UNIVERGE SV9500

FP95-115 V5

Peripheral Equipment Description (Digital/Analog Devices)

NWD-165796-001
ISSUE 6.0

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UNIVERGE SV9500
Peripheral Equipment Description
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CHAPTER 1
INTRODUCTION

1. General

This manual provides the procedures on how to configure and connect the devices that can be used when a PIR, EMA card, or IOC card is mounted.

2. How to Follow This Manual

The contents of this manual are:

CHAPTER		DESCRIPTION
1	INTRODUCTION	This chapter explains the configuration of this manual.
2	DIGITAL/ANALOG DEVICES	This chapter explains the overview, installation procedures, data assignment, startup procedures, and operation and maintenance procedures for Digital and Analog Devices.

3. Devices/Terminals Related to This Manual

This manual explains especially about the following devices/terminals.

- Analog Station
- Desk Console
- Add-on Console
- Zone Transceiver (ZT)/Cell Station (CS)
- Alarm Display Panel (DSPP)
- SN1757 BBUB Installation Design
- Station Message Detail Recording (SMDR) Terminal
- Trunk Answer From Any Station (TAS) Indicator
- Announcement Machine
- Paging Equipment
- Alarm Indicating Panel
- External Switch (External Key Box)

CHAPTER 2
DIGITAL/ANALOG DEVICES

1. ANALOG STATION

1.1 General

How to connect an analog station is described here. Follow the procedure below to connect analog stations to the Telephony Server by using an LC circuit card. When using Analog MC, refer to “Analog 2MC” or “8LC Card” in Peripheral Equipment Description (IP Devices).

Analog Stations

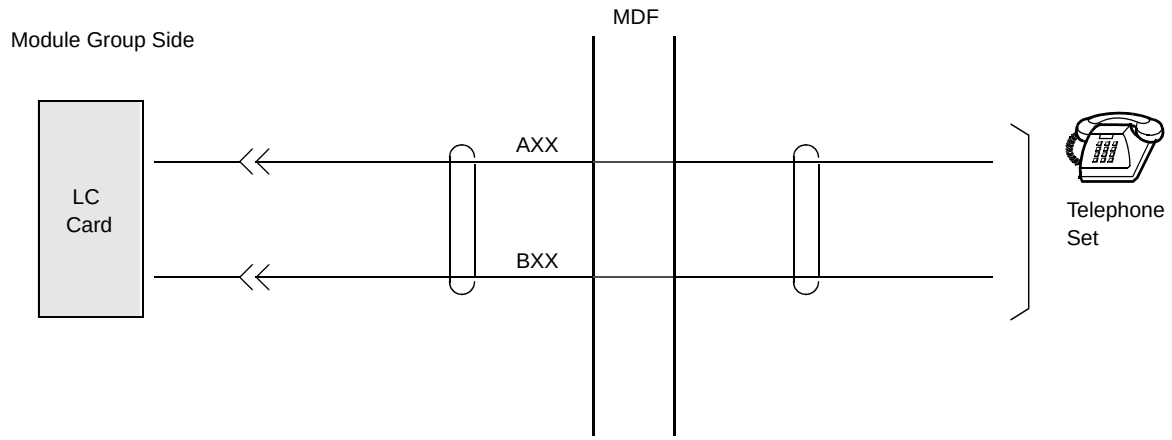
Push-button Telephone Rotary Dial Telephone

1.2 Installation Procedure

STEP 1: Install an LC circuit card into a proper slot of PIR for connecting analog stations. For more information about LC circuit card, refer to Circuit Card Description. When the analog station is connected to a vacant port of the existing LC card, this step is not necessary.

STEP 2: Check the terminal locations on the MDF. To identify the lead names and the lead’s terminal locations, refer to LT Connector Lead Accommodation of the circuit card in Circuit Card Description.

STEP 3: Provide the necessary cross connection on the MDF referring to the following figure.



Note: Note the following conditions:

- Tone generator and frequency consisting a howler tone differ depending on the peripheral equipment and the circuit card in use.
- If an LC card with the analog howler tone function is in the 8U-PIR that is mounted above a 7U-PIR in an even-numbered PIR such as PIR0 and PIR2, the howler tone is not generated. For an LC card with the PCM howler tone function, the howler tone is generated.

2. DESK CONSOLE

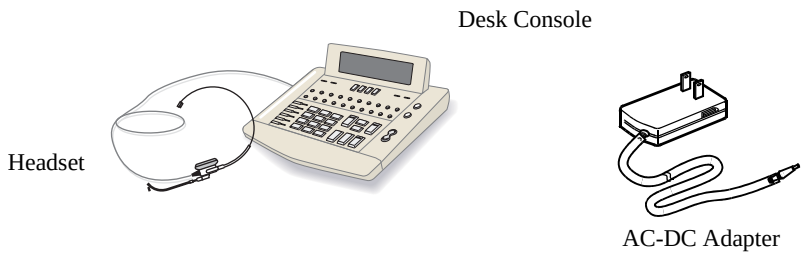
2.1 General

This section explains the installation of a Desk Console and the cable connection. Desk Console has an ergonomic design and more functionality than the existing Attendant Console. The figure below shows the outer view of the console. Use the Attendant Console Interface (ATI) circuit card (CH-CS00/PA-CS33-C/PA-CS33) as an interface between the Telephony Server and a Desk Console. The ATI circuit card is mounted in PIR and one card can connect a maximum of two consoles. The Desk Console has a uniform color scheme and provides full access to all of the Console features.

- 60 character LCD (40 characters × 4 lines)
- LCD designation strips
- Software-controlled LCD loop key
- Full access to PBX features
- Headset/Handset connectivity
- Recorder connectivity (Allows recording of a conversation).

Note: Maximum distance between the PIR and Desk Console is as follows: 350 m (0.5ϕ), 500 m (0.65ϕ) for PIR Power Supply and 1200 m (0.5ϕ), 1500 m (0.65ϕ) for Local Power Supply

Desk Console Outer View



Note: Headset and AC-DC Adapter are not included in Desk Console.

2.2 Installation Procedure

STEP 1: Install the Attendant Console Interface (ATI) circuit card. (Mount the card in slot 12 or 23 for 7U-PIR and slot 12 of PIR for 8U-PIR.)

STEP 2: Connect the ATI circuit card and the Desk Console by using Installation Cables.

STEP 3: Terminate the installation cables to the MDF and the modular blocks.

STEP 4: Check the terminal locations on the MDF. To identify the lead names and the lead's terminal locations, refer to LT Connector Lead Accommodation of the circuit card in Circuit Card Description.

STEP 5: Provide the necessary cross connection on the MDF referring to the following figure.

Note: Regardless if the power is supplied from the Telephony Server or supplied locally, ground connection is required.

2.2.1 Cable Connection Diagram

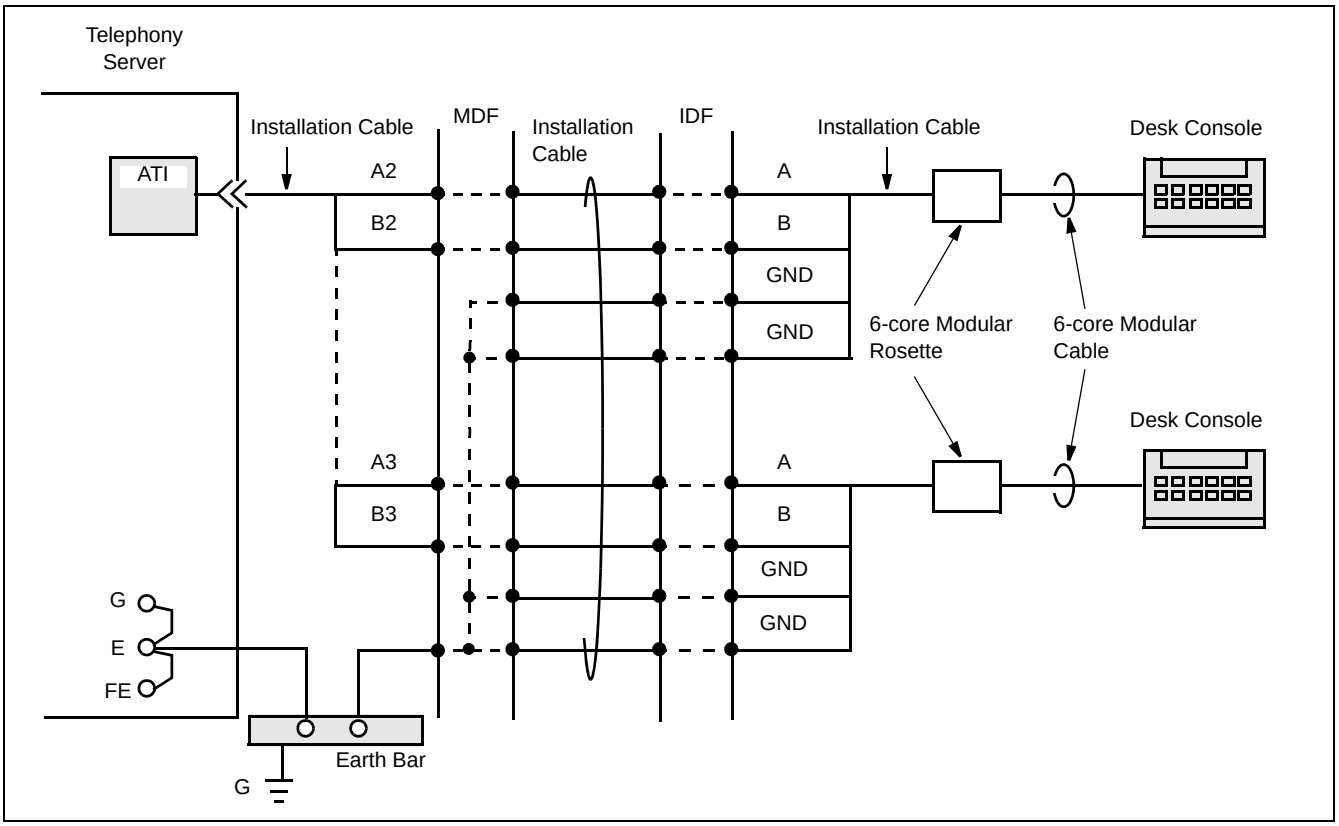
2.2.1.1 When the power is supplied from the Telephony Server

