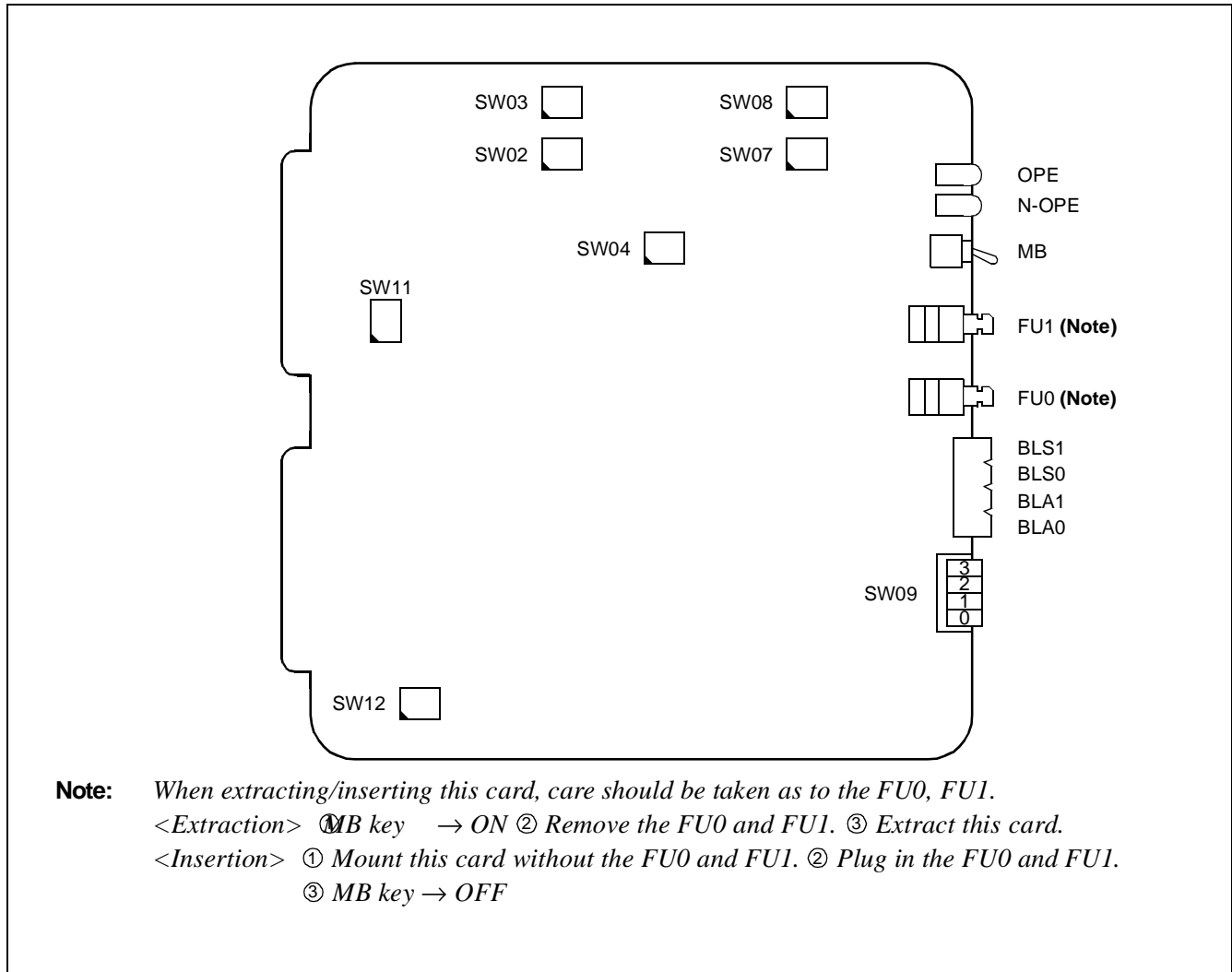


Figure 3-53 Face Layout of PA-CS08-B (HMATI)

**PA-CS08-B**

Hotel Attendant Interface

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating
N-OPE	Red	Remains lit while this circuit card is in make-busy state
BLS0 BLS1	Red	Lights when the corresponding circuit is busy
	Blink	Blinks when the corresponding circuit is busy <b>Note:</b> <i>The lamp also blinks when dial signals are being sent out.</i>
BLA0 BLA1	Red	Lights when the corresponding circuit is busy
	Blink	Blinks when the corresponding circuit is in make-busy state



5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

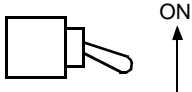
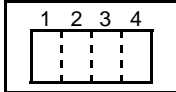
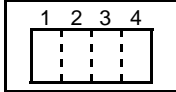

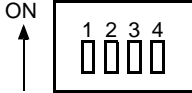
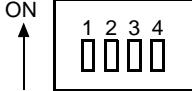
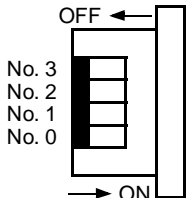
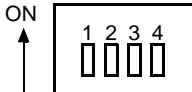
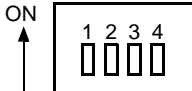
SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																			
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	SWITCH	TAS (A WIRE)	TAS (B WIRE)																																																				
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3	G	G																																																					
4	LOOP	LOOP																																																					
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	2	OFF	×	Fixed																																																			
	3	ON	×	Fixed																																																			
	4	OFF	×	Fixed																																																			
SW07 (TAS0) SW08 (TAS1)	1	<table border="1"> <thead> <tr> <th colspan="5">SETTING OF TAS CURRENT LIMIT RESISTANCE</th> </tr> <tr> <th>SW7-1/ SW8-1</th> <th>SW7-2/ SW8-2</th> <th>SW7-3/ SW8-3</th> <th>SW7-4/ SW8-4</th> <th>RESISTANCE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>0 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>200 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>390 Ω</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>590 Ω</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>820 Ω</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>1020 Ω</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>1210 Ω</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>1410 Ω</td> </tr> </tbody> </table>				SETTING OF TAS CURRENT LIMIT RESISTANCE					SW7-1/ SW8-1	SW7-2/ SW8-2	SW7-3/ SW8-3	SW7-4/ SW8-4	RESISTANCE	ON	ON	ON	OFF	0 Ω	OFF	ON	ON	OFF	200 Ω	ON	OFF	ON	OFF	390 Ω	OFF	OFF	ON	OFF	590 Ω	ON	ON	OFF	OFF	820 Ω	OFF	ON	OFF	OFF	1020 Ω	ON	OFF	OFF	OFF	1210 Ω	OFF	OFF	OFF	OFF	1410 Ω
	SETTING OF TAS CURRENT LIMIT RESISTANCE																																																						
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OFF	ON	ON	OFF	200 Ω																																																			
ON	OFF	ON	OFF	390 Ω																																																			
OFF	OFF	ON	OFF	590 Ω																																																			
ON	ON	OFF	OFF	820 Ω																																																			
OFF	ON	OFF	OFF	1020 Ω																																																			
ON	OFF	OFF	OFF	1210 Ω																																																			
OFF	OFF	OFF	OFF	1410 Ω																																																			
2																																																							
3																																																							
4																																																							

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW11	1	ON		
		OFF	×	Fixed
	2	ON		
		OFF	×	Fixed
	3	ON		
		OFF	×	Fixed
	4	ON		
		OFF	×	Fixed
SW12	1	ON	×	Fixed (all ON)
		OFF		
	2	ON	×	
		OFF		
	3	ON	×	
		OFF		
	4	ON	×	
		OFF		
SW9	0	ON		No. 0 System is in make-busy request.
		OFF	×	Normal setting
	1	ON		No. 1 System is in make-busy request.
		OFF	×	Normal setting
	2	OFF	×	Not used
	3	OFF	×	Not used

**Note:** When PB signal is sent from the Hotel ATT, set the SW 12-1~ 4 ON, and assign AHSY command, INDEX 114, b7 = 1.



7. Switch Setting Sheet

SWITCH	SWITCH SHAPE	REMARKS
MB		UP: Circuit card make busy DOWN: Circuit card make busy cancel
SW02		
SW03		
SW04		
SW07		
SW08		
SW09	 <p>(Piano Switch)</p>	SW9-2, SW9-3: Not used
SW11		
SW12		

## PA-CS33 Attendant Interface

### 1. General Function

This circuit card is a Desk Console interface which supports the interface function for accommodating two sets of Desk Consoles, PB/DP sender function and Trunk Answer from any Station (TAS) function.

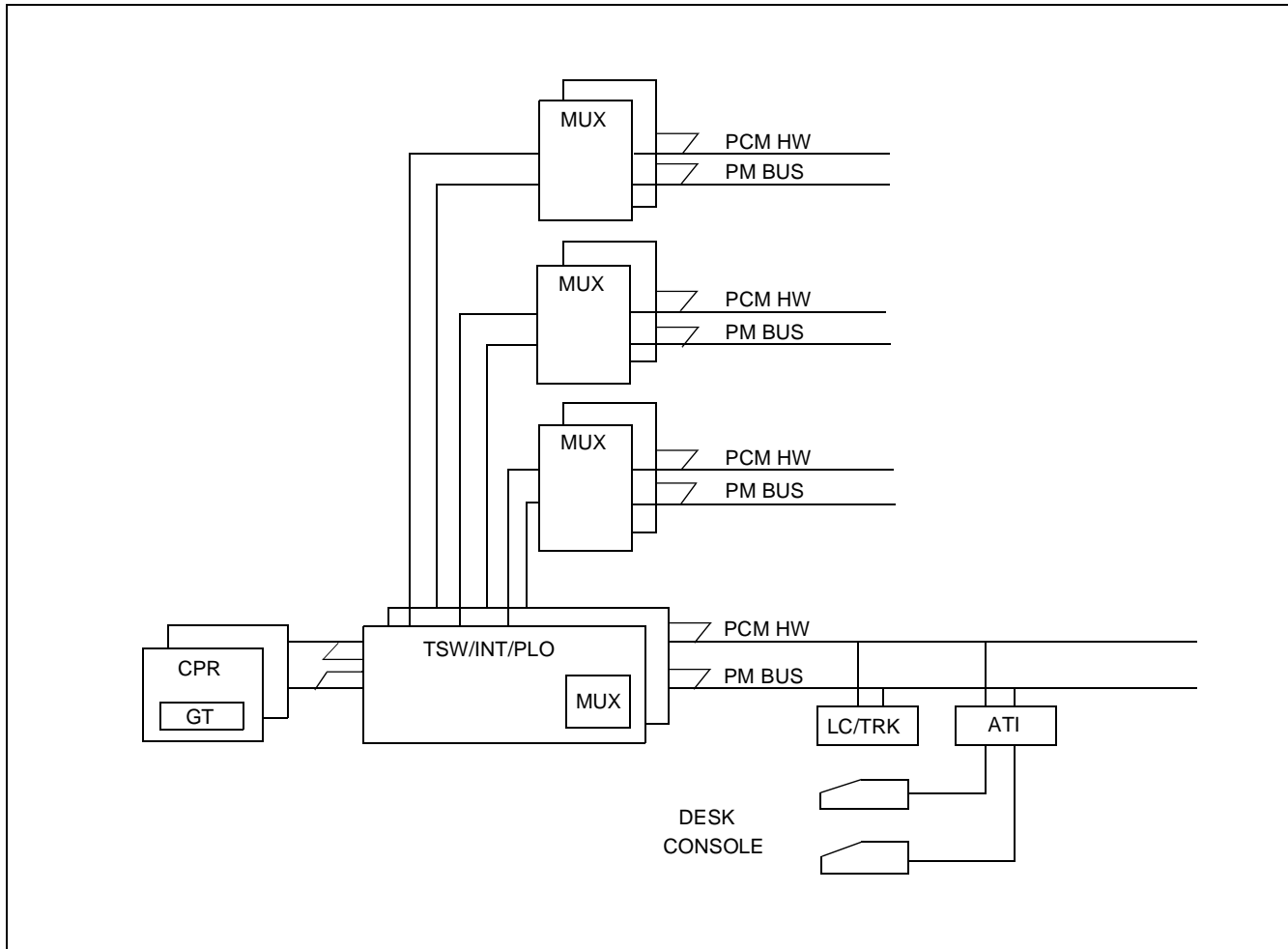
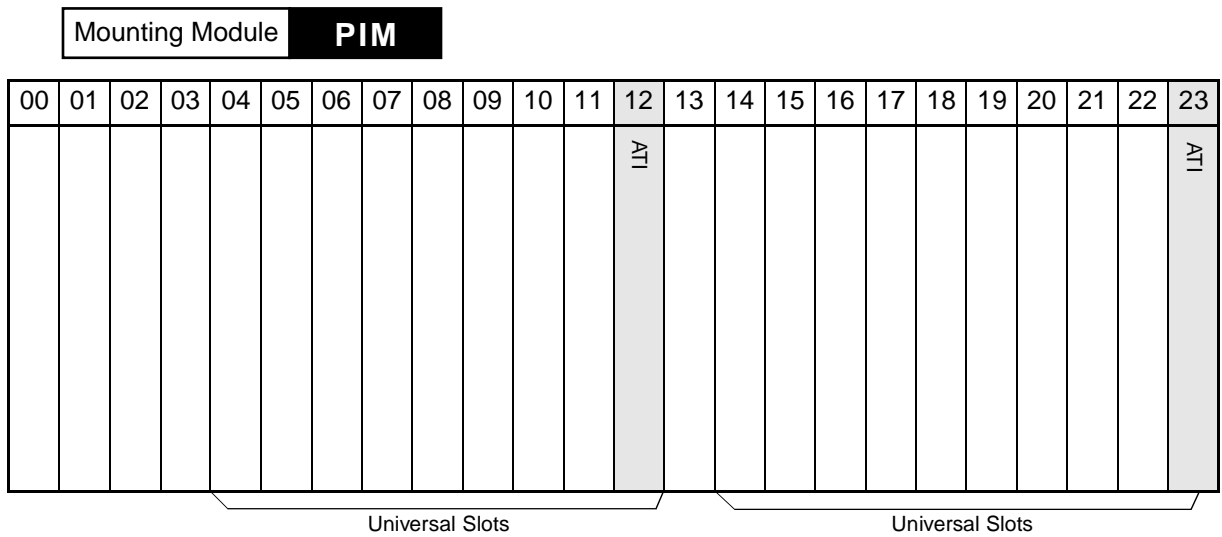


Figure 3-55 Location of PA-CS33 (ATI) Card in the System

**PA-CS33**  
Attendant Interface

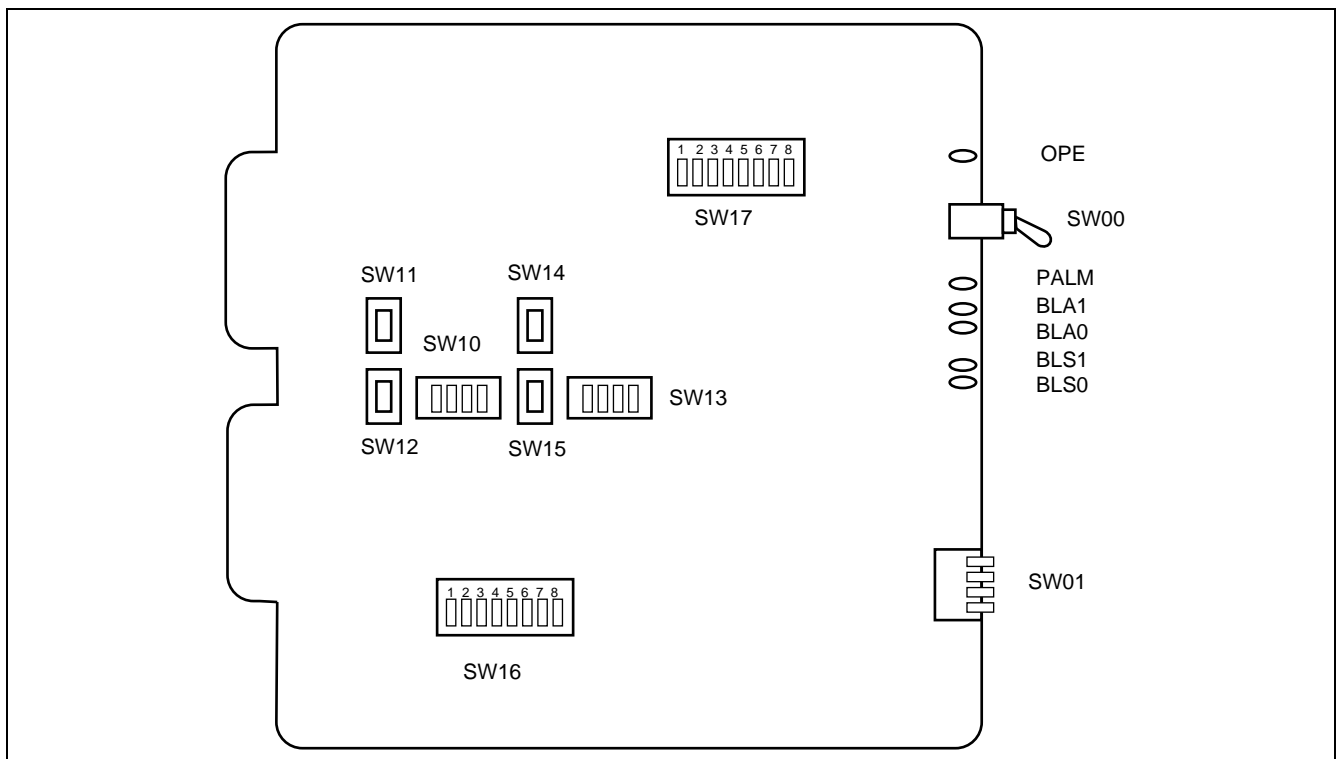
2. Mounting Location/Condition

The PA-CS33 (ATI) can be mounted in either Slot 12 or 23 of the PIM.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches and connectors is shown in [Figure 3-56](#).



**Figure 3-56 Face Layout of PA-CS33 (ATI)**

#### 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while circuit card is operating normally.
	OFF	Off when circuit card is not operating.
PALM	Red	Lights when the power feeding circuit failure has occurred.
	OFF	Off when the power feeding circuit operates normally.
BLA0 BLA1	Red	Lights when the corresponding circuit is busy (At the same time, turns off PA lamp on the Desk Console).
	Flash (60 IPM)	Flashes when the corresponding circuit is in Make-busy state.
	OFF	Off when the corresponding circuit is in idle (At the same time, turns on PA lamp on the Desk console).
BLS0 BLS1	Red	Lights when the corresponding sender circuit is in use.
	Flash (60 IPM)	Flashes when the corresponding sender circuit is in Make-busy state or when select signals are being transmitted.
	OFF	Off when the corresponding sender circuit is in idle.

#### 5. Switch Setting

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
SW00	UP		Circuit card is Make-busy.
	DOWN	×	Circuit card is cancel for Make-busy.

SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING
SW01	0	ON	×	Make-busy cancel for #0 Desk Console.
		OFF		Make-busy request for #0 Desk Console.
	1	ON	×	Make-busy cancel for #1 Desk Console.
		OFF		Make-busy request for #1 Desk Console.
	2	OFF	×	Not used.
	3	OFF	×	Not used.

SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING		
SW10 (TAS#0)  SW13 (TAS#1)	1	SW10 and SW13 designate the current limit resistance for TAS#0 and TAS#1 respectively.				
		<b>SW10-3/ SW13-3</b>	<b>SW10-2/ SW13-2</b>	<b>SW10-1/ SW13-1</b>	<b>STANDARD SETTING</b>	<b>RESISTANCE</b>
	2	ON	ON	ON		0 Ω
		ON	ON	OFF		220 Ω
		ON	OFF	ON		398 Ω
		ON	OFF	OFF		618 Ω
		OFF	ON	ON		800 Ω
		OFF	ON	OFF		1020 Ω
	3	OFF	OFF	ON		1198 Ω
		OFF	OFF	OFF	×	1418 Ω
4	This switch designates the TAS signaling system in conjunction with SW 11/12 and SW14/15.					
SW11/ SW12 (TAS#0)  SW14/ SW15 (TAS#1)	SW11/12 and SW14/15 designate the TAS#0 and TAS#1 signaling system (in conjunction with SW10-4 (TAS#0)/SW13-4 (TAS#1).					
	<b>SW12/ SW15</b>	<b>SW11/ SW14</b>	<b>SW10-4/ SW13-4</b>	<b>STANDARD SETTING</b>	<b>SIGNAL WHEN SEIZED</b>	
					<b>TAS 0A/ TAS 1A</b>	<b>TAS 0B/ TAS 1B</b>
	ON	ON	ON		CR	G
	OFF	ON	ON		-48V	G
OFF	OFF	OFF	×	LOOP	LOOP	
OFF	OFF	ON		G	G	

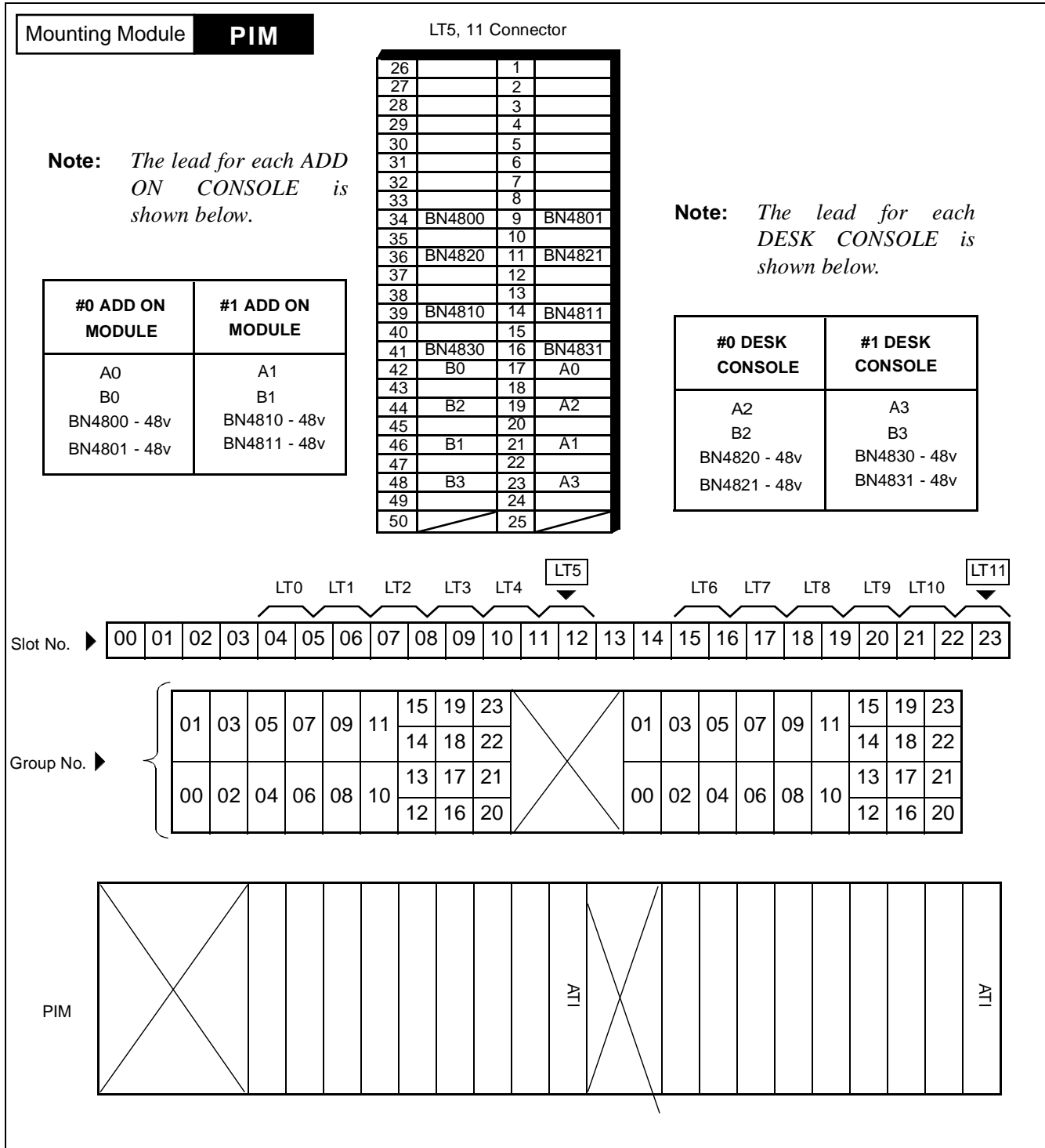


SWITCH NAME	SWITCH NO	SETTING	STANDARD SETTING	MEANING			
SW16	1	For Business system, set SW16-1 and SW16-7 to OFF. When the system has Hotel application, set SW16-1 and SW16-7 according to system data as shown below.					
		Desk Console Key pattern to be used		SW16-1	SW16-7	SYS 1 INDEX 160	
						Bit 1	Bit 0
		Hotel type		ON	ON	1	1
					OFF	0	1
	Business type		OFF	ON	—	1	
				OFF	—	0	
	2	ON		Desk Console Expanded LCD Display available.			
		OFF		Desk Console Expanded LCD Display not available.			
	3	SW16-3/4/5 designates the nation code as shown below.					
4	SW16-5		SW16-4	SW16-3	COUNTRY		
	ON		ON	OFF	NORTH AMERICA		
	ON		OFF	ON	AUSTRALIA		
5	Other combinations				Not used		
6	ON		A-law PCM coding.				
	OFF	×	μ-law PCM coding.				
7	Refer to SW16-1.						
8	OFF	×	Not used (Fixed to OFF).				
SW17	1	ON		Denial of PCM receiving while transmitting PB signals.			
		OFF	×	PCM receives irrespective of PB signals transmission.			
	2	ON	×	Fixed to ON.			
	3	Desk Console Key Pattern. Set SW17-3 and SW17-4 according to SYS 1, Index 6.					
		SW17-3		SW17-4	SYS 1 INDEX 6		
					Bit 6	Bit 5	Bit 4
		OFF		OFF	0	0	0
		ON		OFF	0	0	1
4	OFF		ON	0	1	0	
	ON		ON	1	0	0	
5~7	OFF	×	Fixed to OFF.				
8 Note	ON		Start up in Night mode after circuit card initialization.				
	OFF	×	Start up in Day mode after circuit card initialization.				

**Note:** *DESK CONSOLE starts up in Day or Night mode according to this setting after the circuit card initialization, regardless of the mode before the initialization.*

6. External Interface

Location of the LT connector leads for the DESK CONSOLE interface is as shown in [Figure 3-57](#).



**Figure 3-57 LT Connector Lead Location (PIM)**

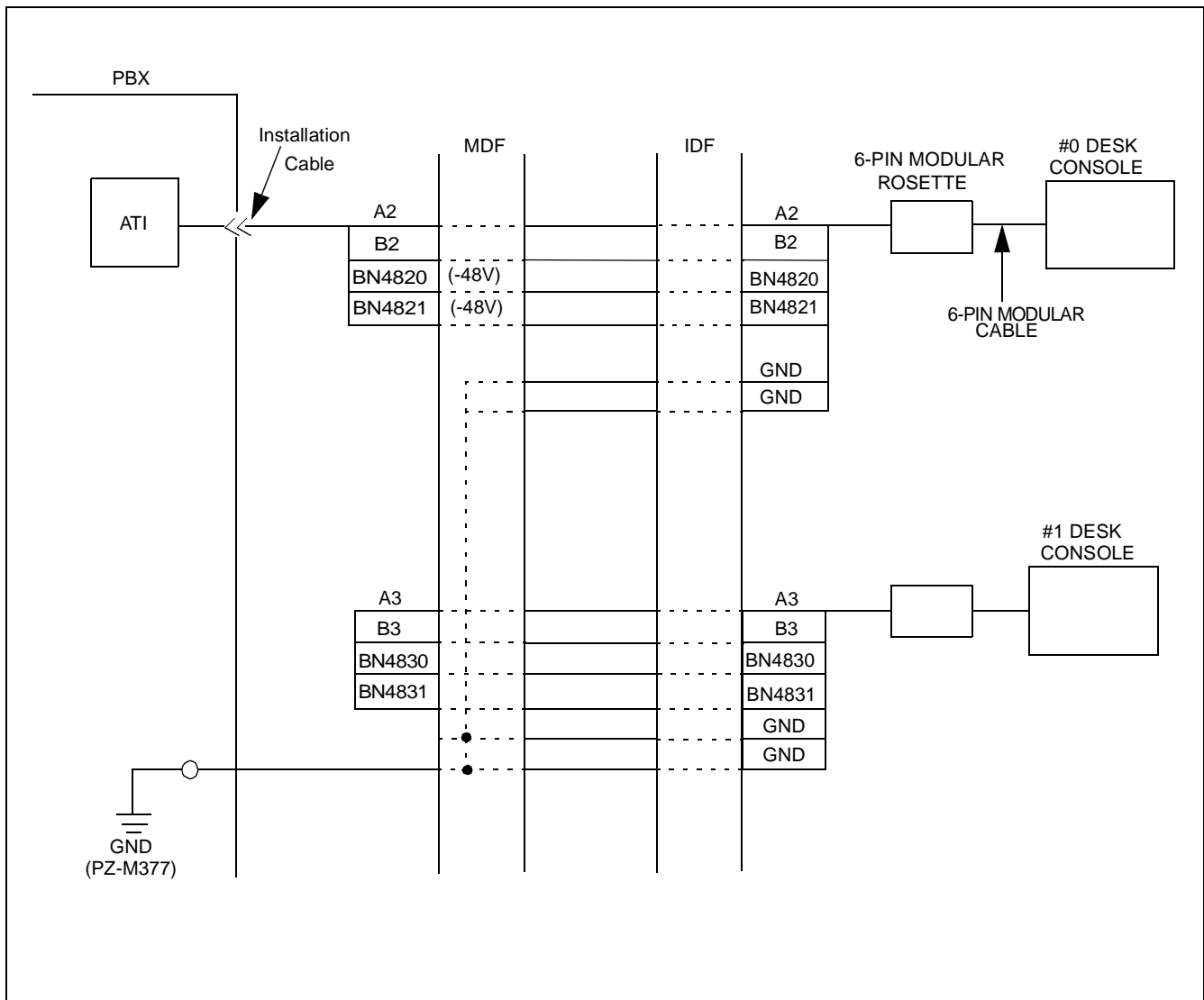
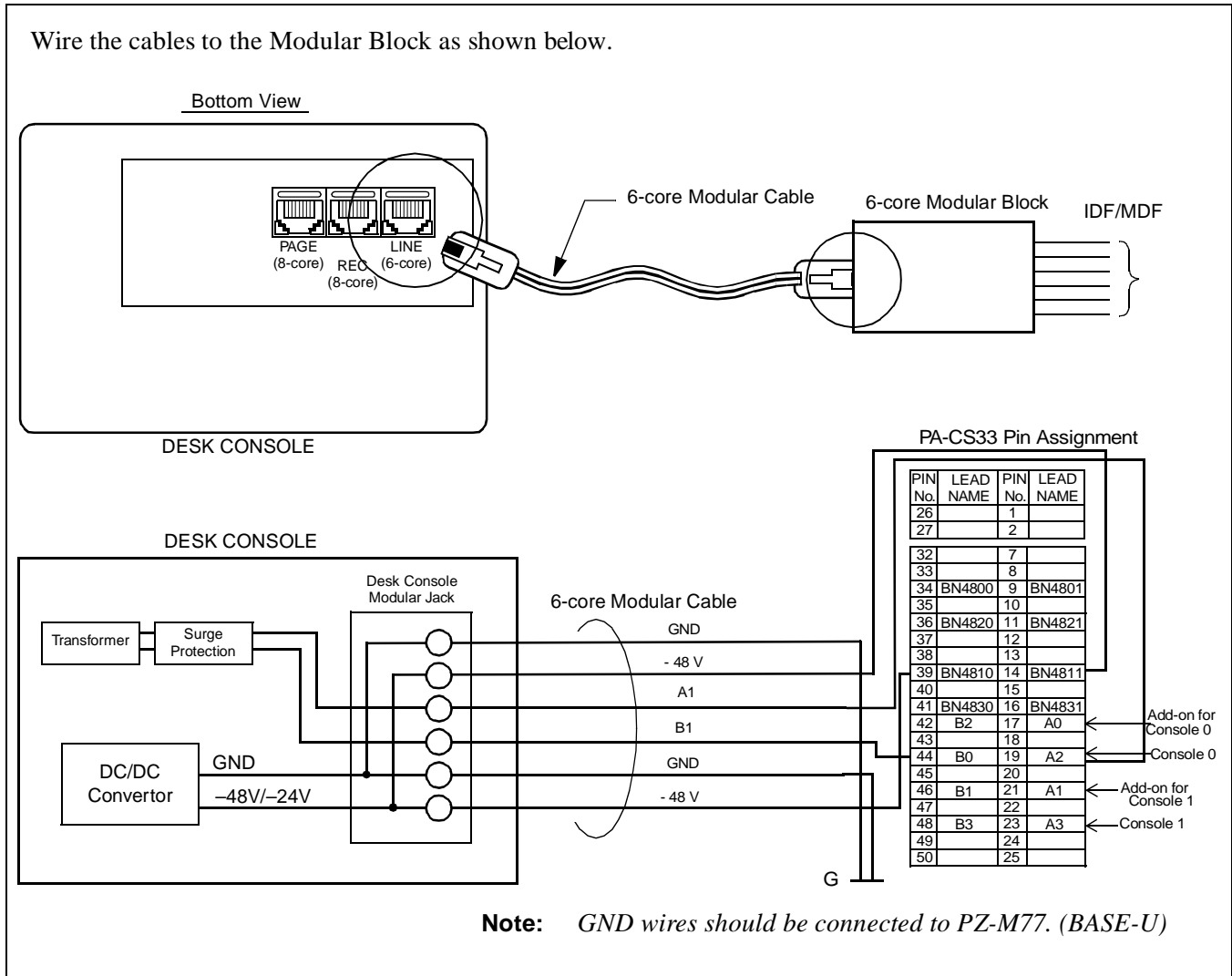


Figure 3-58 Connecting Route Diagram

**Note:** The power feeding wires (BN4820/BN4821/BN4830/BN4831/GND) are not required when the power is supplied to the DESK CONSOLE locally.

Figure 3-59 shows how to connect Desk Console.



**Figure 3-59 Desk Console Connection**

Power supply and the maximum distance between the ATI and Desk Console. The maximum distance between the ATI circuit card and Desk Console is as shown below.

Source	0.5 φ Cable	0.65 φ Cable
PBX	1,148 ft. (350 m)	1,640 ft. (500 m)
Local Power Supply	3,937 ft. (1,200 m)	4,921 ft. (1,500 m)

If the distance exceeds the above, estimate it according to the calculation after [Figure 3-60](#).

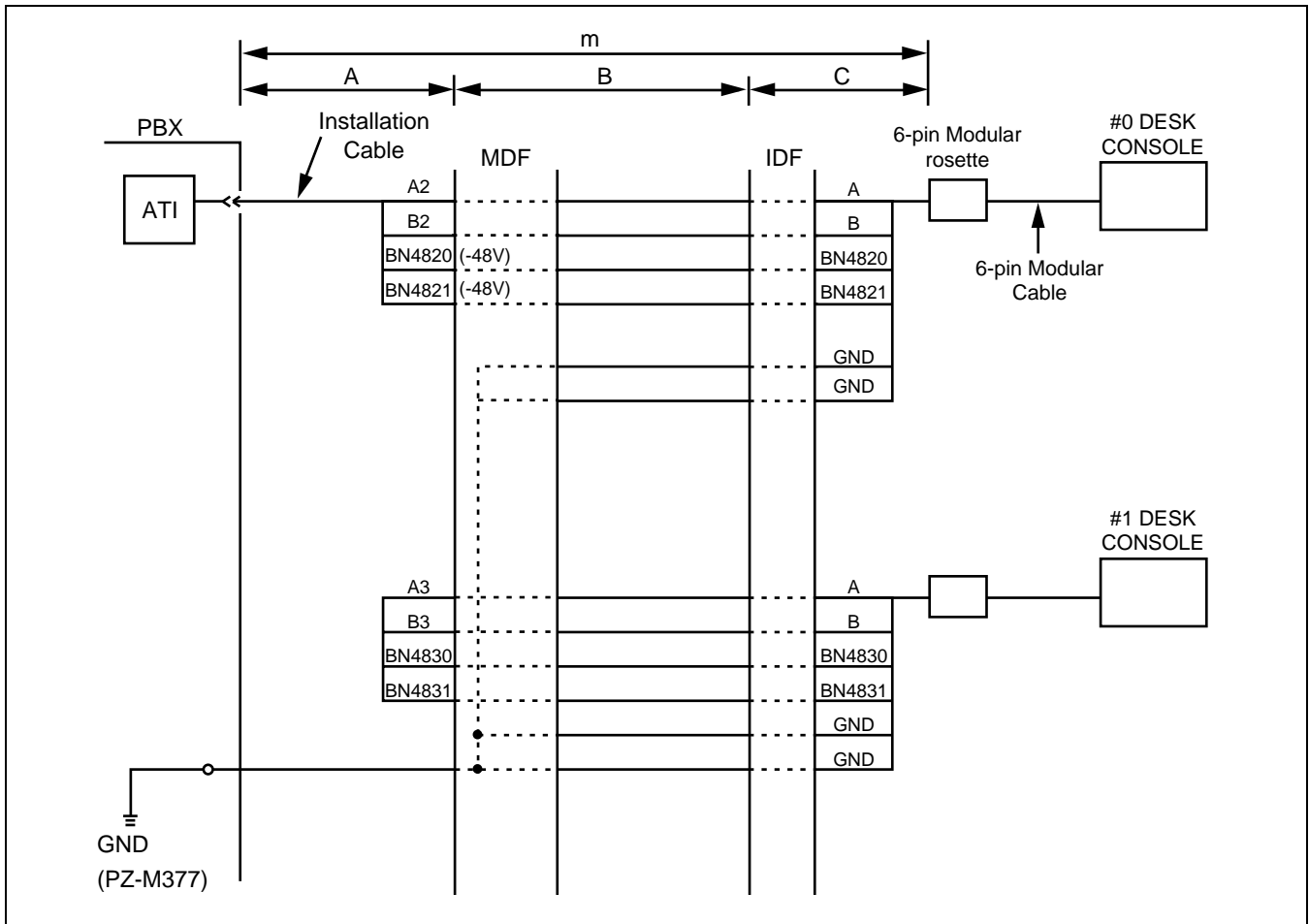


Figure 3-60 Distance between PBX and Modular Rosette of Desk Console

*Calculation of the distance between the ATI circuit card and Modular Rosette*

The distance *M* in the figure above is determined according to the Direct-Current resistance of power supply cables (-48V and GND). Note that the maximum resistance is 26 Ω as shown in the following formula:

$$m = a + b + c \leq 26\Omega$$

- m*: Maximum Direct-Current resistance between the ATI circuit card and Modular Rosette
- a*: Direct-Current resistance of power supply cables (-48V and GND) in the range of A
- b*: Direct-Current resistance of power supply cables (-48V and GND) in the range of B
- c*: Direct-Current resistance of power supply cables (-48V and GND) in the range of C

Example of Calculation

a, b, and c are calculated by the following formulae:

**Note:** You are not required to use cable lengths in meters in the following formulae. You may use cable lengths in feet, yards, or whatever units you prefer. However, the units of resistance you use must match the units of length you use. For example, if you use distance in feet, you must also use DC resistance per foot.

$$a = \frac{\begin{matrix} \swarrow \text{Cable resistance of DC -48V cables} \\ u (\Omega/m) \times x (m) \end{matrix}}{\substack{\small 22 \\ \small \text{No. of DC -48V cables of GND cables}}} + \frac{\begin{matrix} \swarrow \text{Cable resistance on GND cables} \\ u (\Omega/m) \times x (m) \end{matrix}}{\substack{\small 22 \\ \small \text{No. of DC -48V cables of GND cables}}}$$

$$b = \frac{\begin{matrix} \swarrow \text{Cable resistance of DC -48V cables} \\ v (\Omega/m) \times y (m) \end{matrix}}{\substack{\small 22 \\ \small \text{No. of DC -48V cables of GND cables}}} + \frac{\begin{matrix} \swarrow \text{Cable resistance on GND cables} \\ v (\Omega/m) \times y (m) \end{matrix}}{\substack{\small 22 \\ \small \text{No. of DC -48V cables of GND cables}}}$$

$$c = \frac{\begin{matrix} \swarrow \text{Cable resistance of DC -48V cables} \\ w (\Omega/m) \times z (m) \end{matrix}}{\substack{\small 22 \\ \small \text{No. of DC -48V cables of GND cables}}} + \frac{\begin{matrix} \swarrow \text{Cable resistance on GND cables} \\ w (\Omega/m) \times z (m) \end{matrix}}{\substack{\small 22 \\ \small \text{No. of DC -48V cables of GND cables}}}$$

u: DC resistance per meter in the range of A (Ω/m)

v: DC resistance per meter in the range of B (Ω/m)

w: DC resistance per meter in the range of C (Ω/m)

x: Cable length (m) in the range of A

y: Cable length (m) in the range of B

z: Cable length (m) in the range of C

The location of the LT connector leads for the TAS interface is as shown in Figure 3-61.

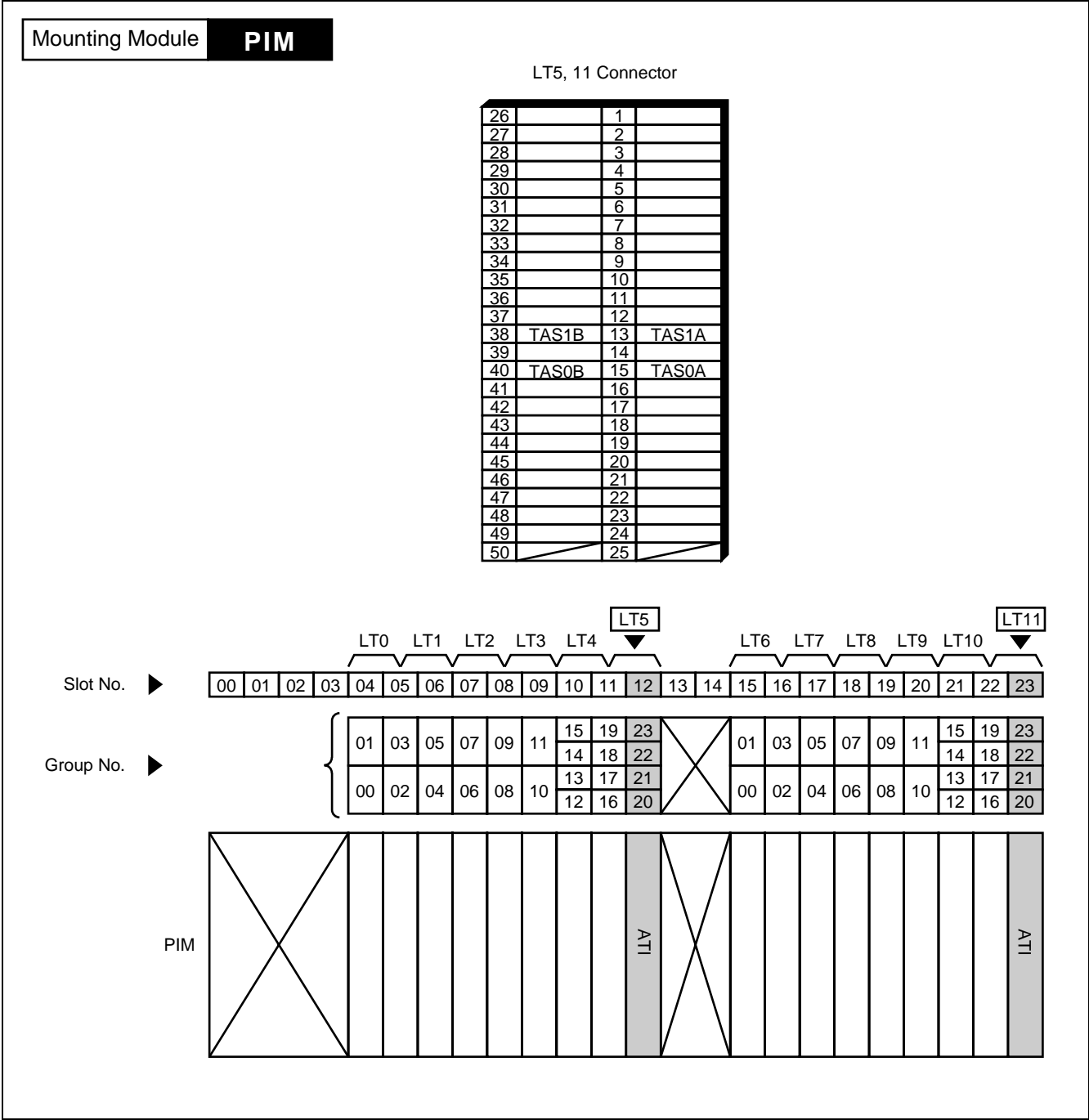
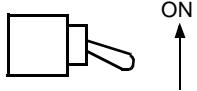
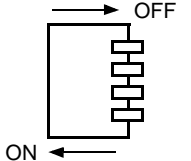
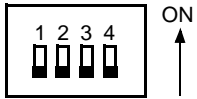
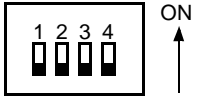
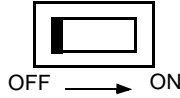
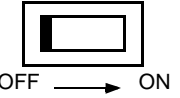
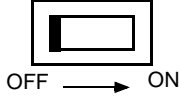
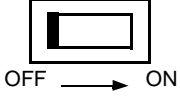
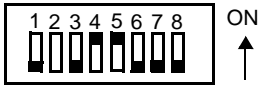
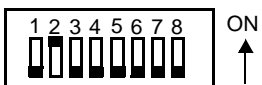


Figure 3-61 LT Connector Lead Location (PIM)

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
SW00		
SW01		
SW10 (TAS #0)		
SW13 (TAS #1)		
SW11 (TAS #0)		
SW12 (TAS #0)		
SW14 (TAS #1)		
SW15 (TAS #1)		
SW16		
SW17		



## PA-8LCBR Line Circuit

### 1. General Function

The PA-8LCBR circuit card provides an interface between a maximum of eight analog voice terminals and the system with a range of 1200 (0hm) inclusive of terminal resistance. This card can send “Stutter Dial Tone”, which is not a continuous tone, to an associated terminal which has no Message Waiting Lamp (MWL) instead of activating the MWL if required. In addition, polarity reverse function is provided for each channel. This card can be used for Caller ID service.

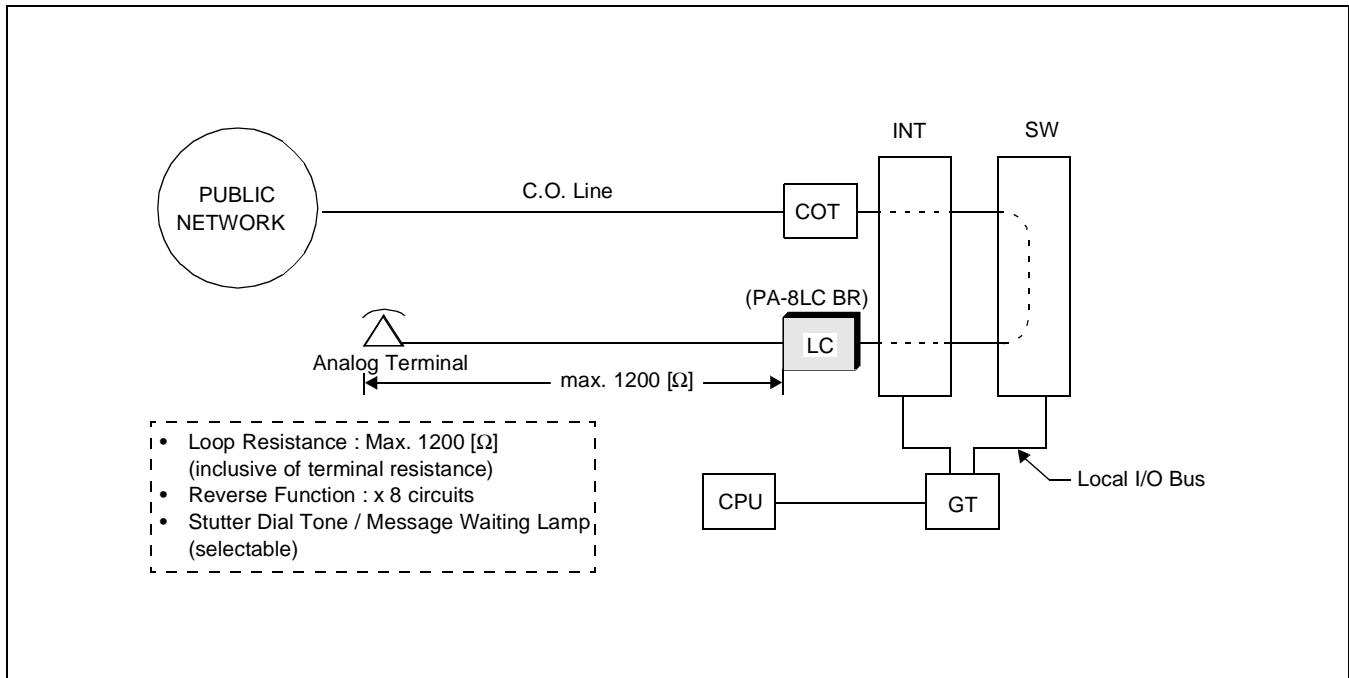


Figure 3-62 Location of PA-8LCBR (8LC) Card in the System

**PA-8LCBR**  
Line Circuit

2. Mounting Location/Condition

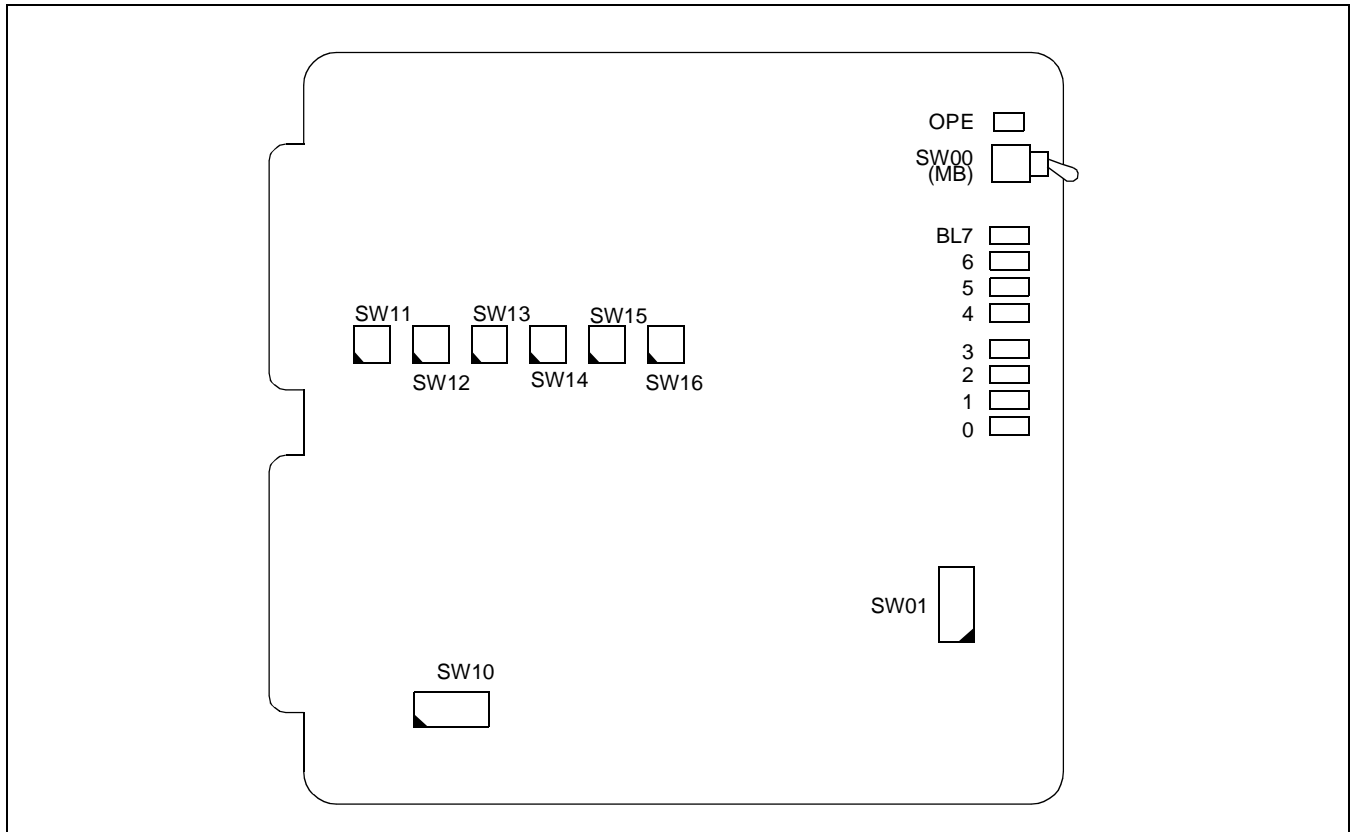
The mounting locations of this circuit card and the conditions related to mounting are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps and switches on this circuit card is shown in [Figure 3-63](#).



**Figure 3-63 Face Layout of PA-8LCBR (8LC)**

### 4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATUS	MEANING
OPE	Green	Steady Lighting	The circuitry of the circuit card is operating normally.
BL0 ? BL7	Green	Steady Lighting	Line loop exists.
		Flashing	1) Ringing signal is being transmitted. Busy LED keeps flashing in synchronizing with on/off of the ringing signal. 2) Dial pulses are being received. While dial pulses from a line are being received, Busy LED keeps flashing in synchronizing with the dial pulses coming from the line. 3) Line is in make-busy state. Busy LED keeps flashing at 60 ipm.

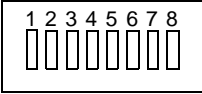
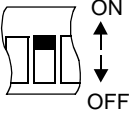
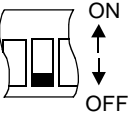
5. Switch Settings

Switches on this circuit card have the following meanings.

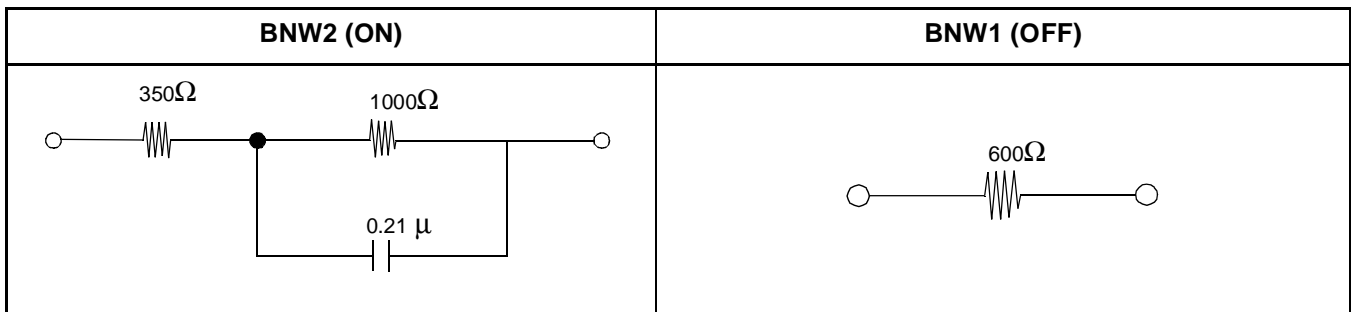
SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW00 (MB)		UP		Circuit card make busy
		DOWN		Circuit card make busy cancel
SW10	1	ON	×	Fixed
	2	OFF	×	
	3	OFF	×	
	4	OFF	×	
SW11	1	OFF	×	Fixed
	2	OFF	×	
SW12	1	OFF	×	Fixed
	2	OFF	×	
SW13	1	OFF	×	Fixed
	2	OFF	×	
SW14	1	ON		Momentary Open
		OFF		Polarity Reverse
	2	ON		Message Waiting Lamp flashes (1-sec. ON, 1-sec. OFF)
		OFF		Message Waiting Lamp lights or flashes (Selected and Controlled by software)
SW15	1	OFF	×	Fixed
	2	ON		Stutter Dial Tone is available
		OFF		Stutter Dial Tone is not available
SW16	1 <b>Note 1</b>	ON		Ringer Timer mode: Common mode
		OFF		Ringer Timer mode: Separate mode
	2 <b>Note 2</b>	ON		Pre-ringing is not available
		OFF		Pre-ringing is available

**Note 1:** When Caller ID is in service, set SW16-1 to OFF (Separate mode).

**Note 2:** Valid when SW16-1 is set to ON (Common mode).

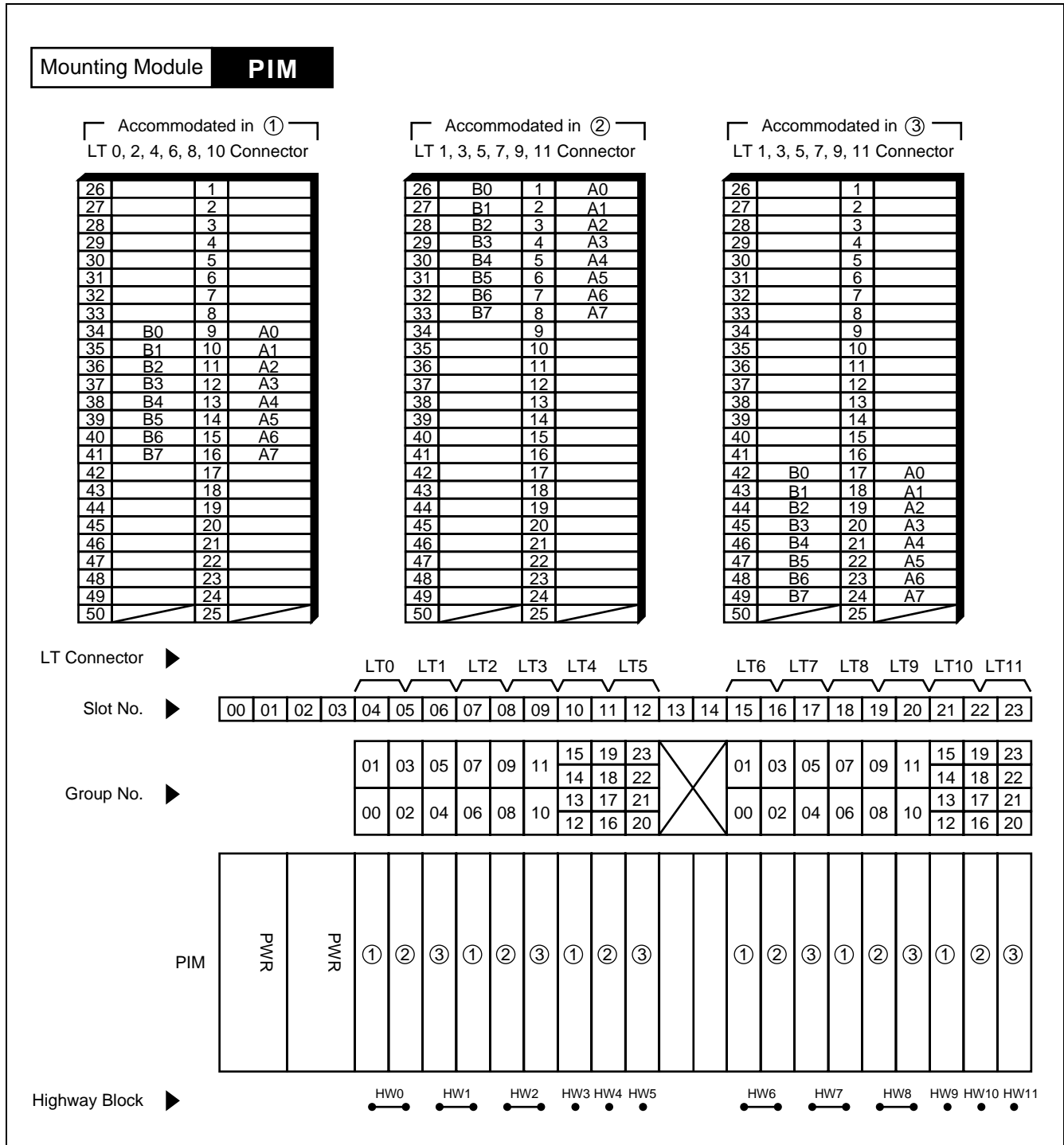
SWITCH		SETTING	
<p>SW01 (BNW0 - 7)</p> 	<p>Balancing Network Designation</p> <ul style="list-style-type: none"> <li>• Each element corresponds to circuits 0 - 7.</li> </ul>		<p>BNW: Compromise Impedance (EIA/TIA-464A) For long distance</p>
			<p>BNW: 600 Ω For short distance</p>

**Note:** *Compromise Impedance (EIA/TIA-464A) and 600 Ω are composed as follows.*



6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown Figure 3-64.



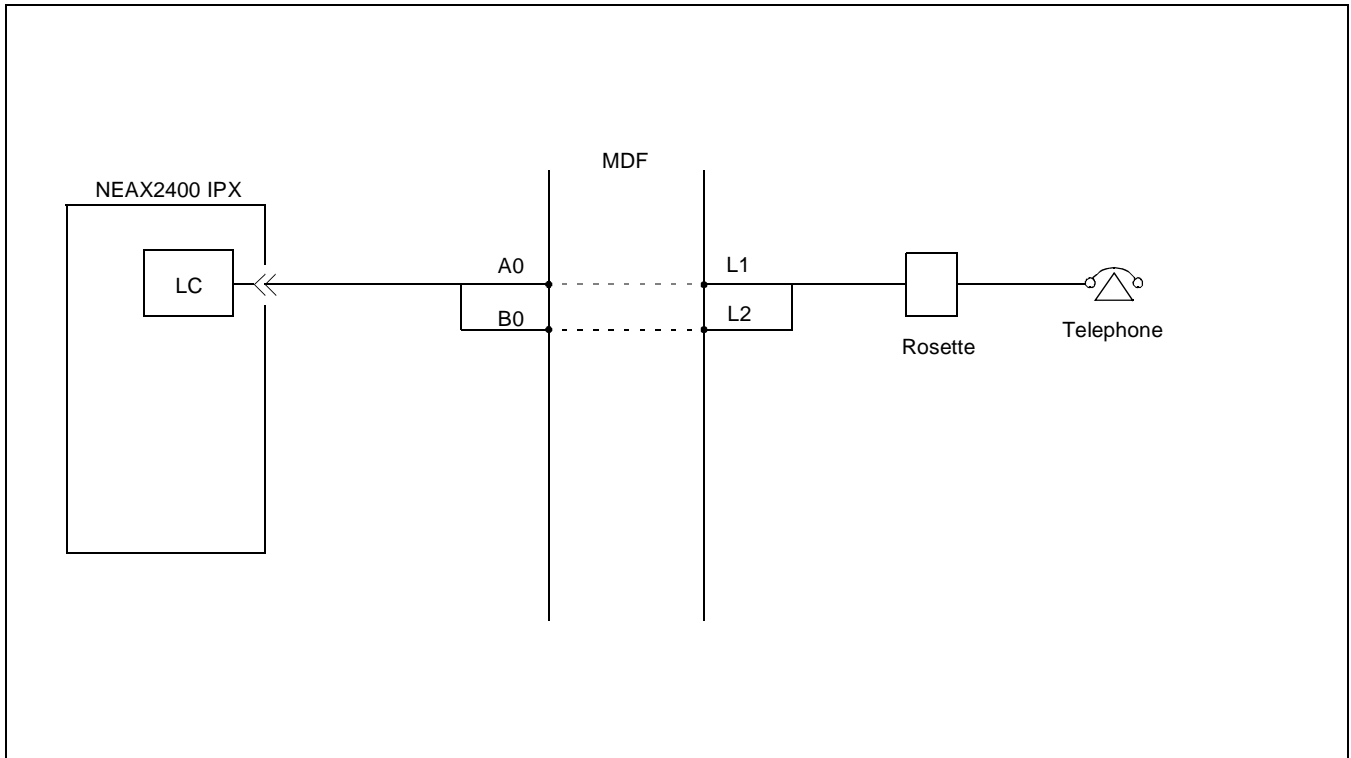
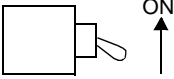
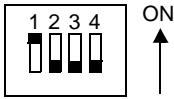
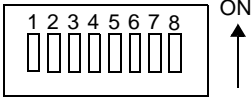
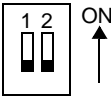

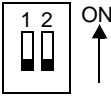
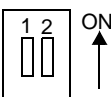




Figure 3-65 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		
		SW10		
		SW01 (BNW 0 - 7)		
		SW11		Fixed
		SW12		Fixed
		SW13		Fixed
		SW14		
		SW15		
		SW16		



## PA-16LCBE Line Circuit

### 1. General Function

This circuit card provides the interface for 16 station lines. This circuit card is provided with functions for supervising each user's call origination, call answering, release, detection of switch hook flashing, relaying of DP/PB signals, transmission of ringing signals to the called side, and bothway transmissions of voice band signals. For use of this circuit card, there are the following limitations.

- (a) There are four kinds of balancing network, each of which is set up according to the line conditions involved.
- (b) PAD is only for receiving side 5 dB (at the time of station to station call).

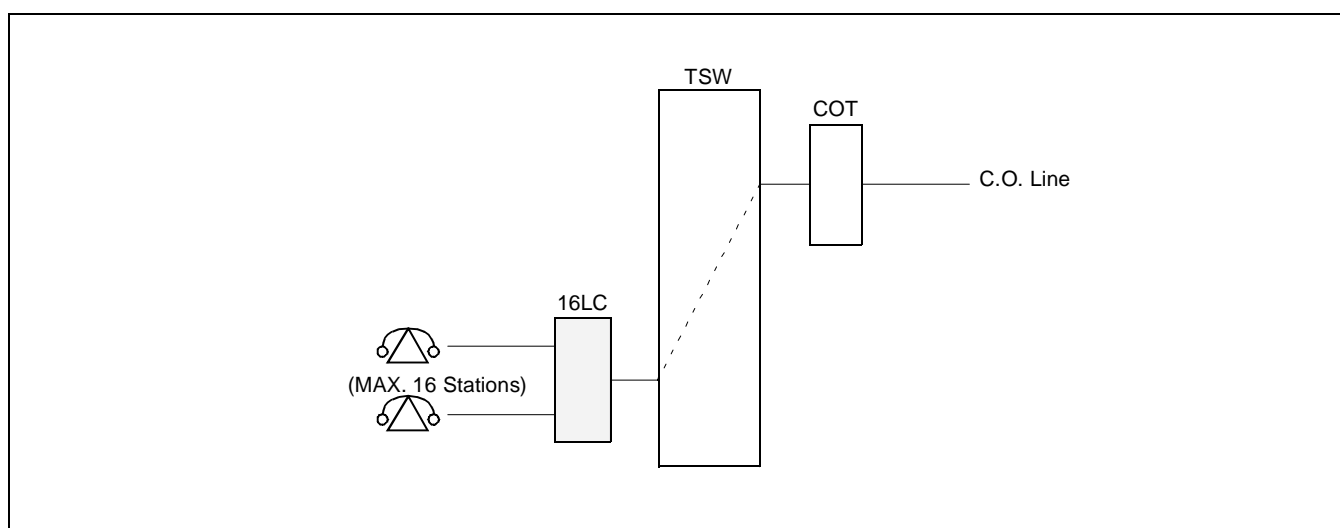


Figure 3-66 Location of PA-16LCBE (16LC) Card in the System

**PA-16LCBE**  
Line Circuit

2. Mounting Location/Condition

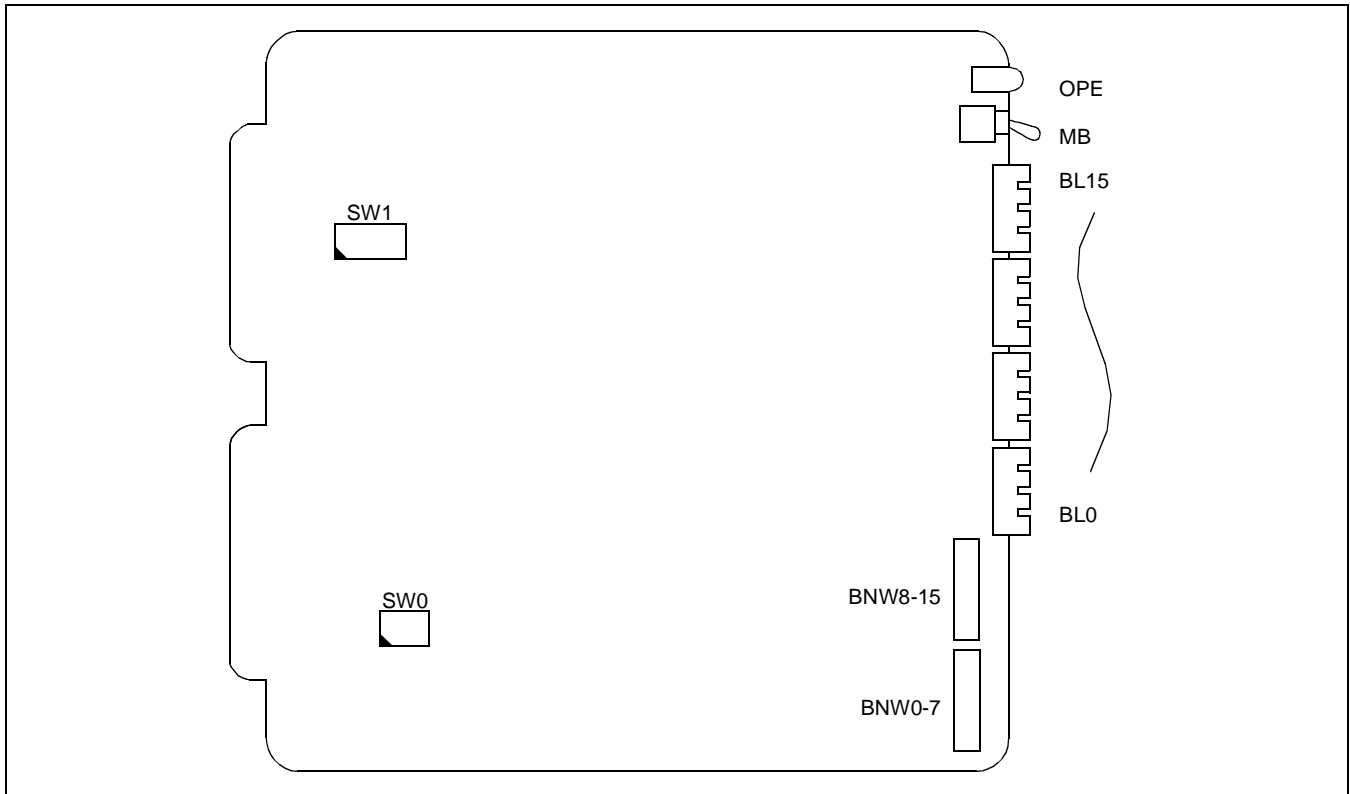
- The mounting locations of this circuit card and the conditions related to mounting are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown below.



**Figure 3-67 Face Layout of PA-16LCBE (16LC)**

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is opening.
BL0 ∩ BL1S	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes (60 IPM) to dial pulses at the time of an outgoing call or when the corresponding circuit is in make-busy state.
	OFF	Remains off when the corresponding circuit is idle.

**PA-16LCBE**

Line Circuit

## 5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

<b>SWITCH NAME</b>	<b>SWITCH NO.</b>	<b>SETTING</b>	<b>STANDARD SETTING</b>	<b>MEANING</b>
MB		UP		Circuit card make busy.
		DOWN	×	Circuit card make busy cancel.
SW0	1	OFF	×	Fixed
	2	OFF	×	Fixed
	3	OFF	×	Fixed
	4	OFF	×	Fixed

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING													
BNW0 ~ 7	1	ON		Balancing network of No. 0 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 0 Circuit ; For short distance.													
	2	ON		Balancing network of No. 1 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 1 Circuit ; For short distance.													
	3	ON		Balancing network of No. 2 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 2 Circuit ; For short distance.													
	4	ON		Balancing network of No. 3 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 3 Circuit ; For short distance.													
	5	ON		Balancing network of No. 4 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 4 Circuit ; For short distance.													
	6	ON		Balancing network of No. 5 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 5 Circuit ; For short distance.													
	7	ON		Balancing network of No. 6 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 6 Circuit ; For short distance.													
	8	ON		Balancing network of No. 7 Circuit ; For long distance.													
		OFF	×	Balancing network of No. 7 Circuit ; For short distance.													
					<p><b>Note:</b> Normally, switches are all to be set to OFF. However, when the station line is long (PBX - Telephone Set), rearrange the switch setting referring to the following table.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">TERMINAL RESISTANCE IS NOT INCLUDED IN THE LINE RESISTANCE</th> </tr> <tr> <th>BALANCING NETWORK</th> <th>LINE RESISTANCE</th> <th>SWITCH</th> </tr> </thead> <tbody> <tr> <td>Short Distance</td> <td>0 ~ 100 Ω</td> <td>OFF</td> </tr> <tr> <td>Long Distance</td> <td>More than 100 Ω</td> <td>ON</td> </tr> </tbody> </table>	TERMINAL RESISTANCE IS NOT INCLUDED IN THE LINE RESISTANCE			BALANCING NETWORK	LINE RESISTANCE	SWITCH	Short Distance	0 ~ 100 Ω	OFF	Long Distance	More than 100 Ω	ON
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BALANCING NETWORK	LINE RESISTANCE	SWITCH															
Short Distance	0 ~ 100 Ω	OFF															
Long Distance	More than 100 Ω	ON															

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING												
BNW8 ~ 15	1	ON		Balancing network of No. 8 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 8 Circuit ; For short distance.												
	2	ON		Balancing network of No. 9 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 9 Circuit ; For short distance.												
	3	ON		Balancing network of No. 10 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 10 Circuit ; For short distance.												
	4	ON		Balancing network of No. 11 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 11 Circuit ; For short distance.												
	5	ON		Balancing network of No. 12 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 12 Circuit ; For short distance.												
	6	ON		Balancing network of No. 13 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 13 Circuit ; For short distance.												
	7	ON		Balancing network of No. 14 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 14 Circuit ; For short distance.												
	8	ON		Balancing network of No. 15 Circuit ; For long distance.												
		OFF	×	Balancing network of No. 15 Circuit ; For short distance.												
				<p><b>Note:</b> Normally, switches are all to be set to OFF. However, when the station line is long (PBX - Telephone Set), rearrange the switch setting referring to the following table.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">TERMINAL RESISTANCE IS NOT INCLUDED IN THE LINE RESISTANCE</th> </tr> <tr> <th>BALANCING NETWORK</th> <th>LINE RESISTANCE</th> <th>SWITCH</th> </tr> </thead> <tbody> <tr> <td>Short Distance</td> <td>0 ~ 100 Ω</td> <td>OFF</td> </tr> <tr> <td>Long Distance</td> <td>More than 100 Ω</td> <td>ON</td> </tr> </tbody> </table>	TERMINAL RESISTANCE IS NOT INCLUDED IN THE LINE RESISTANCE			BALANCING NETWORK	LINE RESISTANCE	SWITCH	Short Distance	0 ~ 100 Ω	OFF	Long Distance	More than 100 Ω	ON
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BALANCING NETWORK	LINE RESISTANCE	SWITCH														
Short Distance	0 ~ 100 Ω	OFF														
Long Distance	More than 100 Ω	ON														

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																
SW1	1	ON		Polarity Reversal as Disconnect Signal																
		OFF	×	Momentary Open as Disconnect Signal																
	2	OFF	×	Fixed																
	3	OFF (standard)	OFF (standard)	<table border="1"> <thead> <tr> <th>SW1-3</th> <th>SW1-4</th> <th>INTERRUPTED RINGER PATTERN</th> </tr> </thead> <tbody> <tr> <td>OFF (standard)</td> <td>OFF (standard)</td> <td> <p>0.4/0.2/0.4-ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul> </td> </tr> <tr> <td>OFF</td> <td>ON</td> <td> <p>0.2/0.2/0.2/0.2-ON/OFF/ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul> </td> </tr> <tr> <td>ON</td> <td>OFF</td> <td> <p>0.35/0.3/0.35-ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul> </td> </tr> <tr> <td>ON</td> <td>ON</td> <td> <p>0.2/0.4/0.2-ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul> </td> </tr> </tbody> </table>		SW1-3	SW1-4	INTERRUPTED RINGER PATTERN	OFF (standard)	OFF (standard)	<p>0.4/0.2/0.4-ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul>	OFF	ON	<p>0.2/0.2/0.2/0.2-ON/OFF/ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul>	ON	OFF	<p>0.35/0.3/0.35-ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul>	ON	ON	<p>0.2/0.4/0.2-ON/OFF/ON</p> <ul style="list-style-type: none"> <li>Incoming call from C. O. line/station</li> </ul> <ul style="list-style-type: none"> <li>Rering</li> </ul>
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SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING												
SW1	5	<table border="1"> <thead> <tr> <th>SW1-5</th> <th>SW1-6</th> <th>SWITCH SETTING FOR MW LAMP CONTROLLING</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>In the case of lighting (normal setting)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>In the case of 60 IPM flashing</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>In the case of lighting or flashing (As controlled by the software)</td> </tr> </tbody> </table>			SW1-5	SW1-6	SWITCH SETTING FOR MW LAMP CONTROLLING	OFF	OFF	In the case of lighting (normal setting)	OFF	ON	In the case of 60 IPM flashing	ON	OFF	In the case of lighting or flashing (As controlled by the software)
	SW1-5				SW1-6	SWITCH SETTING FOR MW LAMP CONTROLLING										
	OFF				OFF	In the case of lighting (normal setting)										
	OFF				ON	In the case of 60 IPM flashing										
	ON	OFF	In the case of lighting or flashing (As controlled by the software)													
	6	ON		Stutter Dial Tone Available												
		OFF	×	Stutter Dial Tone Not Available												
	7	ON		Pre-signaling is not performed.												
		OFF	×	Pre-signaling is performed.												
	8	ON		Pre-signaling is not performed.												
	OFF	×	Pre-signaling is performed.													



6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown in Figure 3-68 below.

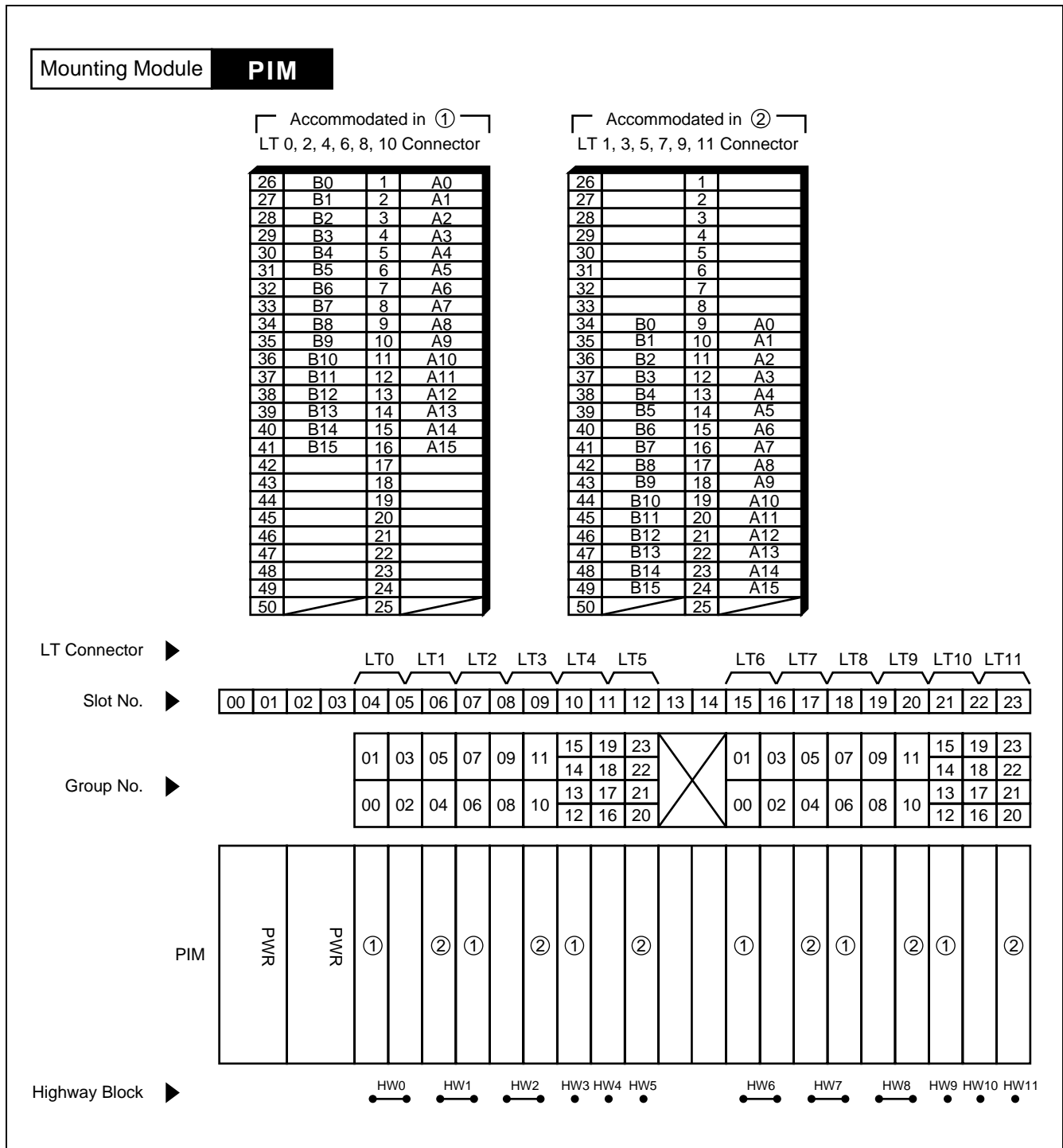


Figure 3-68 LT Connector Leads Accommodation (1/2)

Mounting Module **PIM**

Accommodated in ③

LT 0, 2, 4, 6, 8, 10 Connector				LT 1, 3, 5, 7, 9, 11 Connector			
26		1		26	B8	1	A8
27		2		27	B9	2	A9
28		3		28	B10	3	A10
29		4		29	B11	4	A11
30		5		30	B12	5	A12
31		6		31	B13	6	A13
32		7		32	B14	7	A14
33		8		33	B15	8	A15
34		9		34		9	
35		10		35		10	
36		11		36		11	
37		12		37		12	
38		13		38		13	
39		14		39		14	
40		15		40		15	
41		16		41		16	
42	B0	17	A0	42		17	
43	B1	18	A1	43		18	
44	B2	19	A2	44		19	
45	B3	20	A3	45		20	
46	B4	21	A4	46		21	
47	B5	22	A5	47		22	
48	B6	23	A6	48		23	
49	B7	24	A7	49		24	
50		25		50		25	

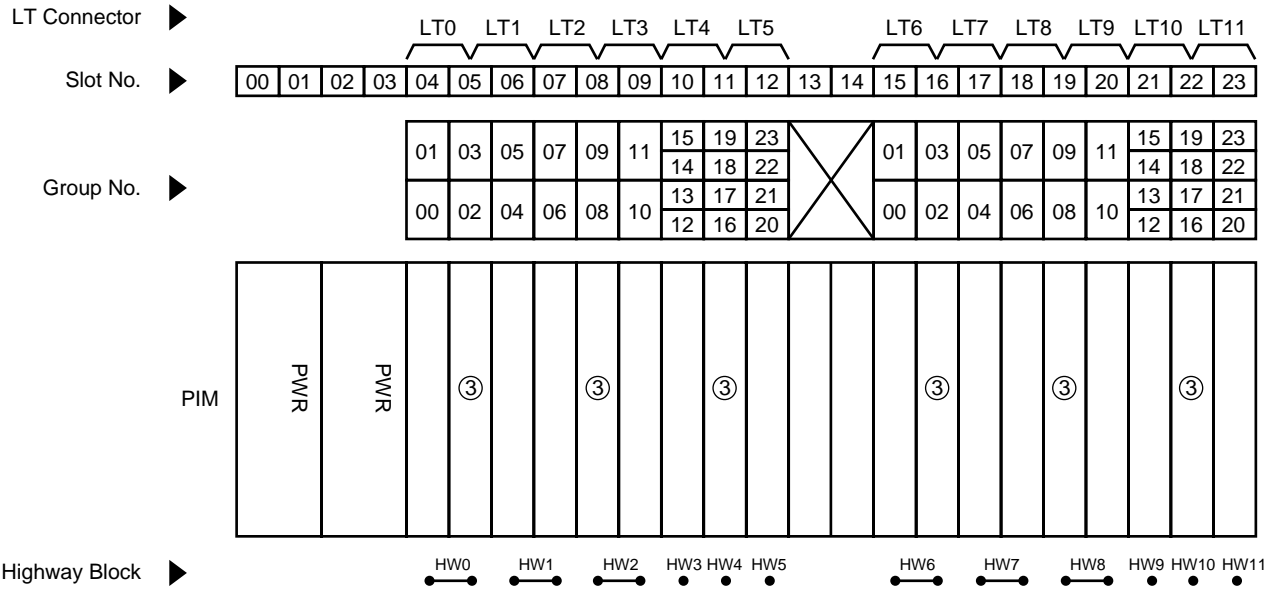


Figure 3-68 LT Connector Leads Accommodation (2/2)

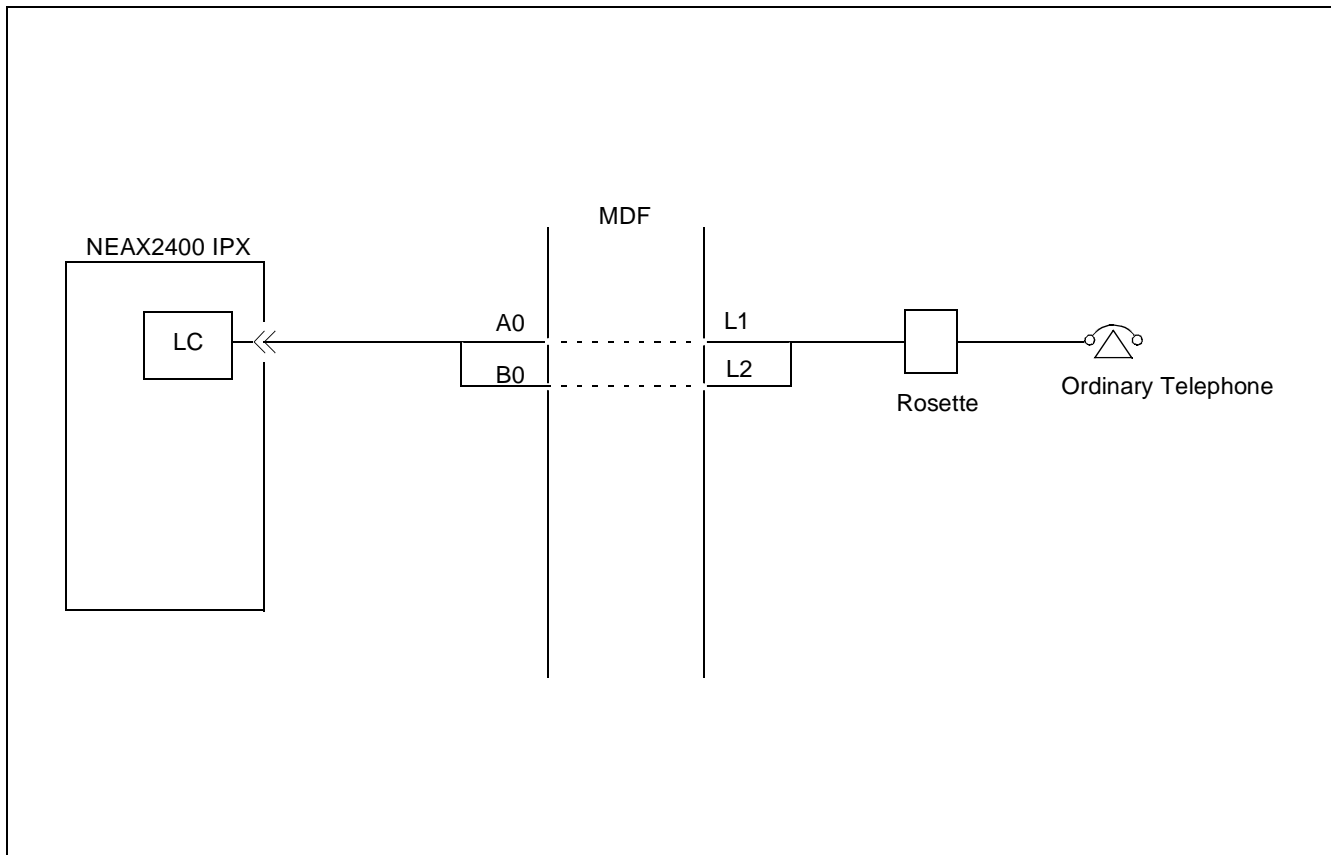


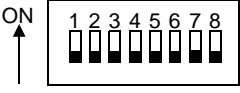



Figure 3-69 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW0		
		SW1		
		BNW0-7		
		BNW8-15		
		MB	DOWN	Circuit card make busy cancel.

## PA-16LCBJ-A Line Circuit

### 1. General Function

The PA-16LCBJ-A circuit card, which is exclusively used in a  $\mu$ -law system, provides an interface between a maximum of 16 analog terminals and the system with a range of 600 (Ohm) inclusive of terminal resistance. This card also can send “Stutter Dial Tone”, which is not a continuous tone, to an associated terminal which has no Message Waiting Lamp (MWL) instead of activating the MWL if required.

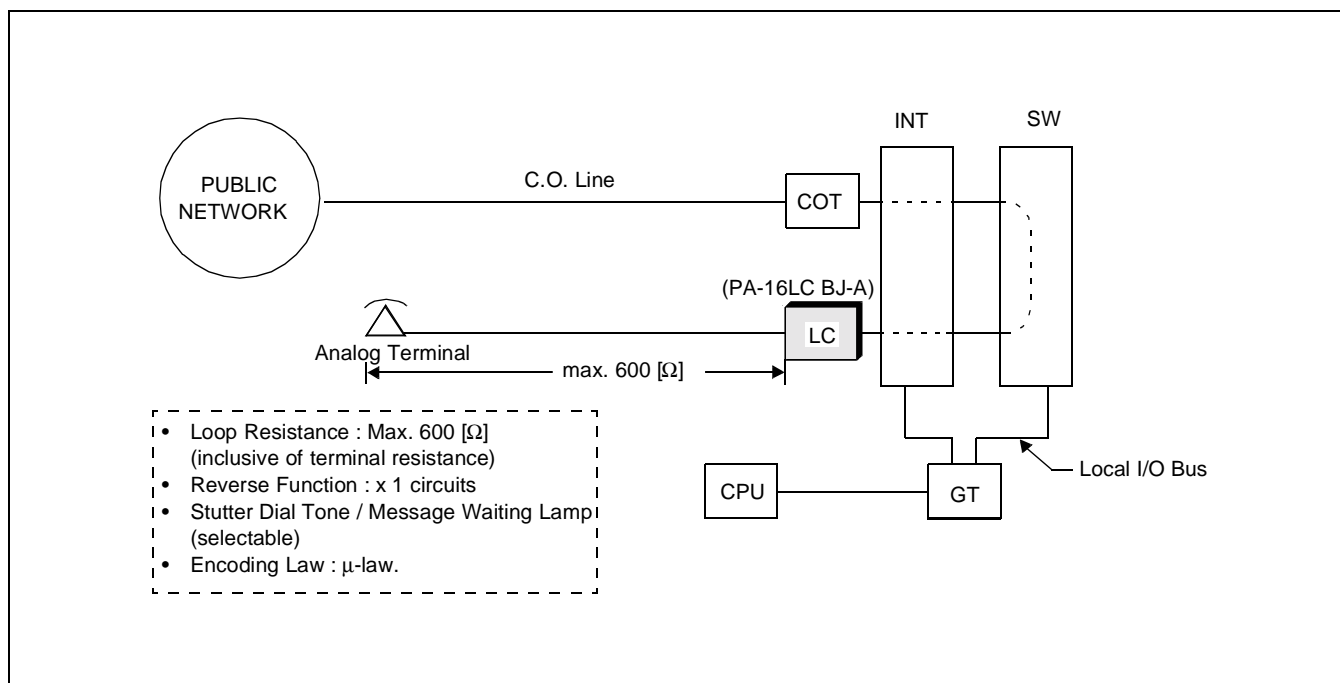


Figure 3-70 Location of PA-16LCBJ-A (16LC) Card in the System

**PA-16LCBJ-A**  
Line Circuit

2. Mounting Location/Condition

The mounting locations of this circuit card and the conditions related to mounting are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in [Figure 3-71](#).

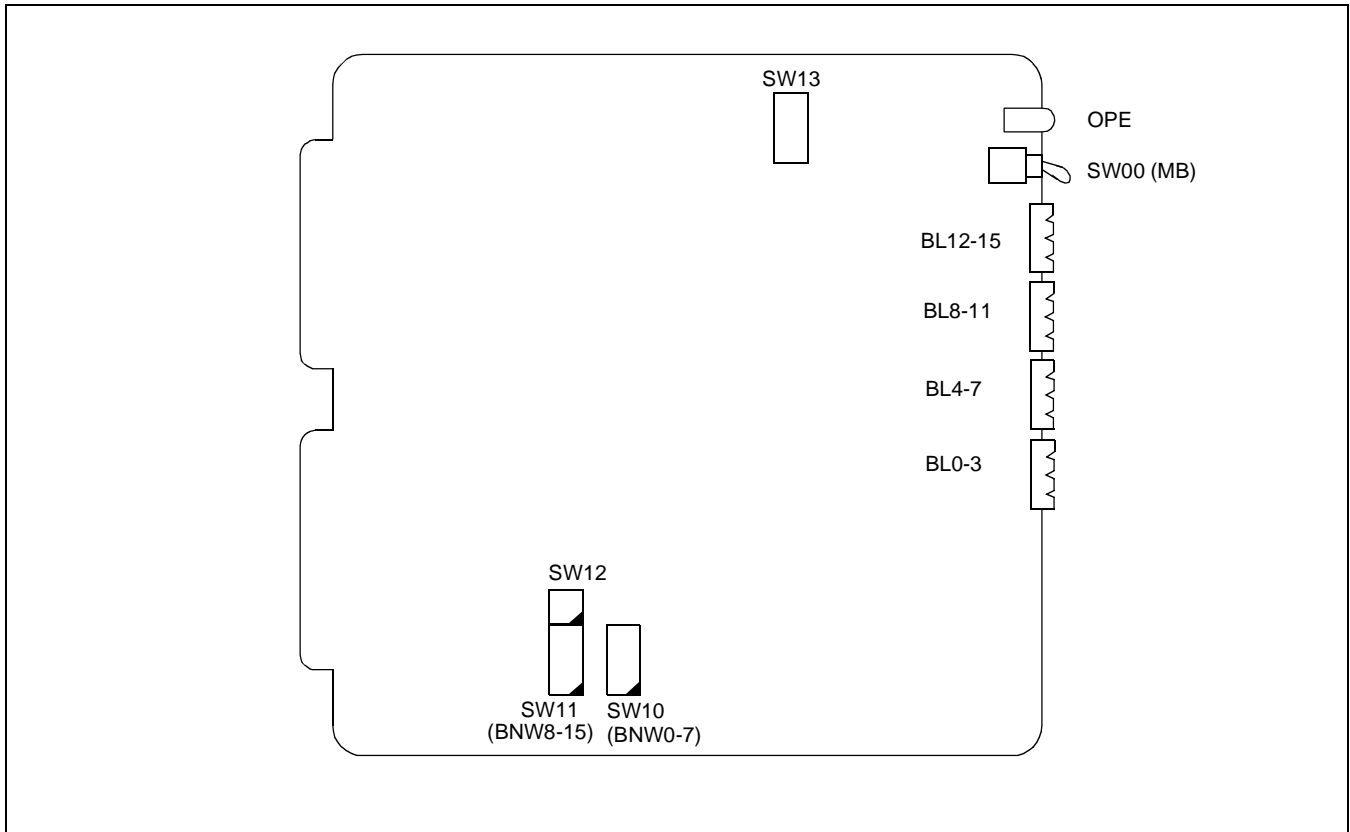


Figure 3-71 Face Layout of PA-16LCBJ-A (16LC)

**PA-16LCBJ-A**

## Line Circuit

## 4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

<b>LAMP NAME</b>	<b>COLOR</b>	<b>STATUS</b>	<b>MEANING</b>
OPE	Green	Steady Lighting	The circuitry of the circuit card is operating normally.
BL0 ? BL15	Green	Steady Lighting	Line loop exists.
		Flashing	1) Ringing signal is being transmitted. Busy LED keeps flashing in synchronizing with on/off of the ringing signal. 2) Dial pulses are being received. While dial pulses from a line are being received, Busy LED keeps flashing in synchronizing with the dial pulses coming from the line. 3) Line is in make-busy state. Busy LED keeps flashing at 60 ipm.



5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
SW00 (MB)		UP		Circuit card make busy.	
		DOWN		Circuit card make busy cancel.	
SW10 (BNW0~7)				CIRCUIT NO.	KIND OF BALANCING NETWORK
	1	ON		No. 0	Compromise
		OFF	×		600 Ω
	2	ON		No. 1	Compromise
		OFF	×		600 Ω
	3	ON		No. 2	Compromise
		OFF	×		600 Ω
	4	ON		No. 3	Compromise
		OFF	×		600 Ω
	5	ON		No. 4	Compromise
		OFF	×		600 Ω
	6	ON		No. 5	Compromise
		OFF	×		600 Ω
	7	ON		No. 6	Compromise
		OFF	×		600 Ω
	8	ON		No. 7	Compromise
		OFF	×		600 Ω

PA-16LCBJ-A  
Line Circuit

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
				CIRCUIT NO.	KIND OF BALANCING NETWORK
SW11 (BNW8~15)	1	ON		No. 8	Compromise
		OFF	×		600 Ω
	2	ON		No. 9	Compromise
		OFF	×		600 Ω
	3	ON		No. 10	Compromise
		OFF	×		600 Ω
	4	ON		No. 11	Compromise
		OFF	×		600 Ω
	5	ON		No. 12	Compromise
		OFF	×		600 Ω
	6	ON		No. 13	Compromise
		OFF	×		600 Ω
	7	ON		No. 14	Compromise
		OFF	×		600 Ω
	8	ON		No. 15	Compromise
		OFF	×		600 Ω
SW12	1	ON		Immediate is not available.	
		OFF		Immediate is available.	
	2	ON		Stutter dial tone is available	
		OFF		Message Waiting Lamp is available	
SW13		ON		Momentary Open	
		OFF		Polarity Reverse	

6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown in Figure 3-72.

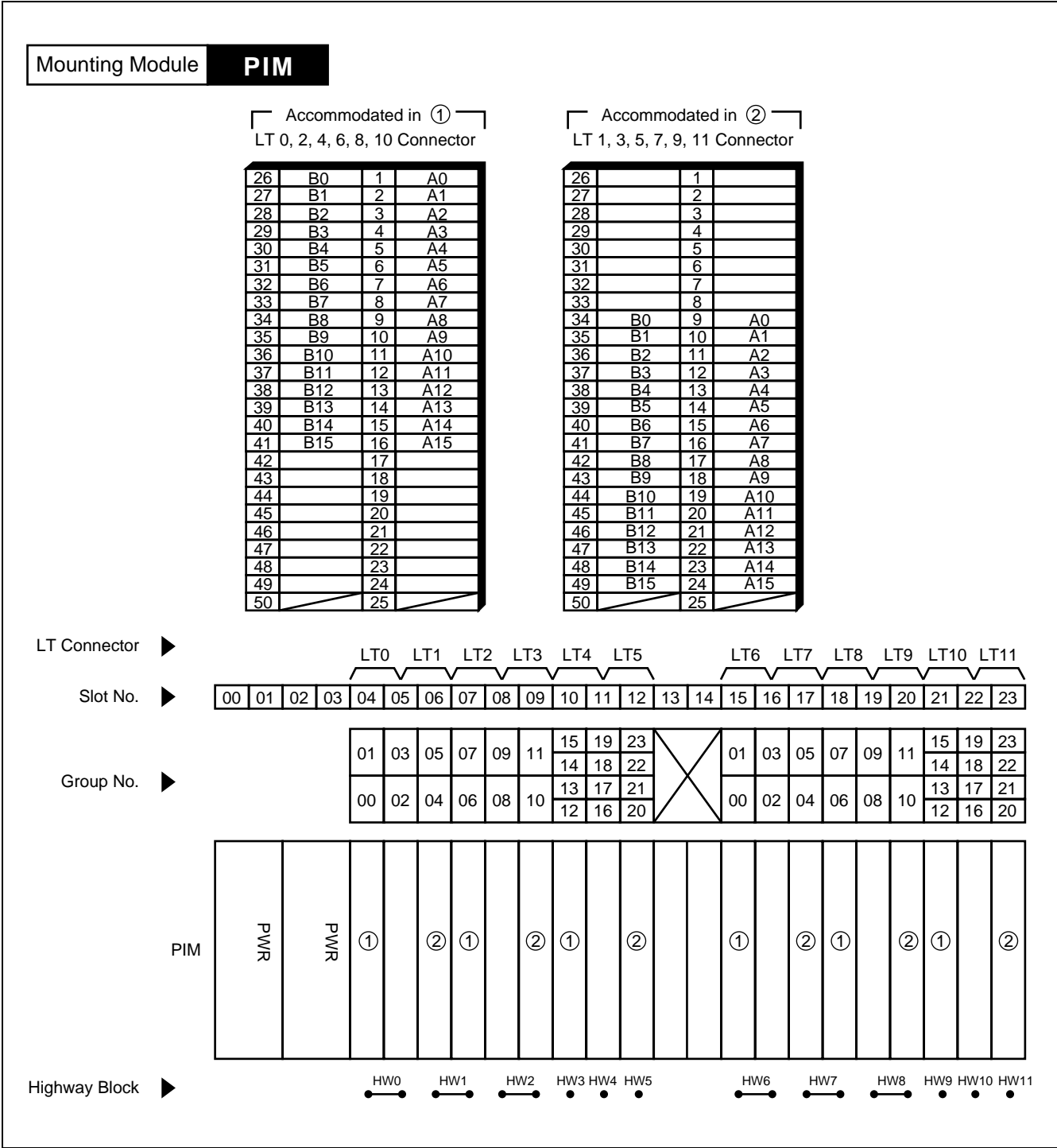


Figure 3-72 LT Connector Lead Accommodation (1/2)

Mounting Module **PIM**

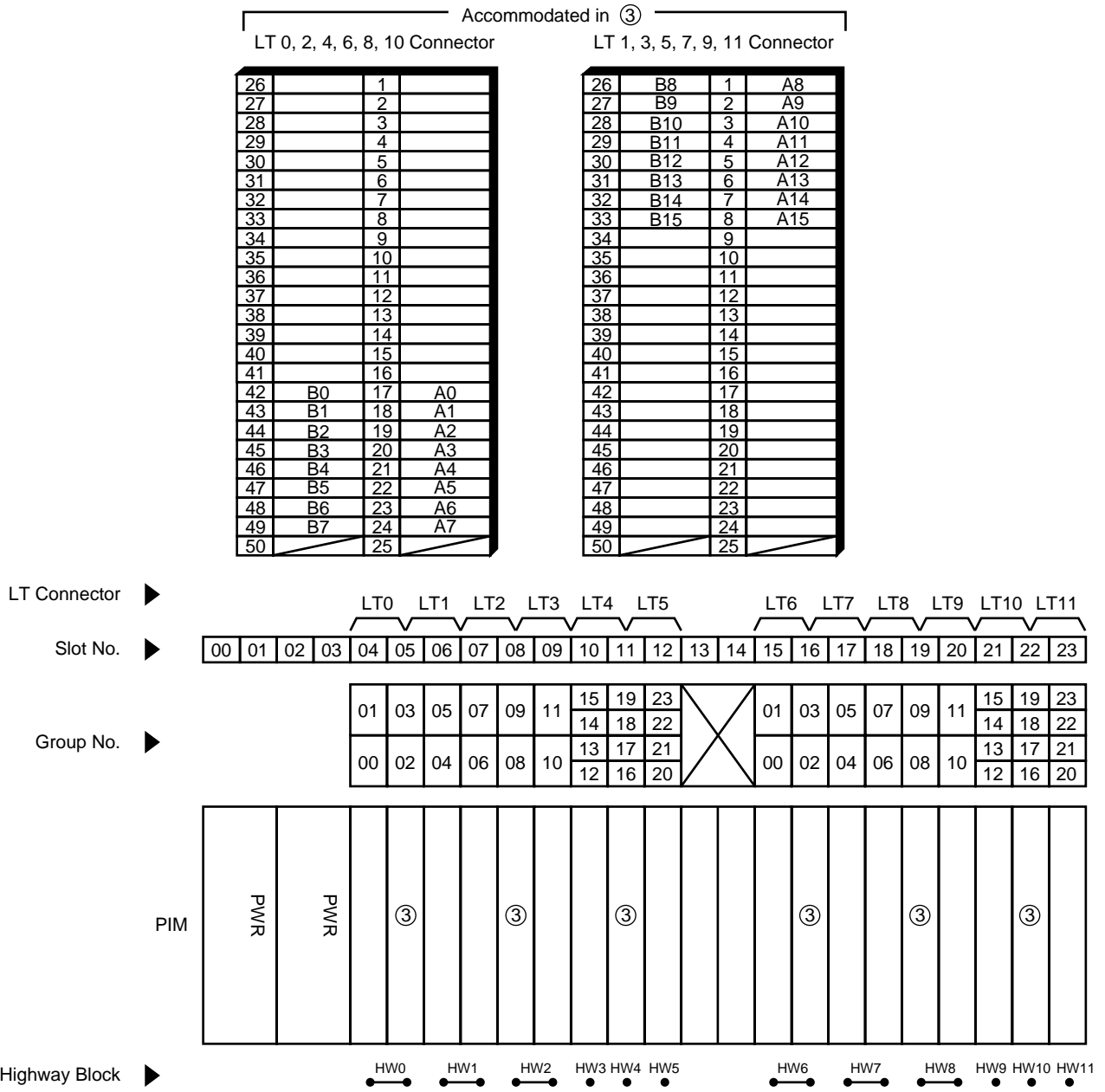


Figure 3-72 LT Connector Lead Accommodation (2/2)

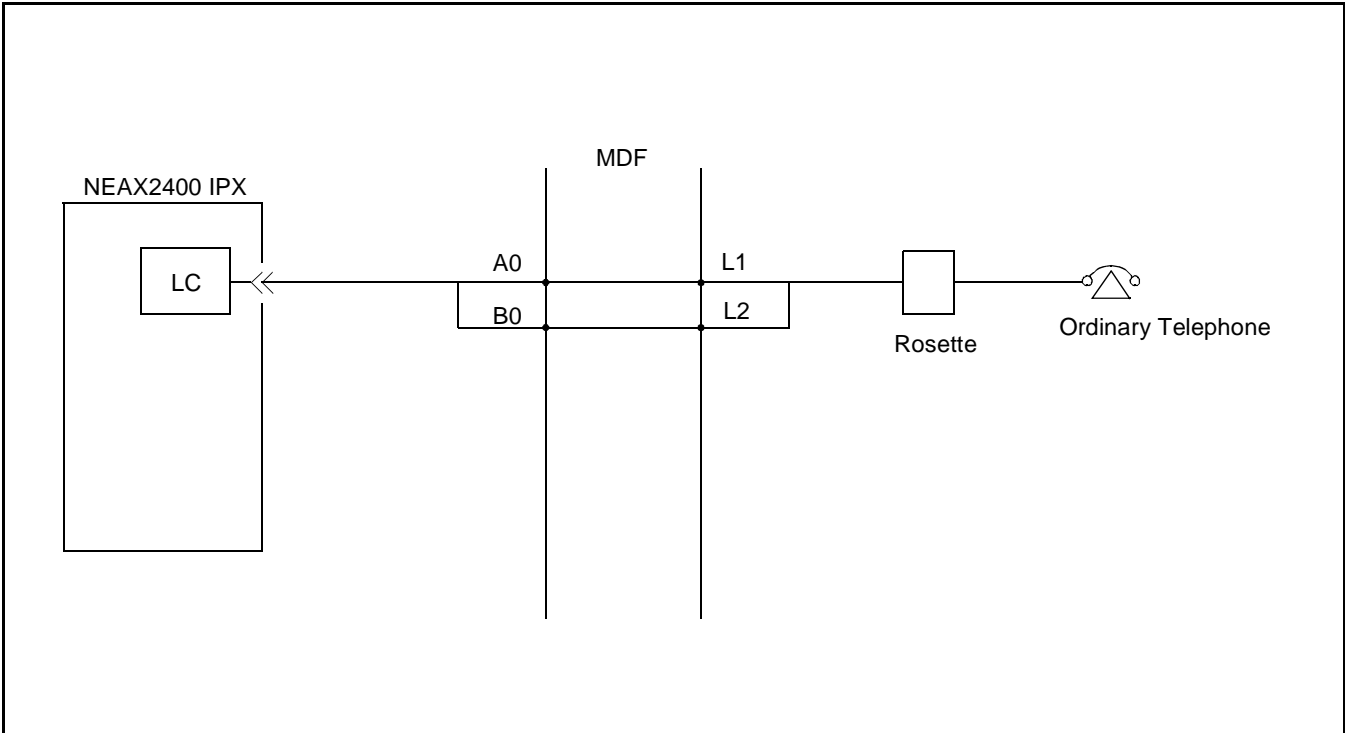
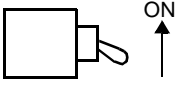
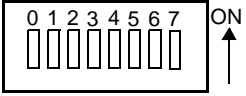
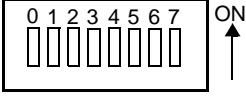
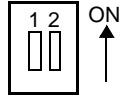
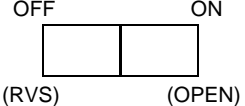


Figure 3-73 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT No.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		UP : Circuit card make busy
		SW10 (BNW 0 - 7)		
		SW11 (BNW 8 - 15)		
		SW12		
		SW13		

# PA-16LCBJ-B Line Circuit

## 1. General Function

The PA-16LCBJ-B circuit card, which is exclusively used in a  $\mu$ -law system, provides an interface between a maximum of 16 analog terminals and the system with a range of 600 (Ohm) inclusive of terminal resistance.

This card also can send “Stutter Dial Tone”, which is not a continuous tone, to an associated terminal which has no Message Waiting Lamp (MWL) instead of activating the MWL if required.

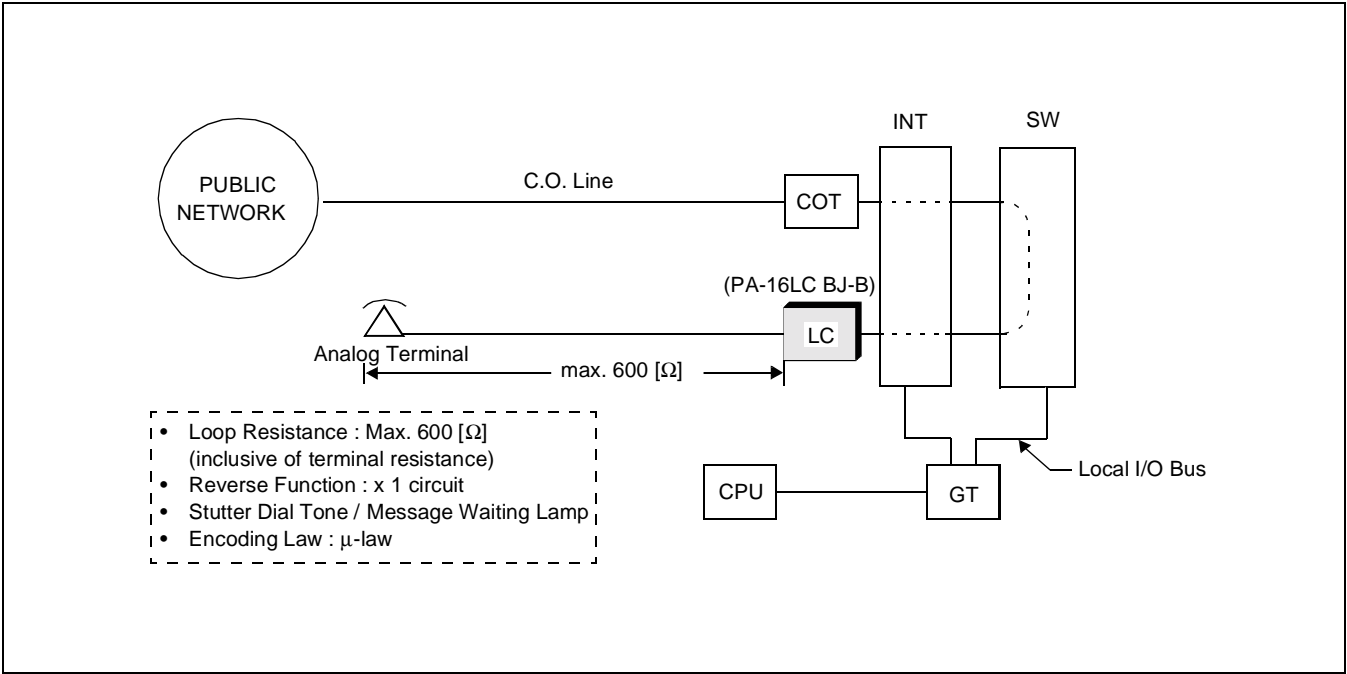


Figure 3-74 Location of PA-16LCBJ-B (16LC) Card in the System

**PA-16LCBJ-B**  
Line Circuit

2. Mounting Location/Condition

The mounting locations of this circuit card are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps and switches on this circuit card is shown in Figure 3-75.

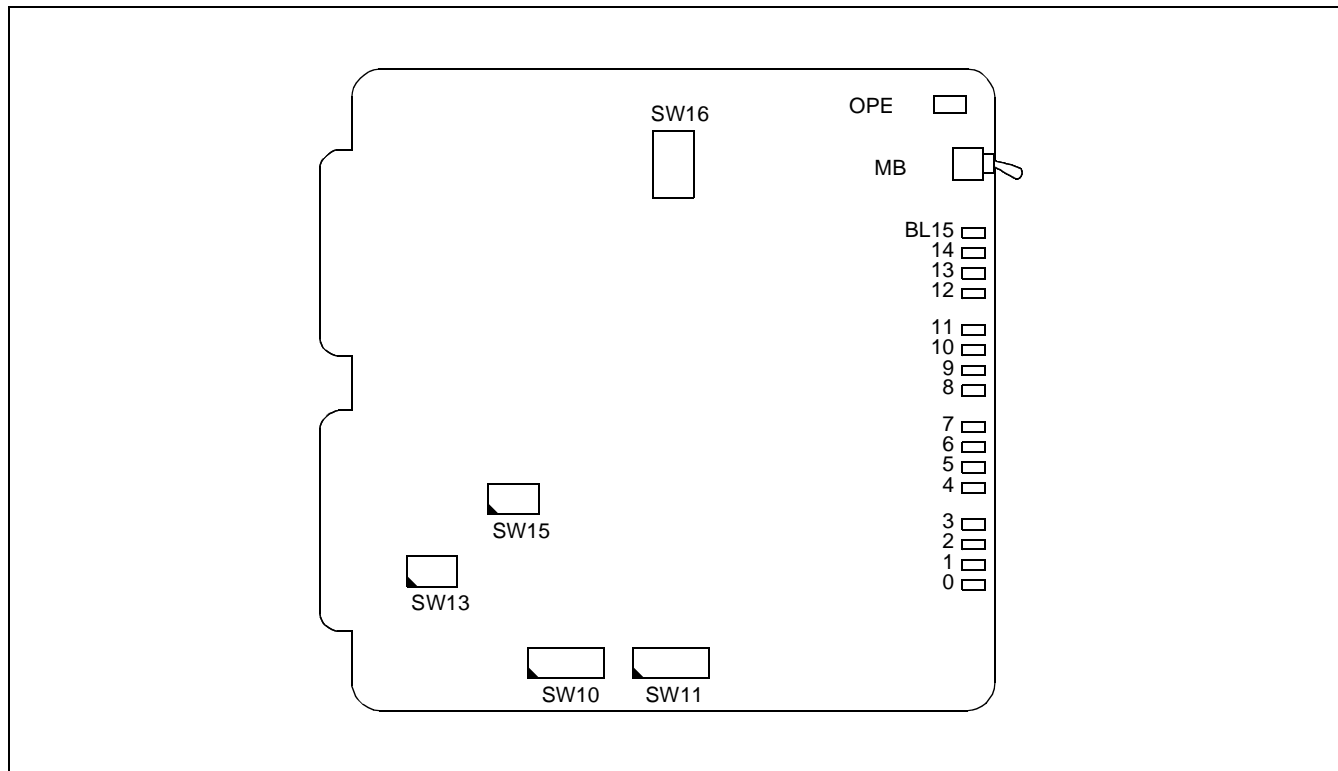


Figure 3-75 Face Layout of PA-16LCBJ-B (16LC)

4. Lamp Indications

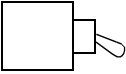
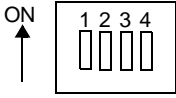
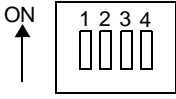
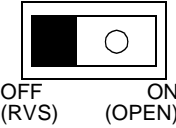
The contents of lamp indications of this circuit card are shown in the table below.

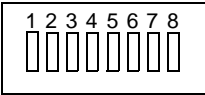
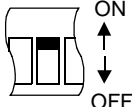
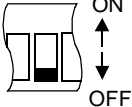
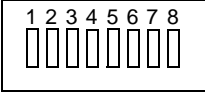
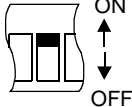
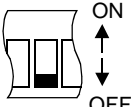
LAMP NAME	COLOR	STATE	MEANING
OPE	Green	Steady Lighting	The circuitry of the circuit card is operating normally.
BL0 ~ BL15	Green	Steady Lighting	Line loop exists.
		Flashing	1) Ringing signal is being transmitted. Busy LED keeps flashing in synchronizing with on/off of the ringing signal. 2) Dial pulses are being received. While dial pulses from a line are being received, Busy LED keeps flashing in synchronizing with the dial pulses coming from the line. 3) Line is in make-busy state. Busy LED keeps flashing at 60 ipm.

**PA-16LCBJ-B**  
Line Circuit

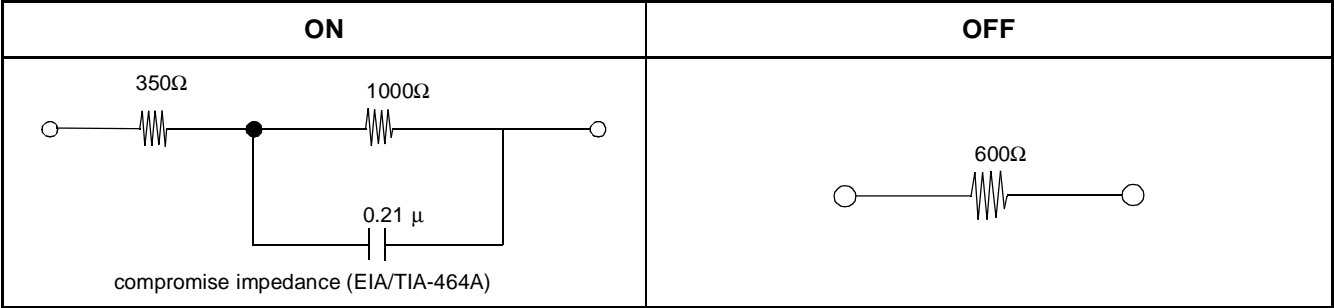
5. Switch Settings

Switches on the PA-16LC BJ-B card have the following meanings.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW00(MB) 		UP		Card make-busy (Inserted state)
		DOWN		Card make-busy cancel (Operating state)
SW13 	1	OFF	×	Fixed to OFF
	2	ON		Stutter dial tone is available
		OFF	×	Stutter dial tone is not available
	3	OFF	×	Fixed to OFF
SW15 	1	OFF	×	Fixed to OFF
	2	OFF	×	Fixed to OFF
	3	ON		Message waiting lamp flashes (1-sec. ON/1-sec. OFF)
		OFF	×	Message waiting lamp lights or flashes (controlled by software)
	4	OFF	×	Fixed to OFF
SW16 		ON		Momentary open
		OFF	×	Polarity reverse

SWITCH NAME		SETTING	
<p>SW-10 (BNW0 - 7)</p> 	<p>Balancing Network Designation</p> <ul style="list-style-type: none"> <li>• Each element corresponds to circuits 0 - 7.</li> </ul>		<p>BNW: Compromise Impedance (EIA/TIA-464A) ◀ for long distance</p>
			<p>BNW: 600 Ω ◀ for short distance</p>
<p>SW-11 (BNW8 - 15)</p> 	<p>Balancing Network Designation</p> <ul style="list-style-type: none"> <li>• Each element corresponds to circuits 8 - 15.</li> </ul>		<p>BNW: Compromise Impedance (EIA/TIA-464A) ◀ for long distance</p>
			<p>BNW: 600 Ω ◀ for short distance</p>

**Note:** *Compromise Impedance (EIA/TIA-464A) and 600 Ω are composed as follows.*



6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown in Figure 3-76.

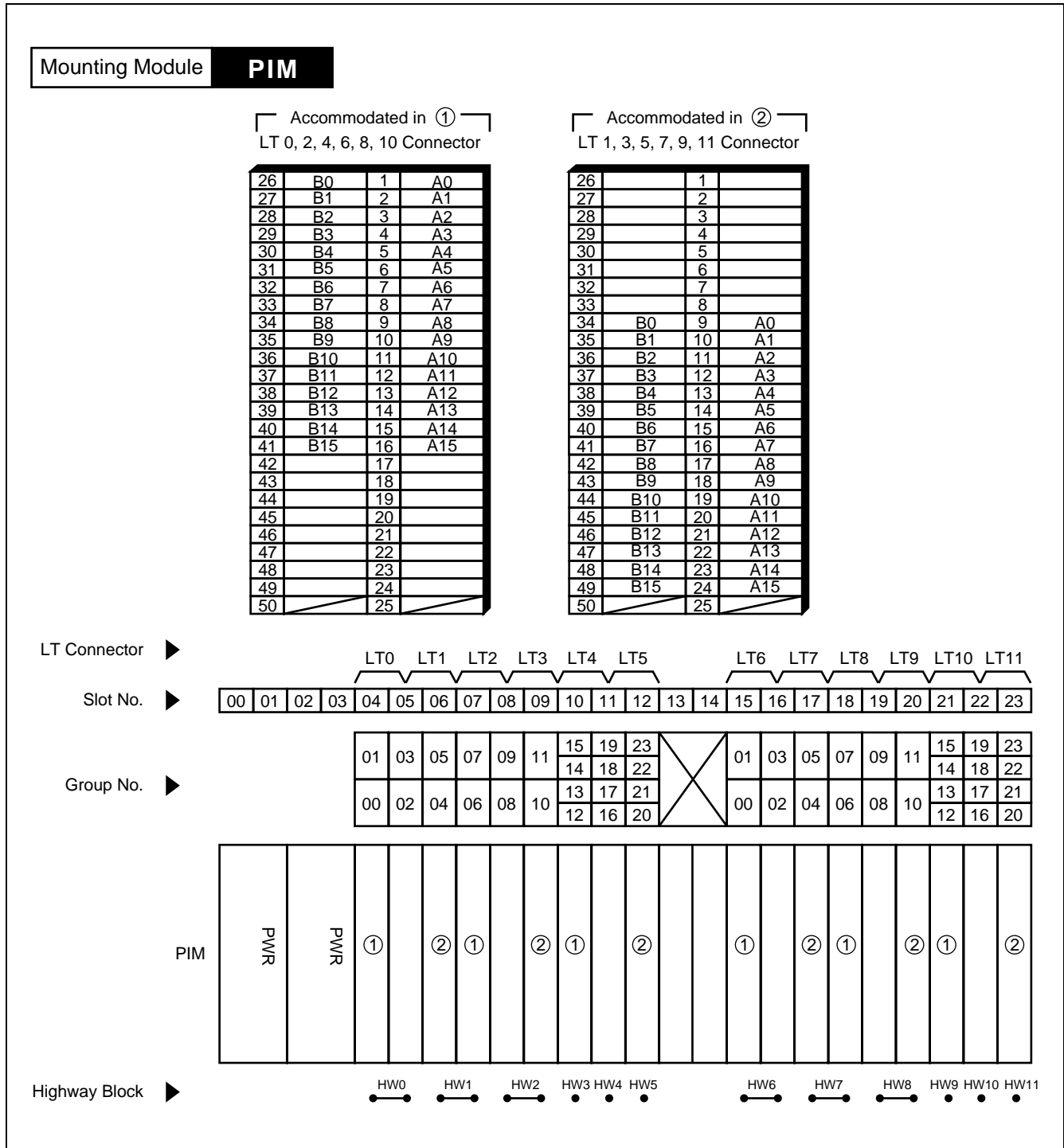


Figure 3-76 LT Connector Leads Accommodation (1/2)

Mounting Module **PIM**

Accommodated in ③

LT 0, 2, 4, 6, 8, 10 Connector				LT 1, 3, 5, 7, 9, 11 Connector			
26		1		26	B8	1	A8
27		2		27	B9	2	A9
28		3		28	B10	3	A10
29		4		29	B11	4	A11
30		5		30	B12	5	A12
31		6		31	B13	6	A13
32		7		32	B14	7	A14
33		8		33	B15	8	A15
34		9		34		9	
35		10		35		10	
36		11		36		11	
37		12		37		12	
38		13		38		13	
39		14		39		14	
40		15		40		15	
41		16		41		16	
42	B0	17	A0	42		17	
43	B1	18	A1	43		18	
44	B2	19	A2	44		19	
45	B3	20	A3	45		20	
46	B4	21	A4	46		21	
47	B5	22	A5	47		22	
48	B6	23	A6	48		23	
49	B7	24	A7	49		24	
50		25		50		25	

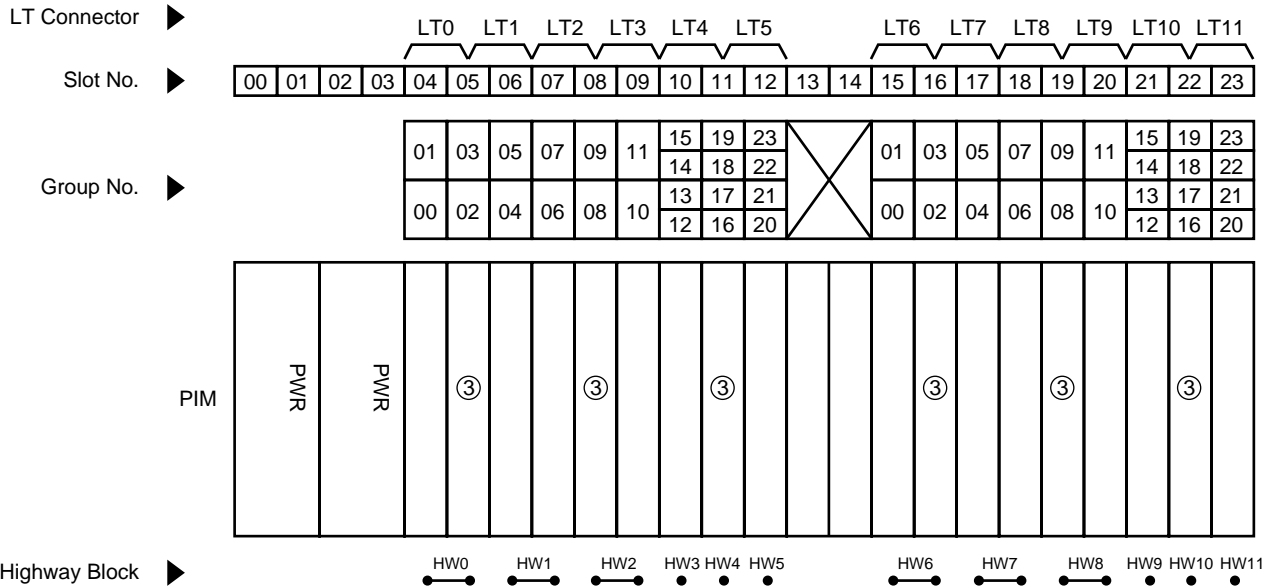


Figure 3-76 LT Connector Leads Accommodation (2/2)

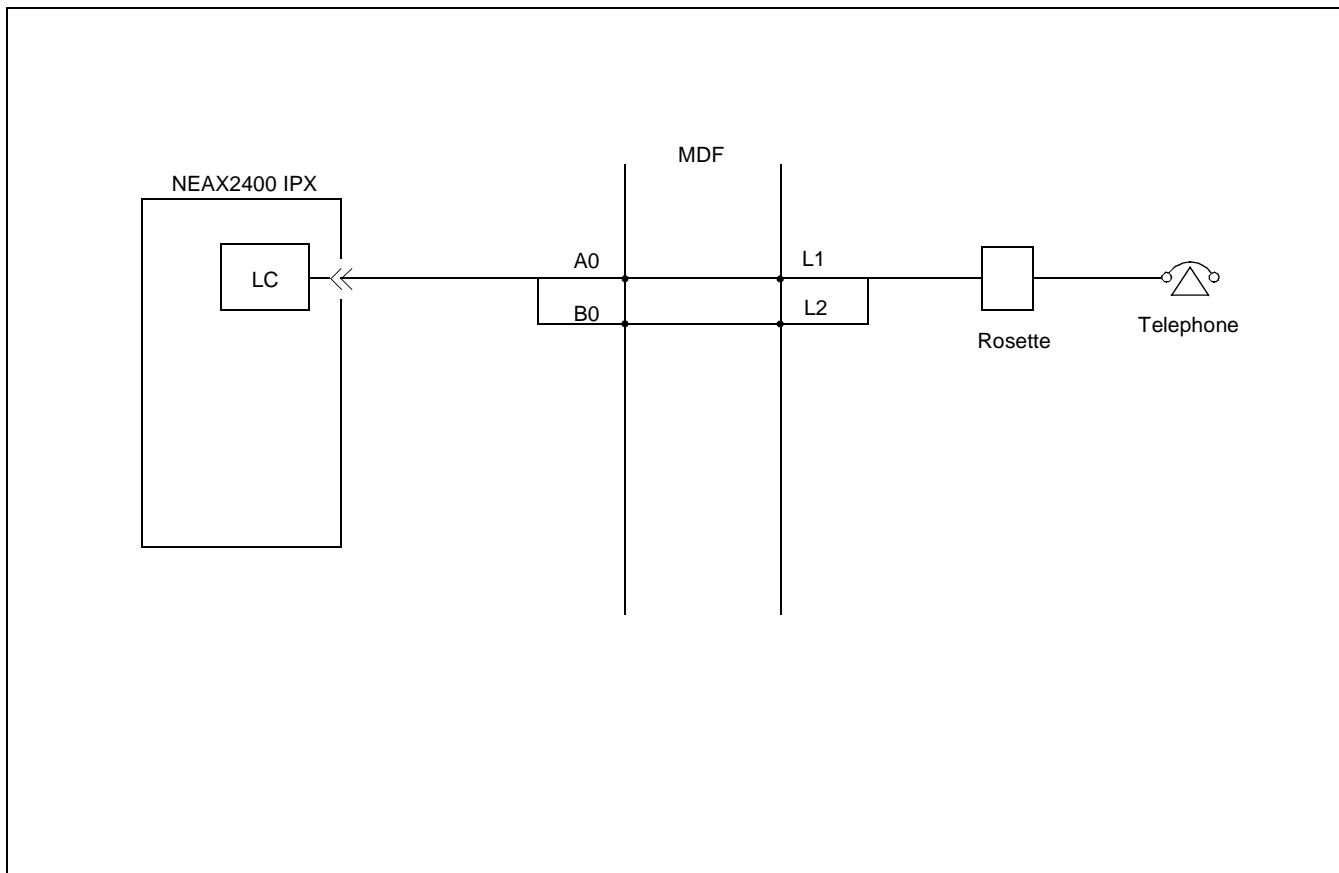
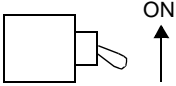
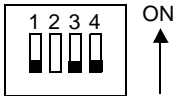
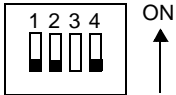
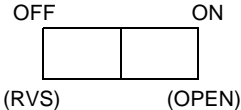
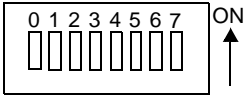
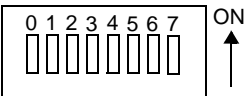


Figure 3-77 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		
		SW13		
		SW15		
		SW16		
		SW10 (BNW0-7)		
		SW11 (BNW8-15)		

## PA-16LCBW Line Circuit

### 1. General Function

The PA-16LCBW circuit card provides an interface between a maximum of 16 analog voice terminals and the system with a range of 1200  $\Omega$  inclusive of terminal resistance. This card also can send “Stutter Dial Tone”, which is not a continuous tone, to an associated terminal which has no Message Waiting Lamp (MWL) instead of activating the MWL if required. In addition momentary open/reverse battery function is provided for 16 channels on this card. This is a -48V card.

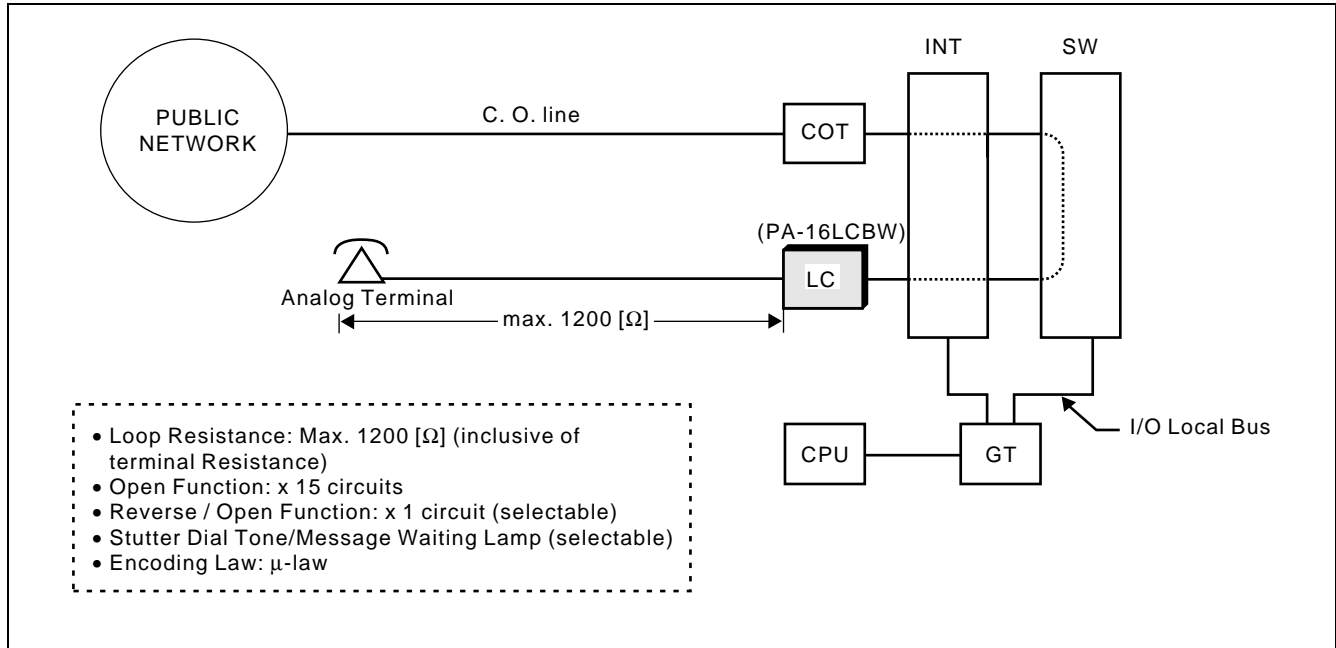
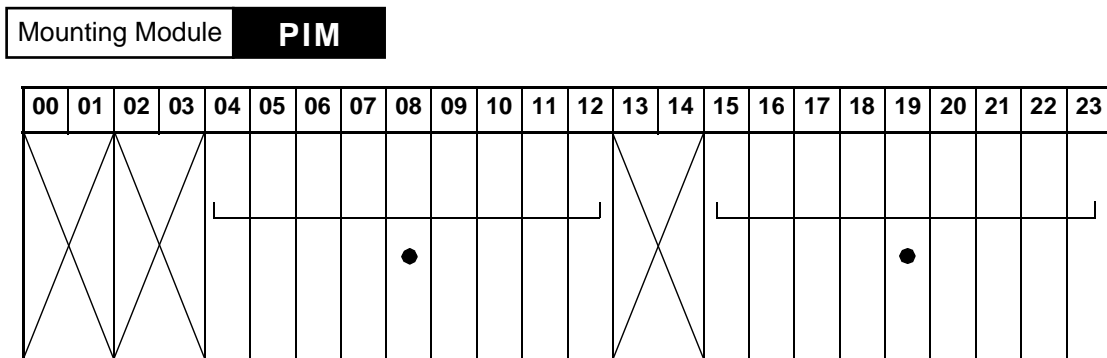


Figure 3-78 Location of PA-16LCBW (LC) within the System



2. Mounting Location/Condition

The PA-16LCBW (LC) circuit card can be mounted in the following universal slots.



**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches on this circuit card is shown in [Figure 3-79](#).

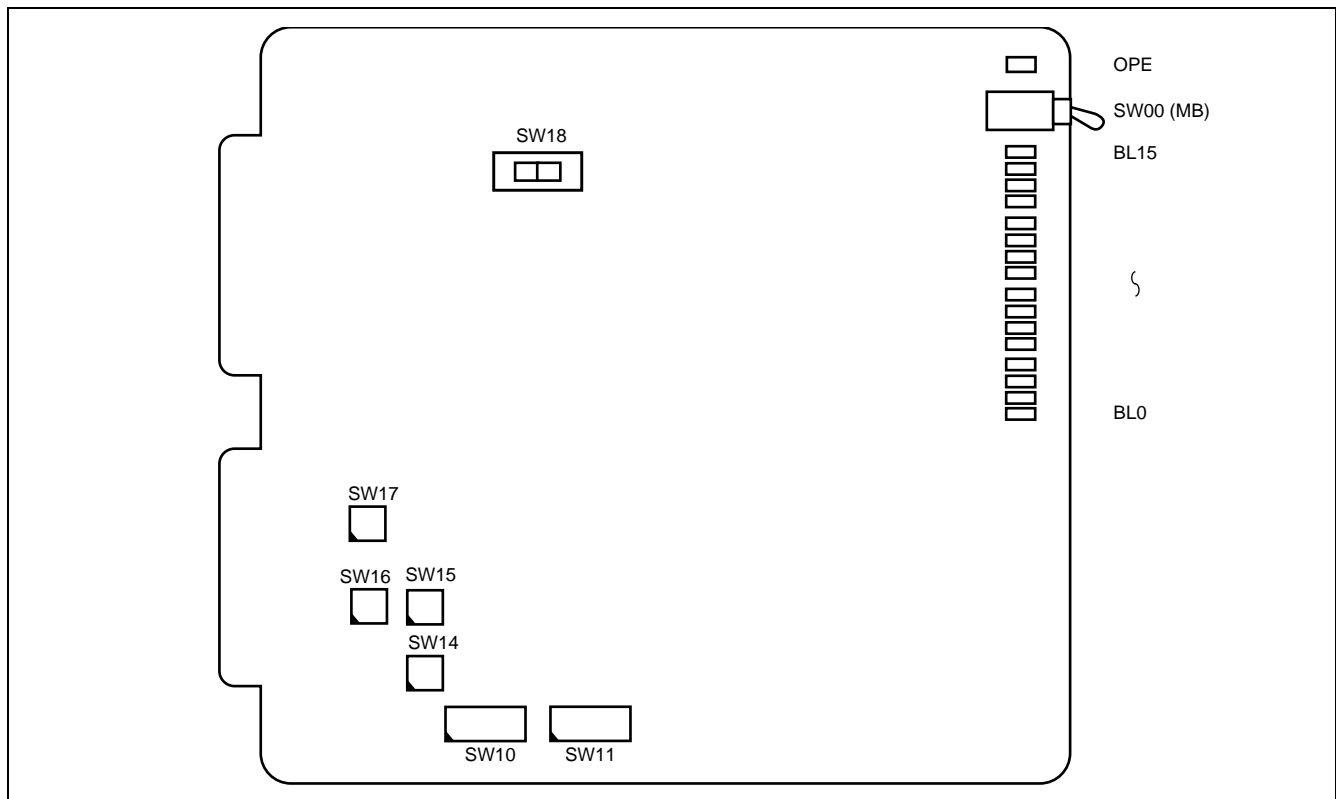


Figure 3-79 Face Layout of PA-16LCBW (LC)

**PA-16LCBW**  
Line Circuit

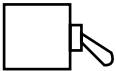
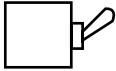
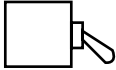
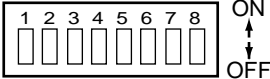


4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

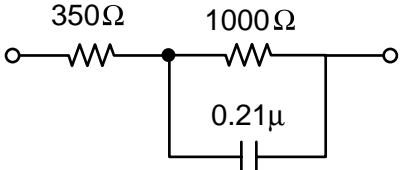
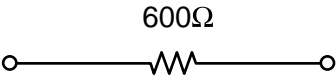
LAMP NAME	LAMP COLOR	LAMP STATUS	MEANING OF INDICATION
OPE	Green	Steady Lighting	The circuitry of the circuit card is operating normally.
BL0 , BL15	Green	Steady Lighting	Line loop exists.
		Flashing	<ol style="list-style-type: none"> <li>1) Ringing signal is being transmitted. Busy Lamp keeps flashing in synchronizing with on/off of the ringing signal.</li> <li>2) Dial pulses are being received. While dial pulses from a line are being received, Busy Lamp keeps flashing in synchronizing with the dial pulses coming from the line.</li> <li>3) Line is in make-busy state. Busy Lamp keeps flashing at 60 ipm.</li> </ol>

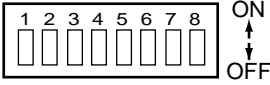
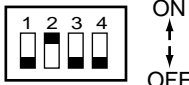
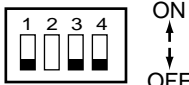
5. Switch Settings

Switches on the PA-16LCBW card have the following meanings.

SWITCH	FUNCTION	SWITCH SETTING		MEANING
SW00 (MB) 	Circuit Card Make-busy Key	ON		Circuit card make-busy
		OFF		Circuit card make-busy cancel (Normal operating mode)
SW10 (BNW0-7) 	Balancing Network Designation  • Each element on this switch corresponds to circuit #0-#7.	ON		North America, Other Country ( $\mu$ Law) BNW : Compromise Impedance (EIA/TIA-464B) <b>(Note)</b> for long distance.
		OFF		North America, Other Country ( $\mu$ Law) BNW : 600 $\Omega$ <b>(Note)</b> for short distance

**Note:** *Compromise Impedance (EIA/TIA-464B) and 600  $\Omega$ .*  
*(For North America, Other Country ( $\mu$  Law))*

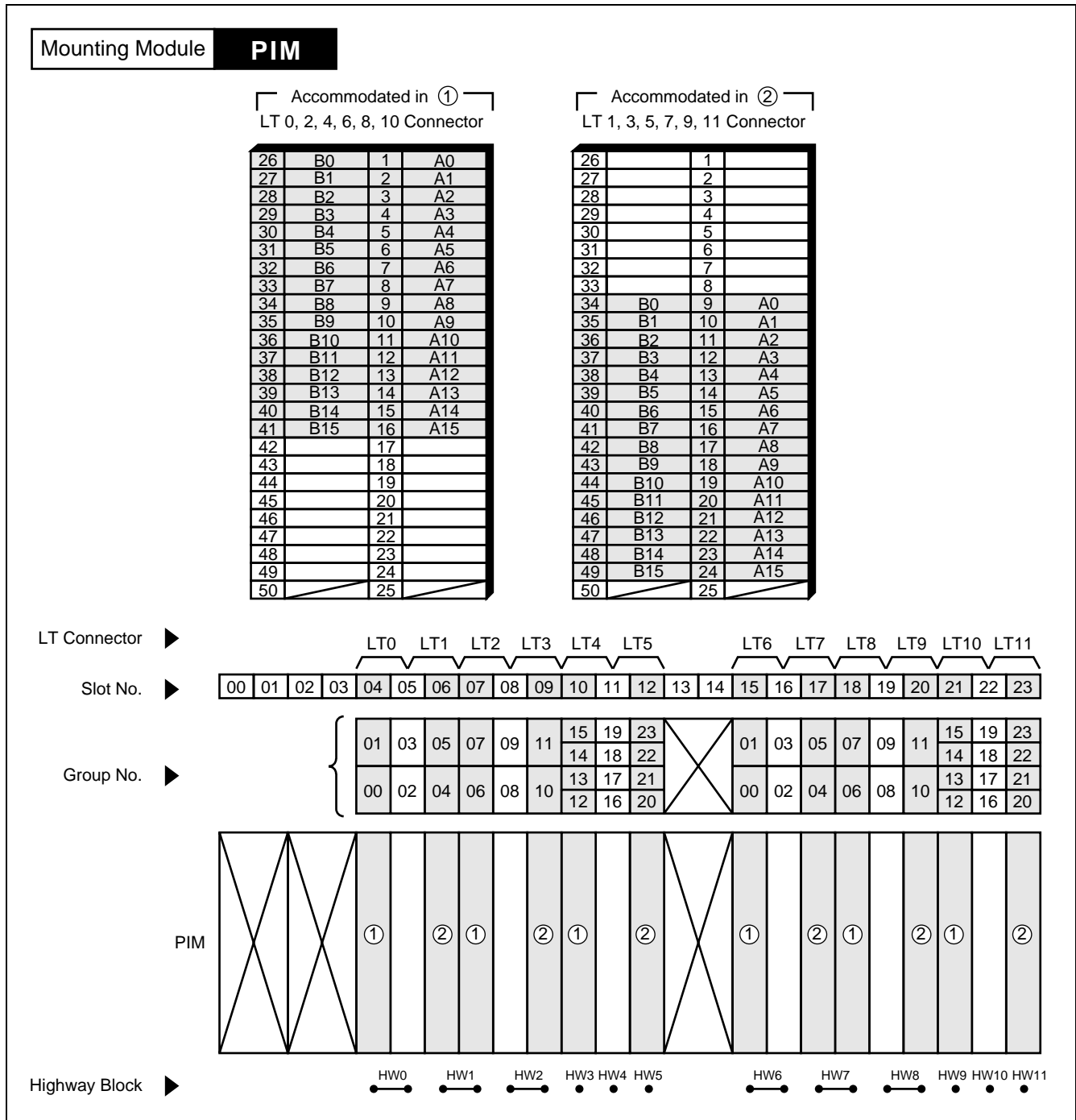
ON	OFF
 <p>Compromise Impedance(EIA/TIA-464B)</p>	

SWITCH	SWITCH No.	FUNCTION	SWITCH SETTING	MEANING
<p>SW11 (BNW8-15)</p> 		<p>Balancing Network Designation</p> <ul style="list-style-type: none"> <li>• Each element on this switch corresponds to circuit #8-#15.</li> </ul>	(This same as previous page)	
<p>SW14</p> 	1		OFF	Fixed to OFF
	2		ON	Fixed to ON
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF
<p>SW15</p> 	1		OFF	Fixed to OFF
	2		ON	Stutter Dial Tone Available
			OFF	Stutter Dial Tone not Available
	3		OFF	Fixed to OFF
4		OFF	Fixed to OFF	

SWITCH	No.	FUNCTION	SWITCH SETTING	MEANING
<p>SW16</p>	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF
<p>SW17</p>	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3	Message Waiting Lamp	ON	Message Waiting Lamp Flashing (Controlled by Firmware)
			OFF	Message Waiting Lamp lit or Flashing (Selected and Controlled by Software)
4		OFF	Fixed to OFF	
<p>SW18</p> <p>Slide switch</p>	Polarity reverse or Momentary Open (circuit #15 Only)		ON	Momentary open
			OFF	Polarity reverse

6. External Interface

Accommodation of the LT connector leads for this circuit card is shown in Figure 3-80.



Mounting Module **PIM**

Accommodated in ③

LT 0, 2, 4, 6, 8, 10 Connector				LT 1, 3, 5, 7, 9, 11 Connector			
26		1		26	B8	1	A8
27		2		27	B9	2	A9
28		3		28	B10	3	A10
29		4		29	B11	4	A11
30		5		30	B12	5	A12
31		6		31	B13	6	A13
32		7		32	B14	7	A14
33		8		33	B15	8	A15
34		9		34		9	
35		10		35		10	
36		11		36		11	
37		12		37		12	
38		13		38		13	
39		14		39		14	
40		15		40		15	
41		16		41		16	
42	B0	17	A0	42		17	
43	B1	18	A1	43		18	
44	B2	19	A2	44		19	
45	B3	20	A3	45		20	
46	B4	21	A4	46		21	
47	B5	22	A5	47		22	
48	B6	23	A6	48		23	
49	B7	24	A7	49		24	
50		25		50		25	

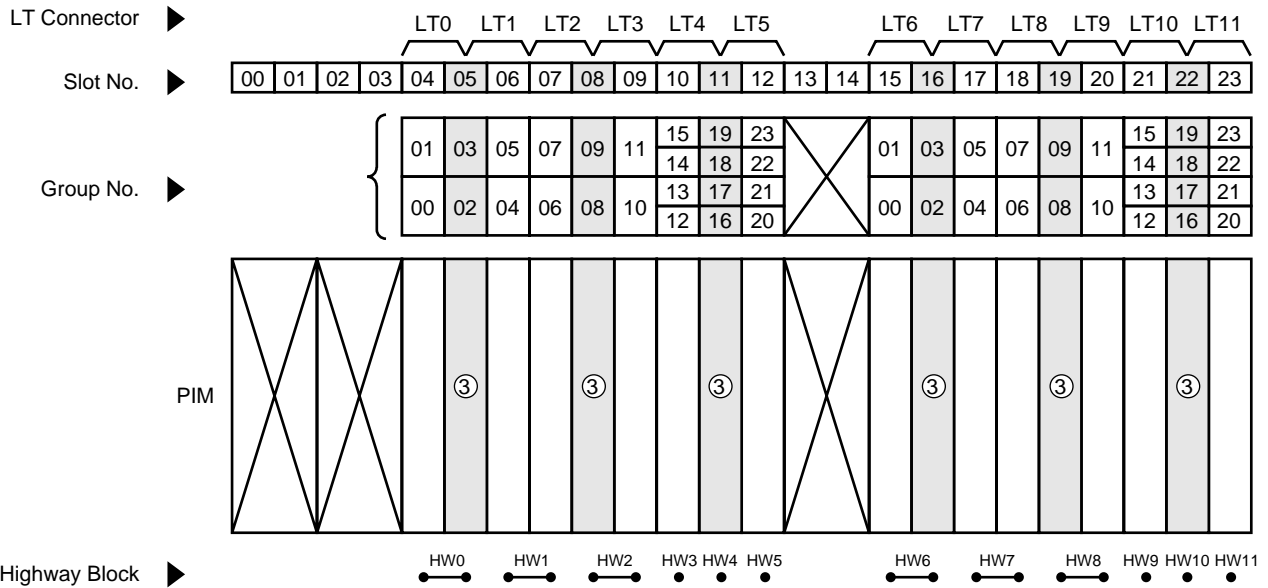


Figure 3-80 LT Connector Lead Accommodation (2/2)

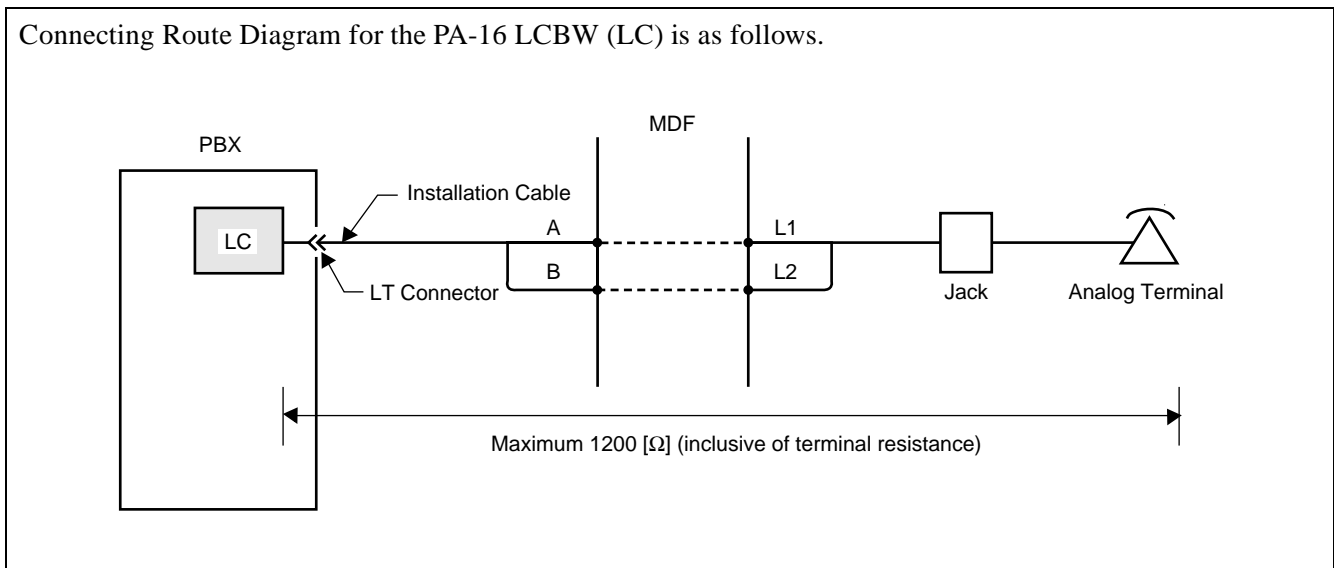
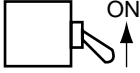
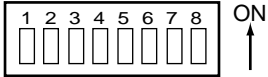
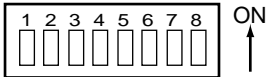

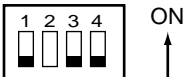


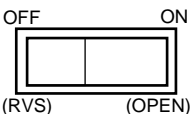


Figure 3-81 Connecting Route Diagram



7. Switch Setting Sheet

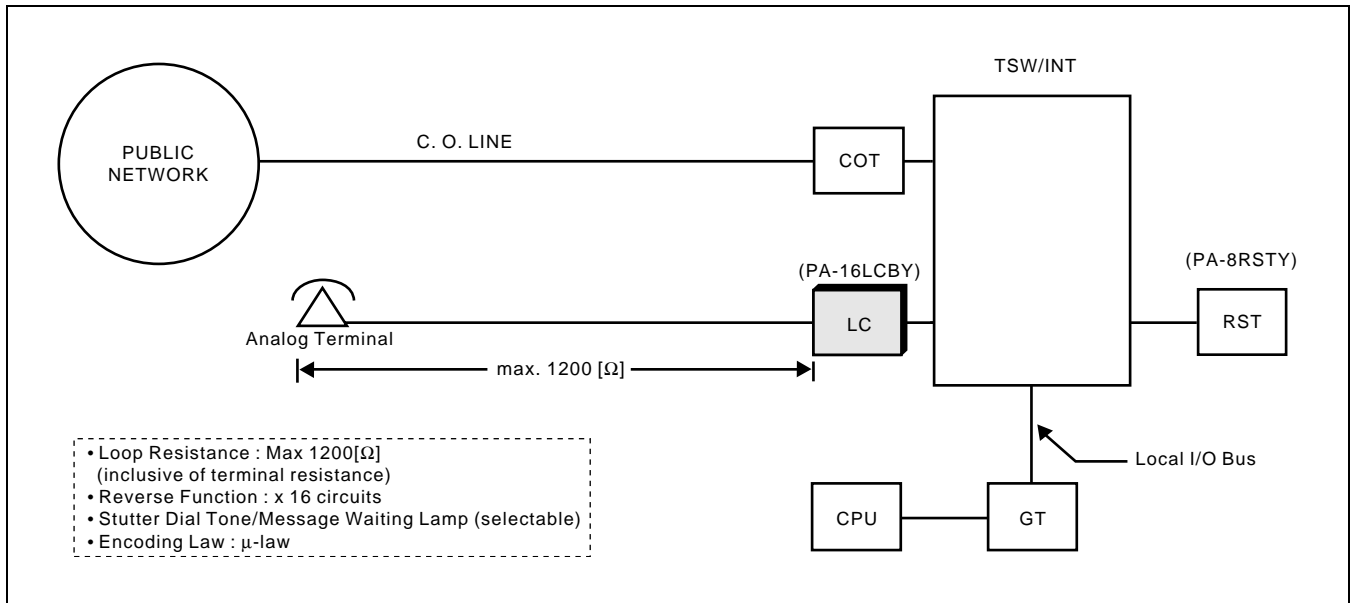
MODULE	SLOT No.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		
		SW10 (BNW0-7)		
		SW11 (BNW8-15)		
		SW14		
		SW15		
		SW16		
		SW17		
		SW18		

**PA-16LCBY**  
**Line Circuit**

1. General Function

The PA-16LCBY circuit card provides an interface between a maximum of 16 analog voice terminals and the system with a range of 1200 (Ohm) inclusive of terminal resistance. This card also can send “Stutter Dial Tone”, which is not a continuous tone, to an associated terminal which has no Message Waiting Lamp (MWL) instead of activating the MWL if required. In addition polarity reverse function is provided for 16 channels on this card. The card can be used for Caller ID service. This is a -48V card.

**Note:** *The PA-16LCBY card requires Series 7400 or later software.*



**Figure 3-82 Location of PA-16LCBY(LC) Circuit card within the System**

2. Mounting Location/Condition

The PA-16LCBY(LC) circuit card can be mounted in the following universal slots.

Mounting Module **PIM**

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
X		X		-----								-----											
X		X		●								●											
X		X		-----								-----											

3. Face Layout of Lamps, Switches and Connectors

The face layout of lamps, switches on this card is shown in [Figure 3-83](#).

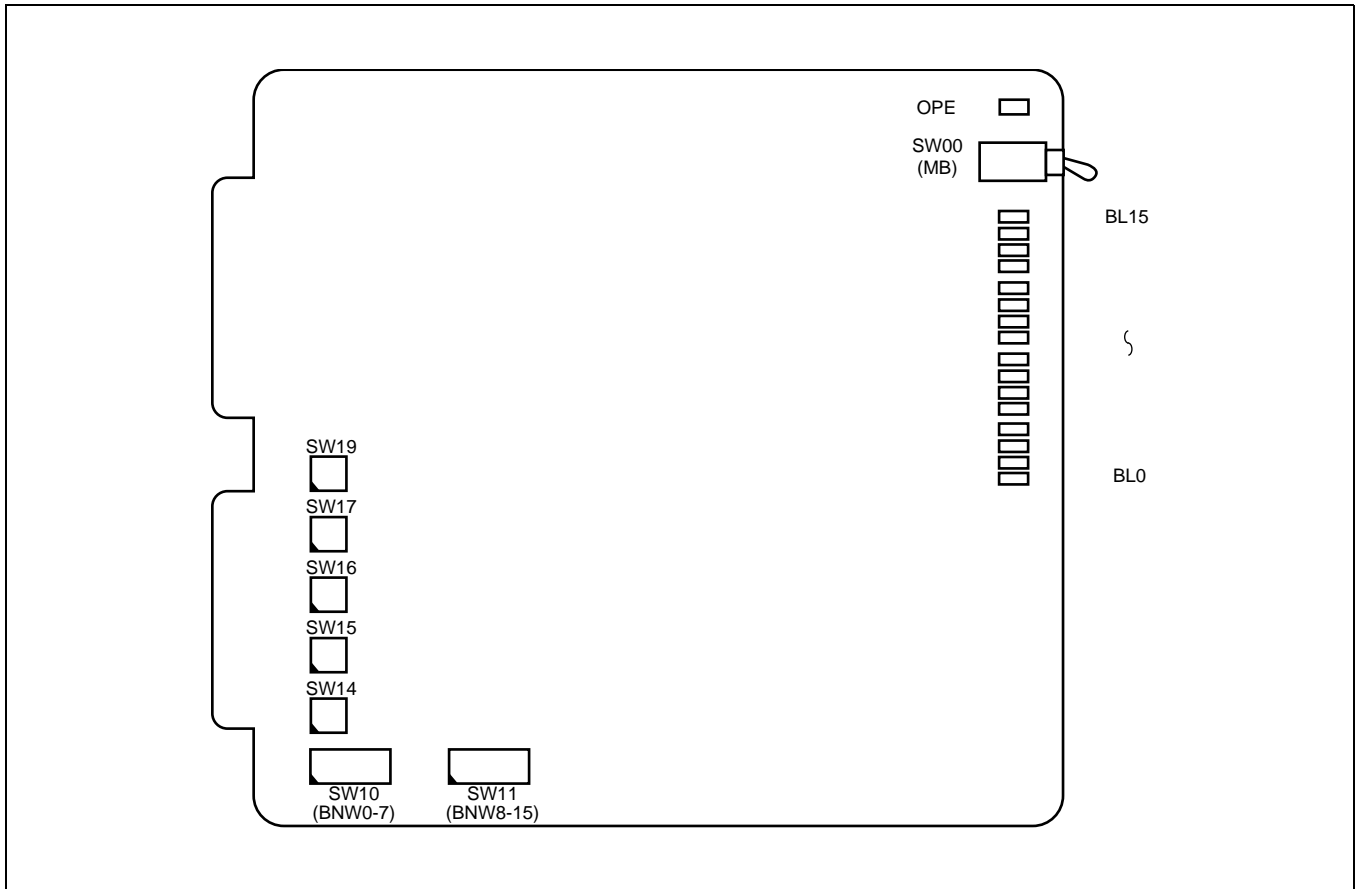


Figure 3-83 Face Layout of PA-16LCBY(LC) Card

**PA-16LCBY**  
Line Circuit

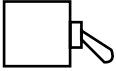
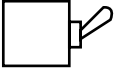
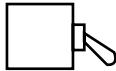
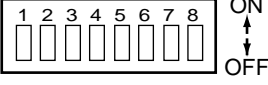


4. Lamp Indications

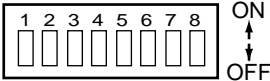
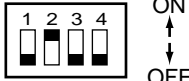
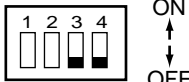
The contents of lamp indications of this circuit card are shown in the table below.

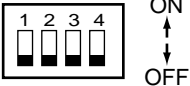
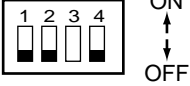
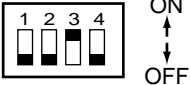
LAMP NAME	LAMP COLOR	LAMP STATUS	MEANING OF INDICATION
OPE	Green	Steady Lighting	The circuitry of the circuit card is operating normally.
BL0 ? BL15	Green	Steady Lighting	Line loop exists.
		Flashing	1) Ringing signal is being transmitted. Busy Lamp keeps flashing in synchronizing with on/off of the ringing signal. 2) Dial pulses are being received. While dial pulses from a line are being received, Busy Lamp keeps flashing in synchronizing with the dial pulses coming from the line. 3) Line is in make-busy state. Busy Lamp keeps flashing at 60 ipm.

5. Switch Settings

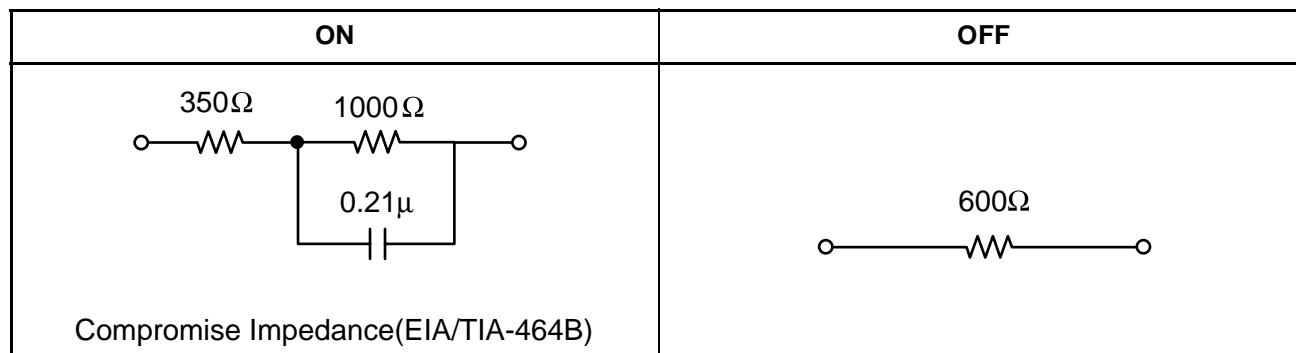
Switches on the PA-16LCBY (LC) card have the following meanings.

SWITCH	FUNCTION	SWITCH SETTING		MEANING
SW00 (MB)  	Circuit Card Make-busy Key	OFF		Circuit card make-busy cancel
		ON		Circuit card make-busy
SW10 (BNW0-7)  	Balancing Network Designation • Each element on this switch corresponds to circuit #0-#7.  When this switch has been set, see SW14.	ON		North America, Other Country ( $\mu$ Law) BNW : Compromise Impedance (EIA/TIA-464B) ( <b>Note</b> ) for long distance
		OFF		North America, Other Country ( $\mu$ Law) BNW : 600 $\Omega$ ( <b>Note</b> ) for short distance

SWITCH	No.	FUNCTION	SWITCH SETTING	MEANING
<p>SW11 (BNW8-15)</p> 		<p>Balancing Network Designation</p> <ul style="list-style-type: none"> <li>• Each element on this switch corresponds to circuit #8-#15.</li> </ul>	[the same as previous page]	
<p>SW14</p> 	1		OFF	Fixed to OFF
	2		ON	Fixed to ON
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF
<p>SW15</p> 	1	<p>North America Brazil China Other Country</p>	OFF	Fixed to OFF
		<p>PAD (Australia Only)</p>	ON	NEAX 2400 PAD PAD ON/OFF = 9dB/0dB
			OFF	ICS-PBX PAD PAD ON/OFF = 9dB/6dB
	2		ON	Stutter Dial Tone Available
			OFF	Stutter Dial Tone not Available
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF

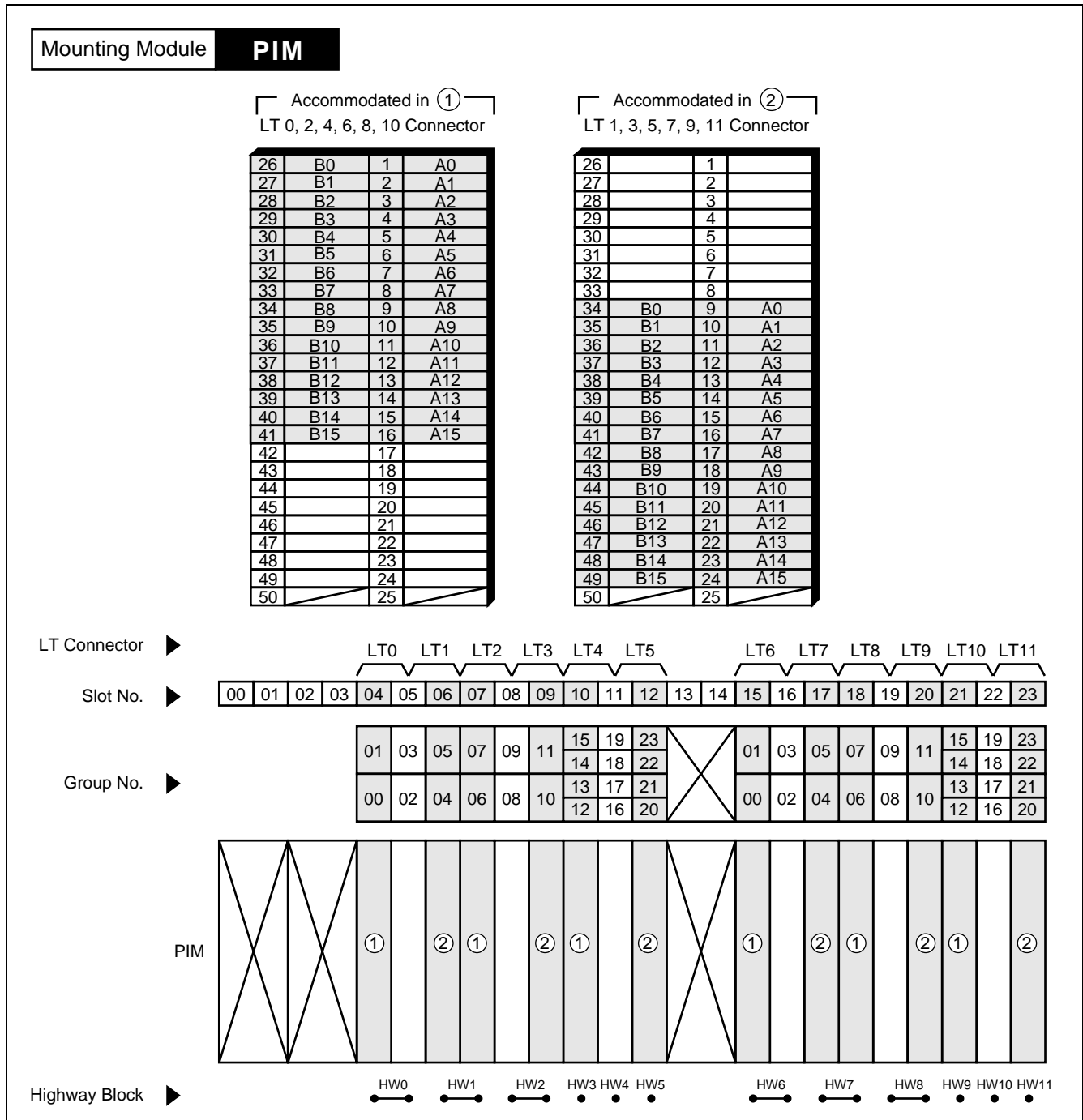
SWITCH	No.	FUNCTION	SWITCH SETTING	MEANING
<p>SW16</p> 	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF
<p>SW17</p> 	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3	Message Waiting Lamp	ON	Message Waiting Lamp Flashing (Controlled by Firmware)
			OFF	Message Waiting Lamp lit or Flashing (Selected and Controlled by Software)
	4		OFF	Fixed to OFF
<p>SW19</p> 	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3		ON	Fixed to ON
	4		OFF	Fixed to OFF

**Note:** *Compromise Impedance (EIA/TIA-464B) and 600Ω  
(For North America, Other Country (μ Law))*



6. External Interface

Accommodation of the LT connector leads for this circuit card is shown in Figure 3-84.





Mounting Module **PIM**

Accommodated in ③

LT 0, 2, 4, 6, 8, 10 Connector				LT 1, 3, 5, 7, 9, 11 Connector			
26		1		26	B8	1	A8
27		2		27	B9	2	A9
28		3		28	B10	3	A10
29		4		29	B11	4	A11
30		5		30	B12	5	A12
31		6		31	B13	6	A13
32		7		32	B14	7	A14
33		8		33	B15	8	A15
34		9		34		9	
35		10		35		10	
36		11		36		11	
37		12		37		12	
38		13		38		13	
39		14		39		14	
40		15		40		15	
41		16		41		16	
42	B0	17	A0	42		17	
43	B1	18	A1	43		18	
44	B2	19	A2	44		19	
45	B3	20	A3	45		20	
46	B4	21	A4	46		21	
47	B5	22	A5	47		22	
48	B6	23	A6	48		23	
49	B7	24	A7	49		24	
50		25		50		25	

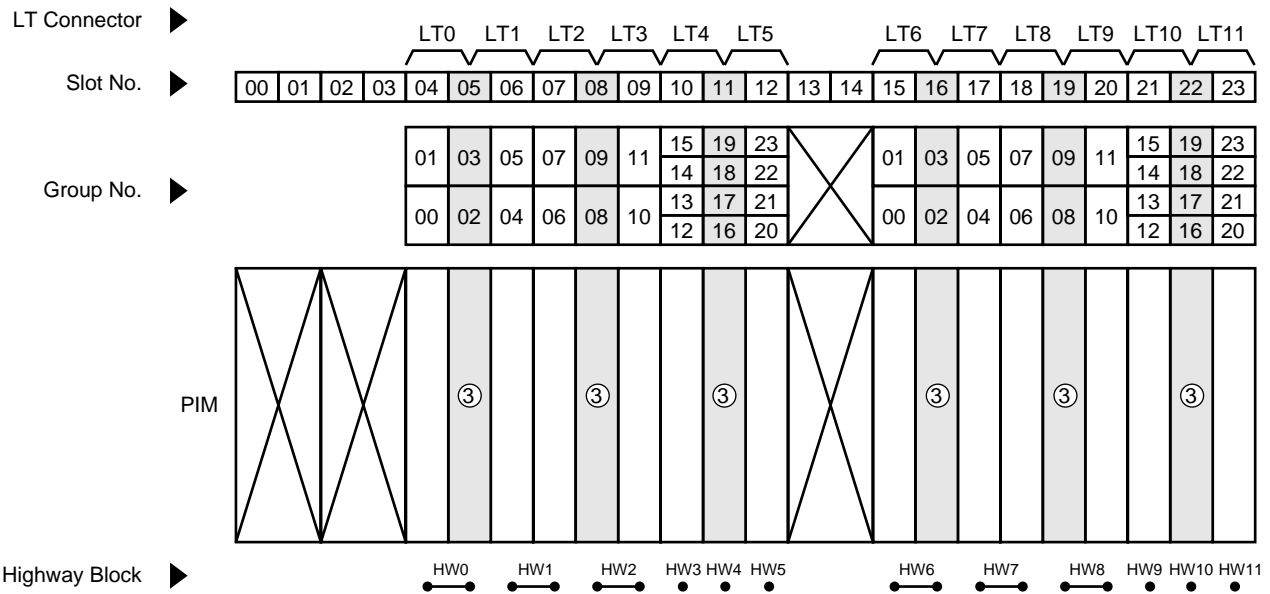


Figure 3-84 LT Connector Lead Accommodation (2/2)

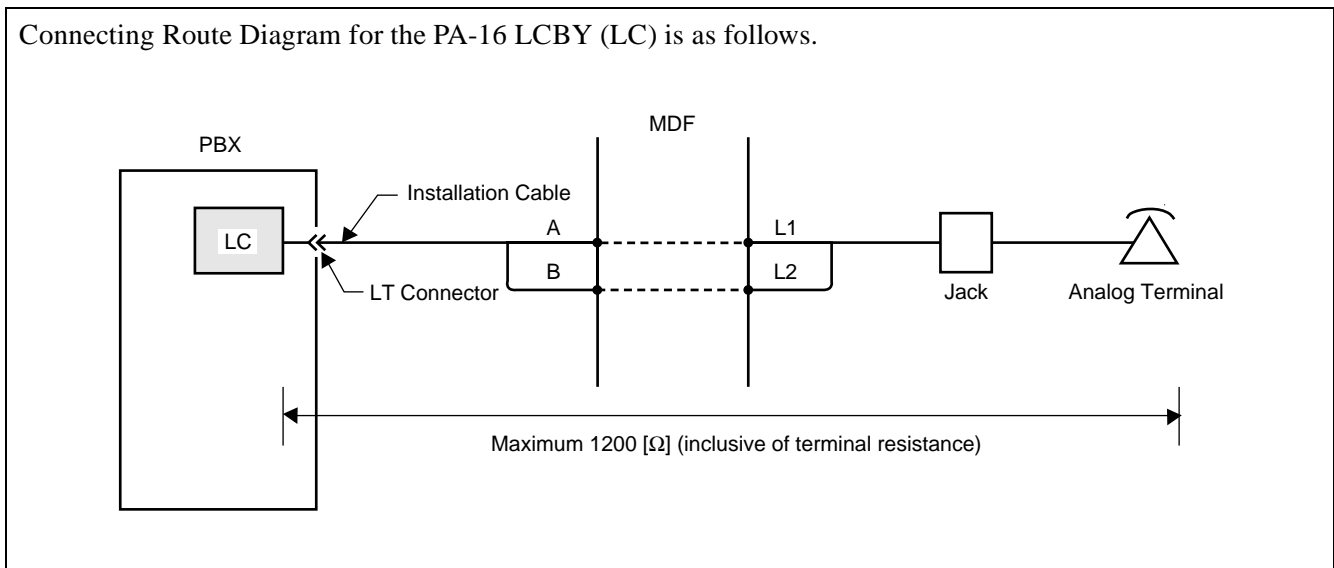
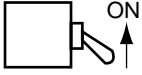
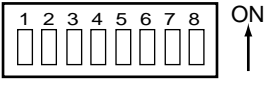
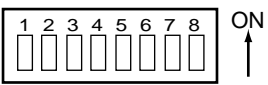
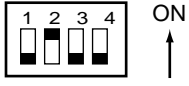


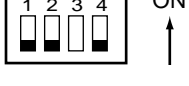



Figure 3-85 Connecting Route Diagram

7. Switch Setting Sheet

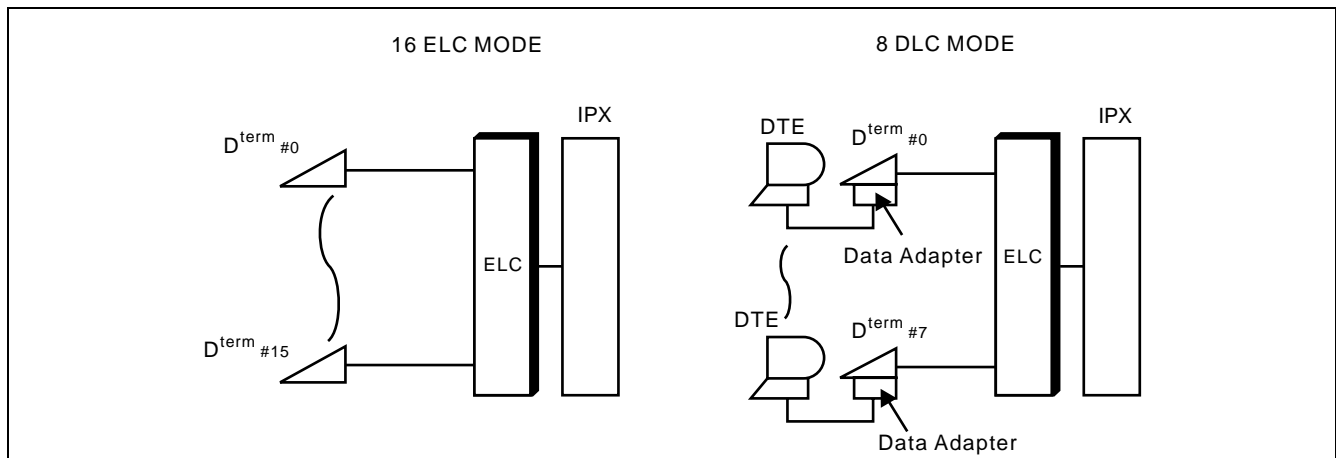
MODULE	SLOT No.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		<b>Note:</b> Normal operating mode is down.
		SW10 (BNW0-7)		
		SW11 (BNW8-15)		
		SW14		
		SW15		
		SW16		
		SW17		
		SW19		

**PA-16ELCJ**  
**Electric Line Current**

1. General Function

The PA-16ELCJ (ELC) circuit card provides an interface between the D<sup>term</sup> and the IPX. Depending on the switch settings, this card works in the following two modes.

- 16 ELC mode: A maximum of 16 sets of D<sup>term</sup>s can be connected to this card. (voice communications only)
- 8 DLC mode: A maximum of eight sets of D<sup>term</sup>s can be connected to this card. (simultaneous voice and data communications)



**Figure 3-86 Location of PA-16ELCJ (ELC) Card in the System**

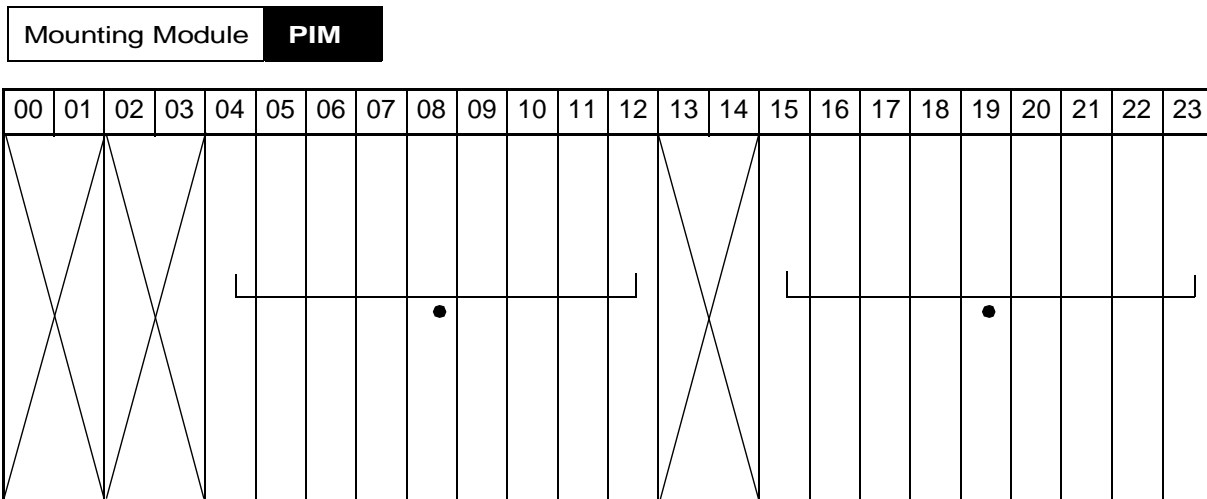
There are two different kinds of firmware EPROMs located on the PA-16ELCJ (ELC) circuit card. SP-3295 16ELCJ PROG-B provides the full performance interface for D<sup>term</sup> Series E, and SP-3270 16ELCJ PROG-A provides D<sup>term</sup> Series III interface. The following table shows the D<sup>term</sup> performance depending on each firmware EPROM.

**Table 3-3 Performance**

FIRMWARE	D <sup>term</sup> SERIES E	D <sup>term</sup> SERIES III
SP-3295 16ELC J PROG-B	<ul style="list-style-type: none"> <li>• 24 digits wide of Liquid Crystal Display (LCD).</li> <li>• Month and year (last two digits) also displayed following the time and date.</li> <li>• Software keys are available and the software keys are controlled by the system. Thus, key function data can be changed by office data.</li> </ul>	<ul style="list-style-type: none"> <li>• 16 digits wide of LCD.</li> <li>• Month and year are not displayed.</li> <li>• Software key is not available.</li> </ul>
SP-3270 16ELC J PROG-A	<ul style="list-style-type: none"> <li>• 16 digits wide of LCD.</li> <li>• Month and year are not displayed.</li> <li>• Software keys are available. However, key function is fixed (Off-hook Ringing, Mute, Microphone, Headset).</li> </ul>	<ul style="list-style-type: none"> <li>• 16 digits wide of LCD.</li> <li>• Month and year are not displayed.</li> <li>• Software key is not available.</li> </ul>

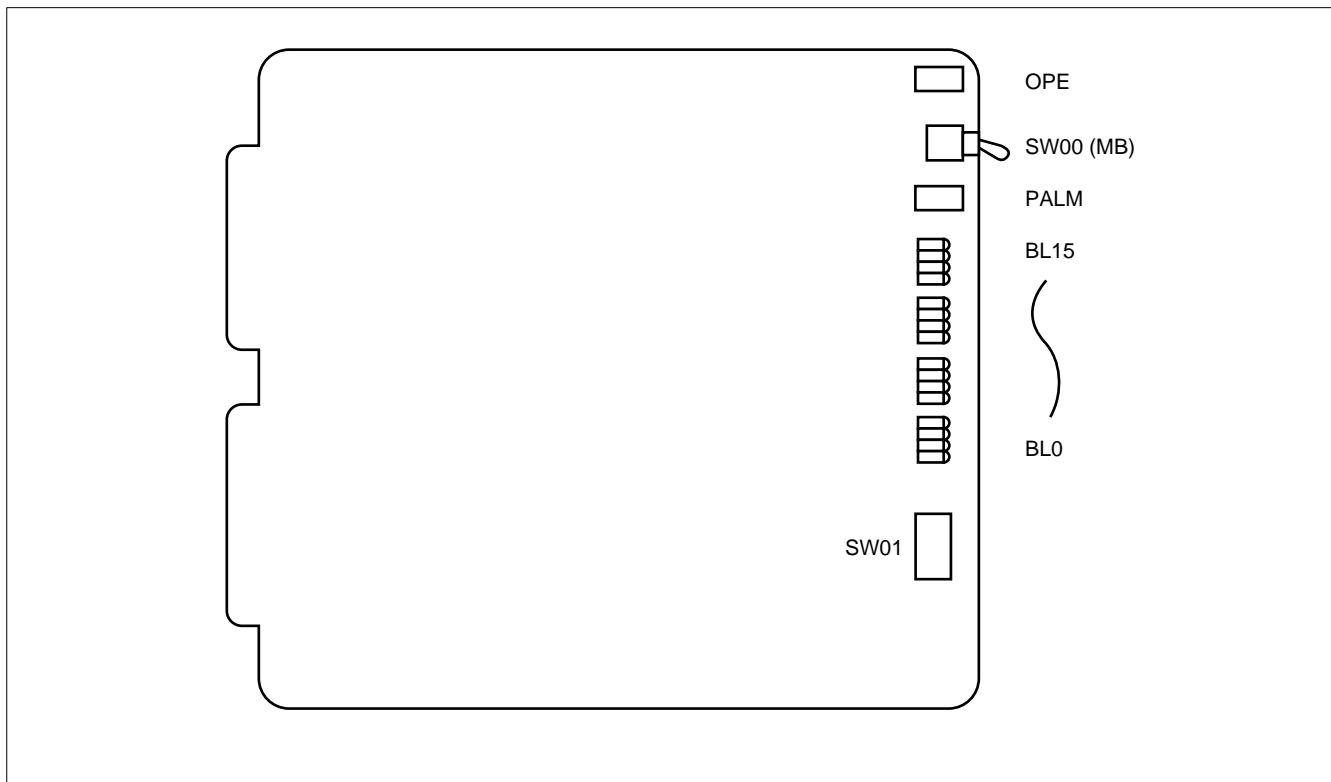
2. Mounting Location/Condition

The PA-16ELCJ (ELC) card can be mounted in any universal slot as shown below.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-87](#).



**Figure 3-87 Face Layout of PA-16ELCJ (ELC) Card**

**PA-16ELCJ**  
Electric Line Current

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while on-line operations are normal.
	OFF	Off when on-line operations are abnormal.
PALM	Red	Lights red when power supply circuit(s) is abnormal. <b>Note</b>
	OFF	Off when all the power supply circuits are normal.
BL0 , BL15	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes when the corresponding circuit is in Make-busy state or station data has not been assigned.
	OFF	Off when the corresponding circuit is idle.

**Note:** When the PALM lamp lights red, observe the following instructions.

- i) Identify the location where any in-house wires have a short circuit in all lines which belong to the PA-16ELCJ card whose PALM is on.
- ii) Repair the short-circuited wires of the associated  $D^{term}$ .
- iii) Disconnect the  $D^{term}$  from the rosette, then leave it disconnected for at least one minute.
- iv) Connect the  $D^{term}$  again.

5. Switch Settings

Switches on the PA-16ELCJ card have the following meanings.

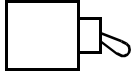
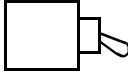
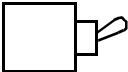
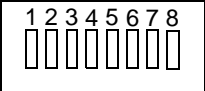
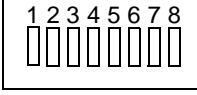
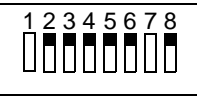
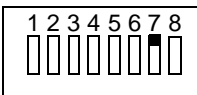
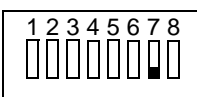
SWITCH	FUNCTION	SWITCH SETTING	MEANING	
SW00 (MB) 	Circuit Card Make-busy key		Circuit card Make-busy Cancel.	
			Circuit card Make-busy.	
SW01 	1	 ON ↑ ↓ OFF	See <a href="#">Table 3-4</a> below.	
	2 6 8	 ON ↑ ↓ OFF	Always ON (fixed).	
	7	ELC/DLC mode Designation	 ON ↑ ↓ OFF	16ELC mode.
			 ON ↑ ↓ OFF	8DLC mode.

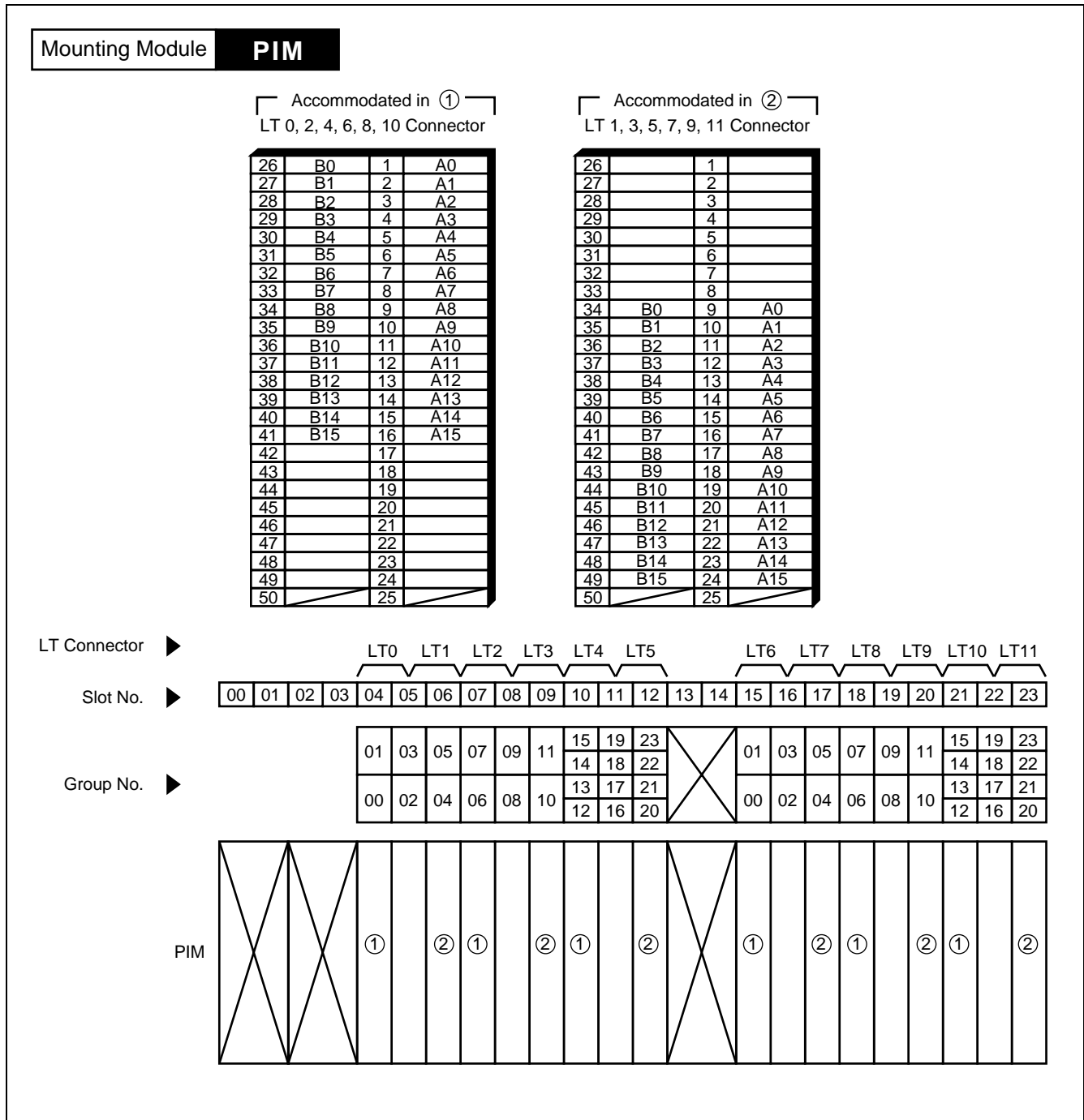
Table 3-4 Relationship between SW01-1 and SW01-7

SW01-7 \ SW01-1	ON	OFF
ON	<ul style="list-style-type: none"> <li>16 sets of D<sup>term</sup>s per card.</li> <li>Voice Communication only.</li> </ul>	<ul style="list-style-type: none"> <li>8 sets of D<sup>term</sup>s per card.</li> <li>Data Adapter is used.</li> </ul>
OFF	<ul style="list-style-type: none"> <li>16 sets of D<sup>term</sup>s per card.</li> <li>Analog Port Adapter is used, but not at the same time.</li> </ul>	<ul style="list-style-type: none"> <li>8 sets of D<sup>term</sup>s per card.</li> <li>Analog Port Adapter is used (Both D<sup>term</sup> and Analog terminal can be used at the same time).</li> </ul>

6. External Interface

Depending on the applied mode (16ELC/8 DLC mode), external interface leads appear on the LT connectors as follows.

- 6ELC mode





- 16ELC mode

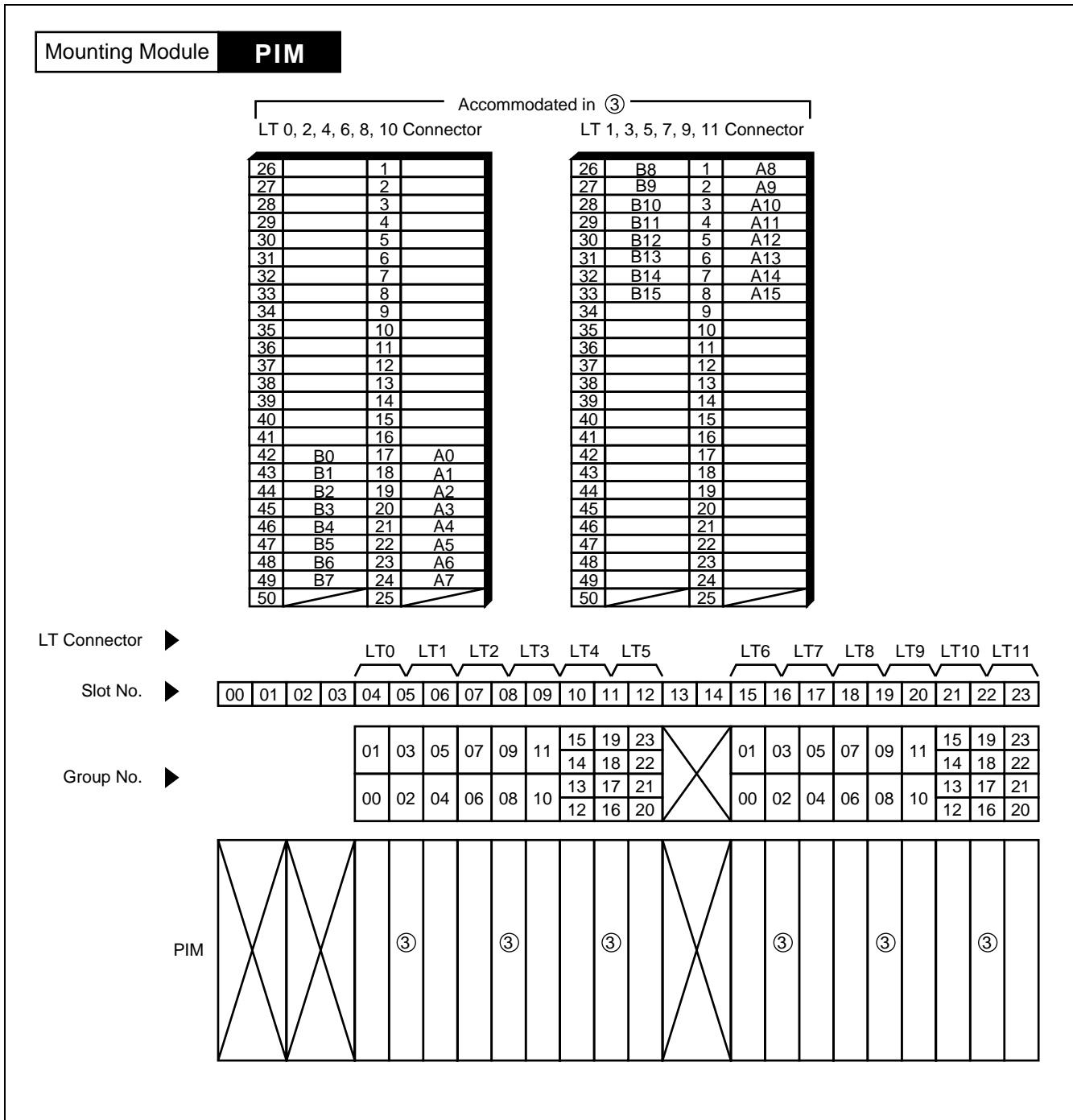
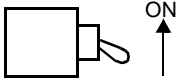
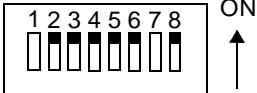


Figure 3-88 LT Connector Lead Location (16ELC Mode) (2/2)

7. Switch Setting Sheet

MODULE	SLOT No.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		
		SW01		

## PA-16ELCJ-B Electronic Line Circuit

### 1. General Function

The PA-16ELCJ-B (ELC) circuit card provides an interface between  $D^{\text{term}}$  and IPX. Depending upon the switch settings, this card works in the following two modes.

- 16 ELC mode: A maximum of 16 sets of  $D^{\text{term}}$ s can be connected to this card. (voice communications only)
- 8 DLC mode: A maximum of eight sets of  $D^{\text{term}}$ s can be connected to this card. (simultaneous voice and data communications)

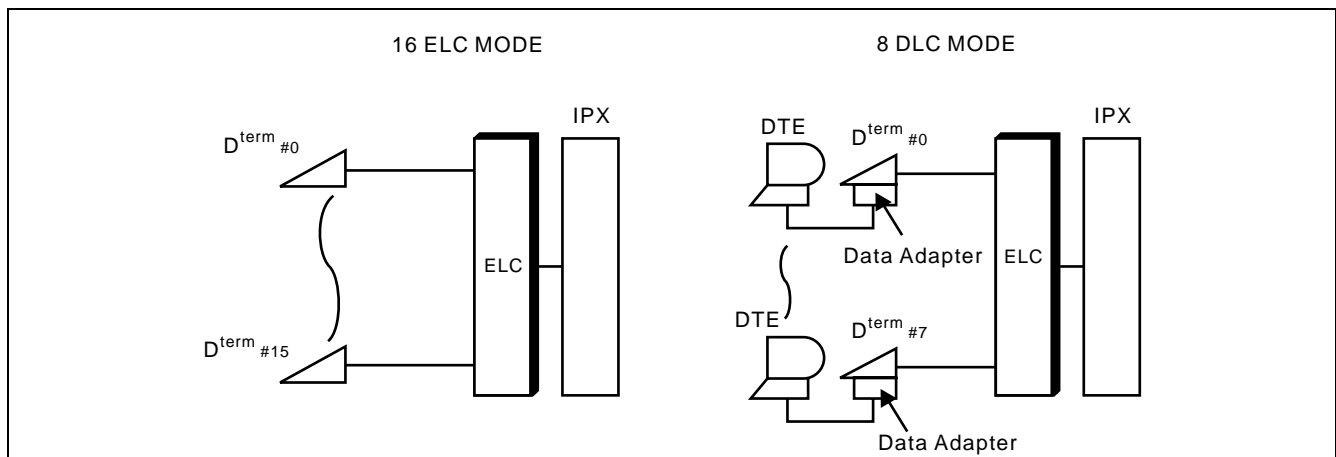


Figure 3-89 Location of PA-16ELCJ-B (ELC) Card within the System

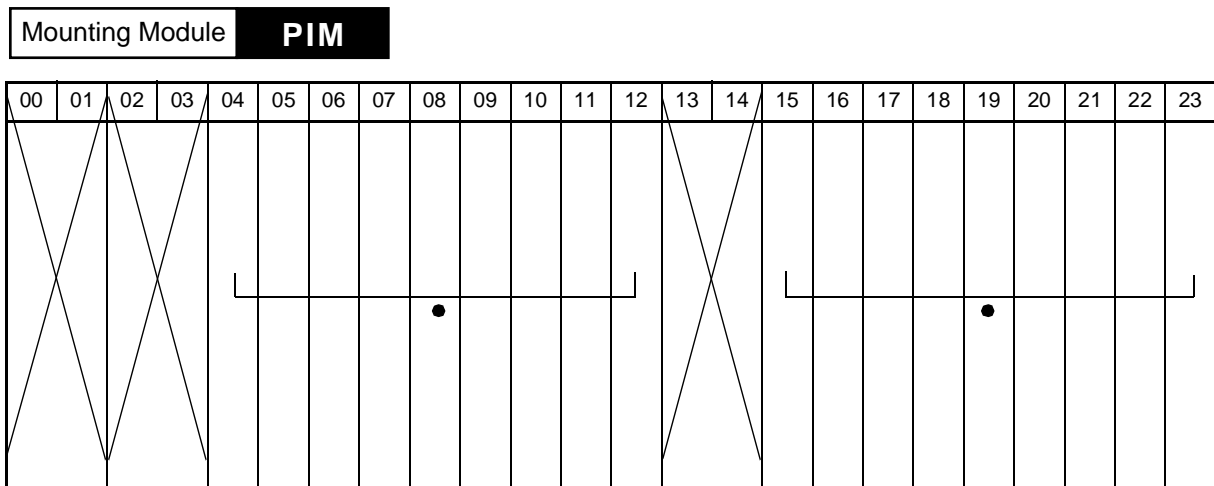
Table 3-5 Performance

$D^{\text{term}}$ SERIES E	$D^{\text{term}}$ SERIES III
<ul style="list-style-type: none"> <li>• 24 digits wide of Liquid Crystal Display (LCD).</li> <li>• Month and year is displayed following the time and date.</li> <li>• Software keys are available and the software keys are controlled by the system. Thus, key function data can be changed by office data.</li> </ul>	<ul style="list-style-type: none"> <li>• 16 digits wide of LCD.</li> <li>• Month and year are not displayed.</li> <li>• Software key is not available.</li> </ul>

**PA-16ELCJ-B**  
Electronic Line Circuit

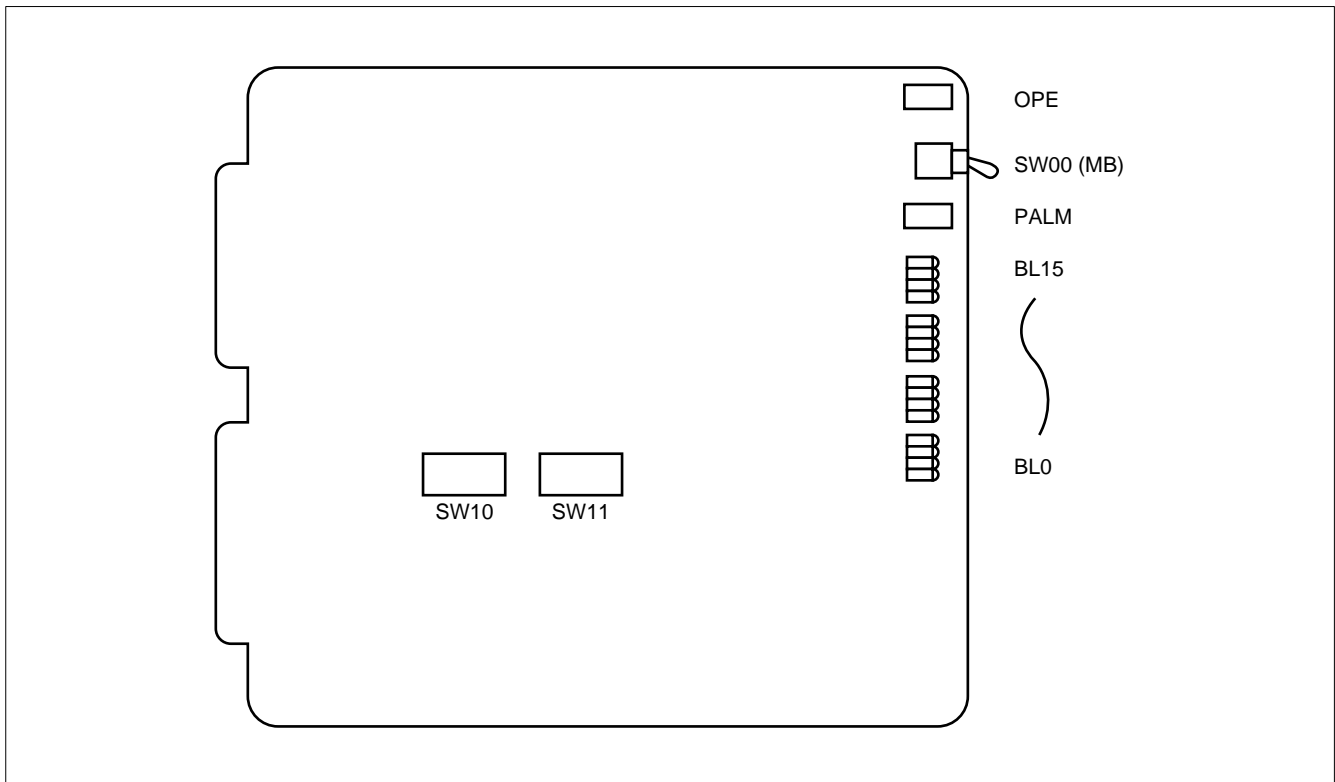
2. Mounting Location/Condition

The PA-16ELCJ-B (ELC) card can be mounted in any universal slots as shown below.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-90](#).