For the cable connection diagram, refer to the section of the target ATI card in Circuit Card Description.

2.2.1.2 When using a Local Power Supply:

Note: When using a local power supply, a Desk Console cannot be used in the event of a power failure.

Cable Connection Diagram (when using a local power supply)



The maximum distance between the ATI circuit card and a Desk Console is shown below.

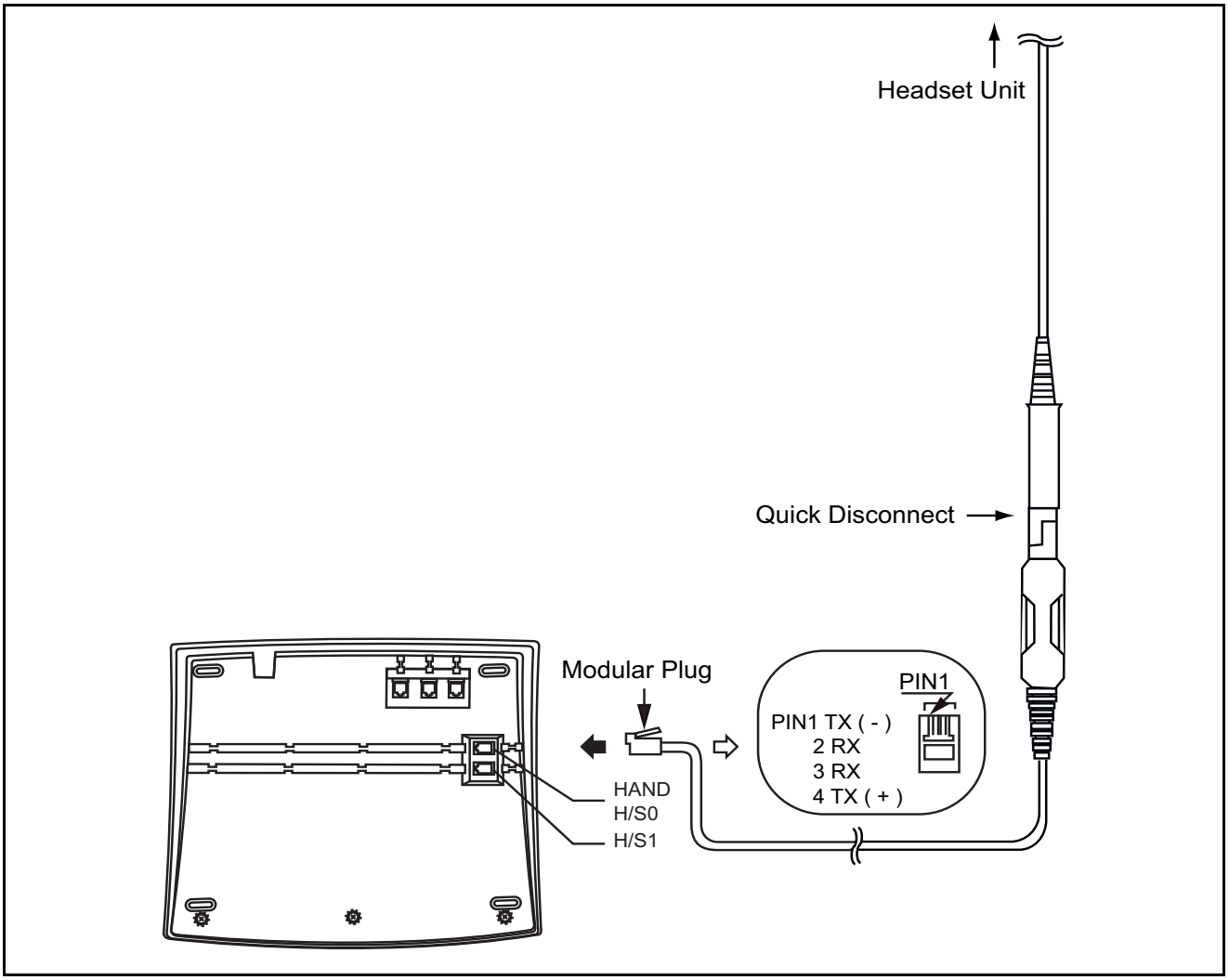
SOURCE	0.5 ϕ CABLE	0.65 ϕ CABLE
Local Power Supply	1,200 m/3937 ft.	1,500 m/4921 ft.

2.3 Mounting Headset (Optional)

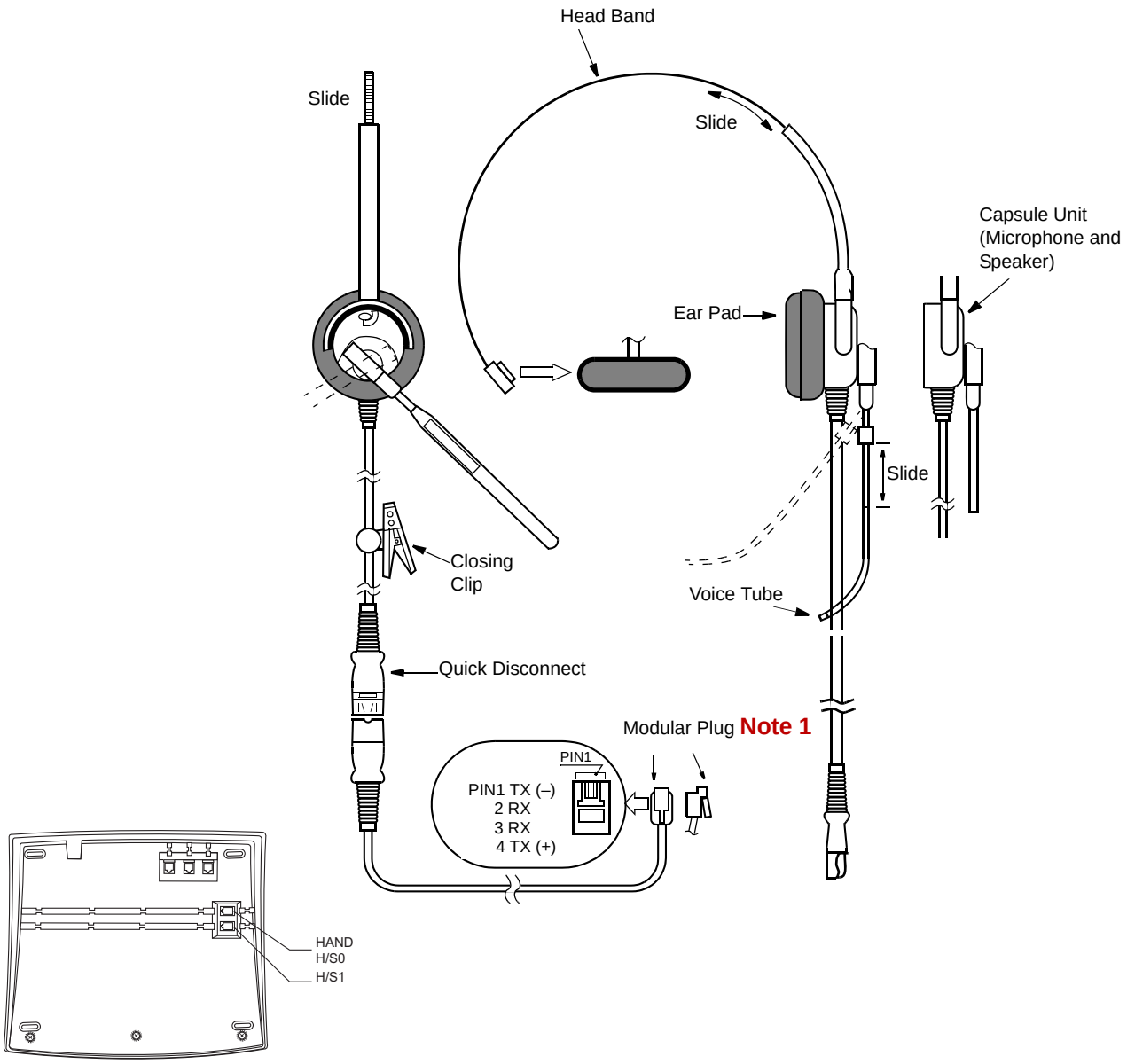
The headset cable is connected to one of the modular jacks (HAND H/S 0 or H/S 1) on the bottom of Desk Console. The followings are the headsets used for Desk Console.