**Figure 3-90 Face Layout of PA-16ELCJ-B (ELC) Card**

#### 4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

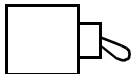
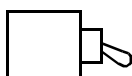
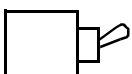
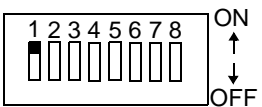
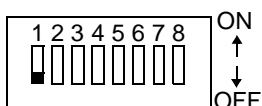
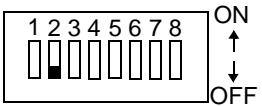
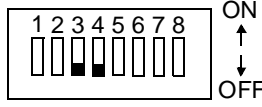
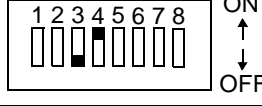
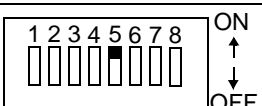
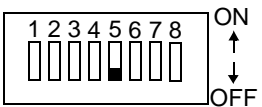
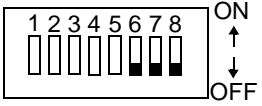
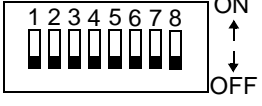
LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while on-line operations are normal.
	OFF	Off when on-line operations are abnormal.
PALM	Red	Lights red when power supply circuit(s) is abnormal. <b>Note</b>
	OFF	Off when all the power supply circuits are normal.
BL0 , BL15	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes when the corresponding circuit is in make-busy state or station data has not been assigned.
	OFF	Off when the corresponding circuit is idle.

**Note:** When the PALM lamp lights red, observe the following instructions.

- i) Identify the location where any in-house wires have a short circuit to all lines belonging to the PA-16ELCJ-B card whose PALM is on.
- ii) Repair the short-circuited wires of the associated  $D^{term}$ .
- iii) Disconnect the  $D^{term}$  from the rosette, then leave it disconnected for at least one minute.
- iv) Connect the  $D^{term}$  again.

5. Switch Settings

Switches on the PA-16ELCJ-B card have the following meanings.

SWITCH	FUNCTION		SWITCH SETTING	MEANING	
SW00 (MB) 	Circuit Card Make-busy key			Circuit Card Make-busy Cancel.	
				Circuit Card Make-busy.	
SW10	1	LP-PM Interface mode setting	 ON ↑ ↓ OFF	When firmware SP-3419 is used, and your system uses software Series 7300 Release 7 or earlier. Expanded Multiple Line Operation-D <sup>term</sup> is not available.	
			 ON ↑ ↓ OFF	When firmware SP-3514 is used, and your system uses software Series 7400 Release 8 or later. Expanded Multiple Line Operation-D <sup>term</sup> is available.	
	2	—	 ON ↑ ↓ OFF	Not used.	
	3-4	ELC/DLC mode setting	 ON ↑ ↓ OFF	This circuit card is operated in 16 ELC mode.	
			 ON ↑ ↓ OFF	This circuit card is operated in 8 DLC mode.	
	Do not set another combination.				
	5	Analog Port Adapter setting	 ON ↑ ↓ OFF	Analog Port Adapter is available.	
			 ON ↑ ↓ OFF	Analog Port Adapter is not available.	
	6-8	—	 ON ↑ ↓ OFF	Fixed to "OFF".	
	SW11	1-8	—	 ON ↑ ↓ OFF	Fixed to all "OFF".

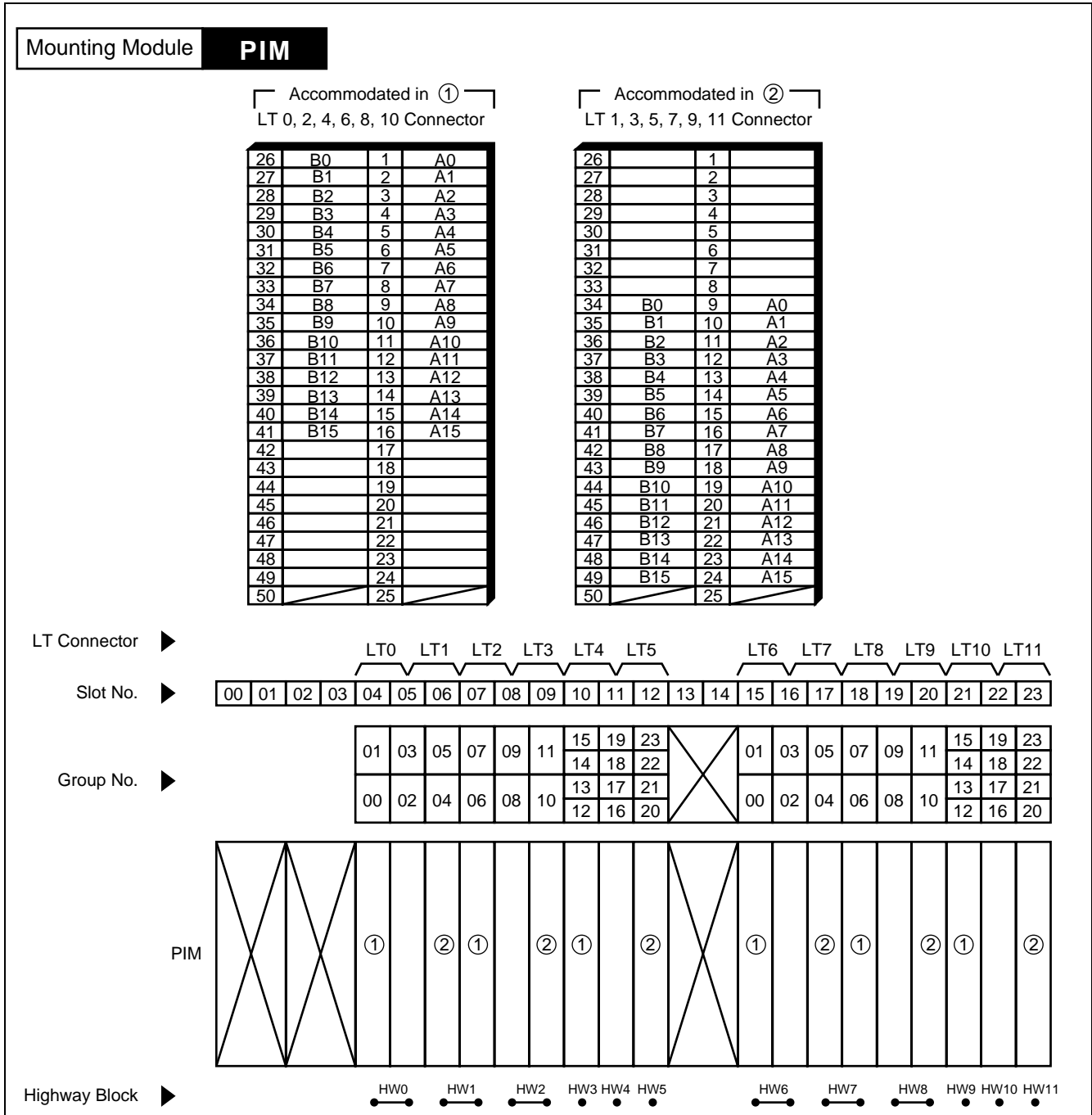
Details are shown in the next table.

	<b>SW10-3: OFF, SW10-4: OFF</b>	<b>SW10-3: OFF, SW10-4: ON</b>
SW10-5: OFF	<ul style="list-style-type: none"> <li>• 16 set of D<sup>term</sup>s per card.</li> <li>• Voice Communication only.</li> </ul>	<ul style="list-style-type: none"> <li>• 8 set of D<sup>term</sup>s per card.</li> <li>• Data Adapter is used.</li> </ul>
SW10-5: ON	<ul style="list-style-type: none"> <li>• 16 set of D<sup>term</sup>s per card.</li> <li>• Analog Port Adapter is used (Either D<sup>term</sup> or Analog terminal can be used at the same time).</li> </ul>	<ul style="list-style-type: none"> <li>• 8 set of D<sup>term</sup>s per card.</li> <li>• Analog Port Adapter is used (Both D<sup>term</sup> and Analog terminal can be used at the same time).</li> </ul>

6. External Interface

Depending upon the applied mode (16ELC/8 DLC mode), external interface leads appear on the LT connectors as follows.

- 16ELC mode



**Figure 3-91 LT Connector Lead Accommodation (16ELC Mode) (1/2)**



Mounting Module

**PIM**

Accommodated in ③

LT 0, 2, 4, 6, 8, 10 Connector				LT 1, 3, 5, 7, 9, 11 Connector			
26		1		26	B8	1	A8
27		2		27	B9	2	A9
28		3		28	B10	3	A10
29		4		29	B11	4	A11
30		5		30	B12	5	A12
31		6		31	B13	6	A13
32		7		32	B14	7	A14
33		8		33	B15	8	A15
34		9		34		9	
35		10		35		10	
36		11		36		11	
37		12		37		12	
38		13		38		13	
39		14		39		14	
40		15		40		15	
41		16		41		16	
42	B0	17	A0	42		17	
43	B1	18	A1	43		18	
44	B2	19	A2	44		19	
45	B3	20	A3	45		20	
46	B4	21	A4	46		21	
47	B5	22	A5	47		22	
48	B6	23	A6	48		23	
49	B7	24	A7	49		24	
50		25		50		25	

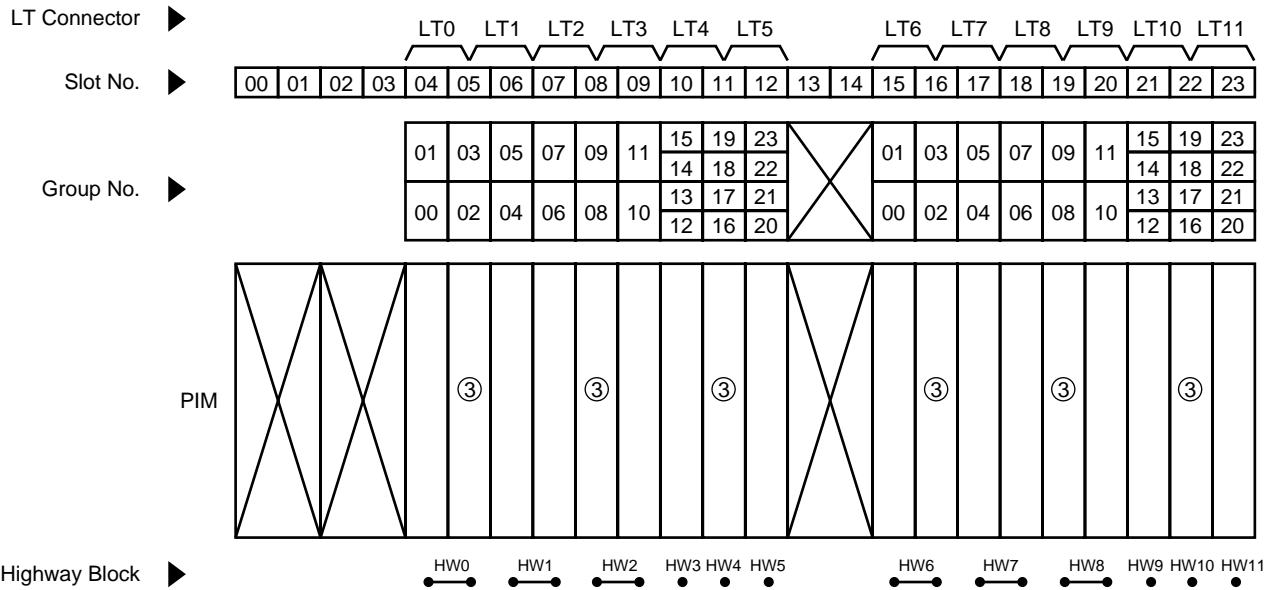
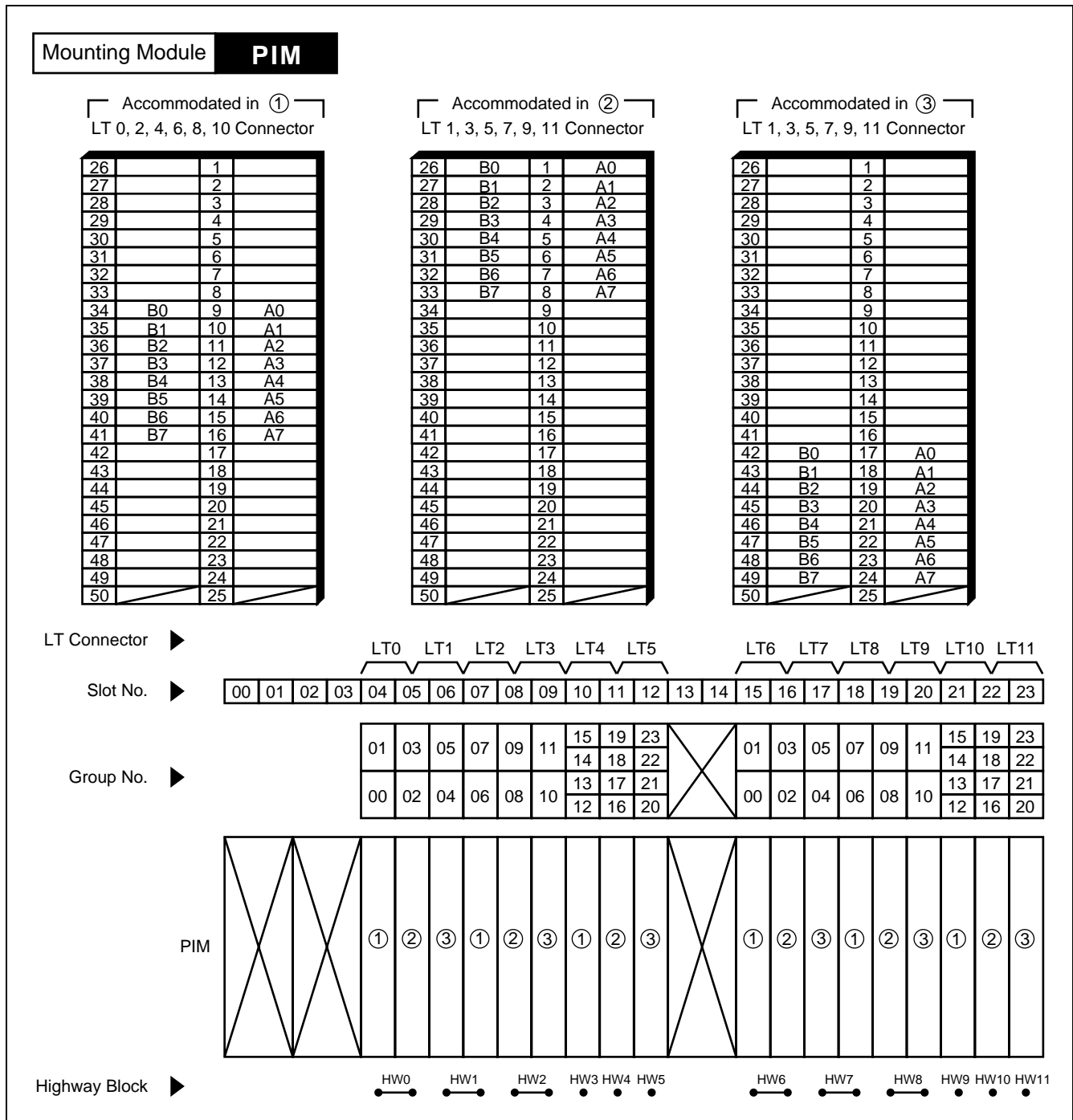
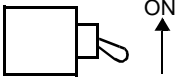
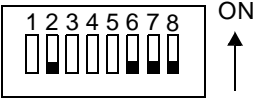
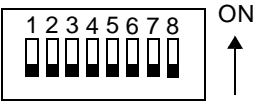


Figure 3-91 LT Connector Lead Accommodation (16ELC Mode) (2/2)

- 8DLC mode



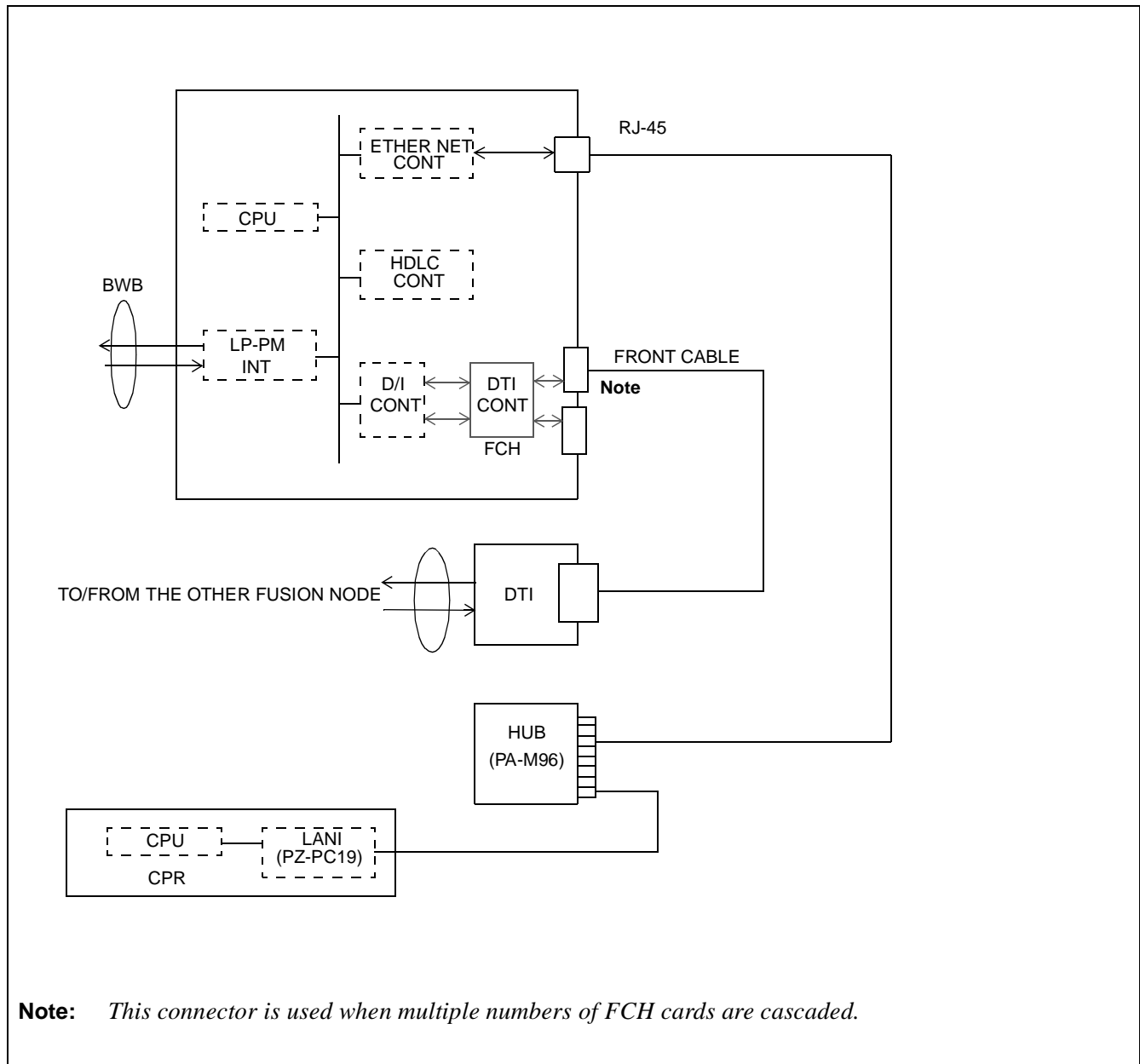
7. Switch Setting Sheet

MODULE	SLOT No.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		
		SW10		
		SW11		

**PA-FCHA**  
**Fusion Call Control Handler**

1. General Function

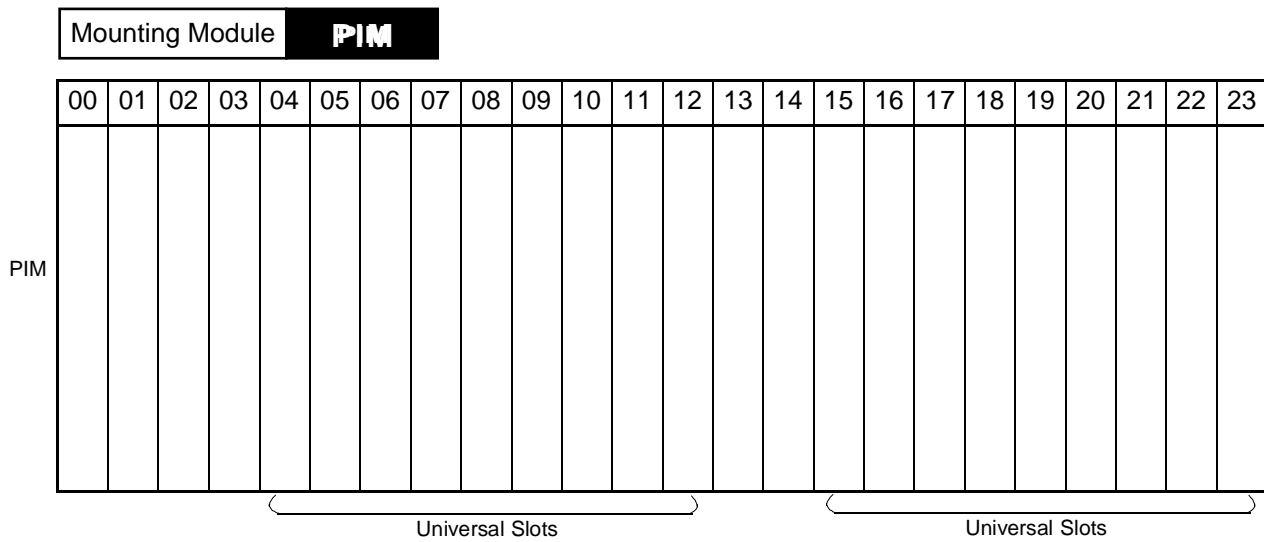
This circuit card is a protocol converter to carry the fusion-link-data from/to the other node. The Fusion-Link-Data is received/transferred from/to the CPR via HUB (PA-M96) across the TCP/IP interface. Once the FCH has received the fusion-link-data from the CPR, the HDLC CONT part of the FCH converts it to the High Level Data Link Controller (HDLC) format, then drops and inserts (D/I) onto a particular channel (or channels) of the ITU-T G.703 digital interface.



**Figure 3-93** Location of PA-FCHA (FCH) Card in the System

2. Mounting Location/ Condition

The FCH can be mounted in a universal slot of the PIM.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 3-94](#).

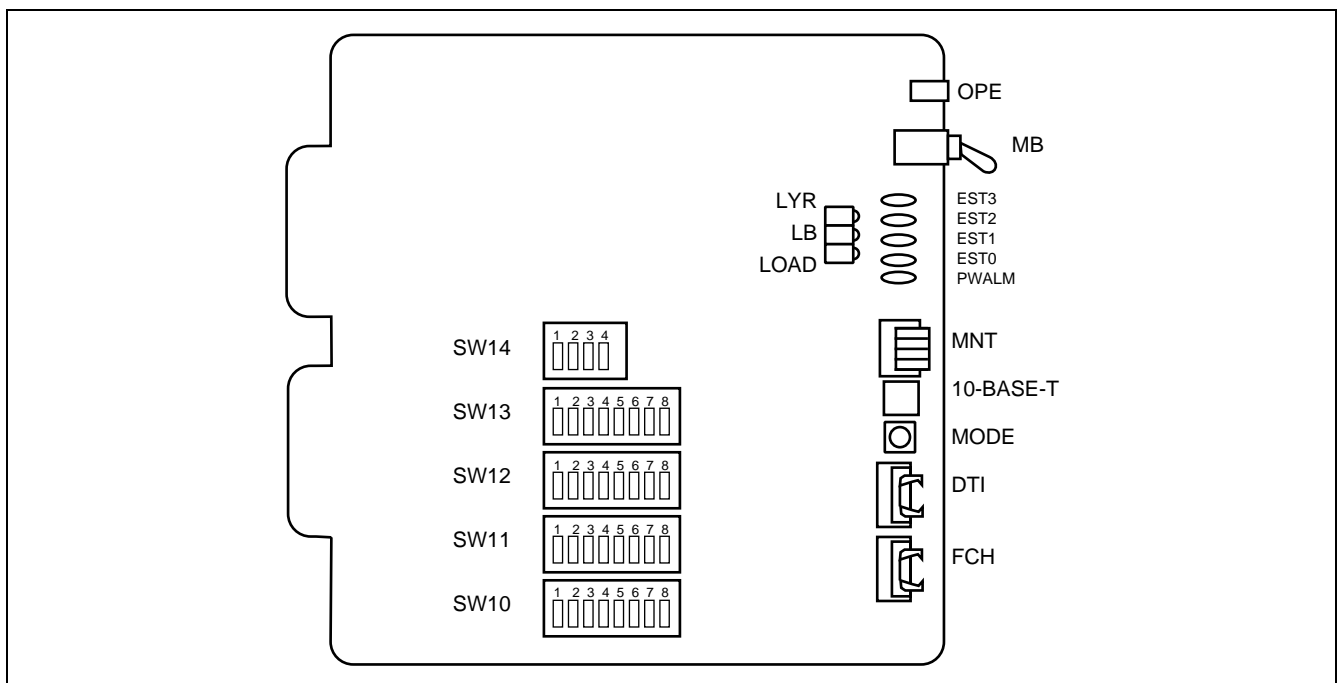


Figure 3-94 Face Layout of PA-FCHA (FCH) Card

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

<b>LAMP NAME</b>	<b>COLOR</b>	<b>STATE</b>
OPE	Green	Remains lit while this circuit card is operating.
LYR	Green	Remains lit while the Fusion link is established.
	Flash	Flashes when the Fusion link test result is fair. (60IPM)
	OFF	Remains off when either the Fusion link is not established or the Fusion link test result is not fair.
LB	Green	Remains lit while 10-BASE-T port is ready to use.
	OFF	Remains off when 10-BASE-T port is not ready.
LOAD	Green	Remains lit while this circuit card is ready to broadcast data packets. (Forwarding Status)
	Flash (60 IPM)	Remains lit while this circuit card is ready to broadcast data packets. (Blocking Status)
	Flash (120 IPM)	Remains lit while this circuit card is stand-by to broadcast data packets. (Learning Status)
	OFF	Remains off when this circuit card is stand-by to broadcast data packets. (Null Status)
EST3	Green	Remains lit while sending data.
EST2	Green	Remains lit when receiving pair cable polarity is normal.
EST1	Green	Remains lit while receiving data.
EST0	Green	Remains lit while the link is established.
PWALM	Red	Remains lit when power supply failure (from the BWB) has occurred.

5. Switch setting

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	DESCRIPTION
MB Note		UP		Circuit card Make-busy.
		DOWN	×	Circuit card Make-busy cancel.
MNT	0	OFF	×	Not used.
	1	OFF	×	Not used.
	2	OFF	×	Not used.
	3 Note	ON		Make-busy-request.
	3 Note	OFF	×	Cancel the Make-busy-request.

**Note:** The following operations are required prior to extracting the card.

- (1.) Turn on the MNT3 switch.
- (2.) Flip the MB switch.

SWITCH NAME	SETTING	STANDARD SETTING	DESCRIPTION
MODE	0 - 7		Not used.
	8	×	Standard setting. (When the DTI is connected with the card front cable.)
	9		Fusion link test mode. (When the DTI is connected with the card front cable.)
	A - F		Not used.

When the D/I DTI (1.5M) is connected with the card front cable.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	DESCRIPTION
SW10	1 Note	ON		T203 timer value is variable.
		OFF	×	T203 timer value is fixed at 10 seconds.
	2~8	OFF	×	Not used.

**Note:** T203 timer designates the maximum idle time which does not transmit any data frames. As a basic rule, the shorter T203 timer value, the earlier link failure detection will be obtained.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	DESCRIPTION
SW11 Note 1	1	ON		This SW designates the D/I channel of the Fusion-Link-Data. (The number of D/I channels = n)  Set the corresponding SW(s) to "ON" for D/I, "OFF" for denial.
		OFF		
	2	ON		
		OFF		
	3	ON		
		OFF		
	4	ON		
		OFF		
	5	ON		
		OFF		
	6	ON		
		OFF		
	7	ON		
		OFF		
	8	ON		
		OFF		

SW11	D/I channel of T1
SW11-1	CH 0
SW11-2	CH 1
SW11-3	CH2
SW11-4	CH 3
SW11-5	CH 4
SW11-6	CH 5
SW11-7	CH 6
SW11-8	CH 7



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	DESCRIPTION																		
SW12 Note 1	1	ON		<p>This SW designates the D/I channel of the Fusion-Link-Data. (The number of D/I channels = n)</p> <p>Set the corresponding SW(s) to “ON” for D/I, “OFF” for denial.</p> <table border="1"> <thead> <tr> <th>SW12</th> <th>D/I channel of T1</th> </tr> </thead> <tbody> <tr> <td>SW12-1</td> <td>CH 8</td> </tr> <tr> <td>SW12-2</td> <td>CH 9</td> </tr> <tr> <td>SW12-3</td> <td>CH 10</td> </tr> <tr> <td>SW12-4</td> <td>CH 11</td> </tr> <tr> <td>SW12-5</td> <td>CH 12</td> </tr> <tr> <td>SW12-6</td> <td>CH 13</td> </tr> <tr> <td>SW12-7</td> <td>CH 14</td> </tr> <tr> <td>SW12-8</td> <td>CH 15</td> </tr> </tbody> </table>	SW12	D/I channel of T1	SW12-1	CH 8	SW12-2	CH 9	SW12-3	CH 10	SW12-4	CH 11	SW12-5	CH 12	SW12-6	CH 13	SW12-7	CH 14	SW12-8	CH 15
		SW12	D/I channel of T1																			
	SW12-1	CH 8																				
	SW12-2	CH 9																				
	SW12-3	CH 10																				
	SW12-4	CH 11																				
	SW12-5	CH 12																				
	SW12-6	CH 13																				
	SW12-7	CH 14																				
	SW12-8	CH 15																				
	OFF																					
	2	ON																				
		OFF																				
	3	ON																				
		OFF																				
	4	ON																				
OFF																						
5	ON																					
	OFF																					
6	ON																					
	OFF																					
7	ON																					
	OFF																					
8	ON																					
	OFF																					

**Note 1:** When “n” is bigger than 1, the Time Slot Sequence Integrity (TSSI) must be guaranteed at the network.  
When “n” is one or more, the corresponding D channels as “n” must be designated by SW11-SW12.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	DESCRIPTION																		
SW13	1	ON		<p>This SW designates the D/I channel of the Fusion-Link-Data. (The number of D/I channels = n)</p> <p>Set the corresponding SW(s) to "ON" for D/I, "OFF" for denial.</p> <table border="1"> <thead> <tr> <th>SW13</th> <th>D/I channel of T1</th> </tr> </thead> <tbody> <tr> <td>SW13-1</td> <td>CH 16</td> </tr> <tr> <td>SW13-2</td> <td>CH 17</td> </tr> <tr> <td>SW13-3</td> <td>CH 18</td> </tr> <tr> <td>SW13-4</td> <td>CH 19</td> </tr> <tr> <td>SW13-5</td> <td>CH 20</td> </tr> <tr> <td>SW13-6</td> <td>CH 21</td> </tr> <tr> <td>SW13-7</td> <td>CH 22</td> </tr> <tr> <td>SW13-8</td> <td>CH 23</td> </tr> </tbody> </table>	SW13	D/I channel of T1	SW13-1	CH 16	SW13-2	CH 17	SW13-3	CH 18	SW13-4	CH 19	SW13-5	CH 20	SW13-6	CH 21	SW13-7	CH 22	SW13-8	CH 23
		SW13	D/I channel of T1																			
	SW13-1	CH 16																				
	SW13-2	CH 17																				
	SW13-3	CH 18																				
	SW13-4	CH 19																				
	SW13-5	CH 20																				
	SW13-6	CH 21																				
	SW13-7	CH 22																				
	SW13-8	CH 23																				
	OFF																					
	2	ON																				
		OFF																				
	3	ON																				
		OFF																				
	4	ON																				
OFF																						
5	ON																					
	OFF																					
6	ON																					
	OFF																					
7	ON																					
	OFF																					
8	ON																					
	OFF																					
SW14	1	ON	×	Positive logic for the D/I CONT																		
		OFF		Negative logic for the D/I CONT																		
	2 <b>Note 2</b>	ON	×	<p>The fusion data link speed inserted onto the T1 interface.</p> <table border="1"> <thead> <tr> <th>SW14-2</th> <th>SW14-3</th> <th>SPEED</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>64 Kbps × n</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>56 Kbps × n</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>48 Kbps × n</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>Not used</td> </tr> </tbody> </table>	SW14-2	SW14-3	SPEED	ON	ON	64 Kbps × n	ON	OFF	56 Kbps × n	OFF	ON	48 Kbps × n	OFF	OFF	Not used			
		SW14-2	SW14-3		SPEED																	
	ON	ON	64 Kbps × n																			
	ON	OFF	56 Kbps × n																			
	OFF	ON	48 Kbps × n																			
	OFF	OFF	Not used																			
	OFF																					
	3 <b>Note 2</b>	ON	×																			
OFF																						
4 <b>Note 3</b>	ON		Link Access Protocol D-channel (LAPD) signal link performs as the "network."																			
	OFF		LAPD signal link performs as the "user."																			

**Note 2:** *Data speed 64 kbps is used for the T1 or E1 interface.*

*Data speed 56 kbps is used for the T1 interface with bit stealing.*

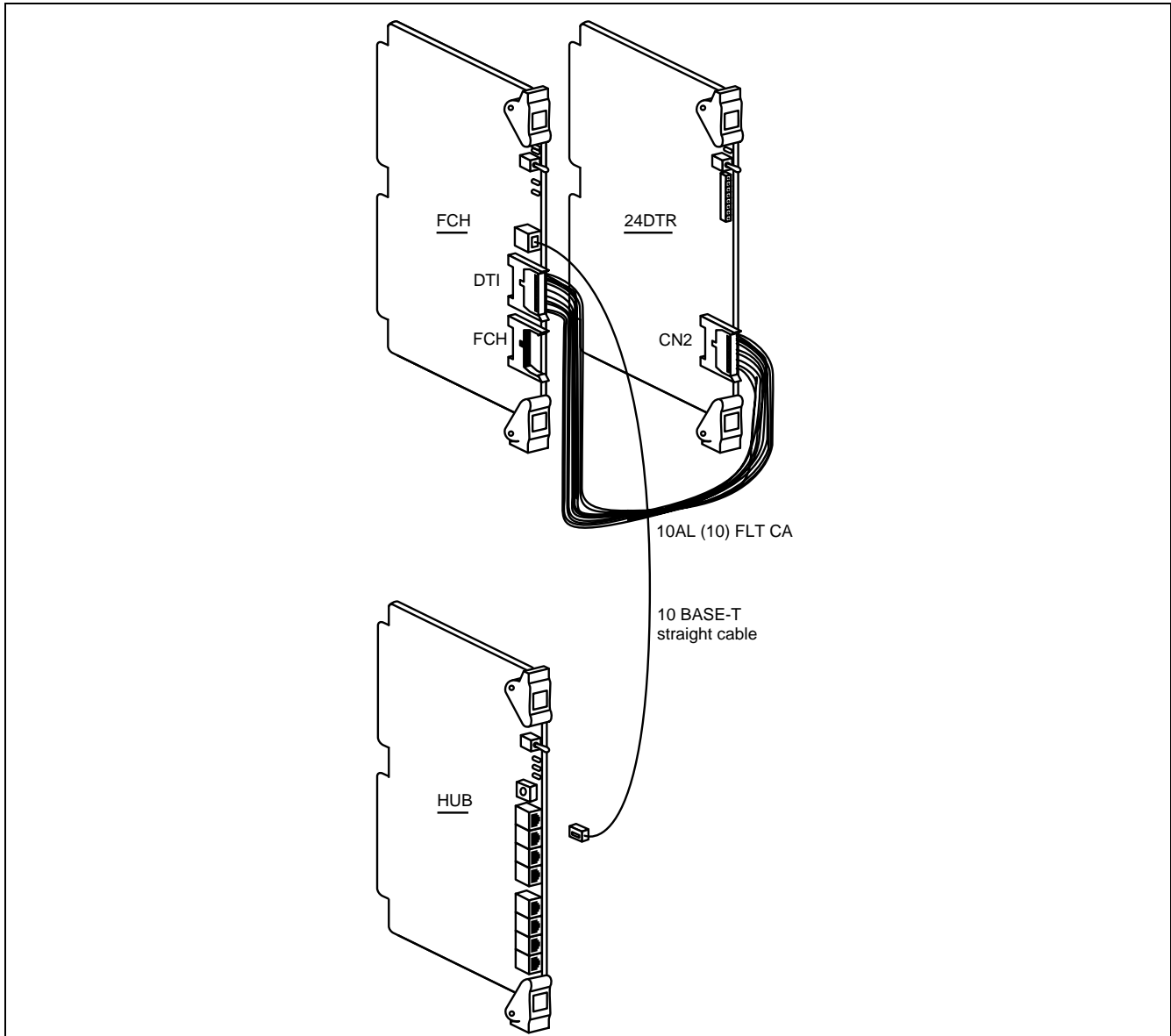
*Data speed 48 kbps is used for the T1 interface with both bit stealing and the Zero Code Suppression (or Bit 7 Stuffing).*

**Note 3:** *When a node is set “network,” the distant node over the fusion link should be set “user,” and vice versa.*

**PA-FCHA**  
Fusion Call Control Handler

6. External Interface

The cable connections among the FCH, HUB, 24DTR are shown below.



**Figure 3-95 FCH/HUB/DTI Connection**

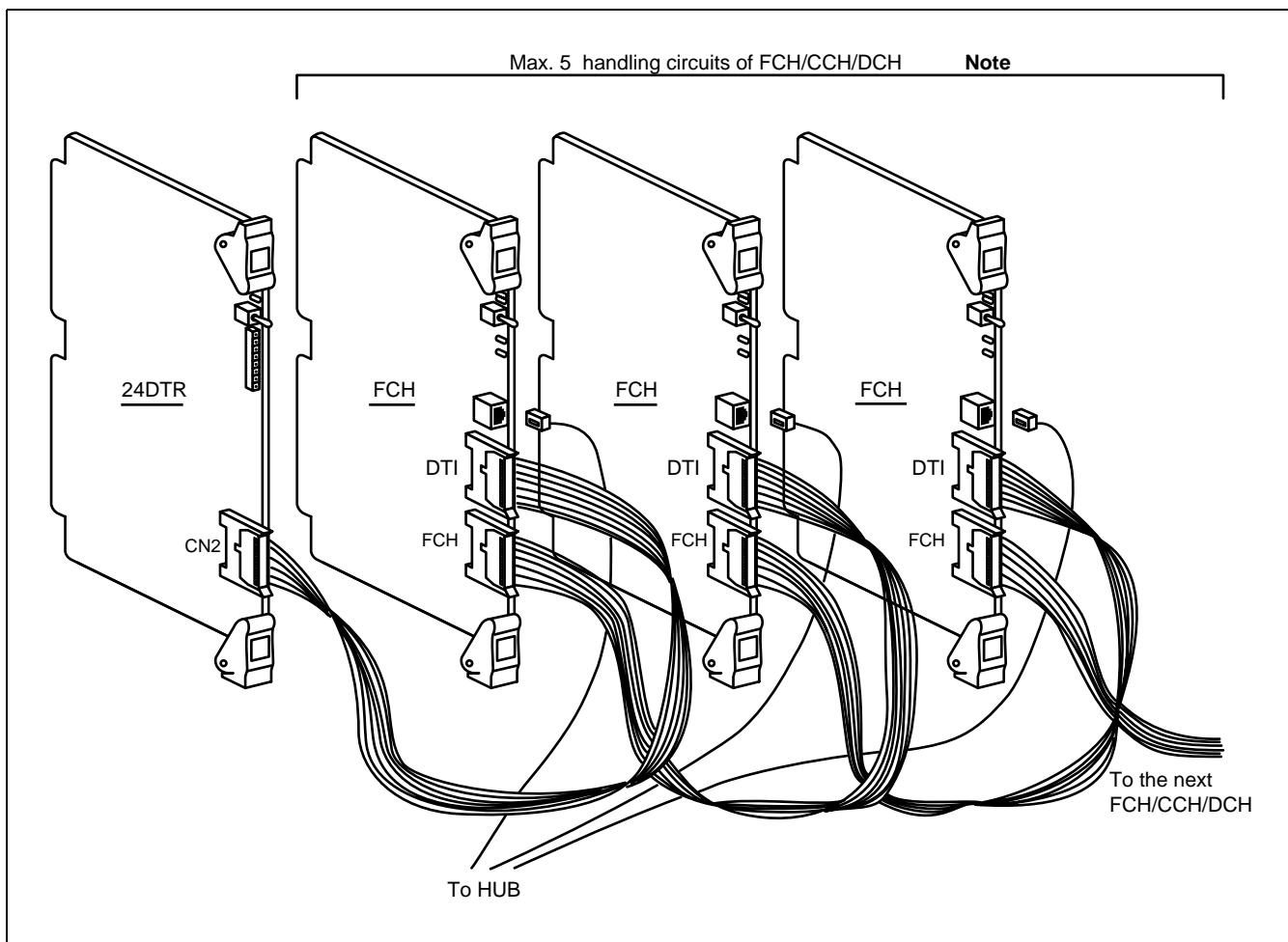
See [Figure 3-96](#) when multiple numbers of FCH circuit cards are connected to a 24DTR as a cascade connection. The FCH can be combined with CCH/DCH on a cascade connection.

One DTI card can have a maximum of five (5) Handler circuits cascaded within the FCH card, the CCH card, and/or DCH card. Since the FCH card contains one Handler circuit per card, a maximum of five (5) FCH cards can be cascaded to a DTI card.

As an example, the following (a), (b) and (c) can coexist on a cascade connection.

- (a) FCH card (One (1) Handler circuit card per card)
- (b) CCH card (Two (2) Handler circuits per card)
- (c) DCH card (Two (2) Handler circuits per card)

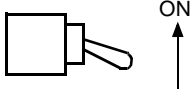
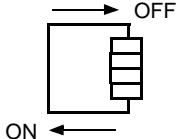

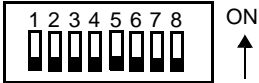
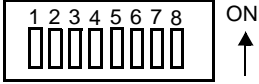
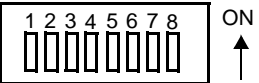
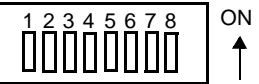

Also, you must consider the cascading cable length. **Note**



**Figure 3-96 FCH Cascade Connection**

**Note:** A maximum cable distance between DTI and the last cascaded FCH (or CCH/DCH) is 50 cm (1' 7.6 ").

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
MNT		
MODE		
SW10		
SW11		
SW12		
SW13		
SW14		

## PA-24LCBV Line Circuit

### 1. General Function

The PA-24LCBV circuit card provides an interface between a maximum of 24-analog terminals and the system with a range of 600 (Ohm) inclusive of terminal resistance. This card also can send “Stutter Dial Tone,” which is not a continuous tone, to an associated terminal which has no Message Waiting Lamp (MWL) instead of activating the MWL if required.

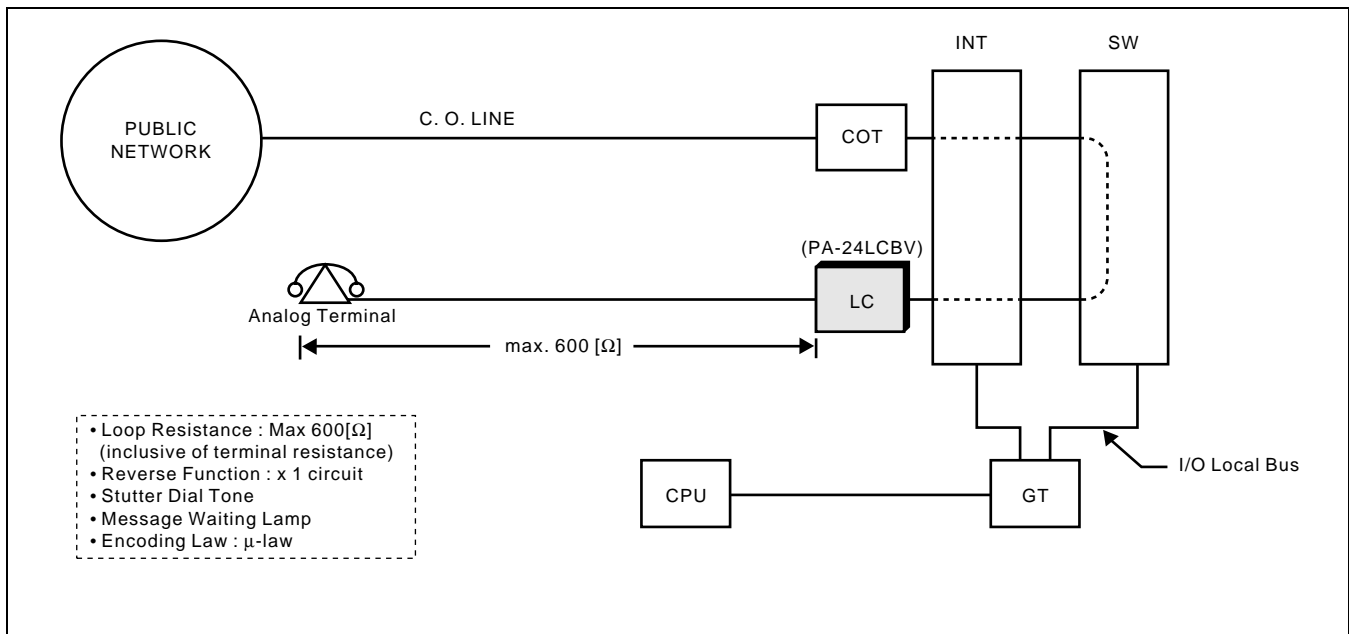


Figure 3-97 Location of PA-24LCBV (LC) Card in the System

### 2. Mounting Location/Condition

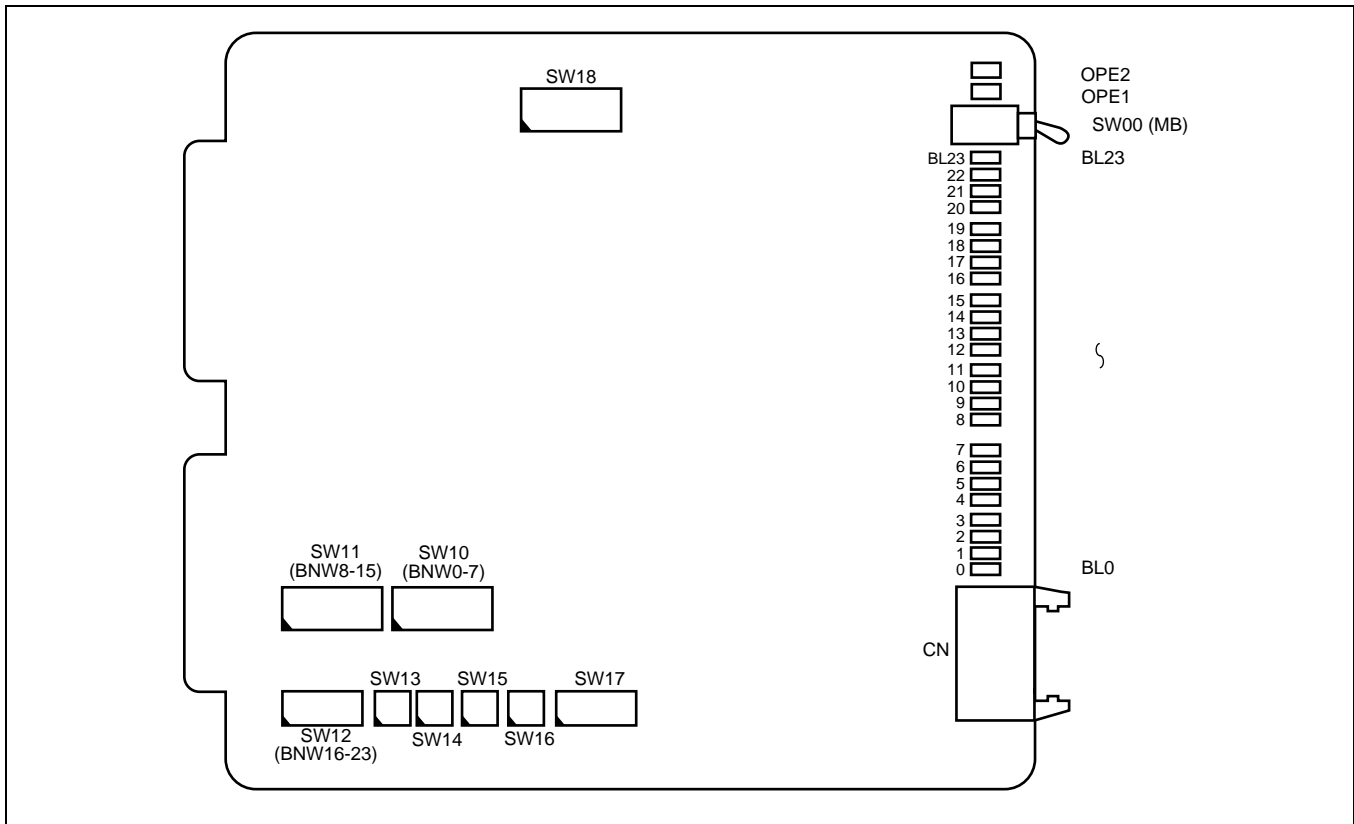
The PA-24LCBV(LC) circuit card can be mounted in the following shaded slots.

Mounting Module	PIM																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
	X	X	X											X	X										

**PA-24LCBV**  
Line Circuit

3. Face Layout of Lamps, Switches and Connectors

The face layout of lamps, switches on this card is shown in [Figure 3-98](#).



**Figure 3-98 Face Layout of PA-24LCBV (LC) Card**

4. Lamp Indications

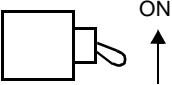
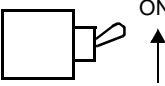
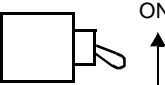
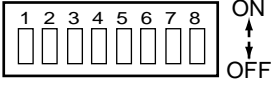


Lamp indications for this card are shown below.

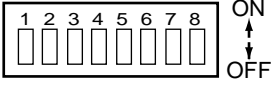
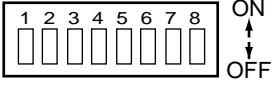
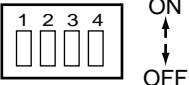
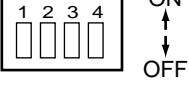
LED NAME	COLOR	LED STATUS	DESCRIPTION
OPE1	Green	Steady Lighting	The circuitry of circuit #0-#7 is operating normally.
OPE2	Green	Steady Lighting	The circuitry of circuit #8-#23 is operating normally.
BL0 ~ BL23	Green	Steady Lighting	Line loop exists.
		Flashing	<ol style="list-style-type: none"> <li>1. Ringing signal is being transmitted. Busy LED keeps flashing in synchronizing with on/off of the ringing signal.</li> <li>2. Dial pulses are being received. While dial pulses from a line are being received. Busy LED keeps flashing in synchronizing with the dial pulses coming from the line.</li> <li>3. Line is in Make-busy state.</li> <li>4. Busy LED keeps flashing at 60 ipm.</li> </ol>

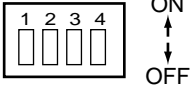
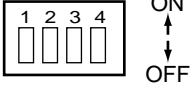
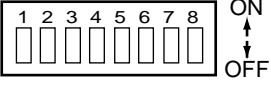


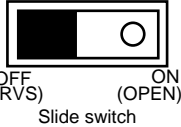
### 5. Switch Settings

Switches on the PA-24LCBV (LC) card have the following meanings.

SWITCH	FUNCTION	SWITCH SETTING		MEANING
SW00 (MB)  	Circuit Card Make-busy Key	OFF		Circuit card Make-busy cancel
		ON		Circuit card Make-busy
SW10 (BNW0-7)  	Balancing Network Designation  • Each element on this switch corresponds to circuit #0-#7.	ON		North America, Other Country (A/μ Law) BNW: Compromise Impedance (EIA/TIA-464A) <b>(Note 1)</b> for long distance.
		OFF		North America, Other Country (A/μ Law) BNW : 600 Ω <b>(Note 1)</b> for short distance

SWITCH	No.	FUNCTION	SWITCH SETTING	MEANING								
SW11 (BNW8-15)  		Balancing Network Designation  • Each element on this switch corresponds to circuit #8-#15.	The same as previous table.									
SW12 (BMW16-23)  		Balancing Network Designation  • Each element on this switch corresponds to circuit #16-#23.	The same as previous table.									
SW13  		Selection of the User	<table border="1"> <tr> <td>SW13 -1</td> <td>SW13 -2</td> <td>SW13 -3</td> <td>SW13 -4</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> </tr> </table>	SW13 -1	SW13 -2	SW13 -3	SW13 -4	ON	OFF	OFF	OFF	North America
SW13 -1	SW13 -2	SW13 -3	SW13 -4									
ON	OFF	OFF	OFF									
SW14  	1		OFF	Fixed to OFF								
	2	Stutter Dial Tone	ON	Stutter Dial tone Available								
			OFF	Stutter Dial tone not Available								
	3		OFF	Fixed to OFF								
4		OFF	Fixed to OFF									

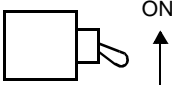
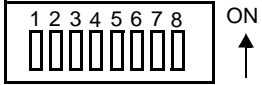
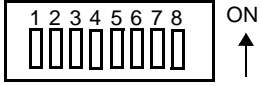
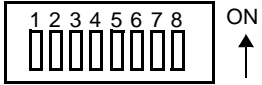

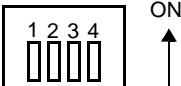


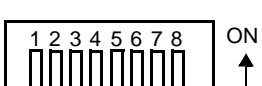
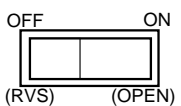
SWITCH	No.	FUNCTION	SWITCH SETTING	MEANING
<b>SW15</b> 	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF
<b>SW16</b> 	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3	Message Waiting Lamp	ON	Message Waiting Lamp Flashing (Controlled by Firmware)
			OFF	Message Waiting Lamp lit or Flashing (Selected and Controlled by Software)
4		OFF	Fixed to OFF	
<b>SW17</b> 	1		OFF	Fixed to OFF
	2		OFF	Fixed to OFF
	3		OFF	Fixed to OFF
	4		OFF	Fixed to OFF
	5		OFF	Fixed to OFF
	6		OFF	Fixed to OFF
	7		OFF	Fixed to OFF
	8		OFF	Fixed to OFF

SWITCH	No.	FUNCTION	SWITCH SETTING	MEANING
<b>SW18</b> 		Polarity reverse or Momentary Open	ON	Momentary open
			OFF	Polarity reverse

**Note 1:** Compromise Impedance (EIA/TIA-464A) and 600 Ω are as follows.



6. Switch Setting Sheet

MODULE	SLOT No.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		<b>Note:</b> Normal operating mode is down.
		SW10 (BNW0-7)		
		SW11 (BNW8-15)		
		SW12 (BNW16-23)		
		SW13		
		SW14		
		SW15		
		SW16		
		SW17		
		SW18		

7. External Interface

Location of the LT connector leads and LC connector leads for this circuit card is shown in [Figure 3-99](#).

(a) PIM

When this circuit card is mounted in PIM, necessary leads appear on the LT connectors as follows.

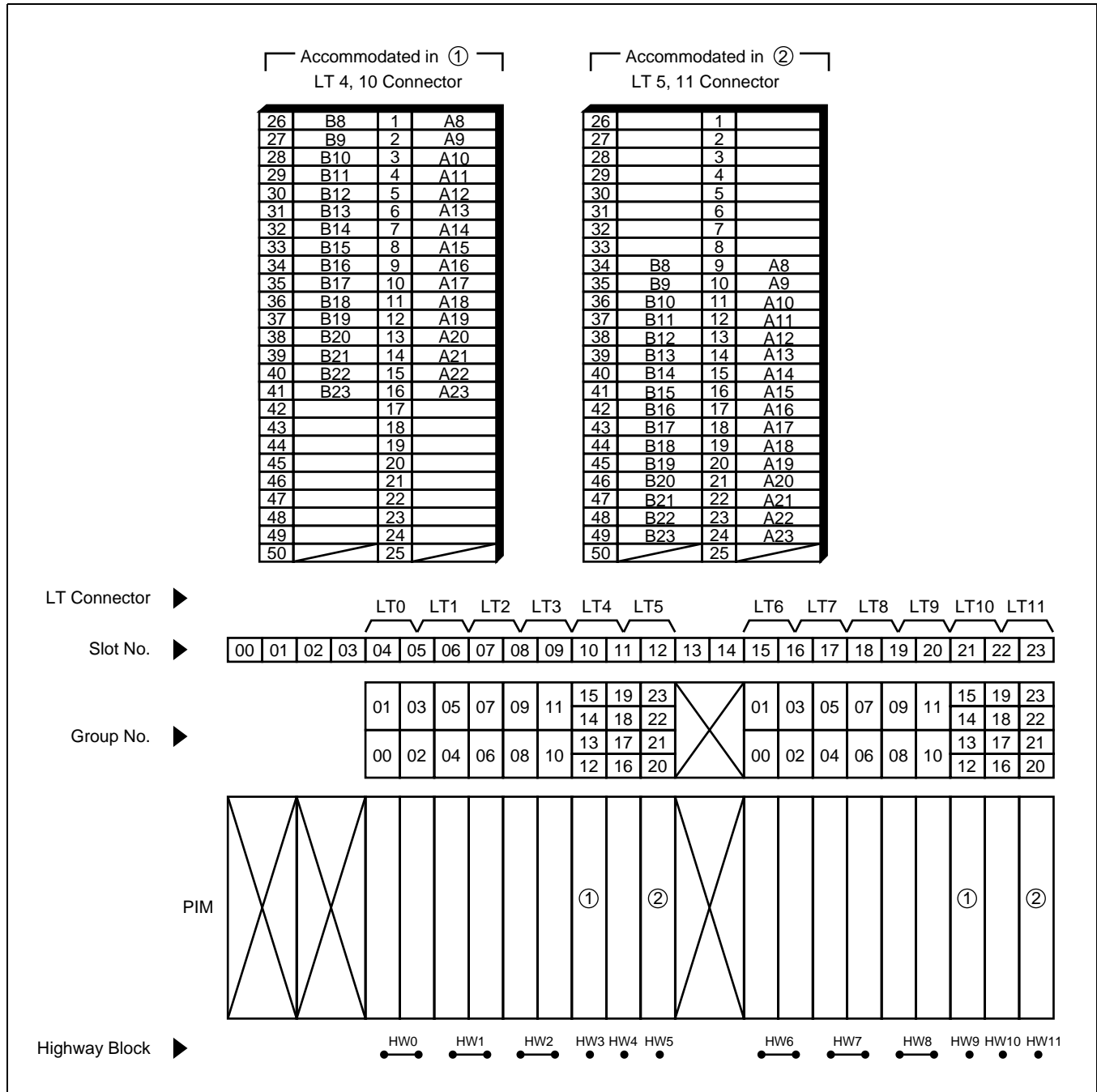


Figure 3-99 LT Connector Lead Location (PIM) (1/2)



(b) LC Connector Leads

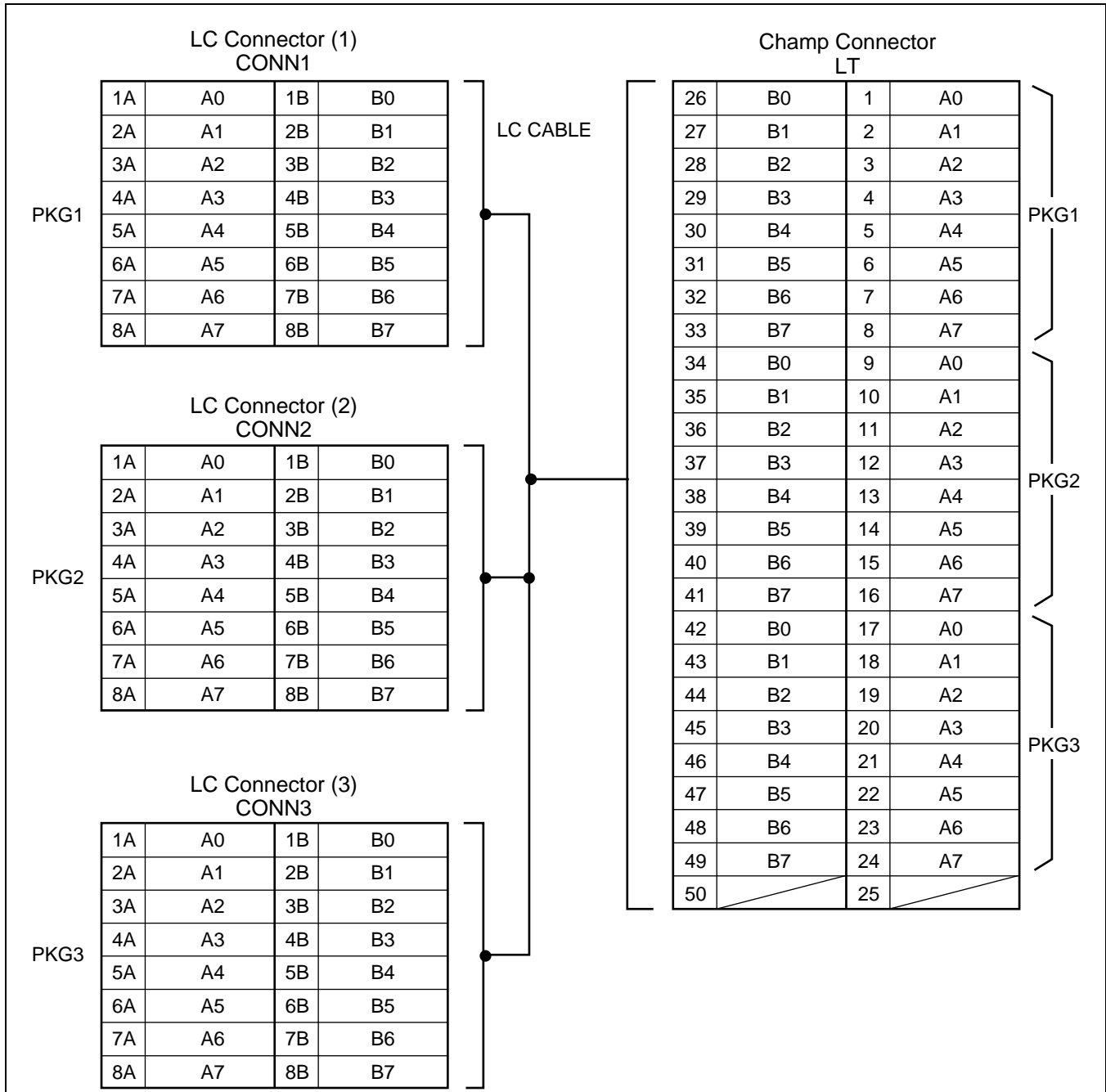


Figure 3-100 LC Connector Lead Location (LC Cable)

8. Connecting Route Diagram

Connecting Route Diagram for the PA-24LCBV(LC) is as follows.

A and B leads for channels #0 - #7 appear from the LC Connector located on the front edge of the card.

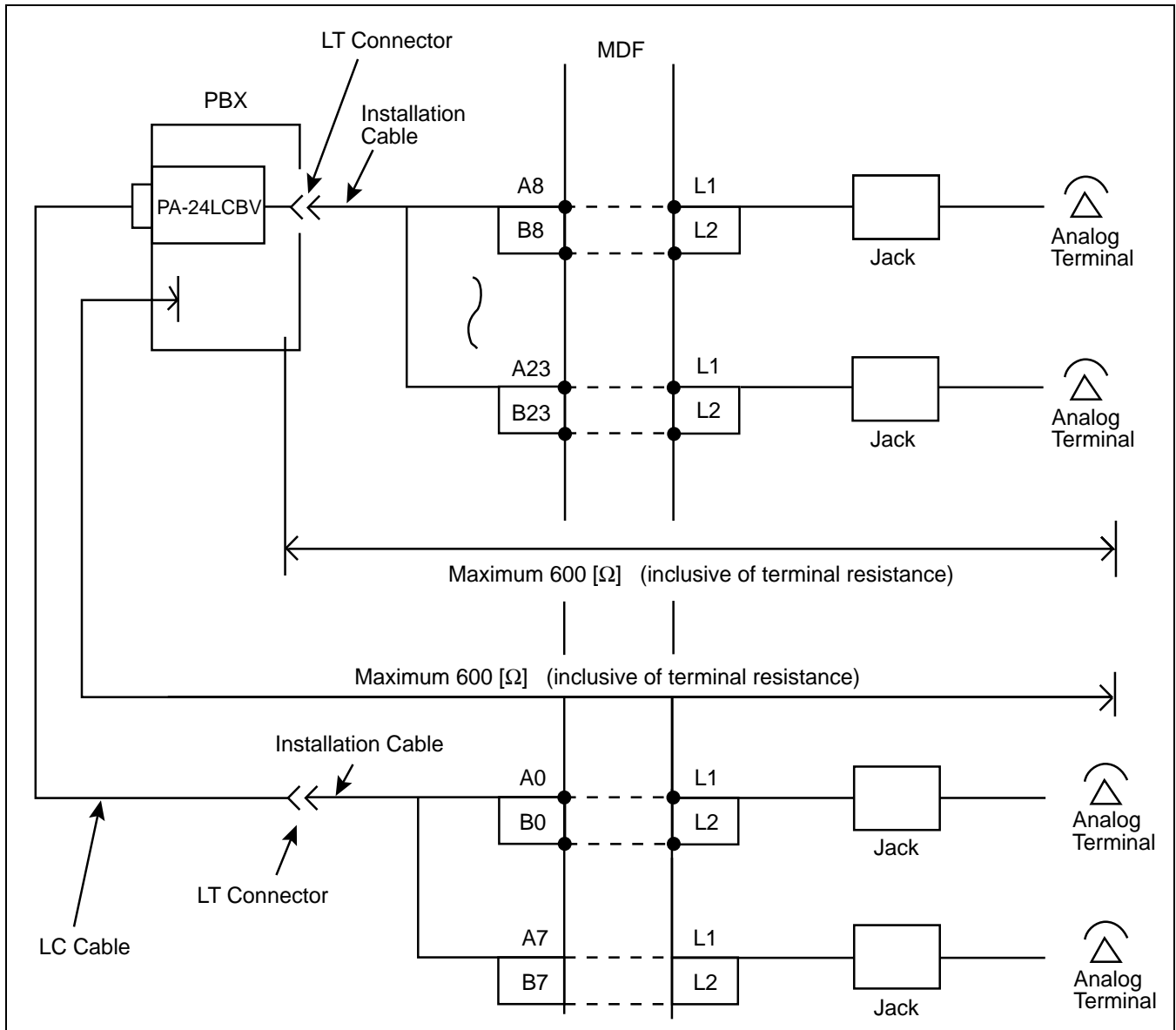


Figure 3-101 Connecting Route Diagram

9. LC Cable Connection

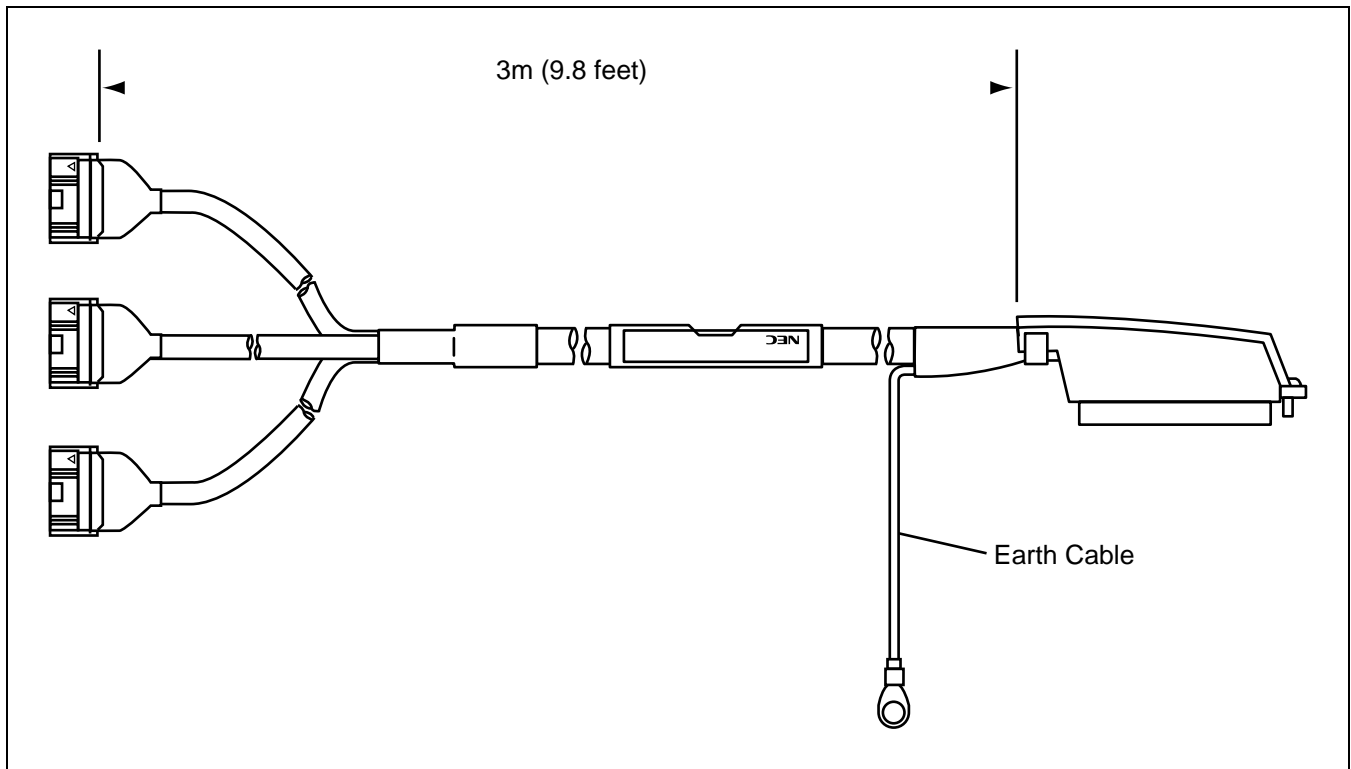


Figure 3-102 Outer View of LC Cable



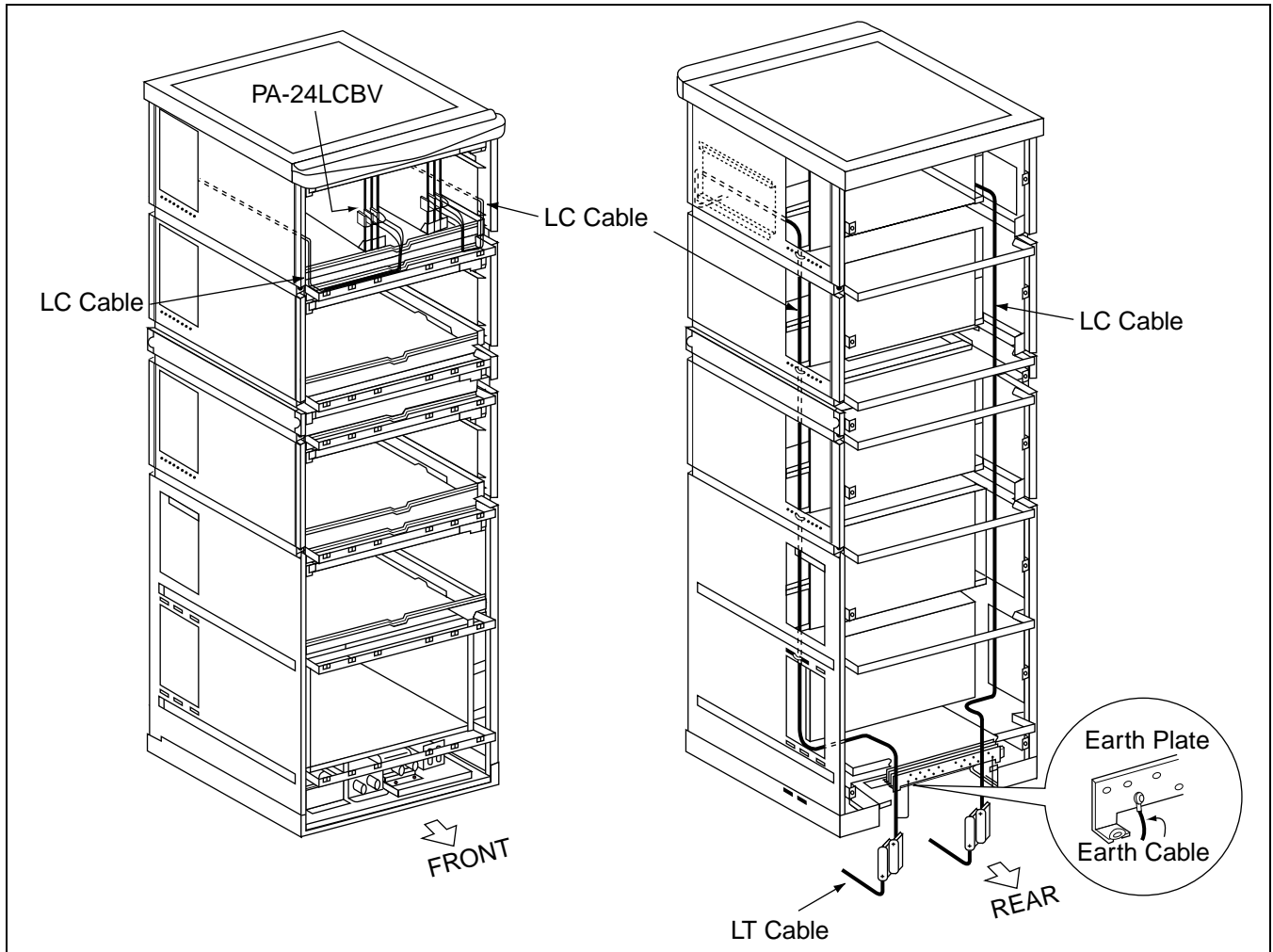


Figure 3-103 Cable Running for LC Cable (Example)

## PA-M69 Power Failure Transfer

### 1. General Function

This circuit card executes a C.O. line to the telephone or the release of a C.O. line due to a power supply failure, system down, software order, etc. This circuit card is also provided with the change circuit of 12 circuits.

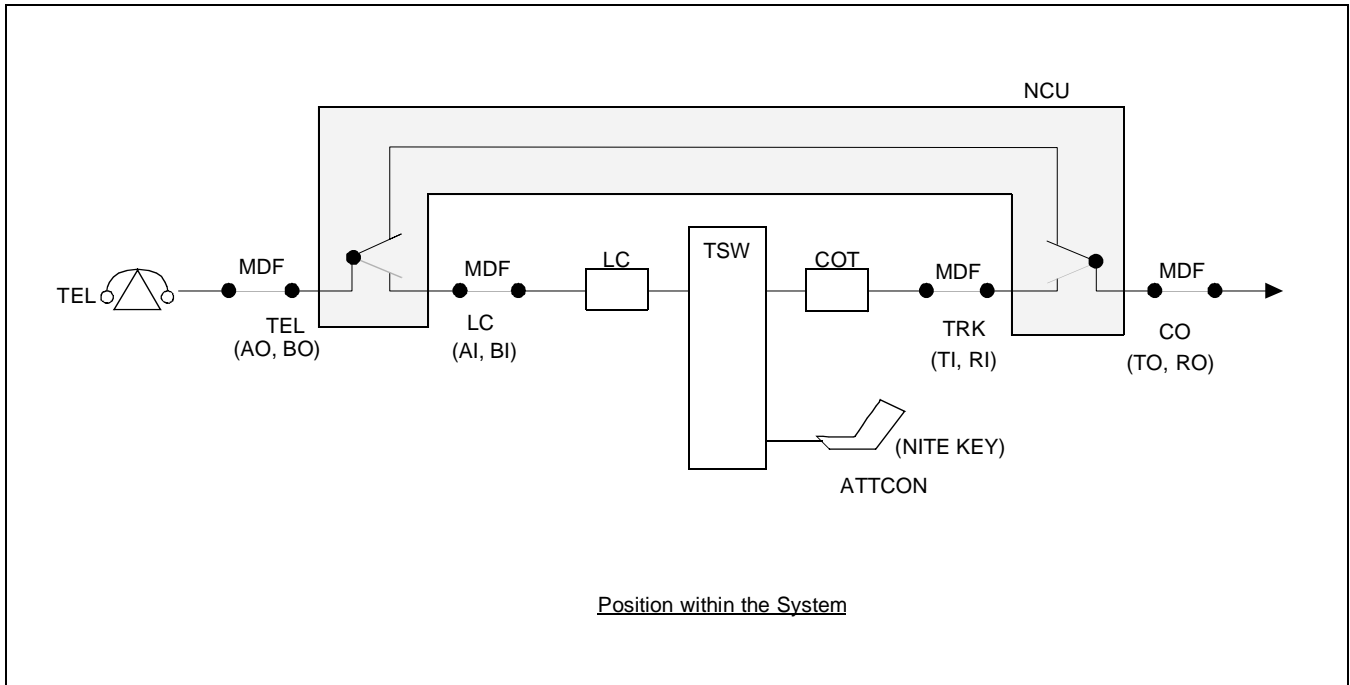
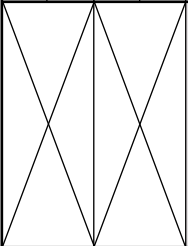
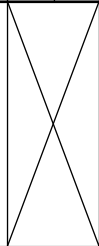


Figure 3-104 Location of PA-M69 (PFT, 12NCU) within the System

2. Mounting Location/Condition

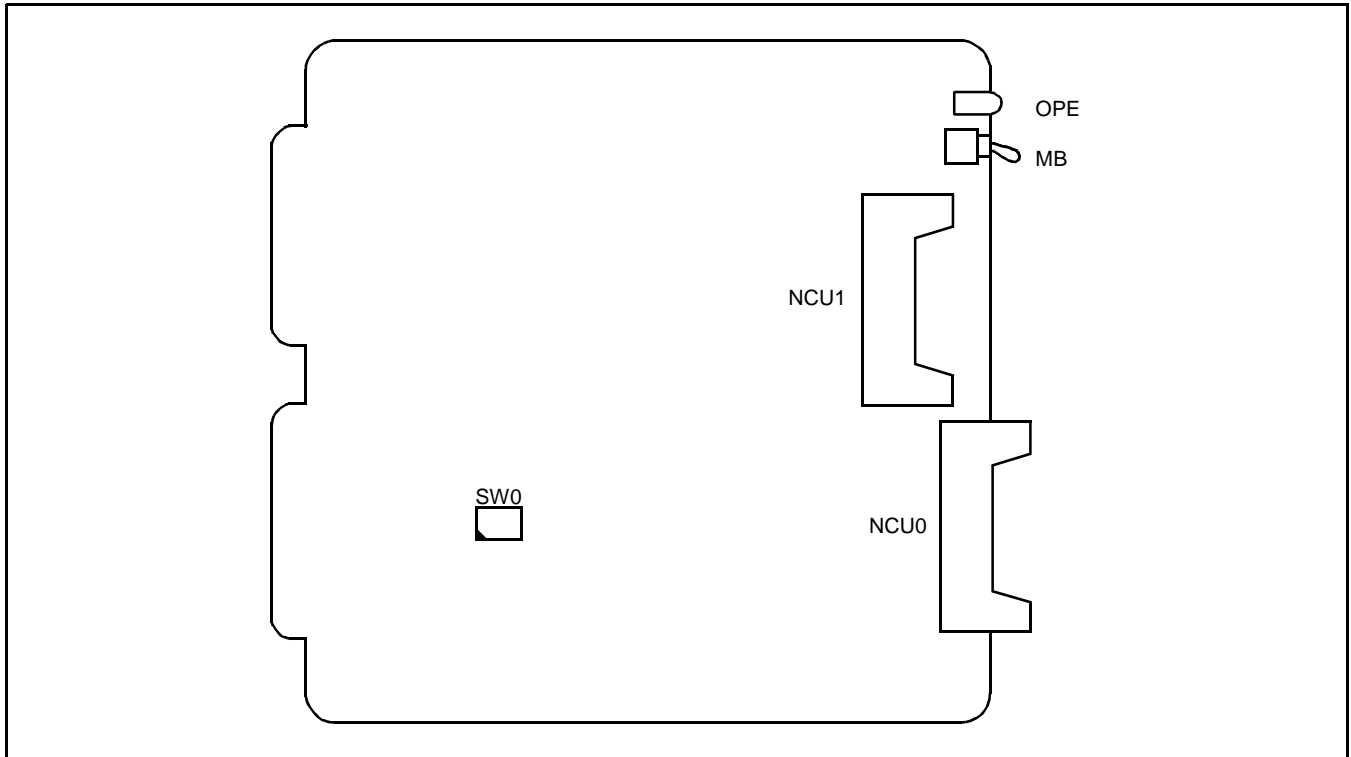
The mounting locations of this circuit card and the conditions related to mounting are shown below.

Mounting Module				PIM																				
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
				PA-M69												PA-M69								

**PA-M69**  
Power Failure Transfer

3. Face Layout of Lamp, Switches, and Connectors

The face layout of lamp, switches, and connectors of this circuit card is shown in [Figure 3-105](#).



**Figure 3-105 Face Layout of PA-M69 (PFT, 12NCU)**

4. Lamp Indication

The contents of lamp indication of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit even when PFT is being activated on any one of the 12 circuits.

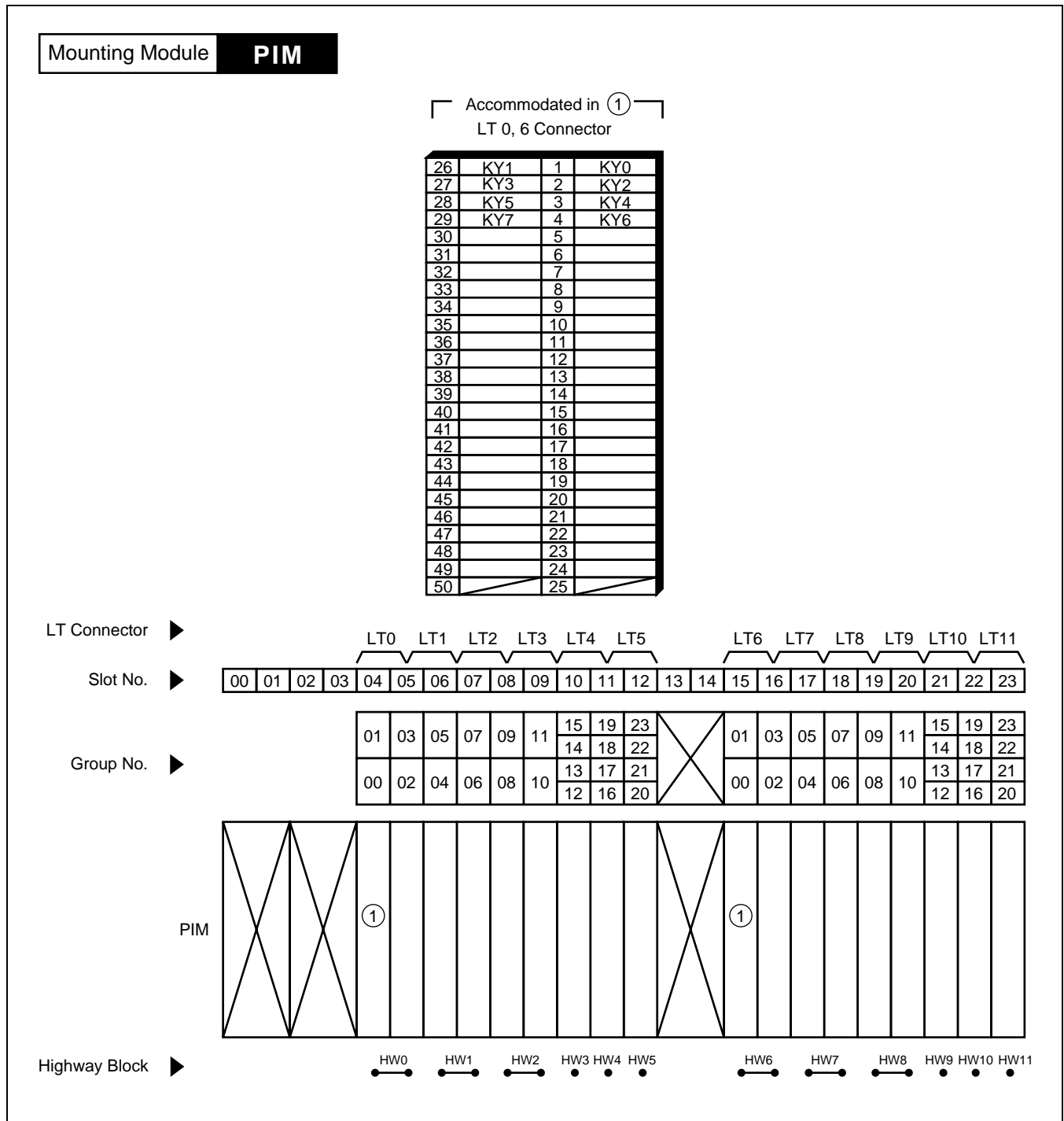
5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW0	1	ON	×	Fixed
	2	OFF	×	Fixed
	3	OFF	×	Fixed
	4	OFF	×	Fixed

6. External Interface

Accommodation of the LT connector leads of this circuit card, accommodation of the NCU connector on the front side of the circuit card, and connecting route diagram are shown in Figure 3-106.



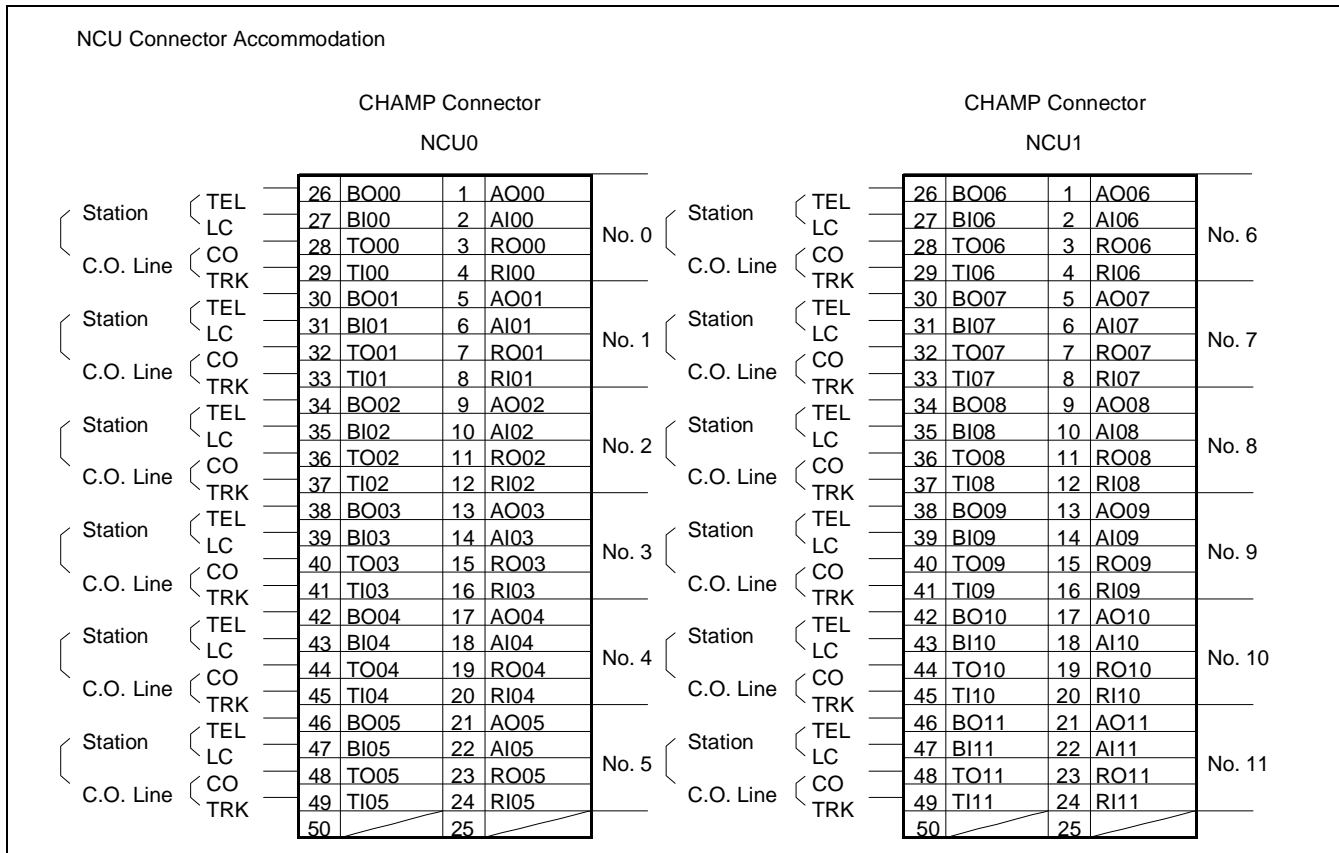
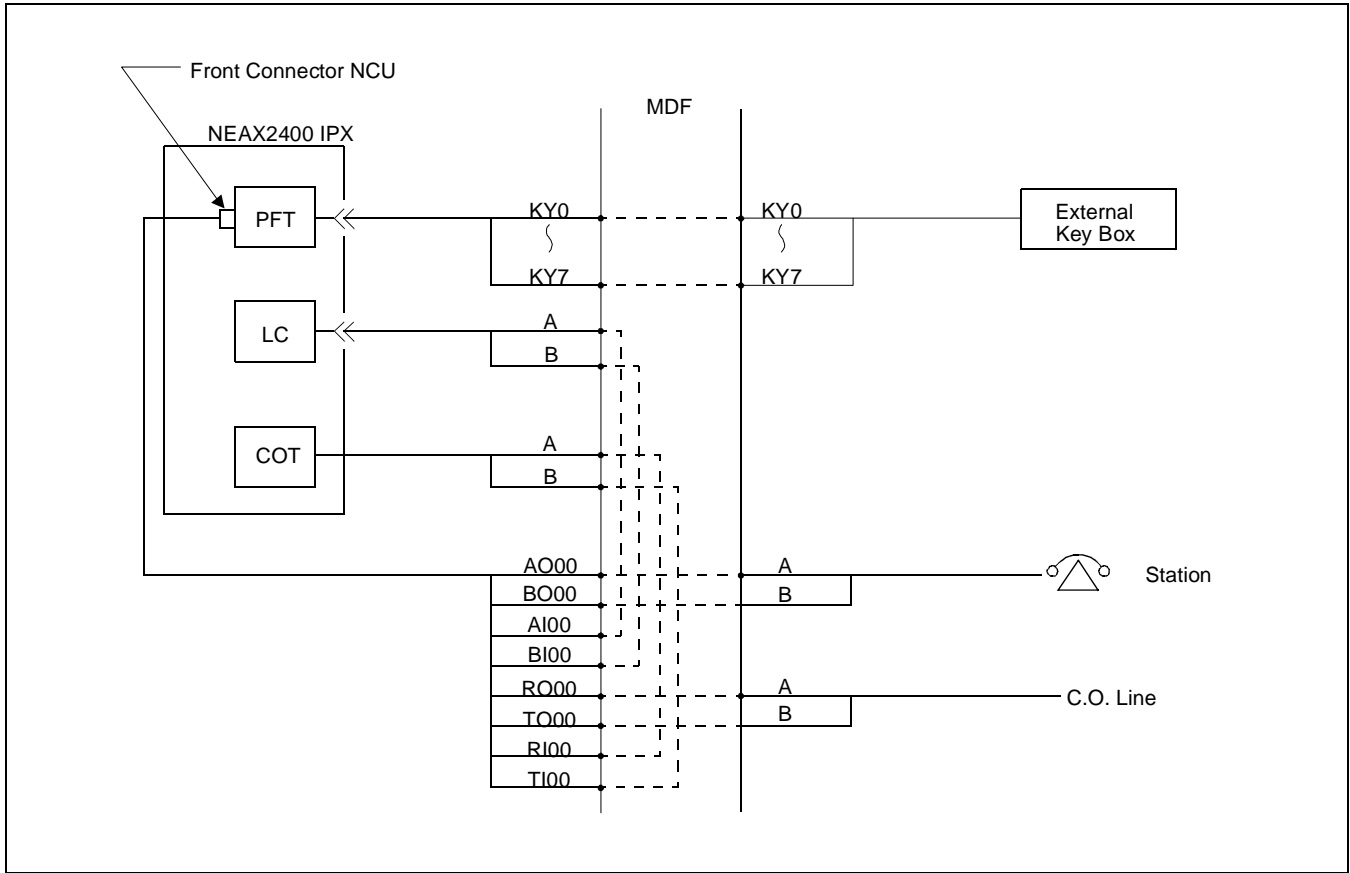


Figure 3-107 NCU Connector Accommodation



**Figure 3-108 Connecting Route Diagram**

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW0		
		MB	DOWN	Circuit card make busy cancel

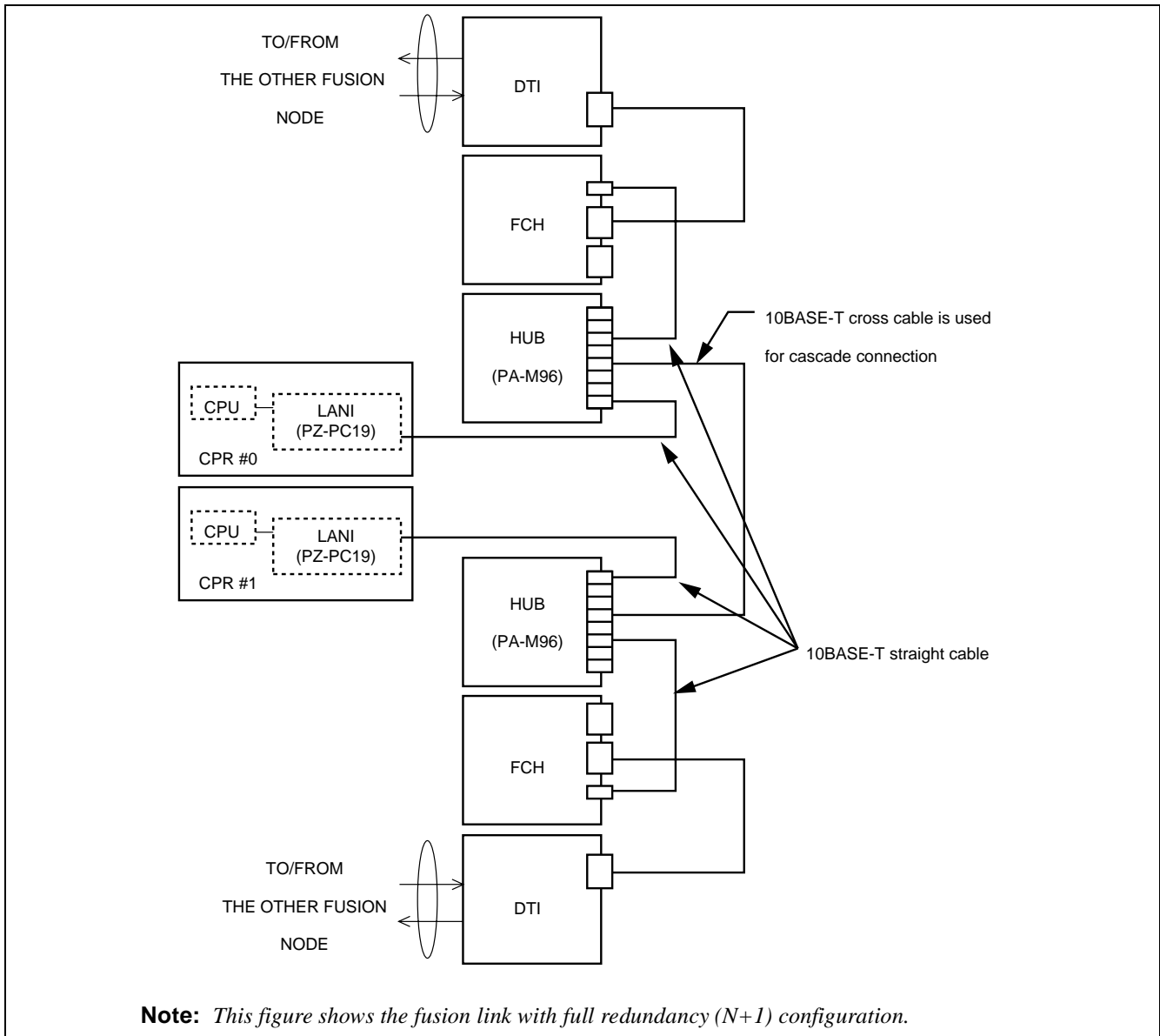


# PA-M96 HUB

## 1. General Function

This circuit card provides the repeater function which is based on ANSI/IEEE 802.3. Eight (8) of the 10BASE-T ports are located on a HUB card.

As seen from the functional connection diagram below, the HUB card is located between the CPR (LANI) and the FCH card. The HUB card distributes the Fusion link data onto FCH cards.

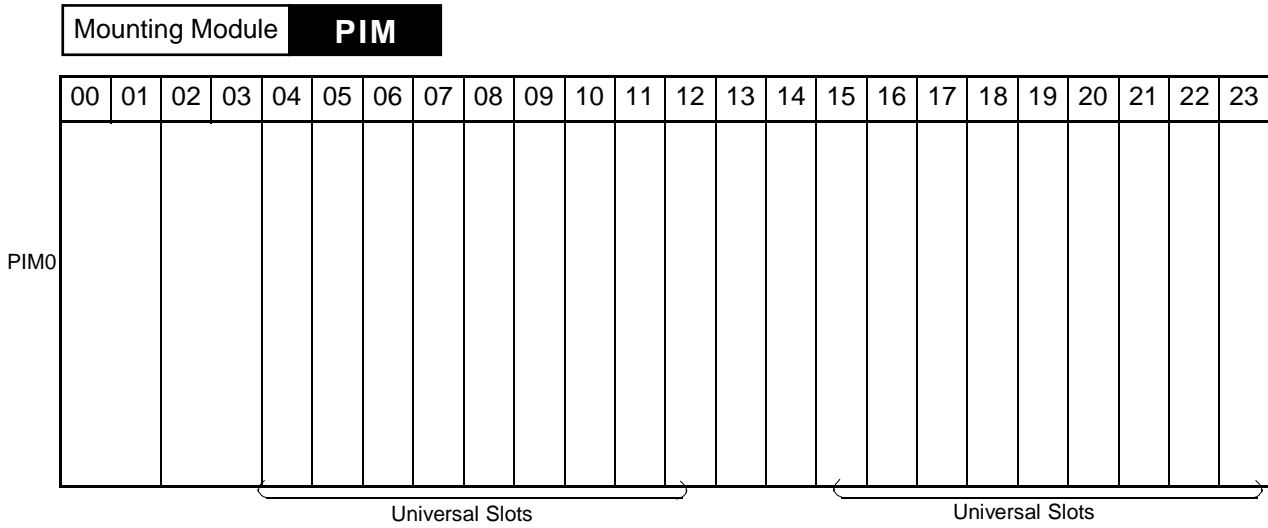


**Figure 3-109 Location of PA-M96 (HUB) Card in the System**

**PA-M96**  
HUB

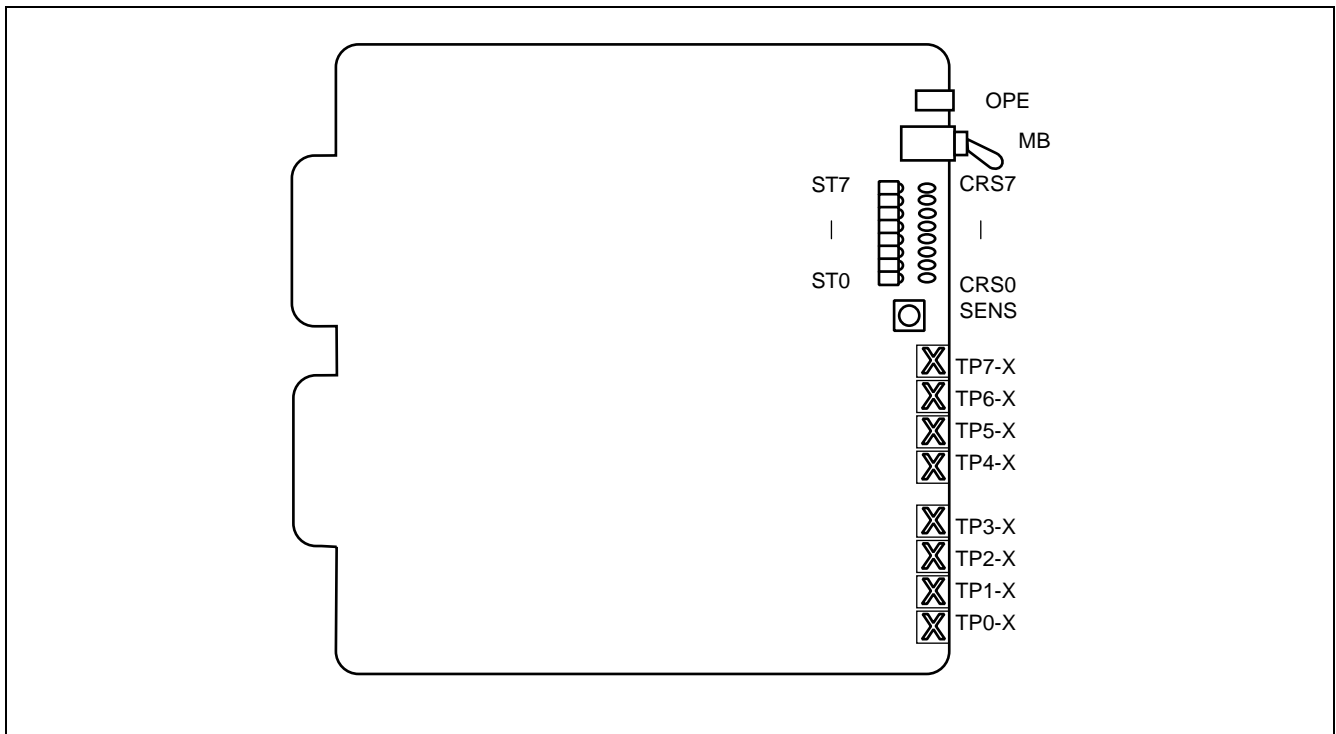
2. Mounting Location/Condition

The PA-M96 (HUB) card can be mounted in any universal slot of PIM0 as shown below.



3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors is shown in [Figure 3-110](#).



**Figure 3-110 Face Layout of PA-M96 (HUB) Card**

#### 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE								
OPE	Green	Remains lit while this circuit card is in normal operation.								
CRS0~CRS7	Green	Lights when the circuit card detects the carrier signal from the TPn-X port.								
ST0~ST7	Green	<p>The meanings of the ST0~ST7 lamps vary depending on the SEL switch settings as shown in the table below.</p> <table border="1"> <thead> <tr> <th>SEL SWITCH</th> <th>MEANINGS</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Lights when the receiving pair cable polarity of the TPn-X port is reversed. (n = 0~7) <b>Note 1</b></td> </tr> <tr> <td>2</td> <td>Lights when the 10 BASE-T (RJ-45) cable is attached to the TPn-X port, and the TCP/IP link has been established. The lamp may light regardless of the receiving pair cable polarity. (n = 0~7)</td> </tr> <tr> <td>3</td> <td>Lights when the TPn-X port is normal. Remains off when collisions have occurred at the TPn-X port. (n = 0~7) <b>Note 2</b></td> </tr> </tbody> </table>	SEL SWITCH	MEANINGS	0	Lights when the receiving pair cable polarity of the TPn-X port is reversed. (n = 0~7) <b>Note 1</b>	2	Lights when the 10 BASE-T (RJ-45) cable is attached to the TPn-X port, and the TCP/IP link has been established. The lamp may light regardless of the receiving pair cable polarity. (n = 0~7)	3	Lights when the TPn-X port is normal. Remains off when collisions have occurred at the TPn-X port. (n = 0~7) <b>Note 2</b>
SEL SWITCH	MEANINGS									
0	Lights when the receiving pair cable polarity of the TPn-X port is reversed. (n = 0~7) <b>Note 1</b>									
2	Lights when the 10 BASE-T (RJ-45) cable is attached to the TPn-X port, and the TCP/IP link has been established. The lamp may light regardless of the receiving pair cable polarity. (n = 0~7)									
3	Lights when the TPn-X port is normal. Remains off when collisions have occurred at the TPn-X port. (n = 0~7) <b>Note 2</b>									

**Note 1:** *This lamp is used to indicate the status of the TPn-X port. Therefore, the circuit card operates normally regardless of the cable polarity.*

**Note 2:** *This circuit card can detect data packet collisions at a TPn-X port when it would be a collision of 2048 bit-times (2.048 ms) or when the packet collides 32 times consecutively. The port is then locked-out until the collision is over.*

5. Switch Setting

Standard settings for switches on this circuit card are shown in the table below.

SWITCH NAME	SETTING	STANDARD SETTING	DESCRIPTION
MB	UP		Circuit card Make-busy.
	DOWN	×	Circuit card Make-busy cancel.
SENSE	0		Polarity indication on the STn lamps for TPn-X ports (n = 0~7).
	1		Not used.
	2	×	TPn-X ports operate as a repeater HUB. (n = 0~7).
	3		Data-Packet-Collision indication on the STn lamps for TPn-X ports (n = 0~7).
	4 - F		Not used.

6. External Interface

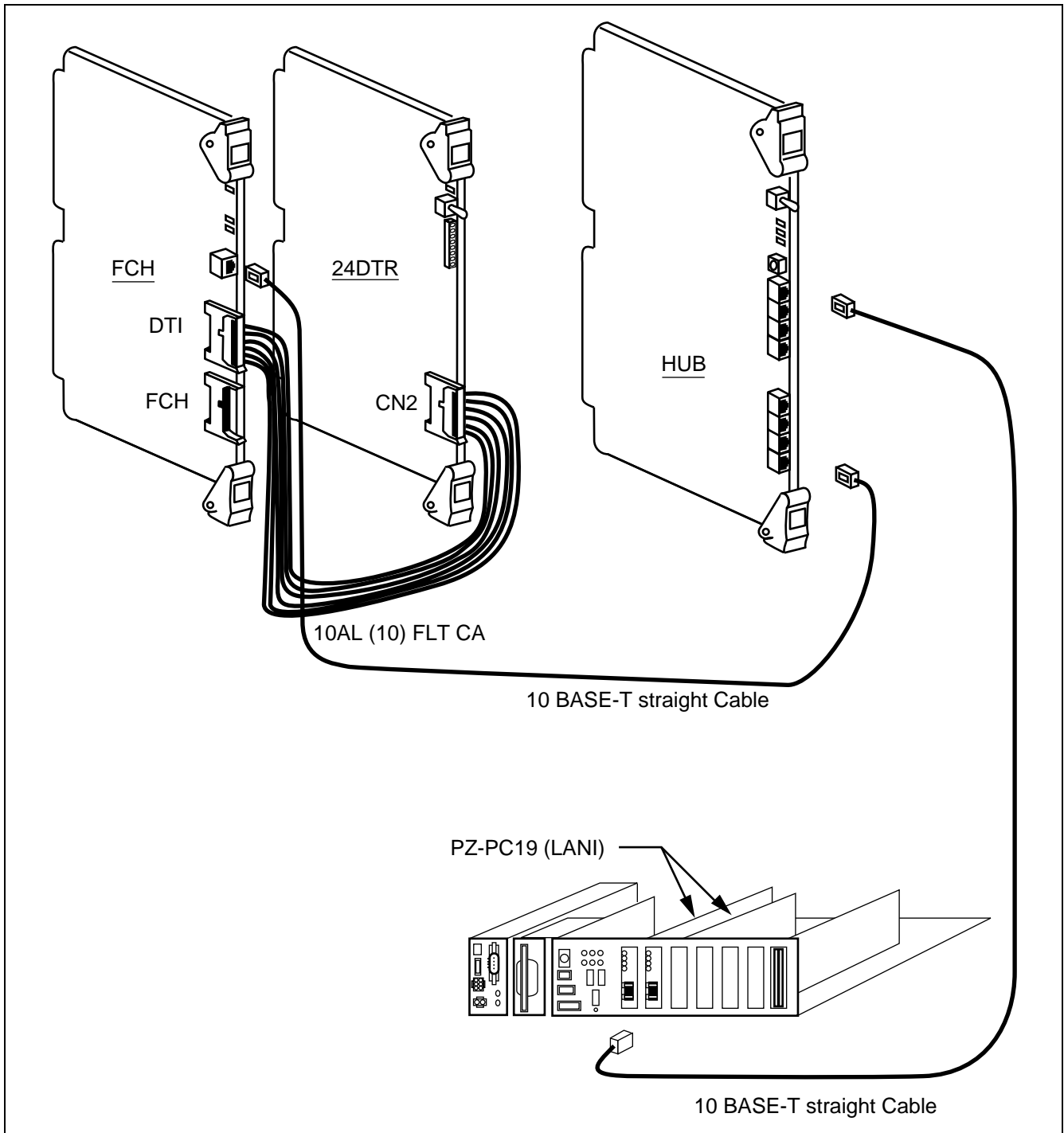
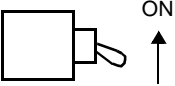



Figure 3-111 FCH/HUB/DTI/LANI Connection

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SEL		

## PA-M103 HUB

### 1. General Function

This circuit card is a class II HUB card based on IEEE802.3 (10BASE-T)/IEEE802.3u (100BASE-TX), which is located between 100M Ether card (PZ-PC22/PZ-PC23) and FCCH card that establishes Fusion link to the system.

This circuit card provides the repeater function, and 12 ports 10BASE-T/100BASE-TX are accommodated on one HUB card. The state of each port is indicated on the LED.

This card is used in IPX-UMG system.

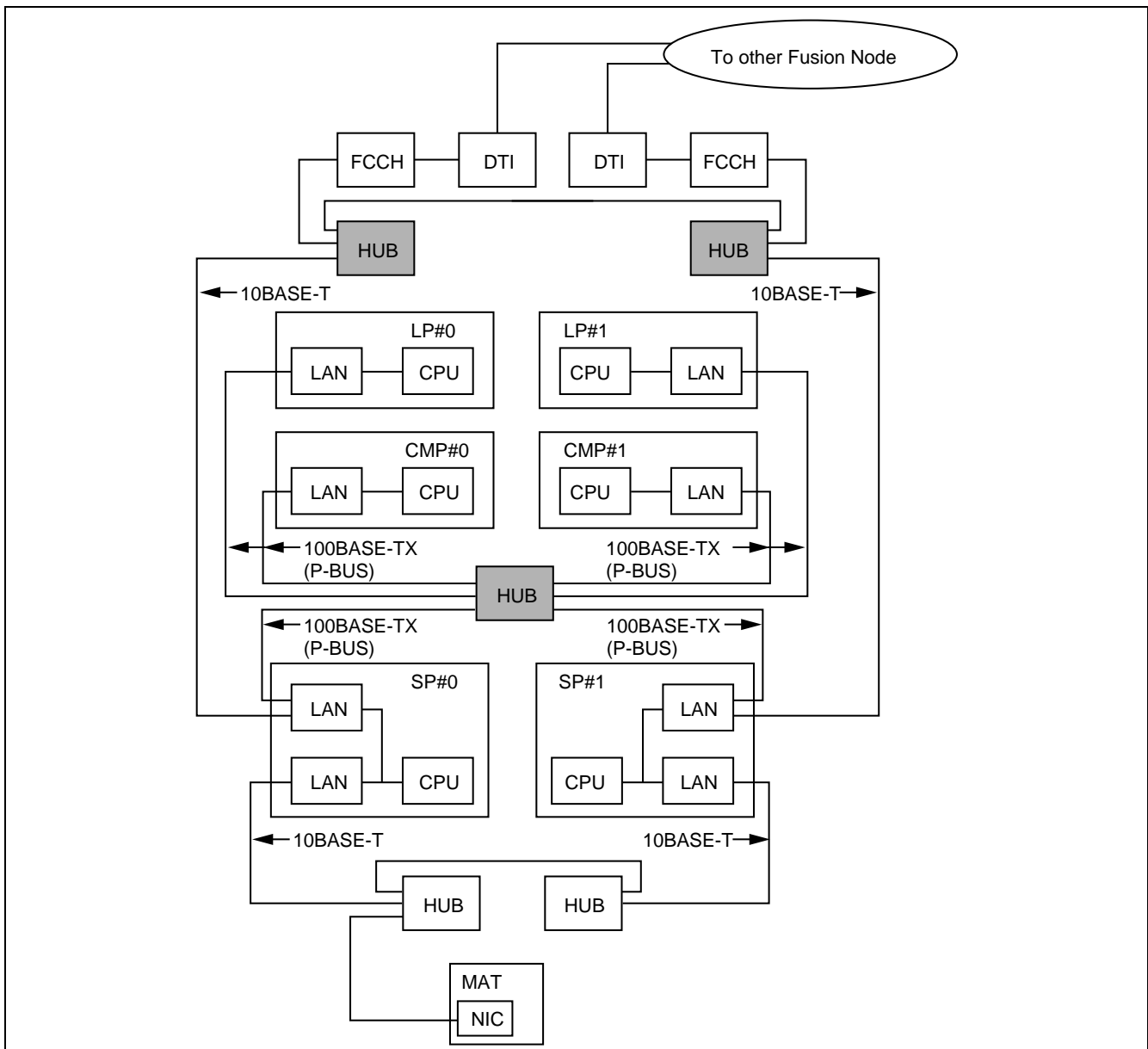
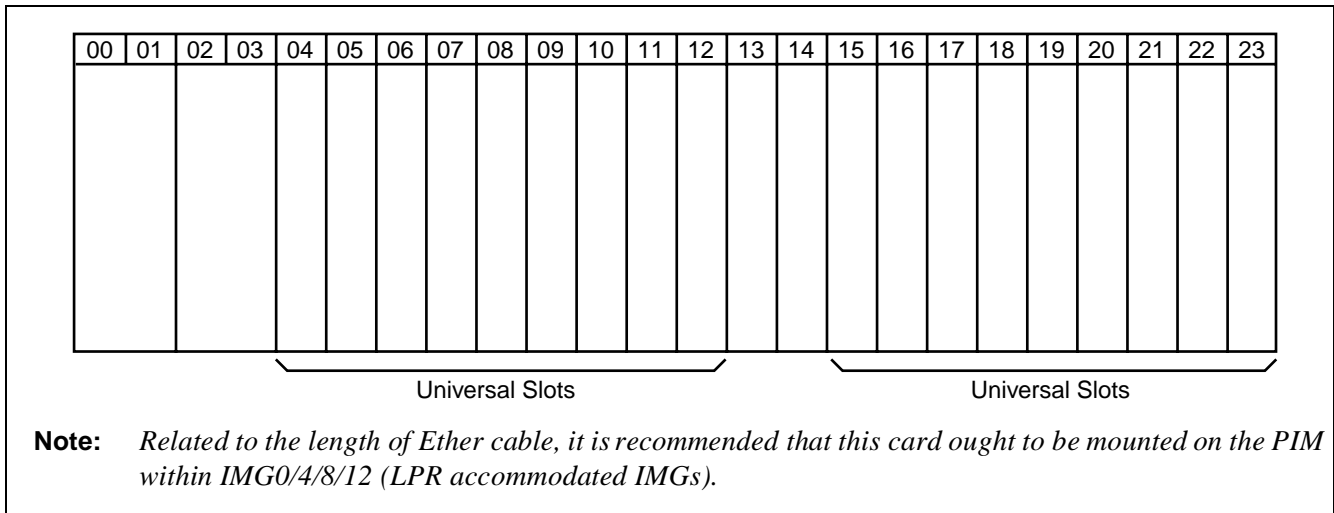


Figure 3-112 Location of PA-M103 (HUB) Card in the System

**PA-M103**  
HUB

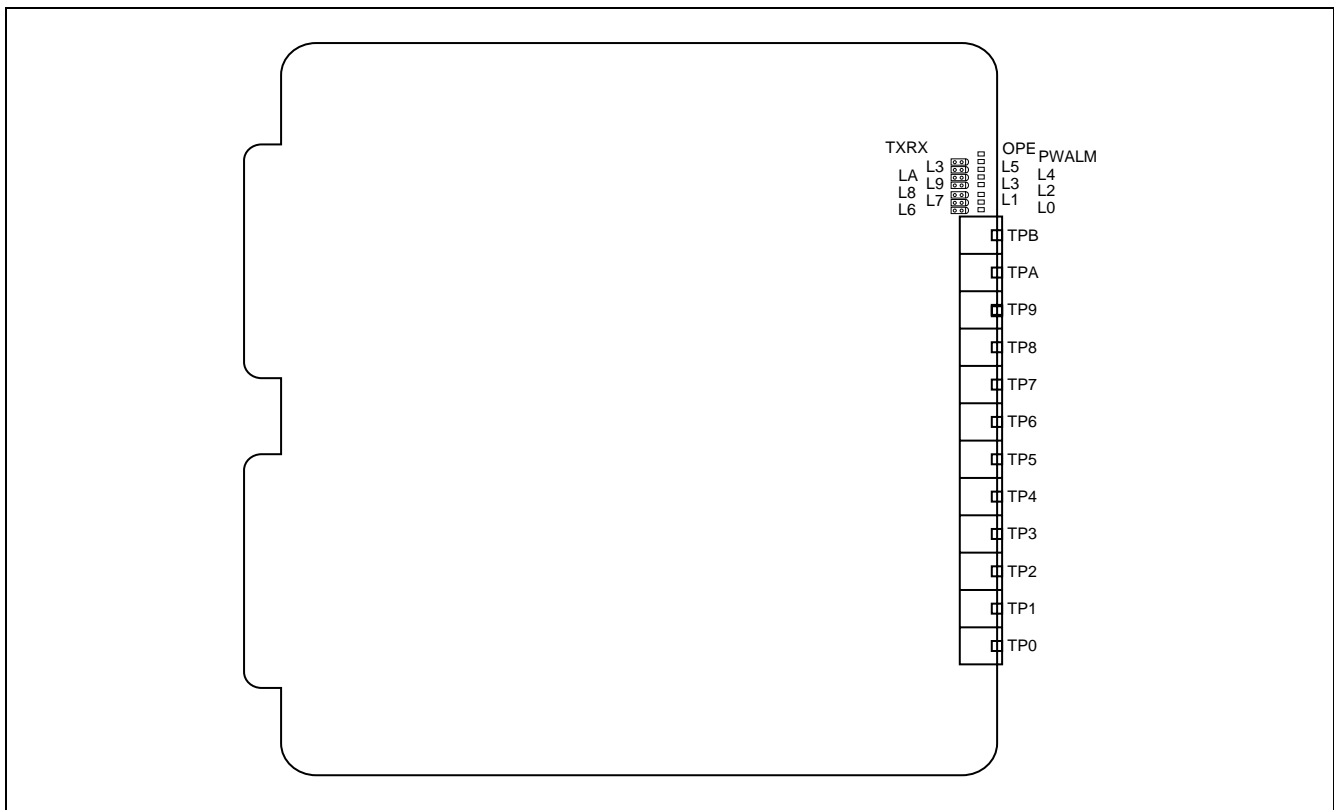
2. Mounting Location/Condition

The PA-M103 (HUB) card can be mounted in any universal slot of PIM as shown below.



3. Face Layout of Connectors

The face layout of lamps, switches, and connectors are shown in [Figure 3-113](#).



**Figure 3-113** Face layout of PA-M103 (HUB) Card



4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	DESCRIPTION
OPE	Green	Remains lit while this circuit card is in normal operation
PWALM	Red	Lights when the OBP (On Board Power) output voltage blownout
L0-L9, LA, LB	Green	Link has been established
TXRX	Green	Data packet sending/receiving

5. Switch Settings

No switch settings are required.

6. External Interface

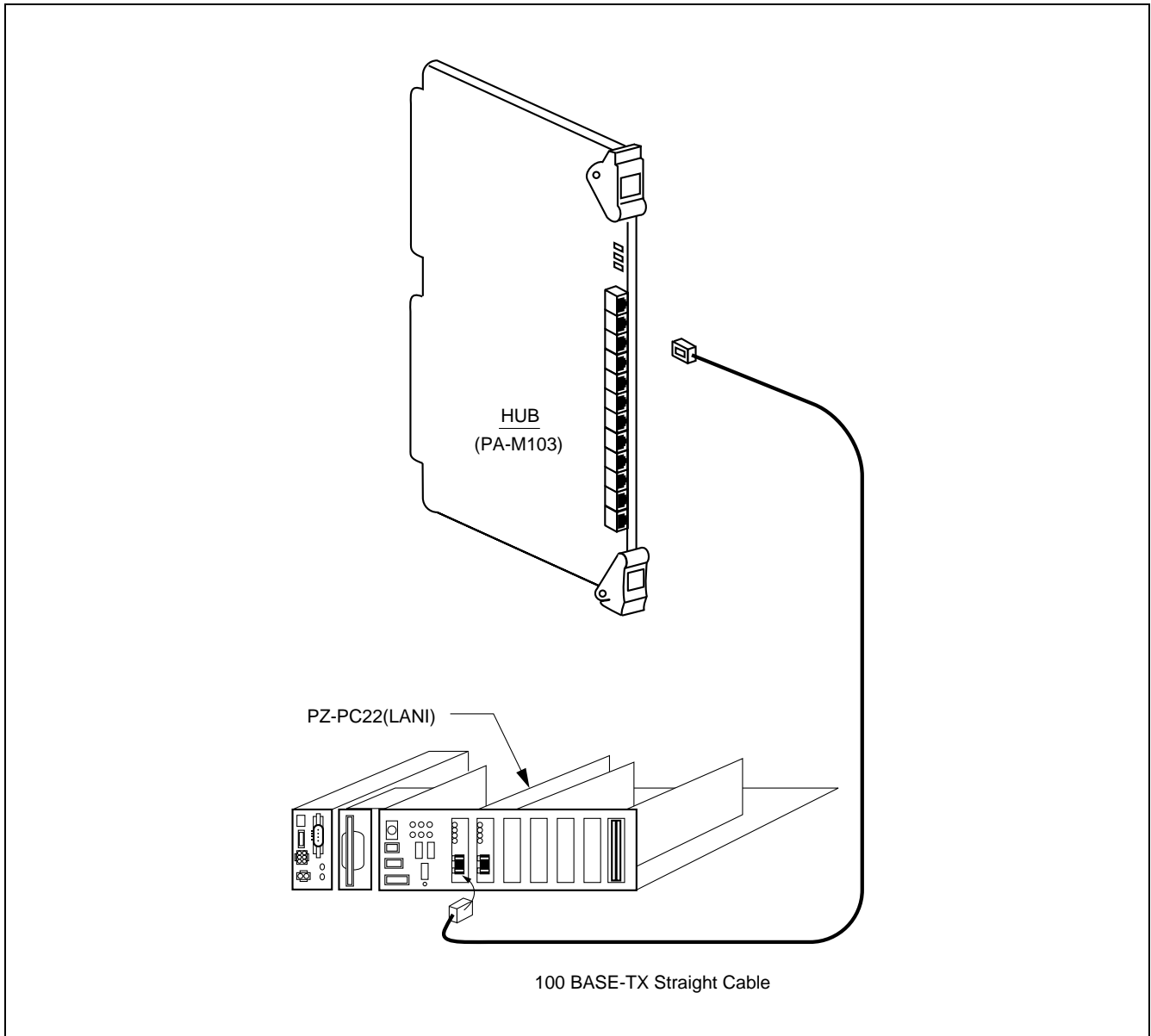


Figure 3-114 External Interface for PA-M103 (HUB) Card

7. Switch Setting Sheet

No switch settings are required.

## PA-8RSTK Register Sender Trunk

### 1. General Function

This circuit card is an 8-circuit register sender trunk card which transmits and sends selective signals (DP signals, PB signals, MF signals).

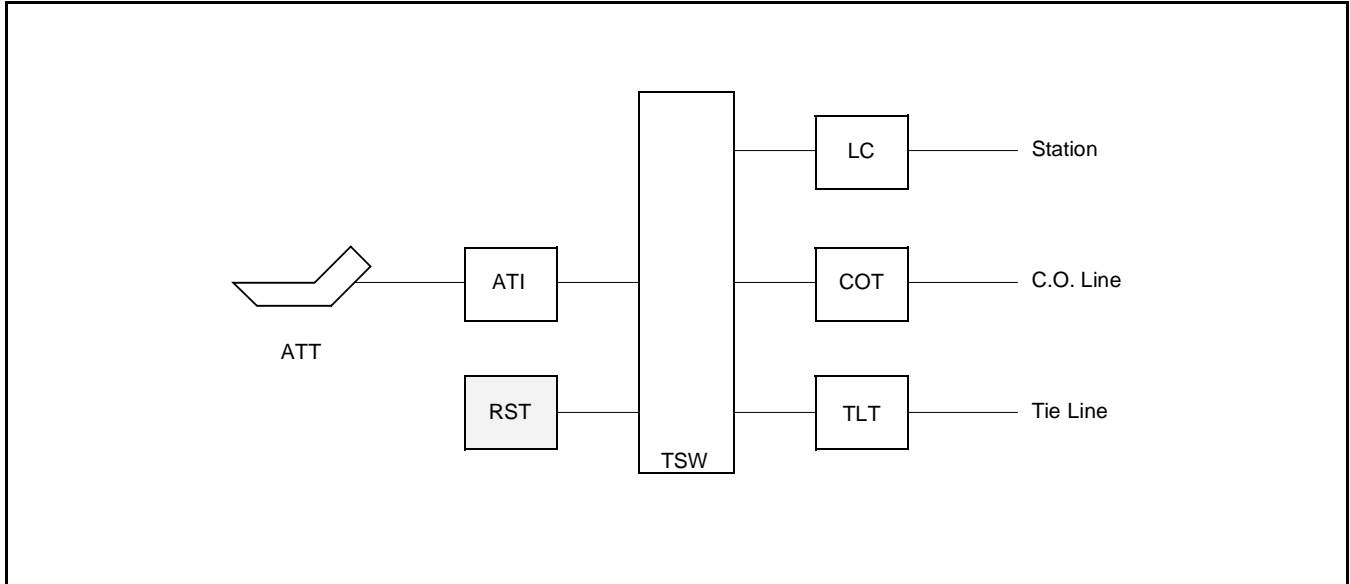


Figure 3-115 Location of PA-8RSTK (8RST) within the System

**PA-8RSTK**

Register Sender Trunk

2. Mounting Location/Condition

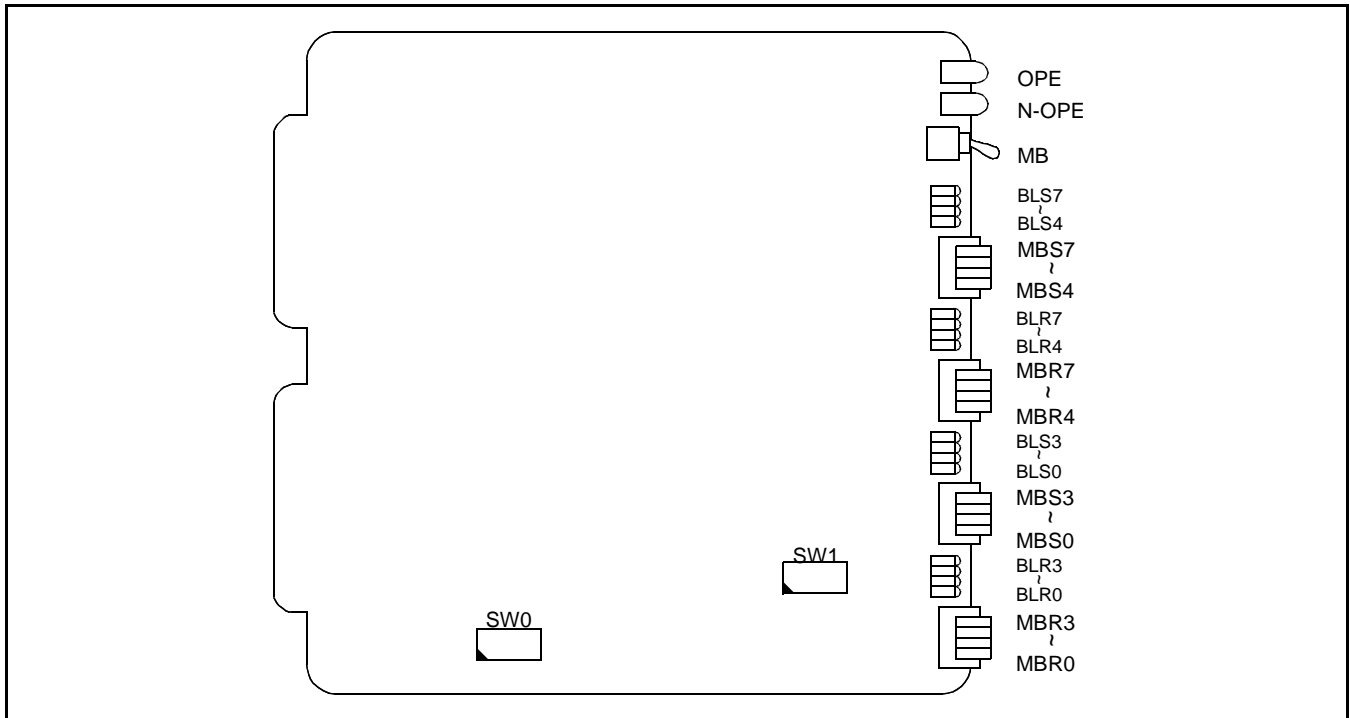
The mounting locations of this circuit card and the conditions related to mounting are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in [Figure 3-116](#).



**Figure 3-116 Face Layout of PA-8RSTK (8RST)**

### 4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
BLR0 ∩ BLR7	Red	Lights when the corresponding circuit has received the selective signals.
	Flash	Flashes (60 IPM) while the corresponding circuit is in make-busy state.
	OFF	Remains off while the corresponding circuit is idle.
BLS0 ∩ BLS7	Red	Lights when the corresponding circuit has sent the selective signals.
	Flash	Flashes (60 IPM) while the corresponding circuit is in make-busy state.
	OFF	Remains off while the corresponding circuit is idle.

**PA-8RSTK**

## Register Sender Trunk

## 5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make busy.
		DOWN	×	Circuit card make busy cancel.
MBR0~3	0	ON		Register make busy of the corresponding circuit.
		OFF	×	Register make busy cancel of the corresponding circuit.
	1	ON		Register make busy of the corresponding circuit.
		OFF	×	Register make busy cancel of the corresponding circuit.
	2	ON		Register make busy of the corresponding circuit.
		OFF	×	Register make busy cancel of the corresponding circuit.
3	ON		Register make busy of the corresponding circuit.	
	OFF	×	Register make busy cancel of the corresponding circuit.	
MBR4~7	4	ON		Register make busy of the corresponding circuit.
		OFF	×	Register make busy cancel of the corresponding circuit.
	5	ON		Register make busy of the corresponding circuit.
		OFF	×	Register make busy cancel of the corresponding circuit.
	6	ON		Register make busy of the corresponding circuit.
		OFF	×	Register make busy cancel of the corresponding circuit.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
MBR4~7	7	ON		Register make busy of the corresponding circuit.	
		OFF	×	Register make busy cancel of the corresponding circuit.	
MBS0~3	0	ON		Sender make busy of the corresponding circuit.	
		OFF	×	Sender make busy cancel of the corresponding circuit.	
	1	ON		Sender make busy of the corresponding circuit.	
		OFF	×	Sender make busy cancel of the corresponding circuit.	
	2	ON		Sender make busy of the corresponding circuit.	
		OFF	×	Sender make busy cancel of the corresponding circuit.	
	3	ON		Sender make busy of the corresponding circuit.	
		OFF	×	Sender make busy cancel of the corresponding circuit.	
	MBS4~7	4	ON		Sender make busy of the corresponding circuit.
			OFF	×	Sender make busy cancel of the corresponding circuit.
		5	ON		Sender make busy of the corresponding circuit.
			OFF	×	Sender make busy cancel of the corresponding circuit.
6		ON		Sender make busy of the corresponding circuit.	
		OFF	×	Sender make busy cancel of the corresponding circuit.	
7		ON		Sender make busy of the corresponding circuit.	
		OFF	×	Sender make busy cancel of the corresponding circuit.	

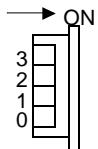
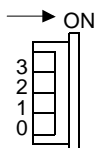
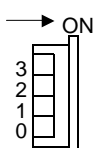
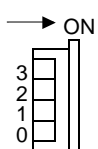
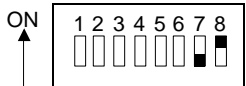
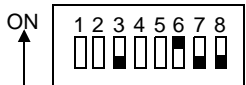
**PA-8RSTK**  
Register Sender Trunk

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																																																
SW0	1	ON		<table border="1"> <thead> <tr> <th colspan="4">SELECTION OF PBR THRESHOLD VALUE</th> </tr> <tr> <th>SW0-1</th> <th>SW0-2</th> <th>SW0-3</th> <th>PBR THRESHOLD VALUE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>-21.7 dBm0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>-23.7 dBm0</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>-25.7 dBm0</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>-27.7 dBm0</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>-28.7 dBm0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>-31.7 dBm0</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>-33.7 dBm0</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>-35.7 dBm0</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">SELECTION OF MFR THRESHOLD VALUE</th> </tr> <tr> <th>SW0-4</th> <th>SW0-5</th> <th>SW0-6</th> <th>MFR THRESHOLD VALUE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>-21 dBm0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>-23 dBm0</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>-25 dBm0</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>-27 dBm0</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>-28 dBm0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>-31 dBm0</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>-33 dBm0</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>-35 dBm0</td> </tr> </tbody> </table>	SELECTION OF PBR THRESHOLD VALUE				SW0-1	SW0-2	SW0-3	PBR THRESHOLD VALUE	ON	ON	ON	-21.7 dBm0	OFF	ON	ON	-23.7 dBm0	ON	OFF	ON	-25.7 dBm0	OFF	OFF	ON	-27.7 dBm0	ON	ON	OFF	-28.7 dBm0	OFF	ON	OFF	-31.7 dBm0	ON	OFF	OFF	-33.7 dBm0	OFF	OFF	OFF	-35.7 dBm0	SELECTION OF MFR THRESHOLD VALUE				SW0-4	SW0-5	SW0-6	MFR THRESHOLD VALUE	ON	ON	ON	-21 dBm0	OFF	ON	ON	-23 dBm0	ON	OFF	ON	-25 dBm0	OFF	OFF	ON	-27 dBm0	ON	ON	OFF	-28 dBm0	OFF	ON	OFF	-31 dBm0	ON	OFF	OFF	-33 dBm0	OFF	OFF	OFF	-35 dBm0
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	8	ON	×	Fixed.																																																																																



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW1	1	ON		MFR Receive Specification; AT&T
		OFF		MFR Receive Specification; CCITT No. 5
	2	ON		PBR PULSE TIMER (Momentary Signal Shut Down Protect Timer) SHORT (Shorter than 10 ms.)
		OFF		PBR PULSE TIMER (Momentary Signal Shut Down Protect Timer) LONG (Shorter than 20 ms.)
	3	OFF	×	Fixed
	4	ON		Register Selection; REG0, 1, 4, 5 of MFR.
		OFF		Register Selection; REG0, 1, 4, 5 of PBR.
	5	ON		Register Selection; REG2, 3, 6, 7 of MFR.
		OFF		Register Selection; REG2, 3, 6, 7 of PBR.
	6	ON	×	DPR Receive Specification; General Spec.
		OFF		DPR Receive Specification; Australian Spec.
	7	OFF	×	No setting (Fixed to OFF)
	8	OFF	×	Fixed

6. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		MBR0-3		
		MBR4-7		
		MBS0-3		
		MBS4-7		
		SW0		
		SW1		
		MB	DOWN	Circuit card make busy cancel

## PA-8RSTM Register Sender Trunk

### 1. General Function

This circuit card is an 8-circuit register sender trunk card that transmits and sends selective signals (DP signals, PB signals, MF signals).

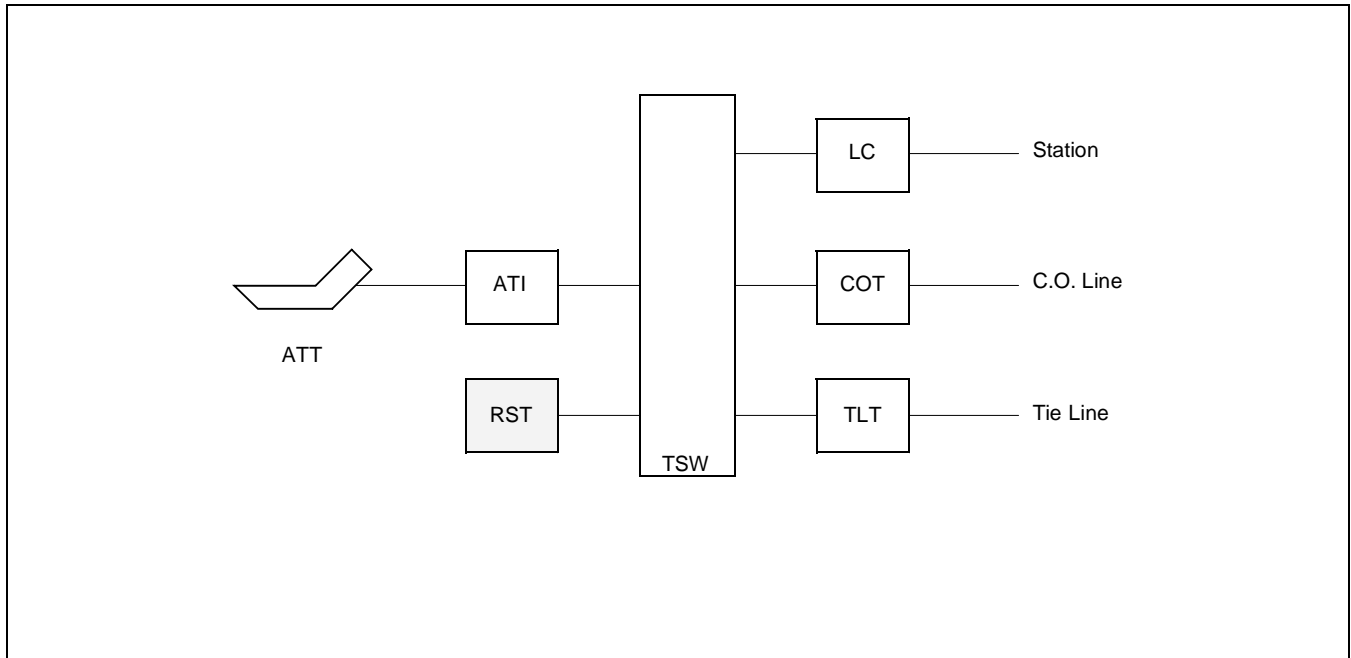


Figure 3-117 Location of the PA-8RSTM (8RST) Card in the System

**PA-8RSTM**  
Register Sender Trunk

2. Mounting Location/Condition

The mounting locations for this circuit card and the conditions related to mounting are shown below.

Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors for this circuit card is shown below.

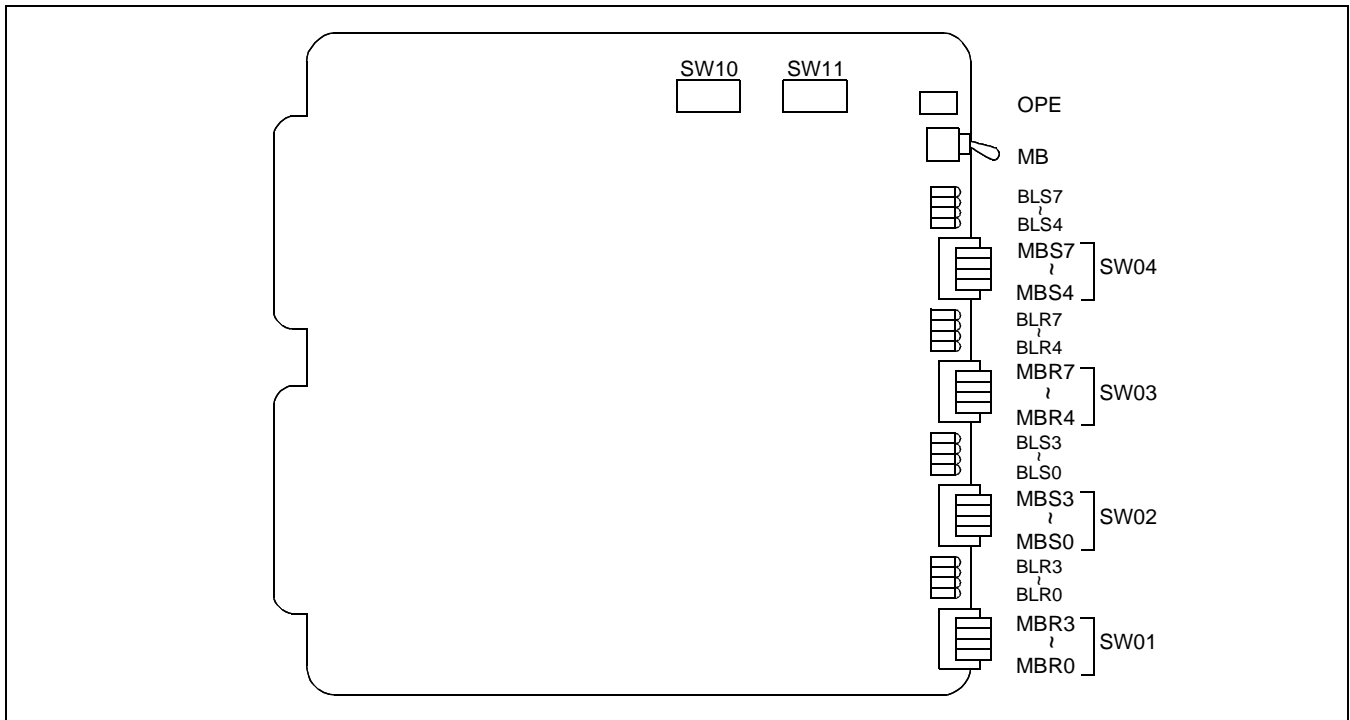


Figure 3-118 Face Layout of PA-8RSTM (8RST)

#### 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
BLR0 ∩ BLR7	Red	Lights when the corresponding circuit has received the selective signals.
	Flash	Flashes (60 IPM) while the corresponding circuit is in Make-busy state.
	OFF	Remains off when the corresponding circuit is idle.
BLS0 ∩ BLS7	Red	Lights when the corresponding circuit has sent the selective signals.
	Flash	Flashes (60 IPM) when the corresponding circuit is in Make-busy state.
	OFF	Remains off while the corresponding circuit is idle.

#### 5. Switch Settings

Standard settings for various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card Make-busy.
		DOWN	×	Circuit card Make-busy cancel.
MBR0~3 (SW01)	0	ON		Register Make-busy of the corresponding circuit.
		OFF	×	Register Make-busy cancel of the corresponding circuit.
	1	ON		Register Make-busy of the corresponding circuit.
		OFF	×	Register Make-busy cancel of the corresponding circuit.
	2	ON		Register Make-busy of the corresponding circuit.
		OFF	×	Register Make-busy cancel of the corresponding circuit.
3	ON		Register Make-busy of the corresponding circuit.	
	OFF	×	Register Make-busy cancel of the corresponding circuit.	
MBR4~7 (SW03)	4	ON		Register Make-busy of the corresponding circuit.
		OFF	×	Register Make-busy cancel of the corresponding circuit.
	5	ON		Register Make-busy of the corresponding circuit.
		OFF	×	Register Make-busy cancel of the corresponding circuit.
	6	ON		Register Make-busy of the corresponding circuit.
		OFF	×	Register Make-busy cancel of the corresponding circuit.

**PA-8RSTM**  
Register Sender Trunk

<b>SWITCH NAME</b>	<b>SWITCH NO.</b>	<b>SETTING</b>	<b>STANDARD SETTING</b>	<b>MEANING</b>	
MBR4~7 (SW03)	7	ON		Register Make-busy of the corresponding circuit.	
		OFF	×	Register Make-busy cancel of the corresponding circuit.	
MBS0~3 (SW02)	0	ON		Sender Make-busy of the corresponding circuit.	
		OFF	×	Sender Make-busy cancel of the corresponding circuit.	
	1	ON		Sender Make-busy of the corresponding circuit.	
		OFF	×	Sender Make-busy cancel of the corresponding circuit.	
	2	ON		Sender Make-busy of the corresponding circuit.	
		OFF	×	Sender Make-busy cancel of the corresponding circuit.	
	3	ON		Sender Make-busy of the corresponding circuit.	
		OFF	×	Sender Make-busy cancel of the corresponding circuit.	
	MBS4~7 (SW04)	4	ON		Sender Make-busy of the corresponding circuit.
			OFF	×	Sender Make-busy cancel of the corresponding circuit.
		5	ON		Sender Make-busy of the corresponding circuit.
			OFF	×	Sender Make-busy cancel of the corresponding circuit.
6		ON		Sender Make-busy of the corresponding circuit.	
		OFF	×	Sender Make-busy cancel of the corresponding circuit.	
7		ON		Sender Make-busy of the corresponding circuit.	
		OFF	×	Sender Make-busy cancel of the corresponding circuit.	

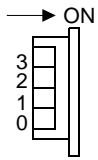
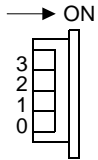
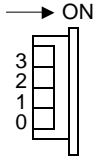
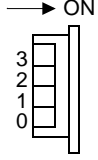
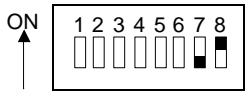
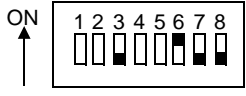
SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																								
SW10	1	ON	×	<table border="1"> <thead> <tr> <th colspan="4">SELECTION OF PBR THRESHOLD VALUE</th> </tr> <tr> <th>SW10-1</th> <th>SW10-2</th> <th>SW10-3</th> <th>PBR THRESHOLD VALUE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>-21 dBm0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>-23 dBm0</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>-25 dBm0</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>-27 dBm0</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>-29 dBm0 (standard setting)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>-31 dBm0</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>-33 dBm0</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>-35 dBm0</td> </tr> </tbody> </table>	SELECTION OF PBR THRESHOLD VALUE				SW10-1	SW10-2	SW10-3	PBR THRESHOLD VALUE	ON	ON	ON	-21 dBm0	OFF	ON	ON	-23 dBm0	ON	OFF	ON	-25 dBm0	OFF	OFF	ON	-27 dBm0	ON	ON	OFF	-29 dBm0 (standard setting)	OFF	ON	OFF	-31 dBm0	ON	OFF	OFF	-33 dBm0	OFF	OFF	OFF	-35 dBm0
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		OFF																																										
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	OFF																																											
	ON																																											
	OFF																																											
7	OFF	×	Threshold value is not selected (Fixed to OFF).																																									
8	ON	×	Fixed.																																									

**PA-8RSTM**  
Register Sender Trunk

<b>SWITCH NAME</b>	<b>SWITCH NO.</b>	<b>SETTING</b>	<b>STANDARD SETTING</b>	<b>MEANING</b>
SW11	1	ON		MFR Receive Specification; AT&T
		OFF		MFR Receive Specification; ITU-T No. 5
	2	ON		PBR PULSE TIMER (Momentary Signal Shut Down Protect Timer) SHORT (Shorter than 10 ms.)
		OFF		PBR PULSE TIMER (Momentary Signal Shut Down Protect Timer) LONG (Shorter than 20 ms.)
	3	OFF	×	Fixed
	4	ON		Register Selection; REG 0, 1, 2, 3 of MFR.
		OFF		Register Selection; REG 0, 1, 2, 3 of PBR.
	5	ON		Register Selection; REG 4, 5, 6, 7 of MFR.
		OFF		Register Selection; REG 4, 5, 6, 7 of PBR.
	6	ON	×	DPR Receive Specification; General Spec.
		OFF		DPR Receive Specification; Australian Spec.
	7	OFF	×	No setting (Fixed to OFF)
	8	OFF	×	Fixed



6. Switch Setting Sheet

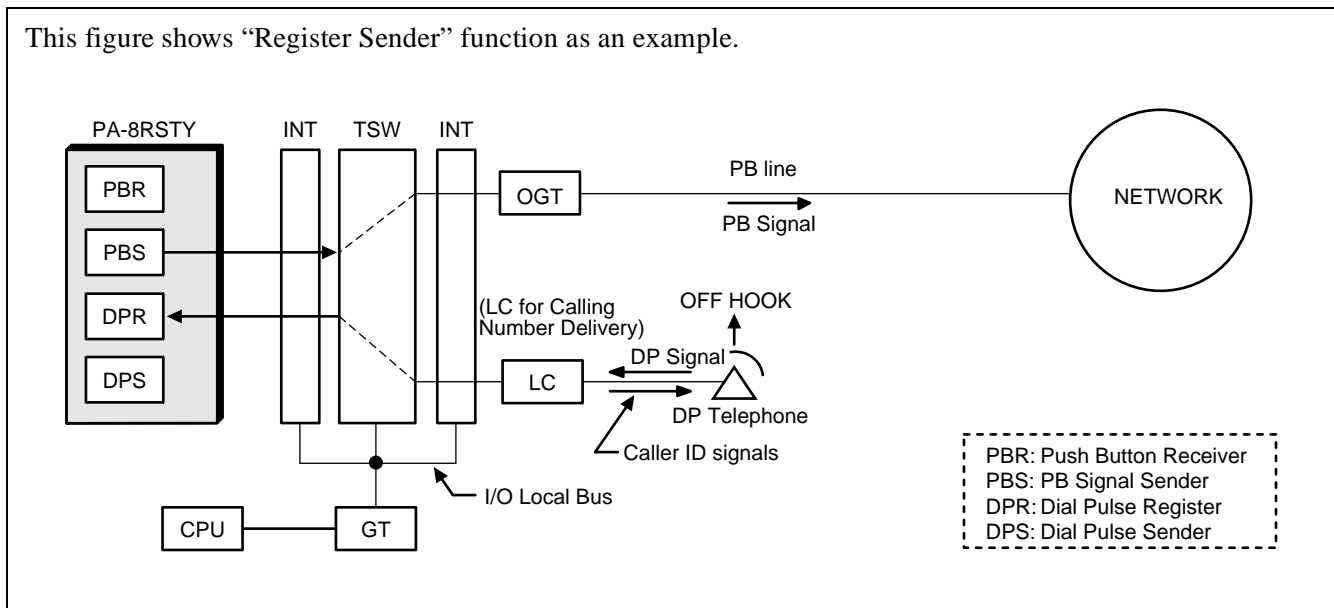
MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		MBR0-3 (SW01)		
		MBR4-7 (SW03)		
		MBS0-3 (SW02)		
		MBS4-7 (SW04)		
		SW10		
		SW11		
		MB	DOWN	

## **PA-8RSTY** **Register Sender Trunk**

### 1. General Function

The PA-8RSTY circuit card is equipped with eight circuits of Registers and Senders. More specifically, this card contains Dial Pulse Register (DPR), Push Button Receiver (PBR) for receiving digits from extensions and/or the associated incoming trunks and Dial Pulse Sender (DPS), PB Signal Sender (PBS) for sending digits to a distant switching system. In addition, this card has “Register Sender” function, by which inter-digit pause can be changed and PB signals may be converted to DP signals and vice versa without intervention of the CPU. The card can be used for caller ID service.

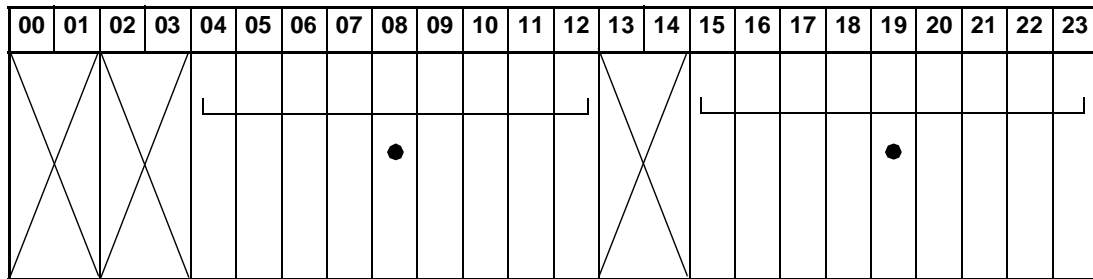
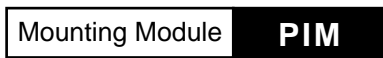
**Note:** *The PA-8RSTY card requires Series 7400 or later software.*



**Figure 3-119 Location of PA-8RSTY (8RST) within the System**

2. Mounting Location/Condition

The PA-8RSTY (RST) card can be mounted any universal slots as shown below.



**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in Figure 3-120.

**Note:** Layout of Lamps and switches differ from other RST cards.

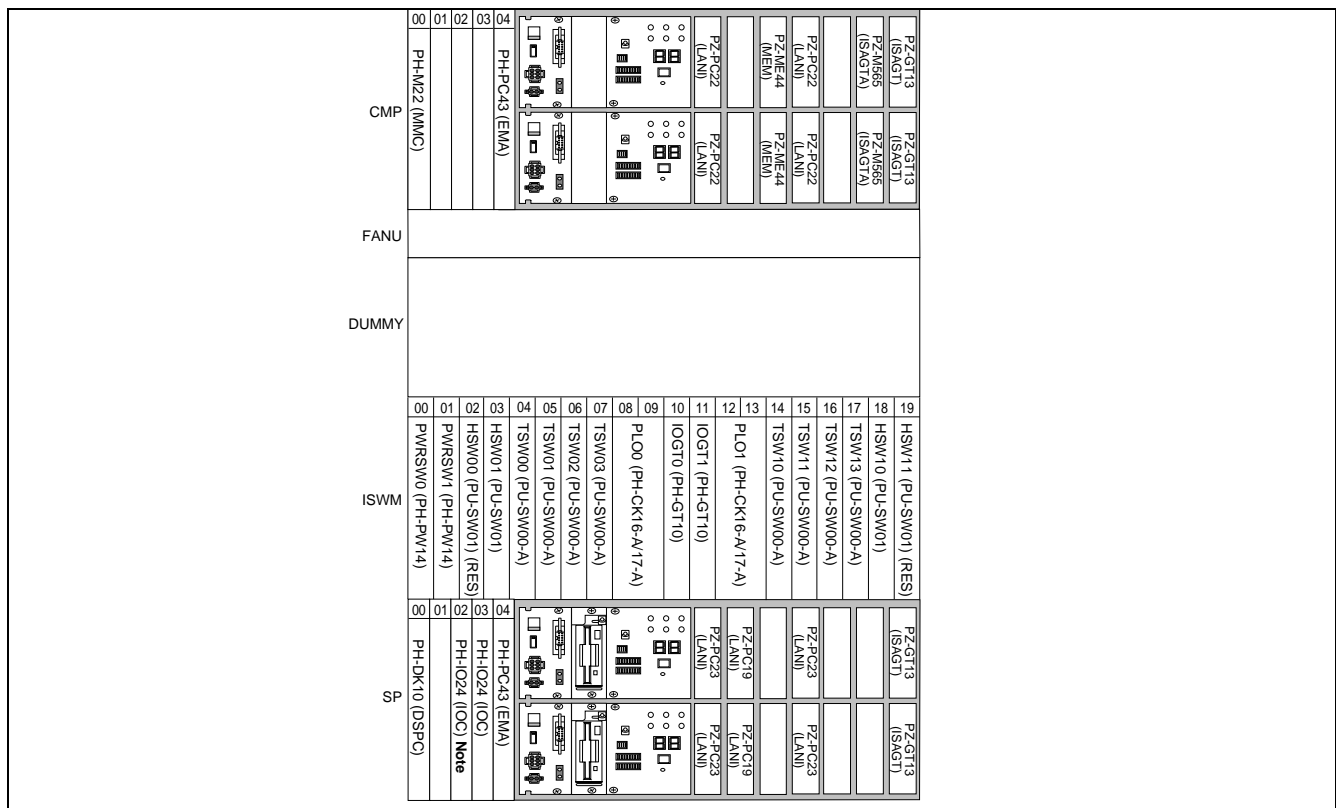


Figure 3-120 Face Layout of PA-8RSTY (8RST)

**PA-8RSTY**

## Register Sender Trunk

## 4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.





<b>LAMP NAME</b>	<b>COLOR</b>	<b>STATE</b>
OPE	Green	Remains lit while this circuit card is operating.
BLR0 , BLR7	Green	Lights when the corresponding circuit has received the selective signals.
	Flash	Flashes (60 IPM) while the corresponding circuit is in make-busy state.
	OFF	Remains off when the corresponding circuit is idle.
BLS0 , BLS7	Green	Lights when the corresponding circuit has sent the selective signals.
	Flash	Flashes (60 IPM) while the corresponding circuit is in make-busy state.
	OFF	Remains off when the corresponding circuit is idle.

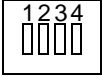








5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB (SW00)		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW01 (MBR0-7)	0	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
	1	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
	2	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
	3	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
	4	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
	5	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
	6	ON		Register make busy of the corresponding circuit
		OFF	×	Register make busy cancel of the corresponding circuit
7	ON		Register make busy of the corresponding circuit	
	OFF	×	Register make busy cancel of the corresponding circuit	
SW02 (MBS0-7)	0	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
	1	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
	2	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
	3	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
	4	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
	5	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
	6	ON		Sender make busy of the corresponding circuit
		OFF	×	Sender make busy cancel of the corresponding circuit
7	ON		Sender make busy of the corresponding circuit	
	OFF	×	Sender make busy cancel of the corresponding circuit	

**PA-8RSTY**  
 Register Sender Trunk

SWITCH	FUNCTION	SWITCH SETTING	MEANING																																								
SW10 	DTMF Signal Receiver Threshold Value	[Standard Setting]  ON OFF	<table border="1"> <thead> <tr> <th colspan="4">Selection of PBR Threshold Value</th> </tr> <tr> <th>SW10-1</th> <th>SW10-2</th> <th>SW10-3</th> <th>DTMF Threshold Value</th> </tr> </thead> <tbody> <tr><td>ON</td><td>ON</td><td>ON</td><td>-21.0 dBm0</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>-23.0 dBm0</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>-25.0 dBm0</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>-27.0 dBm0</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>-29.0 dBm0</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>-31.0 dBm0</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>-33.0 dBm0</td></tr> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>-35.0 dBm0</td></tr> </tbody> </table>	Selection of PBR Threshold Value				SW10-1	SW10-2	SW10-3	DTMF Threshold Value	ON	ON	ON	-21.0 dBm0	OFF	ON	ON	-23.0 dBm0	ON	OFF	ON	-25.0 dBm0	OFF	OFF	ON	-27.0 dBm0	ON	ON	OFF	-29.0 dBm0	OFF	ON	OFF	-31.0 dBm0	ON	OFF	OFF	-33.0 dBm0	OFF	OFF	OFF	-35.0 dBm0
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OFF	OFF	OFF	-35.0 dBm0																																								
4		OFF	Fixed to OFF																																								
SW11 	MFR Signal Receiver Threshold Value	[Standard Setting]  ON OFF	<table border="1"> <thead> <tr> <th colspan="4">Selection of MFR Threshold Value</th> </tr> <tr> <th>SW11-1</th> <th>SW11-2</th> <th>SW11-3</th> <th>MFR Threshold Value</th> </tr> </thead> <tbody> <tr><td>ON</td><td>ON</td><td>ON</td><td>-17.0 dBm0</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>-19.0 dBm0</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>-21.0 dBm0</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>-23.0 dBm0</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>-25.0 dBm0</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>-27.0 dBm0</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>-29.0 dBm0</td></tr> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>-31.0 dBm0</td></tr> </tbody> </table>	Selection of MFR Threshold Value				SW11-1	SW11-2	SW11-3	MFR Threshold Value	ON	ON	ON	-17.0 dBm0	OFF	ON	ON	-19.0 dBm0	ON	OFF	ON	-21.0 dBm0	OFF	OFF	ON	-23.0 dBm0	ON	ON	OFF	-25.0 dBm0	OFF	ON	OFF	-27.0 dBm0	ON	OFF	OFF	-29.0 dBm0	OFF	OFF	OFF	-31.0 dBm0
			Selection of MFR Threshold Value																																								
SW11-1	SW11-2	SW11-3	MFR Threshold Value																																								
ON	ON	ON	-17.0 dBm0																																								
OFF	ON	ON	-19.0 dBm0																																								
ON	OFF	ON	-21.0 dBm0																																								
OFF	OFF	ON	-23.0 dBm0																																								
ON	ON	OFF	-25.0 dBm0																																								
OFF	ON	OFF	-27.0 dBm0																																								
ON	OFF	OFF	-29.0 dBm0																																								
OFF	OFF	OFF	-31.0 dBm0																																								
4		OFF	Fixed to OFF																																								

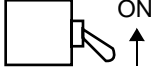
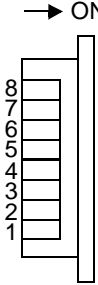
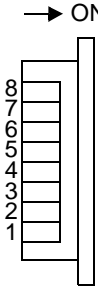
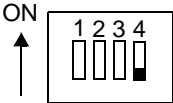
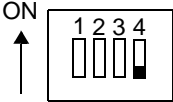
SWITCH	FUNCTION		SWITCH SETTING	MEANING
SW12 	1	Designation of MFR Specification		• AT & T specification
				• ITU-T No. 5 specification
	2	DTMF Signal Cut-off Guard Timer		• SHORT (less than 10 ms)
			 [Standard Setting]	• LONG (less than 20 ms)
	3	Register Selection (MFR/PBR)		• REG #0, #1, #2, #3 function as MFR.
				• REG #0, #1, #2, #3 function as PBR.
	4	Register Selection (MFR/PBR)		• REG #4, #5, #6, #7 function as MFR.
				• REG #4, #5, #6, #7 function as PBR.

**PA-8RSTY**  
Register Sender Trunk

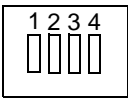
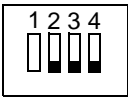
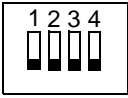



<b>SWITCH</b>	<b>SWITCH NO.</b>	<b>SETTING</b>	<b>STANDARD SETTING</b>	<b>MEANING</b>
SW13	1	ON		MF Transmission Level:-9dBm
		OFF		MF Transmission Level:-5dBm
	2	OFF	×	Fixed to OFF
	3	OFF	×	Fixed to OFF
SW14	4	OFF	×	Fixed to OFF
	1	OFF	×	Fixed to OFF
	2	OFF	×	Fixed to OFF
	3	OFF	×	Fixed to OFF
SW15	4	OFF	×	Fixed to OFF
	1	OFF	×	Fixed to OFF
	2	OFF	×	Fixed to OFF
	3	OFF	×	Fixed to OFF
SW16	4	OFF	×	Fixed to OFF
	1	ON	×	Fixed to ON
	2	OFF	×	Fixed to OFF
	3	OFF	×	Fixed to OFF
SW17	4	OFF	×	Fixed to OFF
	1	OFF	×	Fixed to OFF
	2	OFF	×	Fixed to OFF
	3	OFF	×	Fixed to OFF



6. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		Circuit card make busy cancel Standard Setting : Down
		SW01 (MBR0-7)		
		SW02 (MBS0-7)		
		SW10		
		SW11		

**PA-8RSTY**  
Register Sender Trunk

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW12	ON ↑ 	
		SW13	ON ↑ 	
		SW14	ON ↑ 	
		SW15	ON ↑ 	
		SW16	ON ↑ 	
		SW17	ON ↑ 	

## PA-SDTA SDH/SONET Digital Trunk

### 1. General Function

The PA-SDTA circuit card provides a maximum of 28 interface (1.5 Mbps) used with the fiber optic cable. This card has also the MUX function and is connected directly to the TSW card. This card is used with the PA-SDTB card.

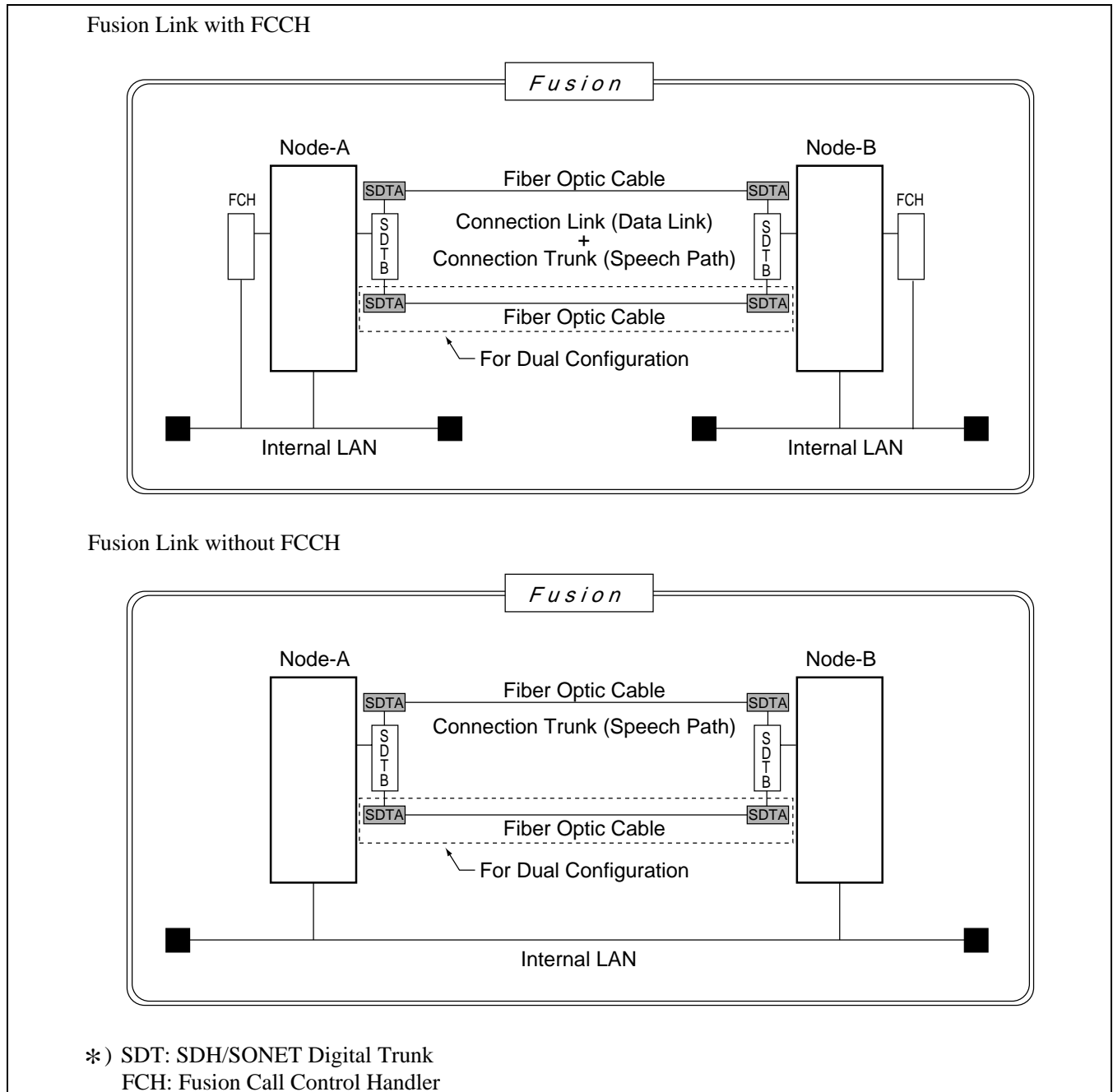
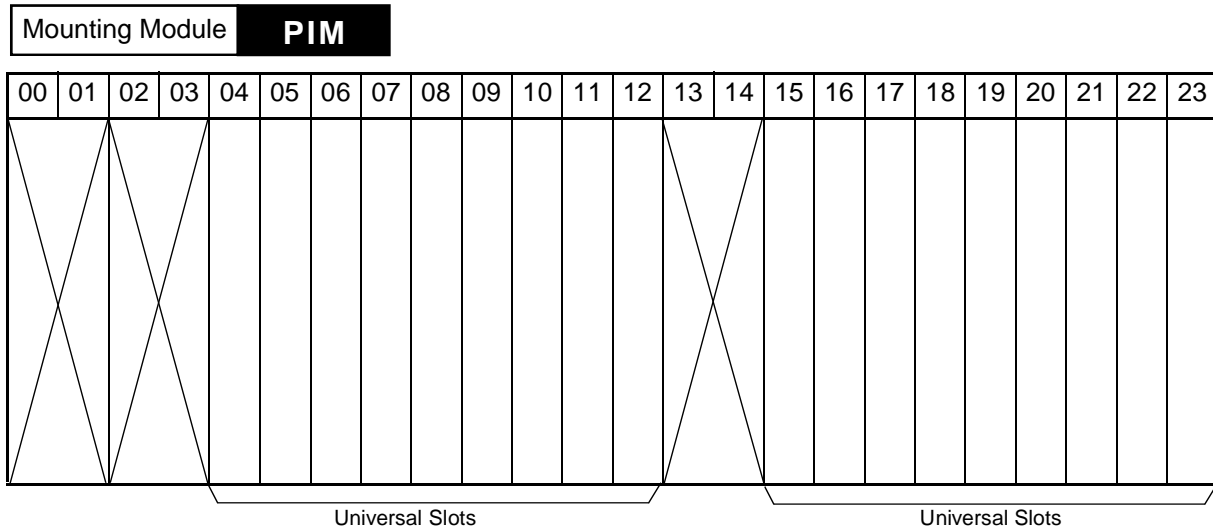


Figure 3-121 Location of PA-SDTA (SDT) Card in the System

**PA-SDTA**  
SDH/SONET Digital Trunk

2. Mounting Location/Condition

This circuit card is mounted in a universal slot next to (either left or right side of) PA-SDTB. When this card is provided in a dual configuration, mount this card on both sides of PA-SDTB.



Mounting conditions are shown below.

- Only the power is supplied from Back Wiring Board (BWB).
- This card is connected to the PA-SDTB card using the following front cables.
  - For single configuration: SDT CABLEB <S>
  - For dual configuration: SDT CABLEA <D>
- Fiber optic cables are connected to this card.
- Time slots used for this circuit card are determined by the cable connection between the PA-SDTB and TSW.

Example: When the PA-SDTA card is mounted in the 1-IMG system  
 In [Figure 3-122](#), time slots of Module Group 01 are used. AUNT data is required even if PIM2/PIM3 is not actually mounted.

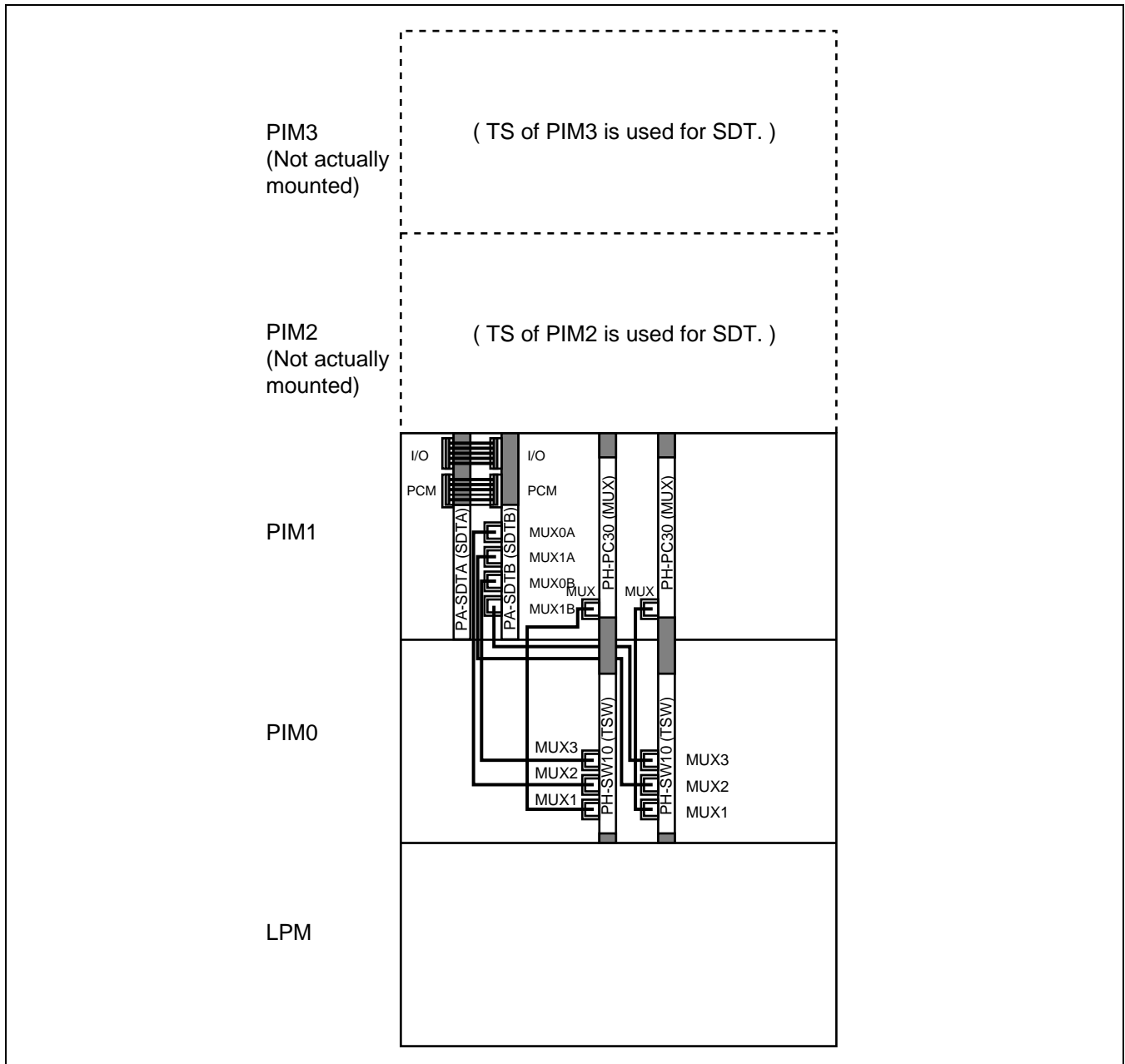
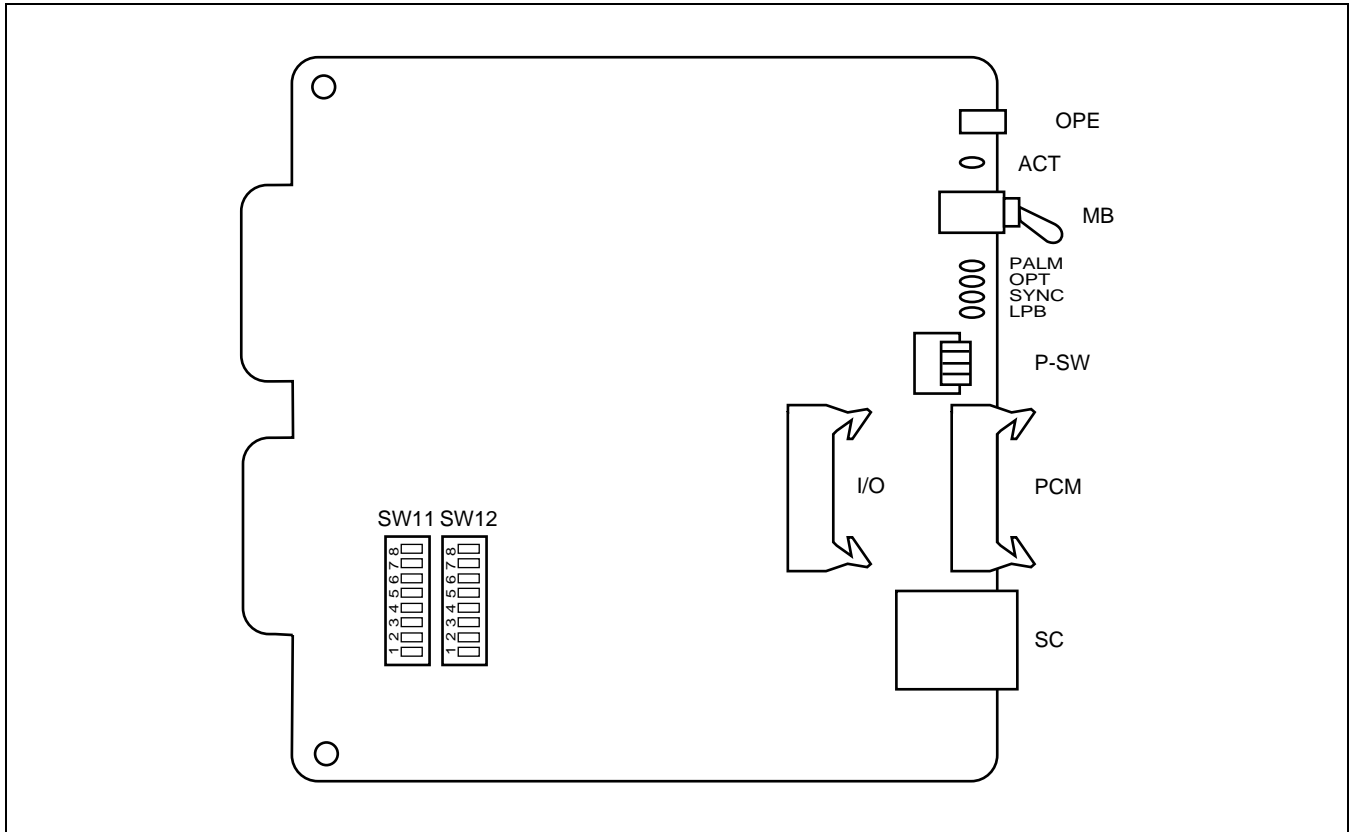


Figure 3-122 PA-SDTA Card Mounted in the 1 IMG System

**PA-SDTA**  
SDH/SONET Digital Trunk

3. Face Layout of Lamps, Switches, and Connectors

The face layout for lamps, switches, and connectors are shown in [Figure 3-123](#).



**Figure 3-123** Face Layout of PA-SDTA (SDT)

4. Lamp Indications

Lamp indications for this circuit card are shown in the table below.

<b>LAMP NAME</b>	<b>COLOR</b>	<b>STATE</b>
OPE	Green	Remains lit while this circuit card is operating normally.
	Red	Remains lit while this circuit card is in Make-busy state.
PALM	Red	Lights when the OBP in this circuit card is abnormal.
OPT	Red	Lights when the optical input signals are cut off.
SYNC	Red	Lights when receiving 52 Mbps clock comes off synchronization.
LPB	Green	Lights when Loop-back is designated.
ACT	Green	Remains lit while this circuit card is in active state.
	Off	Remains off while this circuit card is in stand-by state.

5. Switch Settings

Switch settings on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card Make-busy
		DOWN	×	Circuit card Make-busy cancel
SW11	1	OFF	×	Fixed
	2	ON	×	Fixed
	3	ON	×	Fixed
	4	OFF	×	Fixed
	5	OFF	×	Not used
	6	ON		PAD function is effective.
		OFF	×	PAD function is not effective.
	7	ON		Setting of A-law
		OFF	×	Setting of $\mu$ -law
	8	ON	×	OPT#0 Act (This card is used for System 0)
OFF			OPT#1 Act (This card is used for System 1)	
SW12	1-8	OFF	×	Not used
P-SW	1	ON		Designation of OLLPB (OPT Local Loop-back)
		OFF	×	Designation of OLLPB cancel
	2	ON		Designation of ORLPB (OPT Remote Loop-back)
		OFF	×	Designation of ORLPB cancel.
	3	OFF	×	Not used
	4	ON		Make-busy request
		OFF	×	Make-busy request cancel



- 6. External Interface
  - Cable Connection

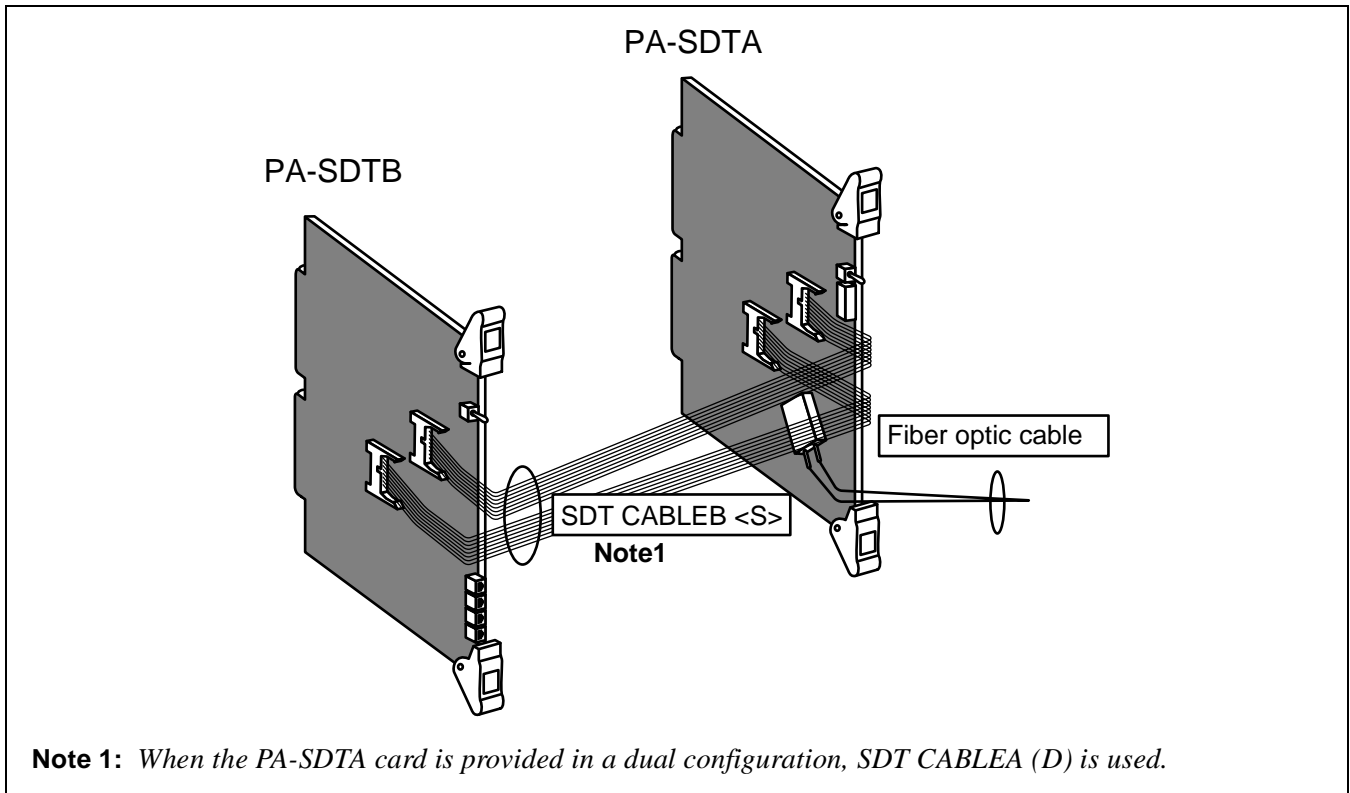
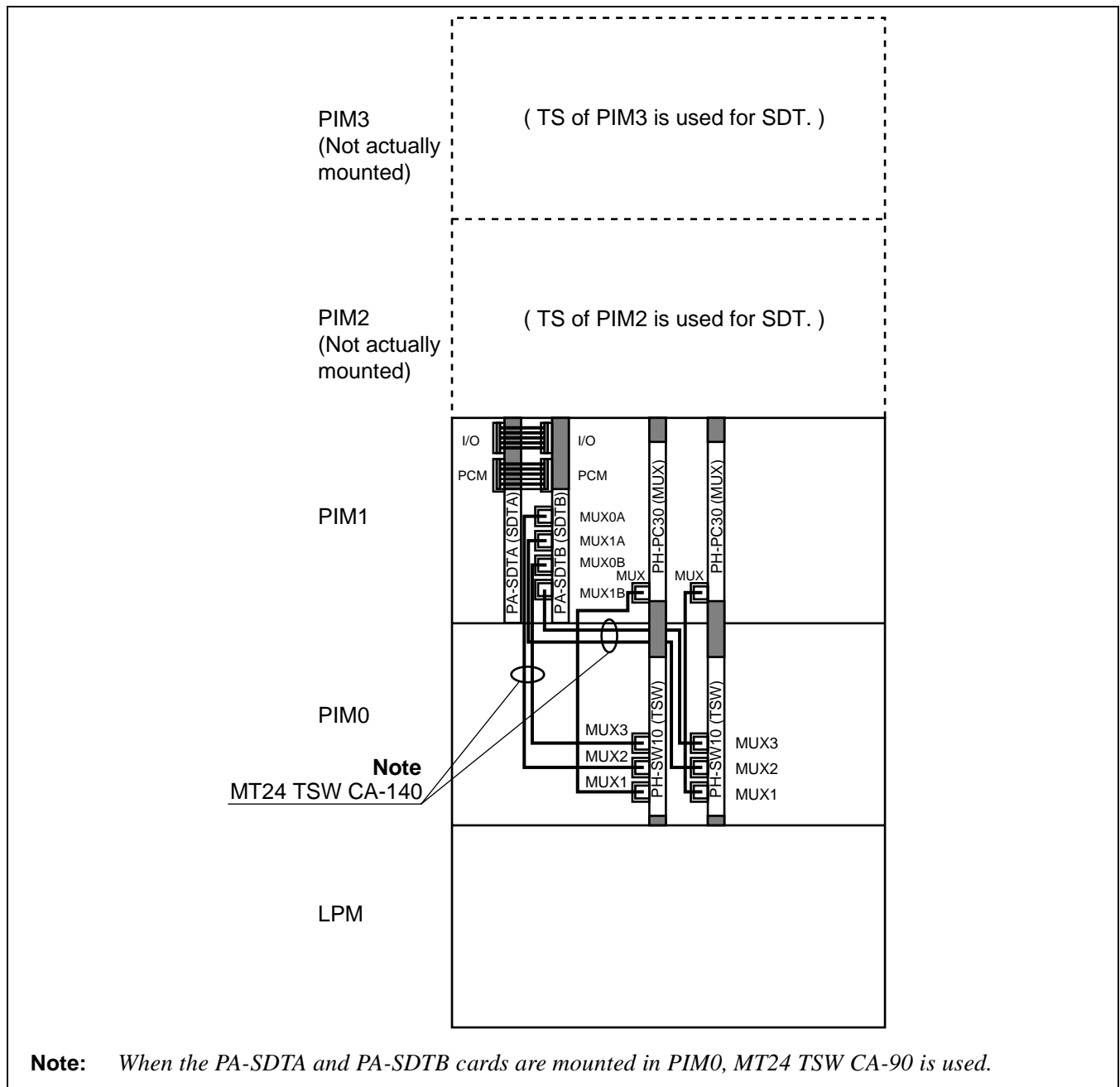


Figure 3-124 Cable Connection between PA-SDTA and PA-SDTB

**PA-SDTA**  
SDH/SONET Digital Trunk

- When the PA-SDTA/PA-SDTB card is mounted in the 1-IMG system

As shown in [Figure 3-125](#), time slots of Module Group 01 are used. AUNT data is required even if PIM2/PIM3 is not actually mounted.



**Figure 3-125 Example of Cable Connection for 1-IMG System**

- When the PA-SDTA and PA-SDTB cards are mounted in the 4-IMG system
  - (a) When to use the 34PH MT24 TSW CA-x cable

When the PA-SDTA and PA-SDTB cards are mounted in the 4-IMG system, the 34PH MT24 TSW CA-x cable is used for connection between the PA-SDTB and TSW. The type of cable varies depending on the mounting location of the PA-SDTA/PA-SDTB card(s).

**Table 3-6 Type of 34PH MT24 TSW CA-x Cable**

	<b>IMG0</b>	<b>IMG1</b>	<b>IMG2</b>	<b>IMG3</b>
<b>PIM3</b>	34PH MT24 TSW CA-H	34PH MT24 TSW CA-G	34PH MT24 TSW CA-H	34PH MT24 TSW CA-J
<b>PIM2</b>	34PH MT24 TSW CA-H	34PH MT24 TSW CA-F	34PH MT24 TSW CA-H	34PH MT24 TSW CA-I
<b>PIM1</b>	34PH MT24 TSW CA-F	34PH MT24 TSW CA-E	34PH MT24 TSW CA-G	34PH MT24 TSW CA-H
<b>PIM0</b>	34PH MT24 TSW CA-F	34PH MT24 TSW CA-D	34PH MT24 TSW CA-F	34PH MT24 TSW CA-H

(b) Relationship between the cable connection and the time slot

Trunk data for SDT is assigned to an odd-number Module Group. The module group is determined by the connection of the 34PH MT24 TSW CA-x cable as shown in the table below.

**Table 3-7 Relationship between Cable Connection and Time Slot**

MODULE GROUP Assigned for SDT	TIME SLOTS Assigned for SDT	CABLE CONNECTIONS		REMARKS
		FROM (Connectors on PA-SDTB)	TO (Connectors on BWB of TSWM)	
MG01	PIM2 of IMG0	MUX0A	MUX002	In this case, PIM2 and PIM3 of IMG0 are not actually mounted; However, AUNT data for PIM2/PIM3 is required.
		MUX1A	MUX102	
	PIM3 of IMG0	MUX0B	MUX003	
		MUX1B	MUX103	
MG03	PIM2 of IMG1	MUX0A	MUX012	In this case, PIM2 and PIM3 of IMG1 are not actually mounted; However, AUNT data for PIM2/PIM3 is required.
		MUX1A	MUX112	
	PIM3 of IMG1	MUX0B	MUX013	
		MUX1B	MUX113	
MG05	PIM2 of IMG2	MUX0A	MUX022	In this case, PIM2 and PIM3 of IMG2 are not actually mounted; However, AUNT data for PIM2/PIM3 is required.
		MUX1A	MUX122	
	PIM3 of IMG2	MUX0B	MUX023	
		MUX1B	MUX123	
MG07	PIM2 of IMG3	MUX0A	MUX032	In this case, PIM2 and PIM3 of IMG3 are not actually mounted; However, AUNT data for PIM2/PIM3 is required.
		MUX1A	MUX132	
	PIM3 of IMG3	MUX0B	MUX033	
		MUX1B	MUX133	

**Note 1:** *MUX1x on PA-SDTB and MUX1xx on BWB of TSWM are used when the system is a dual configuration.*

**Note 2:** *When half of the time slots are used in a module group, time slots for PIM2 must be used. However, the remaining time slots (for PIM3) cannot be used for other circuit cards.*

Example: When the PA-SDTA and PA-SDTB circuit cards are mounted in PIM3 of IMG0, and MG07 (PIM2 and PIM3 of IMG3) is assigned for the SDT interface, the type of cable and connector locations are as shown in the following figure. The mounting location of PA-SDTA/PA-SDTB circuit card has no relationship to the time slots assigned for the SDT interface so the PA-SDTA and PA-SDTB circuit cards can be mounted in any PIM.

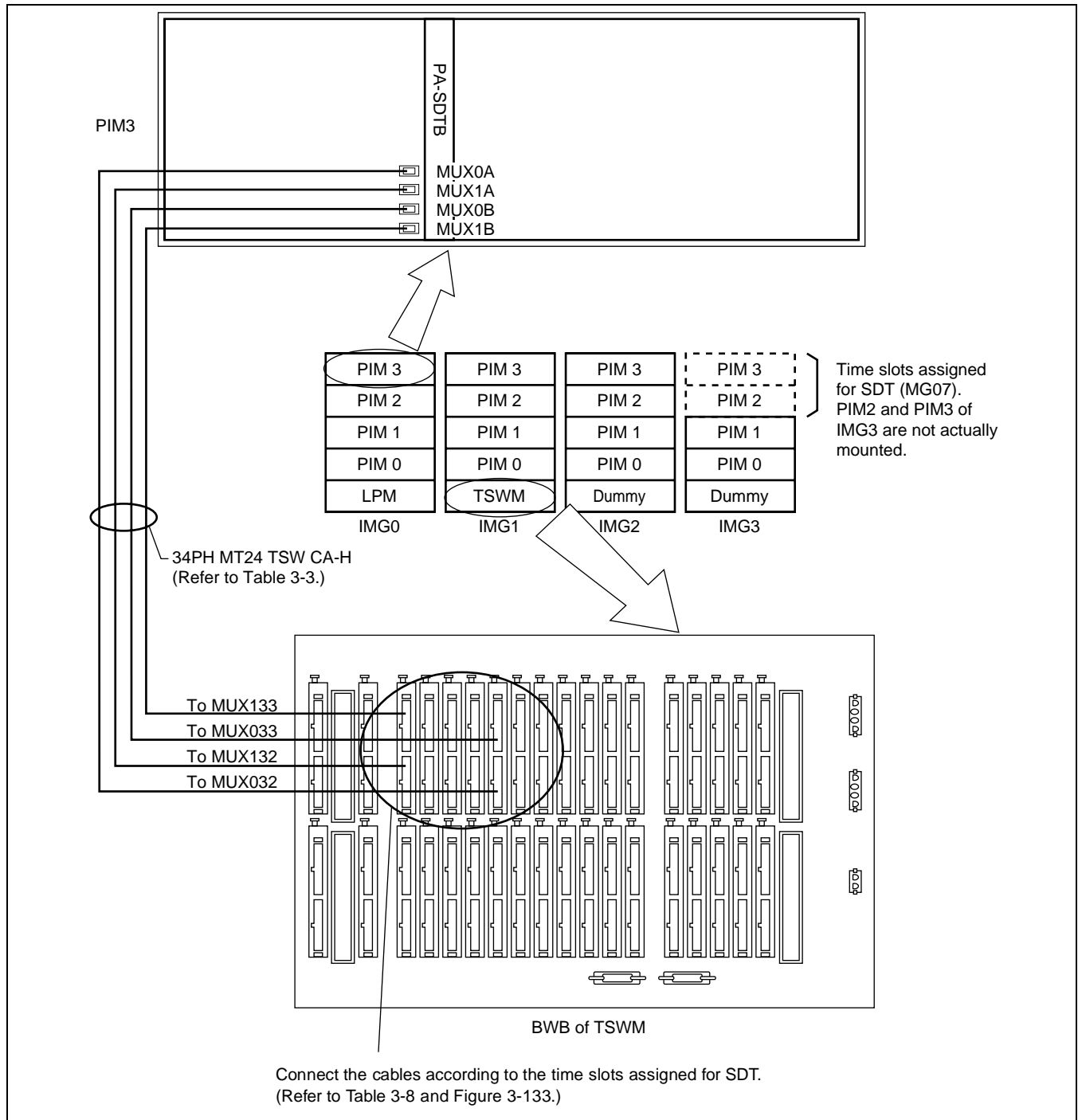


Figure 3-126 Example of Cable Connection for 4-IMG System

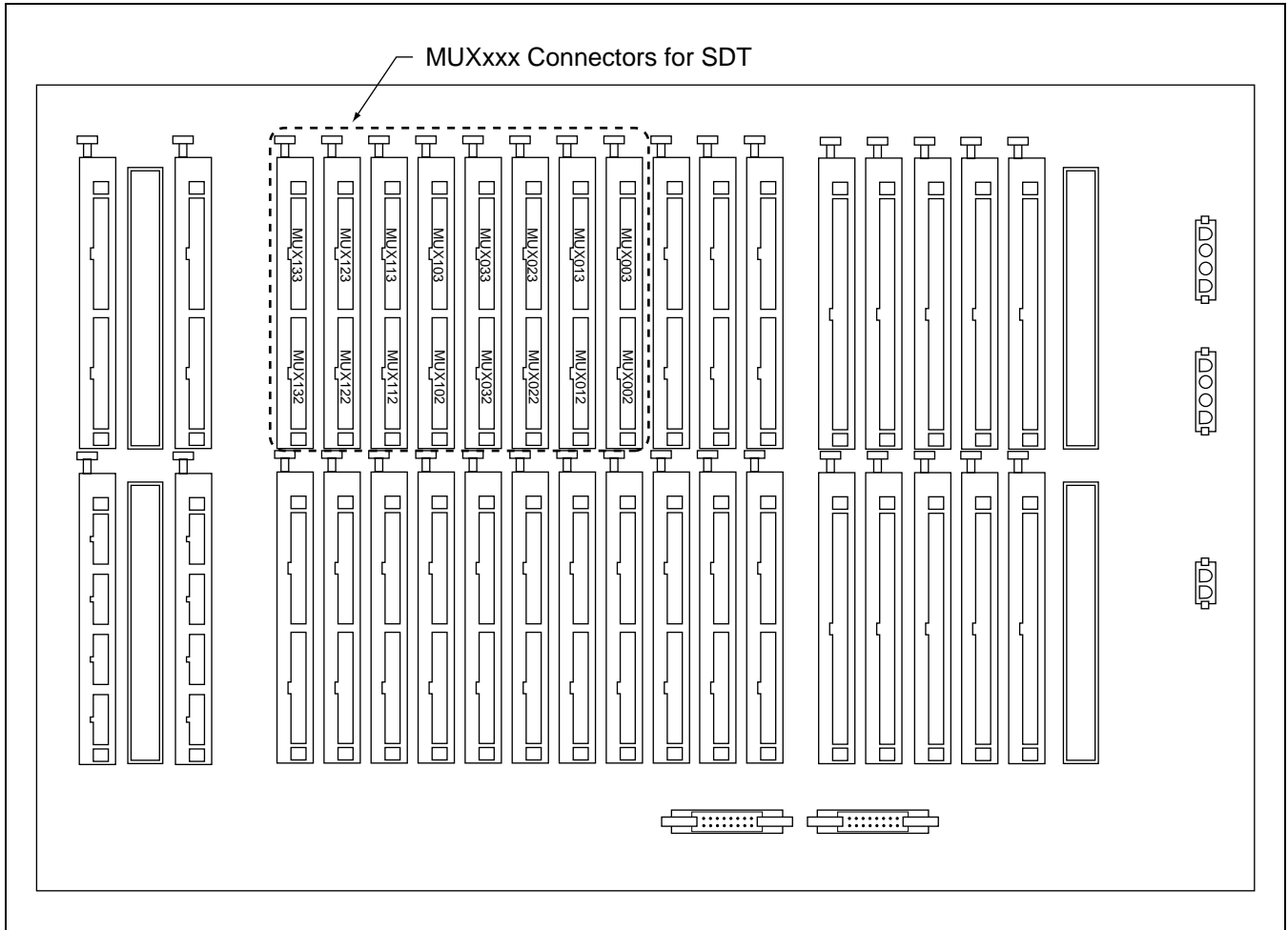


Figure 3-127 Location of MUXxxx Connectors for SDT

(c) Length of Fiber Optic Cable

The maximum length of the fiber optic cable is approximately 15 kilometers (9.3 miles). Figure 3-128 shows the level diagram of the fiber optic interface.