- EncorePro Wideband NC Polaris (HW510-A10-NE plus A10 connector cable)
- Wideband SupraPlus NC Polaris (HW251N-A10-NE plus A10 connector cable)

Headset Connection



Headset (SUPRA F53U-U03F)



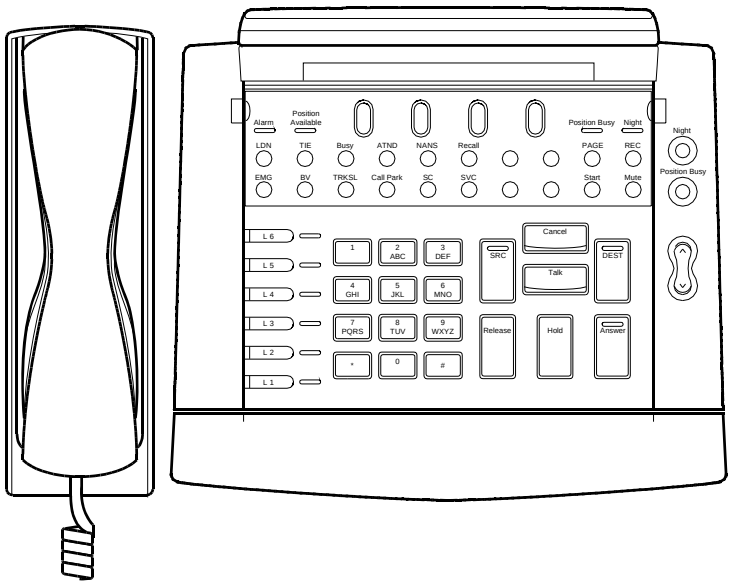
Note 1: In daily use, use Quick Disconnect when connecting/disconnecting the headset.

2.4 Mounting Handset (Optional)

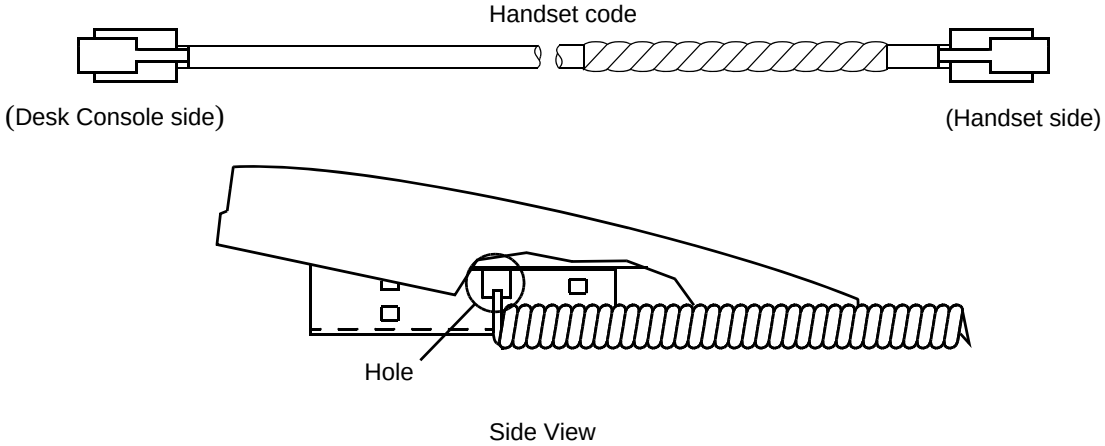
The handset cable is connected to the modular jack (HAND H/S 0) on the bottom of a Desk Console.

2.4.1 When mounting at the left side of a Desk Console (standard).

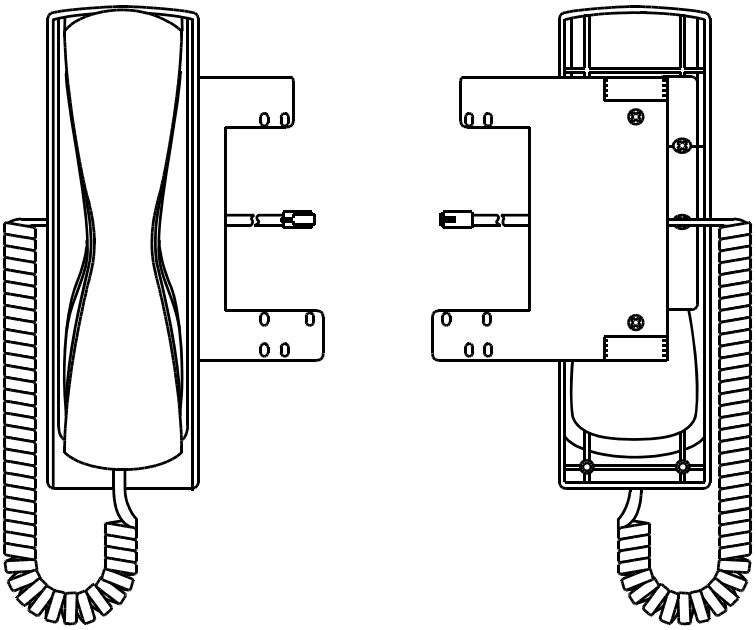
Mounting a Handset (left side of a Desk Console) (1/3)



1. Put the handset code through the hole as shown below.

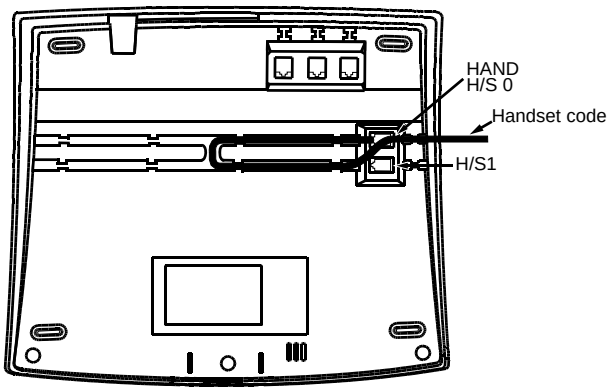


Mounting a Handset (left side of a Desk Console) (2/3)



Top View Bottom View

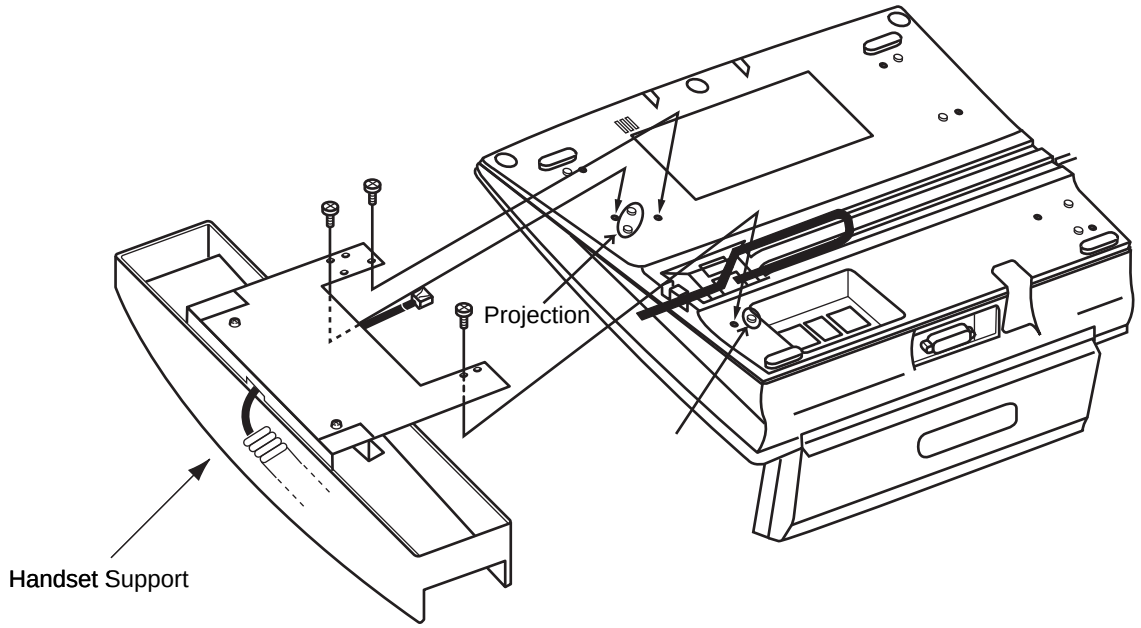
2. Connect the handset code to the HAND H/S 0 connector as shown below (H/S 1 is not used for the handset).