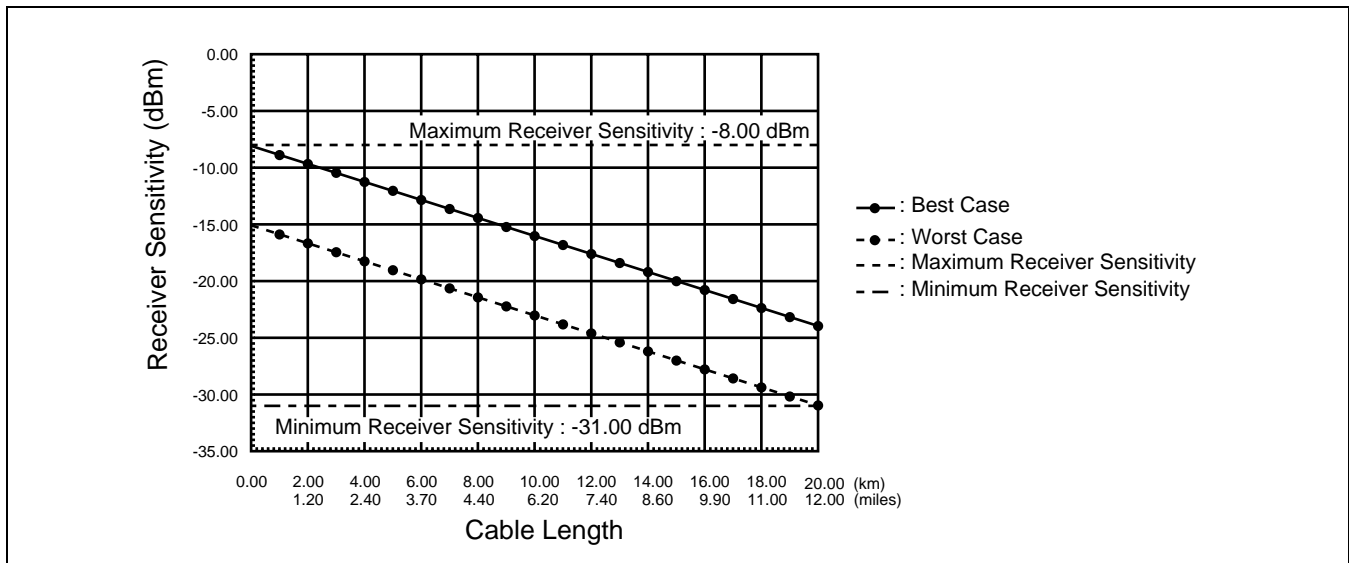


Figure 3-128 Level Diagram

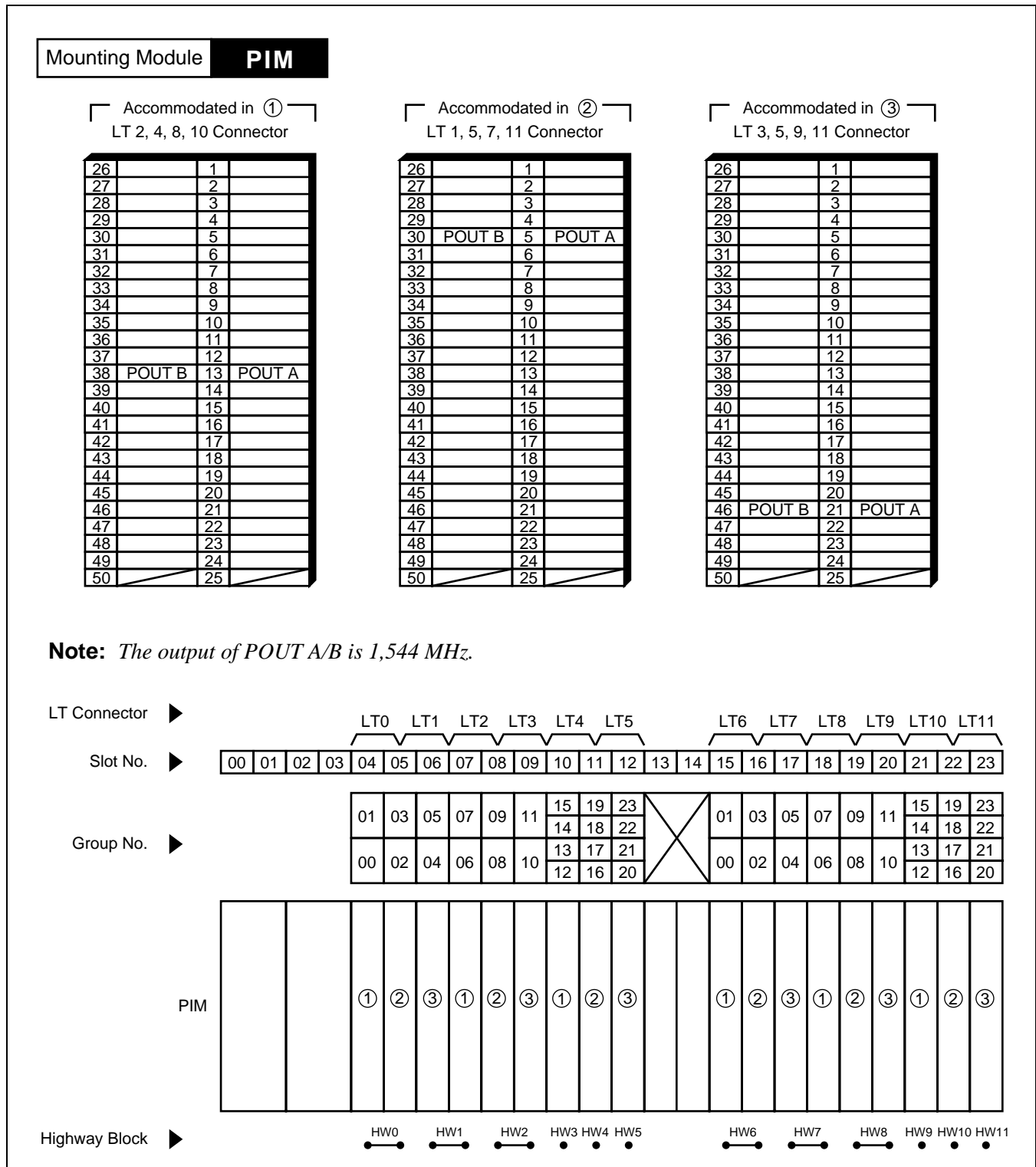
Level margin in the case of 15 kilometers (9.3 miles) is as shown in the following table.

Table 3-8 Level Margin

CONDITION	LEVEL MARGIN
Worst case	4.0 dB
Best case	11.0 dB

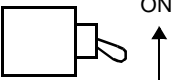

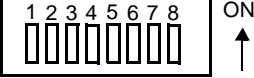
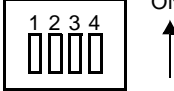
**Note:** Maximum cable length varies depending on the type of cable and the number of connection points.

- Accommodation for the LT connector leads of this circuit card is shown in [Figure 3-129](#).





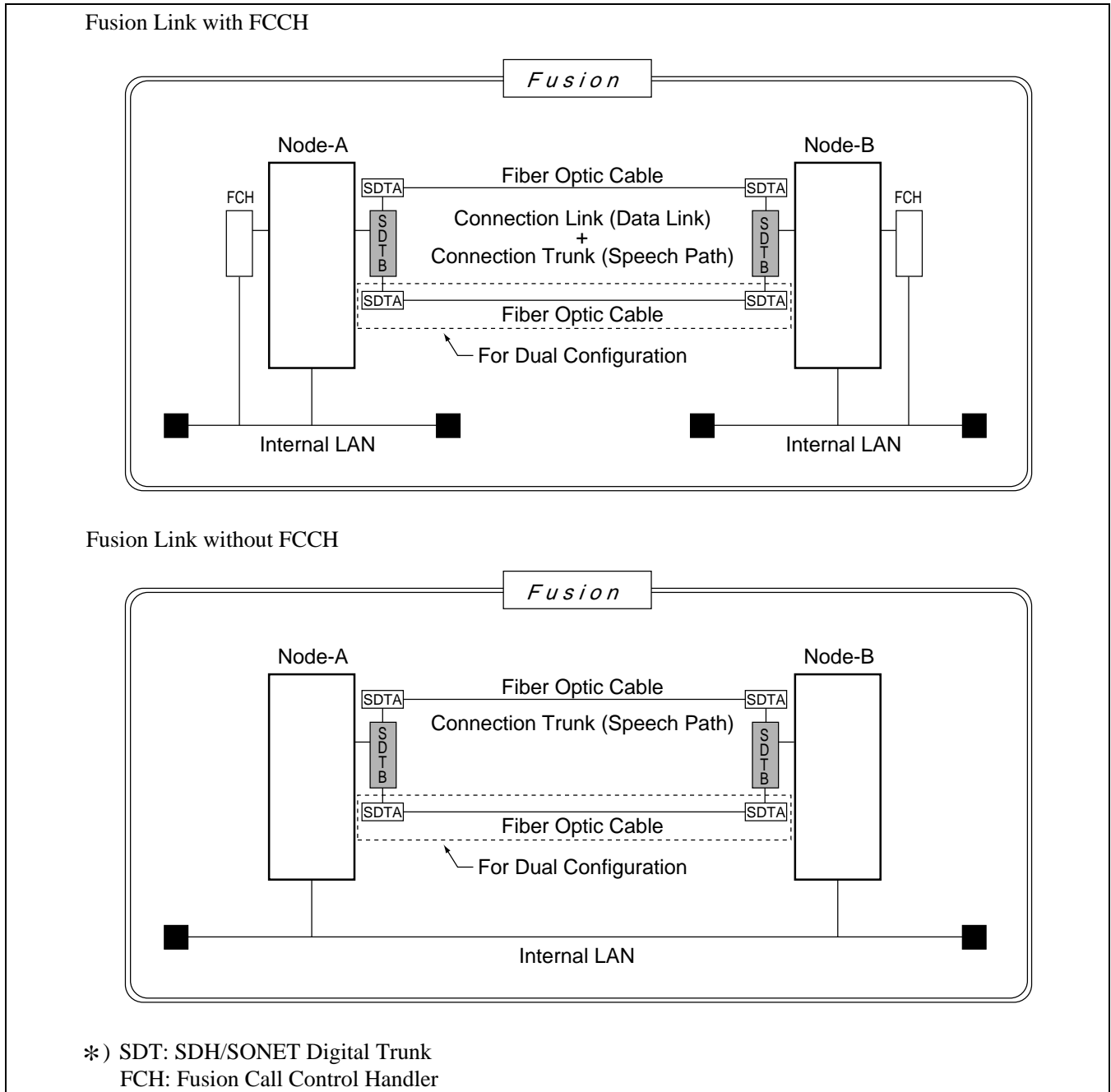
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW11		
SW12		
P-SW		

**PA-SDTB**  
**SDH/SONET Digital Trunk**

1. General Function

The PA-SDTA circuit card provides a maximum of 28 interface (1.5 Mbps) used with the fiber optic cable. This card also has the MUX function and is connected directly to the TSW card. This card is used with the PA-SDTA card.



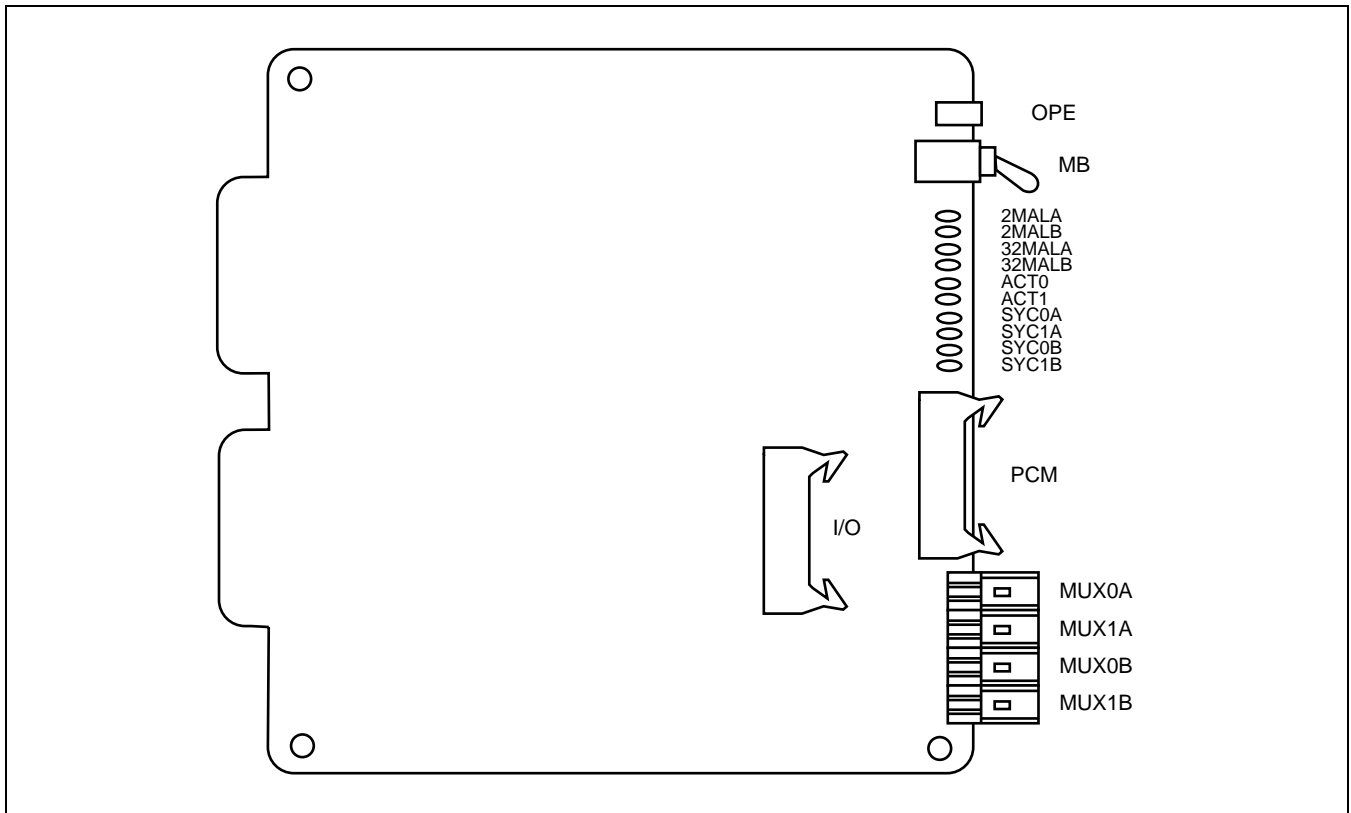
**Figure 3-130 Location of PA-SDTB (SDT) Card in the System**



**PA-SDTB**  
SDH/SONET Digital Trunk

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors are shown in the figure in [Figure 3-131](#).



**Figure 3-131 Face Layout of PA-SDTB (SDT)**

#### 4. Lamp Indications

Lamp indications for this circuit card are shown in the table below:

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit when this circuit card is in operation.
	Red	Remains lit when this circuit card is in non-operation.
2MALA	Red	Lights when 2 M clock and FH from A-side MUX is abnormal.
2MALB	Red	Lights when 2 M clock and FH from B-side MUX is abnormal.
32MALA	Red	Lights when 32 M clock from A-side MUX is abnormal.
32MALB	Red	Lights when 32 M clock from B-side MUX is abnormal.
ACT0	Green	Remains lit when MUX#0 is operating normally.
	Off	Remains off when MUX#0 is in stand-by state.
ACT1	Green	Remains lit when MUX#1 is operating normally.
	Off	Remains off when MUX#1 is in stand-by state.
SYC0A	Green	Lights when MUX#0 synchronization with TSW is established in A-side.
	Off	Goes off when the synchronization is not established.
SYC1A	Green	Lights when MUX#1 synchronization with TSW is established in A-side.
	Off	Goes off when the synchronization is not established.
SYC0B	Green	Lights when MUX#0 synchronization with TSW is established in B-side.
	Off	Goes off when the synchronization is not established.
SYC1B	Green	Lights when MUX#1 synchronization with TSW is established in B-side.
	Off	Goes off when the synchronization is not established.

**Note:** *A-side MUX means the card located in UNIT0/1 and B-side MUX means the card located in UNIT2/3.*

**PA-SDTB**  
SDH/SONET Digital Trunk

5. Switch Settings

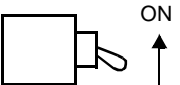
Switch settings for this circuit card are shown in the table below:

SWITCH NAME	SETTING	STANDARD SETTING	MEANING
MB	UP		Circuit card Make-busy
	DOWN	×	Circuit card Make-busy cancel

6. External Interface

Refer to the PA-SDTA circuit card.

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	
MB		

# PA-2CCHA Common Channel Handler

## 1. General Function

Equipped with two circuits of Common Channel Handlers (CCHs), the PA-2CCH A circuit card provides two signaling links for a digital/analog Common Channel Interoffice Signaling (CCIS) system, which can be selected by key settings on this card. If a digital CCIS system, this card is connected to a Digital Trunk Interface (DTI) card with a flat cable to exchange common channel signals as illustrated below. To support an analog CCIS system, this card also has an RS-232c interface for Modem(s).

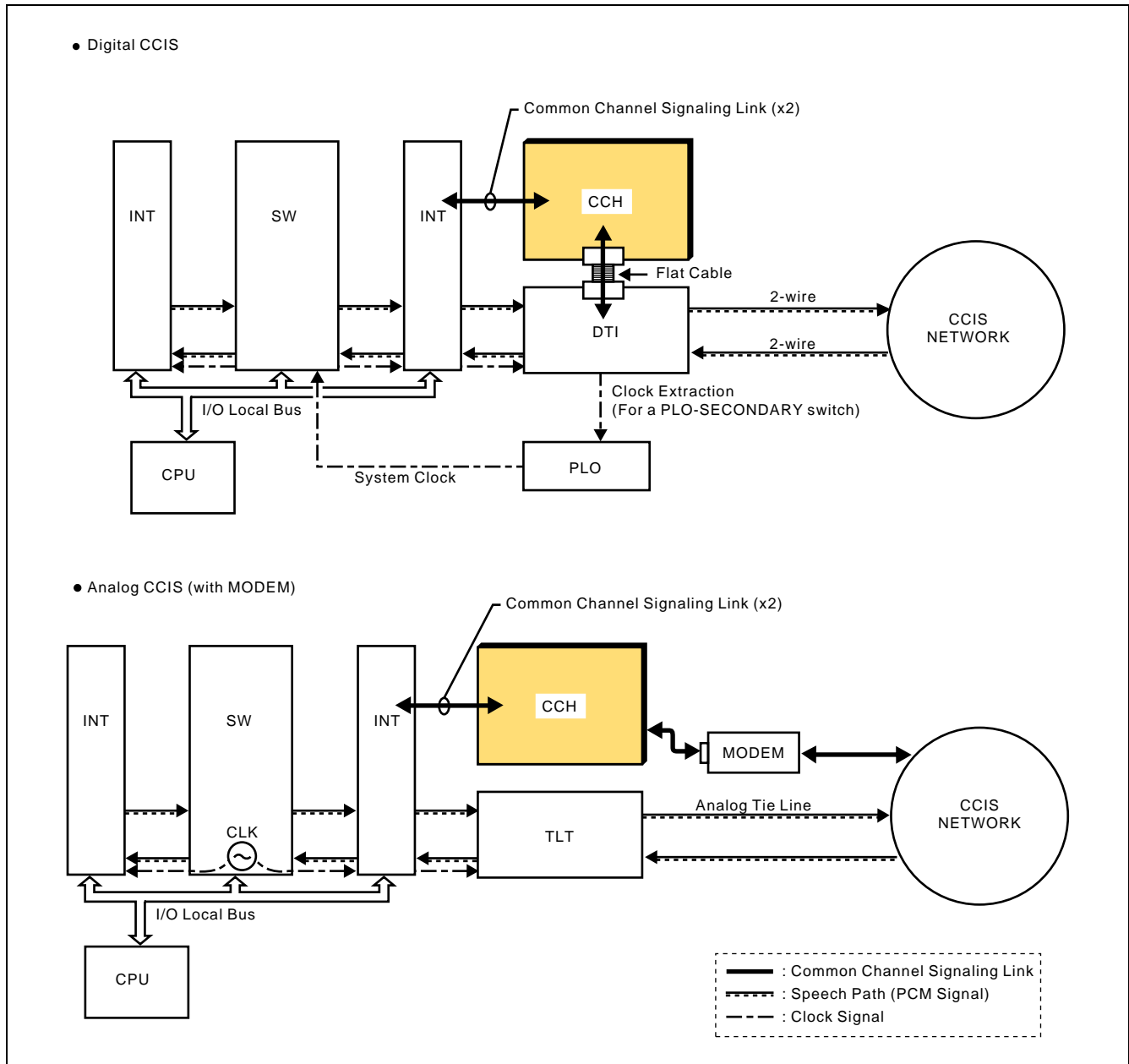


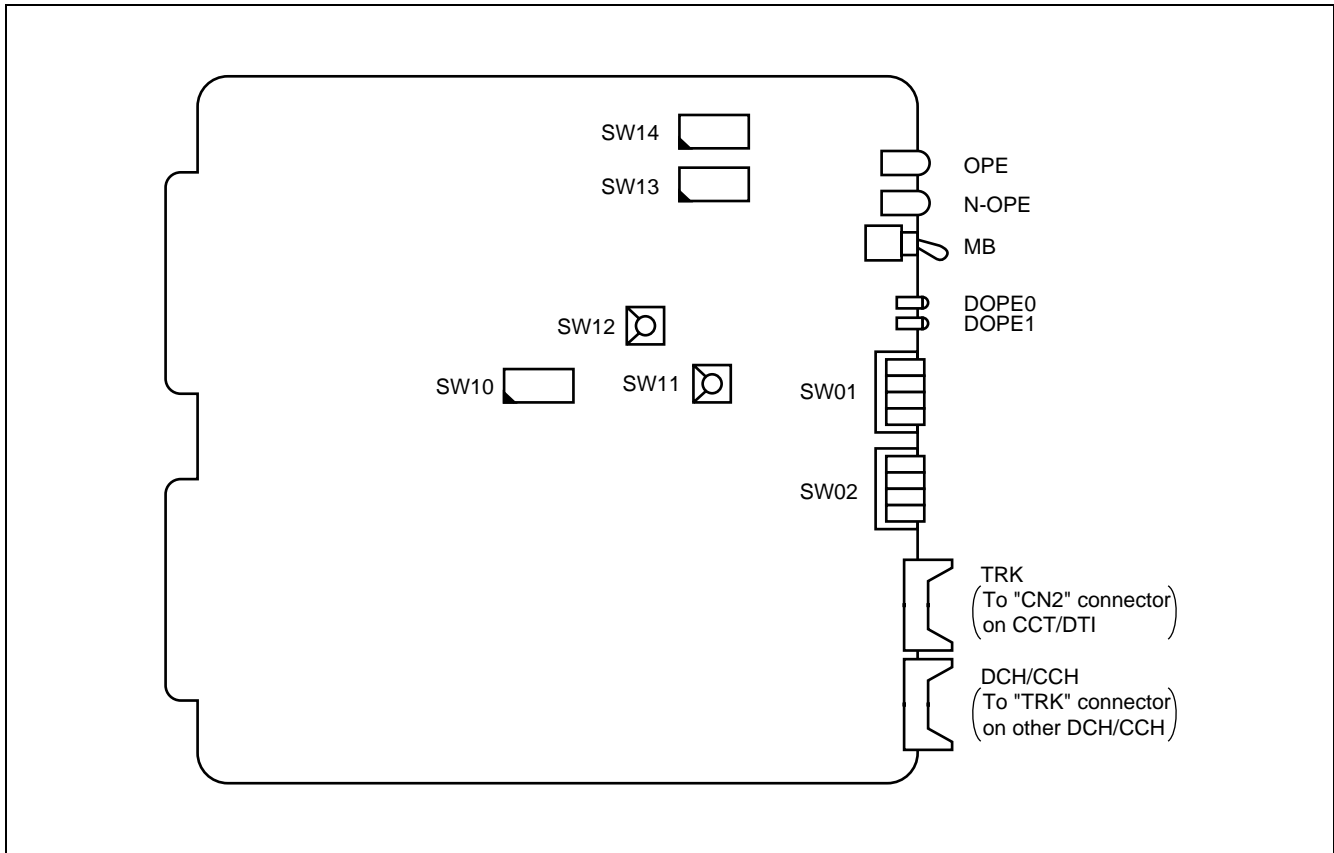
Figure 3-132 Location of PA-2CCHA (CCH) within the System





### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-133](#).



**Figure 3-133 Face Layout of PA-2CCHA (CCH)**

### 4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
DOPE0	Red	Lights when the common channel signalling link is set up.
DOPE1	Flash	Flashes when CCH is started up.

5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING					
MB		ON		Circuit card make busy					
		OFF	×	Circuit card make busy cancel					
SW01	0	ON		No. 0 Circuit make busy request					
		OFF	×	No. 0 Circuit make busy request cancel					
	1	ON		No. 1 Circuit make busy request					
		OFF	×	No. 1 Circuit make busy request cancel					
	2	OFF	×	Not used					
	3	OFF	×	Not used					
SW02	0	ON		Loop back of No. 0 Circuit is performed.					
		OFF	×	Loop back of No. 0 Circuit is not performed.					
	1	ON		Loop back of No. 1 Circuit is performed.					
		OFF	×	Loop back of No. 1 Circuit is not performed.					
	2	ON		Drop/Insert of No. 0 Circuit is performed.					
		OFF		Drop/Insert of No. 0 Circuit is not performed.					
	3	ON		Drop/Insert of No. 1 Circuit is performed.					
		OFF		Drop/Insert of No. 1 Circuit is not performed.					
SW10	1		<b>SETTING OF TRANSFER SPEED OF DROP/INSERT IN NO.0 CIRCUIT</b>						
			<b>SW10-1</b>	<b>SW10-2</b>	<b>SW10-3</b>	<b>TRANSFER SPEED</b>			
			ON	ON	ON	64	kbps		
	OFF		ON	ON	32	kbps (Forward)			
	ON		OFF	ON	16	kbps (Forward)			
	OFF		OFF	ON	8	kbps (Forward)			
	ON		ON	OFF	64	kbps			
	OFF		ON	OFF	32	kbps (Backward)			
	ON		OFF	OFF	16	kbps (Backward)			
	OFF		OFF	OFF	8	kbps (Backward)			
	2								
							3		

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																			
SW10	4	ON		Modem is used in No. 0 Circuit																																																			
		OFF		Modem is not used in No. 0 Circuit																																																			
	5		<table border="1"> <thead> <tr> <th colspan="5">SETTING OF TRANSFER SPEED OF DROP/INSERT IN NO.1 CIRCUIT</th> </tr> <tr> <th>SW10-5</th> <th>SW10-6</th> <th>SW10-7</th> <th colspan="2">TRANSFER SPEED</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>64</td> <td>kbps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>32</td> <td>kbps (Forward)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>16</td> <td>kbps (Forward)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>8</td> <td>kbps (Forward)</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>64</td> <td>kbps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>32</td> <td>kbps (Backward)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>16</td> <td>kbps (Backward)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>8</td> <td>kbps (Backward)</td> </tr> </tbody> </table>			SETTING OF TRANSFER SPEED OF DROP/INSERT IN NO.1 CIRCUIT					SW10-5	SW10-6	SW10-7	TRANSFER SPEED		ON	ON	ON	64	kbps	OFF	ON	ON	32	kbps (Forward)	ON	OFF	ON	16	kbps (Forward)	OFF	OFF	ON	8	kbps (Forward)	ON	ON	OFF	64	kbps	OFF	ON	OFF	32	kbps (Backward)	ON	OFF	OFF	16	kbps (Backward)	OFF	OFF	OFF	8	kbps (Backward)
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SW12 (MODE1)		0	×	Standard setting																																																			

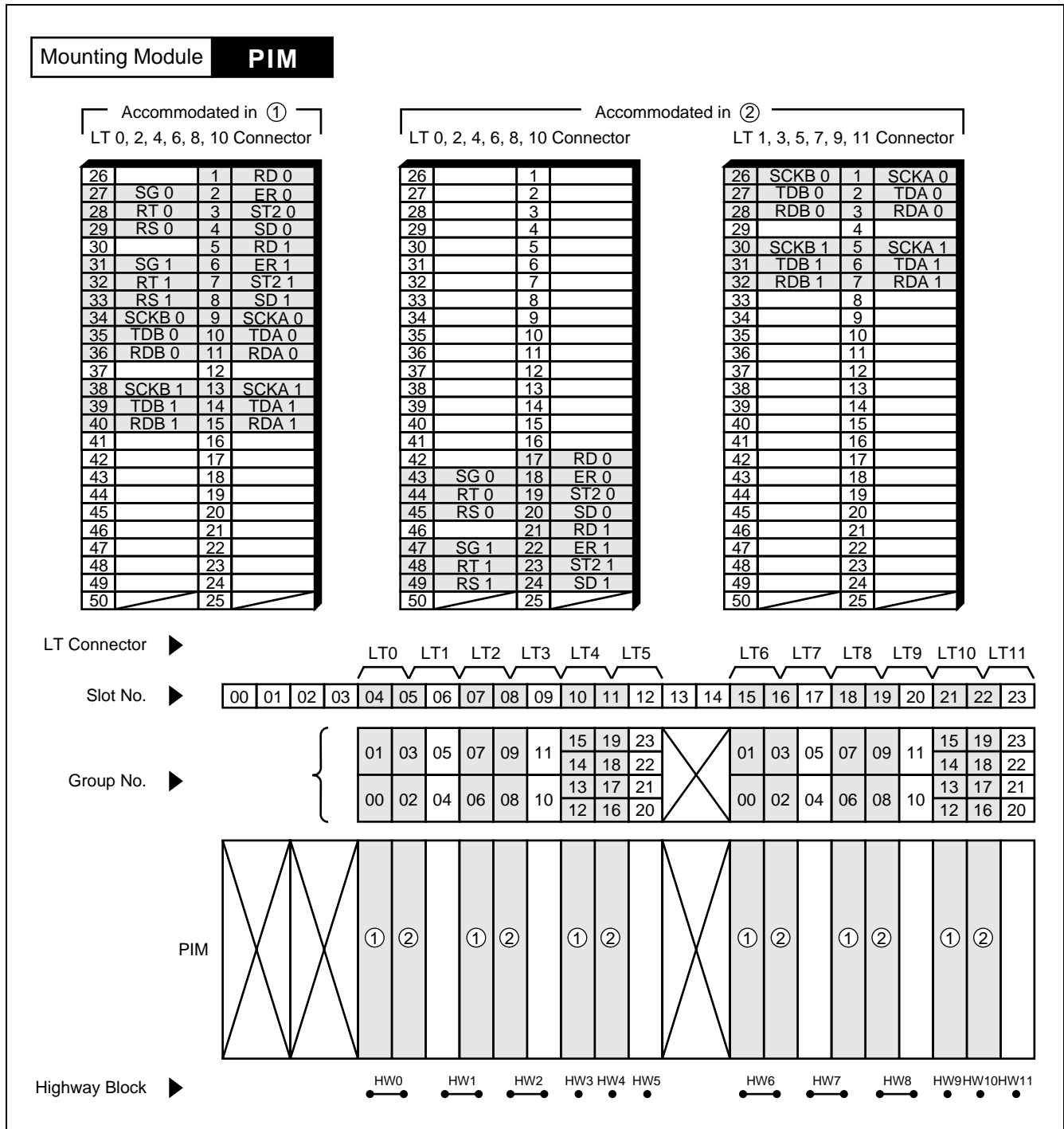
**Note:** When SW10-4 is set ON, SW10-1, SW10-2 and 10-3 should be set ON.  
When SW10-8 is set ON, SW10-5, 10-6 and 10-7 should be set ON.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																																																																																																																																																																												
SW13 (for No. 0 Circuit)  SW14 (for No. 1 Circuit)	1			<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="6">SETTING OF TIME SLOT NUMBER OF DROP/INSERT</th> </tr> <tr> <th>SW13-1/ SW14-1</th> <th>SW13-2/ SW14-2</th> <th>SW13-3/ SW14-3</th> <th>SW13-4/ SW14-4</th> <th>SW13-5/ SW14-5</th> <th>TIME SLOT NO.</th> </tr> </thead> <tbody> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>CH0</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>CH1</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>CH2</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>CH3</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>CH4</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>CH5</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>CH6</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>CH7</td></tr> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>CH8</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>CH9</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>CH10</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>CH11</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>CH12</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>CH13</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>CH14</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>CH15</td></tr> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>CH16</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>CH17</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>CH18</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>CH19</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>CH20</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>CH21</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>CH22</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>CH23</td></tr> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>CH24</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>CH25</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>CH26</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>CH27</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>CH28</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>CH29</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>CH30</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>CH31</td></tr> </tbody> </table>	SETTING OF TIME SLOT NUMBER OF DROP/INSERT						SW13-1/ SW14-1	SW13-2/ SW14-2	SW13-3/ SW14-3	SW13-4/ SW14-4	SW13-5/ SW14-5	TIME SLOT NO.	OFF	OFF	OFF	OFF	OFF	CH0	ON	OFF	OFF	OFF	OFF	CH1	OFF	ON	OFF	OFF	OFF	CH2	ON	ON	OFF	OFF	OFF	CH3	OFF	OFF	ON	OFF	OFF	CH4	ON	OFF	ON	OFF	OFF	CH5	OFF	ON	ON	OFF	OFF	CH6	ON	ON	ON	OFF	OFF	CH7	OFF	OFF	OFF	ON	OFF	CH8	ON	OFF	OFF	ON	OFF	CH9	OFF	ON	OFF	ON	OFF	CH10	ON	ON	OFF	ON	OFF	CH11	OFF	OFF	ON	ON	OFF	CH12	ON	OFF	ON	ON	OFF	CH13	OFF	ON	ON	ON	OFF	CH14	ON	ON	ON	ON	OFF	CH15	OFF	OFF	OFF	OFF	ON	CH16	ON	OFF	OFF	OFF	ON	CH17	OFF	ON	OFF	OFF	ON	CH18	ON	ON	OFF	OFF	ON	CH19	OFF	OFF	ON	OFF	ON	CH20	ON	OFF	ON	OFF	ON	CH21	OFF	ON	ON	OFF	ON	CH22	ON	ON	ON	OFF	ON	CH23	OFF	OFF	OFF	ON	ON	CH24	ON	OFF	OFF	ON	ON	CH25	OFF	ON	OFF	ON	ON	CH26	ON	ON	OFF	ON	ON	CH27	OFF	OFF	ON	ON	ON	CH28	ON	OFF	ON	ON	ON	CH29	OFF	ON	ON	ON	ON	CH30	ON	ON	ON	ON	ON	CH31
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	6	ON		Mode setting; No. 7 PCR (Preventive Cyclic Retransmission method)																																																																																																																																																																																																												
		OFF		Mode setting; No. 7 CCIS																																																																																																																																																																																																												
	7			<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="3">SETTING OF SPEED OF MODE</th> </tr> <tr> <th>SW13-7/ SW14-7</th> <th>SW13-8/ SW14-8</th> <th>SPEED</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>2400 bps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>4800 bps</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>9600 bps</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>Inhibit</td> </tr> </tbody> </table>	SETTING OF SPEED OF MODE			SW13-7/ SW14-7	SW13-8/ SW14-8	SPEED	OFF	OFF	2400 bps	OFF	ON	4800 bps	ON	OFF	9600 bps	ON	ON	Inhibit																																																																																																																																																																																										
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6. External Interface

In analog CCIS, necessary leads for Modems appear on LT connectors as follows.

See also Connecting Route Diagram for Digital/Analog CCIS.



Mounting Module **PIM**

Accommodated in ③  
LT 1, 3, 5, 9, 11 Connector

26		1	
27		2	
28		3	
29		4	
30		5	
31		6	
32		7	
33		8	
34		9	RD 0
35	SG 0	10	ER 0
36	RT 0	11	ST2 0
37	RS 0	12	SD 0
38		13	RD 1
39	SG 1	14	ER 1
40	RT 1	15	ST2 1
41	RS 1	16	SD 1
42	SCKB 0	17	SCKA 0
43	TDB 0	18	TDA 0
44	RDB 0	19	RDA 0
45		20	
46	SCKB 1	21	SCKA 1
47	TDB 1	22	TDA 1
48	RDB 1	23	RDA 1
49		24	
50		25	

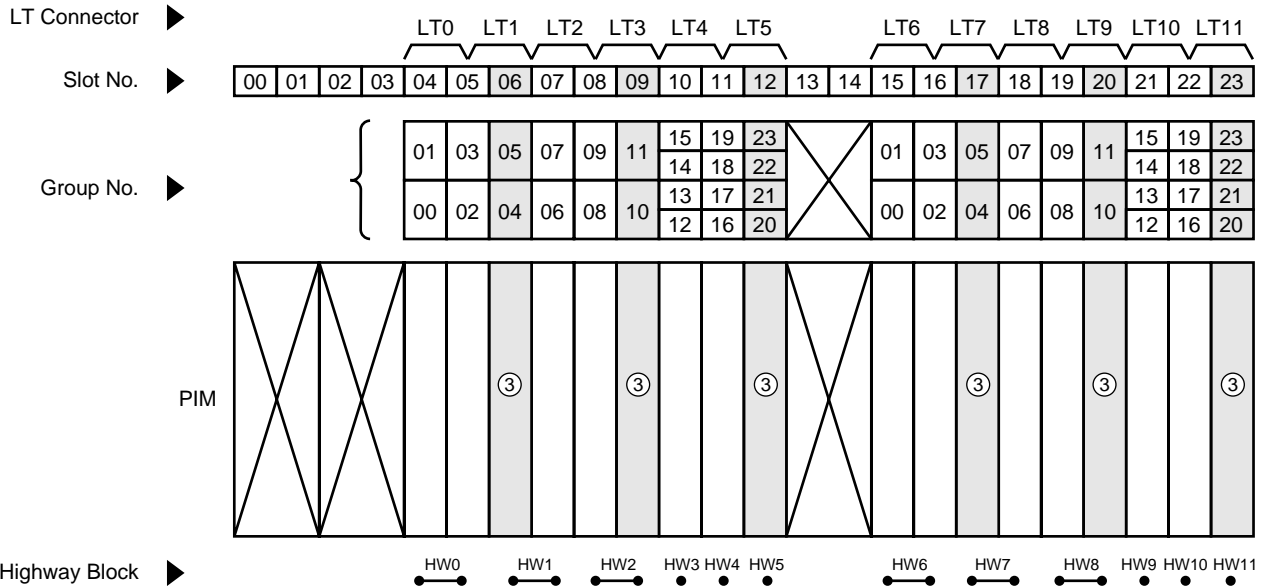


Figure 3-134 LT Connector Lead Accommodation (2/2)

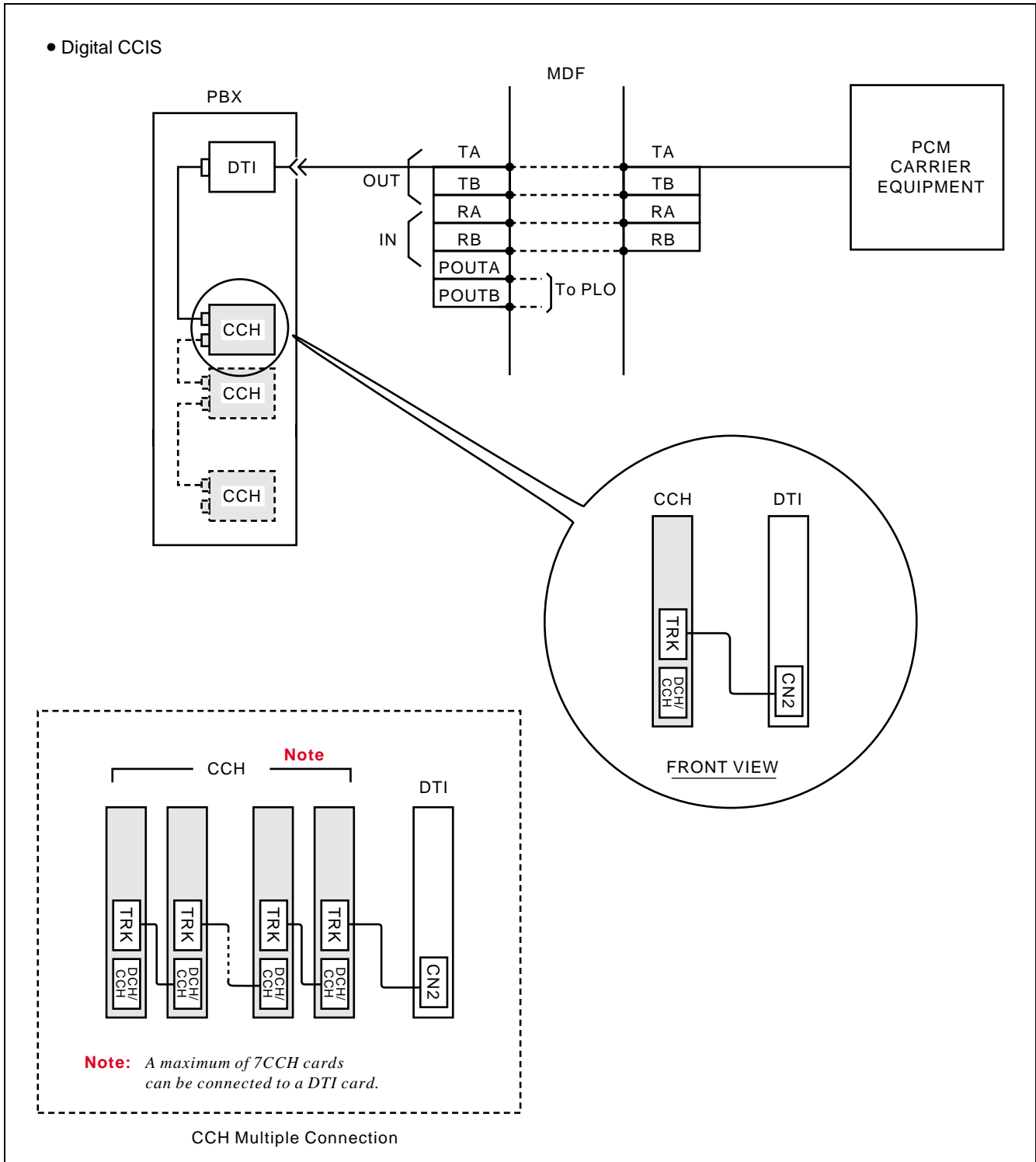
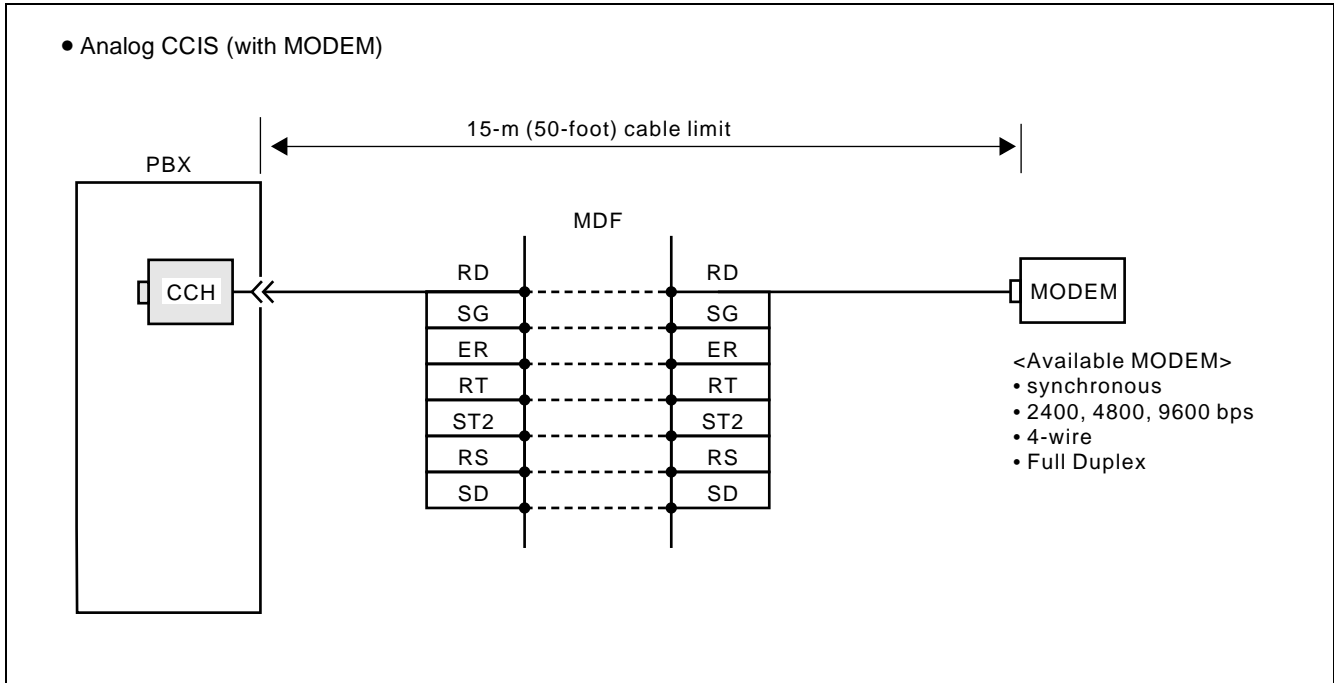


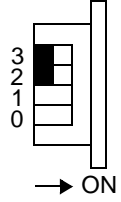
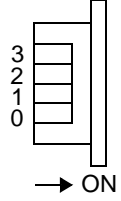
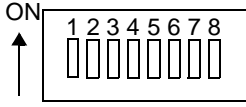
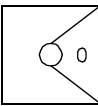
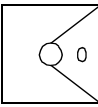
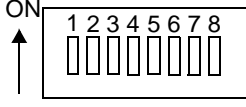
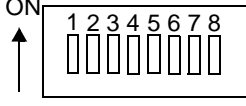
Figure 3-135 Connecting Route Diagram (Digital CCIS)



**Figure 3-136 Connecting Route Diagram (Analog CCIS)**



7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW01		SW01-2 and 3: Not used
		SW02		
		SW10		
		SW11		Standard Setting
		SW12		Standard Setting
		SW13		
		SW14		
		MB		DOWN

## PA-24CCTA Common Channel Trunk

### 1. General Function

The PA-24CCTA (24CCT) circuit card provides an interface between 24 digital trunks and the system at 1.5 M bit/s. Being equipped with a Common Channel Handler (CCH), which can be allocated to a desired channel among the existing 24 channels by key setting and programming, this card can be used as an interface for a Common Channel Interoffice Signaling (CCIS) system. A built-in resonance circuit can be used for the purpose of extracting clock signals when the PBX functions as a PLO-secondary switch. To obtain appropriate speech level, this card is equipped with a mask ROM in which typical PAD patterns have been already written. A desired PAD value can be easily selected by key setting and programming.

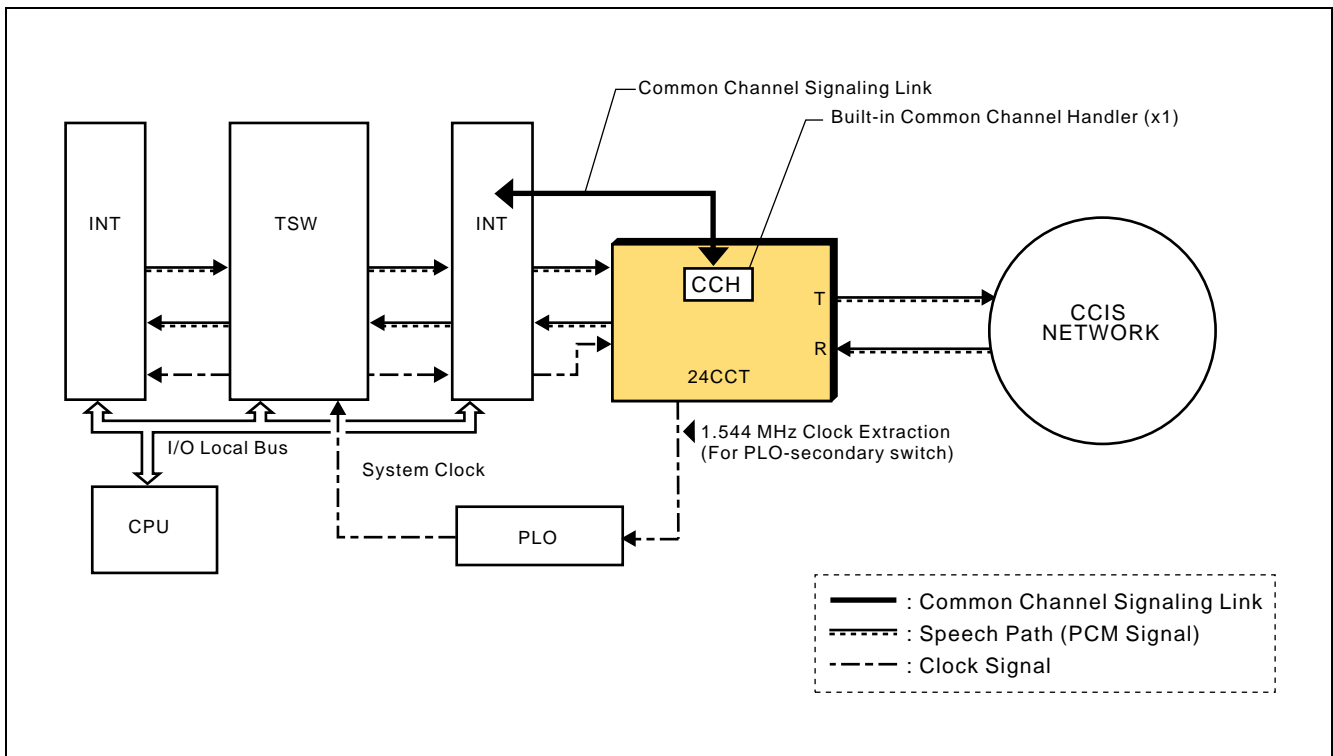


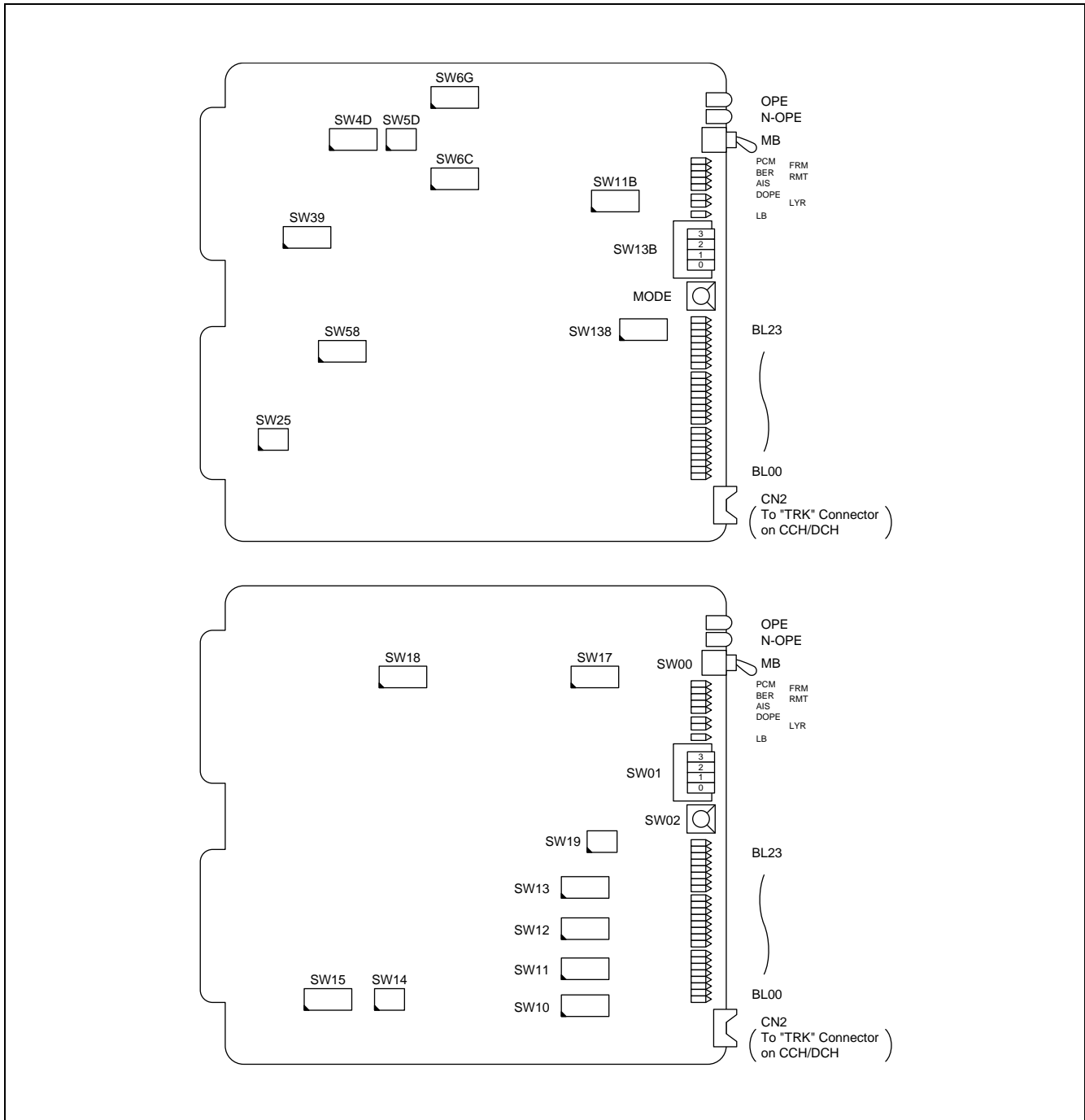
Figure 3-137 Location of PA-24CCTA (24CCT) within the System



**PA-24CCTA**  
Common Channel Trunk

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connector on this circuit card is shown in [Figure 3-138](#). Note that there are two types of PA-24 CCTA cards which differ in their face layouts.



**Figure 3-138 Face Layout of PA-24CCTA (24CCT)**

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in [Table 3-9](#).

**Table 3-9 PA-24CCTA (24CCT) Lamp Indication Reference**

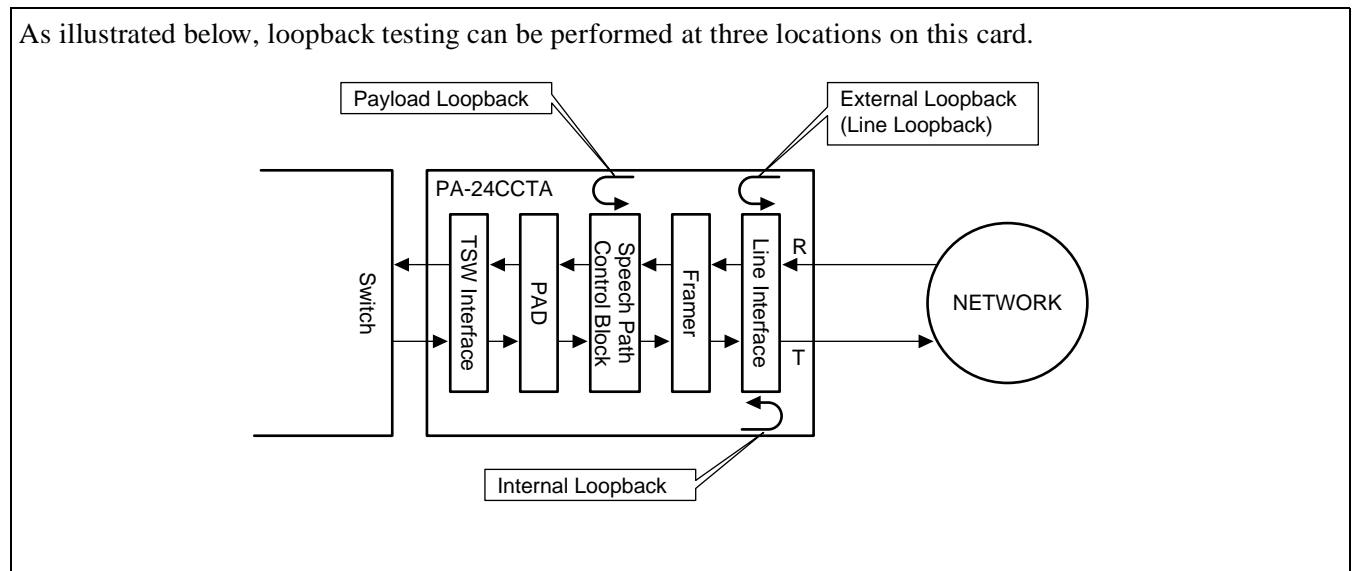
LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in normal operation.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
PCM	Red	Lights when an input signal is down (PCM LOSS).
FRM	Red	Lights when a frame alignment loss is detected.
BER	Red	Lights when frequent bit errors occur in the case of 12-multi frame and when a CRC error occurs frequently in the case of 24-multiframe.
RMT	Red	Lights on receipt of remote alarm indication.
AIS	Yellow	Lights on receipt of Alarm Information Signal (AIS).
D-OPE	Green	Remains lit while Common Channel Handler (CCH) block is active.
LZR	Green	Remains lit while CCIS signal link is set up.
LB	Green	Remains lit while the CCIS signal is being looped back.
BL00 , BL23	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes while DP signals are being sent out or received (Flashes to dial pulses) or corresponding circuit is in make-busy state (60IPM)
	OFF	Remains off when the corresponding circuit is idle.

**PA-24CCTA**  
Common Channel Trunk

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																						
SW00/MB		UP		Circuit card make busy																																																						
		DOWN	×	Circuit card make busy cancel																																																						
SW01/13B	0	ON		<table border="1"> <thead> <tr> <th colspan="2">SW01/SW13B</th> <th rowspan="2">Internal Loopback</th> <th rowspan="2">CCH Control MBR</th> <th rowspan="2">CCH Loopback</th> </tr> <tr> <th>0</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>—</td> <td>—</td> <td>×</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>—</td> <td>×</td> <td>—</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>×</td> <td>—</td> <td>—</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">SW01/SW13B</th> <th rowspan="2">External Loopback</th> <th rowspan="2">Payload Loopback</th> <th rowspan="2">All Circuit MBR</th> </tr> <tr> <th>1</th> <th>2</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>—</td> <td>—</td> <td>×</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>—</td> <td>×</td> <td>—</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>×</td> <td>—</td> <td>—</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table> <p><b>Note:</b> For more information on loopback, see below.</p>	SW01/SW13B		Internal Loopback	CCH Control MBR	CCH Loopback	0	3	ON	ON	—	—	×	OFF	ON	—	×	—	ON	OFF	×	—	—	OFF	OFF	—	—	—	SW01/SW13B		External Loopback	Payload Loopback	All Circuit MBR	1	2	ON	ON	—	—	×	OFF	ON	—	×	—	ON	OFF	×	—	—	OFF	OFF	—	—	—
		SW01/SW13B			Internal Loopback	CCH Control MBR				CCH Loopback																																																
	0	3																																																								
	ON	ON	—		—	×																																																				
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	SW01/SW13B		External Loopback		Payload Loopback	All Circuit MBR																																																				
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	ON	ON	—		—	×																																																				
	OFF	ON	—		×	—																																																				
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2	ON																																																									
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3	ON																																																									
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**Figure 3-139 Available Locations for Loopback Testing**

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW02/ MODE				Transmission Guard Timer Setting (sec.)
		0	×	4 (sec.)
		1		5 (sec.)
		2		6 (sec.)
		3		7 (sec.)
		4		8 (sec.)
		5		9 (sec.)
		6		10 (sec.)
		7		11 (sec.)
		8		12 (sec.)
		9		13 (sec.)
		A		14 (sec.)
		B		15 (sec.)
		C		16 (sec.)
		D		17 (sec.)
		E		18 (sec.)
	F		19 (sec.)	
SW10/4D	1	ON		Logic of Signal Channel A (Receive): Negative
		OFF	×	Logic of Signal Channel A (Receive): Positive
	2	ON		Logic of Signal Channel A (Send): Negative
		OFF	×	Logic of Signal Channel A (Send): Positive
	3	ON		RMT Alarm Sending: Not to be sent out
		OFF		RMT Alarm Sending: To be sent out
	4	ON		Simultaneous Seizure Supervision: Not to be controlled
		OFF		Simultaneous Seizure Supervision: To be controlled
	5	ON		Data Link Control: MOS
		OFF		Data Link Control: BOS
	6	ON		Multiframe Selection: 12-Multiframe
		OFF		Multiframe Selection: 24-Multiframe
	7	ON		Coding Type: AMI (Alternate Mark Inversion)
		OFF		Coding Type: B8ZS (Bipolar with 8 Zeros Substitution)
	8	ON		Fixed to ON. When this switch is set to ON, Alarm Processing is selected for North America specification.
		OFF		

**PA-24CCTA**  
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SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																												
SW11/39	1	ON		PAD Control <table border="1"> <thead> <tr> <th>SW11/39-1</th> <th>SW11/39-2</th> <th>PAD Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>Bothway</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Receive only (Send 0dB)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Send only (Receive 0dB)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>Fixed to ARTD command</td> </tr> </tbody> </table>	SW11/39-1	SW11/39-2	PAD Control	ON	ON	Bothway	OFF	ON	Receive only (Send 0dB)	ON	OFF	Send only (Receive 0dB)	OFF	OFF	Fixed to ARTD command													
		SW11/39-1	SW11/39-2		PAD Control																											
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		OFF																														
	3	ON	×		Data PAD Control <table border="1"> <thead> <tr> <th>SW11/39-3</th> <th>SW11/39-4</th> <th>Data PAD Value</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>64 Kbps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>56 Kbps</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>48 Kbps</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>64 Kbps INV</td> </tr> </tbody> </table>	SW11/39-3	SW11/39-4	Data PAD Value	ON	ON	64 Kbps	OFF	ON	56 Kbps	ON	OFF	48 Kbps	OFF	OFF	64 Kbps INV												
		SW11/39-3	SW11/39-4			Data PAD Value																										
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	OFF																															
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	OFF																															
5	ON	×	T Signal Control <table border="1"> <thead> <tr> <th>SW11/39-5</th> <th>SW11/39-6</th> <th>T Signal Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ABCD</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ABAB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Bit Steal Inhibited</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>AAAA</td> </tr> </tbody> </table>	SW11/39-5		SW11/39-6	T Signal Control	ON	ON	ABCD	OFF	ON	ABAB	ON	OFF	Bit Steal Inhibited	OFF	OFF	AAAA													
	SW11/39-5	SW11/39-6		T Signal Control																												
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7	ON	×		R Signal Control <table border="1"> <thead> <tr> <th>SW11/39-7</th> <th>SW11/39-8</th> <th>T Signal Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ABCD</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ABAB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Bit Steal Inhibited</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>AAAA</td> </tr> </tbody> </table>	SW11/39-7	SW11/39-8	T Signal Control	ON	ON	ABCD	OFF	ON	ABAB	ON	OFF	Bit Steal Inhibited	OFF	OFF	AAAA													
	SW11/39-7	SW11/39-8			T Signal Control																											
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OFF	ON	ABAB																														
ON	OFF	Bit Steal Inhibited																														
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OFF																																
8	ON																															
	OFF	×																														
SW12/58	1	ON	Equalizer Setting <table border="1"> <thead> <tr> <th>SW12/58-1</th> <th>SW12/58-2</th> <th>SW12/58-3</th> <th>Distance (feet)</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>0 ~ 40 m</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>40 ~ 80 m</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>80 ~ 120 m</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>120 ~ 160 m</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>160 ~ 200 m</td> </tr> <tr> <td colspan="3">Other Combinations</td> <td>Impossible</td> </tr> </tbody> </table>		SW12/58-1	SW12/58-2	SW12/58-3	Distance (feet)	ON	ON	ON	0 ~ 40 m	ON	ON	OFF	40 ~ 80 m	ON	OFF	ON	80 ~ 120 m	ON	OFF	OFF	120 ~ 160 m	OFF	ON	ON	160 ~ 200 m	Other Combinations			Impossible
		SW12/58-1			SW12/58-2	SW12/58-3	Distance (feet)																									
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	OFF																															
3	ON																															
	OFF																															



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																
SW12/58	4	ON		PAD Pattern Selection <table border="1"> <thead> <tr> <th>SW12/58-4</th> <th>SW12/58-5</th> <th>SW12/58-6</th> <th>PAD Pattern</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>PAD Pattern 1</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>PAD Pattern 2</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>A→μ Loss (Bothway)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>A→μ Loss (Receive)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>μ→A Loss (Bothway)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>μ→A Loss (Receive)</td> </tr> <tr> <td colspan="3">Other Combinations</td> <td>Impossible</td> </tr> </tbody> </table> <b>Note:</b> When setting this key, refer to Digital PAD Setting Table.	SW12/58-4	SW12/58-5	SW12/58-6	PAD Pattern	OFF	ON	ON	PAD Pattern 1	OFF	ON	OFF	PAD Pattern 2	ON	OFF	ON	A→μ Loss (Bothway)	ON	OFF	OFF	A→μ Loss (Receive)	OFF	OFF	ON	μ→A Loss (Bothway)	OFF	OFF	OFF	μ→A Loss (Receive)	Other Combinations			Impossible
		SW12/58-4	SW12/58-5		SW12/58-6	PAD Pattern																														
	OFF	ON	ON		PAD Pattern 1																															
	OFF	ON	OFF		PAD Pattern 2																															
	ON	OFF	ON		A→μ Loss (Bothway)																															
	ON	OFF	OFF		A→μ Loss (Receive)																															
	OFF	OFF	ON		μ→A Loss (Bothway)																															
	OFF	OFF	OFF		μ→A Loss (Receive)																															
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	5	ON	×																																	
		OFF																																		
	6	ON	×																																	
		OFF																																		
7	ON	×	Alarm Sending when this circuit card is in N-OPE state. <table border="1"> <thead> <tr> <th>SW12/58-7</th> <th>SW12/58-8</th> <th>MODE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>Alarm is not sent out</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td></td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>All "1"</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>RMT Alarm</td> </tr> </tbody> </table>	SW12/58-7	SW12/58-8	MODE	ON	ON	Alarm is not sent out	ON	OFF		OFF	ON	All "1"	OFF	OFF	RMT Alarm																		
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OFF																																				
8	ON	×																																		
	OFF																																			
SW13/6C	1	ON	—	Fixed to all ON (Not used)																																
	2	ON																																		
	3	ON																																		
	4	ON																																		
	5	ON																																		
	6	ON																																		
	7	ON																																		
	8	ON	×	Netfusing : Not used																																
OFF			Netfusing : Used																																	
SW14/5D	1	ON		Digital PAD ROM Selection: Special Specification (PROM Spec.)																																
		OFF	×	Digital PAD ROM Selection: Standard Specification (MASK ROM Spec.)																																
	2	ON	×	LAYER2 Signal Logic: Positive																																
		OFF		LAYER2 Signal Logic: Negative																																
	3	ON		In the event of a line fault, the upper CPU is: Not to be notified																																
		OFF	×	In the event of a line fault, the upper CPU is: To be notified																																
	4	ON		Zero Suppress: Not to be suppressed																																
		OFF		Zero Suppress: To be suppressed																																

**PA-24CCTA**  
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SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																																																																																																																																													
SW15/25	1	ON	×	Impedance Setting: 100 Ω																																																																																																																																																													
		OFF		Impedance Setting: 110 Ω																																																																																																																																																													
	2	ON		Setting of Transmission Transformer Middle Point: Ground																																																																																																																																																													
		OFF	×	Setting of Transmission Transformer Middle Point: Open																																																																																																																																																													
	3	ON		Setting of Receiving Transformer Middle Point: Ground																																																																																																																																																													
		OFF	×	Setting of Receiving Transformer Middle Point: Open																																																																																																																																																													
	4	ON		Idle Code Sending: To be sent out																																																																																																																																																													
		OFF	×	Idle Code Sending: Not to be sent out																																																																																																																																																													
SW17/6G	1	ON		Common Channel Signal Transfer Speed Selection																																																																																																																																																													
		OFF																																																																																																																																																															
	2	ON			<table border="1"> <thead> <tr> <th>SW17/6G-1</th> <th>SW17/6G-2</th> <th>SW17/6G-3</th> <th>PAD Pattern</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>64 Kbps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>32 Kbps (Forward)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>16 Kbps (Forward)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>8 Kbps (Forward)</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>64 Kbps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>32 Kbps (Backward)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>16 Kbps (Backward)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>8 Kbps (Backward)</td> </tr> </tbody> </table>	SW17/6G-1	SW17/6G-2	SW17/6G-3	PAD Pattern	ON	ON	ON	64 Kbps	OFF	ON	ON	32 Kbps (Forward)	ON	OFF	ON	16 Kbps (Forward)	OFF	OFF	ON	8 Kbps (Forward)	ON	ON	OFF	64 Kbps	OFF	ON	OFF	32 Kbps (Backward)	ON	OFF	OFF	16 Kbps (Backward)	OFF	OFF	OFF	8 Kbps (Backward)																																																																																																																								
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	3	ON				Signal Channel Designation																																																																																																																																																											
		OFF																																																																																																																																																															
	4	ON		<table border="1"> <thead> <tr> <th rowspan="2">Signal Channel</th> <th colspan="5">SW17/6G</th> </tr> <tr> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr><td>0</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr> <tr><td>1</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td></tr> <tr><td>2</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td></tr> <tr><td>3</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td></tr> <tr><td>4</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td></tr> <tr><td>5</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td></tr> <tr><td>6</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td></tr> <tr><td>7</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td></tr> <tr><td>8</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr> <tr><td>9</td><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td></tr> <tr><td>10</td><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td></tr> <tr><td>11</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td></tr> <tr><td>12</td><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td></tr> <tr><td>13</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td></tr> <tr><td>14</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td></tr> <tr><td>15</td><td>ON</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td></tr> <tr><td>16</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td></tr> <tr><td>17</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td></tr> <tr><td>18</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td></tr> <tr><td>19</td><td>ON</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td></tr> <tr><td>20</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td></tr> <tr><td>21</td><td>ON</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td></tr> <tr><td>22</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr> <tr><td>23</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td><td>ON</td></tr> </tbody> </table>			Signal Channel	SW17/6G					4	5	6	7	8	0	OFF	OFF	OFF	ON	OFF	1	ON	OFF	OFF	ON	OFF	2	OFF	ON	OFF	ON	OFF	3	ON	ON	OFF	ON	OFF	4	OFF	OFF	ON	ON	OFF	5	ON	OFF	ON	ON	OFF	6	OFF	ON	ON	ON	OFF	7	ON	ON	ON	ON	OFF	8	OFF	OFF	OFF	OFF	ON	9	ON	OFF	OFF	OFF	ON	10	OFF	ON	OFF	OFF	ON	11	ON	ON	OFF	OFF	ON	12	OFF	OFF	ON	OFF	ON	13	ON	OFF	ON	OFF	ON	14	OFF	ON	ON	OFF	ON	15	ON	ON	ON	OFF	ON	16	OFF	OFF	OFF	ON	ON	17	ON	OFF	OFF	ON	ON	18	OFF	ON	OFF	ON	ON	19	ON	ON	OFF	ON	ON	20	OFF	OFF	ON	ON	ON	21	ON	OFF	ON	ON	ON	22	OFF	ON	ON	ON	ON	23	ON	ON	ON	ON	ON
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	1	ON	OFF		OFF		ON	OFF																																																																																																																																																									
	2	OFF	ON		OFF		ON	OFF																																																																																																																																																									
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7	ON	ON	ON		ON		OFF																																																																																																																																																										
8	OFF	OFF	OFF		OFF		ON																																																																																																																																																										
9	ON	OFF	OFF		OFF	ON																																																																																																																																																											
10	OFF	ON	OFF		OFF	ON																																																																																																																																																											
11	ON	ON	OFF		OFF	ON																																																																																																																																																											
12	OFF	OFF	ON		OFF	ON																																																																																																																																																											
13	ON	OFF	ON		OFF	ON																																																																																																																																																											
14	OFF	ON	ON		OFF	ON																																																																																																																																																											
15	ON	ON	ON		OFF	ON																																																																																																																																																											
16	OFF	OFF	OFF		ON	ON																																																																																																																																																											
17	ON	OFF	OFF		ON	ON																																																																																																																																																											
18	OFF	ON	OFF		ON	ON																																																																																																																																																											
19	ON	ON	OFF		ON	ON																																																																																																																																																											
20	OFF	OFF	ON		ON	ON																																																																																																																																																											
21	ON	OFF	ON	ON	ON																																																																																																																																																												
22	OFF	ON	ON	ON	ON																																																																																																																																																												
23	ON	ON	ON	ON	ON																																																																																																																																																												
5	ON																																																																																																																																																																
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6	ON																																																																																																																																																																
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7	ON																																																																																																																																																																
	OFF																																																																																																																																																																
8	ON																																																																																																																																																																
	OFF																																																																																																																																																																

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																							
SW18/11B	1	ON		Fixed to all ON																							
	2	ON																									
	3	ON																									
	4	ON																									
	5	ON		Selection of CCH: Built-in CCH																							
		OFF		Selection of CCH: External CCH (To be used together with PA-2CCHA card)																							
	6	ON		Selection of Common Channel Signal Speed <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">SW18/11B</th> <th rowspan="2">Transfer Speed</th> </tr> <tr> <th>6</th> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>56Kbps</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>As per SW17/6G-1 - 3</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>48Kbps</td> </tr> <tr> <td colspan="3">Other Combinations</td> <td>Impossible</td> </tr> </tbody> </table>	SW18/11B			Transfer Speed	6	7	8	OFF	ON	ON	56Kbps	ON	OFF	ON	As per SW17/6G-1 - 3	ON	ON	OFF	48Kbps	Other Combinations			Impossible
		SW18/11B			Transfer Speed																						
	6	7	8																								
	OFF	ON	ON		56Kbps																						
	ON	OFF	ON		As per SW17/6G-1 - 3																						
	ON	ON	OFF		48Kbps																						
Other Combinations			Impossible																								
7	ON																										
	OFF																										
8	ON																										
	OFF																										
SW19/138	1	ON		COP Alarm: Inhibited																							
		OFF		COP Alarm: Allowed																							
	2	ON		Operating Mode Setting <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">SW19/138</th> <th rowspan="2">Operating Mode</th> </tr> <tr> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>When No.7 CCIS is set</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>When No.7 CCIS PCR is set <del>is not</del></td> </tr> <tr> <td colspan="2">Other Combinations</td> <td>Not used</td> </tr> </tbody> </table> <b>Note:</b> PCR (Preventive Cyclic Retransmission method)	SW19/138		Operating Mode	2	3	OFF	OFF	When No.7 CCIS is set	ON	OFF	When No.7 CCIS PCR is set <del>is not</del>	Other Combinations		Not used									
		SW19/138			Operating Mode																						
	2	3																									
	OFF	OFF	When No.7 CCIS is set																								
	ON	OFF	When No.7 CCIS PCR is set <del>is not</del>																								
	Other Combinations		Not used																								
3	ON																										
	OFF																										
4	ON		—	Fixed to ON																							

**Digital PAD Setting Table for PA-24CCTA**

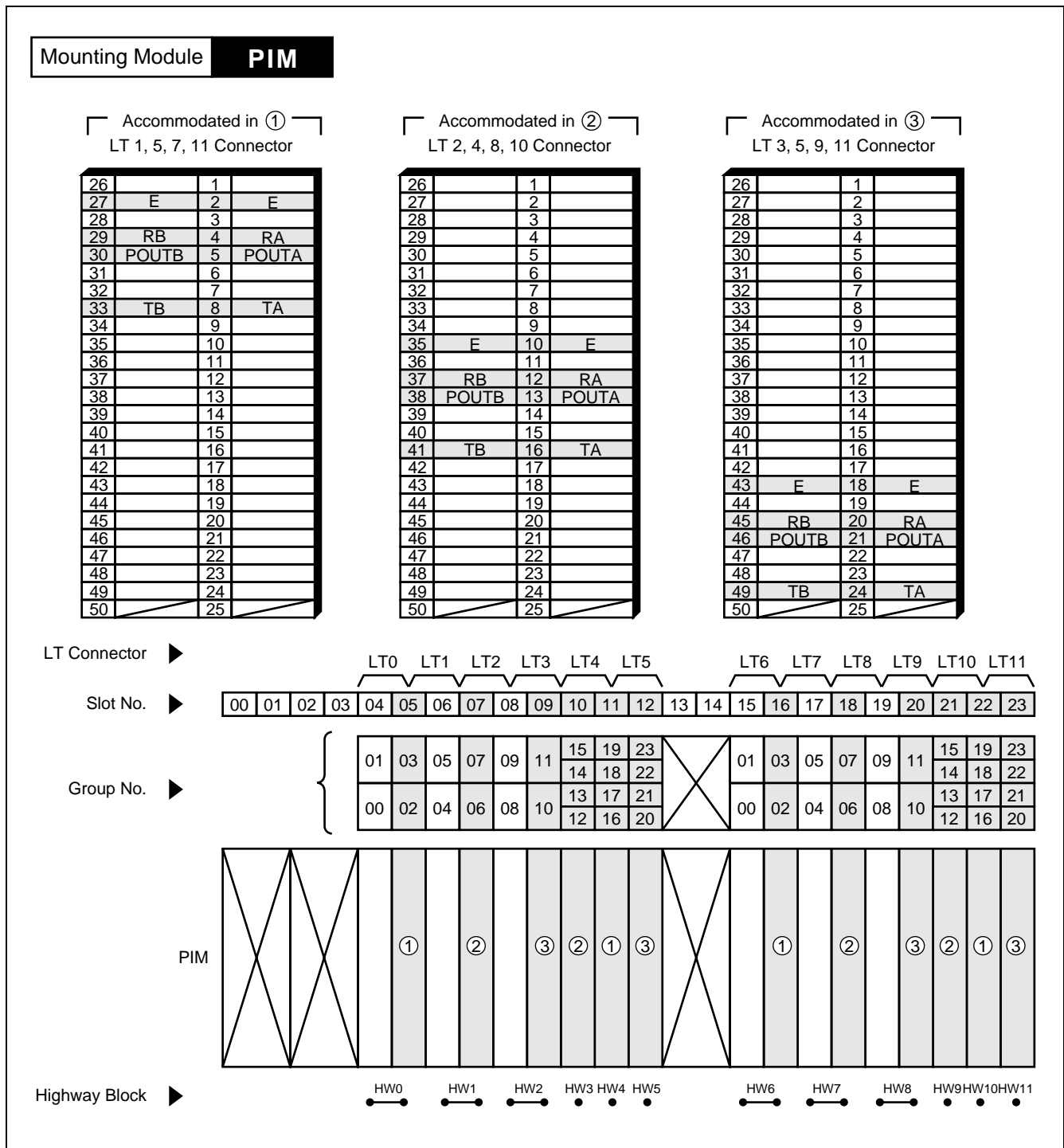
As mentioned in General Function, this card is equipped with a mask ROM in which the following typical PAD patterns have been already written. PAD value is determined by selecting a desired PAD pattern, which can be done by key setting of the SW 12/58 (elements 4, 5, 6) on this card, and programming of the PAD data by the ARTD command - PAD. The selected PAD pattern and the programmed ARTD PAD data correspond as listed below.

**Table 3-10 Digital PAD Setting Table**

PAD DATA ARTD	PAD Pattern (selected by key setting)											
	PAD Pattern 1		PAD Pattern 2		A→μ Loss (Bothway)		A→μ Loss (Receive)		μ→A Loss (Bothway)		μ→A Loss (Receive)	
	SEND	RECIEVE	SEND	RECIEVE	SEND	RECIEVE	SEND	RECIEVE	SEND	RECIEVE	SEND	RECIEVE
1	2 [dB]	2 [dB]	-3 [dB] <i>Note</i>	3 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]
2	4 [dB]	4 [dB]	3 [dB]	3 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]
3	6 [dB]	6 [dB]	0 [dB]	6 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]
4	8 [dB]	8 [dB]	3 [dB]	9 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]
5	Key settings of SW11/39-3,4 correspond to PAD values. (Regardless of PAD Patterns)											
7	0 [dB]	0 [dB]	0 [dB]	0 [dB]	Through	Through	Through	Through	Through	Through	Through	Through

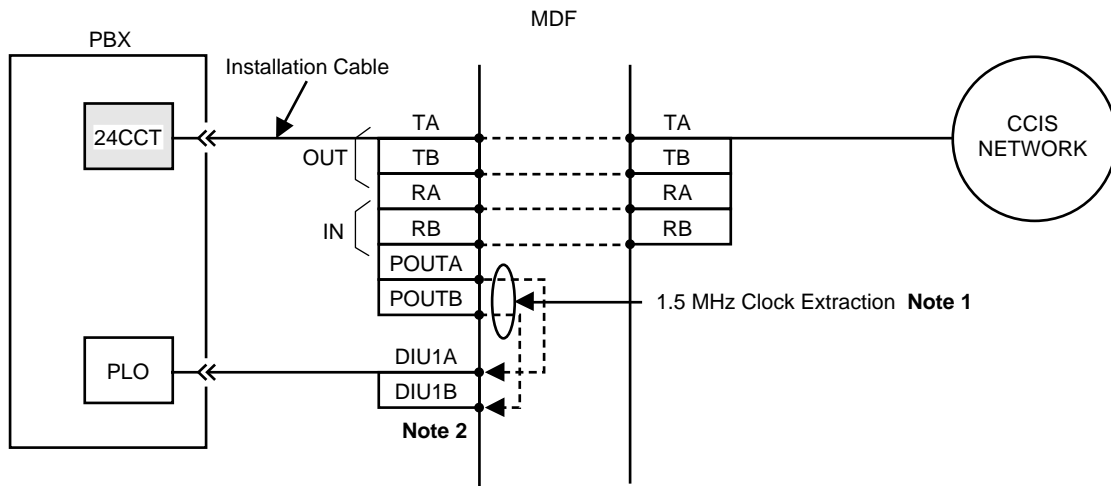
**Note:** - represents "GAIN" in this table.

6. External Interface



**PA-24CCTA**  
Common Channel Trunk

Connecting Route Diagram for the PA-24CCTA (24CCT) circuit card is as follows.

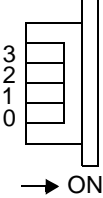
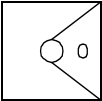
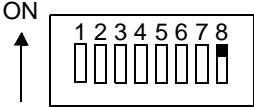


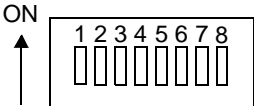
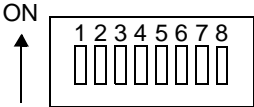
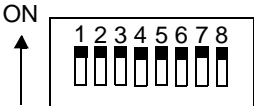


**Note 1:** This cable connection is required when clock signals must be extracted from the network side.

**Note 2:** As an example, DIU1A and DIU1B leads are used in this diagram. For more information about these leads, see [Chapter 2](#) in this manual.

**Figure 3-141 Connecting Route Diagram**

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS	
PIM		SW00/MB	DOWN	Circuit card make busy cancel	
		SW01/13B			
		SW02 (MODE)		Standard Setting	
		SW10/4D		24-multiframe CCT Standard	
				12-multiframe CCT Standard	
		SW11/39			
		SW12/58			
		SW13/6C		• Fixed to all ON.	

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW14/5D		<ul style="list-style-type: none"> <li>• 24-multiframe CCT Standard</li> </ul> <ul style="list-style-type: none"> <li>• 12-multiframe CCT Standard</li> </ul>
		SW15/25		
		SW17/6G		
		SW18/11B		
		SW19/138		



## PA-2DCHA D-Channel Handler

### 1. General Function

This circuit card controls D channels of ISDN Line. This circuit card provides 2-circuit D-channel Handler (DCH).

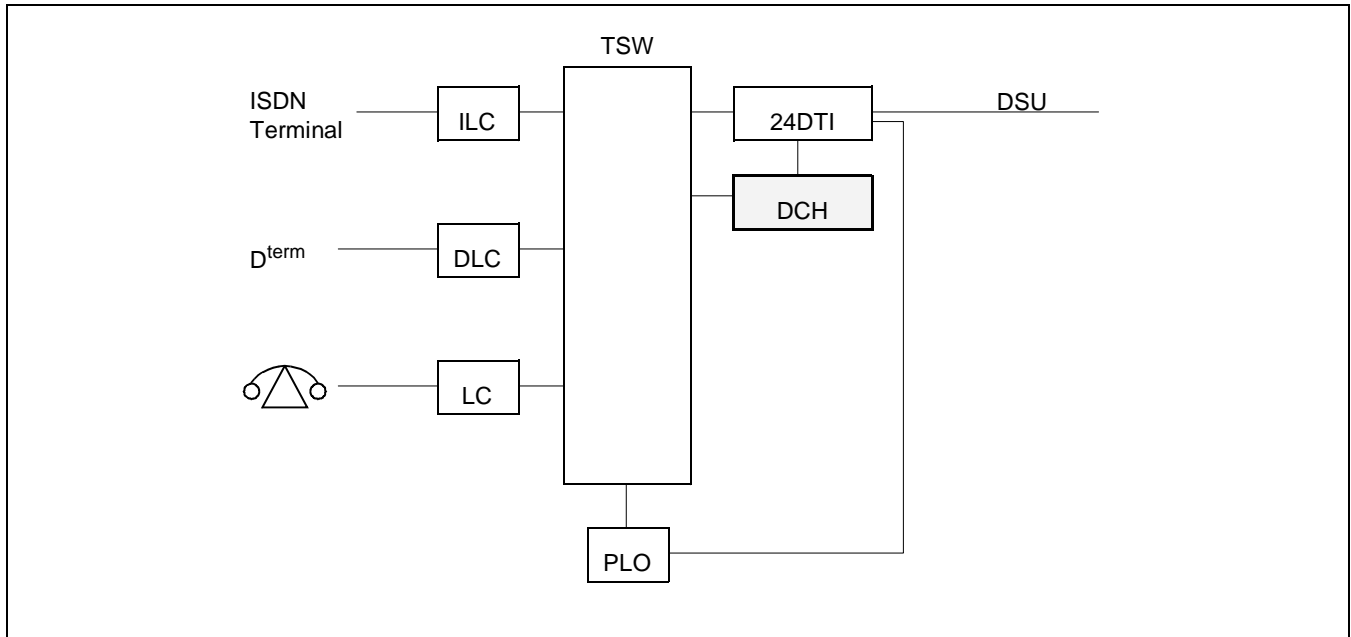


Figure 3-142 Location of PA-2DCHA (2DCH) within the System

**PA-2DCHA**  
D-Channel Handler

2. Mounting Location/Condition

The mounting locations of this circuit card and the conditions related to mounting are shown below.

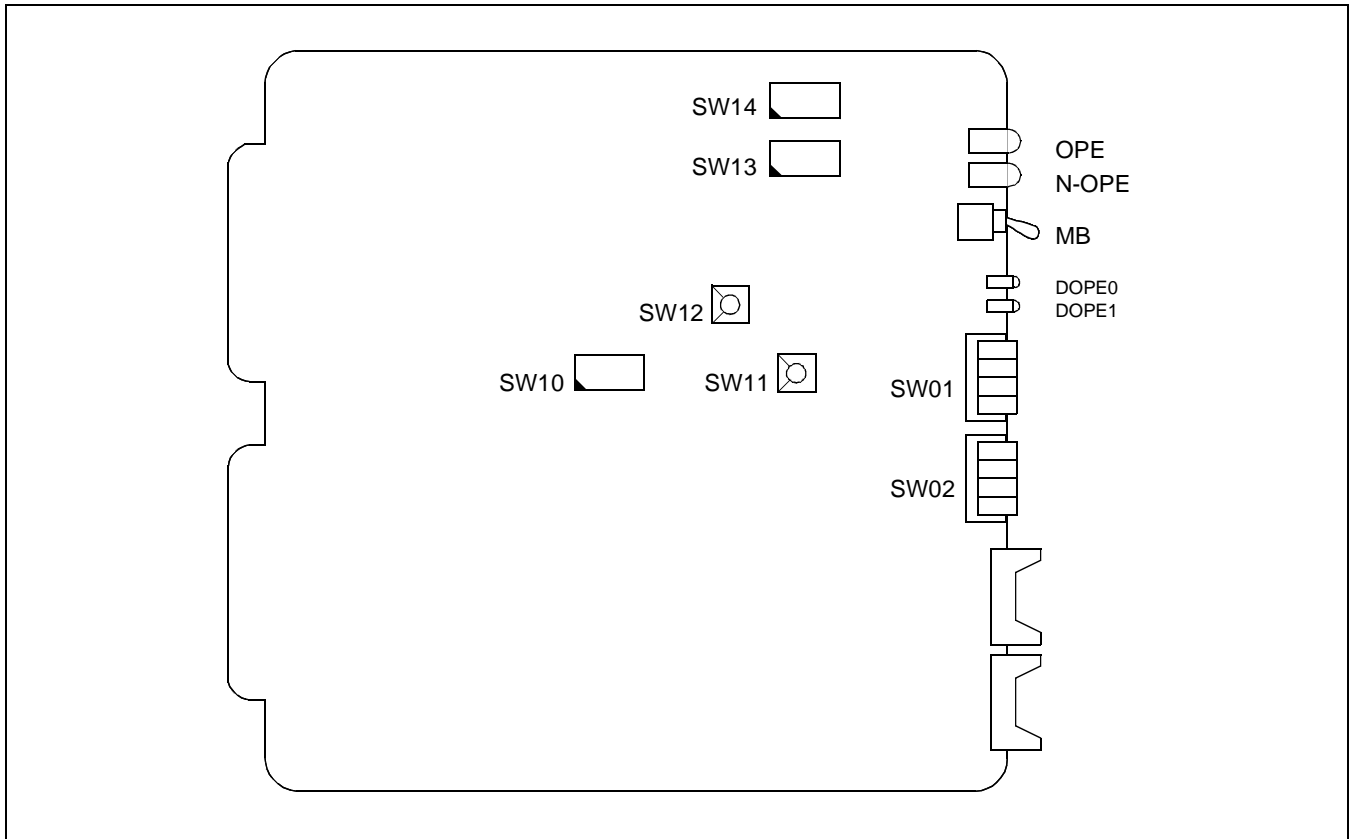
Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

- This circuit card must be mounted in a slot on the left side of the slot in which DTI card is mounted.
- This circuit card cannot be mounted in Slot 04 of PIM0.

### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in [Figure 3-143](#).



**Figure 3-143 Face Layout of PA-2DCHA (2DCH)**

### 4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
DOPE0	Green	Lights when the common channel signaling link is set up.
DOPE1	Flash	Flashes when DCH is started up.

5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW01	0	ON		No. 0 Circuit make busy request
		OFF	×	No. 0 Circuit make busy request cancel
	1	ON		No. 1 Circuit make busy request
		OFF	×	No. 1 Circuit make busy request cancel
	2	OFF	×	Not used
	3	OFF	×	Not used
SW02	0	ON		Loop back of No. 0 Circuit is performed.
		OFF	×	Loop back of No. 0 Circuit is not performed.
	1	ON		Loop back of No. 1 Circuit is performed.
		OFF	×	Loop back of No. 1 Circuit is not performed.
	2	ON		Drop/Insert of No. 0 Circuit is performed.
		OFF		Drop/Insert of No. 0 Circuit is not performed.
	3	ON		Drop/Insert of No. 1 Circuit is performed.
		OFF		Drop/Insert of No. 1 Circuit is not performed.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING				
SW10	1			<b>SETTING OF TRANSFER SPEED OF DROP/ INSERT IN NO. 0 CIRCUIT</b>				
				<b>SW10-1</b>	<b>SW10-2</b>	<b>SW10-3</b>	<b>TRANSFER SPEED</b>	
	2				ON	ON	ON	64 kbps
					OFF	ON	ON	32 kbps (Forward)
					ON	OFF	ON	16 kbps (Forward)
					OFF	OFF	ON	8 kbps (Forward)
	3				ON	ON	OFF	64 kbps
					OFF	ON	OFF	32 kbps (Backward)
					ON	OFF	OFF	16 kbps (Backward)
					OFF	OFF	OFF	8 kbps (Backward)
	4		ON		Modem is used in No. 0 Circuit			
			OFF		Modem is not used in No. 0 Circuit.			
5				<b>SETTING OF TRANSFER SPEED OF DROP/ INSERT IN NO. 1 CIRCUIT</b>				
				<b>SW10-5</b>	<b>SW10-6</b>	<b>SW10-7</b>	<b>TRANSFER SPEED</b>	
6				ON	ON	ON	64 kbps	
				OFF	ON	ON	32 kbps (Forward)	
				ON	OFF	ON	16 kbps (Forward)	
				OFF	OFF	ON	8 kbps (Forward)	
7				ON	ON	OFF	64 kbps	
				OFF	ON	OFF	32 kbps (Backward)	
				ON	OFF	OFF	16 kbps (Backward)	
				OFF	OFF	OFF	8 kbps (Backward)	
8		ON		Modem is used in No. 1 Circuit.				
		OFF		Modem is not used in No. 1 Circuit.				
SW11 (MODE0)		1		AT & T Bell				
		5		AT & T Communication				
SW12 (MODE1)		1		AT & T Bell				
		5		AT & T Communication				

**Note:** When SW10-4 is set ON, SW10-1, 10-2 and 10-3 should be set ON.  
When SW10-8 is set ON, SW10-5, 10-6 and 10-7 should be set ON.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING							
SW13 (for No. 0 Circuit)  SW14 (for No. 1 Circuit)	1		<b>SETTING OF TIME SLOT NUMBER OF DROP/INSERT</b>								
			<b>SW13-1/ SW14-1</b>	<b>SW13-2/ SW14-2</b>	<b>SW13-3/ SW14-3</b>	<b>SW13-4/ SW14-4</b>	<b>SW13-5/ SW14-5</b>	<b>TIME SLOT NO.</b>			
			OFF	OFF	OFF	OFF	OFF	CH0			
			ON	OFF	OFF	OFF	OFF	CH1			
			OFF	ON	OFF	OFF	OFF	CH2			
			ON	ON	OFF	OFF	OFF	CH3			
			OFF	OFF	ON	OFF	OFF	CH4			
			ON	OFF	ON	OFF	OFF	CH5			
			OFF	ON	ON	OFF	OFF	CH6			
			ON	ON	ON	OFF	OFF	CH7			
			OFF	OFF	OFF	ON	OFF	CH8			
			ON	OFF	OFF	ON	OFF	CH9			
	2			OFF	ON	OFF	ON	OFF	CH10		
				ON	ON	OFF	ON	OFF	CH11		
				OFF	OFF	ON	ON	OFF	CH12		
				ON	OFF	ON	ON	OFF	CH13		
				OFF	ON	ON	ON	OFF	CH14		
				ON	ON	ON	ON	OFF	CH15		
				OFF	OFF	OFF	OFF	ON	CH16		
				ON	OFF	OFF	OFF	ON	CH17		
				OFF	ON	OFF	OFF	ON	CH18		
				ON	ON	OFF	OFF	ON	CH19		
				OFF	OFF	ON	OFF	ON	CH20		
				ON	OFF	ON	OFF	ON	CH21		
	3			OFF	ON	ON	OFF	ON	CH22		
				ON	ON	ON	OFF	ON	CH23		
				OFF	OFF	ON	ON	OFF	CH24		
				ON	OFF	OFF	ON	ON	CH25		
				OFF	ON	OFF	ON	ON	CH26		
				ON	ON	OFF	ON	ON	CH27		
				OFF	OFF	ON	ON	ON	CH28		
ON				OFF	ON	ON	ON	CH29			
OFF				ON	ON	ON	ON	CH30			
ON				ON	ON	ON	ON	CH31			
4						ON	ON	ON	OFF	ON	CH23
						OFF	OFF	OFF	ON	ON	CH24
5			ON	OFF	OFF	ON	ON	CH25			
			OFF	ON	OFF	ON	ON	CH26			
			ON	ON	OFF	ON	ON	CH27			
			OFF	OFF	ON	ON	ON	CH28			
			ON	OFF	ON	ON	ON	CH29			
			OFF	ON	ON	ON	ON	CH30			
			ON	ON	ON	ON	ON	CH31			
			6		ON		D Channel Mode Selection; Network Side				
					OFF		D Channel Mode Selection; User Side				
			7			<b>SETTING OF SPEED MODE</b>					
						<b>SW13-7/SW14-7</b>	<b>SW13-8/SW14-8</b>	<b>SPEED</b>			
						OFF	OFF	2400 bps			
OFF	ON	4800 bps									
8			ON	OFF	9600 bps						
			ON	ON	Inhibit						

6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown in Figure 3-144.

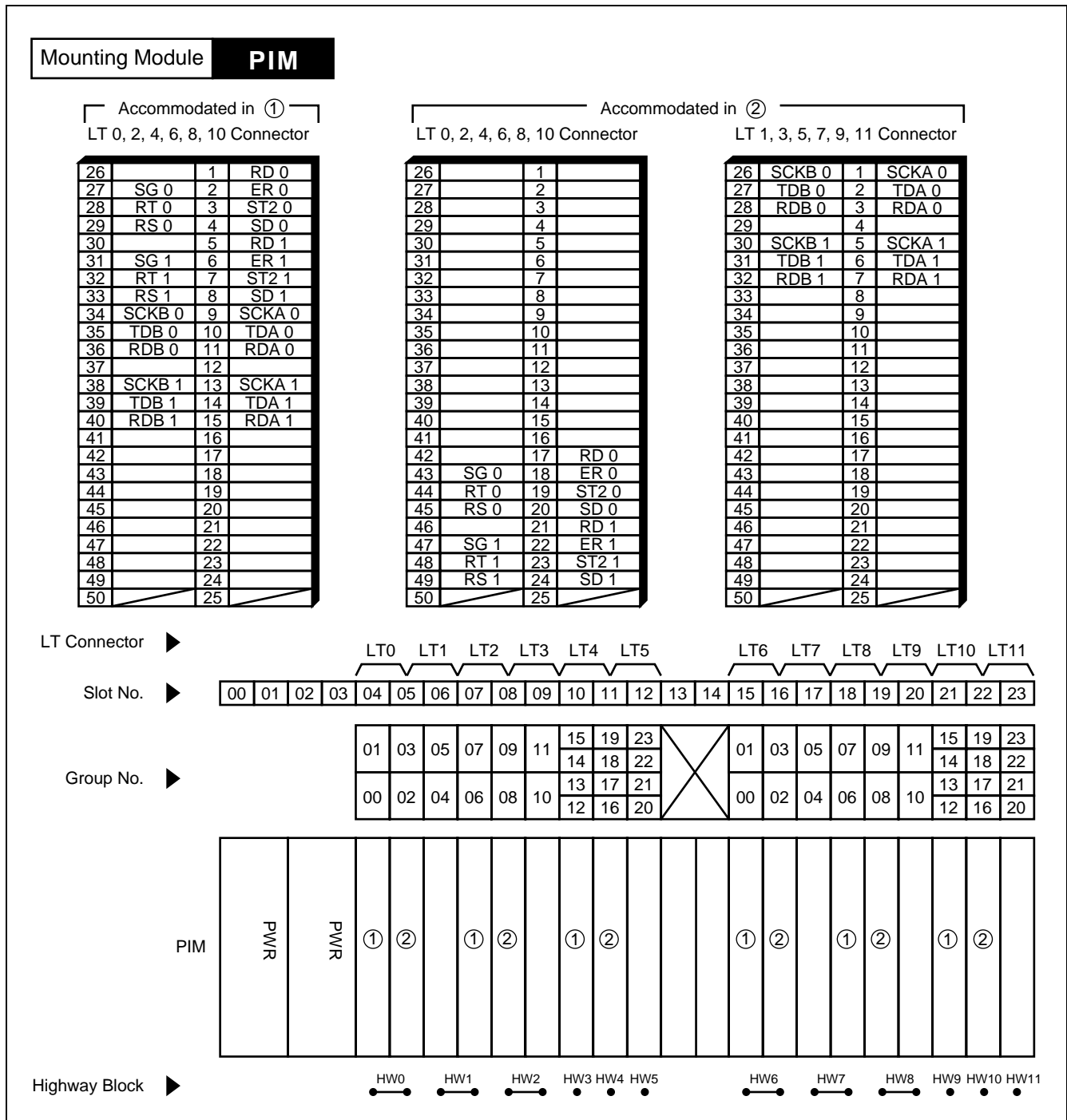


Figure 3-144 LT Connector Leads Accommodation (1/2)

Mounting Module **PIM**

Accommodated in ③  
LT 1, 3, 5, 7, 9, 11 Connector

26		1	
27		2	
28		3	
29		4	
30		5	
31		6	
32		7	
33		8	
34		9	RD 0
35	SG 0	10	ER 0
36	RT 0	11	ST2 0
37	RS 0	12	SD 0
38		13	RD 1
39	SG 1	14	ER 1
40	RT 1	15	ST2 1
41	RS 1	16	SD 1
42	SCLB 0	17	SCKA 0
43	TDB 0	18	TDA 0
44	RDB 0	19	RDA 0
45		20	
46	SCLB 1	21	SCKA 1
47	TDB 1	22	TDA 1
48	RDB 1	23	RDA 1
49		24	
50		25	

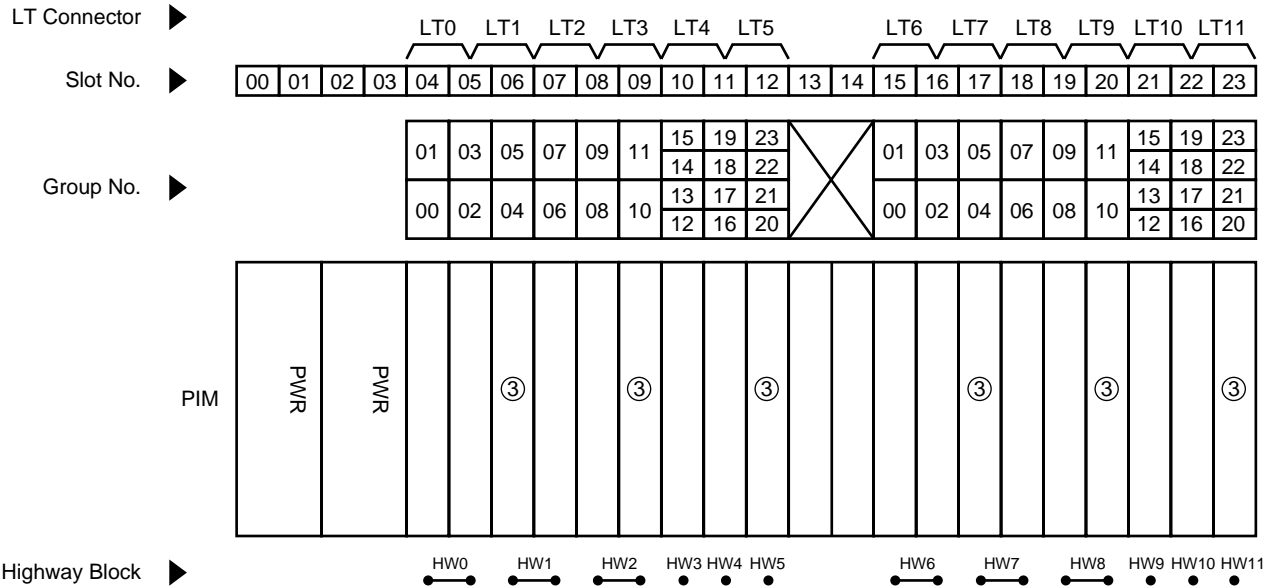
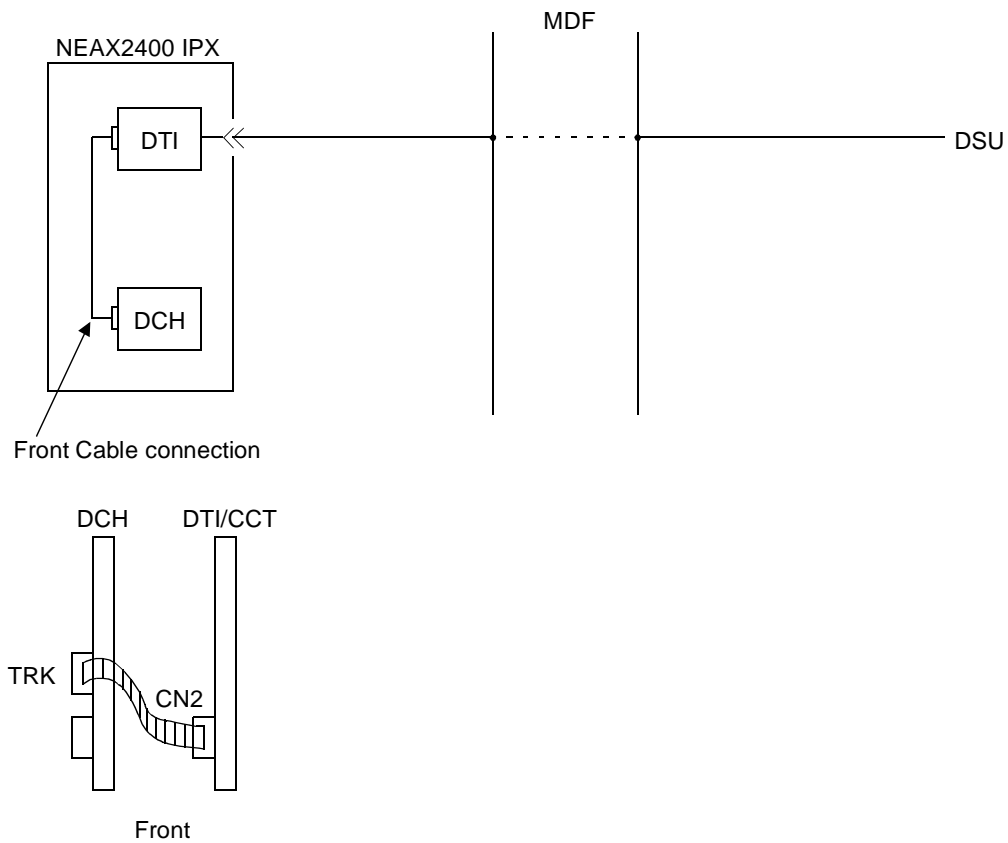


Figure 3-144 LT Connector Leads Accommodation (2/2)



• When modem is not used



**Note:** For cross connections between DTI and D-channel common channel signalling line, refer to the explanations of 24DTI circuit card.

Figure 3-145 Connecting Route Diagram (1/2)

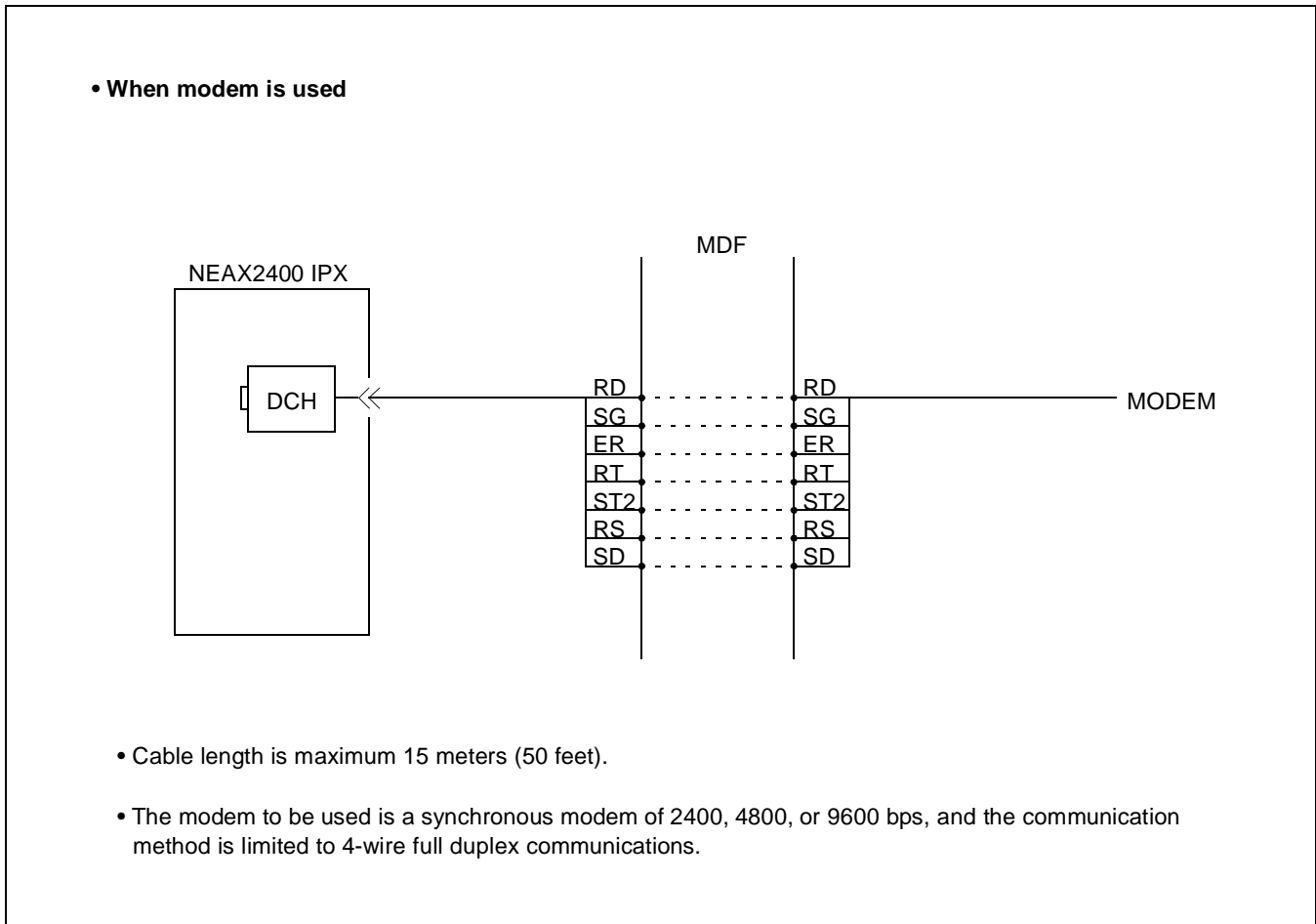
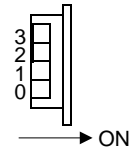
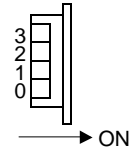
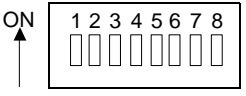


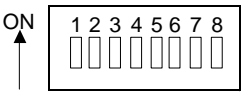
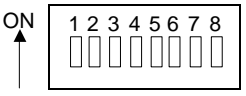


Figure 3-145 Connecting Route Diagram (2/2)

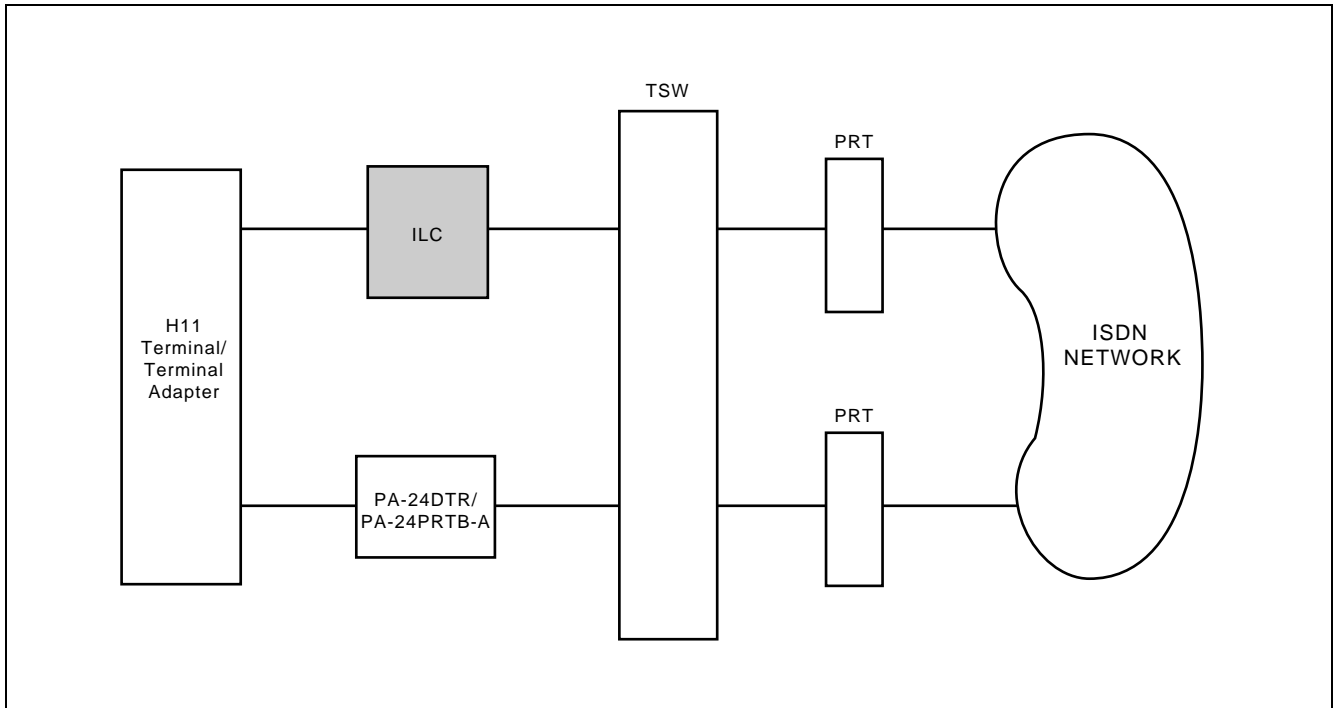
7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW01		SW01-2, 3 : Not used
		SW02		
		SW10		
		SW11		1 : AT & T Bell 5 : AT & T Communication
		SW12		1 : AT & T Bell 5 : AT & T Communication
		SW13		
		SW14		
		MB		DOWN

**PA-ILCG**  
**ISDN Terminal Line Circuit**

1. General Function

This circuit card, which is for ISDN, is used in conjunction with PA-24DTR/PA-24PRTB-A to provide H11 terminal (1.536 Mbps) with D-channel signal. ISDN BRI (Basic Rate Interface) terminal (64 Kbps), incidentally, cannot be connected to this circuit card.



**Figure 3-146 Location of PA-ILCG (ILC) Card within the System**

2. Mounting Location/Condition

The PA-ILCG (ILC) card can be mounted in the following shaded slots.

Mounting Module	<b>PIM</b>
-----------------	------------

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
X				B-ch		B-ch		B-ch					X		B-ch		B-ch		B-ch				
				D-ch		D-ch		D-ch		D-ch		D-ch				D-ch		D-ch					

Mounting Condition

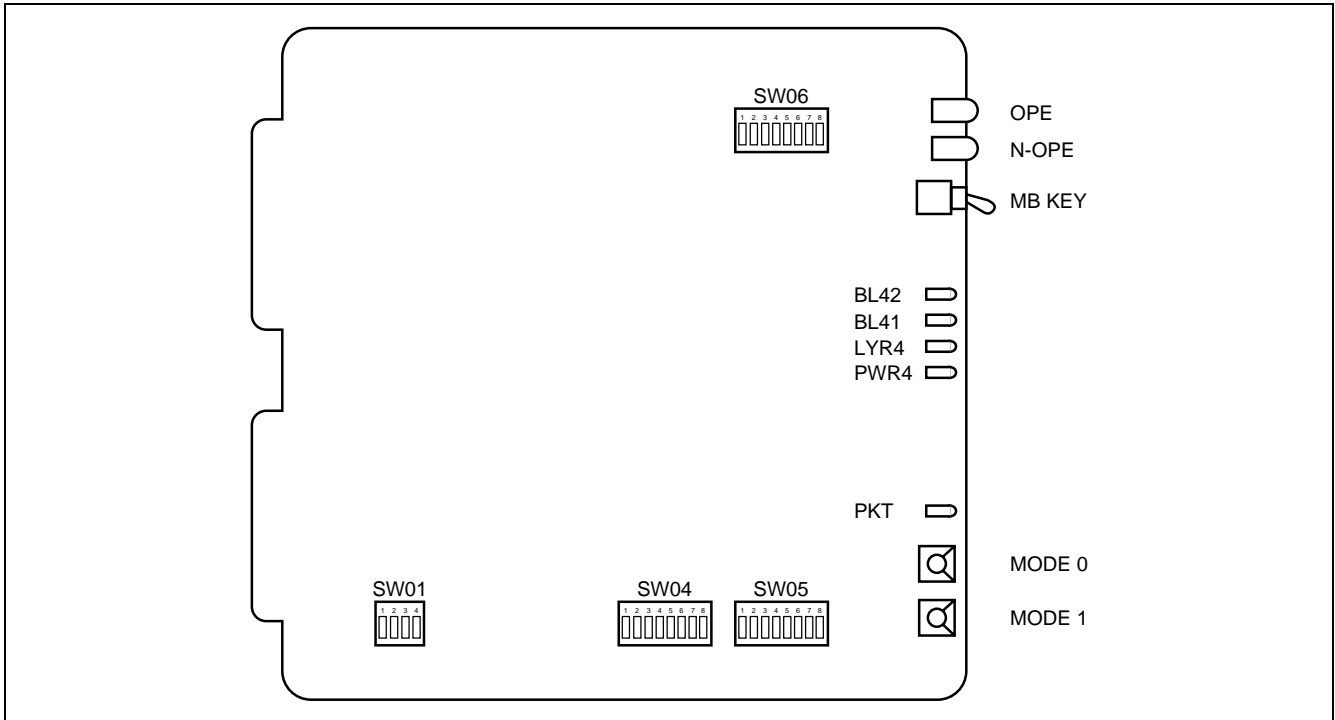
Mounting conditions for this circuit card are as follows:

1. This circuit card cannot be mounted in the slot 05, 07, 09, 10, 11, 12, 16, 18, 20, 21, 22, 23.
2. Mount this circuit card so that its leads and the leads of any other analog line/trunk circuit card may not come out to the same LT cable.
3. This circuit card is not used in even-number module group (MG), unit (U)=0 and group (G)=0.
4. When registering this circuit card in the shaded slots, user must assign B-channels to odd-number group (G) and D-channel to even-number group(G).
5. Do not mount other line/trunk card in just right side of the slot where a PA-ILCG card is mounted.

**PA-ILCG**  
ISDN Terminal Line Circuit

3. Face Layout of Lamps and Switches

The face layout of lamps and switches is shown in [Figure 3-147](#).



**Figure 3-147 Face Layout of PA-ILCG (ILC)**

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below:

**Table 3-11 PA-ILCG Lamp Indications Reference**

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in normal operation.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
BL42	Green	Lights green when B2-channel is being accessed and in operation.
	Flash (60IPM)	The corresponding channel is in a make-busy state.
	OFF	The corresponding channel is idle.
BL41	Green	Lights green when B1-channel is being accessed and in operation.
	Flash (60IPM)	The corresponding channel is in a make-busy state.
	OFF	The corresponding channel is idle.
LYR4	Green	Remains lit while Layer 2 of the corresponding channel is active.
	Flash (120IPM)	Flashes while Layer 1 synchronization of the corresponding channel is established.
	OFF	Layer 1 and/or Layer 2 have not been established.
PWR4	Red	Lights red when overvoltage protection function for the corresponding circuit is activated; the corresponding line is short-circuited.
PKT	Green	Lights green when D channel Packet is in operation.
	OFF	Remains off when D channel Packet is not in operation.

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																								
MB		UP		Circuit card make-busy																								
		DOWN		Circuit card make-busy cancel																								
SW01	1	ON	×	Fixed to ON																								
	2	ON	×	Fixed to ON																								
	3	ON	×	Not used (Fixed to ON)																								
	4	ON	×	Not used (Fixed to ON)																								
SW04	1	ON	×	Not used (Fixed to ON)																								
	2	ON	×	Not used (Fixed to ON)																								
	3	ON	×	Not used (Fixed to ON)																								
	4	ON	×	Not used (Fixed to ON)																								
	5	ON	×	Fixed to ON (Wiring Mode)																								
	6	ON	×	Not used (Fixed to ON)																								
	7	ON	×	Not used (Fixed to ON)																								
	8	ON	×	Not used (Fixed to ON)																								
SW05	1	ON		<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="4">PAD Value Selection</th> </tr> <tr> <th>SW05-1</th> <th>SW05-2</th> <th>Receiving Pad</th> <th>Sending Pad</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>0 dB</td> <td>0 dB</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>0 dB</td> <td>2 dB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>0 dB</td> <td>5 dB</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>0 dB</td> <td>8 dB</td> </tr> </tbody> </table>	PAD Value Selection				SW05-1	SW05-2	Receiving Pad	Sending Pad	OFF	OFF	0 dB	0 dB	OFF	ON	0 dB	2 dB	ON	OFF	0 dB	5 dB	ON	ON	0 dB	8 dB
		PAD Value Selection																										
	SW05-1	SW05-2	Receiving Pad		Sending Pad																							
	OFF	OFF	0 dB		0 dB																							
	OFF	ON	0 dB		2 dB																							
	ON	OFF	0 dB		5 dB																							
	ON	ON	0 dB		8 dB																							
	OFF	×																										
	2	ON																										
		OFF	×																									
	3	ON			<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">Length of Call Reference Value Selection</th> </tr> <tr> <th>SW05-3</th> <th>SW05-4</th> <th>Length of Call Reference Value</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>Basic Rate Interface 1, Primary Rate</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Basic Rate Interface 1, Primary Rate</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Basic Rate Interface 2, Primary Rate</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>Basic Rate Interface 2, Primary Rate</td> </tr> </tbody> </table>	Length of Call Reference Value Selection			SW05-3	SW05-4	Length of Call Reference Value	OFF	OFF	Basic Rate Interface 1, Primary Rate	OFF	ON	Basic Rate Interface 1, Primary Rate	ON	OFF	Basic Rate Interface 2, Primary Rate	ON	ON	Basic Rate Interface 2, Primary Rate					
		Length of Call Reference Value Selection																										
	SW05-3	SW05-4	Length of Call Reference Value																									
	OFF	OFF	Basic Rate Interface 1, Primary Rate																									
OFF	ON	Basic Rate Interface 1, Primary Rate																										
ON	OFF	Basic Rate Interface 2, Primary Rate																										
ON	ON	Basic Rate Interface 2, Primary Rate																										
OFF																												
4	ON																											
	OFF																											
5	OFF	×	Not used (Fixed to ON)																									
6	OFF	×	Not used (Fixed to ON)																									
7	ON		D-channel Packet Service: Available																									
	OFF		D-channel Packet Service: Not available																									
8	ON	×	Not used (Fixed to ON)																									



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW06	1	ON	×	Not used (Fixed to ON)
	2	ON	×	Not used (Fixed to ON)
	3	ON	×	Not used (Fixed to ON)
	4	ON	×	Not used (Fixed to ON)
	5	ON	×	Data link mode for Layer 2: Point-to-Point (P-P) (Fixed to ON) <b>Note</b>
	6	ON	×	Not used (Fixed to ON)
	7	ON	×	Not used (Fixed to ON)
	8	ON	×	Not used (Fixed to ON)
MODE 0		0	×	Fixed to 0
		1~F		Not used
MODE 1		0~5		Not used
		6	×	Fixed to 6
		7~F		Not used

**Note:** The terms Point-to-Point (P-P) used in this table have no relation to the actual wiring configuration.



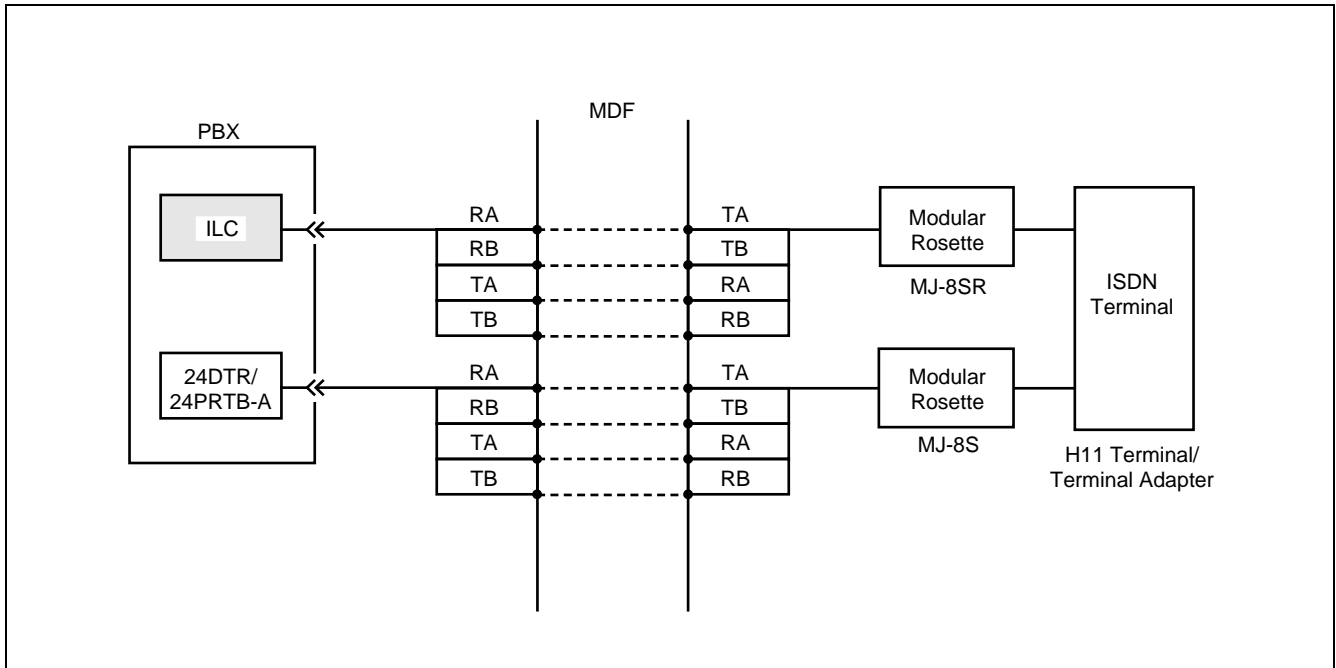
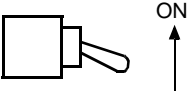
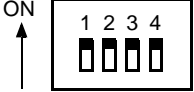
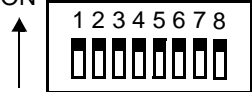
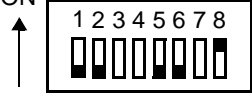
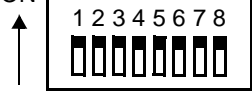
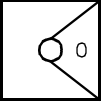
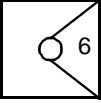


Figure 3-149 Connecting Route Diagram

**PA-ILCG**  
ISDN Terminal Line Circuit

7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW01		
SW04		
SW05		
SW06		
MODE 0		
MODE 1		

## PA-4ILCH ISDN Line Circuit

### 1. General Function

The PA-4ILCH is a line circuit card which accommodates ISDN Terminal via NT1. The main features of this circuit card are shown below:

- A maximum of four Basic Rate Interface (BRI) terminals can be accommodated.
- This card and NT1 are connected using 2-wire U Interface.
- Sealing current (Maximum 15mA) can be supplied for keeping cables from rusting.

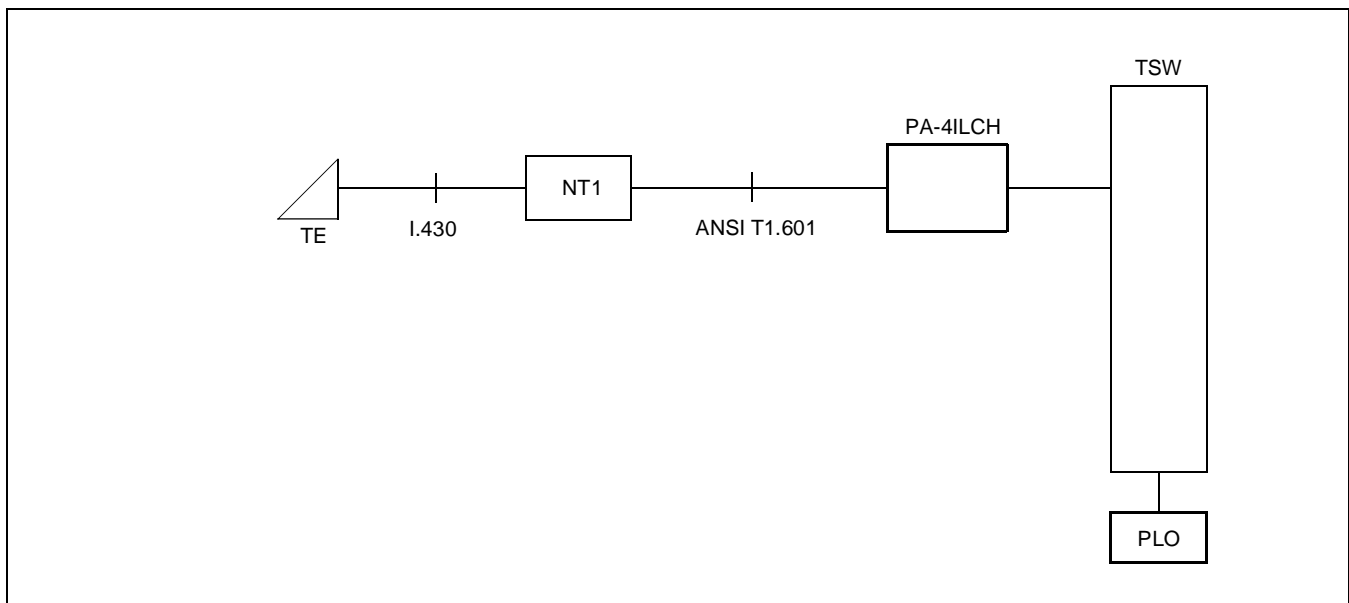
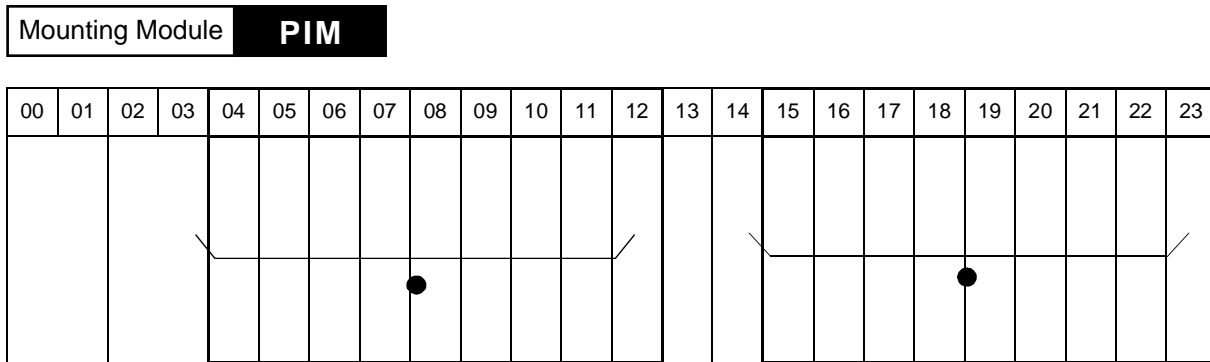


Figure 3-150 Location of PA-4ILCH (4ILC) within the System

**PA-4ILCH**  
ISDN Line Circuit

2. Mounting Location/Condition

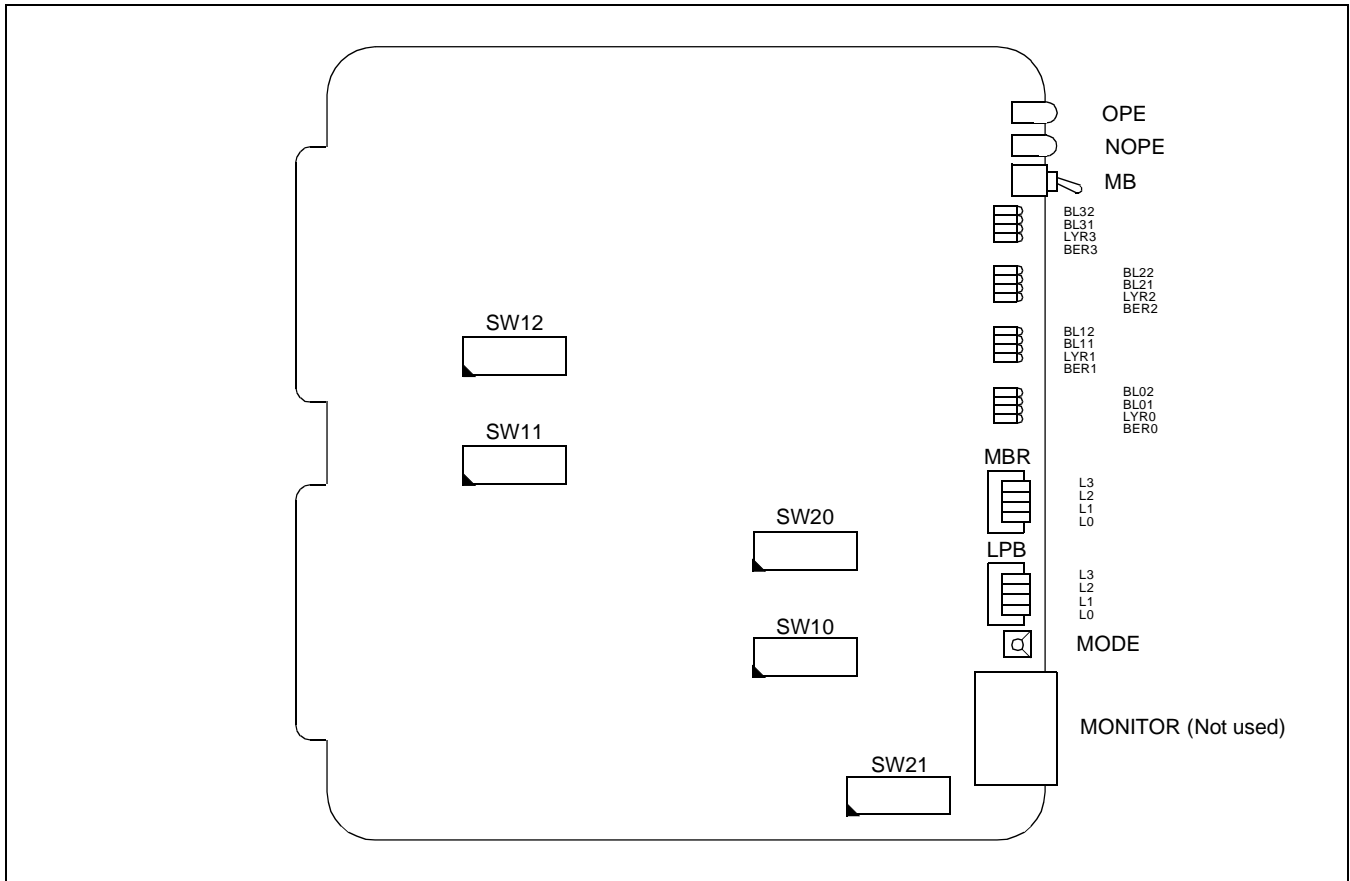
The PA-4ILCH (4ILC) card can be mounted in any universal slot as shown below.



**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of each lamp, switch and connector on this circuit card is shown in [Figure 3-151](#).



**Figure 3-151 Face Layout of PA-4ILCH (4ILC)**

4. Lamp Indications

The contents of lamp indication on this circuit card are shown below.

LAMP NAME	COLOR	MEANING
OPE	Green	Lights when the card is in normal operation.
NOPE	Red	Lights when the card is in make-busy state.
BLn2 n=0~3	Green	Lights when B2 channel of line #n is communicating.
	Flashing	Flashes during make-busy state (60 IPM).
	Off	During idle state.
BLn1 n=0~3	Green	Lights when B1 channel of the line #n is communicating.
	Flashing	Flashes during make-busy state (60 IPM).
	Off	During idle state.
LYRn n=0~3	Green	Lights when layer 2 link of the line #n is established.
	Flashing	Flashes when synchronization is established on Layer 1 of S Reference Point (60 IPM). <b>Note</b>
		Flashes when synchronization is established on Layer 1 of U Reference Point (120 IPM). <b>Note</b>
Off	Synchronization is not established on either Layer 1 or Layer 2.	
BERn n=0~3	Red	Two or more CRC errors occur per second and the condition lasts for 10 seconds.
	Off	One or no CRC error occurs per second.

**Note:** Establishment of synchronization on U Reference Point may require 30 seconds or more.



## 5. Switch Settings

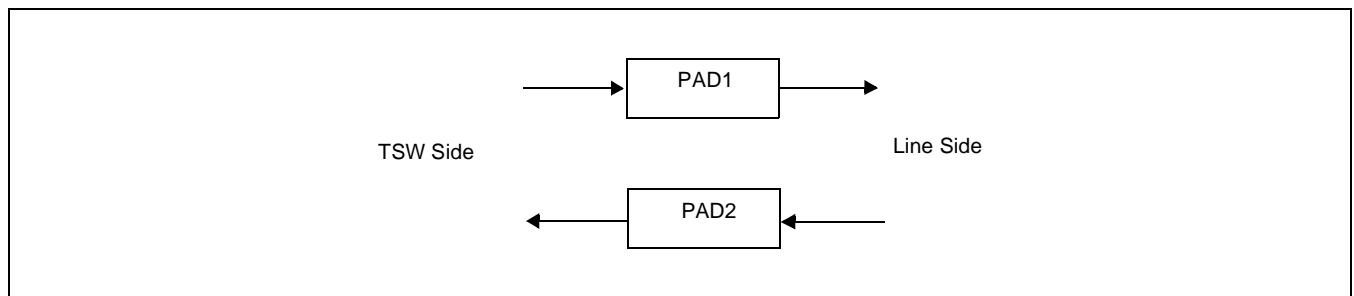
Switches on this card have the following meanings.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
MBR	0	ON		Line 0 make busy request
		OFF	×	Line 0 make busy request cancel
	1	ON		Line 1 make busy request
		OFF	×	Line 1 make busy request cancel
	2	ON		Line 2 make busy request
		OFF	×	Line 2 make busy request cancel
	3	ON		Line 3 make busy request
		OFF	×	Line 3 make busy request cancel
LPB	0	ON		Loop back is set on NT1 for line 0.
		OFF	×	Loop back is canceled on NT1 for line 0.
	1	ON		Loop back is set on NT1 for line 1.
		OFF	×	Loop back is canceled on NT1 for line 1.
	2	ON		Loop back is set on NT1 for line 2.
		OFF	×	Loop back is canceled on NT1 for line 2.
	3	ON		Loop back is set on NT1 for line 3.
		OFF	×	Loop back is canceled on NT1 for line 3.
MODE		0-2		Not used
		3	×	Fixed
		4-F		Not used
SW10	1	ON	×	Fixed
	2	ON	×	D-channel Packet Service Available
		OFF		D-channel Packet Service Not Available
	3	ON	×	Fixed
	4	ON	×	Fixed

**PA-4ILCH**  
ISDN Line Circuit

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
SW11	1	ON	×	Fixed	
	2	ON	×	Fixed	
	3	ON	×	Fixed	
	4	ON	×	Fixed	
	5	ON	×	Fixed	
	6	ON	×	Fixed	
	7	ON	×	Fixed	
	8	ON		Sealing Current is not supplied.	
		OFF	×	Sealing Current is supplied.	
SW12	1 ~ 3	<b>PAD Control (TSW Side PAD Value) Note</b>			
		<b>SW1</b>	<b>SW2</b>	<b>SW3</b>	<b>TSW Side PAD Value</b>
		OFF	OFF	OFF	Not used
		ON	OFF	OFF	PAD2=0dB, PAD1=-5dB
		OFF	ON	OFF	PAD2=0dB, PAD1=-3dB
		ON	ON	OFF	PAD2=0dB, PAD1=0dB
		OFF	OFF	ON	Not used
		ON	OFF	ON	PAD2=0dB, PAD1=5dB (Standard Setting)
		OFF	ON	ON	PAD2=0dB, PAD1=3dB
	ON	ON	ON	PAD2=0dB, PAD1=0dB	
	4	ON	×	Fixed	
	5	ON	×	Fixed	
	6	ON	×	Fixed	
	7	ON	×	Fixed	
8	ON	×	Fixed		

**Note:** PAD control is shown below.



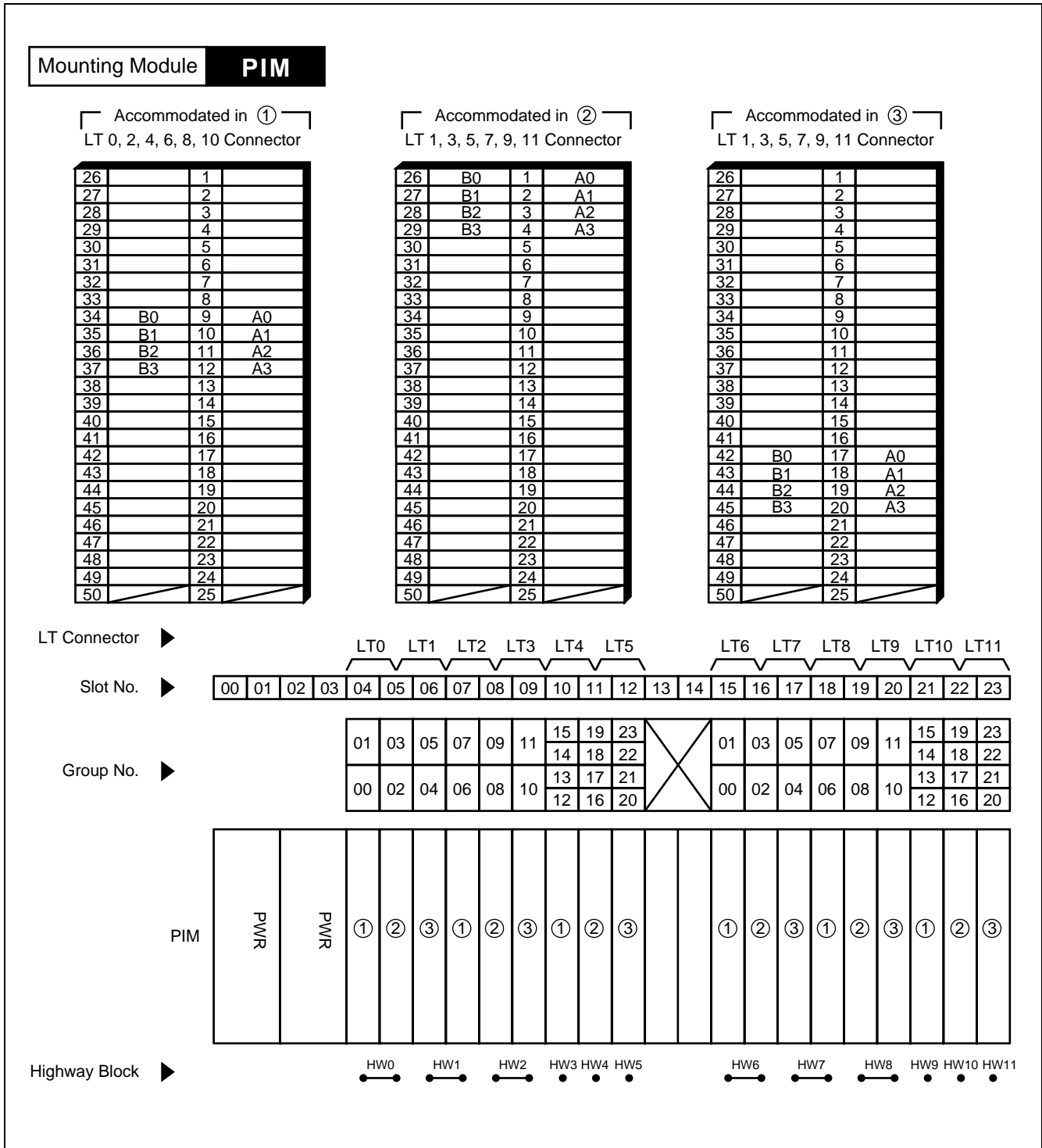
SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW20  Note 1 Note 2	1	ON		Data link mode for Layer 2 of line 0: Point-to-Multipoint (P-mP)
		OFF		Data link mode for Layer 2 of line 0: Point-to-Point (P-P)
	2	ON		Data link mode for Layer 2 of line 1: Point-to-Multipoint (P-mP)
		OFF		Data link mode for Layer 2 of line 1: Point-to-Point (P-P)
	3	ON		Data link mode for Layer 2 of line 2: Point-to-Multipoint (P-mP)
		OFF		Data link mode for Layer 2 of line 2: Point-to-Point (P-P)
	4	ON		Data link mode for Layer 2 of line 3: Point-to-Multipoint (P-mP)
		OFF		Data link mode for Layer 2 of line 3: Point-to-Point (P-P)
SW21  Note 2	1	ON		On line 0, Layer 1 of S Reference Point is activated on a call basis.
		OFF		On line 0, Layer 1 of S Reference Point is always activated.
	2	ON		On line 1, Layer 1 of S Reference Point is activated on a call basis.
		OFF		On line 1, Layer 1 of S Reference Point is always activated.
	3	ON		On line 2, Layer 1 of S Reference Point is activated on a call basis.
		OFF		On line 2, Layer 1 of S Reference Point is always activated.
	4	ON		On line 3, Layer 1 of S Reference Point is activated on a call basis.
		OFF		On line 3, Layer 1 of S Reference Point is always activated.
	5	ON	×	Fixed
	6	ON	×	Fixed
	7	ON	×	Fixed
	8	ON	×	Fixed

**Note 1:** *The terms Point-to-Point (P-P) and Point-to-Multipoint (P-mP) used in this table have no relation to the actual wiring configuration.*

**Note 2:** *This switch must be set according to the specification of the ISDN terminal.*

6. External Interface

Accommodation of the LT connector leads of this circuit card and connecting route diagram are shown in Figure 3-152.



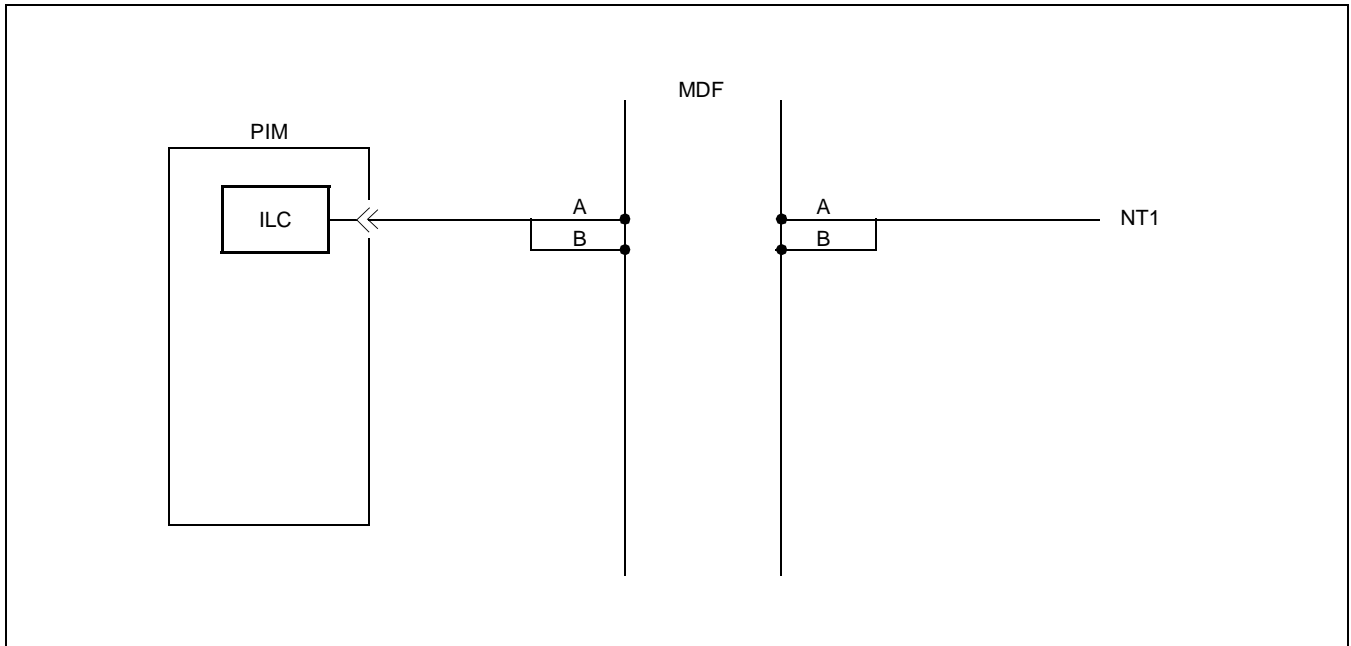
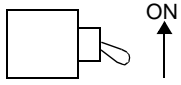
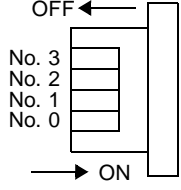
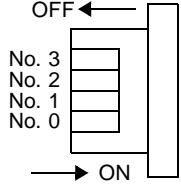




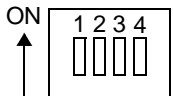
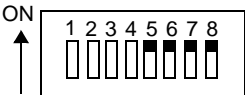


Figure 3-153 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		MB		UP: Circuit card make busy DOWN: Circuit card make busy cancel
		MBR		
		LPB		
		MODE		
		SW10		
		SW11		
		SW12		
		SW20		
		SW21		

## PA-8ILCE-A ISDN Terminal Line Circuit

### 1. General Function

The PA-8ILCE-A (ILC) circuit card provides an interface between the system and a maximum of eight ISDN BRI (Basic Rate Interface) terminals, allowing the system to use eight ISDN BRIs, which are made up of two B channels at 64 kbps and one D channel at 16 kbps ( $2B+D \times 8$ ), on the same bus. In addition, this card supports D channel packet function. For this feature, however, available channels are seven channels, ranging from No. 0 to No. 6.

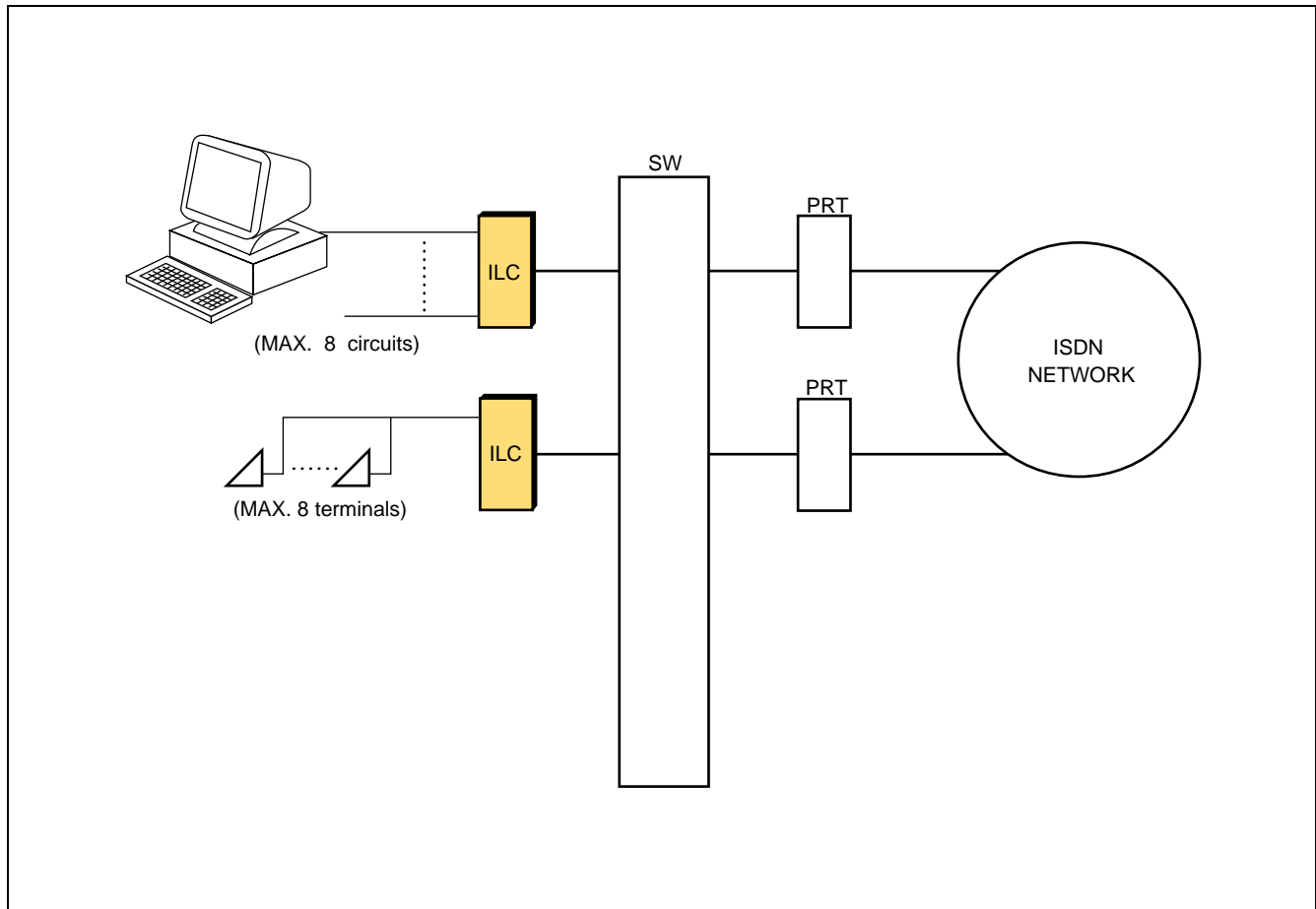


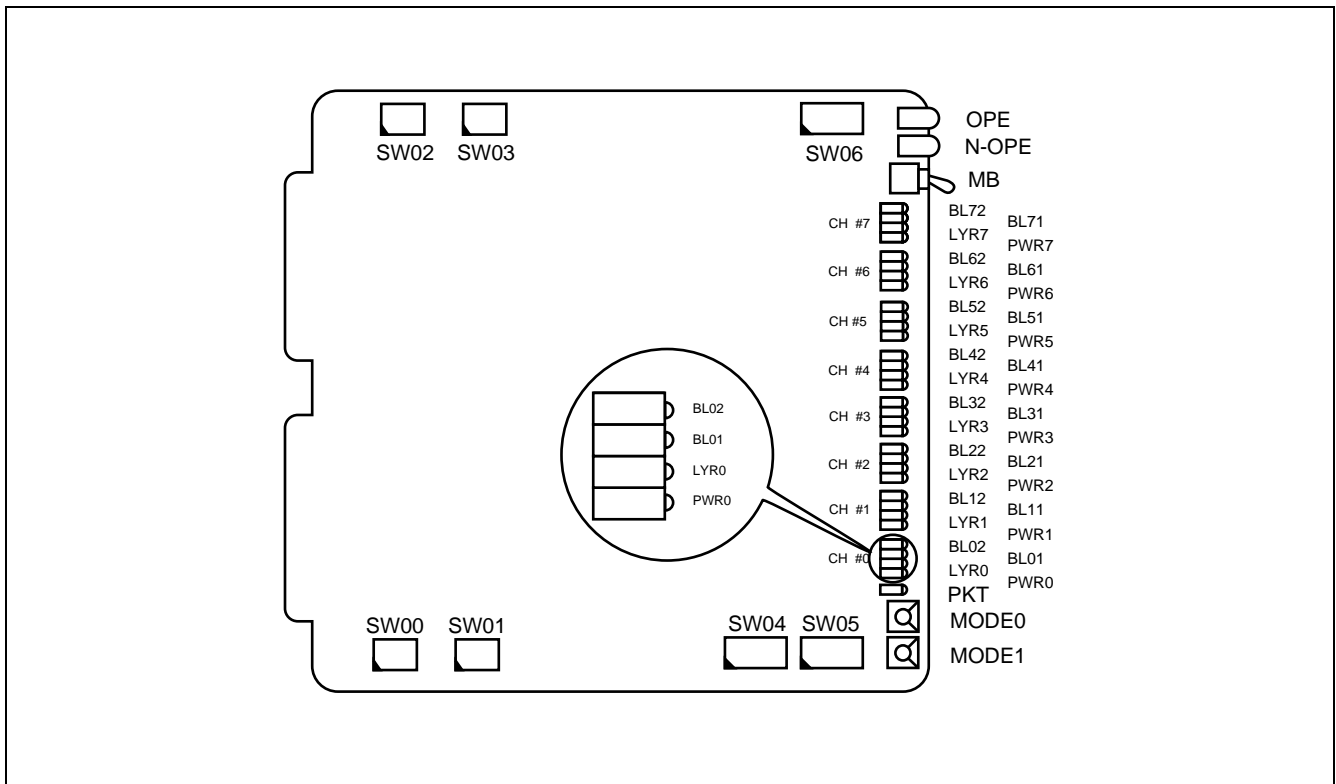
Figure 3-154 Location of PA-8ILCE-A (ILC) within the System





3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on the circuit card is shown in [Figure 3-155](#).



**Figure 3-155 Face Layout of PA-8ILCE-A (ILC)**

**PA-8ILCE-A**  
ISDN Terminal Line Circuit

4. Lamp Indications

The contents of lamp indications on the circuit card are shown in the table below.

LAMP NAME	COLOR	DESCRIPTION
OPE	Green	Remains lit while the circuit card is operating.
N-OPE	Red	Remains lit while the circuit card is in make-busy state.
BL n1 (n=0-7)	Green	Lights green when B1 channel is being accessed and in operation.
	Flash (60IPM)	The corresponding channel is in make-busy state.
	OFF	The corresponding channel is idle.
BL n2 (n=0-7)	Green	Lights green when B2 channel is being accessed and in operation.
	Flash (60IPM)	The corresponding channel is in make-busy state.
	OFF	The corresponding channel is idle.
LYR n (n=0-7)	Green	Remains lit while Layer2 of the corresponding channel is active. <b>Note</b>
	Flash (120IPM)	Flashes while Layer1 synchronization of the corresponding channel is established.
	OFF	Layer1 and/or Layer2 have not been established.
PWR n (n=0-7)	Red	Lights red when overvoltage protection function for the corresponding circuit is activated; the corresponding line is short-circuited.
PKT	Green	Lights green when D channel Packet is in operation.
	OFF	Remains off when D channel Packet is not in operation.

**Note:** *Depending on the type of the connected ISDN terminal, whose Layer2 is not always active, this lamp may flash when the terminal is idle and lights green at the time of call set-up.*

5. Switch Settings

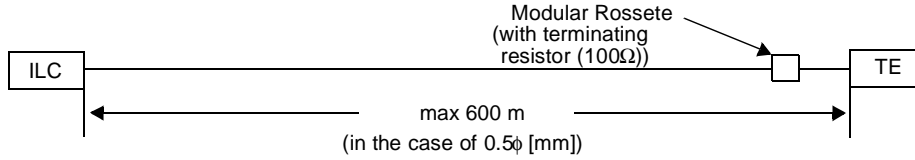
Standard settings of switches on the circuit card are shown in the table below.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		ON		Make busy of the circuit card.
		OFF	×	Normal setting
SW00	1	ON	×	Fixed to all ON.
	2	ON	×	
	3	ON	×	
	4	ON	×	
SW01	1	ON	×	Fixed to all ON.
	2	ON	×	
	3	ON	×	
	4	ON	×	
SW02	1	ON	×	Fixed to all ON.
	2	ON	×	
	3	ON	×	
	4	ON	×	
SW03	1	ON	×	Fixed to all ON.
	2	ON	×	
	3	ON	×	
	4	ON	×	
SW04 <b>Note</b>	1	ON		Circuit #0: Wiring other than Short Passive Connection
		OFF		Circuit #0: Short Passive Connection
	2	ON		Circuit #1: Wiring other than Short Passive Connection
		OFF		Circuit #1: Short Passive Connection
	3	ON		Circuit #2: Wiring other than Short Passive Connection
		OFF		Circuit #2: Short Passive Connection
	4	ON		Circuit #3: Wiring other than Short Passive Connection
		OFF		Circuit #3: Short Passive Connection
	5	ON		Circuit #4: Wiring other than Short Passive Connection
		OFF		Circuit #4: Short Passive Connection
	6	ON		Circuit #5: Wiring other than Short Passive Connection
		OFF		Circuit #5: Short Passive Connection
	7	ON		Circuit #6: Wiring other than Short Passive Connection
		OFF		Circuit #6: Short Passive Connection
	8	ON		Circuit #7: Wiring other than Short Passive Connection
		OFF		Circuit #7: Short Passive Connection

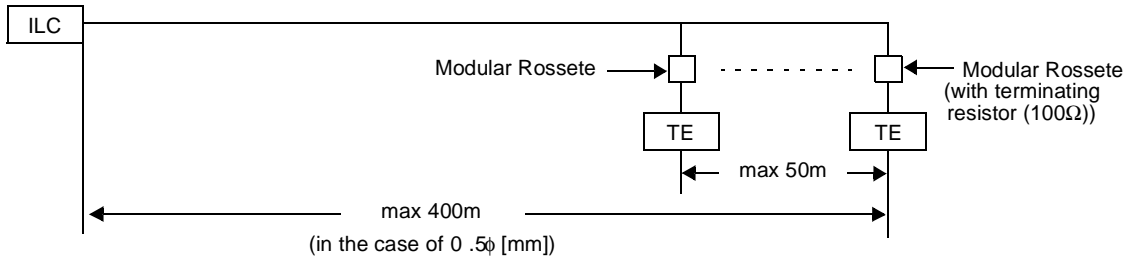
**Note:** Set the SW04 to determine the 4-wire bus mode referring to the following.

**ON**

- **Point-to-Point mode:** In this mode one Terminal Equipment (TE) can be connected at the end of up to a maximum of 600 m of cable as shown below.

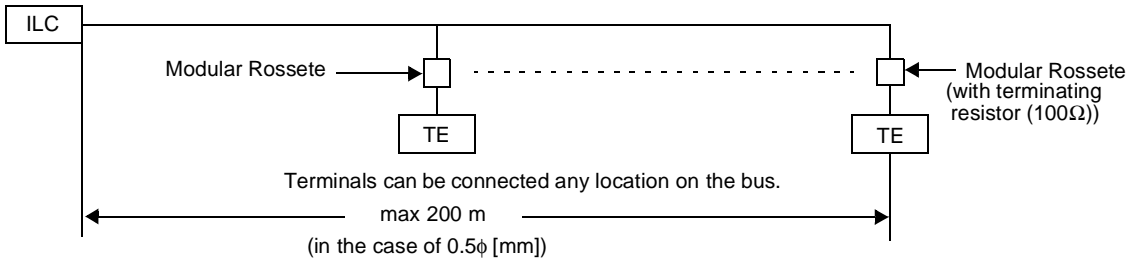


- **Extended Passive Bus mode:** This mode is a point-to-multipoint mode, in which up to eight terminals can be connected. Note that the terminals must be connected within 50 m from the end of the bus cables as shown below.



**OFF**

- **Short Passive Bus mode:** This mode is also a point-to-multipoint mode, in which a maximum of eight terminals can be connected anywhere on the bus. Note that the bus length is limited to 200 m in this case.



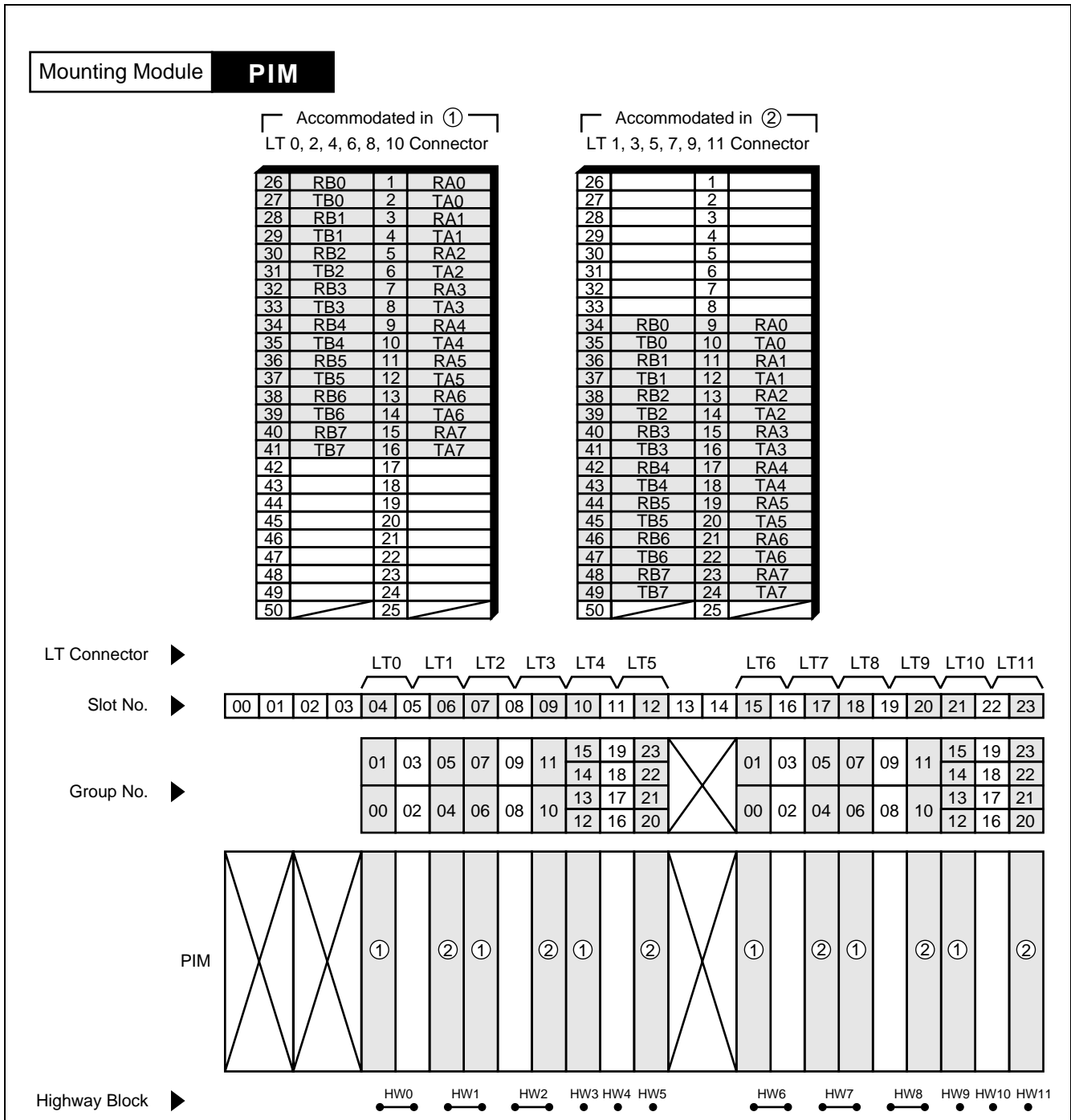
SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																				
SW05	1	ON		PAD Level Adjustment: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>SW1</th> <th>SW2</th> <th>RECEIVE (dB)</th> <th>SEND (dB)</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>0</td> <td>0</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>0</td> <td>2</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>0</td> <td>5</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>0</td> <td>8</td> </tr> </tbody> </table>	SW1	SW2	RECEIVE (dB)	SEND (dB)	OFF	OFF	0	0	OFF	ON	0	2	ON	OFF	0	5	ON	ON	0	8
		SW1	SW2		RECEIVE (dB)	SEND (dB)																		
	OFF	OFF	0		0																			
	OFF	ON	0		2																			
	ON	OFF	0		5																			
	ON	ON	0		8																			
	OFF	×																						
	2	ON																						
		OFF	×																					
	3	OFF	×		Fixed to OFF.																			
4	OFF	×	Fixed to OFF.																					
5	OFF	×	Not used																					
6	OFF	×	Not used																					
7	ON		Packet Access via D channel: In Service																					
	OFF		Packet Access via D channel: Out of Service																					
8	ON	×	Fixed to ON.																					
SW06 <b>Note</b>	1	ON		Bus Mode in Layer2 (circuit #0): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #0): Point-to-Multipoint																				
	2	ON		Bus Mode in Layer2 (circuit #1): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #1): Point-to-Multipoint																				
	3	ON		Bus Mode in Layer2 (circuit #2): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #2): Point-to-Multipoint																				
	4	ON		Bus Mode in Layer2 (circuit #3): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #3): Point-to-Multipoint																				
	5	ON		Bus Mode in Layer2 (circuit #4): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #4): Point-to-Multipoint																				
	6	ON		Bus Mode in Layer2 (circuit #5): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #5): Point-to-Multipoint																				
	7	ON		Bus Mode in Layer2 (circuit #6): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #6): Point-to-Multipoint																				
	8	ON		Bus Mode in Layer2 (circuit #7): Point-to-Point																				
		OFF		Bus Mode in Layer2 (circuit #7): Point-to-Multipoint																				

**Note:** Adjust each key according to the specification of each ISDN terminal.

**PA-8ILCE-A**  
ISDN Terminal Line Circuit

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MODE0	—	0	×	Fixed to 0.
		1		Not used
		⋮		
		F		
MODE1	—	0		Not used
		⋮		
		5		
		6	×	Fixed to 6.
		7		Not used
		⋮		
		F		

6. External Interface



Mounting Module **PIM**

Accommodated in ③

LT 0, 2, 4, 6, 8, 10 Connector				LT 1, 3, 5, 7, 9, 11 Connector			
26		1		26	RB4	1	RA4
27		2		27	TB4	2	TA4
28		3		28	RB5	3	RA5
29		4		29	TB5	4	TA5
30		5		30	RB6	5	RA6
31		6		31	TB6	6	TA6
32		7		32	RB7	7	RA7
33		8		33	TB7	8	TA7
34		9		34		9	
35		10		35		10	
36		11		36		11	
37		12		37		12	
38		13		38		13	
39		14		39		14	
40		15		40		15	
41		16		41		16	
42	RB0	17	RA0	42		17	
43	TB0	18	TA0	43		18	
44	RB1	19	RA1	44		19	
45	TB1	20	TA1	45		20	
46	RB2	21	RA2	46		21	
47	TB2	22	TA2	47		22	
48	RB3	23	RA3	48		23	
49	TB3	24	TA3	49		24	
50		25		50		25	

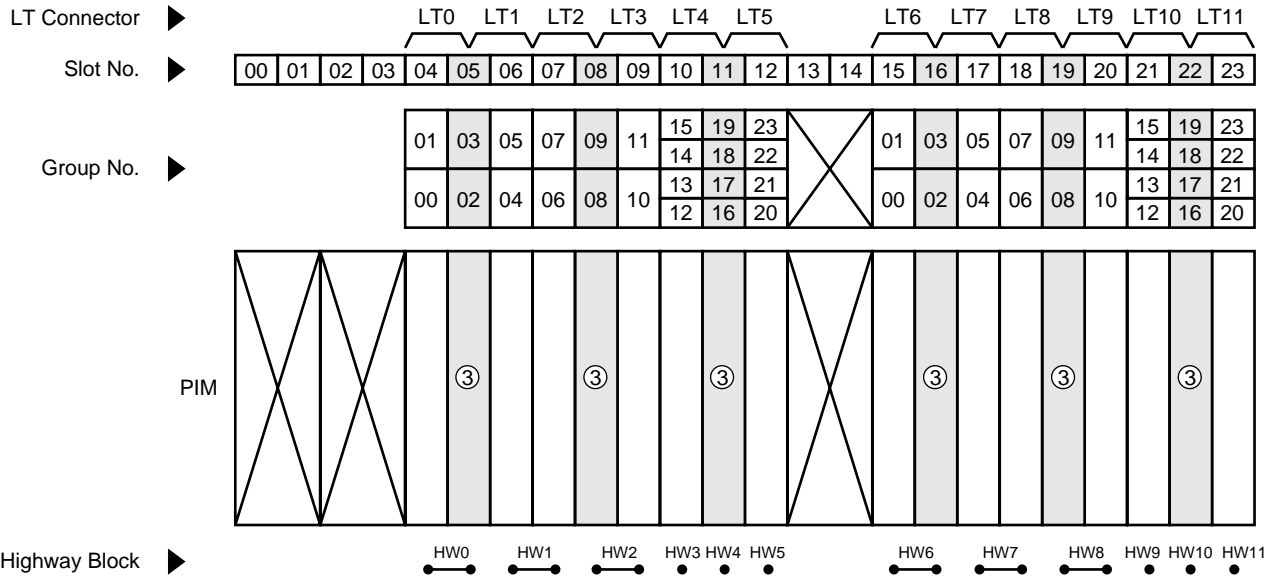


Figure 3-156 LT Connector Lead Accommodation (2/2)



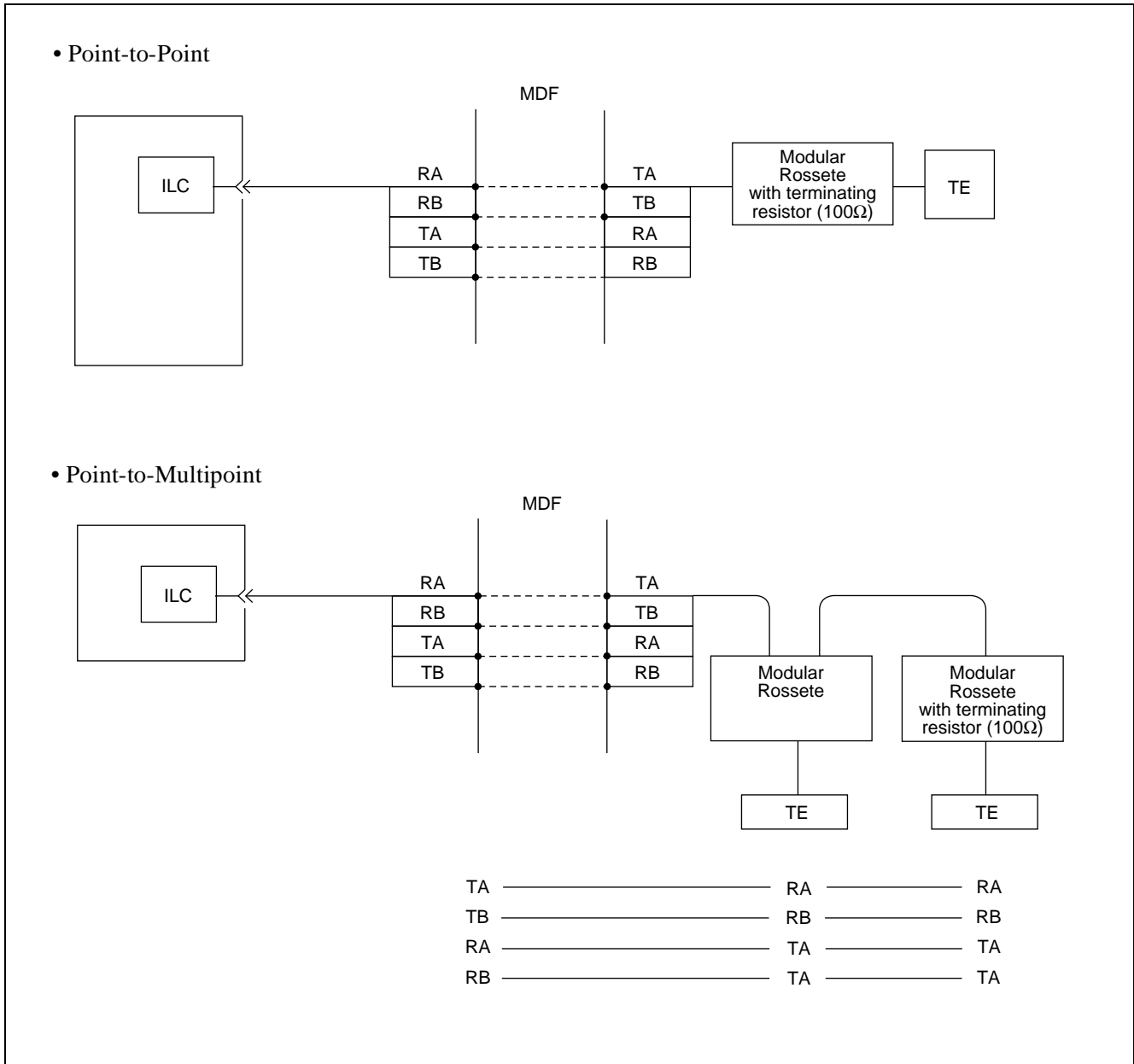
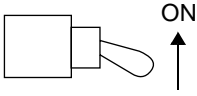
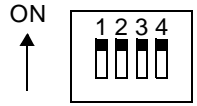



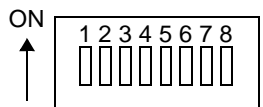
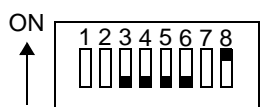
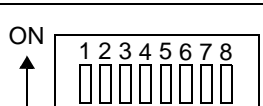
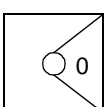
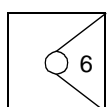


Figure 3-157 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS	
PIM		MB			
		SW00			
		SW01			
		SW02			
		SW03			
		SW04			
		SW05			
		SW06			
		MODE0			
		MODE1			

## PA-4DATA Digital Announcement Trunk

### 1. General Function

The PA-4DATA (DAT) circuit card is used as a Digital Announcement Trunk supporting service features related to announcement function such as Automated Attendant, Delay Announcement Attendant, Announcement Service (for Hotel System). Depending upon the switch setting, this circuit card works in one of the following three modes.

- 16-sec. mode (maximum 4 CHs/card)
- 32-sec. mode (maximum 2 CHs/card)
- 60-sec. mode (maximum 1 CH/card)

A message can be recorded from either a tape recorder or a telephone set (See the Reference). In addition, this circuit card can be used as an external music source.

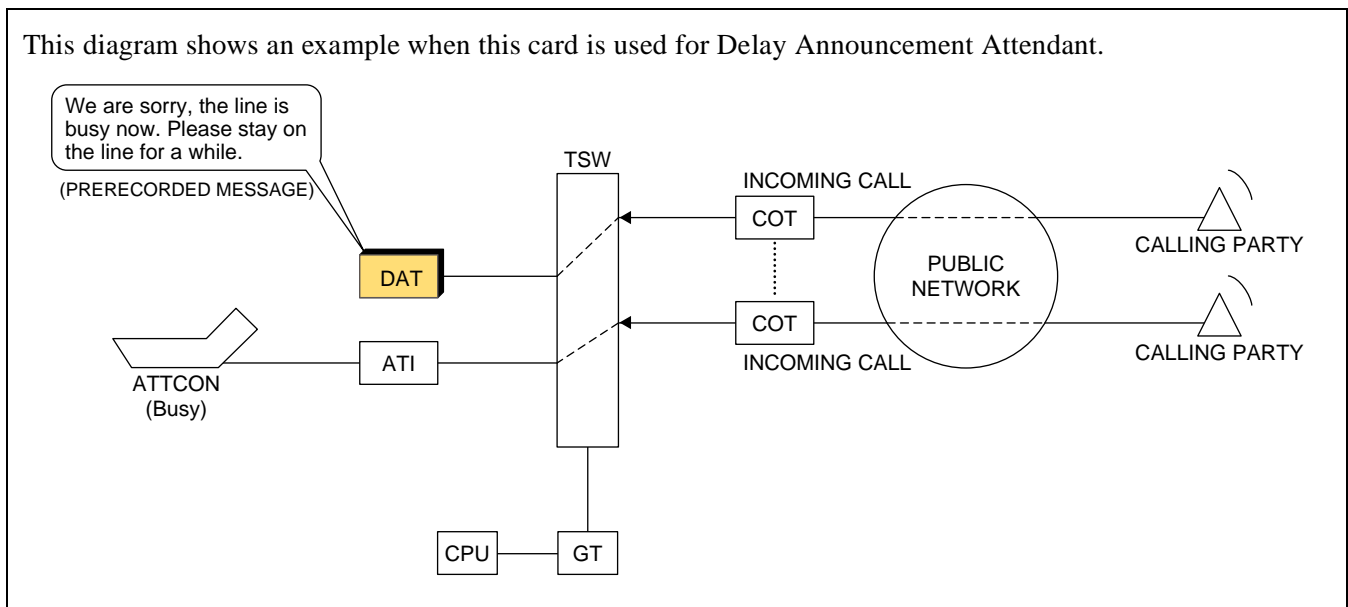


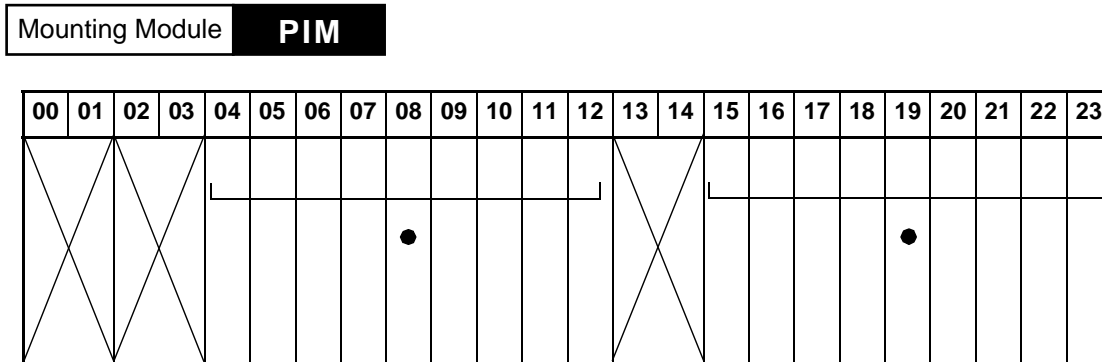
Figure 3-158 Location of PA-4DATA (DAT) within the System

**PA-4DATA**

Digital Announcement Trunk

2. Mounting Location/Condition

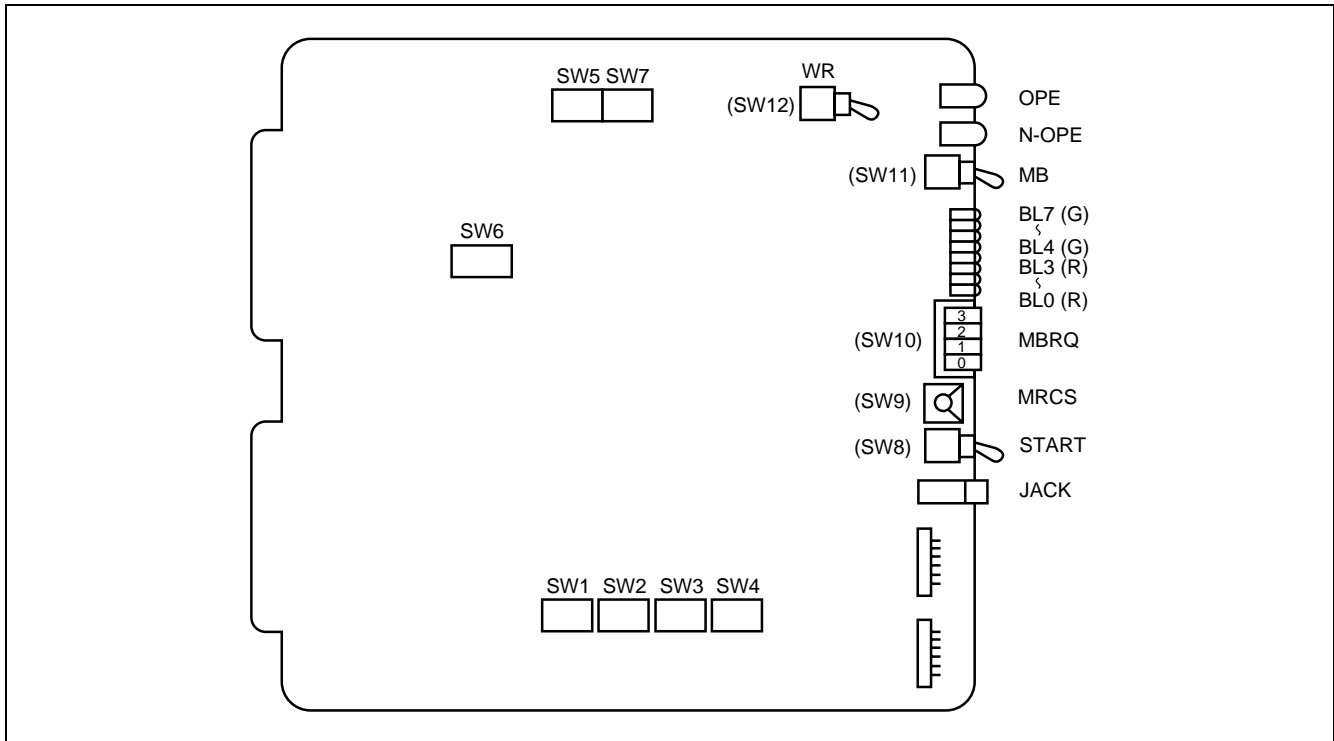
The PA-4DATA (DAT) card can be mounted in any universal slot as shown below.



**Note:** ● Indicates universal slots for line/trunk circuit cards.

### 3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-159](#).



**Figure 3-159 Face Layout of PA-4DATA (DAT)**

### 4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
BL4 ' BL7	Green  Flash	Lights when the corresponding circuit (No 0 through No. 3 circuits) is connected to a recording source.  Flashes while message recording is in progress on the corresponding circuit (No. 0 through No. 3 circuit).
BL0 ' BL3	Red  Flash	Lights when the corresponding circuit (No 0 through No. 3 circuits) is busy.  Flashes when the corresponding circuit (No. 0 though No. 3 circuits) is in make-busy state or has not been assigned in the system.

**PA-4DATA**  
Digital Announcement Trunk

5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																									
MB (SW11)		UP		Circuit card make busy																									
		DOWN	×	Circuit card make busy cancel																									
SW1 (for No. 0 Circuit)	1			<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5">SETTING OF TIMER FOR EACH CIRCUIT</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>TIMER (MODE)</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>ON</td> <td>16-sec. mode</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>32-sec. mode</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>60-sec. mode</td> </tr> </tbody> </table> <p><b>Note 1:</b> 16-sec. mode = 4 recording circuits 32-sec. mode = 2 recording circuits 60-sec. mode = 1 recording circuit</p> <p><b>Note 2:</b> For each circuit, SW1 - SW4 must be set in the same way (Two different modes cannot be mixed assigned.).</p>	SETTING OF TIMER FOR EACH CIRCUIT					1	2	3	4	TIMER (MODE)	ON	ON	OFF	ON	16-sec. mode	ON	ON	ON	OFF	32-sec. mode	OFF	OFF	OFF	OFF	60-sec. mode
SETTING OF TIMER FOR EACH CIRCUIT																													
1	2	3	4		TIMER (MODE)																								
ON	ON	OFF	ON		16-sec. mode																								
ON	ON	ON	OFF	32-sec. mode																									
OFF	OFF	OFF	OFF	60-sec. mode																									
SW2 (for No. 1 Circuit)	2																												
SW3 (for No. 2 Circuit)	3																												
SW4 (for No. 3 Circuit)	4																												
SW5	1			<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3">SETTING OF ANNOUNCEMENT RECORDING/PLAYBACK TIME</th> </tr> <tr> <th>SW5-1</th> <th>SW5-2</th> <th>RECORDING/PLAYBACK TIME</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>16-sec. Recording/Playback</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>32-sec. Recording/Playback</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>60-sec. Recording/Playback</td> </tr> </tbody> </table> <p><b>Note 3:</b> Set the Recording/Playback Timer in the same way as set by SW1-SW4.</p>	SETTING OF ANNOUNCEMENT RECORDING/PLAYBACK TIME			SW5-1	SW5-2	RECORDING/PLAYBACK TIME	OFF	ON	16-sec. Recording/Playback	ON	OFF	32-sec. Recording/Playback	OFF	OFF	60-sec. Recording/Playback										
		SETTING OF ANNOUNCEMENT RECORDING/PLAYBACK TIME																											
	SW5-1	SW5-2	RECORDING/PLAYBACK TIME																										
	OFF	ON	16-sec. Recording/Playback																										
	ON	OFF	32-sec. Recording/Playback																										
	OFF	OFF	60-sec. Recording/Playback																										
2																													
3	ON	×	Compression Law: $\mu$ -law																										
	OFF		Compression Law: A-law																										
4	ON		When using as an external music-on-hold source																										
	OFF		When using as announcement equipment only																										

**Note 4:** Valid in the case of recording or playback from a telephone set.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW6	1	ON		Single playback by No. 0 Circuit <b>Note 5</b>
		OFF		Multiple playback by No. 0 Circuit
	2	ON		Single playback by No. 1 Circuit <b>Note 5</b>
		OFF		Multiple playback by No. 1 Circuit
	3	ON		Single playback by No. 2 Circuit <b>Note 5</b>
		OFF		Multiple playback by No. 2 Circuit
	4	ON		Single playback by No. 3 Circuit <b>Note 5</b>
		OFF		Multiple playback by No. 3 Circuit
	5	OFF	×	Fixed
	6	OFF	×	Fixed
	7	OFF	×	Not used
	8	ON		Recording from a telephone set
OFF		×	Normal setting	
<b>Note 5:</b> For Automated Attendant and Delay Announcement-Attendant, set single playback (ON).				
SW7	1	OFF	×	Fixed
	2	OFF	×	Fixed
	3	OFF	×	Not used
	4	OFF	×	Not used
START (SW8)		UP		Setting for recording start from a tape recorder or for playback start.
		DOWN	×	Normal setting

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MRCS (SW9) <b>Note 6</b>		E		Set to E while the circuit card is using as announcement equipment only.
		0		Designation of No. 0 Circuit. The timer is 16-sec. mode.
		1		Designation of No. 1 Circuit. The timer is 16-sec. mode.
		2		Designation of No. 2 Circuit. The timer is 16-sec. mode.
		3		Designation of No. 3 Circuit. The timer is 16-sec. mode.
		4		Designation of No. 0 and No. 1 Circuit. The timer is 32-sec. mode.
		5		Designation of No. 2 and No. 3 Circuit. The timer is 32-sec. mode.
		6		Designation of All Circuits. The timer is 60-sec. mode.
		F		Recording from a telephone set.
MBRQ (SW10)	0	ON		No. 0 Circuit make busy request No. 0 Circuit is designated during a recording.
		OFF	×	No. 0 Circuit make busy request cancel
	1	ON		No. 1 Circuit make busy request No. 1 Circuit is designated during a recording.
		OFF	×	No. 1 Circuit make busy request cancel
	2	ON		No. 2 Circuit make busy request No. 2 Circuit is designated during a recording.
		OFF	×	No. 2 Circuit make busy request cancel
3	ON		No. 3 Circuit make busy request No. 3 Circuit is designated during a recording.	
	OFF	×	No. 3 Circuit make busy request cancel	
WR (SW12)		UP		Recording from a tape recorder (WRITE mode)
		DOWN	×	Normal setting

**Note 6:** When this circuit card is using an external music-on-hold source, set 0, 4 or 6 by timer mode.





**PA-4DATA**  
Digital Announcement Trunk

[Reference]

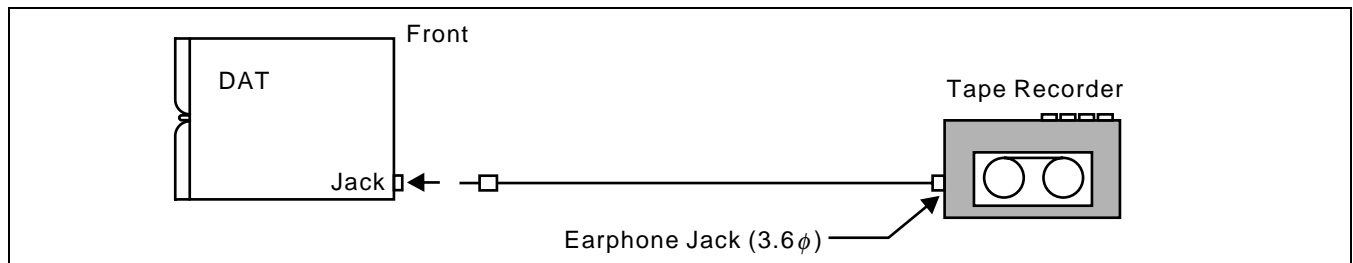
How to Record a Message

- Prior to your recording, set switches on the DAT card according to the following example.

**Table 3-12 Switch Settings on DAT (Example 60 sec. mode)**

SWITCH	SETTING	DESCRIPTION
SW1 ~ SW4		Timer Value for Channel 0-3: 60 sec.
SW5		Circuit Card Timer: 60 sec. A-law/ $\mu$ -law: $\mu$ -law External Music Source/Announcement Equipment: Announcement Equipment
SW6		Single/Repeated Playback: Repeated Playback
MRC5		Channel Designation: 60 sec. mode

- Connect a tape recorder to the DAT card with a cable.



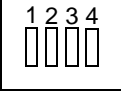
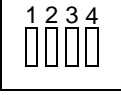
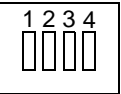
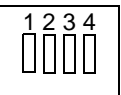



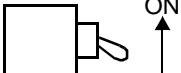

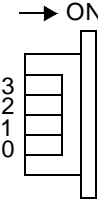
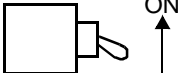
- Turn On the MBRQ key to make busy a channel to be recorded.  
(To record a message in the 60 sec. mode, all circuits must be placed into MB state.)
- Turn the WR key upwards.  
(The corresponding BL lamp lights green indicating the tape recorder is connected to the circuit.)
- Turn the START key upwards.  
(The corresponding BL lamp starts flashing.)

- Start the tape recorder and record your message in the designated channel.  
- recording -
- The corresponding BL lamp (BL0 ~ BL7) lights steadily. (Recording ends.)
- Return the START, WR key to the previous position.

#### How to Play Back the Recorded Message

- Playback from a telephone set
  - Set the related switches on the PA-4DATA (DAT) card.
  - Seize a specific channel by “Individual Trunk Access.”
  - Hear the recorded message.
- Playback from the phone jack on PA-4DATA (DAT) card
  - Connect a earphone to the phone jack on the PA-4DATA (DAT) card.
  - Select your desired channel (0-3) by the MRCS switch.
  - Turn the START key upwards.
  - Hear the recorded message.

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW1	ON ↑ 	
		SW2	ON ↑ 	
		SW3	ON ↑ 	
		SW4	ON ↑ 	
		SW5	ON ↑ 	
		SW6	ON ↑ 	
		SW7	ON ↑ 	
		START (SW8)		
		MRCS (SW9)		
		MBREQ (SW10)	→ ON 	
		WE (SW12)		
		MB	DOWN	Circuit card make busy cancel

## PA-4DATB

### Digital Announcement Trunk

#### 1. General Function

The PA-4DATB (DAT) circuit card is used as a Digital Announcement Trunk supporting service features related to announcement function such as Automated Attendant, Delay Announcement Attendant, Announcement Service (for Hotel System). Depending upon the switch setting, this circuit card works in one of the following three modes.

- 64-sec. mode (maximum 4 CHs/card)
- 128-sec. mode (maximum 2 CHs/card)
- 240-sec. mode (maximum 1 CH/card)

A message can be recorded from either a tape recorder or a telephone set. (See the Reference). In addition, this circuit card can be used as an external music source.

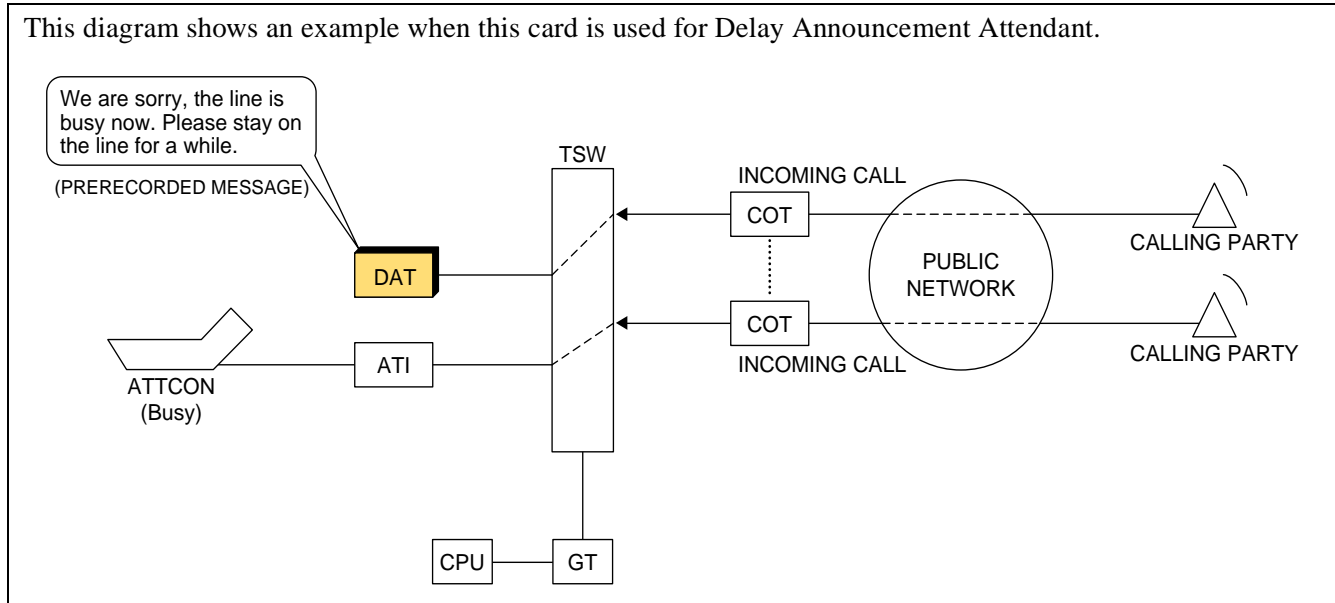
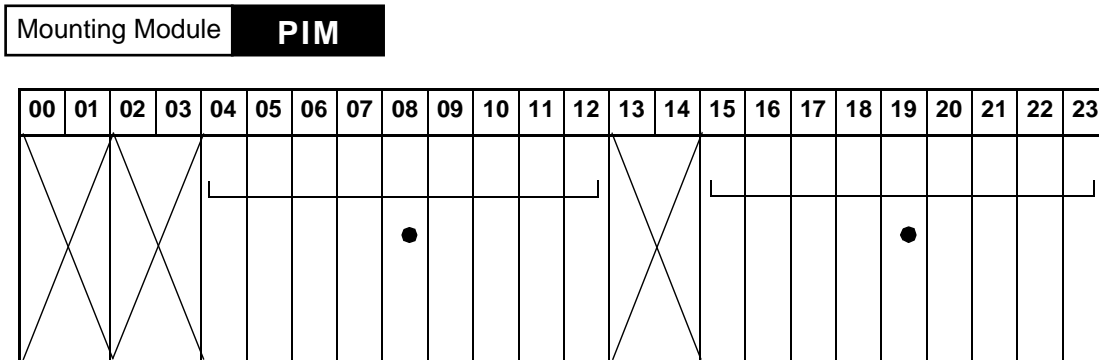


Figure 3-161 Location of PA-4DATB (DAT) within the System

**PA-4DATB**  
 Digital Announcement Trunk

2. Mounting Location/Condition

The PA-4DATB (DAT) card can be mounted in any universal slots as shown below.



**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in Figure 3-162.

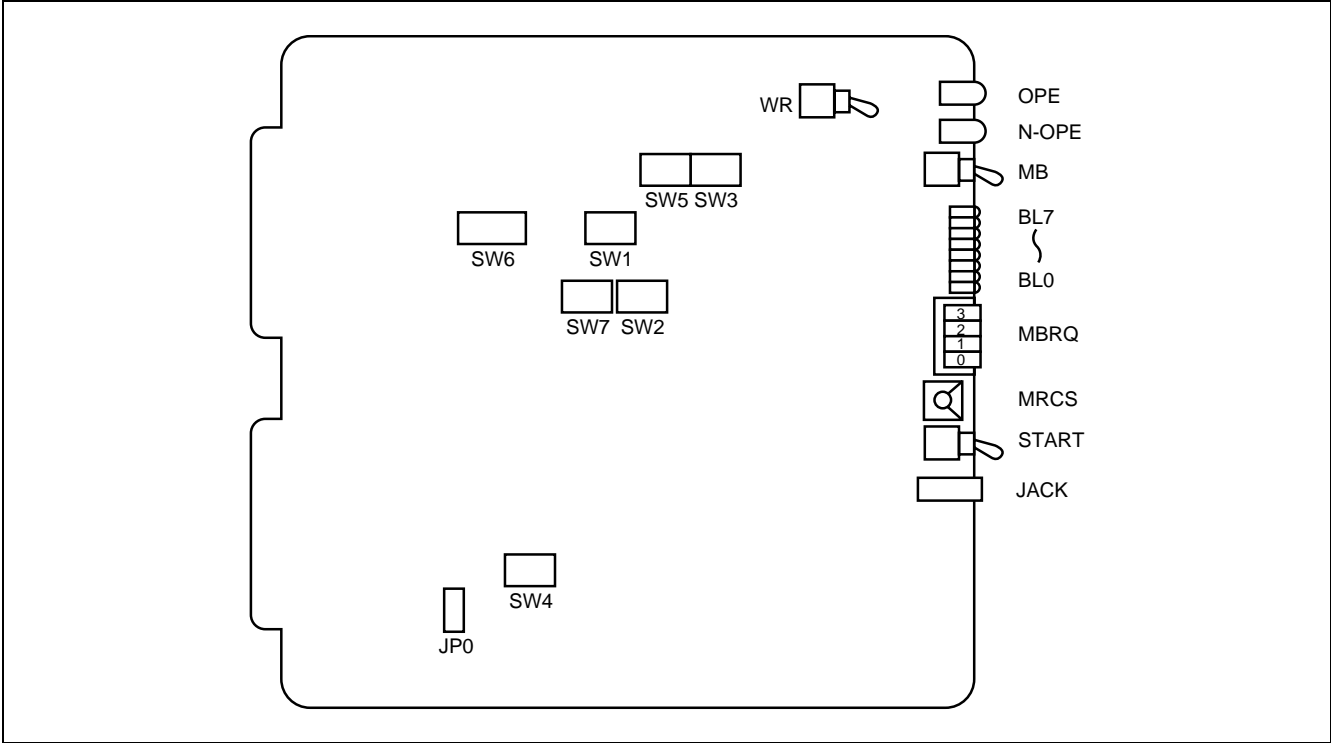


Figure 3-162 Face Layout of PA-4DATB (DAT)

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
BL4 ' BL7	Green  Flash	Lights when the corresponding circuit (No 0 through No. 3 circuits) is connected to a recording source.  Flashes while message recording is in progress on the corresponding circuit (No. 0 through No. 3 circuit)
BL0 ' BL3	Red  Flash	Lights when the corresponding circuit (No 0 through No. 3 circuits) is busy.  Flashes when the corresponding circuit (No. 0 though No. 3 circuits) is in make-busy state or has not been assigned in the system.