Bottom View of Desk Console

Mounting a Handset (left side of a Desk Console) (3/3)

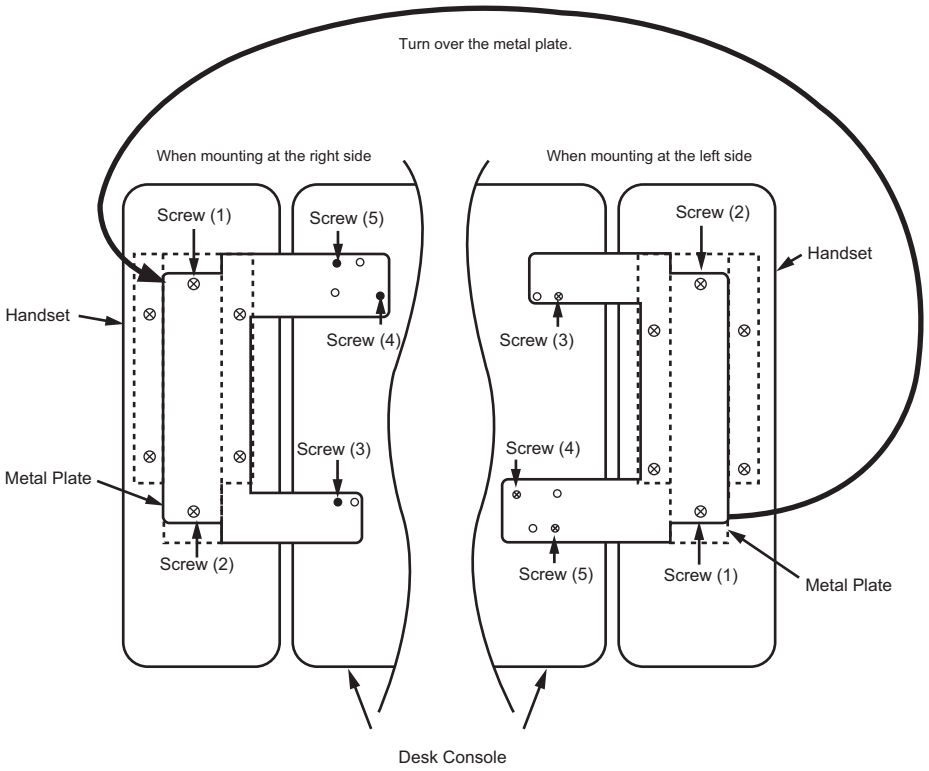
3. Mount the handset support to a Desk Console with three screws, as shown below.



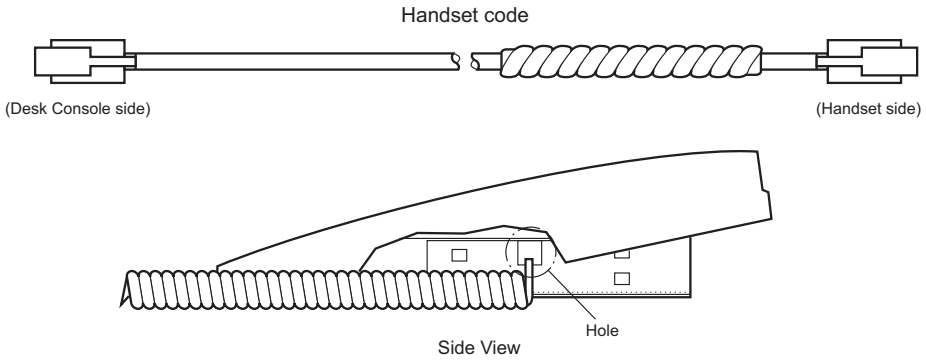
2.4.2 When mounting at the right side of a Desk Console

Mounting a Handset (right side of a Desk Console) (1/3)

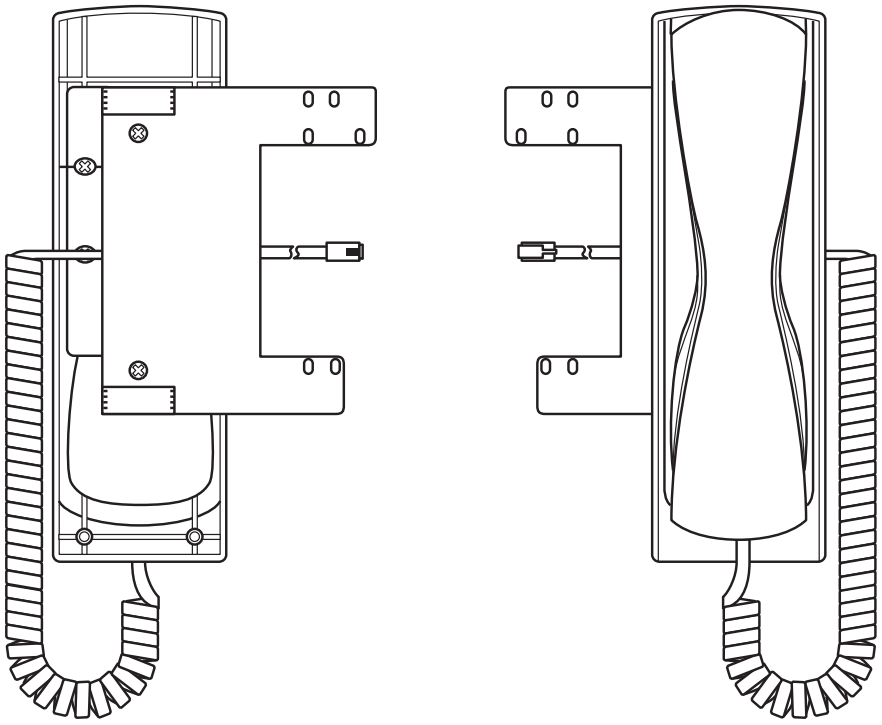
1. Remove the metal plate from the handset, turn the metal plate over, and then mount it on the handset again. Refer to the figure.



2. Put the handset code through the hole as shown below.

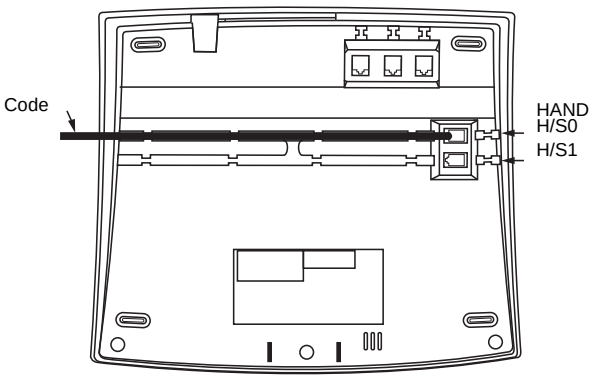


Mounting a Handset (right side of a Desk Console) (2/3)



Bottom view Top view

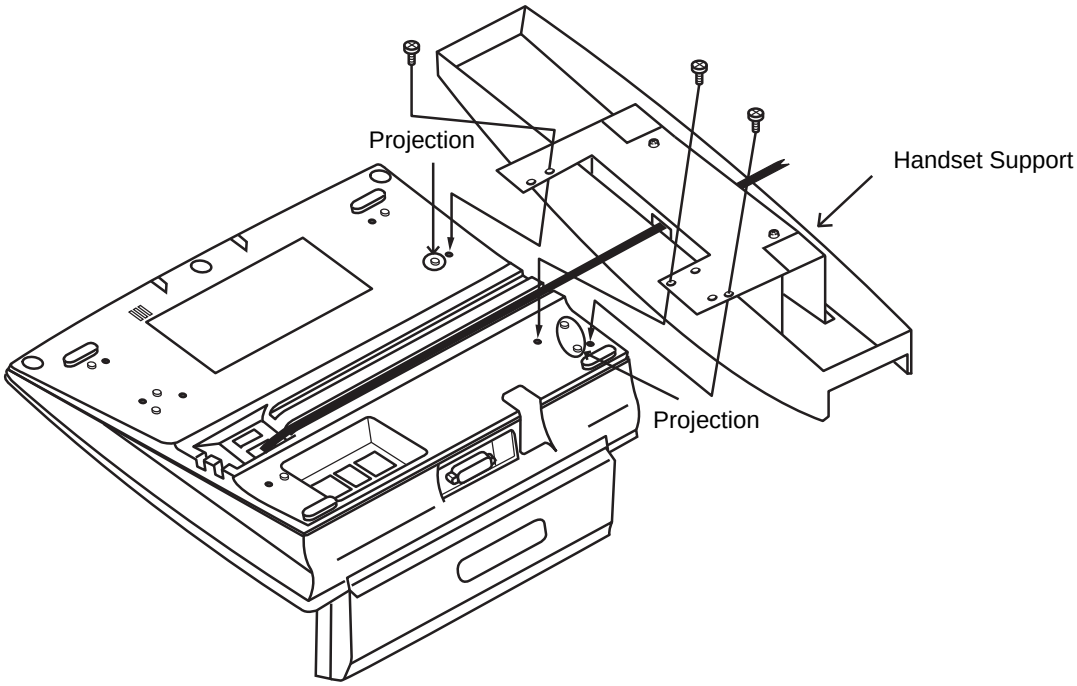
3. Connect the handset code to the HAND H/S0 connector as shown below (H/S1 is not used for the handset).