**PA-4DATB**  
 Digital Announcement Trunk

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

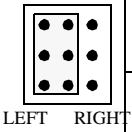
SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																									
MB		UP		Circuit card make busy																									
		DOWN	×	Circuit card make busy cancel																									
MBRQ	1-4	ON		Make busy request on a channel basis (Channel Designation for Recording/Playback)																									
		OFF	×	Make busy request cancel on a channel basis																									
MRCS		0		<p style="text-align: center;"><b>Setting of Recording Mode</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>SWITCH NO.</th> <th>Mode</th> <th>Channel</th> </tr> </thead> <tbody> <tr> <td>0</td> <td rowspan="4" style="text-align: center;">64-sec. mode</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td rowspan="2" style="text-align: center;">128-sec. mode</td> <td>0, 1</td> </tr> <tr> <td>5</td> <td>2, 3</td> </tr> <tr> <td>6</td> <td style="text-align: center;">240-sec. mode</td> <td>0, 1, 2, 3</td> </tr> </tbody> </table>	SWITCH NO.	Mode	Channel	0	64-sec. mode	0	1	1	2	2	3	3	4	128-sec. mode	0, 1	5	2, 3	6	240-sec. mode	0, 1, 2, 3					
		SWITCH NO.	Mode		Channel																								
		0	64-sec. mode		0																								
		1			1																								
		2			2																								
		3			3																								
		4	128-sec. mode		0, 1																								
		5			2, 3																								
6	240-sec. mode	0, 1, 2, 3																											
1																													
2																													
3																													
4																													
5																													
6																													
7																													
SW1 , SW4	Each Switch corresponds to each channel of DAT: channel SW1: channel #0 SW2: channel #1 SW3: channel #2 SW4: channel #3			<p style="text-align: center;"><b>SETTING OF TIMER FOR EACH CIRCUIT</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>TIMER (MODE)</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>ON</td> <td>64-sec. mode</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>128-sec. mode</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>240-sec. mode</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>Not available</td> </tr> </tbody> </table>	1	2	3	4	TIMER (MODE)	ON	ON	OFF	ON	64-sec. mode	ON	ON	ON	OFF	128-sec. mode	OFF	OFF	OFF	OFF	240-sec. mode	ON	ON	ON	ON	Not available
1	2	3	4	TIMER (MODE)																									
ON	ON	OFF	ON	64-sec. mode																									
ON	ON	ON	OFF	128-sec. mode																									
OFF	OFF	OFF	OFF	240-sec. mode																									
ON	ON	ON	ON	Not available																									



SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING			
SW5	1			<b>SETTING OF ANNOUNCEMENT RECORDING/PLAYBACK TIME</b>			
				<b>SW5-1</b>	<b>SW5-2</b>	<b>RECORDING/PLAYBACK TIME</b>	
					OFF	ON	64-sec. Recording/Playback
					ON	OFF	128-sec. Recording/Playback
					OFF	OFF	240-sec. Recording/Playback
	2				<b>Note 1:</b> <i>Setting of Recording/Playback Timer should correspond to that of SW1-SW4.</i>		
	3	ON	×		Compression Law: $\mu$ -law		
		OFF			Compression Law: A-law		
4	ON			To be used as external hold tone source			
	OFF			To be used as announcement equipment			
SW6	1	ON		Single playback of No. 0 channel <b>Note 3</b>			
		OFF		Multiple playback of No. 0 channel <b>Note 2</b>			
	2	ON		Single playback of No. 1 channel <b>Note 3</b>			
		OFF		Multiple playback of No. 1 channel <b>Note 2</b>			
	3	ON		Single playback of No. 2 channel <b>Note 3</b>			
		OFF		Multiple playback of No. 2 channel <b>Note 2</b>			
	4	ON		Single playback of No. 3 channel <b>Note 3</b>			
		OFF		Multiple playback of No.3 channel <b>Note 2</b>			
	5	ON			RAM Test data-clear		
		OFF	×		RAM Test data-store		
	6	OFF	×		Not used		
	7	OFF	×		Not used		
8	OFF	×		Not used			
				<b>Note 2:</b> <i>When this card is used as announcement equipment, SW6-1~ 6-4 should be set OFF.</i>			
				<b>Note 3:</b> <i>For Automated Attendant and Delay Announcement-Attendant, set single playback (ON).</i>			

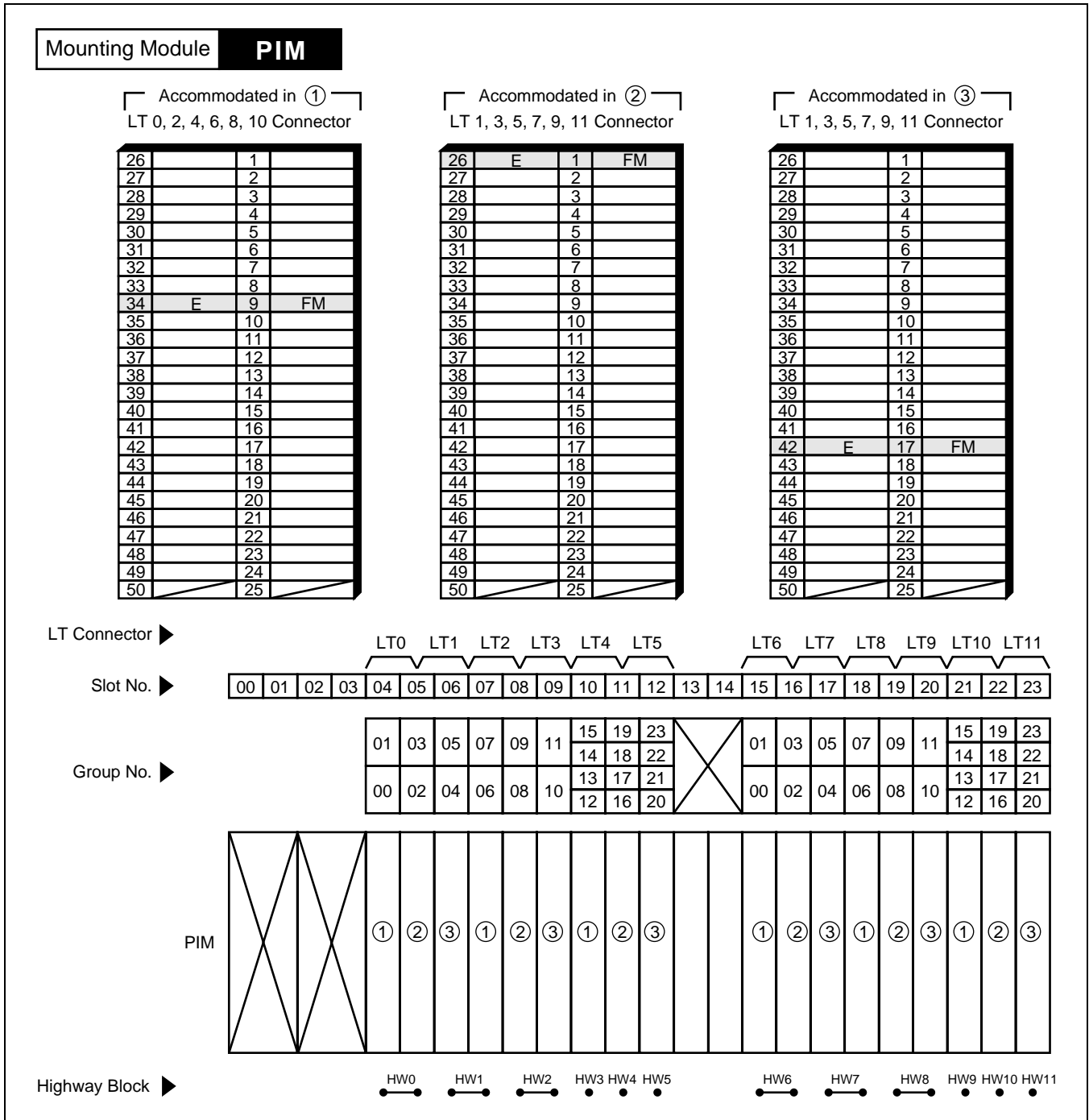
SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW7	1	ON		Activation of RAM Test
		OFF	×	Normal Setting
	2	ON		Port Microprocessor is reset when MBR key is ON.
		OFF	×	Port Microprocessor is not reset when MBR key is ON.
	3	OFF	×	Not used
4	OFF	×	Not used	
WR		UP		For Recording from the phone jack
		DOWN	×	Normal setting
START		UP		When starting recording from the phone jack or playback.
		DOWN	×	Normal setting

Table 3-13 Jumper Setting

SWITCH	SWITCH SHAPE	SETTING	DESCRIPTION
JP0		LEFT	Compression Law: $\mu$ -law
		RIGHT	Compression Law: A-law

6. External Interface

When this card is used as an external music-on-hold source, the following cable connection is required.

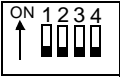
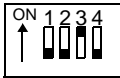
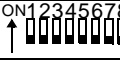




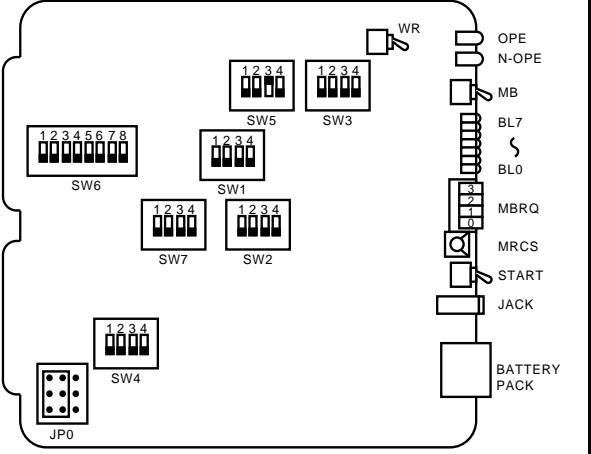
[Reference]

**HOW TO RECORD A MESSAGE**

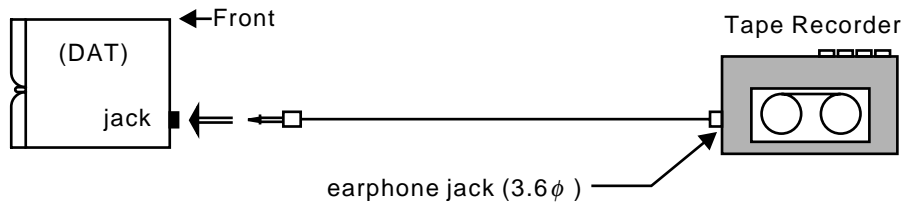
- Prior to your recording, set switches on the DAT card according to the following example.

**Table 3-14 SWITCH SETTINGS ON DAT (Example <240 sec. mode>)**

SWITCH	SETTING	DESCRIPTION
SW1 , SW4		Timer Value for Channel 0-3 240 sec.
SW5		Circuit Card Timer: 240 sec. A-law/μ-law: μ-law External Music Source/Announcement Equipment: Announcement Equipment
SW6		Single/Repeated Playback: Repeated Playback
MRCS		Channel Designation: 240 sec. mode
JP0		A-law/μ-law: μ-law



- Connect a tape recorder to the DAT card with a cable.



- Turn On the MBRQ key to make busy a channel to be recorded.  
(To record a message in the 240 sec mode, all circuits must be placed into MB state.)
- Turn the WR key upwards.  
(The corresponding BL lamp lights green indicating the tape recorder has been connected to the circuit.)
- Turn the START key upwards.  
(The corresponding BL lamp starts flashing.)

- Start the tape recorder and record your message in the designated channel.

- recording -

- The corresponding BL lamp (BL0 - BL7) lights steadily. (Recording ends.)
- Return the START, WR key to the previous position.

#### HOW TO PLAY BACK THE RECORDED MESSAGE

- Playback from a telephone set
  - Set the related switches on the PA-4DATB (DAT) card.
  - Seize a specific channel by “Individual Trunk Access”.
  - Hear the recorded message.
- Playback from the phone jack on PA-4DATB (DAT) card
  - Connect a earphone to the phone jack on the PA-4DATB (DAT) card.
  - Select your desired channel (0-3) by the MRCS switch.
  - Turn the START key upwards.
  - Hear the recorded message.

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
		MB		
		START		
		WR		
		MBRQ		
		MRCS		
		SW1		
		SW2		
		SW3		
		SW4		
		SW5		
		SW6		
		SW7		
		JP0		

# PH-M16 Line Test

## 1. General Function

This circuit card controlled by CPU is used for line test of a subscriber's line. The circuit card supports to send howler tone to external test equipment, besides the circuit card can detect or send various tones, and send PB (DTMF) signal for automatic trunk test.

**Note:** A system cannot send Howler Tone during line test. The number of line available the line test/automatic trunk test at the same time is only one.

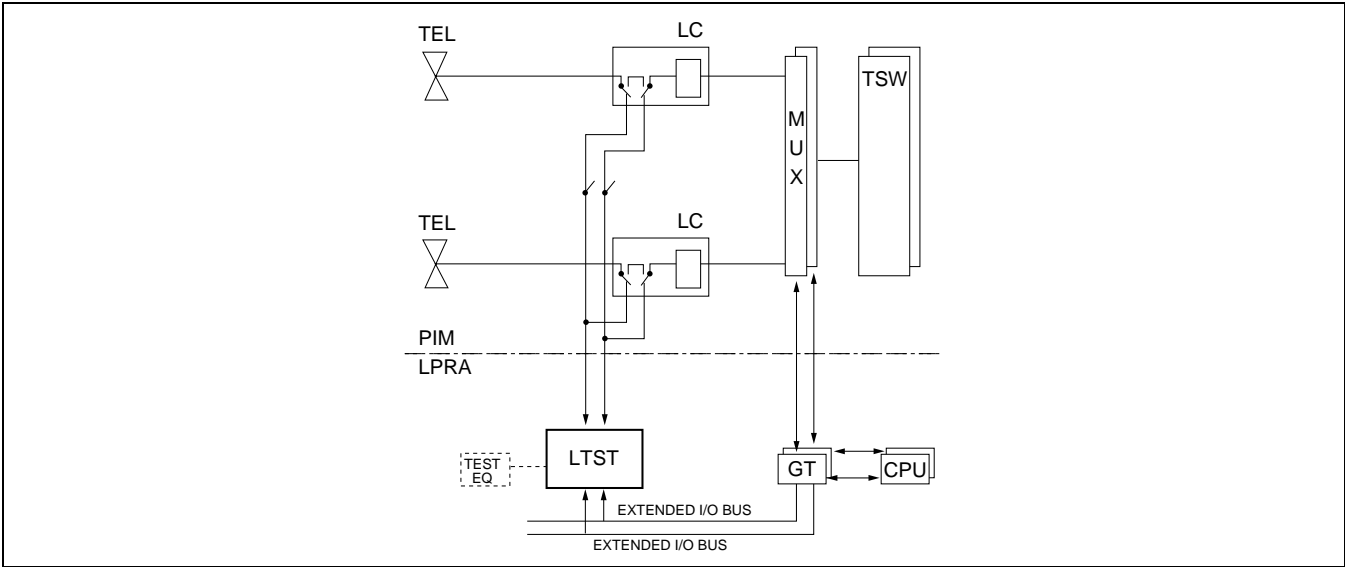


Figure 3-164 Location of PH-M16 (LTST) card within the System (1-IMG System)

**PH-M16**  
Line Test

2. Mounting Location/Condition

The LTST circuit card can be accommodated in the shaded slots (00, 01, 02) as shown below.

**Note:** *This circuit card is used for I-IMG System.*

Mounting Module					LPM
00	01	02	03	04	
PH-M16	PH-M16	PH-M16			



3. Face Layout of Lamps, Switches and Connectors

The face layout of lamps, switches and connectors on this circuit card is shown in Figure 3-165.

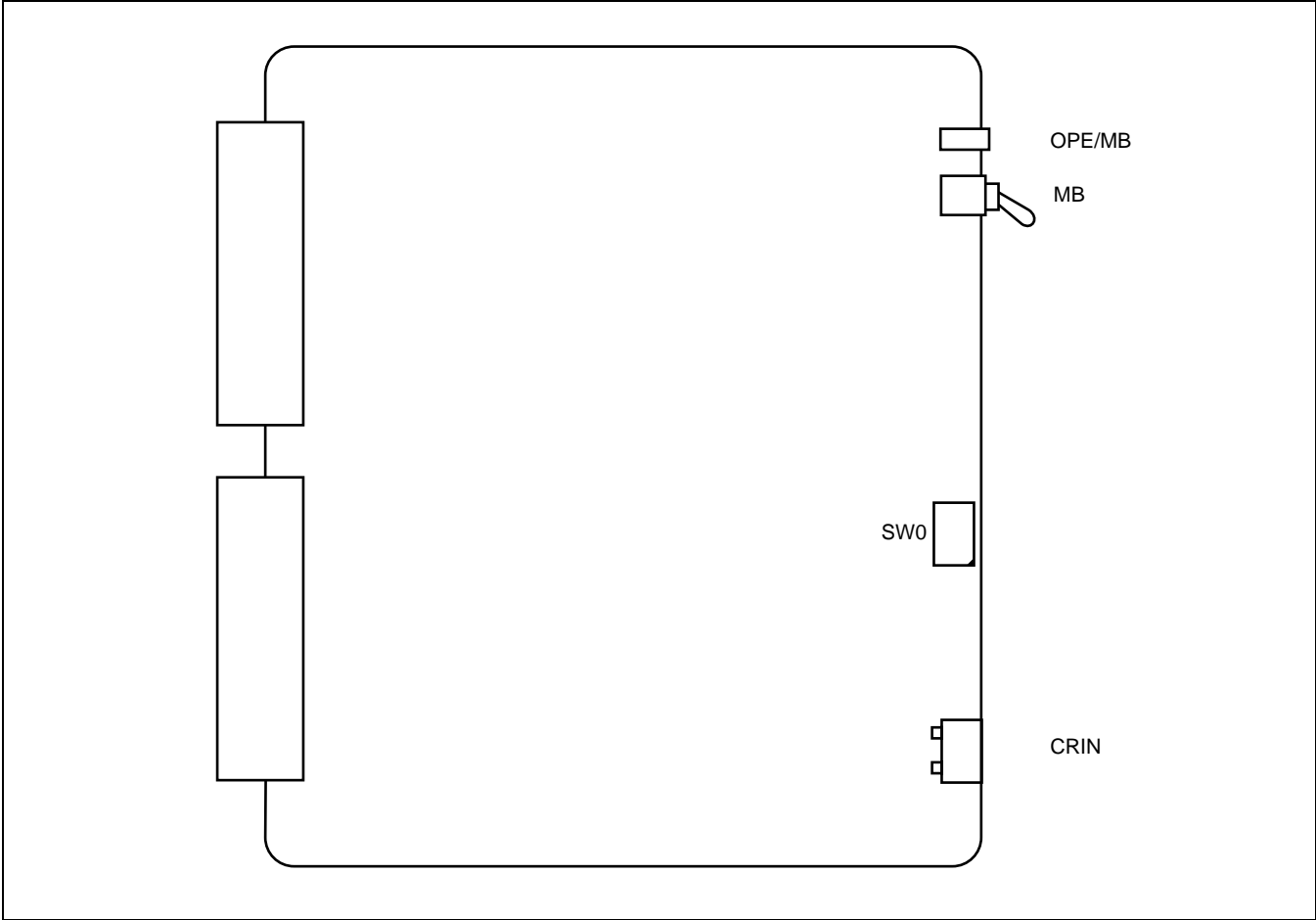


Figure 3-165 Face Layout of PH-M16 (LTST) Card

**Note:** *CRIN is used to connect with CRIN test equipment.*

4. Lamp Indications

The table below shows lamp indications on this circuit card.

LAMP NAME	COLOR	DESCRIPTION
OPE/MB	Green	This circuit card is operating.
	Red	This circuit card is make-busy.

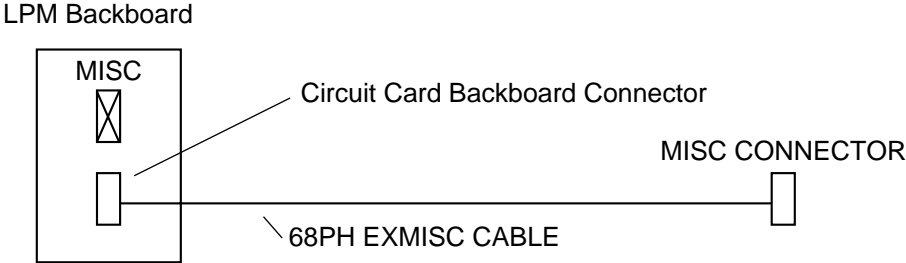
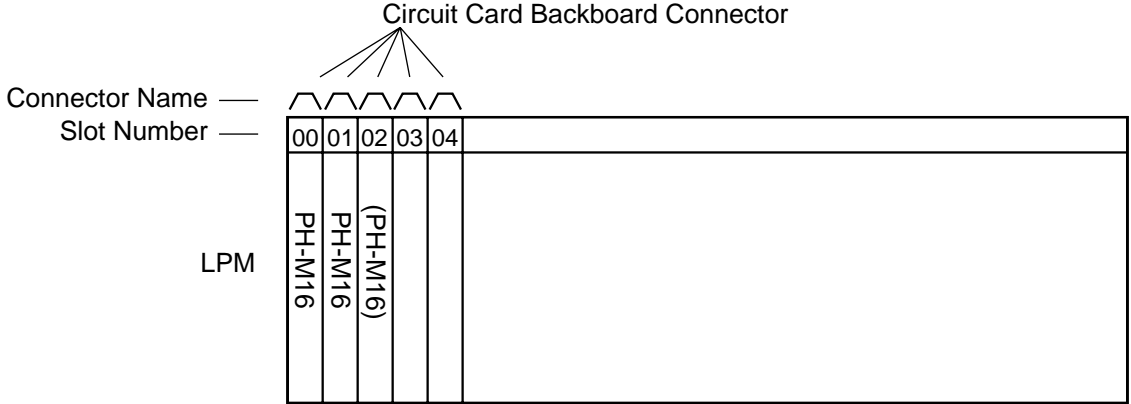
5. Switch Settings

The following is a brief description of the switches on this circuit card. When a switch has a standard setting, it is indicated with “X” in the table below.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																			
MB		UP		Circuit card make-busy.																																			
		DOWN		Circuit card make-busy cancel																																			
SW0	1	ON	×	Setting of a condition of DT detection (440Hz+350Hz)																																			
	2	ON	×	Setting of a condition of RBT detection (440Hz+480Hz)																																			
	3	ON		Time of PB (DTMF) signal sending (67msec.)																																			
		OFF	×	Time of PB (DTMF) signal sending (133msec.)																																			
	4	ON		Setting of M-wire control which is concerned with sending test tone to ODT (Set soft control or E-wire loop back)																																			
		OFF		Setting of M-wire control which is concerned with sending test tone to ODT (Set soft control only)																																			
	5			<table border="1"> <thead> <tr> <th colspan="5">BASIC INTERVAL TIMER</th> </tr> <tr> <th colspan="5">SW0</th> </tr> <tr> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>TIME</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>8μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>16μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> <td>32μ</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>64μ</td> </tr> </tbody> </table>	BASIC INTERVAL TIMER					SW0					5	6	7	8	TIME	ON	OFF	OFF	OFF	8μ	ON	ON	OFF	OFF	16μ	ON	ON	ON	OFF	32μ	ON	ON	ON	ON	64μ
	BASIC INTERVAL TIMER																																						
	SW0																																						
	5	6	7		8	TIME																																	
ON	OFF	OFF	OFF		8μ																																		
ON	ON	OFF	OFF	16μ																																			
ON	ON	ON	OFF	32μ																																			
ON	ON	ON	ON	64μ																																			
6																																							
7																																							
8																																							

6. External Interface

MISC Connector Accommodation



MISC CONNECTOR

26	TE	1	TM
27	BELL0B	2	BELL0A
28	BELL1B	3	BELL1A
29	TELB	4	TELA
30	LCB	5	LCA
31	THOWB	6	THOWA
32	THOWS	7	ONHK
33	SE	8	TCR
34		9	ATM
35	ATB	10	ATA
36	OUTB	11	OUTA
37	TB1	12	TA1
38	BELL	13	
39	EXMJ	14	EXMN
40	MJOB	15	MJOA
41	MNOB	16	MNOA
42	MJ1B	17	MJ1A
43	MN1B	18	MN1A
44	INB	19	INA
45		20	
46		21	
47		22	
48		23	
49		24	
50		25	

Figure 3-166 LT Connector Lead Accommodation

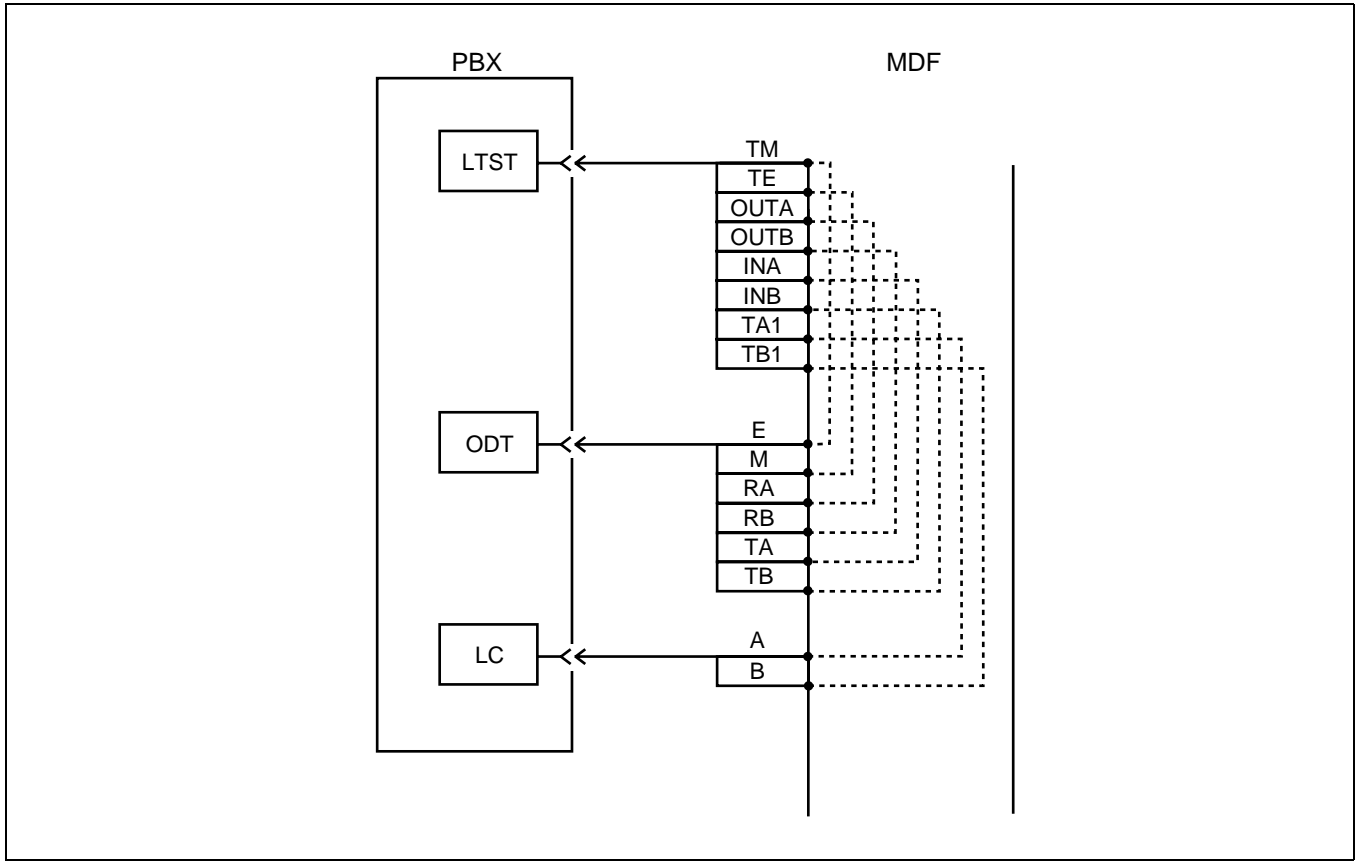
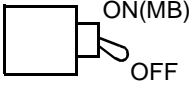
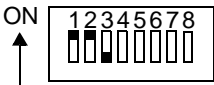


Figure 3-167 Connecting Route Diagram

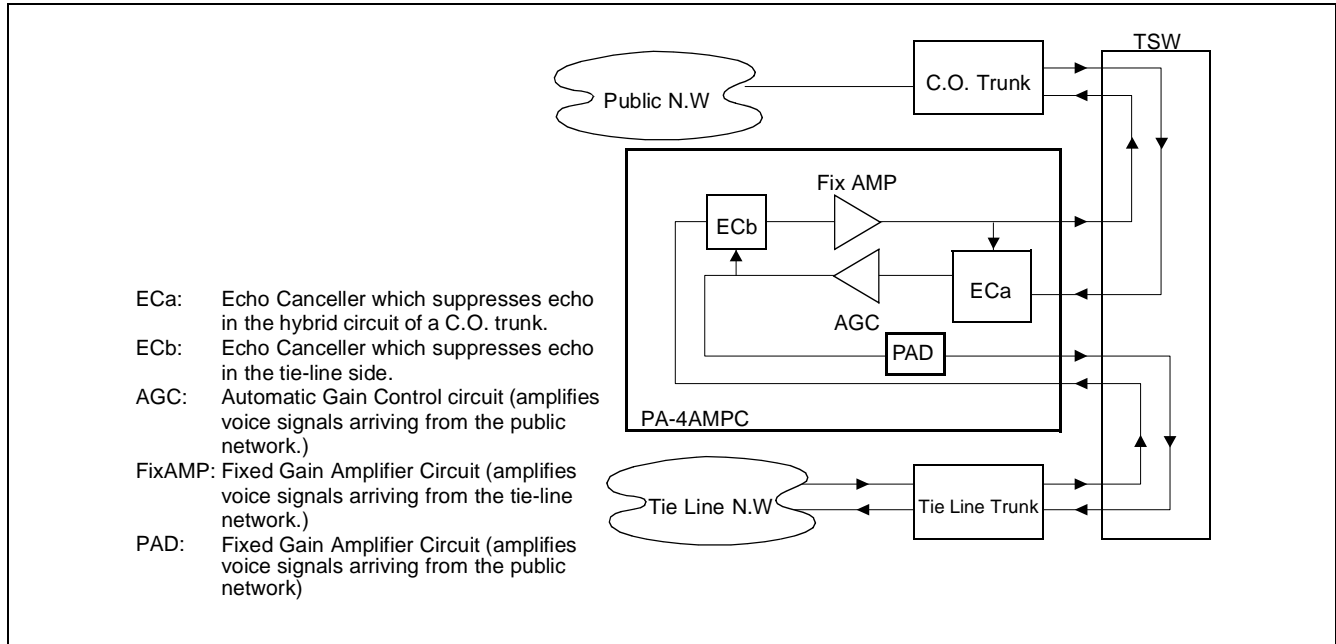
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
MB		
SW0		

**PA-4AMPC**  
**AMP Pool Trunk**

1. General Function

This circuit card is bidirectional amplifier circuitry to be used for such a purpose as level guaranteeing in a public line—tie line connection. The circuit card is provided with four bidirectional amplifier circuits and controls gains to speech loss which may vary with the kind of line involved in the connection. Also, this circuit card is provided with the function to disable the AGC when modem signals such as FAX signals have arrived.



**Figure 3-168 Location of PA-4AMPC (4AMP) within the System**

2. Mounting Location/Condition

The mounting locations of this circuit card are shown below.

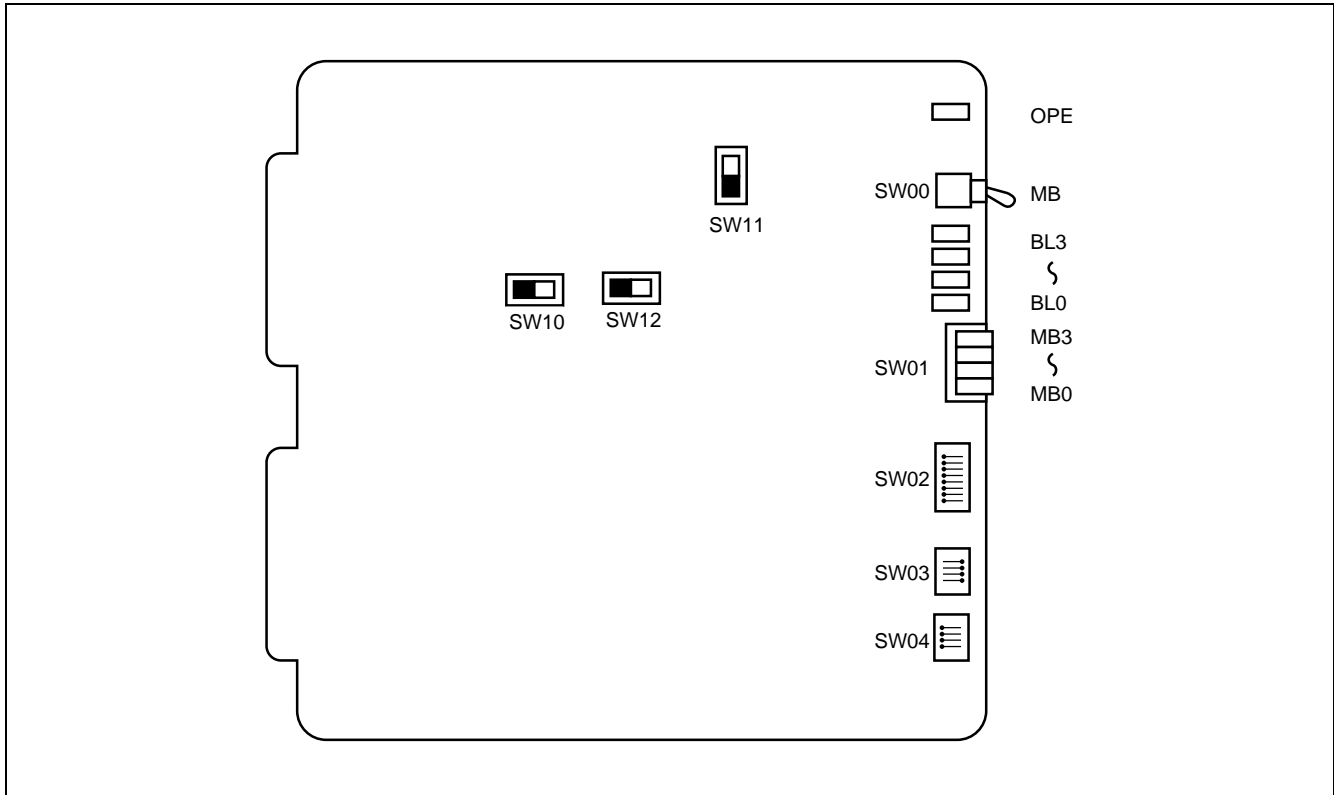
Mounting Module				PIM																			
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

**PA-4AMPC**  
AMP Pool Trunk

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in [Figure 3-169](#).



**Figure 3-169 Face Layout of PA-4AMPC (4AMP)**

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

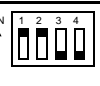
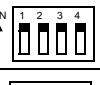


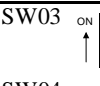
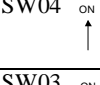
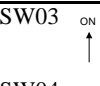
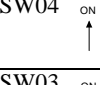
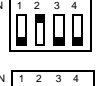
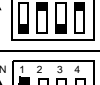


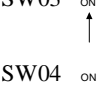

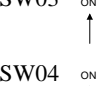

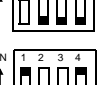
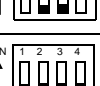


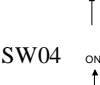
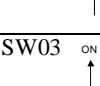
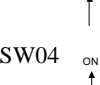
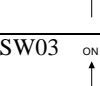
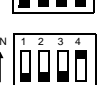
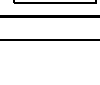


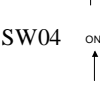
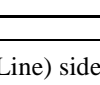
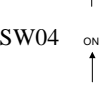
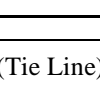
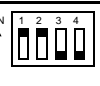
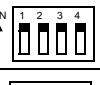


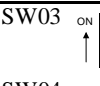
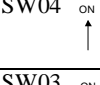
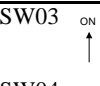
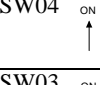
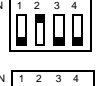
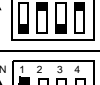


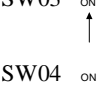

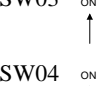

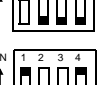
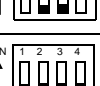


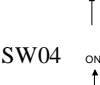
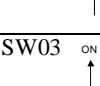
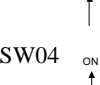
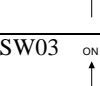
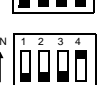
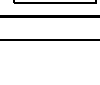


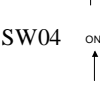
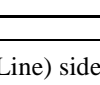
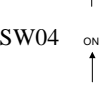
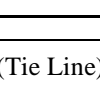
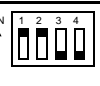
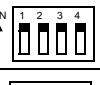


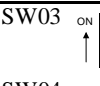
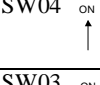
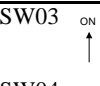
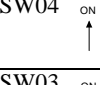
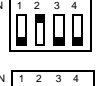
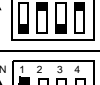


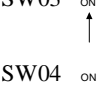

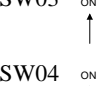

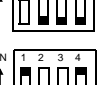
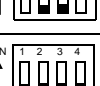


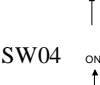
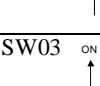
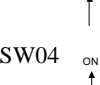
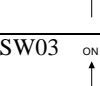
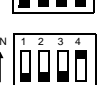
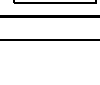


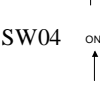
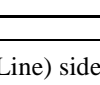
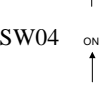
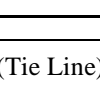
LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
BL0	Green	BL-lamp remains lit while the corresponding circuit is busy.
	Flash	BL-lamp flashes when the corresponding circuit is in make-busy state.
BL3	OFF	BL-lamp remains off when the corresponding circuit is in idle state.



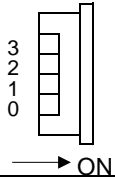
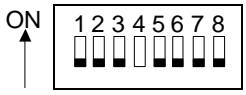
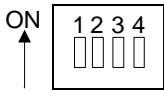
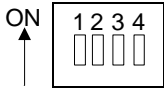
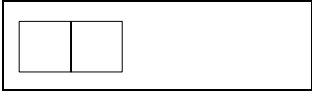
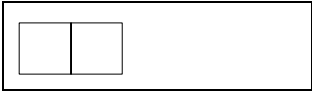

5. Switch Settings

Standard settings of various switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW00 (MB)		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW01	0	ON		The corresponding circuit is in make busy state.
		OFF	×	Make busy of the corresponding circuit is canceled.
	1	ON		The corresponding circuit is in make busy state.
		OFF	×	Make busy of the corresponding circuit is canceled.
	2	ON		The corresponding circuit is in make busy state.
		OFF	×	Make busy of the corresponding circuit is canceled.
	3	ON		The corresponding circuit is in make busy state.
		OFF	×	Make busy of the corresponding circuit is canceled.
SW02	1	OFF	×	Fixed
	2	OFF	×	Fixed
	3	OFF	×	Fixed
	4	ON		Both ECa (Public Line) side and ECb (Tie Line) side operate. (When this switch has been set to ON, set SW10, SW11, and SW12 to right side.)
		OFF	×	Only ECa (Public Line) side operates. (When this switch has been set to OFF, set SW10, SW11, and SW12 to left side.)
	5	OFF	×	Fixed
	6	OFF	×	Fixed
	7	OFF	×	Fixed
	8	OFF	×	Fixed

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																													
SW03 SW04	When this card works as AGC:																																
	<table border="1"> <thead> <tr> <th>SW03-1</th> <th>SW03-2</th> <th>SETTING OF FIXED GAIN OF FIX AMP</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>0 dB (Standard)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>4 dB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>8 dB</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>12 dB</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>SW03-3</th> <th>SW03-4</th> <th>SETTING OF GAIN OF BY AGC</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>0dB [Signals ranging from -35dBm0 to -15dBm0 are adjusted to -15dBm0] (Standard)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>+4dB [Signals ranging from -35dBm0 to -11dBm0 are adjusted to -11dBm0]</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>-4dB [Signals ranging from -35dBm0 to -19dBm0 are adjusted to -19dBm0]</td> </tr> </tbody> </table>				SW03-1	SW03-2	SETTING OF FIXED GAIN OF FIX AMP	ON	ON	0 dB (Standard)	OFF	ON	4 dB	ON	OFF	8 dB	OFF	OFF	12 dB	SW03-3	SW03-4	SETTING OF GAIN OF BY AGC	ON	ON	0dB [Signals ranging from -35dBm0 to -15dBm0 are adjusted to -15dBm0] (Standard)	OFF	ON	+4dB [Signals ranging from -35dBm0 to -11dBm0 are adjusted to -11dBm0]	ON	OFF	-4dB [Signals ranging from -35dBm0 to -19dBm0 are adjusted to -19dBm0]		
SW03-1	SW03-2	SETTING OF FIXED GAIN OF FIX AMP																															
ON	ON	0 dB (Standard)																															
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SW03-3	SW03-4	SETTING OF GAIN OF BY AGC																															
ON	ON	0dB [Signals ranging from -35dBm0 to -15dBm0 are adjusted to -15dBm0] (Standard)																															
OFF	ON	+4dB [Signals ranging from -35dBm0 to -11dBm0 are adjusted to -11dBm0]																															
ON	OFF	-4dB [Signals ranging from -35dBm0 to -19dBm0 are adjusted to -19dBm0]																															
SW04 is set to all ON. When this card does not work as AGC:																																	
<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Amplification of voice from the public network</th> <th colspan="2">Amplification of voice from the tie-line network</th> </tr> <tr> <th>0 dB</th> <th>4 dB</th> <th>8 dB</th> <th>12 dB</th> </tr> </thead> <tbody> <tr> <td>0 dB</td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> </tr> <tr> <td>4 dB</td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> </tr> <tr> <td>8 dB</td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> </tr> <tr> <td>12 dB</td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> <td>SW03 ON  SW04 ON </td> </tr> </tbody> </table>						Amplification of voice from the public network		Amplification of voice from the tie-line network		0 dB	4 dB	8 dB	12 dB	0 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	4 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	8 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	12 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 
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4 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 																													
8 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 																													
12 dB	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 	SW03 ON  SW04 ON 																													
SW10		Right (SIG)		Both ECa (Public Line) side and ECb (Tie Line) side operate.																													
		Left (CAS)	×	Only ECa (Public Line) side operates.																													
SW11		Right (SIG)		Both ECa (Public Line) side and ECb (Tie Line) side operate.																													
		Left (CAS)	×	Only ECa (Public Line) side operates.																													
SW12		Right (SIG)		Both ECa (Public Line) side and ECb (Tie Line) side operate.																													
		Left (CAS)	×	Only ECa (Public Line) side operates.																													

6. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW01		Make busy switch of the corresponding circuit (No. 0 ~ No. 3 circuits) ON : Make busy of each circuit OFF : Make busy cancel of each circuit
		SW02		
		SW03		
		SW04		
		SW04	<p>Left Right</p> 	
		SW11	<p>Left Right</p> 	
		SW12	<p>Left Right</p> 	
		SW00 (MB)		DOWN

## PA-8TLTR Tie Line Trunk

### 1. General Function

The PA-8TLTR(TLT) circuit card provides eight trunks whose interface can be selected among the following four types by key setting on a 4-channel basis.

- Loop Dialing (LD)
- Direct Inward Dialing (DID)
- 2-wire E & M
- 4-wire E & M

In addition, programmable PADs, whose value can be adjusted by key setting, are equipped with a 4-wire E & M interface. Note that a cable, which is connected to the “ODT” connector on the front edge of this card, is necessary when circuits #4 through #7 are used as 2-wire/4-wire E & M trunks. A typical example of channel allocation is illustrated in [Figure 3-170](#).

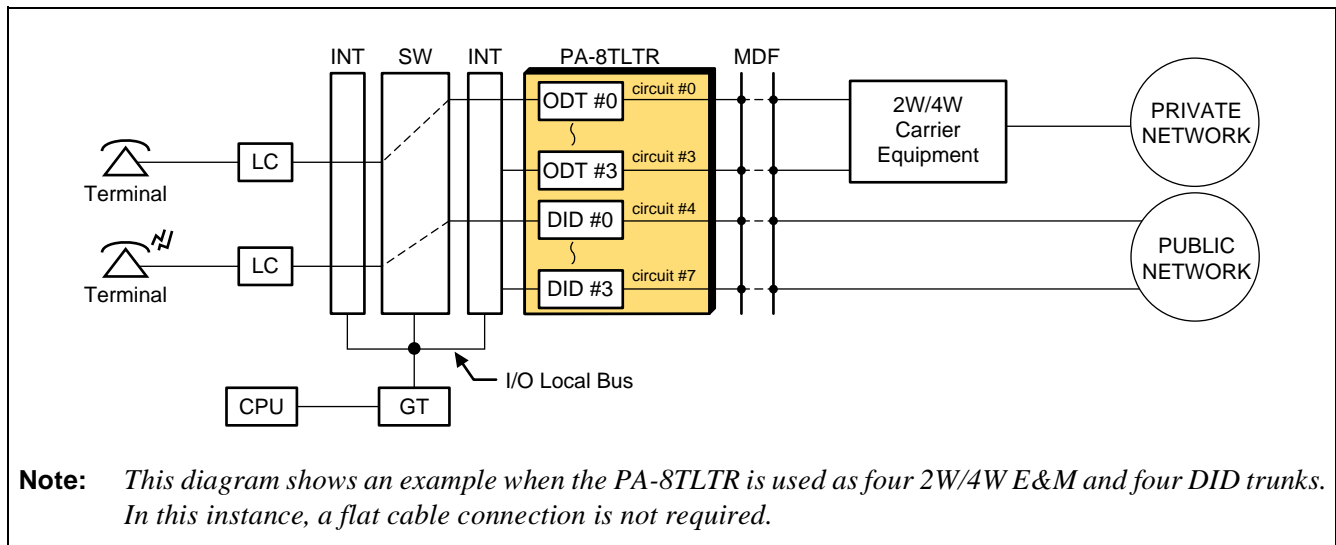


Figure 3-170 Location of PA-8TLTR (TLT) within the System

2. Mounting Location / Condition

The PA-8TLTR (TLT) card can be mounted in any universal slots as shown below.

Mounting Module **PIM**

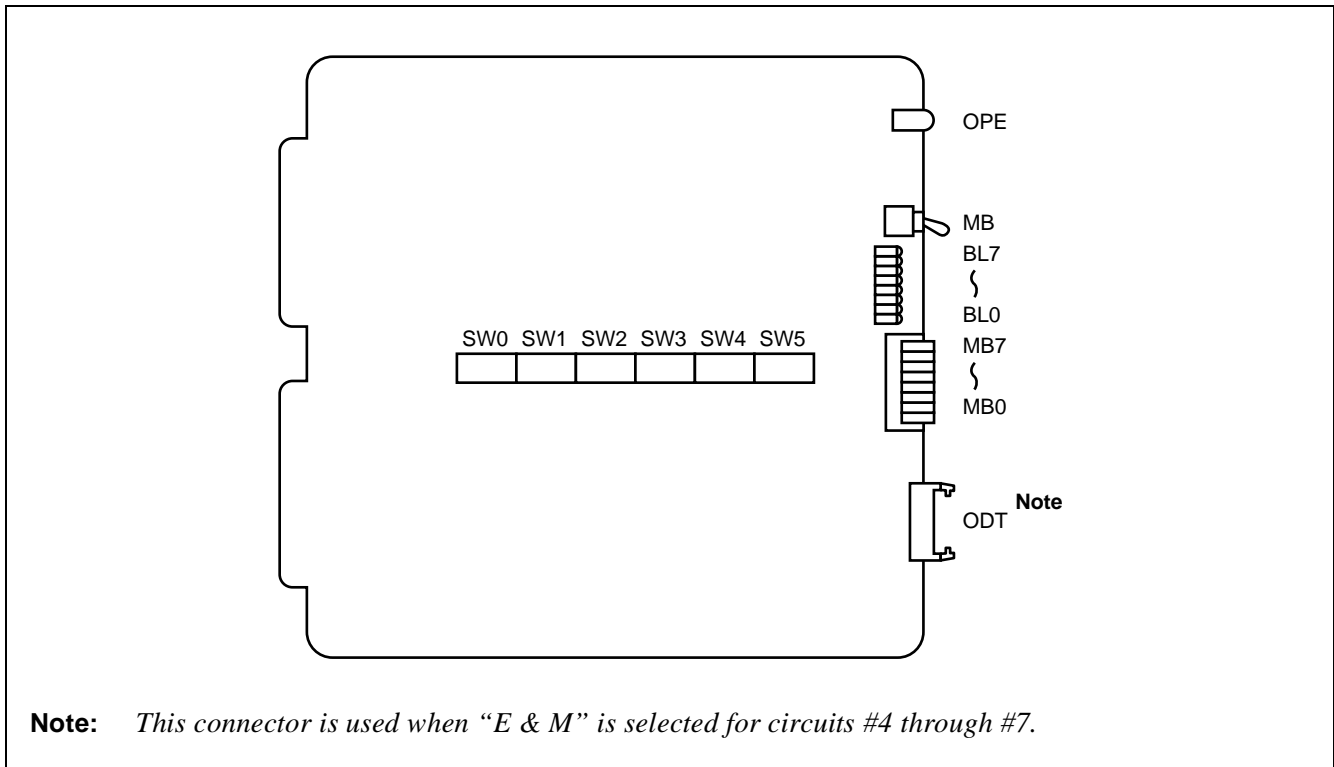
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
X				┌──┐								└──┘											
				●																			●

**Note:** ● Indicates universal slots for line/trunk circuit cards.

**PA-8TLTR**  
Tie Line Trunk

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in [Figure 3-171](#).



**Figure 3-171 Face Layout of PA-8TLTR (TLT) Card**

4. Lamp Indications

The contents of lamp indications of this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is operating.
BL0 • BL7	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes when the corresponding circuit is in make-busy state or while DP signals are being received (flashes to the dial pulses)
	OFF	Remains off when the corresponding circuit is idle.

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB (SW00)		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
MB0 - 7 (SW01)	0	ON		Make busy of the No. 0 circuit
		OFF	×	Make busy cancel of the No. 0 circuit
	1	ON		Make busy of the No. 1 circuit
		OFF	×	Make busy cancel of the No. 1 circuit
	2	ON		Make busy of the No. 2 circuit
		OFF	×	Make busy cancel of the No. 2 circuit
	3	ON		Make busy of the No. 3 circuit
		OFF	×	Make busy cancel of the No. 3 circuit
	4	ON		Make busy of the No. 4 circuit
		OFF	×	Make busy cancel of the No. 4 circuit
	5	ON		Make busy of the No. 5 circuit
		OFF	×	Make busy cancel of the No. 5 circuit
	6	ON		Make busy of the No. 6 circuit
		OFF	×	Make busy cancel of the No. 6 circuit
	7	ON		Make busy of the No. 7 circuit
		OFF	×	Make busy cancel of the No. 7 circuit

**PA-8TLTR**  
Tie Line Trunk

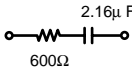
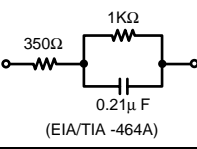

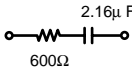
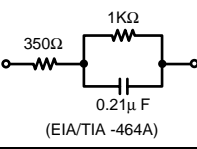

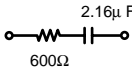
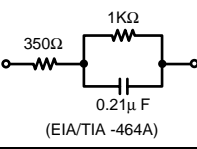

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING												
				SW0-1	SW0-2	SW0-3	0-3 CIRCUIT TRUNK KIND	4-7 CIRCUIT TRUNK KIND								
SW0 (SW10)	1															
	2			OFF	OFF	OFF	LD/DID	LD/DID								
	3			ON	OFF	OFF	EMT	LD/DID								
					OFF	OFF	Not used	Not used								
					ON	ON	2W/4W E&M	2W/4W E&M								
	4	OFF	×	Not used												
	5	OFF	×	Fixed												
	6	ON	×	Fixed												
7	OFF	×	Fixed													
8	OFF	×	Not used													
SW1 (SW15)	1	ON		Programmable PAD P0 Value 0.5 dB	P0 value is determined as a sum of selected PAD values of SW1 (elements 1-5). Note that this setting is valid for 4W E&M system. -Example- SW1-1: ON (0.5 dB) SW1-2: OFF ( 0 dB) SW1-3: OFF ( 0 dB) SW1-4: ON ( 4 dB) SW1-5: ON ( 8 dB) In this case P0 value is 12.5 dB.											
		OFF		Programmable PAD P0 Value 0 dB												
	2	ON		Programmable PAD P0 Value 1 dB												
		OFF		Programmable PAD P0 Value 0 dB												
	3	ON		Programmable PAD P0 Value 2 dB												
		OFF		Programmable PAD P0 Value 0 dB												
	4	ON		Programmable PAD P0 Value 4 dB												
		OFF		Programmable PAD P0 Value 0 dB												
	5	ON		Programmable PAD P0 Value 8 dB												
		OFF		Programmable PAD P0 Value 0 dB												
	6	OFF	Fixed													
				<Setting Range of Programmable PAD Values>												
				<table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">PAD VALUE [dB]</th> </tr> <tr> <th>SEND</th> <th>RECEIVE</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Possible Setting Range</td> <td>P0: 0 - +15.5 0.5 step</td> <td>P1: 0 - +15.5 0.5 step</td> </tr> <tr> <td>P2: 0 - +7.5 0.5 step</td> <td>P3: 0 - +7.5 0.5 step</td> </tr> </tbody> </table>			PAD VALUE [dB]		SEND	RECEIVE	Possible Setting Range	P0: 0 - +15.5 0.5 step	P1: 0 - +15.5 0.5 step	P2: 0 - +7.5 0.5 step	P3: 0 - +7.5 0.5 step	
		PAD VALUE [dB]														
SEND		RECEIVE														
Possible Setting Range	P0: 0 - +15.5 0.5 step	P1: 0 - +15.5 0.5 step														
	P2: 0 - +7.5 0.5 step	P3: 0 - +7.5 0.5 step														
7	OFF		Not used													
8	OFF		Not used													



SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
SW2 (SW20)	1	ON		Programmable PAD P1 Value 0.5 dB	P1 value is determined as a sum of selected PAD values of SW2 (elements 1-5). Note that this setting is valid for 4W E&M system.  - Example - SW2-1: ON (0.5 dB) SW2-2: OFF ( 0 dB) SW2-3: OFF ( 0 dB) SW2-4: ON ( 4 dB) SW2-5: ON ( 8 dB)  In this case P1 value is 12.5 dB.
		OFF		Programmable PAD P1 Value 0 dB	
	2	ON		Programmable PAD P1 Value 1 dB	
		OFF		Programmable PAD P1 Value 0 dB	
	3	ON		Programmable PAD P1 Value 2 dB	
		OFF		Programmable PAD P1 Value 0 dB	
	4	ON		Programmable PAD P1 Value 4 dB	
		OFF		Programmable PAD P1 Value 0 dB	
	5	ON		Programmable PAD P1 Value 8 dB	
		OFF		Programmable PAD P1 Value 0 dB	
	6	OFF	×	Fixed	
	7	OFF	×	Fixed	
8	OFF	×	Fixed		

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
SW3 (SW25)	1	ON		Programmable PAD P2 Value 0.5 dB	P2 Values is total of PAD Values <b>Note</b> (Valid when 4W E&M system) (Ex) SW3-1: OFF SW3-2: ON SW3-3: OFF SW3-4: OFF in this case P2 value is 1 dB.  P3 Values is total of PAD Values <b>Note</b> (Valid when 4W E&M system) (Ex) SW3-5: OFF SW3-6: ON SW3-7: OFF SW3-8: OFF in this case P3 value is 1 dB.
		OFF		Programmable PAD P2 Value 0 dB	
	2	ON		Programmable PAD P2 Value 1 dB	
		OFF		Programmable PAD P2 Value 0 dB	
	3	ON		Programmable PAD P2 Value 2 dB	
		OFF		Programmable PAD P2 Value 0 dB	
	4	ON		Programmable PAD P2 Value 4 dB	
		OFF		Programmable PAD P2 Value 0 dB	
	5	ON		Programmable PAD P3 Value 0.5 dB	
		OFF		Programmable PAD P3 Value 0 dB	
	6	ON		Programmable PAD P3 Value 1 dB	
		OFF		Programmable PAD P3 Value 0 dB	
	7	ON		Programmable PAD P3 Value 2 dB	
		OFF		Programmable PAD P3 Value 0 dB	
	8	ON		Programmable PAD P3 Value 4 dB	
		OFF		Programmable PAD P3 Value 0 dB	

**Note:** For the setting range of Programmable PAD Values, see the “Setting Range of Programmable PAD Values” shown for SW1.

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																						
SW4 (SW30 [No.0-3 Circuit] SW5 (SW40) [No. 4-7 Circuit]  (When Trunk Kind has been set as LD/DID)	1 ~ 4	Setting of Terminating Impedance and Balancing Network (Valid for LD/DID)																								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">SW4/5</th> <th rowspan="2">Terminating Impedance</th> <th rowspan="2">Balancing Network</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td rowspan="2">  </td> <td rowspan="2">  </td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>  </td> </tr> </tbody> </table>				SW4/5				Terminating Impedance	Balancing Network	1	2	3	4	OFF	OFF	OFF	OFF			ON	OFF	OFF	OFF	
		SW4/5				Terminating Impedance	Balancing Network																			
		1	2	3	4																					
		OFF	OFF	OFF	OFF																					
ON	OFF	OFF	OFF																							
5	OFF	×	Fixed																							
6	OFF	×	Not used																							
7	OFF	×	Not used																							
8	OFF	×	Not used																							

**PA-8TLTR**  
Tie Line Trunk

SWITCH	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																											
SW4 (SW30 [No.0-3 Circuit] SW5 (SW40) [No. 4-7 Circuit]  (When Trunk Kind has been set as 2W E&M)	1 ~ 4, 6	Setting of Terminating Impedance and Balancing Network (Valid for E&M)																													
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5">SW4/5</th> <th rowspan="2">Terminating Impedance</th> <th rowspan="2">Balancing Network</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td rowspan="2"> </td> <td rowspan="2"> </td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td> </td> </tr> </tbody> </table>					SW4/5					Terminating Impedance	Balancing Network	1	2	3	4	6	OFF	OFF	OFF	OFF	ON			ON	OFF	OFF	OFF	ON	
		SW4/5					Terminating Impedance	Balancing Network																							
		1	2	3	4	6																									
		OFF	OFF	OFF	OFF	ON																									
		ON	OFF	OFF	OFF	ON																									
		5	OFF	×	Not used																										
		6	ON		Speech Line: 2-wire																										
			OFF		Speech Line: 4-wire																										
		7	OFF	×	Fixed																										
8	ON		E&M Control Idle: Ground    Busy: Battery																												
	OFF		E&M Control Idle: Open      Busy: Ground																												

Reference : Table of Fixed PADs

ARTD COMMAND PAD DATA	PAD VALUE [dB]					
	4W E&M		LD/2W E&M			
			①		②	
	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE
0	P0	P1	0	0	0	-6
1	3	3	3	3	6	-6
2	6	6	6	6	0	-6
3	12	11	6	-6	0	-6
4	16	11	0	-6	0	-6
5	P2	P3	0	0	0	-6
7	0	0	0	0	0	-6

APAD COMMAND PAD DATA	PAD VALUE [dB]					
	4W E&M		LD/2W E&M			
			①		②	
	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE
1	3	3	3	3	6	-6
2	6	6	6	6	6	-6
3	12	11	6	-6	0	-6
4	16	11	0	-6	0	-6
5	P2	P3	0	0	0	-6
15	0	0	0	0	0	-6

① :When SW2-8 is set to “ON”. (other than the case of ② )

② :When SW2-8 is set to “OFF”. (i.e PAD for TS003 is provided; only for Australia)

6. External Interface

Accommodation of LT connector leads of this circuit card is shown in [Figure 3-172](#).

See also: Connecting Route Diagram (LD/DID ∞ 2W E&M)

Connecting Route Diagram (4W E&M)

2400 ODT CABLE Lead Accommodation

2400 ODT CABLE-A Lead Accommodation

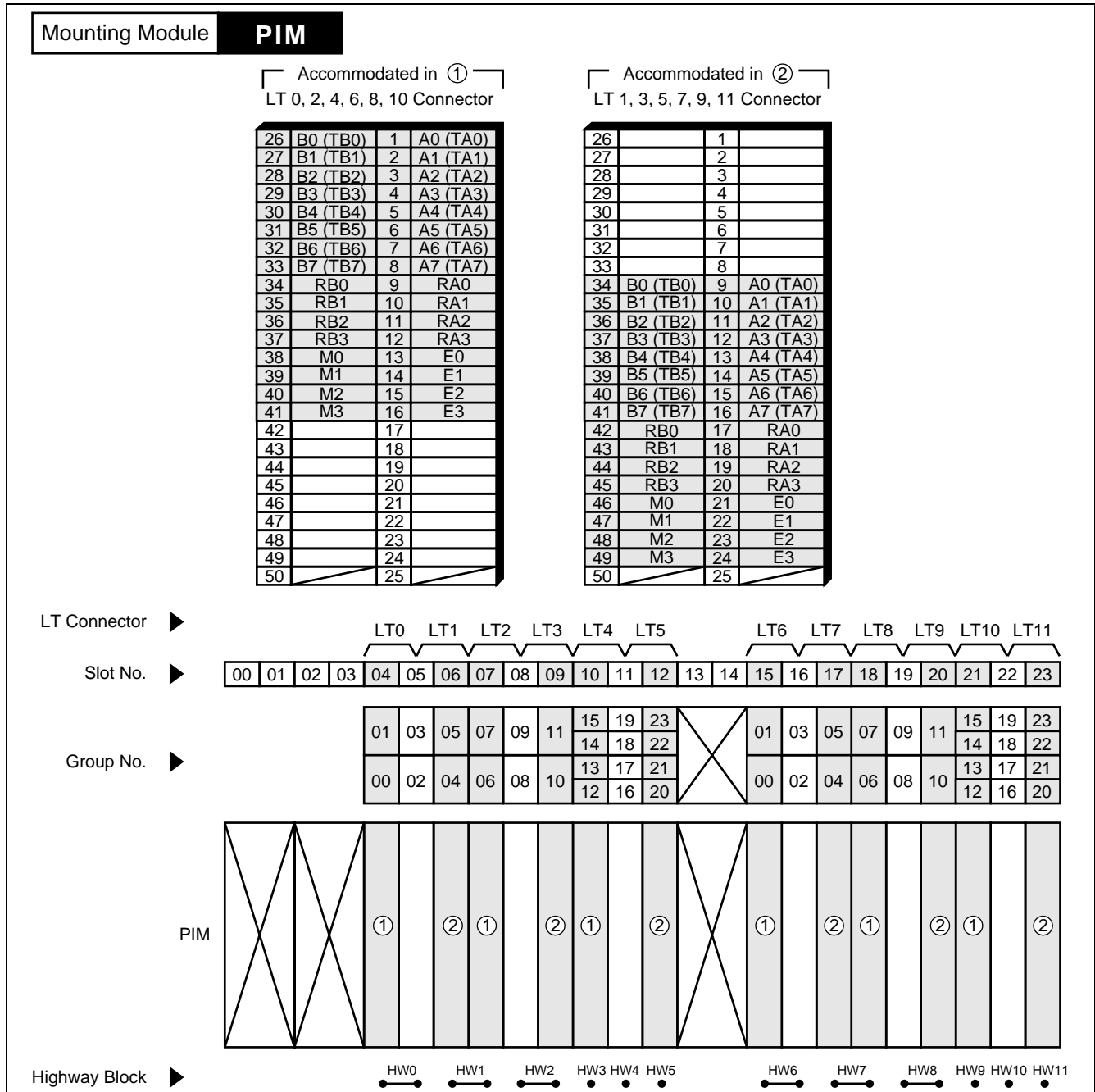


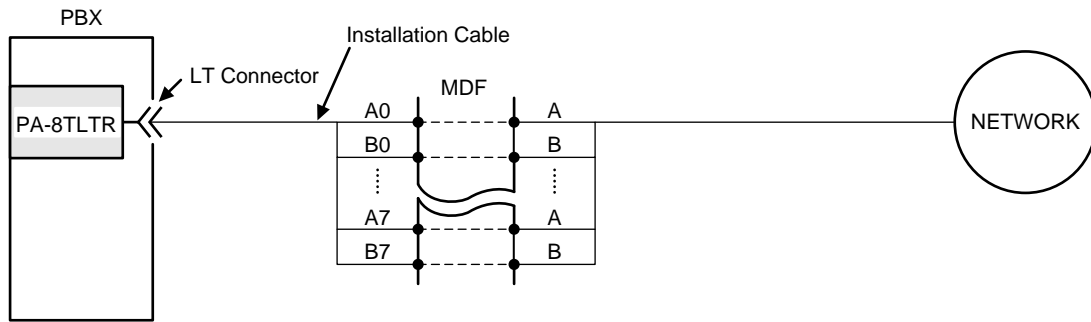
Figure 3-172 LT Connector Lead Accommodation (1/2)



**PA-8TLTR**  
Tie Line Trunk

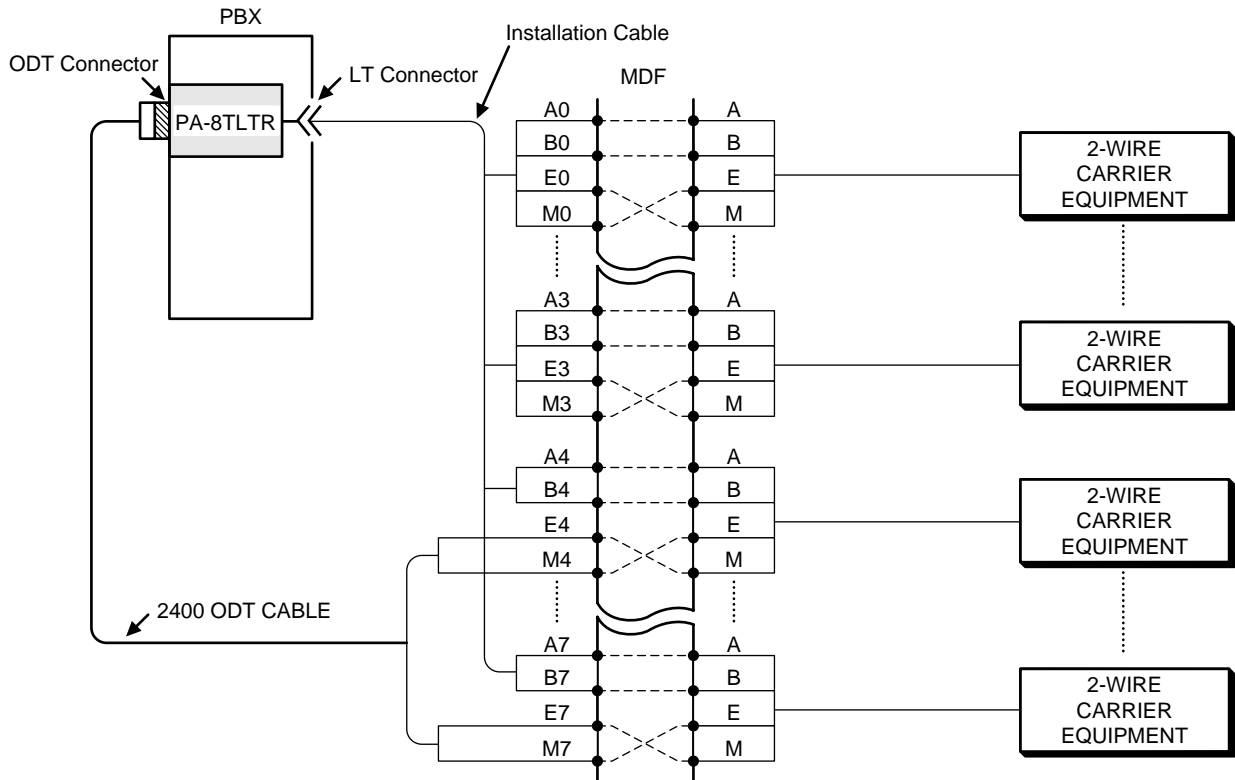
• LD/DID

This diagram shows connecting route diagram when the PA-8TLTR is used as a LD or DID trunk.



• 2W E&M

This diagram shows connecting route diagram when the PA-8TLTR is used as a 2-wire E&M trunk. In this instance, E&M leads for channels #4 - #7 appear from the "ODT" connector equipped on the front edge of this card.



**Figure 3-173 Connecting Route Diagram (LD/DID • 2W E&M)**



• 4W E&M

This diagram shows connecting route diagram when the PA-8TLTR is used as a 4-wire E&M trunk. In this instance, RA, RB, and E&M leads for channels #4 - #7 appear from the "ODT" connector equipped on the front edge of this card.

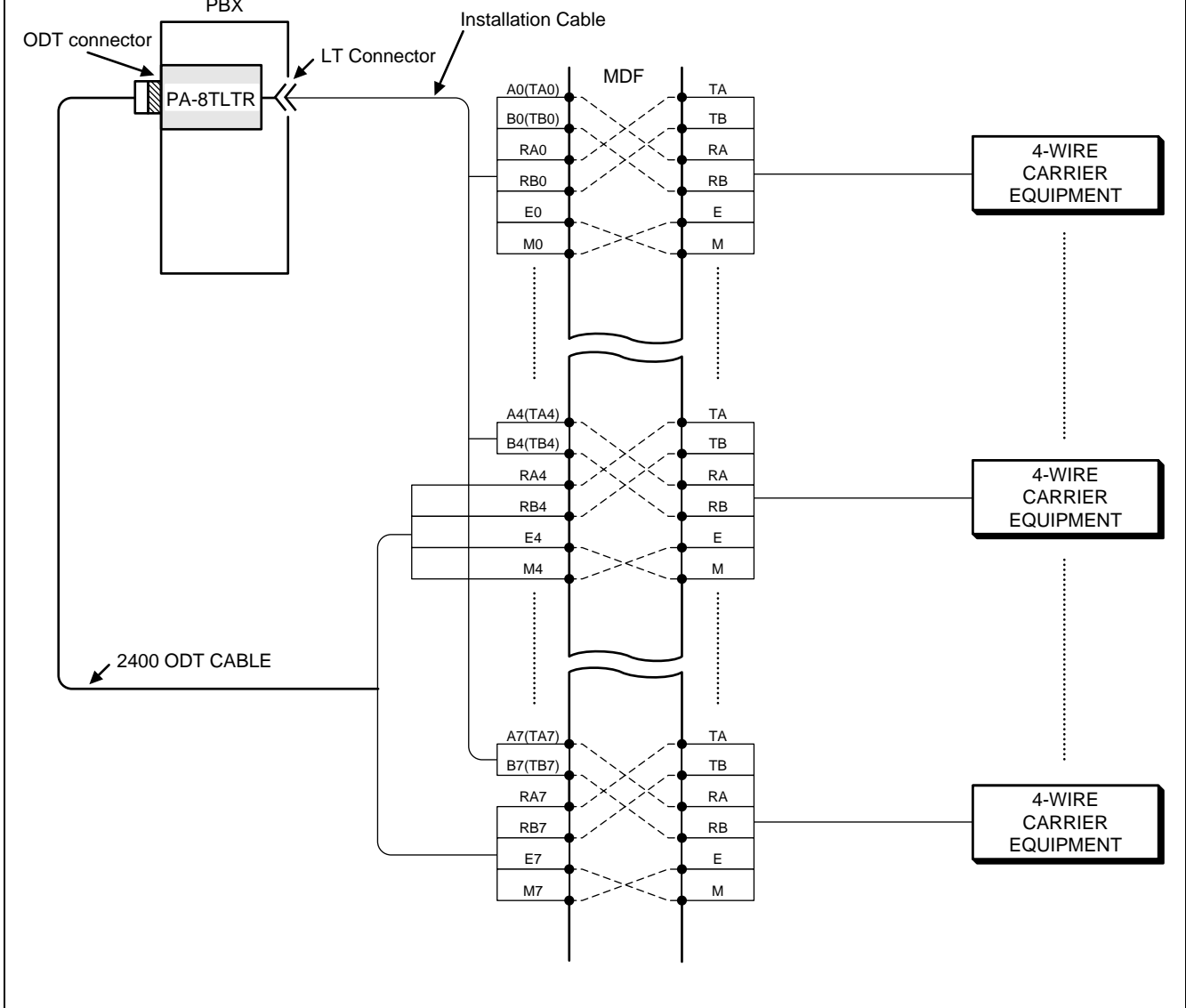
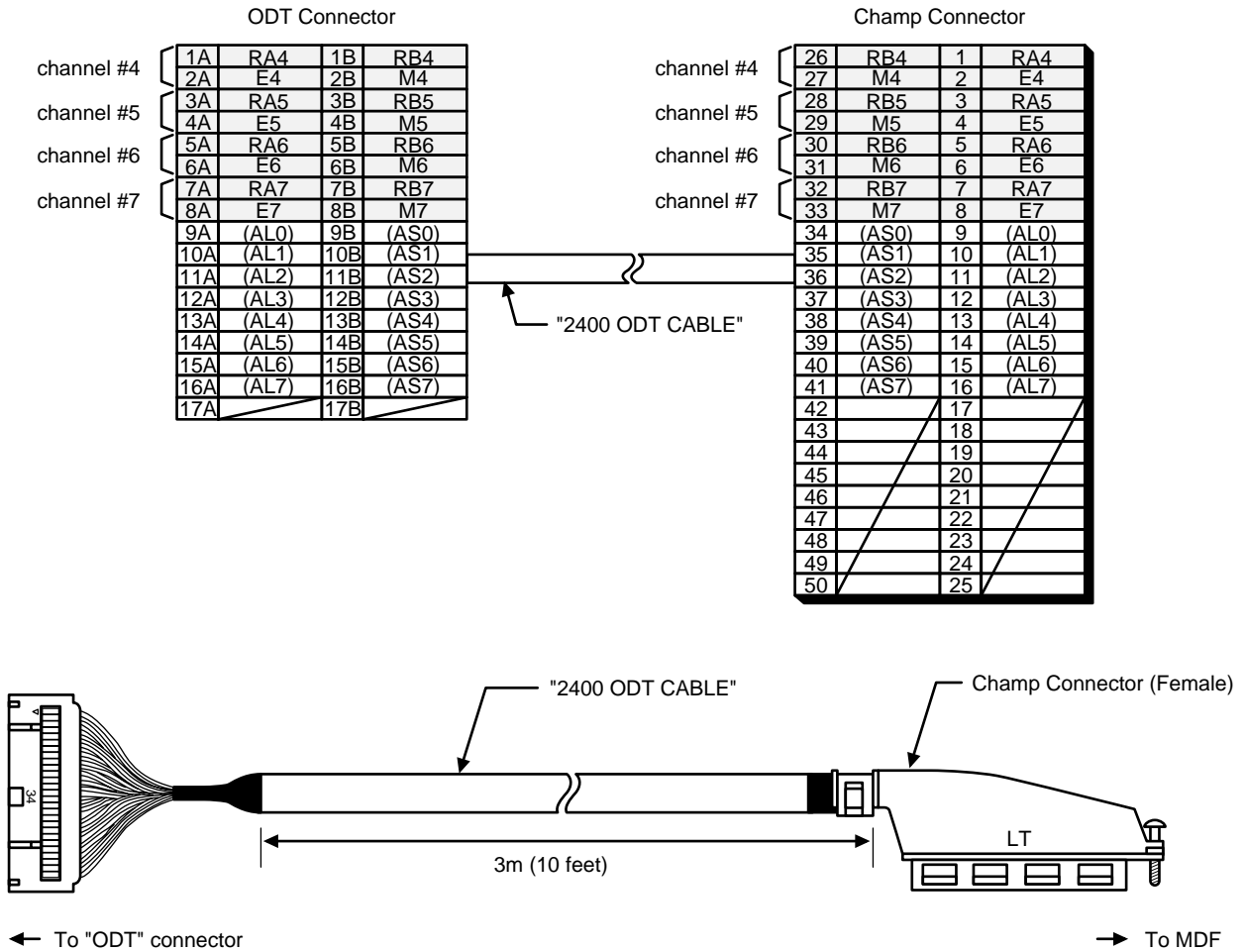


Figure 3-174 Connecting Route Diagram (4W E&M)

• 2400 ODT CABLE

The "2400 ODT CABLE" has one ODT connector whose lead accommodation is shown below.

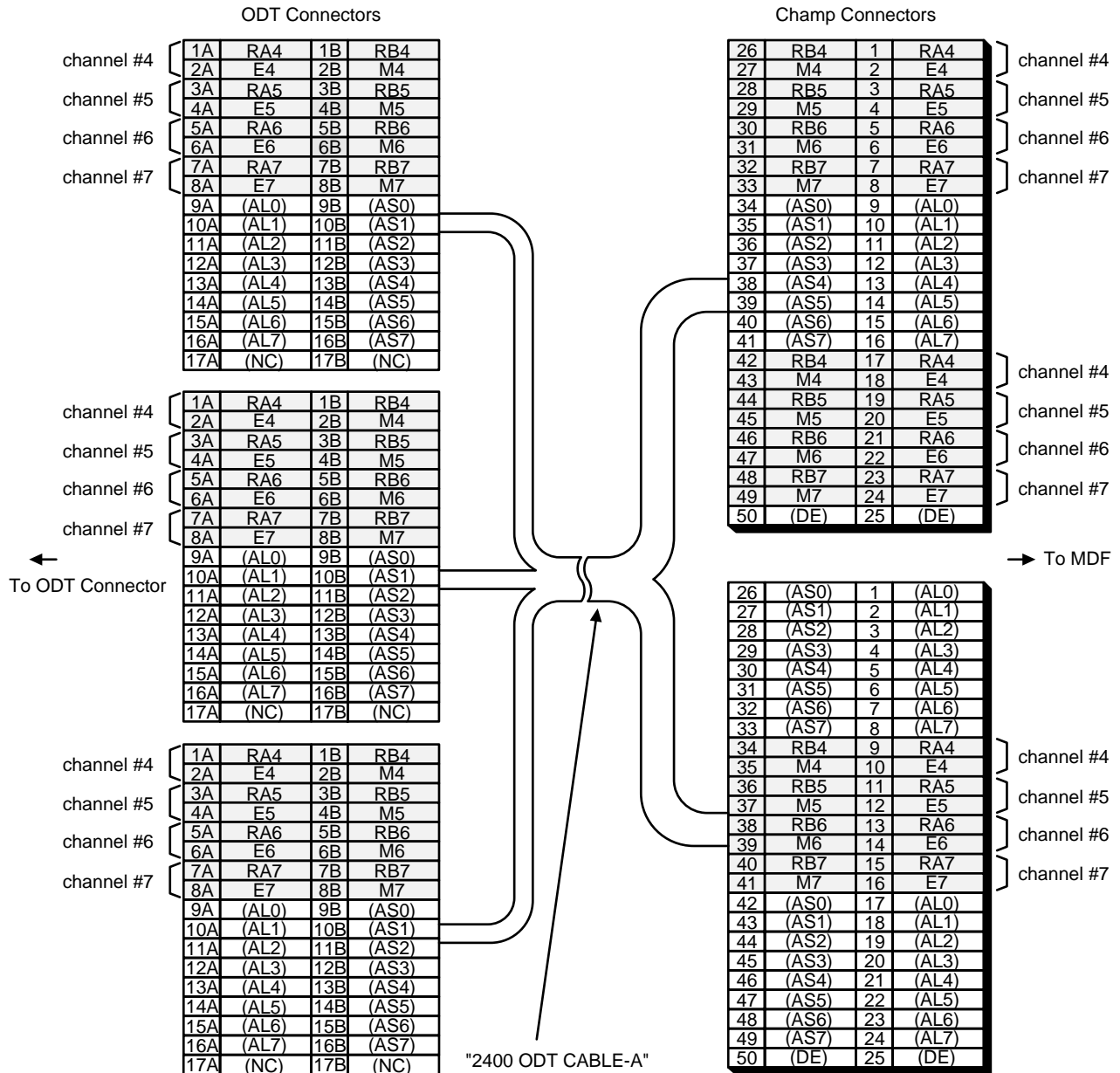


**Note:** Leads in round brackets are not used for the time being.

Figure 3-175 "2400 ODT CABLE" Lead Accommodation

• 2400 ODT CABLE-A

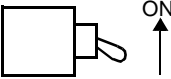
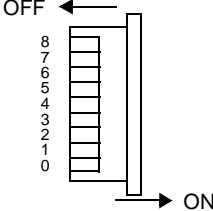
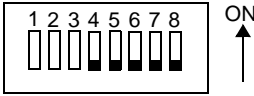
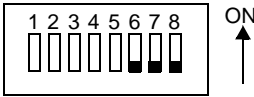
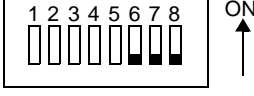
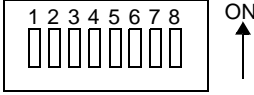
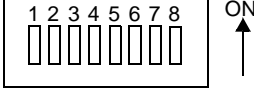
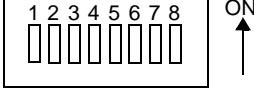
The "2400 ODT CABLE-A" has three ODT connectors whose lead accommodation is shown below.



**Note:** Leads in round brackets are not used for the time being.

Figure 3-176 "2400 ODT CABLE-A" Lead Accommodation

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		MB (SW00)		
		MB0-7 (SW01)		
		SW0 (SW10)		
		SW1 (SW15)		
		SW2 (SW20)		
		SW3 (SW25)		
		SW4 (SW30)		
		SW5 (SW40)		

# PA-M87 Recording / Paging Device Adapter

## 1. General Function

This circuit card is used to provide an interface between the Attendant Console(s) and the external recording/paging equipment as shown in the figure below. Occupying every two slots within a PIM, a single interface adapter can handle a maximum of six ATTCONs and one-or two-circuit recording/paging equipment to combine. The connection patterns for the devices and service activation via ATTCONs can vary, depending on key settings on the card (see [Section 5, 'Switch Settings'](#) for details).

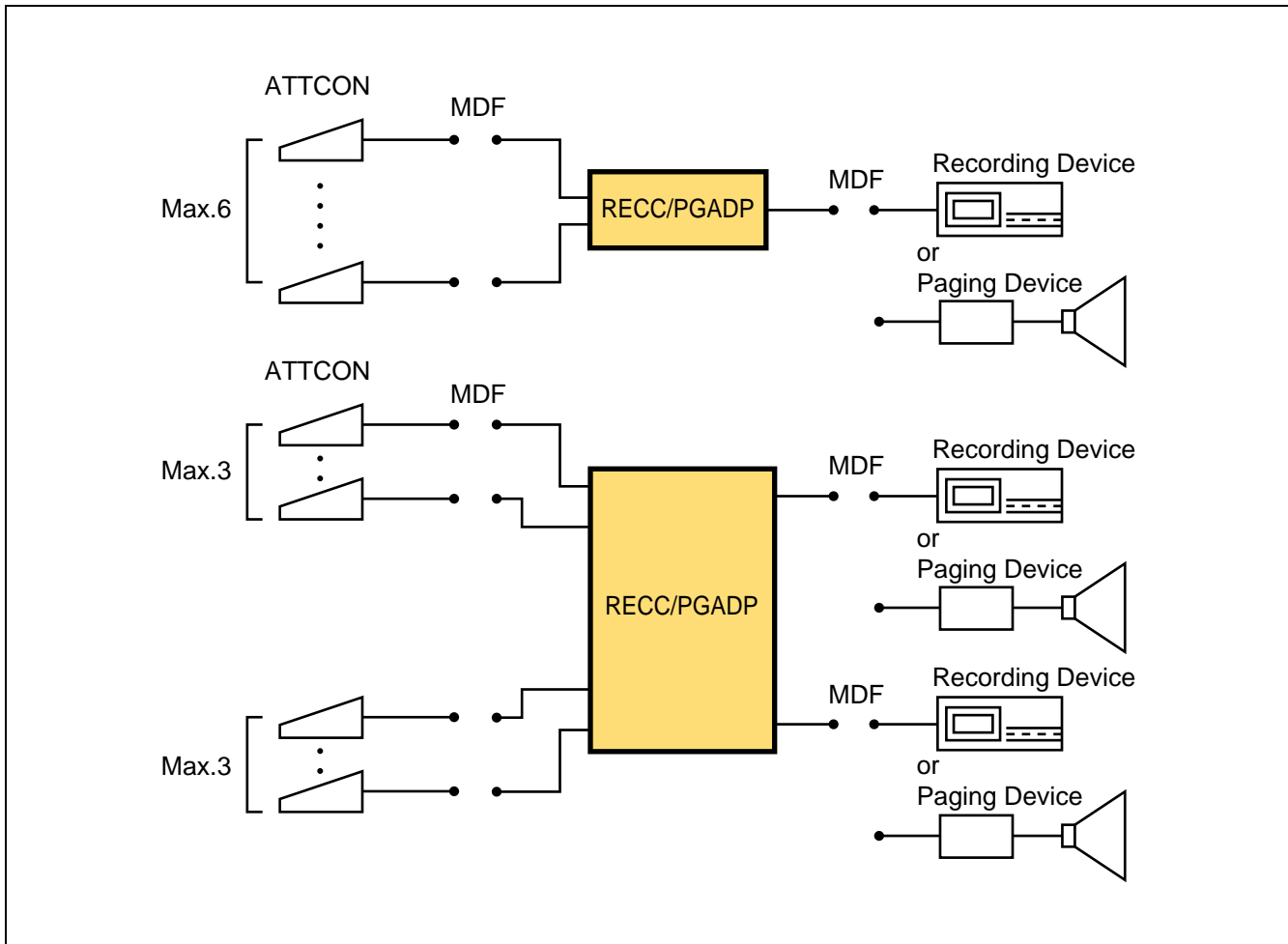


Figure 3-177 Location of PA-M87 (RECC/PGADP) within the System

**PA-M87**

Recording / Paging Device Adapter

2. Mounting Location/Condition

The mounting locations of this circuit card are shown below. Note that this circuit card requires a vacancy of two consecutive slots.

Mounting Module **PIM**

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
								●											●				

**Note:** ● Indicates universal slots for line/trunk circuit cards.

3. Face Layout of Lamps, Switches, and Connectors

Face layout of each lamp, switch and connector on this circuit card is shown in [Figure 3-178](#).

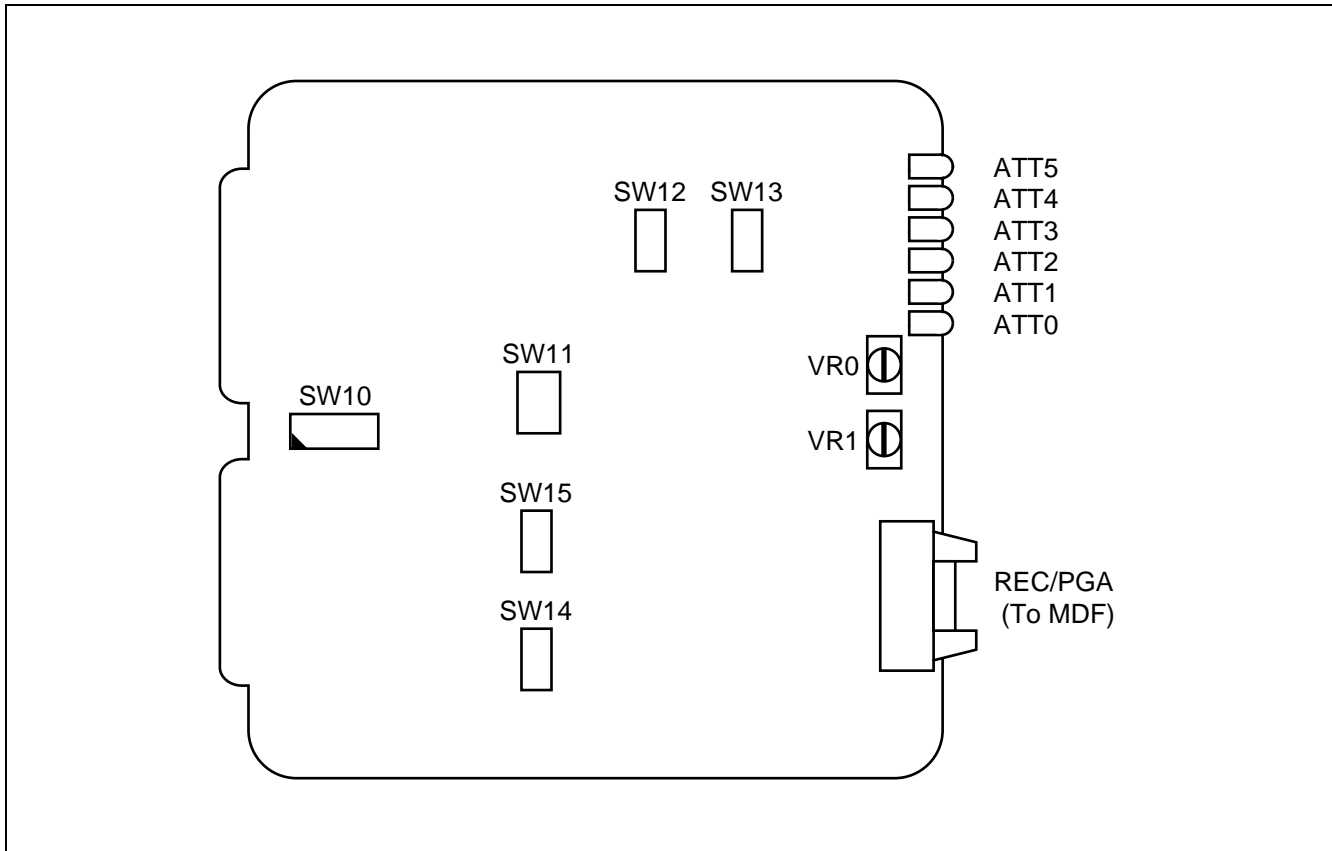


Figure 3-178 Face Layout of PA-M87 (RECC/PGADP)

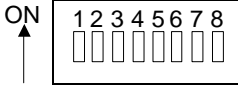
4. Lamp Indications

The table below shows the meaning of lamp indications.

LAMP NAME	COLOR	MEANING
ATT0 ~ ATT5	Green (Steady-“ON”)	Provided that any of the ATTCONs has a connection to the Recording/Paging equipment via the card, the lamp(s) corresponding to the cited ATTCON number(s) emit(s) steady light.
	Green (Flash)	Provided that any of the ATTCONs has not established a connection with the Recording/Paging equipment, the lamp(s) corresponding to the cited ATTCON number(s) emit(s) flashing light.

5. Switch Settings

Switch settings on the card and their detailed meanings are as follows:

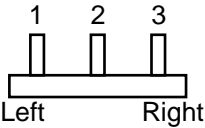
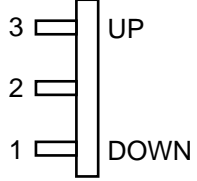
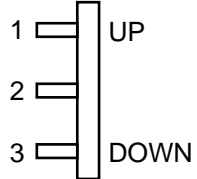


SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW10  	1	ON		Recording/Paging start control at ATTCON #0 by loop start (momentary)
		OFF		Recording/Paging start control at ATTCON #0 by loop start (constant)
	2	ON		Recording/Paging start control at ATTCON #1 by loop start (momentary)
		OFF		Recording/Paging start control at ATTCON #1 by loop start (constant)
	3	ON		Recording/Paging start control at ATTCON #2 by loop start (momentary)
		OFF		Recording/Paging start control at ATTCON #2 by loop start (constant)
	4	ON		Recording/Paging start control at ATTCON #3 by loop start (momentary)
		OFF		Recording/Paging start control at ATTCON #3 by loop start (constant)
	5	ON		Recording/Paging start control at ATTCON #4 by loop start (momentary)
		OFF		Recording/Paging start control at ATTCON #4 by loop start (constant)
	6	ON		Recording/Paging start control at ATTCON #5 by loop start (momentary)
		OFF		Recording/Paging start control at ATTCON #5 by loop start (constant)
	7	ON		No. of ATTCONs: Recording/Paging machine = 6 : 1 <b>Note 1</b>
		OFF		No. of ATTCONs: Recording/Paging machine = 3 : 1 × 2 sets <b>Note 1</b>
	8	ON		Recording/Paging activation by loop/ground start signal sending (momentary) <b>Note 2</b>
		OFF		Recording/Paging activation by loop/ground start signal sending (constant) <b>Note 2</b>

**Note 1:** This switch setting becomes effective parallel with the key operations of SW12 and SW13.

**Note 2:** To validate this switch setting, also operate the following keys (SW10-8, SW14, SW15) as required.

PATTERN FOR START SIGNAL TRANSMISSION	KEY SETTING (SW10-8)	KEY SETTING (SW14, SW15)
Momentary Loop Start/Momentary Ground Start	ON	Up
Constant Loop Start/Constant Ground Start	OFF	Up
Telephone Loop (Handset lifting)	OFF	Down



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW11 		RIGHT		Remote Phone is used.
		LEFT		Remote Phone is not used.
SW12 SW13 		UP		No. of ATTCONs: Recording/Paging machine = 6 : 1 <b>Note 4</b>
		DOWN		No. of ATTCONs: Recording/Paging machine = 3 : 1 × 2 sets <b>Note 4</b>
SW14 SW15 		UP		Patterns for Recording/Paging activation: by loop start/ground start signal sending <b>Note 3</b>
		DOWN		Patterns for Recording/Paging activation: via the telephone loop (handset lifting) <b>Note 3</b>
VR0  (Volume Resistance)				Voice output adjustment - GAIN (0 ~ +20dB) - for 1st circuit of Recording/Paging machine.
VR1  (Volume Resistance)				Voice output adjustment - GAIN (0 ~ +20dB) - for 2nd circuit of Recording/Paging machine.

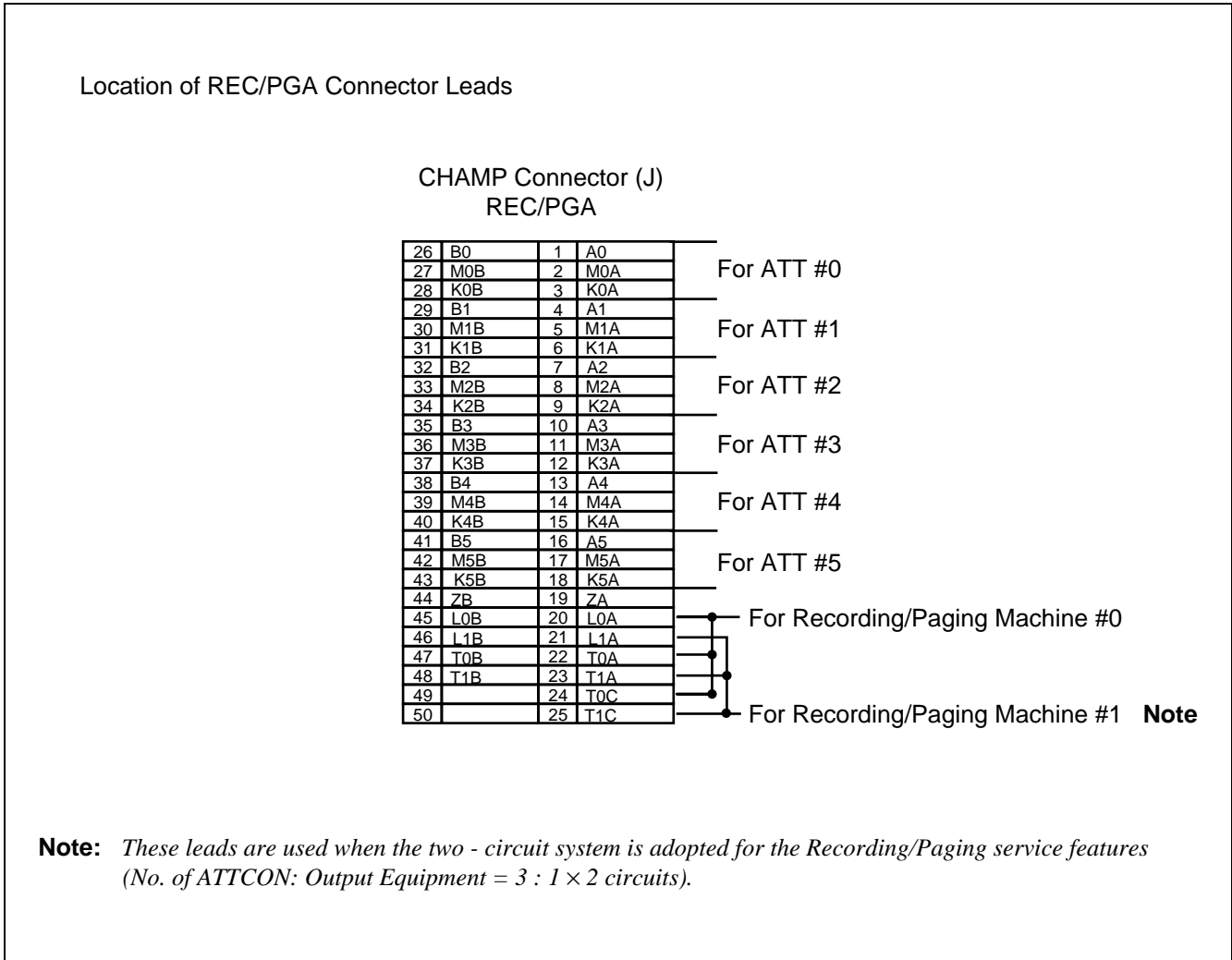
**Warning:** When the Remote Phone is not used, be sure to turn the SW11 to the left side. If the switch key is left on the right side, the machine components may be damaged by over current.

**Note 3:** To validate this switch setting, also operate the following keys (SW10-8, SW14, SW15) as required.

**Note 4:** This switch setting becomes effective parallel with the key operations of SW10-7.

6. External Interface

The location of REC/PGA connector leads and their connection diagram are shown in [Figure 3-179](#).