Bottom View of Desk Console

Mounting a Handset (right side of a Desk Console) (3/3)

4. Mount the handset support on a Desk Console with three screws, as shown below.



2.5 Connecting Recording/Paging Equipment

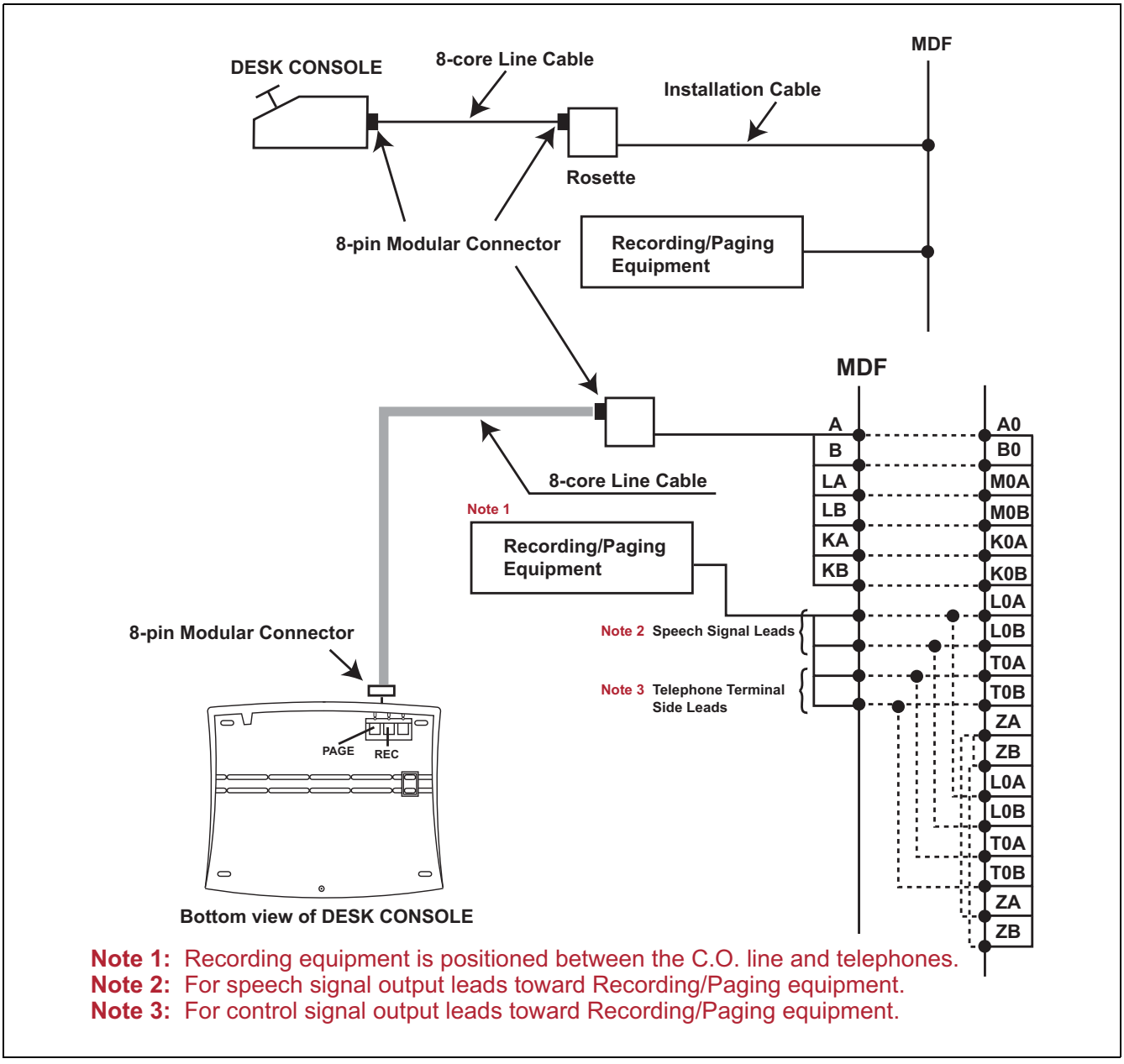
The following items are required in order to use the recording/paging function:

- Recording/Paging equipment
- 8-core line cable
- Rosette

Desk Consoles and recording/paging equipment are connected as follows:

- One group, with six Desk Consoles and one set of recording/paging equipment
- Two groups, each with three Desk Consoles and one set of recording/paging equipment

Cable Connection Diagram for Recording/Paging Equipment

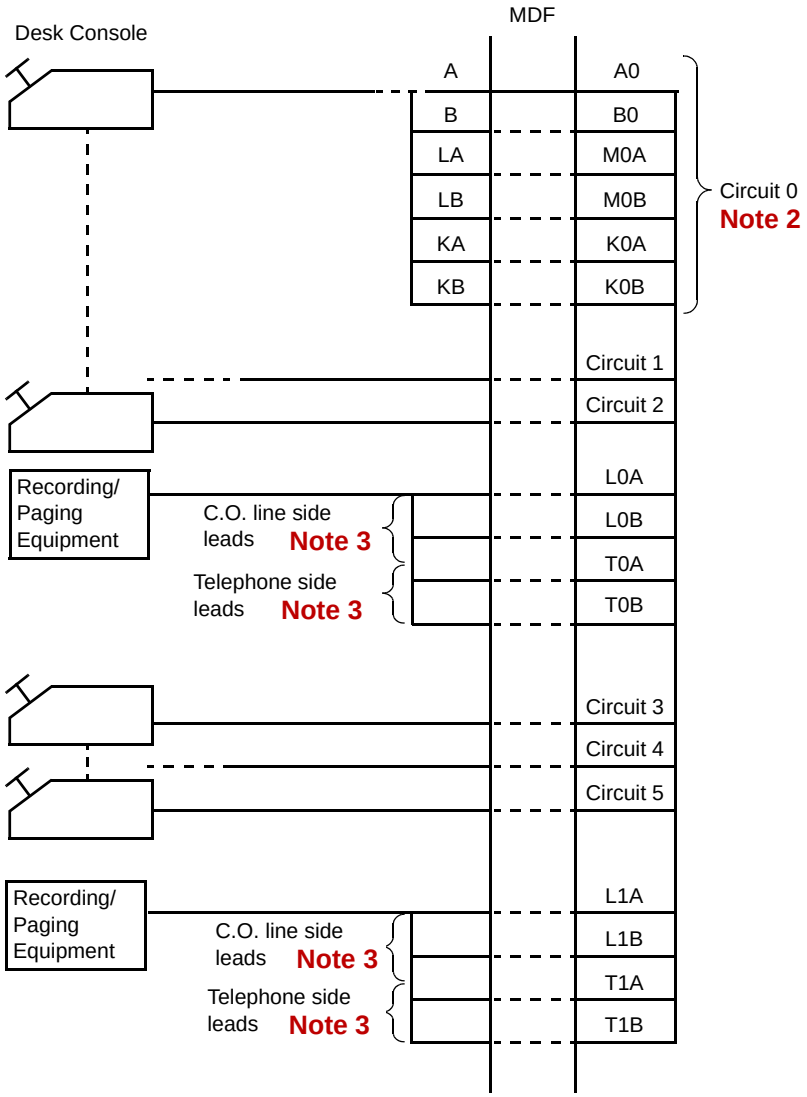


Note 1: Recording equipment is positioned between the C.O. line and telephones.
Note 2: For speech signal output leads toward Recording/Paging equipment.
Note 3: For control signal output leads toward Recording/Paging equipment.

(a) When using three Desk Consoles and one recording/paging equipment device:**Note 1**

Note 1: The SW 10, SW 12 and SW 13 switch settings on the RECC/PGADP (PA-M87) circuit card are required. Refer to Circuit Card Description for the switch setting and the connector lead accommodations.

Three Desk Consoles and One Recording/Paging Device



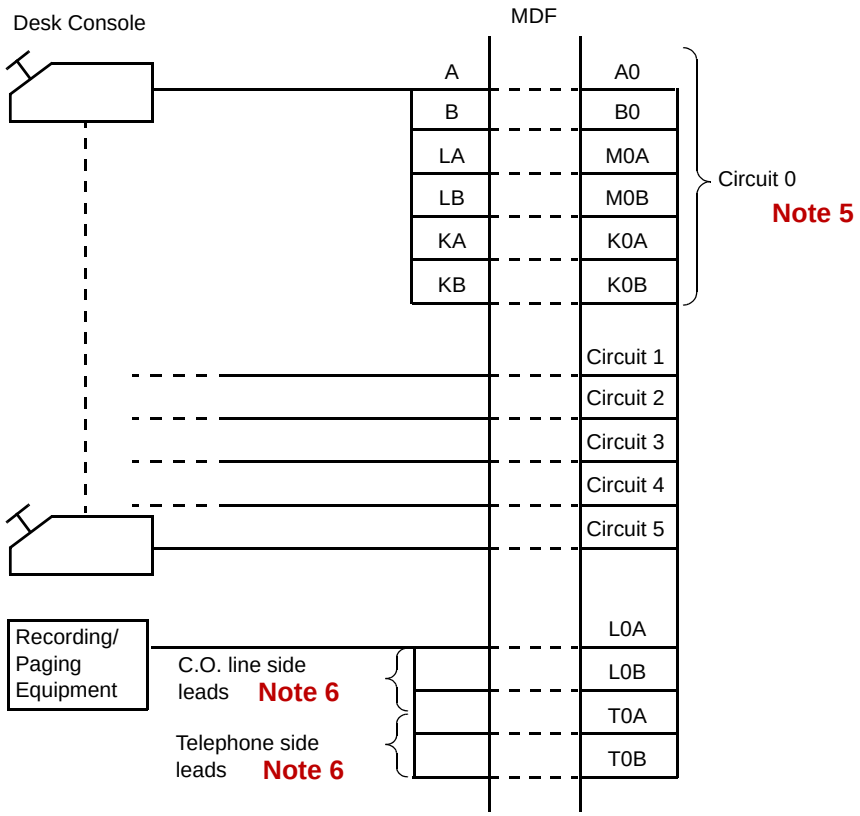
Note 2: The connections of Circuit 1 through 5 are the same as those of Circuit 0.

Note 3: The recording device is positioned between the C.O. line and telephones.

(b) When using six Desk Consoles and one recording/paging equipment device: **Note 4**

Note 4: The SW 10, SW 12 and SW 13 switch settings on the RECC/PGADP (PA-M87) circuit card are required. Refer to Circuit Card Description for the switch settings and the connector lead accommodations.

Six Desk Consoles and One Recording/Paging Device

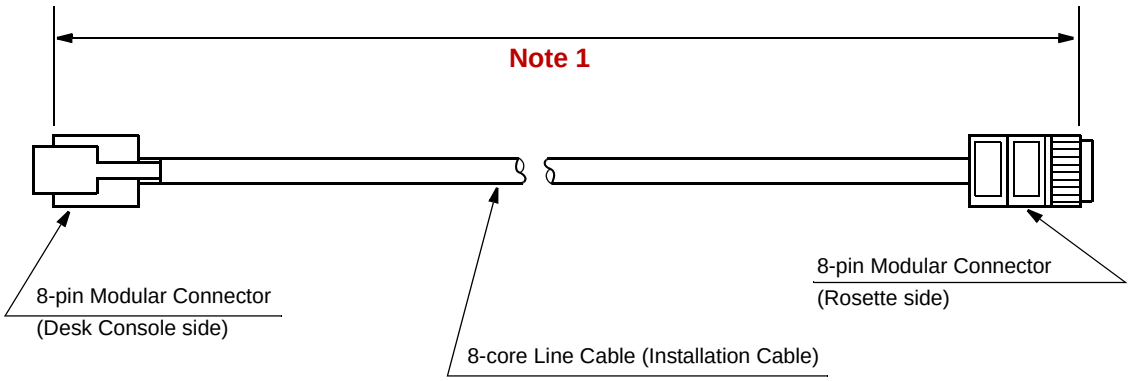


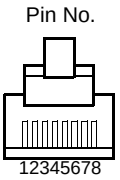
Note 5: The connections of Circuit 1 through 5 are the same as those of Circuit 0.

Note 6: The recording device is positioned between the C.O. line and telephones.

2.6 8-Core Line Cable (Installation Cable)

8-core Line Cable





PIN NO.	LEAD NAME	MEANING
1	A	Speech
2	B	Speech
3	–	Not used
4	–	Not used
5	KA	Recording/Paging Start Signal (Relay Contact)
6	KB	Recording/Paging Start Signal (Relay Contact)
7	LA (**Note 2**)	Recording/Paging Lamp Signal (+)
8	LB (**Note 2**)	Recording/Paging Lamp Signal (–)

Note 1: Cut the cable to the proper length. Use the installation tools to attach the modular connector to both sides of the 8-core line cable.

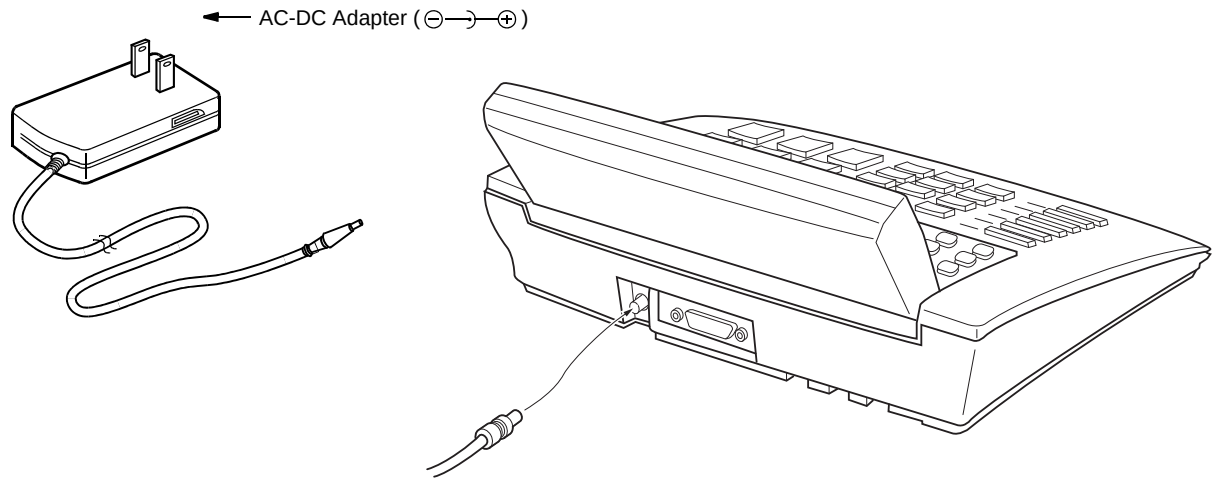
Note 2: Be sure to check the polarity of pin numbers 7 (LA) (+) and 8 (LB) (–).

2.7 Connecting AC-DC Adapter (Optional)

The AC-DC adapter is required when power supply from the system is not available.

AC-DC Adapter Connection

The connector for the AC-DC adapter is on the rear side of a Desk Console.

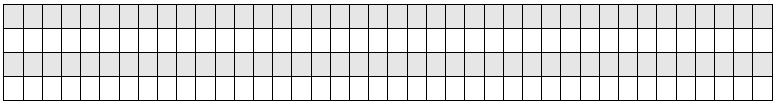


2.8 Caution

When the LCD on Desk Console is in the following conditions, follow operations [1] through [3] in LCD Recovering Procedure.

- LCD keeps showing the state the power is ON. **Note 1**
- LCD does not recover from showing garbled characters.

Note 1: When the power is ON, the state of LCD becomes as follows.



** Two lines appear on the first and third line of LCD.*

LCD Recovering Procedure:

[1] Press the Position Busy key to turn ON. (The Position Busy lamp lights in red.) If the Desk Console has been already in Position Busy state, release the state by pressing Position Busy key. Then press again to turn ON.

[2] Check the LCD recovers. To return to normal operation, press the Position Busy key to turn OFF.

[3] When the LCD does not recover after the operation [1], turn the power ON then OFF. If the LCD still does not recover, the Desk Console needs to be replaced.

2.9 Configuration Setup

2.9.1 Configuration Menu

2.9.1.1 General

Use the Configuration Menu to assign the configuration data for a Desk Console. The menu has the following items:

(1) HEADSET/HANDSET

(2) HEADSET TYPE

(3) MUTE

(4) REC CONTROL

(5) PAGE CONTROL

(6) SUP CONNECTION **Note 1**

(7) REC VOLUME

(8) BLF

(9) HOLD/START/RELEASE/SWAP

(10) 2ND RINGING

(11) RINGING

(12) RECEIVER VOLUME SET

(13) FUNCTION KEY SWAP

(14) RINGER VOLUME IN PB

(15) POWER CONTROL

(16) CONF. TONE FOR ALL KEYS

Note 1: Do not change this data.