**Figure 3-179 REC/PGA Connector Leads**

See also Connecting Route Diagram. ([Figure 3-180](#))

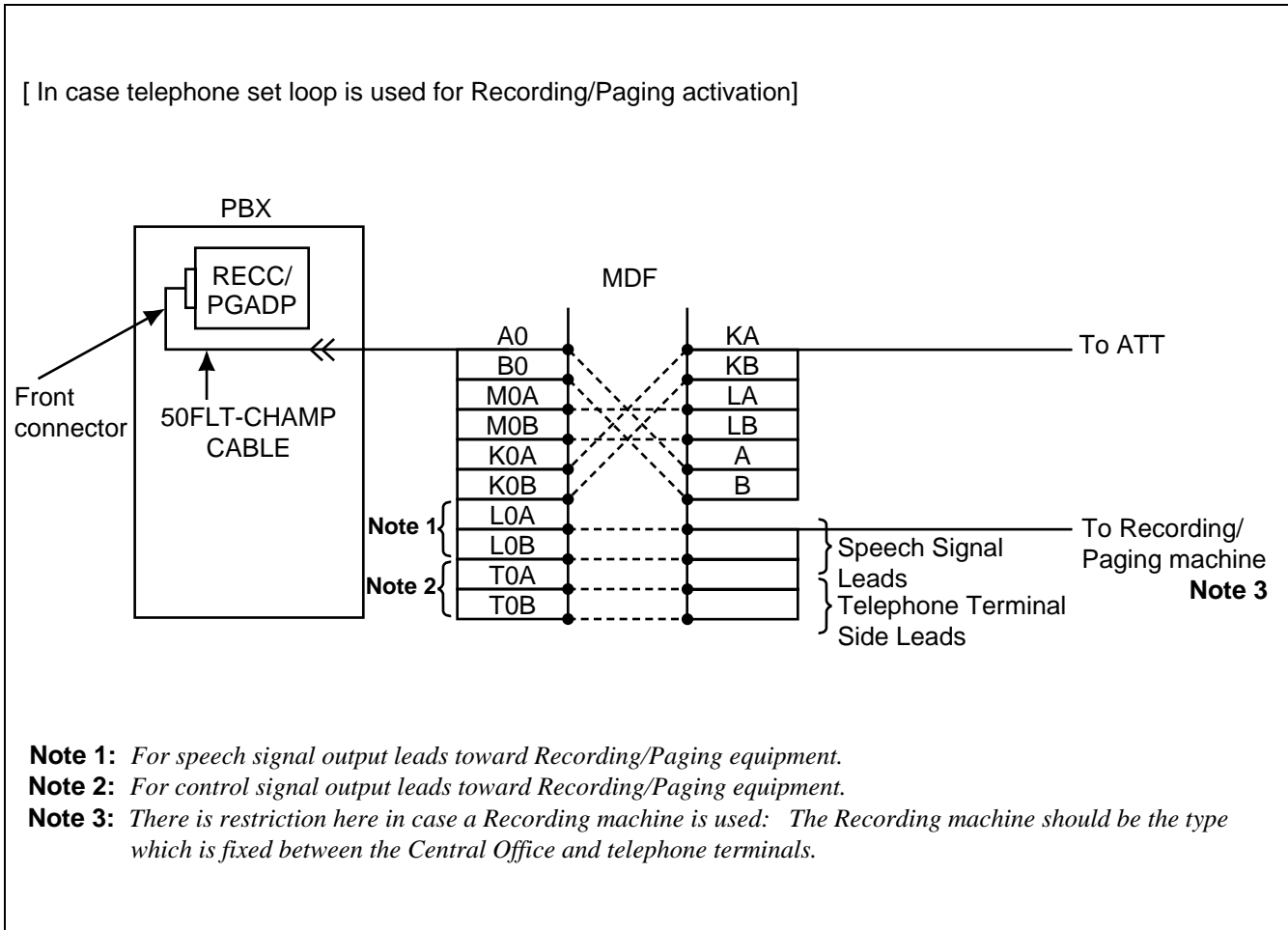
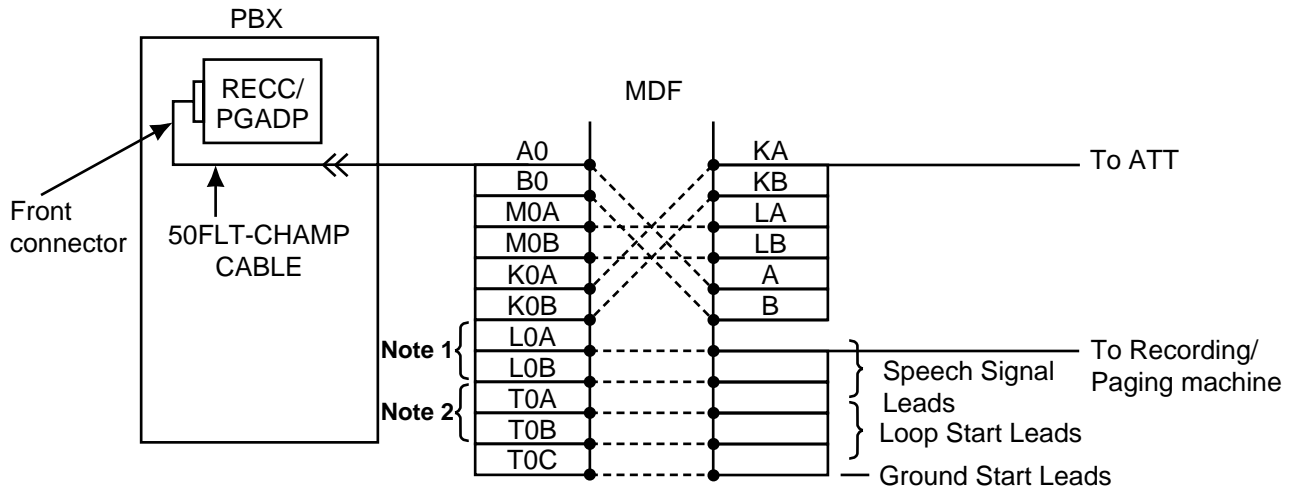


Figure 3-180 Connecting Route Diagram (1/4)

[ In case Recording/Paging is activated by the loop start or ground start signal sending ]

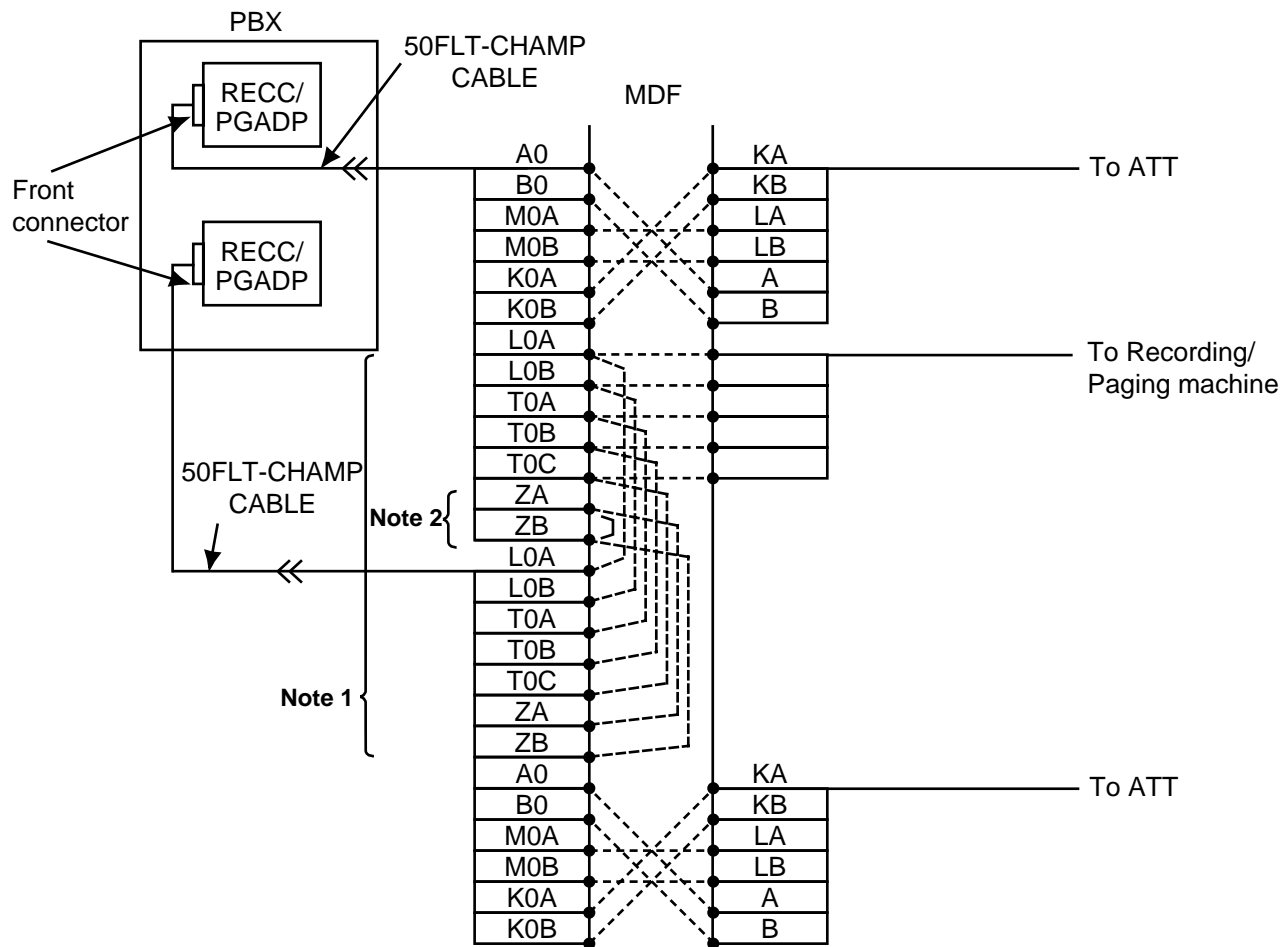


**Note 1:** For speech signal leads toward Recording/Paging equipment.

**Note 2:** For control signal leads toward Recording/Paging equipment.

Figure 3-180 Connecting Route Diagram (2/4)

[ In case 7 or more ATTCONs are connected to a single Recording/Paging machine ]



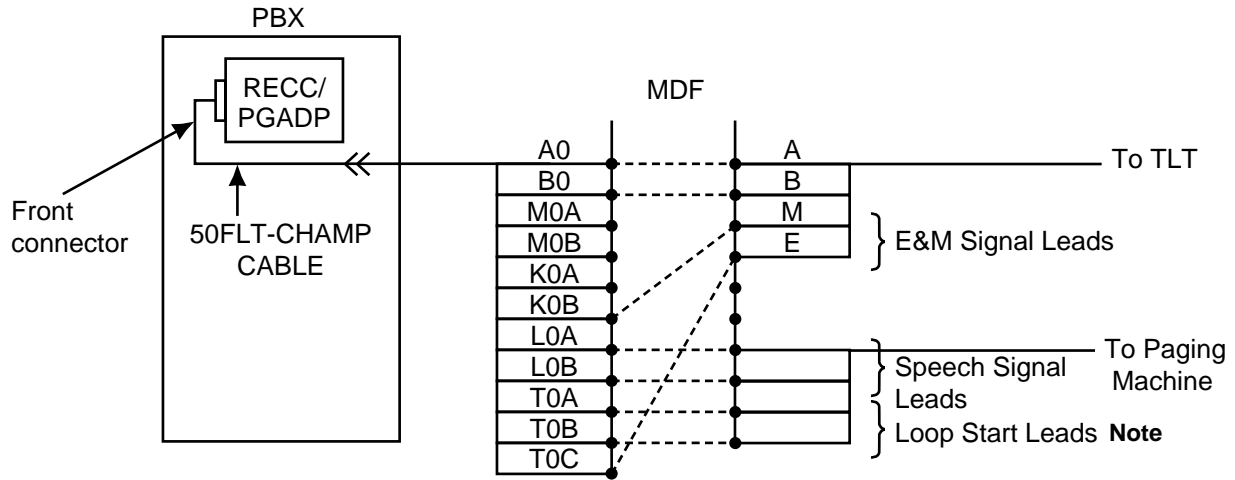
**Note 1:** To use a single Recording/Paging machine for 7 or more ATTCONs, the necessary number of PA-M87 card(s) must be reinforced, according the ATT number, on the side of the ICS. If this is the case, provide relevant multiple connections between the first-card connector leads and the leads due for the reinforced circuit card(s). Note that the connection should be performed on the MDF and each connector lead name must be identical in each connection process.

(example) LOA (below) ⇒ LOA (above)      LOB (below) ⇒ LOB (above)  
 TOA (below) ⇒ TOA (above)      TOB (below) ⇒ TOB (above)

**Note 2:** When performing the multiple connections, the leads here (“ZA” and “ZB”) must be given another multiple connection in addition to that required in a normal pattern (refer to **Note 1**).

Figure 3-180 Connecting Route Diagram (3/4)

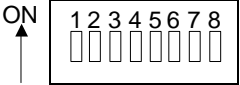
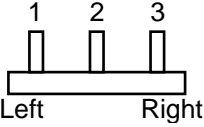
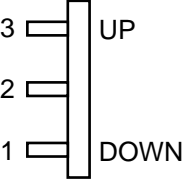
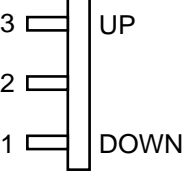


[ In case the TLT card (analog station) is connected instead of ATTCONs ]



**Note :** When the Paging machine is to be activated by the ground start, connect the T0B lead to the ground.

Figure 3-180 Connecting Route Diagram (4/4)

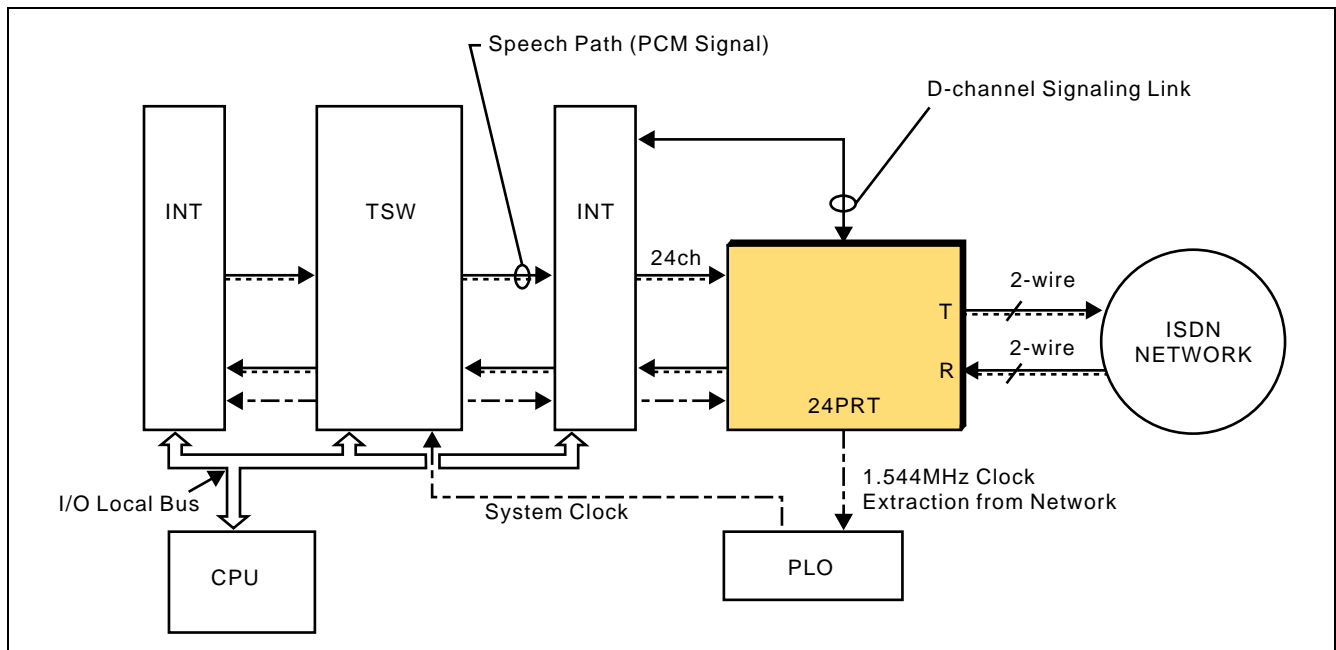
7. Switch Setting Sheet

SWITCH NAME	SWITCH SHAPE	REMARKS
SW10		
SW11		
SW12 SW13		
SW14 SW15		
VR0	 <p>(Volume Resistance)</p>	
VR1	 <p>(Volume Resistance)</p>	

## **PA-24PRTB-A** **Primary Rate Interface Trunk**

### 1. General Function

The PA-24PRTB-A (PRT) circuit card is a digital interface supporting voice and data communications at 1.5 M bit/sec. Being equipped with a Link Access Procedure for a D channel (LAP D) controller based on the ITU-T I/Q series, this card provides a Primary Rate Access Interface (PRI) with the system. A built-in resonance circuit extracts clock signals, which are supplied from the network, so that the system may be in exact synchronization with the network. To obtain appropriate speech level, this card is also equipped with a mask ROM in which typical PAD patterns have been already written. A desired PAD value can be easily selected by key settings and programming from the MAT.

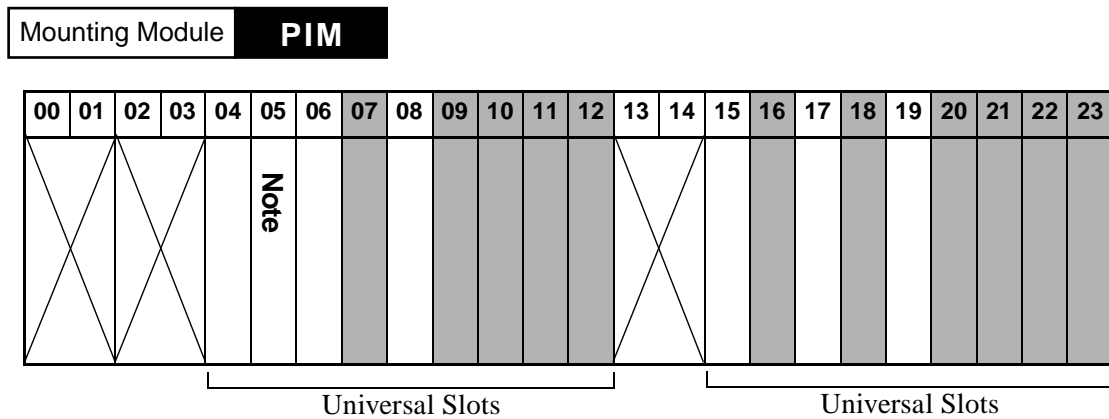


**Figure 3-181 Location of PA-24PRTB-A (24PRT) within the System**



2. Mounting Location / Condition

The PA-24PRTB-A (24PRT) card can be mounted in the following shaded universal slots as shown below.



**Note:** This card cannot be mounted in slot 5.  
This card cannot use Group0 (G=00) of Unit0 (U=0) of even-number Module Group.

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors of this circuit card is shown in Figure 3-182.

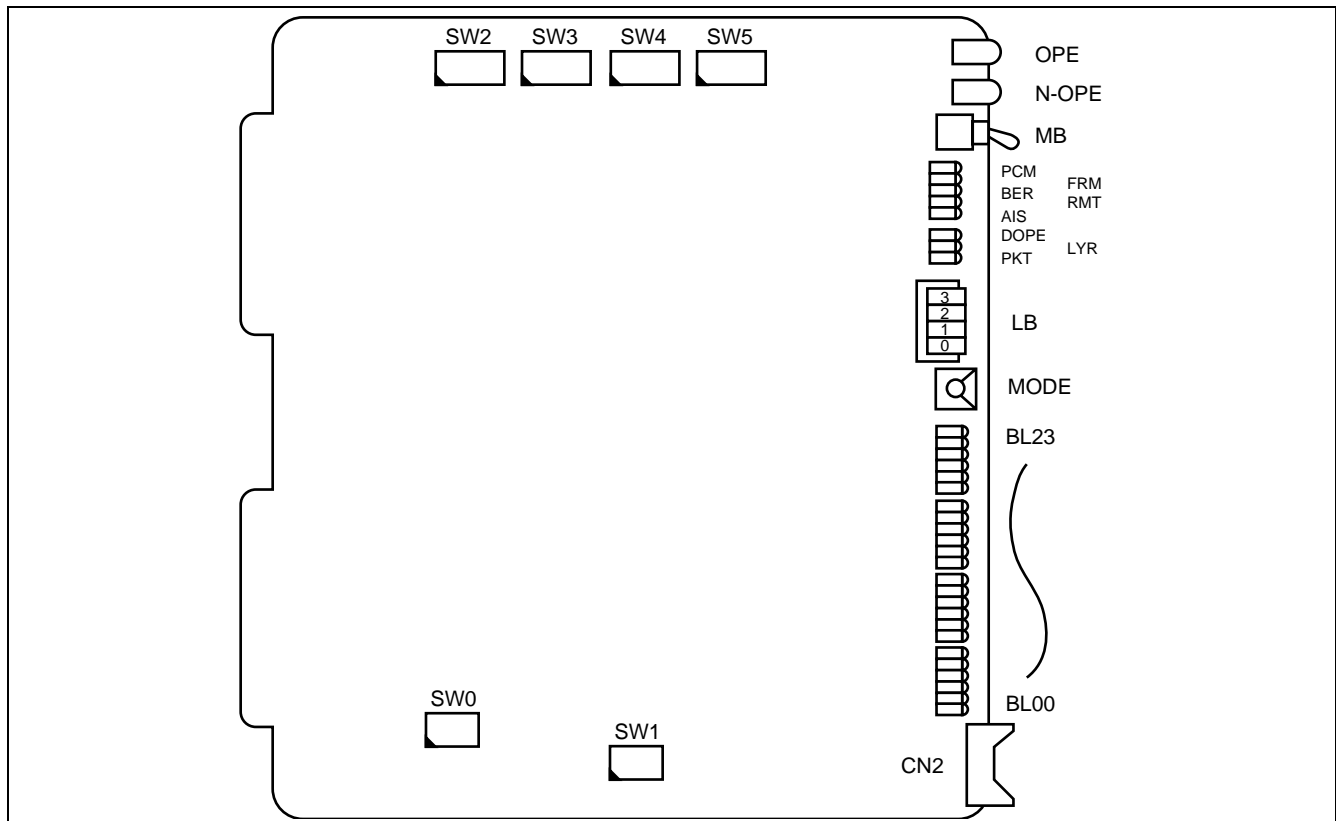


Figure 3-182 Face Layout of PA-24PRTB-A (24PRT)

**PA-24PRTB-A**  
 Primary Rate Interface Trunk

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

**Table 3-15 PA-24PRTB-A Lamp Indication Reference**

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in normal operation.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
PCM	Red	Lights when input signal down is detected (PCM LOSS).
FRM	Red	Lights when frame alignment loss is detected.
PER	Red	Lights when a CRC error occur frequently.
RMT	Red	Lights on receiving Remote Alarm Indication (RAI).
AIS	Yellow	Lights on detection of AIS.
DOPE	Green	Remains lit while the D Channel Controller is on.
LXR	Green	Lights when the link of the D channel is set up.
RKT	Green	Lights when the packet of the D channel is in use.
BL00 ▪ BL23	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes while the corresponding circuit is in make-busy state (60 IPM).
	OFF	Remains off when the corresponding circuit is idle. (When BL23 is in used as D channel, lamp is always on.)

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
MB		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
MODE		5		AT&T (#4/#5 ESS)
		7		NT DMS 100/DMS 250
		10		Q-SIG. (ETS 300 172)
LB	0	ON		Internal loop back set
		OFF	×	Internal loop back cancel
	1	ON		Line loop back set
		OFF	×	Line loop back cancel
	2	ON		Payload loop back set
		OFF	×	Payload loop back cancel
	3	ON		D-channel Handler (DCH) make busy request
		OFF	×	D-channel Handler (DCH) make busy request cancel
SW0	1	ON	×	Impedance 100 $\Omega$
		OFF		Impedance 110 $\Omega$
	2	ON		Send transformer middle point Ground
		OFF	×	Send transformer middle point Open
	3	ON		Receive transformer middle point Ground
		OFF	×	Receive transformer middle point Open
	4	ON	×	Fixed

**PA-24PRTB-A**  
 Primary Rate Interface Trunk

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																
SW1	1	OFF	×	Standard setting (Digital PAD/ROM selection)																																
	2	ON	×	Fixed																																
	3	ON		Interface structure: 24B																																
		OFF	×	Interface structure: 23B + D																																
	4	ON		D channel packet service is provided.																																
		OFF	×	D channel packet service is not provided.																																
SW2	1			<table border="1"> <thead> <tr> <th colspan="4">SETTING OF EQUALIOZER</th> </tr> <tr> <th>SW2-1</th> <th>SW2-2</th> <th>SW2-3</th> <th>DISTANCE</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>0 ~ 40m</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>40 ~ 80m</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>80 ~ 120m</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>120 ~ 160m</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>160 ~ 200m</td> </tr> <tr> <td colspan="3">Other combinations</td> <td>Not allowed</td> </tr> </tbody> </table>	SETTING OF EQUALIOZER				SW2-1	SW2-2	SW2-3	DISTANCE	ON	ON	ON	0 ~ 40m	ON	ON	OFF	40 ~ 80m	ON	OFF	ON	80 ~ 120m	ON	OFF	OFF	120 ~ 160m	OFF	ON	ON	160 ~ 200m	Other combinations			Not allowed
	SETTING OF EQUALIOZER																																			
	SW2-1	SW2-2	SW2-3		DISTANCE																															
	ON	ON	ON	0 ~ 40m																																
	ON	ON	OFF	40 ~ 80m																																
	ON	OFF	ON	80 ~ 120m																																
	ON	OFF	OFF	120 ~ 160m																																
	OFF	ON	ON	160 ~ 200m																																
	Other combinations			Not allowed																																
	2																																			
3																																				
4	ON	×	24-Multiframe																																	
5	ON	×	Zero Suppress Select B8ZS (24-multiframe)																																	
6	ON	×	Standard setting																																	
7	OFF	×	Standard setting																																	
8	ON	×	Line fault is notified to the upper CPU.																																	
	OFF		Line fault is not notified to the upper CPU.																																	
SW3	1	OFF	×	Fixed																																
	2	OFF	×	Fixed																																
	3	OFF	×	Alarm processing select Fixed to OFF																																
	4	OFF	×	Main Signal All 1 supervision is not made.																																
	5	ON	×	Fixed																																
	6	ON	×	Fixed																																
	7	ON	×	Fixed																																
	8	ON	×	Fixed																																

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																												
SW4	1	OFF	×	Fixed (D channel)																												
	2	ON	×	D Channel Mode Selection; Used Side																												
		OFF		D Channel Mode Selection; Network Side																												
	3	ON		D Channel Signal Logic; Negative																												
		OFF	×	D Channel Signal Logic; Positive (Standard)																												
	4	ON	×	<table border="1"> <thead> <tr> <th>SW4-4</th> <th>SW4-5</th> <th>D-channel Speed</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>64 kbps (Standard)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Not used</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>56 kbps</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>Not used</td> </tr> </tbody> </table>	SW4-4	SW4-5	D-channel Speed	ON	ON	64 kbps (Standard)	OFF	ON	Not used	ON	OFF	56 kbps	OFF	OFF	Not used													
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OFF	ON	Not used																														
ON	OFF	56 kbps																														
OFF	OFF	Not used																														
5	ON	×																														
6	ON	×	Fixed																													
7	ON	×	Fixed																													
8	ON	×	Fixed																													
SW5	1	ON	×	PAD Pattern Selection																												
		OFF																														
	2	ON		<table border="1"> <thead> <tr> <th>SW5-1</th> <th>SW5-2</th> <th>SW5-3</th> <th>PAD Pattern</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>PAD Pattern 1</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>PAD Pattern 2</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>A→μ Loss (Bothway)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>A→μ Loss (Receive)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>μ→A Loss (Bothway)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>μ→A Loss (Receive)</td> </tr> </tbody> </table>	SW5-1	SW5-2	SW5-3	PAD Pattern	ON	OFF	ON	PAD Pattern 1	OFF	OFF	ON	PAD Pattern 2	ON	ON	OFF	A→μ Loss (Bothway)	OFF	ON	OFF	A→μ Loss (Receive)	ON	OFF	OFF	μ→A Loss (Bothway)	OFF	OFF	OFF	μ→A Loss (Receive)
		SW5-1	SW5-2		SW5-3	PAD Pattern																										
		ON	OFF		ON	PAD Pattern 1																										
		OFF	OFF		ON	PAD Pattern 2																										
	ON	ON	OFF	A→μ Loss (Bothway)																												
	OFF	ON	OFF	A→μ Loss (Receive)																												
	ON	OFF	OFF	μ→A Loss (Bothway)																												
	OFF	OFF	OFF	μ→A Loss (Receive)																												
	OFF	×																														
	ON	×																														
	OFF																															
	3	ON	×	<b>Note:</b> When setting this switch, refer to Digital PAD Setting Table.																												
		OFF																														
	4	ON	×	<table border="1"> <thead> <tr> <th>SW5-4</th> <th>SW5-5</th> <th>DIGITAL PAD CONTROL</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>Both directions</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Receive only (Standard)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Send only</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ARTD Fixed</td> </tr> </tbody> </table>	SW5-4	SW5-5	DIGITAL PAD CONTROL	ON	ON	Both directions	ON	OFF	Receive only (Standard)	OFF	ON	Send only	OFF	OFF	ARTD Fixed													
SW5-4		SW5-5	DIGITAL PAD CONTROL																													
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ON	OFF	Receive only (Standard)																														
OFF	ON	Send only																														
OFF	OFF	ARTD Fixed																														
OFF																																
5	ON		<table border="1"> <thead> <tr> <th>SW5-6</th> <th>SW5-7</th> <th>DATA PAD CONTROL</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>64 k (Standard)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>56 k AT &amp; T</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>64 k INV.</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>48 k PROTIMS</td> </tr> </tbody> </table>	SW5-6	SW5-7	DATA PAD CONTROL	ON	ON	64 k (Standard)	ON	OFF	56 k AT & T	OFF	ON	64 k INV.	OFF	OFF	48 k PROTIMS														
	SW5-6	SW5-7		DATA PAD CONTROL																												
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ON	OFF	56 k AT & T																														
OFF	ON	64 k INV.																														
OFF	OFF	48 k PROTIMS																														
OFF	×																															
6	ON	×																														
	OFF																															
7	ON	×																														
	OFF																															
8	ON		IDLE code is sent out.																													
	OFF	×	IDLE code is not sent out.																													

**Digital PAD Setting Table for PA-24PRTB-A**

This card is equipped with a mask ROM in which the following typical PAD patterns have been already written. PAD value is determined by selecting a desired PAD pattern, which can be done by key setting of the SW 5 (elements 1, 2, 3) on this card, and programming of the PAD data by the ARTD command - PAD. The selected PAD pattern and the programmed ARTD PAD data correspond as listed below.

PAD DATA ARTD PAD	PAD Pattern (selected by key setting)												
	PAD Pattern 1		PAD Pattern 2		$\mu \rightarrow A$ Loss (Bothway)		$\mu \rightarrow A$ Loss (Receive)		A $\rightarrow \mu$ Loss (Bothway)		A $\rightarrow \mu$ Loss (Receive)		
	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	
1	2 [dB]	2 [dB]	-3 [dB] <i>Note</i>	3 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]
2	4 [dB]	4 [dB]	3 [dB]	3 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]	4 [dB]
3	6 [dB]	6 [dB]	0 [dB]	6 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]	12 [dB]
4	8 [dB]	8 [dB]	3 [dB]	9 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]	8 [dB]
5	PAD value complies with key settings of SW5-6,7. (Irrelevant to PAD patterns)												
7	0 [dB]	0 [dB]	0 [dB]	0 [dB]	Through	Through	Through	Through	Through	Through	Through	Through	Through

**Note:** - represents "GAIN" in this table.

6. External Interface

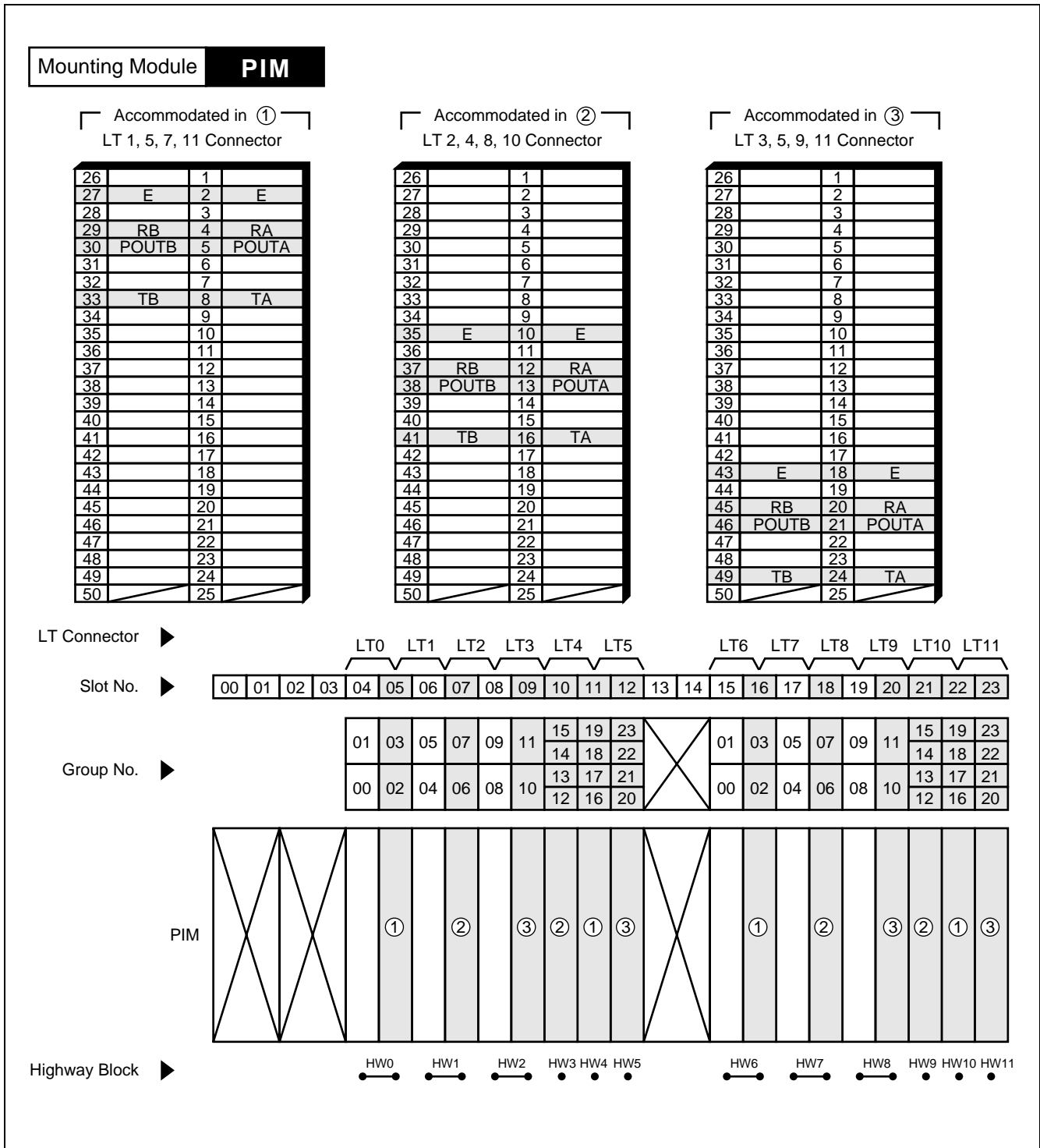
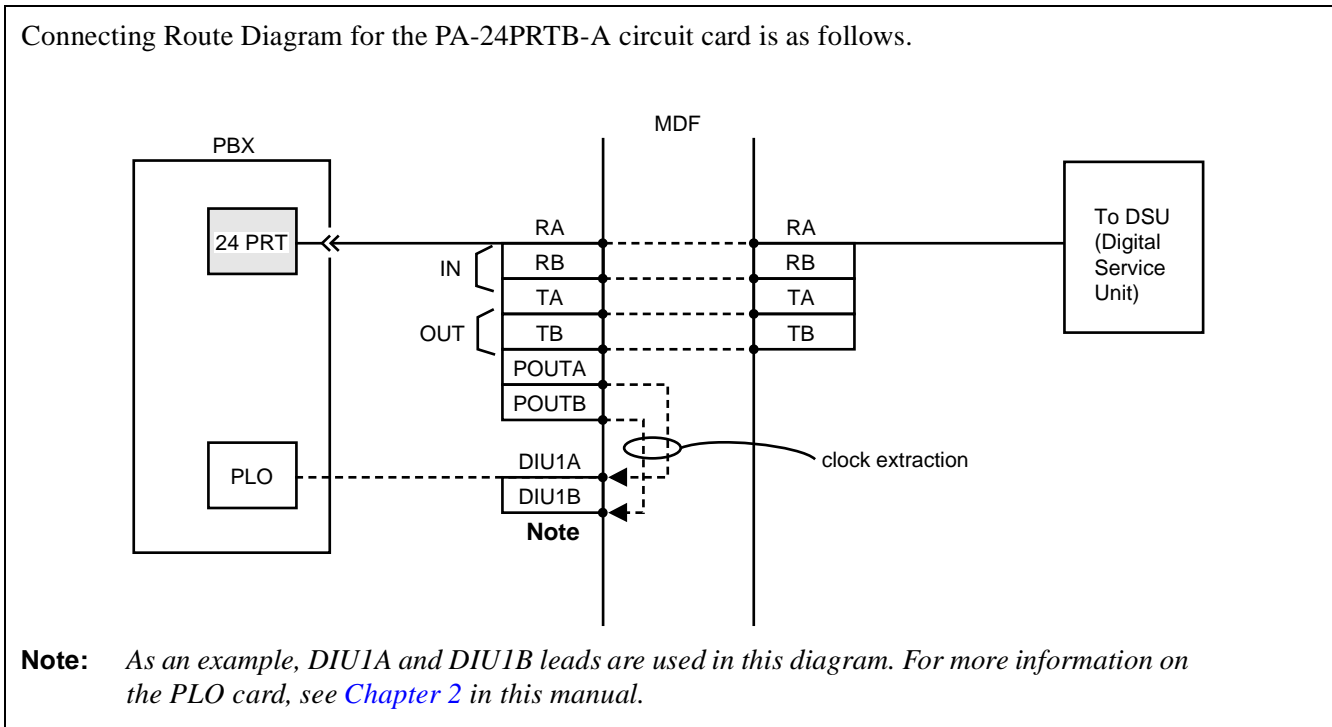


Figure 3-183 LT Connector Lead Accommodation

See also Connecting Route Diagram (Figure 3-184).

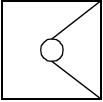
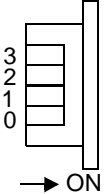
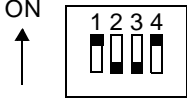
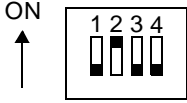


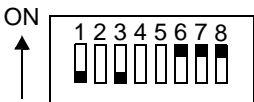

**PA-24PRTB-A**  
 Primary Rate Interface Trunk



**Figure 3-184 Connecting Route Diagram**



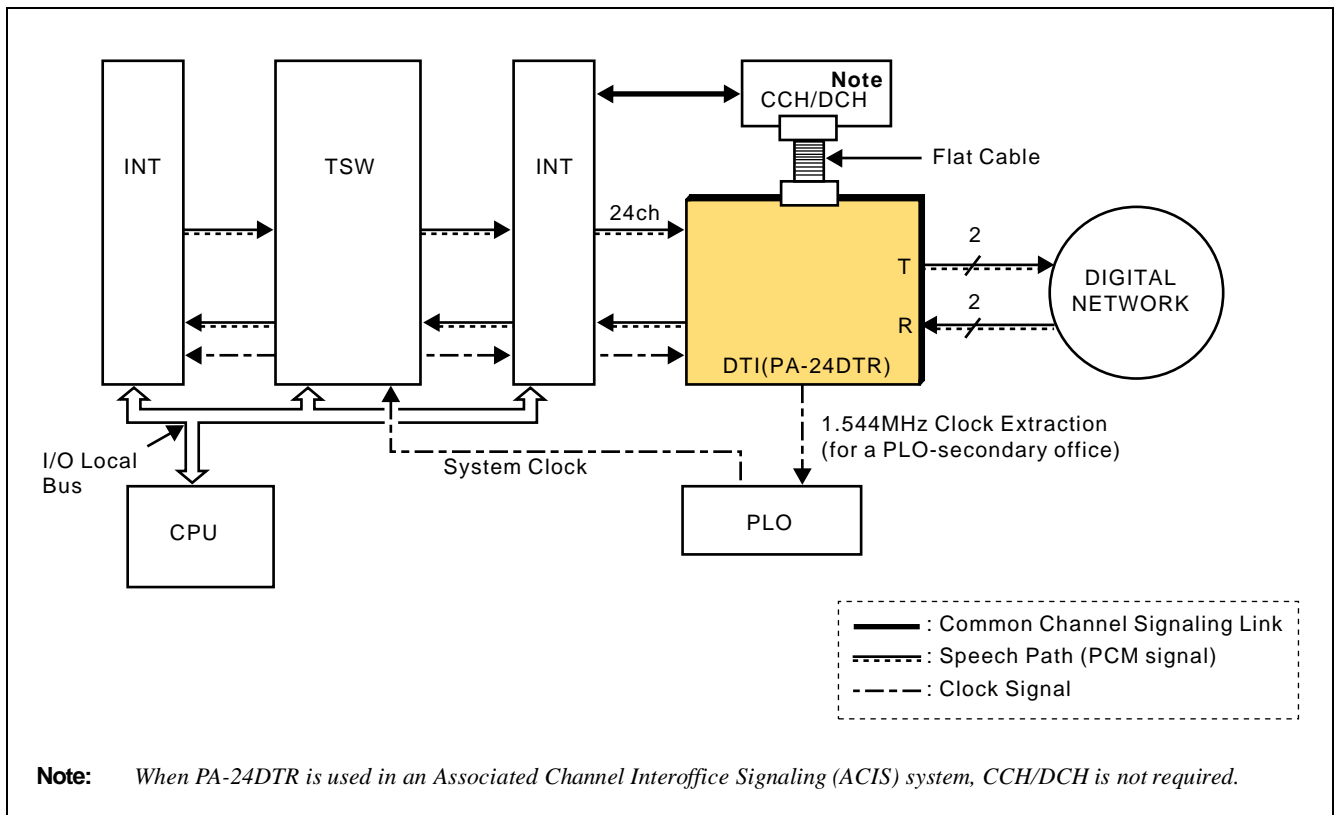
7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		MODE		
		LB		
		SW0		
		SW1		
		SW2		
		SW3		
		SW4		
		SW5		
				MB

**PA-24DTR (DTI)**  
**Digital Trunk Interface**

1. General Function

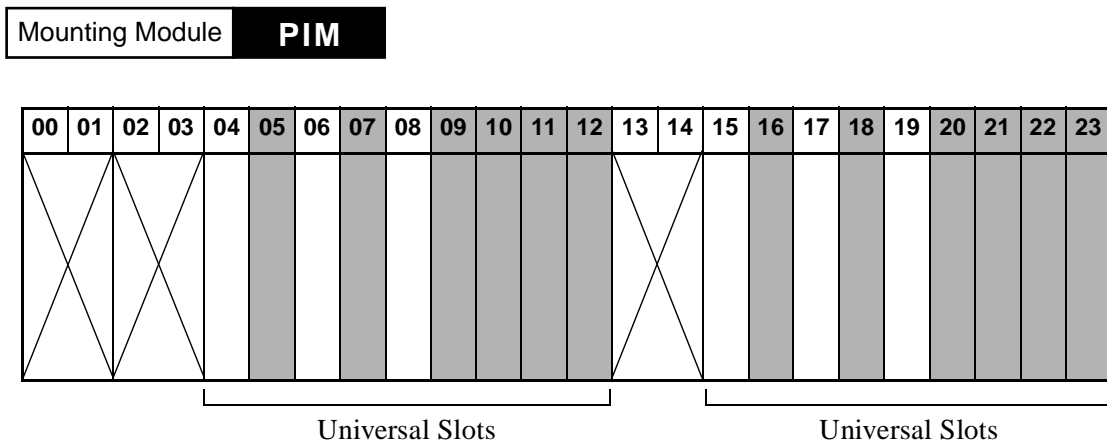
The PA-24DTR (24DTI) circuit card provides an interface between 24 digital trunks and the system at 1.544 Mbit/s. This card can be also used as an interface for a Common Channel Interoffice Signaling (CCIS) or an ISDN network when being connected to an additional CCH or DCH circuit card with a flat cable as illustrated below. A built-in resonance circuit can be used for the purpose of extracting clock signals when the PBX functions as a PLO-secondary switch. To obtain appropriate speech level, this card is equipped with a mask ROM in which typical PAD patterns have been already written. A desired PAD value can be easily selected by key settings and programming from the MAT.



**Figure 3-185 Location of PA-24DTR (DTI) within the System**

2. Mounting Location/Condition

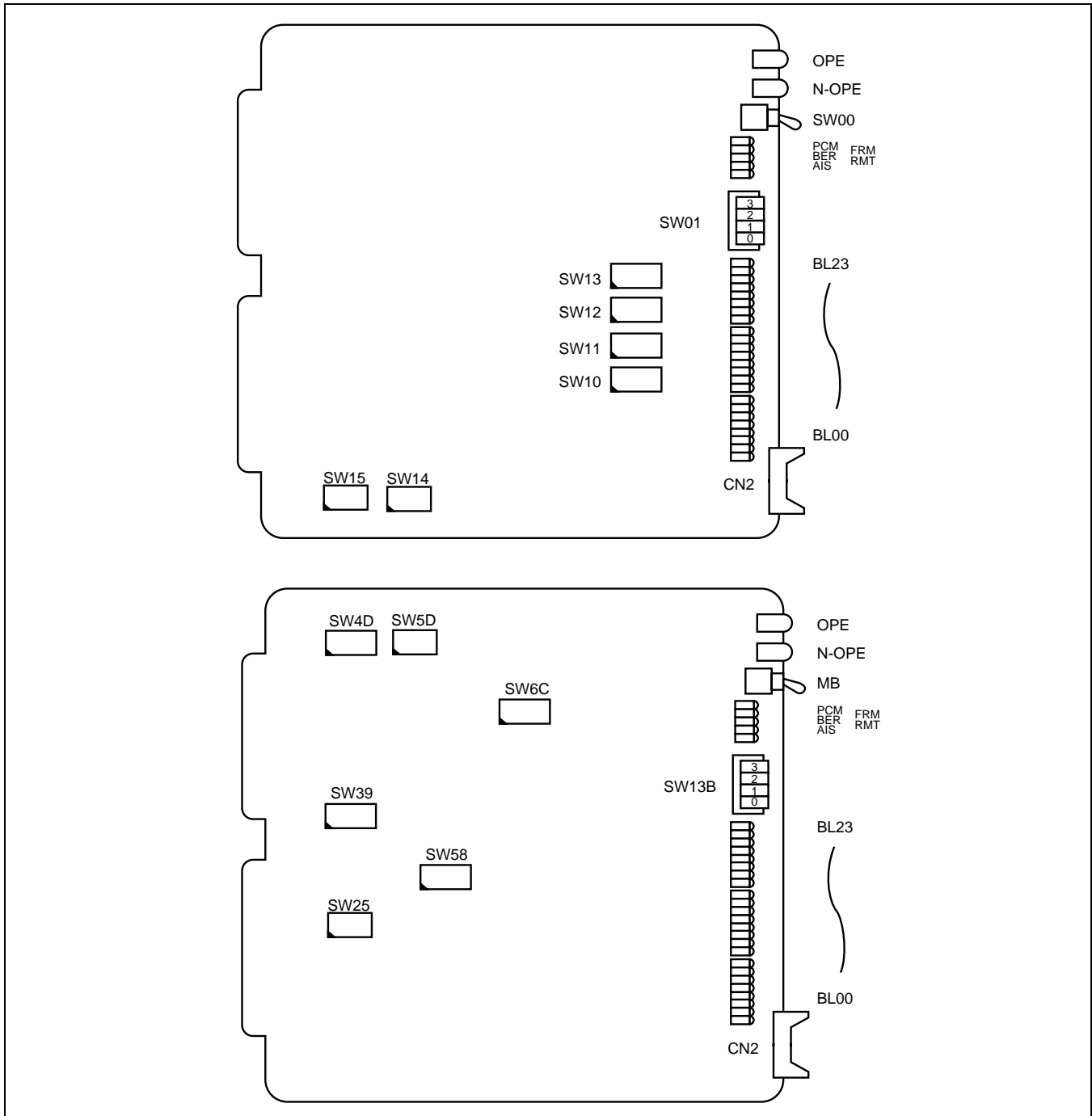
The PA-24DTR (DTI) card can be mounted in the following shaded slots as shown below.



**PA-24DTR (DTI)**  
 Digital Trunk Interface

3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-186](#). Note that there are two types of PA-24DTR (DTI) cards which differ in their face layouts.



**Figure 3-186 Face Layout of PA-24DTR (DTI)**

#### 4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in normal operation.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
PCM	Red	Lights in the case of input signal down (PCM LOSS).
FRM	Red	Lights in the case of frame alignment loss.
BER	Red	Lights when frequent bit errors occur in the case of 12-multiframe and when a CRC error occurs frequently in the case of 24-multiframe.
RMT	Red	Lights on receipt of remote alarm indication.
AIS	Yellow	Lights on receipt of Alarm Information Signal (AIS).
BL00 , BL23	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes while DP signals are being sent out or received (Flashes to dial pulses), or the corresponding circuit is in make-busy state (60IPM).
	OFF	Remains off when the corresponding circuit is idle.

**PA-24DTR (DTI)**  
Digital Trunk Interface

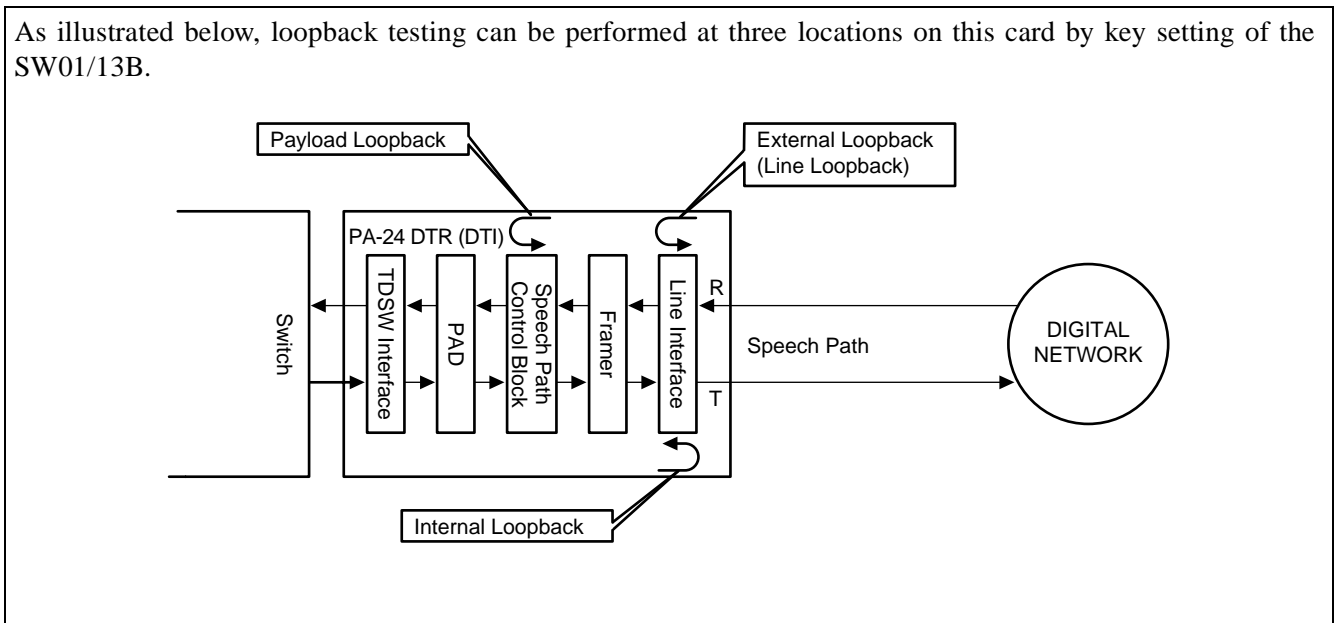
5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW00 (MB)		UP		Circuit card make busy
		DOWN	¥	Circuit card make busy cancel
SW01/13B	0	ON		Internal Loopback : Set
		OFF	¥	Internal Loopback : Cancel
	1	ON		External Loopback : Set
		OFF	¥	External Loopback : Cancel
	2	ON		Payload Loopback : Set
		OFF	¥	Payload Loopback : Cancel
	3	ON		All Channel Make Busy : Set <b>Note</b>
		OFF	¥	All Channel Make Busy : Cancel

**Note:** This switch setting is applicable for a system adopts Associated Channel Interoffice Signalling (ACIS).

As illustrated below, loopback testing can be performed at three locations on this card by key setting of the SW01/13B.



**Figure 3-187 Available Locations for Loopback Testing**

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																
SW15/25	1	ON	×	Impedance Setting: 100 [ $\Omega$ ]																
		OFF		Impedance Setting: 110 [ $\Omega$ ]																
	2	ON		Transformer at Middle Point - Transmission: Ground																
		OFF	×	Transformer at Middle Point - Transmission: Open																
	3	ON		Transformer at Middle Point - Receive: Ground																
		OFF	×	Transformer at Middle Point - Receive: Open																
	4	ON		Idle Code: To be sent out																
		OFF	×	Not to be sent out																
	SW11/39	1	ON		PAD Control <table border="1"> <thead> <tr> <th>SW11/39-1</th> <th>SW11/39-2</th> <th>PAD Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>Bothway</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>Receive only (Send 0dB)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Send only (Receive 0dB)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>Fixed to ARTD command</td> </tr> </tbody> </table>	SW11/39-1	SW11/39-2	PAD Control	ON	ON	Bothway	OFF	ON	Receive only (Send 0dB)	ON	OFF	Send only (Receive 0dB)	OFF	OFF	Fixed to ARTD command
			SW11/39-1	SW11/39-2		PAD Control														
ON		ON	Bothway																	
OFF		ON	Receive only (Send 0dB)																	
ON		OFF	Send only (Receive 0dB)																	
OFF		OFF	Fixed to ARTD command																	
OFF		×																		
2		ON	×																	
		OFF																		
3		ON	×	Data PAD Control <table border="1"> <thead> <tr> <th>SW11/39-3</th> <th>SW11/39-4</th> <th>Data PAD Value</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>64 Kbps</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>56 Kbps</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>48 Kbps</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>64 Kbps INV</td> </tr> </tbody> </table>		SW11/39-3	SW11/39-4	Data PAD Value	ON	ON	64 Kbps	OFF	ON	56 Kbps	ON	OFF	48 Kbps	OFF	OFF	64 Kbps INV
		SW11/39-3	SW11/39-4		Data PAD Value															
ON		ON	64 Kbps																	
OFF		ON	56 Kbps																	
ON		OFF	48 Kbps																	
OFF		OFF	64 Kbps INV																	
OFF																				
4		ON	×																	
		OFF																		
5		ON			T Signal Control <table border="1"> <thead> <tr> <th>SW11/39-5</th> <th>SW11/39-6</th> <th>T Signal Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ABCD</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ABAB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Bit Steal Inhibited</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>AAAA</td> </tr> </tbody> </table>	SW11/39-5	SW11/39-6	T Signal Control	ON	ON	ABCD	OFF	ON	ABAB	ON	OFF	Bit Steal Inhibited	OFF	OFF	AAAA
		SW11/39-5	SW11/39-6	T Signal Control																
ON	ON	ABCD																		
OFF	ON	ABAB																		
ON	OFF	Bit Steal Inhibited																		
OFF	OFF	AAAA																		
OFF																				
6	ON	×																		
	OFF																			
7	ON		R Signal Control <table border="1"> <thead> <tr> <th>SW11/39-7</th> <th>SW11/39-8</th> <th>R Signal Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ABCD</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ABAB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Bit Steal Inhibited</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>AAAA</td> </tr> </tbody> </table>	SW11/39-7		SW11/39-8	R Signal Control	ON	ON	ABCD	OFF	ON	ABAB	ON	OFF	Bit Steal Inhibited	OFF	OFF	AAAA	
	SW11/39-7	SW11/39-8		R Signal Control																
ON	ON	ABCD																		
OFF	ON	ABAB																		
ON	OFF	Bit Steal Inhibited																		
OFF	OFF	AAAA																		
OFF																				
8	ON	×																		
	OFF																			

**PA-24DTR (DTI)**  
 Digital Trunk Interface

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																												
SW10/4D	1	ON		Transmission Signal A Logic: Negative																												
		OFF	×	Transmission Signal A Logic: Positive																												
	2	ON		Receiving Signal A Logic: Negative																												
		OFF	×	Receiving Signal A Logic: Positive																												
	3	ON		RMT Alarm Sending: Not to be sent out																												
		OFF	×	RMT Alarm Sending: To be sent out																												
	4	ON	×	Simultaneous Seizure Supervision: Not to be controlled																												
		OFF		Simultaneous Seizure Supervision: To be controlled																												
	5	ON	×	Data Link Control: MOS																												
		OFF		Data Link Control: BOS (For NEAX2400 ICS)																												
	6	ON		Multiframe Selection: 12-Multiframe																												
		OFF		Multiframe Selection: 24-Multiframe																												
	7	ON		Signal Selection: AMI (Alternate Mark Inversion)																												
		OFF		Signal Selection: B8ZS (Bipolar with 8 Zeros Substitution)																												
	8	ON		When this switch is set to ON, Alarm Processing is selected for North America specification. (For NEAX2400 ICS, this Switch Setting is OFF.)																												
		OFF																														
SW12/58	1	ON		Equalizer Setting <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SW12/58-1</th> <th>SW12/58-2</th> <th>SW12/58-3</th> <th>Distance</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>0~133 (ft)/0~40 (m)</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>133~267 (ft)/40~80 (m)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>267~400 (ft)/80~120 (m)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>400~533(ft)/120~160 (m)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>533~667(feet)/ 160~200(m)</td> </tr> <tr> <td colspan="3" style="text-align: center;">Other Combinations</td> <td style="text-align: center;">Impossible</td> </tr> </tbody> </table>	SW12/58-1	SW12/58-2	SW12/58-3	Distance	ON	ON	ON	0~133 (ft)/0~40 (m)	ON	ON	OFF	133~267 (ft)/40~80 (m)	ON	OFF	ON	267~400 (ft)/80~120 (m)	ON	OFF	OFF	400~533(ft)/120~160 (m)	OFF	ON	ON	533~667(feet)/ 160~200(m)	Other Combinations			Impossible
		SW12/58-1	SW12/58-2		SW12/58-3	Distance																										
	ON	ON	ON		0~133 (ft)/0~40 (m)																											
	ON	ON	OFF		133~267 (ft)/40~80 (m)																											
	ON	OFF	ON		267~400 (ft)/80~120 (m)																											
	ON	OFF	OFF		400~533(ft)/120~160 (m)																											
	OFF	ON	ON		533~667(feet)/ 160~200(m)																											
	Other Combinations				Impossible																											
	OFF																															
	2	ON																														
OFF																																
3	ON																															
	OFF																															



SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																															
SW12/58	4	ON		PAD Pattern Selection																															
		OFF	×	<table border="1"> <thead> <tr> <th>SW12/58-4</th> <th>SW12/58-5</th> <th>SW12/58-6</th> <th>PAD Pattern</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>PAD Pattern 1</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>PAD Pattern 2</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>A→μ Loss (Bothway)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>A→μ Loss (Receive)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>μ→A Loss (Bothway)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>μ→A Loss (Receive)</td> </tr> <tr> <td colspan="3">Other Combinations</td> <td>Impossible</td> </tr> </tbody> </table>	SW12/58-4	SW12/58-5	SW12/58-6	PAD Pattern	OFF	ON	ON	PAD Pattern 1	OFF	ON	OFF	PAD Pattern 2	ON	OFF	ON	A→μ Loss (Bothway)	ON	OFF	OFF	A→μ Loss (Receive)	OFF	OFF	ON	μ→A Loss (Bothway)	OFF	OFF	OFF	μ→A Loss (Receive)	Other Combinations		
	SW12/58-4	SW12/58-5	SW12/58-6	PAD Pattern																															
	OFF	ON	ON	PAD Pattern 1																															
	OFF	ON	OFF	PAD Pattern 2																															
	ON	OFF	ON	A→μ Loss (Bothway)																															
	ON	OFF	OFF	A→μ Loss (Receive)																															
	OFF	OFF	ON	μ→A Loss (Bothway)																															
	OFF	OFF	OFF	μ→A Loss (Receive)																															
	Other Combinations			Impossible																															
	5	ON	×																																
		OFF																																	
	6	ON	×																																
		OFF			<b>Note:</b> When setting this key, refer to Digital PAD Setting Table.																														
7	ON	×		Alarm Sending when this circuit card is in N-OPE state.																															
	OFF			<table border="1"> <thead> <tr> <th>SW12/58-7</th> <th>SW12/58-8</th> <th>Kind of Alarm</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>Alarm is not sent out</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td></td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>All "1"</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>RMT</td> </tr> </tbody> </table>	SW12/58-7	SW12/58-8	Kind of Alarm	ON	ON	Alarm is not sent out	ON	OFF		OFF	ON	All "1"	OFF	OFF	RMT																
SW12/58-7	SW12/58-8	Kind of Alarm																																	
ON	ON	Alarm is not sent out																																	
ON	OFF																																		
OFF	ON	All "1"																																	
OFF	OFF	RMT																																	
8	ON	×																																	
	OFF			(For NEAX2400 ICS, Switch 12/58-7 Setting is OFF.)																															
SW14/5D	1	ON		Digital PAD ROM Selection: Special Specification (PROM Spec.)																															
		OFF	×	Digital PAD ROM Selection: Standard Specification (MASK ROM Spec.)																															
	2	ON	×	LAYER 2 Signal Logic: Positive <b>Note:</b>																															
		OFF		LAYER 2 Signal Logic: Negative																															
	3	ON		Send a notice in the event of a line fault.																															
		OFF	×	Do not send a notice in the event of a line fault.																															
	4	ON		Zero Code Suppression is not provided.																															
		OFF		Zero Code Suppression is provided.																															

**PA-24DTR (DTI)**  
 Digital Trunk Interface

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING	
SW13/6C	1	ON	×	Fixed to all ON.	
		OFF			
	2	ON	×		
		OFF			
	3	ON	×		
		OFF			
	4	ON	×		
		OFF			
	5	ON	×		
		OFF			
	6	ON	×		
		OFF			
	7	ON	×		
		OFF			
	8	ON	×		Netfusing : Not used
		OFF			Netfusing : used

**Digital PAD Setting Table for PA-24DTR (DTI)**

As mentioned in General Function, this card is equipped with a mask ROM in which the following typical PAD patterns have been already written. PAD value is determined by selecting a desired PAD pattern, which can be done by key setting of the SW 12/58 (elements 4, 5, 6) on this card, and programming of the PAD data by the ARTD command - CDN=30(PAD). The PAD patterns and ARTD data correspond as listed below.

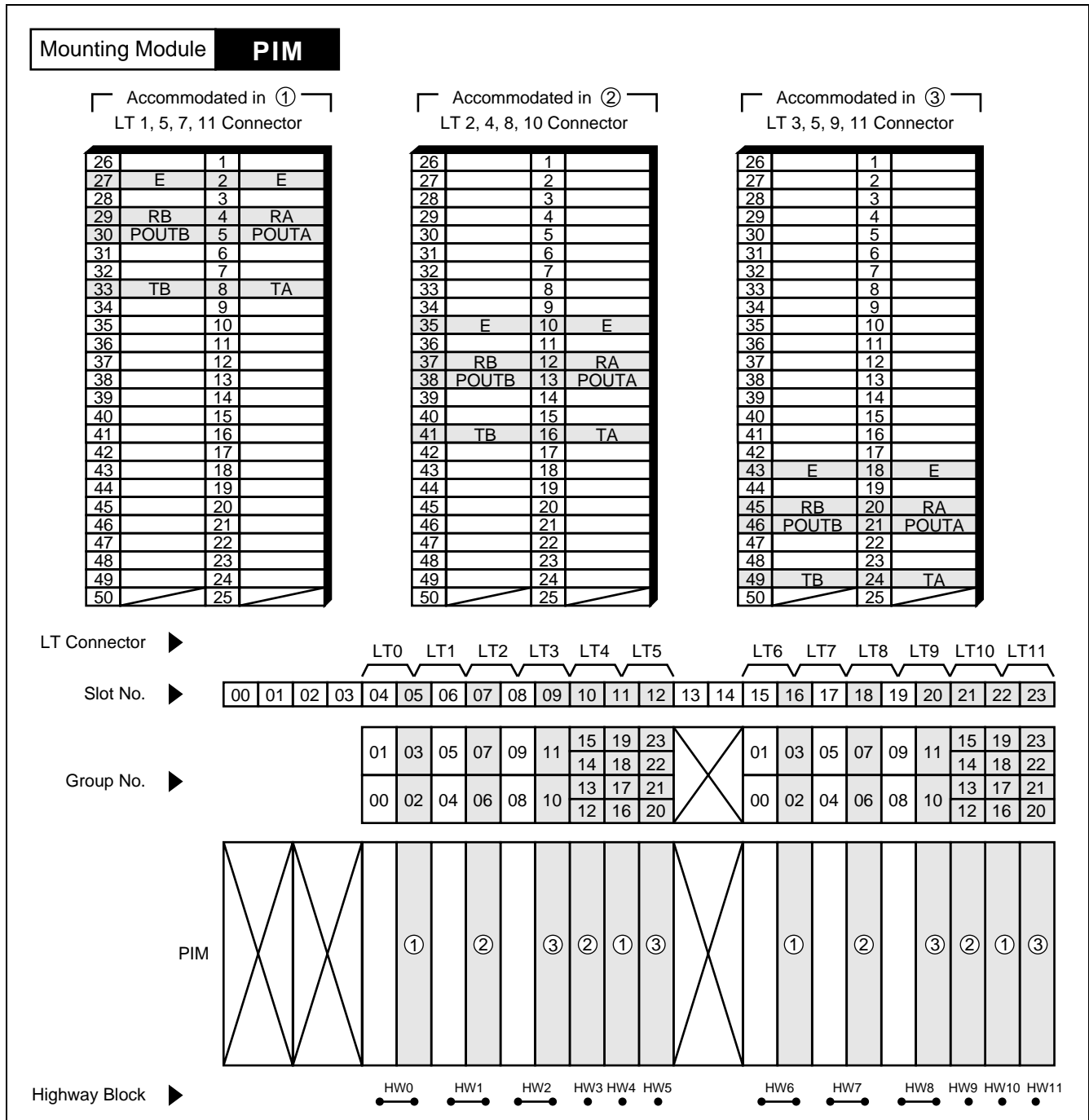
PAD DATA ARTD CDN=30	PAD Pattern (selected by key setting)												
	PAD Pattern 1		PAD Pattern 2		A→μ Loss (Bothway)		A→μ Loss (Receive)		μ→A Loss (Bothway)		μ→A Loss (Receive)		
	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	
1	2 [dB]	2 [dB]	-3 [dB] Note	3 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]
2	4 [dB]	4 [dB]	3 [dB]	3 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]	4 [dB]
3	6 [dB]	6 [dB]	0 [dB]	6 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]	6 [dB]
4	8 [dB]	8 [dB]	3 [dB]	9 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]	8 [dB]
5	Key settings of SW 11/39 - 3,4 correspond to PAD values. (Regardless of PAD patterns).												
7	0 [dB]	0 [dB]	0 [dB]	0 [dB]	Through	Through	Through	Through	Through	Through	Through	Through	Through

**Note:** - represents "GAIN" in this table.

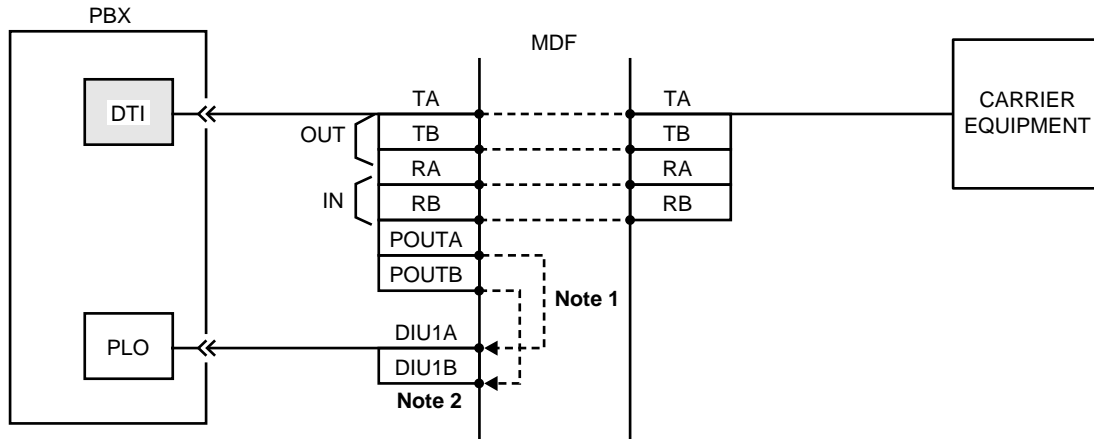
**PA-24DTR (DTI)**  
Digital Trunk Interface

6. External Interface

The leads appear as follows on the LT connectors.



Connecting Route Diagram for the PA-24DTR (DTI) circuit card is as follows.

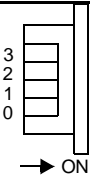
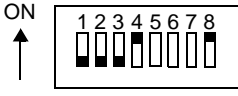
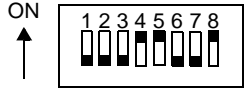
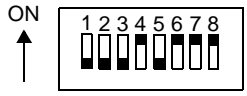
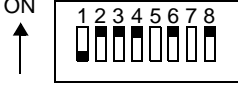
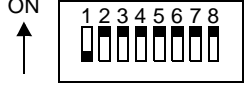
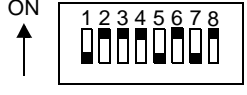
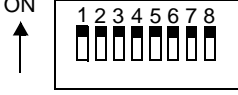
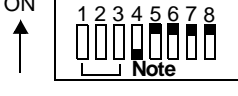
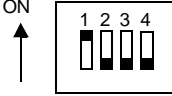





**Note 1:** This cable connection is required when clock signals must be extracted from the network side.

**Note 2:** As an example, DIU1A and DIU1B leads are used in this diagram. For more information about these leads, see [Chapter 2](#) in this manual.

Figure 3-189 Connecting Route Diagram

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW01/13B		
		SW10/4D		<ul style="list-style-type: none"> <li>4-multiframe DTI Standard </li> <li>12-multiframe DTI Standard </li> </ul>
		SW11/39		<ul style="list-style-type: none"> <li>24-multiframe DTI Standard </li> <li>12-multiframe DTI Standard </li> </ul>
		SW13/6C		<ul style="list-style-type: none"> <li>Fixed to all ON.</li> </ul>
		SW12/58		<b>Note:</b> Equalizer Setting
		SW15/25		
		SW14/5D		<ul style="list-style-type: none"> <li>24-multiframe DTI Standard </li> <li>12-multiframe DTI Standard </li> </ul>
		SW00/MB		DOWN

## PA-24DTR (DLI) Digital Line Interface

### 1. General Function

The PA-24DTR (24DLI) circuit card provides an interface between 24 digital lines and the system at 1.544 Mbit/s. To obtain appropriate speech level, this card is equipped with a mask ROM in which typical PAD patterns have been already written. A desired PAD value can be easily selected by key settings.

**Note:** *The key settings become valid when SYS1 INDEX4 bit5=1.*

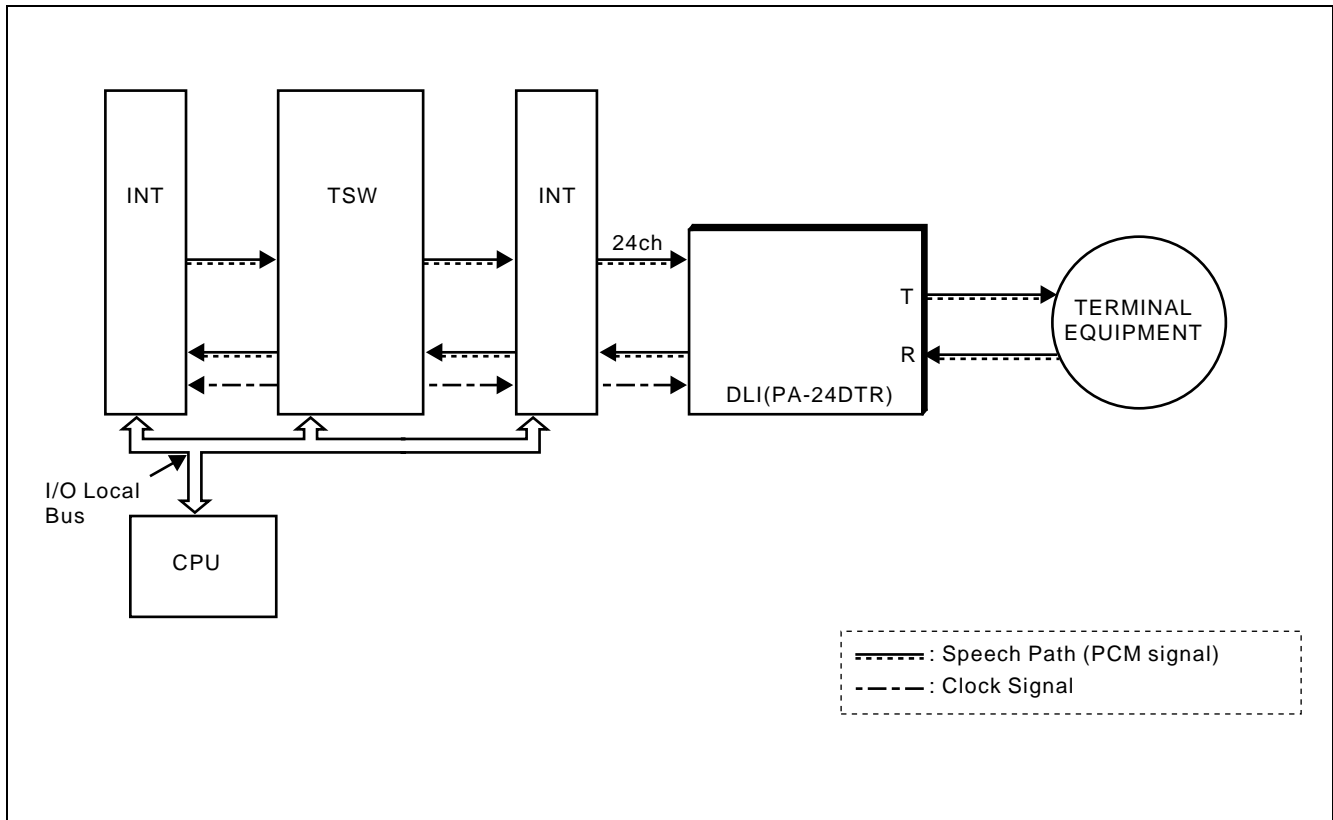
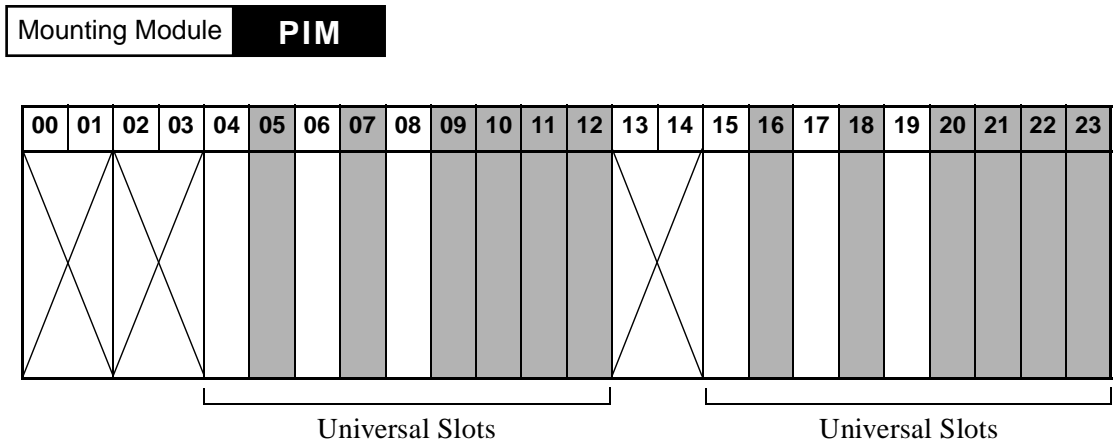


Figure 3-190 Location of PA-24DTR (DLI) within the System

**PA-24DTR (DLI)**  
Digital Line Interface

2. Mounting Location/Condition

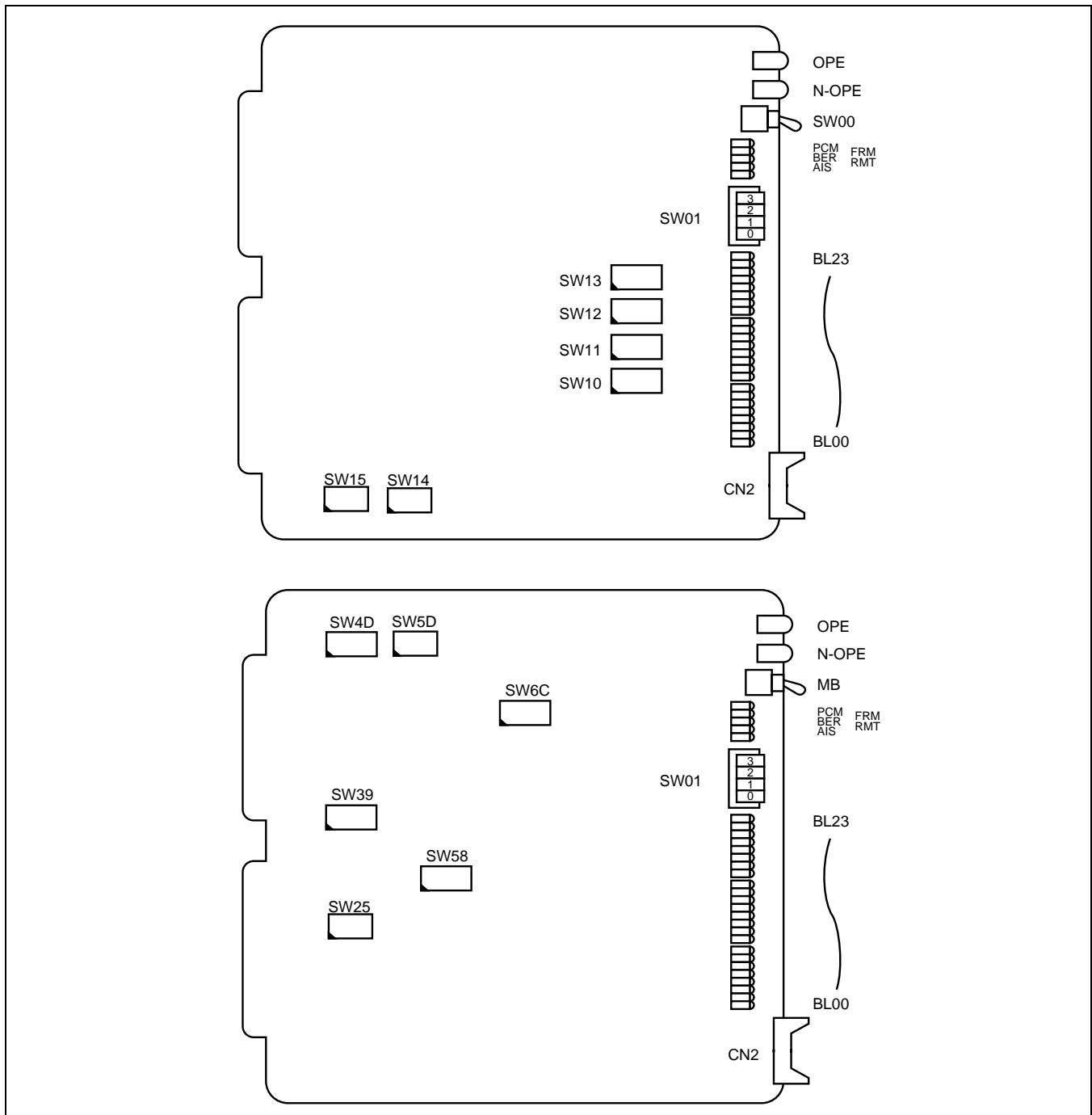
The PA-24DTR (DLI) card can be mounted in the following shaded slots as shown below.





3. Face Layout of Lamps, Switches, and Connectors

The face layout of lamps, switches, and connectors on this circuit card is shown in [Figure 3-191](#). Note that there are two types of PA-24DTR (DLI) cards which differ in their face layouts.



**Figure 3-191 Face Layout of PA-24DTR (DLI)**

**PA-24DTR (DLI)**  
Digital Line Interface

4. Lamp Indications

The contents of lamp indications on this circuit card are shown in the table below.

LAMP NAME	COLOR	STATE
OPE	Green	Remains lit while this circuit card is in normal operation.
N-OPE	Red	Remains lit while this circuit card is in make-busy state.
PCM	Red	Lights in the case of input signal down (PCM LOSS).
FRM	Red	Lights in the case of frame alignment loss.
BER	Red	Lights when frequent bit errors occur in the case of 12-multiframe and when a CRC error occurs frequently in the case of 24-multiframe.
RMT	Red	Lights on receipt of remote alarm indication.
AIS	Yellow	Lights on receipt of Alarm Information Signal (AIS).
BL00 , BL23	Green	Lights when the corresponding circuit is busy.
	Flash	Flashes while DP signals are being sent out or received (Flashes to dial pulses), or the corresponding circuit is in make-busy state (60 IPM).
	OFF	Remains off when the corresponding circuit is idle.

5. Switch Settings

Standard settings of switches on this circuit card are shown in the table below.

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING
SW00 (MB)		UP		Circuit card make busy
		DOWN	×	Circuit card make busy cancel
SW01/13B	0	ON		Internal Loopback : Set
		OFF	×	Internal Loopback : Cancel
	1	ON		External Loopback : Set
		OFF	×	External Loopback : Cancel
	2	ON		Payload Loopback : Set
		OFF	×	Payload Loopback : Cancel
	3	OFF	×	Not used (Fixed to OFF)

As illustrated below, loopback testing can be performed at three locations on this card by key setting of the SW01/13B.

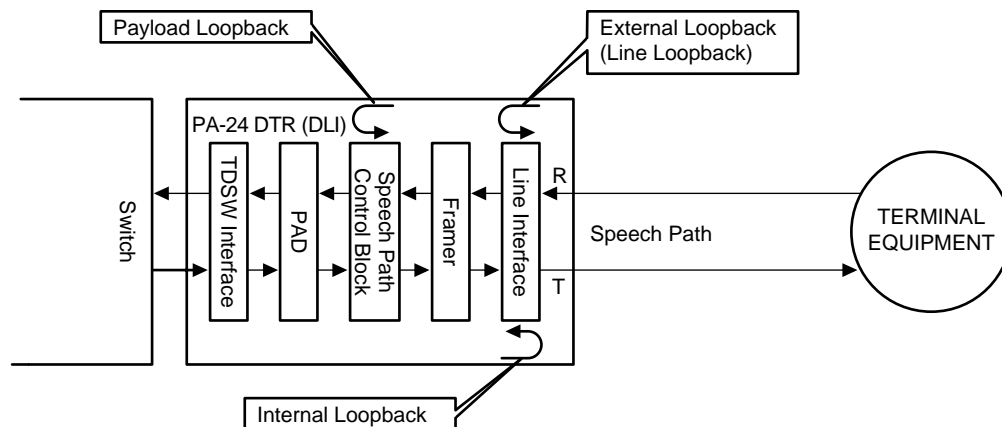


Figure 3-192 Available Locations for Loopback Testing

**PA-24DTR (DLI)**  
Digital Line Interface

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																		
SW15/25	1	ON	×	Impedance Setting: 100 [ $\Omega$ ]																		
		OFF		Impedance Setting: 110 [ $\Omega$ ]																		
	2	ON		Transformer at Middle Point - Transmission: Ground																		
		OFF	×	Transformer at Middle Point - Transmission: Open																		
	3	ON		Transformer at Middle Point - Receive: Ground																		
		OFF	×	Transformer at Middle Point - Receive: Open																		
	4	ON		Idle Code: To be sent out																		
		OFF	×	Not to be sent out																		
SW11/39	1	ON		One Digit Dialing: Valid																		
		OFF	×	One Digit Dialing: Invalid																		
	2	OFF	×	Not used (Fixed to OFF)																		
	3	OFF	×	Not used (Fixed to OFF)																		
	4	OFF	×	Not used (Fixed to OFF)																		
	5	ON		<table border="1"> <thead> <tr> <th colspan="3">T Signal Control</th> </tr> <tr> <th>SW11/39-5</th> <th>SW11/39-6</th> <th>T Signal Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ABCD</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ABAB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Bit Steal Inhibited</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>AAAA</td> </tr> </tbody> </table>	T Signal Control			SW11/39-5	SW11/39-6	T Signal Control	ON	ON	ABCD	OFF	ON	ABAB	ON	OFF	Bit Steal Inhibited	OFF	OFF	AAAA
		T Signal Control																				
	SW11/39-5	SW11/39-6	T Signal Control																			
	ON	ON	ABCD																			
	OFF	ON	ABAB																			
	ON	OFF	Bit Steal Inhibited																			
	OFF	OFF	AAAA																			
OFF																						
6	ON	×																				
	OFF																					
7	ON		<table border="1"> <thead> <tr> <th colspan="3">R Signal Control</th> </tr> <tr> <th>SW11/39-7</th> <th>SW11/39-8</th> <th>R Signal Control</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ABCD</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ABAB</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>Bit Steal Inhibited</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>AAAA</td> </tr> </tbody> </table>		R Signal Control			SW11/39-7	SW11/39-8	R Signal Control	ON	ON	ABCD	OFF	ON	ABAB	ON	OFF	Bit Steal Inhibited	OFF	OFF	AAAA
	R Signal Control																					
SW11/39-7	SW11/39-8	R Signal Control																				
ON	ON	ABCD																				
OFF	ON	ABAB																				
ON	OFF	Bit Steal Inhibited																				
OFF	OFF	AAAA																				
OFF																						
8	ON	×																				
	OFF																					

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																												
SW10/4D	1	ON		Transmission Signal A Logic: Negative																												
		OFF	×	Transmission Signal A Logic: Positive																												
	2	ON		Receiving Signal A Logic: Negative																												
		OFF	×	Receiving Signal A Logic: Positive																												
	3	ON		RMT Alarm Sending: Not to be sent out																												
		OFF	×	RMT Alarm Sending: To be sent out																												
	4	OFF	×	Not used (Fixed to OFF)																												
	5	ON	×	Data Link Control: MOS																												
		OFF		Data Link Control: BOS																												
	6	ON		Multiframe Selection: 12-Multiframe																												
		OFF		Multiframe Selection: 24-Multiframe																												
	7	ON		Signal Selection: AMI (Alternate Mark Inversion)																												
		OFF		Signal Selection: B8ZS (Bipolar with 8 Zeros Substitution)																												
	8	ON		When this switch is set to ON, Alarm Processing is selected for North America specification. (For NEAX2400 ICS, this Switch Setting is OFF.)																												
OFF																																
SW12/58	1	ON		Equalizer Setting <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SW12/58-1</th> <th>SW12/58-2</th> <th>SW12/58-3</th> <th>Distance</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td>ON</td> <td>0~133 (feet)/0~40 (m)</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> <td>133~267 (feet)/40~80 (m)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>267~400 (feet)/80~120 (m)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>400~533 (feet)/120~160 (m)</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>533~667 (feet)/160~200 (m)</td> </tr> <tr> <td colspan="3" style="text-align: center;">Other Combinations</td> <td style="text-align: center;">Impossible</td> </tr> </tbody> </table>	SW12/58-1	SW12/58-2	SW12/58-3	Distance	ON	ON	ON	0~133 (feet)/0~40 (m)	ON	ON	OFF	133~267 (feet)/40~80 (m)	ON	OFF	ON	267~400 (feet)/80~120 (m)	ON	OFF	OFF	400~533 (feet)/120~160 (m)	OFF	ON	ON	533~667 (feet)/160~200 (m)	Other Combinations			Impossible
		SW12/58-1	SW12/58-2		SW12/58-3	Distance																										
	ON	ON	ON		0~133 (feet)/0~40 (m)																											
	ON	ON	OFF		133~267 (feet)/40~80 (m)																											
	ON	OFF	ON		267~400 (feet)/80~120 (m)																											
	ON	OFF	OFF		400~533 (feet)/120~160 (m)																											
	OFF	ON	ON		533~667 (feet)/160~200 (m)																											
	Other Combinations				Impossible																											
	OFF																															
	2	ON																														
OFF																																
3	ON																															
	OFF																															

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																
SW12/58	4	ON		PAD Pattern Selection <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SW12/58-4</th> <th>SW12/58-5</th> <th>SW12/58-6</th> <th>PAD Pattern</th> </tr> </thead> <tbody> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> <td>PAD Pattern 1</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>OFF</td> <td>PAD Pattern 2</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> <td>A→μ Loss (Bothway)</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>A→μ Loss (Receive)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> <td>μ→A Loss (Bothway)</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>μ→A Loss (Receive)</td> </tr> <tr> <td colspan="3" style="text-align: center;">Other Combinations</td> <td style="text-align: center;">Impossible</td> </tr> </tbody> </table> <b>Note:</b> When setting this key, refer to Digital PAD Setting Table.	SW12/58-4	SW12/58-5	SW12/58-6	PAD Pattern	OFF	ON	ON	PAD Pattern 1	OFF	ON	OFF	PAD Pattern 2	ON	OFF	ON	A→μ Loss (Bothway)	ON	OFF	OFF	A→μ Loss (Receive)	OFF	OFF	ON	μ→A Loss (Bothway)	OFF	OFF	OFF	μ→A Loss (Receive)	Other Combinations			Impossible
		SW12/58-4	SW12/58-5		SW12/58-6	PAD Pattern																														
	OFF	ON	ON		PAD Pattern 1																															
	OFF	ON	OFF		PAD Pattern 2																															
	ON	OFF	ON		A→μ Loss (Bothway)																															
	ON	OFF	OFF		A→μ Loss (Receive)																															
	OFF	OFF	ON		μ→A Loss (Bothway)																															
	OFF	OFF	OFF		μ→A Loss (Receive)																															
	Other Combinations				Impossible																															
	OFF	×																																		
	5	ON	×																																	
		OFF																																		
	6	ON	×																																	
		OFF																																		
7	ON	×	Alarm Sending when this circuit card is in N-OPE state. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SW12/58-7</th> <th>SW12/58-8</th> <th>Kind of Alarm</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>ON</td> <td rowspan="2" style="text-align: center;">Alarm is not sent out</td> </tr> <tr> <td>ON</td> <td>OFF</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td style="text-align: center;">All "1"</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td style="text-align: center;">RMT</td> </tr> </tbody> </table> (For NEAX2400 ICS, Switch 12/58-7 standard Setting is OFF.)	SW12/58-7	SW12/58-8	Kind of Alarm	ON	ON	Alarm is not sent out	ON	OFF	OFF	ON	All "1"	OFF	OFF	RMT																			
	SW12/58-7	SW12/58-8		Kind of Alarm																																
ON	ON	Alarm is not sent out																																		
ON	OFF																																			
OFF	ON	All "1"																																		
OFF	OFF	RMT																																		
OFF																																				
8	ON	×																																		
	OFF																																			
SW14/5D	1	ON		Digital PAD ROM Selection: Special Specification (PROM Spec.)																																
		OFF	×	Digital PAD ROM Selection: Standard Specification (MASK ROM Spec.)																																
	2	ON	×	LAYER 2 Signal Logic: Positive																																
		OFF		LAYER 2 Signal Logic: Negative																																
	3	ON		Send a notice in the event of a line fault.																																
		OFF	×	Do not send a notice in the event of a line fault.																																
	4	ON		Zero Code Suppression is not provided.																																
		OFF		Zero Code Suppression is provided.																																

SWITCH NAME	SWITCH NO.	SETTING	STANDARD SETTING	MEANING																																				
SW13/6C	1	ON		Main Signal All 1 Supervision: Valid																																				
		OFF	×	Main Signal All 1 Supervision: Invalid																																				
	2	ON	×	Ringer Control: Continuous																																				
		OFF		Ringer Control: Intermittent																																				
	3	ON		Sending PAD Value Selection (PAD Pattern1) <b>Note</b>																																				
		OFF	×																																					
	4	ON		<table border="1"> <thead> <tr> <th>SW13/6C-3</th> <th>SW13/6C-4</th> <th>SW13/6C-5</th> <th>PAD Value</th> </tr> </thead> <tbody> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>0 dB</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>2 dB</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>4 dB</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>6 dB</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>8 dB</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>0 dB</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>0 dB</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td><td>0 dB</td></tr> </tbody> </table>	SW13/6C-3	SW13/6C-4	SW13/6C-5	PAD Value	OFF	OFF	OFF	0 dB	OFF	OFF	ON	2 dB	OFF	ON	OFF	4 dB	OFF	ON	ON	6 dB	ON	OFF	OFF	8 dB	ON	OFF	ON	0 dB	ON	ON	OFF	0 dB	ON	ON	ON	0 dB
		SW13/6C-3	SW13/6C-4		SW13/6C-5	PAD Value																																		
	OFF	OFF	OFF		0 dB																																			
	OFF	OFF	ON		2 dB																																			
	OFF	ON	OFF		4 dB																																			
	OFF	ON	ON		6 dB																																			
	ON	OFF	OFF		8 dB																																			
	ON	OFF	ON		0 dB																																			
	ON	ON	OFF		0 dB																																			
	ON	ON	ON		0 dB																																			
	OFF	×																																						
	5	ON	×																																					
		OFF																																						
	6	ON		Receiving PAD Value Selection (PAD Pattern1) <b>Note</b>																																				
		OFF	×																																					
	7	ON		<table border="1"> <thead> <tr> <th>SW13/6C-6</th> <th>SW13/6C-7</th> <th>SW13/6C-8</th> <th>PAD Value</th> </tr> </thead> <tbody> <tr><td>OFF</td><td>OFF</td><td>OFF</td><td>0 dB</td></tr> <tr><td>OFF</td><td>OFF</td><td>ON</td><td>2 dB</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td><td>4 dB</td></tr> <tr><td>OFF</td><td>ON</td><td>ON</td><td>6 dB</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td><td>8 dB</td></tr> <tr><td>ON</td><td>OFF</td><td>ON</td><td>0 dB</td></tr> <tr><td>ON</td><td>ON</td><td>OFF</td><td>0 dB</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td><td>0 dB</td></tr> </tbody> </table>	SW13/6C-6	SW13/6C-7	SW13/6C-8	PAD Value	OFF	OFF	OFF	0 dB	OFF	OFF	ON	2 dB	OFF	ON	OFF	4 dB	OFF	ON	ON	6 dB	ON	OFF	OFF	8 dB	ON	OFF	ON	0 dB	ON	ON	OFF	0 dB	ON	ON	ON	0 dB
		SW13/6C-6	SW13/6C-7		SW13/6C-8	PAD Value																																		
	OFF	OFF	OFF		0 dB																																			
OFF	OFF	ON	2 dB																																					
OFF	ON	OFF	4 dB																																					
OFF	ON	ON	6 dB																																					
ON	OFF	OFF	8 dB																																					
ON	OFF	ON	0 dB																																					
ON	ON	OFF	0 dB																																					
ON	ON	ON	0 dB																																					
OFF	×																																							
8	ON																																							
	OFF	×																																						

**Note:** This PAD value table is PAD pattern 1. If other PAD pattern is required, assign PAD pattern by elements 4~6 of SW12/58. The elements become valid when assigning ASYD SYS1 INDEX4 bit5=1. When ASYD SYS1 INDEX4 bit5=0, PAD value is "0dB".

**PA-24DTR (DLI)**  
Digital Line Interface

**Digital PAD Setting Table for PA-24DTR (DLI)**

As mentioned in General Function, this card is equipped with a mask ROM in which the following typical PAD patterns have been already written. PAD value is determined by selecting a desired PAD pattern, which can be done by key setting of the SW 12/58 (elements 4, 5, 6) on this card.

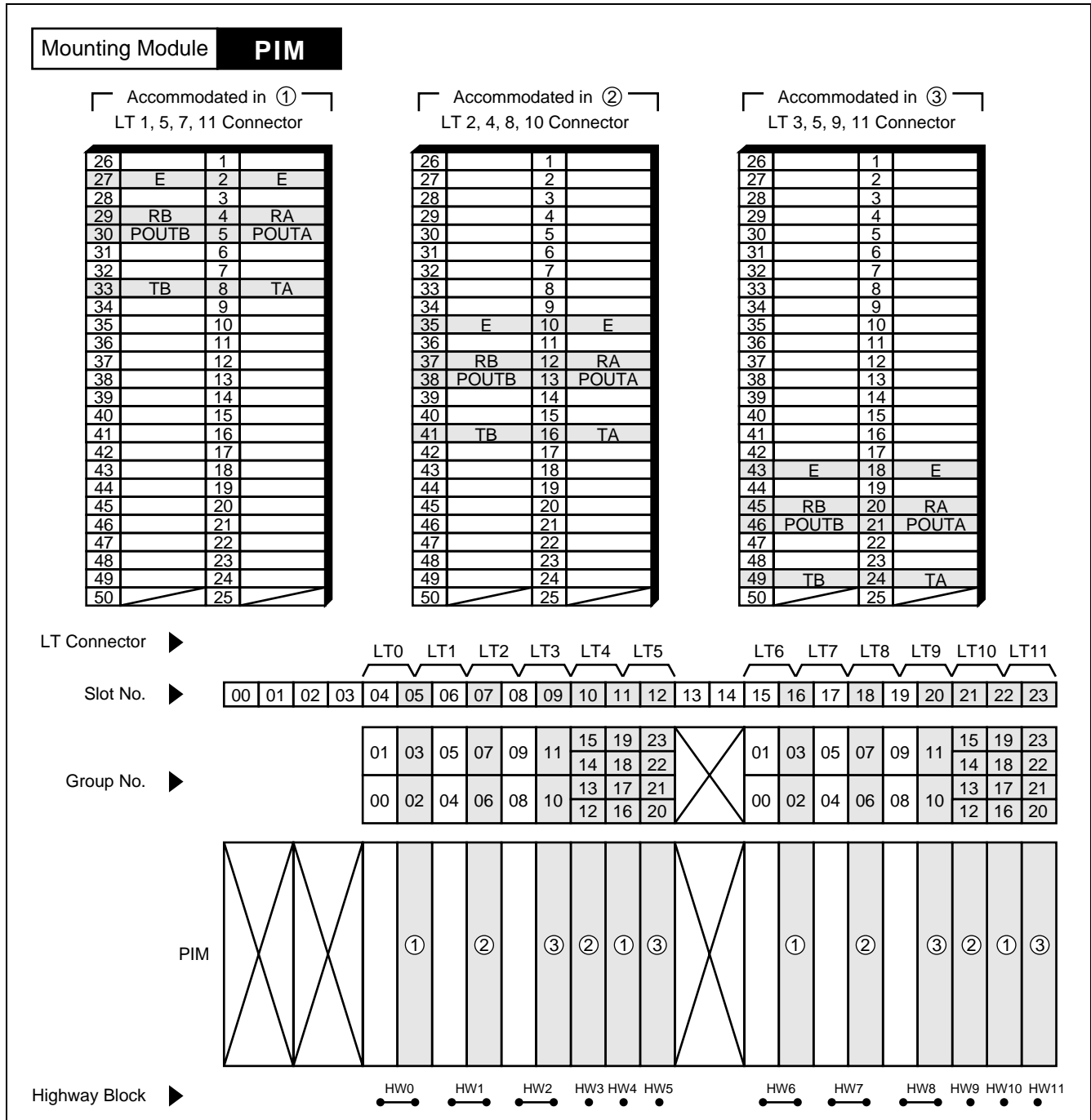
SW13/6C			PAD Pattern (selected by key setting)											
SEND-3,4,5 RECEIVE-6,7,8			PAD Pattern 1		PAD Pattern 2		A→μ Loss (Bothway)		A→μ Loss (Receive)		μ→A Loss (Bothway)		μ→A Loss (Receive)	
3	4	5	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE	SEND	RECEIVE
6	7	8												
OFF	OFF	OFF	0 [dB]	0 [dB]	0 [dB]	0 [dB]	Through	Through	Through	Through	Through	Through	Through	Through
OFF	OFF	ON	2 [dB]	2 [dB]	-3 [dB] Note	3 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]	0 [dB]
OFF	ON	OFF	4 [dB]	4 [dB]	3 [dB]	3 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]	4 [dB]	4 [dB]	0 [dB]	4 [dB]
OFF	ON	ON	6 [dB]	6 [dB]	0 [dB]	6 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]	6 [dB]	6 [dB]	0 [dB]	12 [dB]
ON	OFF	OFF	8 [dB]	8 [dB]	3 [dB]	9 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]	8 [dB]	8 [dB]	0 [dB]	8 [dB]

**Note:** - represents "GAIN" in this table.



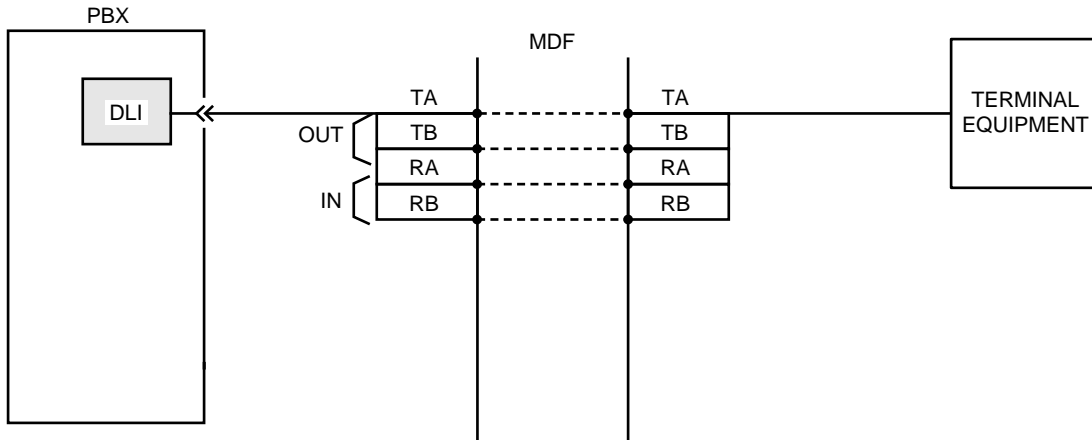
6. External Interface

The leads appear as follows on the LT connectors.



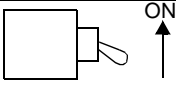
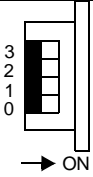
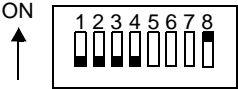
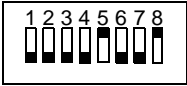

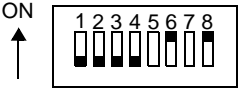
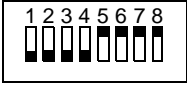


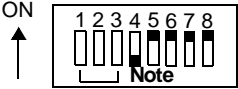




**PA-24DTR (DLI)**  
Digital Line Interface

Connecting Route Diagram for the PA-24DTR (DLI) circuit card is as follows.



**Figure 3-194 Connecting Route Diagram**

7. Switch Setting Sheet

MODULE	SLOT NO.	SWITCH NAME	SWITCH SHAPE	REMARKS
PIM		SW00 (MB)		
		SW01/13B		
		SW10/4D		<ul style="list-style-type: none"> <li>24-multiframe DLI Standard ON ↑ </li> <li>12-multiframe DLI Standard ON ↑ </li> </ul>
		SW11/39		<ul style="list-style-type: none"> <li>24-multiframe DLI Standard ON ↑ </li> <li>12-multiframe DLI Standard ON ↑ </li> </ul>
		SW13/6C		
		SW12/58		<b>Note:</b> Equalizer Setting
		SW15/25		
		SW14/5D		<ul style="list-style-type: none"> <li>24-multiframe DLI Standard ON ↑ </li> <li>12-multiframe DLI Standard ON ↑ </li> </ul>
		SW00/MB	DOWN	Circuit card make busy cancel

This page is for your notes.