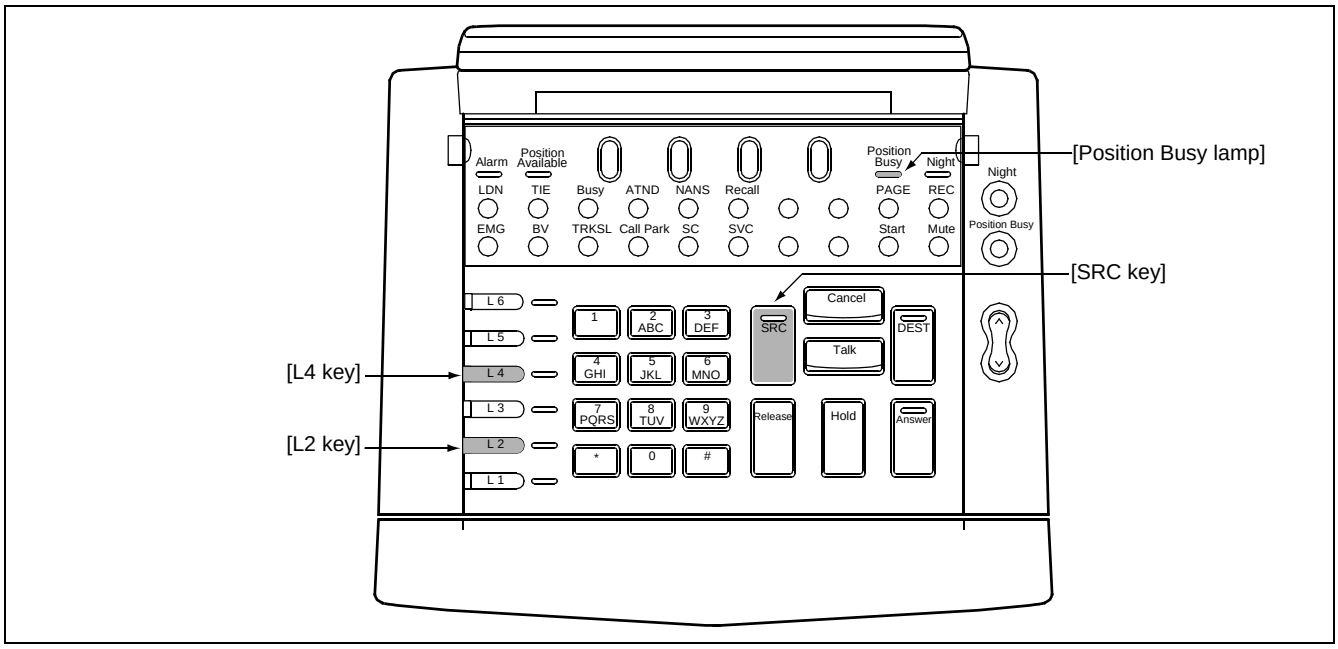
2.9.1.2 Selecting a Configuration Item

(a) Displaying the Configuration Menu

Turn on the Position Busy lamp.
When the Position Busy lamp is OFF, press the Position Busy key to turn ON the Position Busy lamp (red).

Press the L2, L4 and SRC keys simultaneously.

Displaying the Configuration Menu



The first page of the Configuration Menu appears on the LCD. The Configuration Menu has five or six pages.

- 1st Page

[CONFIG MENU P1] VER x	SRC: prev page
1: HEADSET/HANDSET	DEST: next page
2: HEADSET TYPE	Release: exit
3: MUTE	Answer: update

- 2nd Page

[CONFIG MENU P2] VER x	SRC: prev page
1: REC CONTROL	DEST: next page
2: PAGE CONTROL	Release: exit
3: SUP CONNECTION **Note 1**	Answer: update

Note 1: Do not change this data.

- 3rd Page

[CONFIG MENU P3] VER x	SRC: prev page
1: REC VOLUME	DEST: next page
2: BLF	Release: exit
3: HOLD/START/RELEASE SWAP	Answer: update

- 4th Page

[CONFIG MENU P4] VER x	SRC: prev page
1: 2ND RINGING	DEST: next page
2: RINGING	Release: exit
3: RECEIVER VOLUME SET	Answer: update

- 5th Page

[CONFIG MENU P5] VER x	SRC: prev page
1: FUNCTION KEY SWAP	DEST: next page
2: RINGER VOLUME IN PB	Release: exit
3: POWER CONTROL	Answer: update

- 6th Page

[CONFIG MENU P6] VER x	SRC: prev page
1: CONF. TONE FOR ALL KEYS	DEST: next page
	Release: exit
	Answer: update

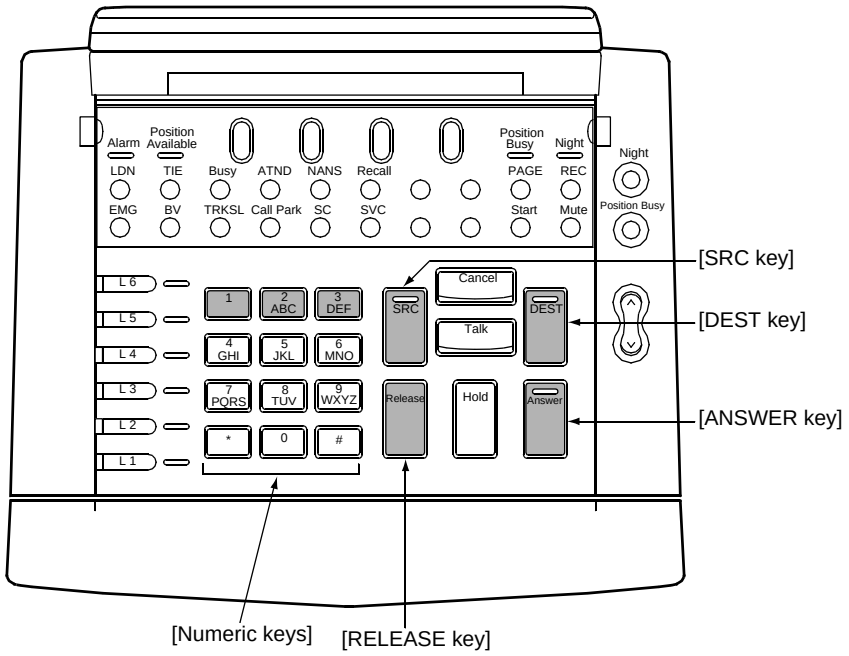
(b) Press the DEST key to display the next menu page. Press the SRC key to display the previous menu page.

(c) When pressing the RELEASE key, the Configuration Menu disappears and the Desk Console returns to normal operation.

2.9.2 Selecting a Configuration Item

When the desired page of the Configuration Menu is reached, press a numeric key to select the individual configuration item. A menu for assigning configuration data is viewed. Assign the configuration data, referring to the *Assigning Configuration Data* section on the next page.

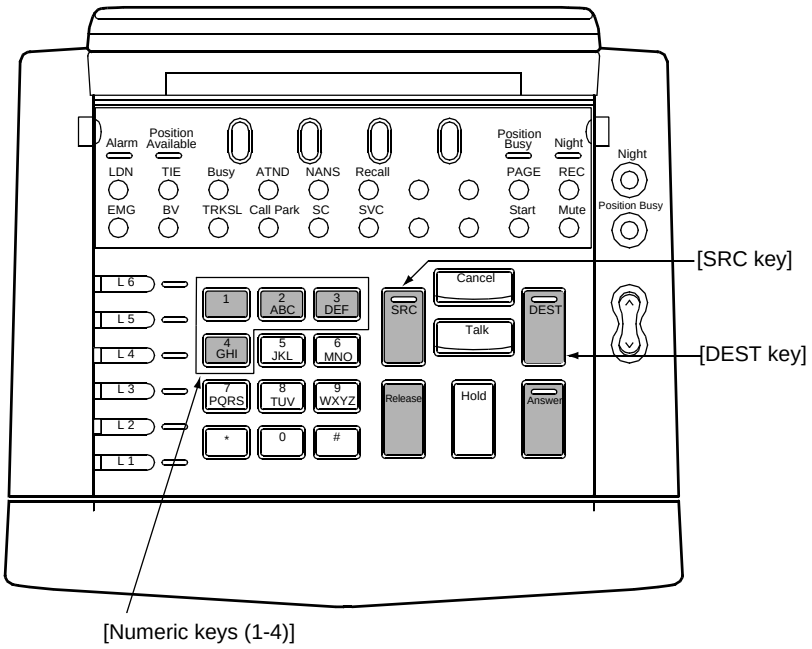
Selecting a Configuration Item



2.9.3 Assigning Configuration Data

This section explains how to assign data for each configuration item. When assigning configuration data, use the following shaded keys.

Assigning Configuration Data



2.9.3.1 HEADSET/HANDSET

This item specifies an optional device connected to the HAND H/S0 connector.

Note: Only the headset is connected to the H/S1 connector. The data assignment for the H/S1 connector is not required.

(a) Press the desired number. An asterisk (*) indicates the selection.

[HEADSET/HANDSET]	SRC: menu
*1: HEADSET **Note 1**	
2: HANDSET	

1. The headset is connected to the HAND H/S0 connector
2. The handset is connected to the HAND H/S0 connector

SRC:Return to the Configuration Menu

Note 1: The default setting is “1: HEADSET”.

(b) Press the SRC key. The display returns to the first page of the Configuration Menu.

[CONFIG MENU P1] VER x	SRC: prev page
1: HEADSET/HANDSET	DEST: next page
2: HEADSET TYPE	Release: exit
3: MUTE	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.2 HEADSET TYPE

This item specifies the type of headset connected to the HAND H/S0 and H/S1 connector.

(a) Press the desired number. An asterisk (*) shows the selected number.

[HEADSET TYPE]	SRC: menu
*1: SUPRA NEW SIGMA **Note 1**	
2: SUPRA POLARIS Series	
3: GN2200 Series	

1. The type of headset is “SUPRA F53U-U03F”.
2. The type of headset is “EncorePro Wideband NC Polaris (HW510 plus A10 connector cable)”, “Wideband SupraPlus NC Polaris (HW251N plus A10 connector cable)” or “SUPRA-NC Polaris”.

3. The type of Headset is “GN2200”.

   SRC: Return to the Configuration Menu

Note 1: The default setting is “1: SUPRA NEW SIGMA”.

(b) Press the SRC key. The display returns to the first page of the Configuration Menu.

[CONFIG MENU P1] VER x	SRC: next page
1: HEADSET/HANDSET	DEST: next page
2: HEADSET TYPE	Release: exit
3: MUTE	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.3 MUTE

This item specifies the On/Off setting of the mute function for the HAND H/S0 or H/S1 connector.

If the Mute key is pressed, when the mute function is set to ON, the voice at the Desk Console side is not sent to the other party.

(a) Press the desired number. An asterisk (*) shows the selected number.

[MUTE]	SRC: menu
*1: H/S0 ON, H/S1 ON **Note 1**	
2: H/S0 ON, H/S1 OFF	
3: H/S0 OFF, H/S1 ON	

1. Both the H/S0 mute function and the H/S1 mute function are set to On
2. Only the H/S0 mute function is set to On
3. Only the H/S1 mute function is set to On

   SRC: Return to the Configuration Menu

Note 1: The default setting is “1: H/S0 ON, H/S1 ON”.

(b) Press the SRC key. The display returns to the first page of the Configuration Menu.

[CONFIG MENU P1] VER x	SRC: prev page
1: HEADSET/HANDSET	DEST: next page
2: HEADSET TYPE	Release: exit
3: MUTE	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.4 REC CONTROL

This item specifies the operation mode of a recording device. The following two modes are available:

Automatic Mode

In Automatic mode, the system starts or stops recording automatically, when a call is connected/disconnected. Note that the REC key is not effective in Automatic mode.

(a) Press the desired number. An asterisk (*) shows the selected number.

[REC CONTROL]	SRC: menu
*1: MANUAL **Note 1**	
2: AUTO	

1. Manual mode
2. Automatic mode

SRC: Return to the Configuration Menu

Note 1: Default setting is “1: MANUAL”.

(b) Press the SRC key. The display returns to the second page of the Configuration Menu.

[CONFIG MENU P2] VER x	SRC: prev page
1: REC CONTROL	DEST next page
2: PAGE CONTROL	Release: exit
3: SUP CONNECTION **Note 2**	Answer: update

Note 2: Do not change this data.

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.5 PAGE CONTROL

This item specifies the operation mode of a paging device. The following two modes are available:

Manual Mode

Manual mode is available when the PGADP (PA-M87) circuit card is mounted in the system. When the PAGE key is pressed, the system starts paging and the PAGE lamp lights. When the PAGE key is pressed again, the paging stops and the PAGE lamp goes off.

Automatic Mode

In Automatic mode, the system starts or stops paging automatically, when a call is connected/disconnected. Note that the PAGE key is not effective in Automatic mode.

(a) Press the desired number. An asterisk (*) shows the selected number.

[PAGE CONTROL]	SRC: menu
*1: MANUAL **Note 1**	
2: AUTO	

1. Manual mode
2. Automatic mode

SRC: Return to the Configuration Menu

Note 1: Default setting is “1: MANUAL”.

(b) Press the SRC key. The display returns to the second page of the Configuration Menu.

[CONFIG MENU P2] VER x	SRC: prev page
1: REC CONTROL	DEST next page
2: PAGE CONTROL	Release: exit
3: SUP CONNECTION **Note 2**	Answer: update

Note 2: Do not change this data.

(c) To data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.6 REC VOLUME ADJUSTMENT

This item specifies the recording/paging level of the received voice. Note that the voice level at the operator side cannot be adjusted.

(a) Press the desired number. An asterisk (*) shows the selected number.

[REC VOLUME ADJUSTMENT]	SRC: menu
1: +2dB 4: -8dB	
*2: 0dB **Note 1**	
3: -4dB	

1. +2dB Up
2. 0dB (standard level)
3. -4dB Down
4. -8dB Down

SRC: Return to the Configuration Menu

Note 1: The default setting is “2: 0dB”.

(b) Press the SRC key. The display returns to the third page of the Configuration Menu.

[CONFIG MENU P3] VER x	SRC: prev page
1: REC VOLUME	DEST: next page
2: BLF	Release: exit
3: HOLD/START/RELEASE SWAP	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.7 BLF

This item specifies the ON/OFF setting of the Busy Lamp Field (BLF) function. If the BLF function is used, then the required system data must be assigned.

(a) Press the desired number. An asterisk (*) shows the selected number.

[BLF]	SRC: menu
1: 10BLF ENABLE	
*2: DISABLE **Note 1**	
3: 100BLF ENABLE **Note 2**	

1. 10BLF Available
2. BLF is not available

Note 1: The default setting is “2: DISABLE”.

Note 2: Do not set “3: 100BLF ENABLE”

SRC: Return to the Configuration Menu

(b) Press the SRC key. The display returns to the third page of the Configuration Menu.

[CONFIG MENU P3] VER x	SRC: prev page
1: REC VOLUME	DEST: next page
2: BLF	Release: exit
3: HOLD/START/RELEASE SWAP	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.8 HOLD/START/RELEASE SWAP

This item specifies the locations of the HOLD, START and RELEASE keys.

(a) Press the desired number. An asterisk (*) shows the selected number.

[HOLD/START/RELEASE SWAP]	SRC: menu
*1: ORIGINAL **Note 2**	
2: SWAPPED	

1. Original setting
2. Swapped setting

Note 1: The locations of each key changes as shown below.

ORIGINAL SETTING	SWAPPED SETTING
RELEASE	START
HOLD	RELEASE
START	HOLD

SRC: Return to the Configuration Menu

Note 2: The default setting is “1: ORIGINAL”.

(b) Press the SRC key. The display returns to the third page of the Configuration Menu.

[CONFIG MENU P3] VER x	SRC: prev page
1: REC VOLUME	DEST: next page
2: BLF	Release: exit
3: HOLD/START/RELEASE SWAP	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.9 2ND RINGING

This item specifies the On/Off setting of the 2nd Ringing function.

(a) Press the desired number. An asterisk (*) shows the selected number.

[2ND RINGING]	SRC: menu
*1: ENABLE **Note 1**	
2: DISABLE	

1. 2nd Ringing is available
2. 2nd Ringing is not available

SRC Return to the Configuration Menu

Note 1: The default setting is “1: ENABLE”.

(b) Press the SRC key. The display returns to the fourth page of the Configuration Menu.

[CONFIG MENU P4]VER x	SRC: menu
1: 2ND RINGING	DEST: next page
2: RINGING	Release: exit
3: RECEIVER VOLUME SET	Answer: update

(c) To assign data to additional configuration items, refer to the Selecting a Configuration Item section. When finished, proceed to the Updating the Configuration Data section.

2.9.3.10 RINGING

This item specifies the On/Off setting of the Ringing function.

(a) Press the desired number. An asterisk (*) shows the selected number.

[2ND RINGING]	SRC: menu
*1: ENABLE **Note 1**	
2: DISABLE	

1. Ringing is available
2. Ringing is not available

SRC: Return to the Configuration Menu

Note 1: The default setting is “1: ENABLE”.

(b) Press the SRC key. The display returns to the fourth page of the Configuration Menu.

[CONFIG MENU P4]VER x	SRC: prev page
1: 2ND RINGING	DEST: next page
2: RINGING	Release: exit
3: RECEIVER VOLUME SET	Answer: update

(c) To assign data to additional configuration items, refer to the *Selecting a Configuration Item* section. When finished, proceed to the *Updating the Configuration Data* section.

2.9.3.11 RECEIVER VOLUME SET

This item specifies the receiver volume.

(a) Press the desired number. An asterisk (*) shows the selected number.

[RECEIVER VOLUME SET]	SRC: menu
*1: SYSTEM DEFAULT **Note 1**	4: QUIET PLACE
2: DEFAULT BY CALL	
3: SAME AS PREVIOUS CALL	

1. Receiver volume is set to the default level of the ATI card
2. Receiver volume is set to the level in accordance with the system default
3. Receiver volume is set to the level adjusted by the UP/DOWN key
4. Receiver volume is set to the level (-8dB) lower than the System Default

SRC: Return to the Configuration Menu

Note 1: Default setting is “1: SYSTEM DEFAULT”.

(b) Press the SRC key. The display returns to Configuration Menu.

[CONFIG MENU P4] VER x	SRC: prev page
1: 2ND RINGING	DEST: next page
2: RINGING	Release: exit
3: RECEIVER VOLUME SET	Answer: update

(c) When configuration data assignment is completed, proceed to UPDATING CONFIGURATION DATA. When the other item is also specified, return to SELECTION OF CONFIGURATION ITEM.

2.9.3.12 FUNCTION KEY SWAP

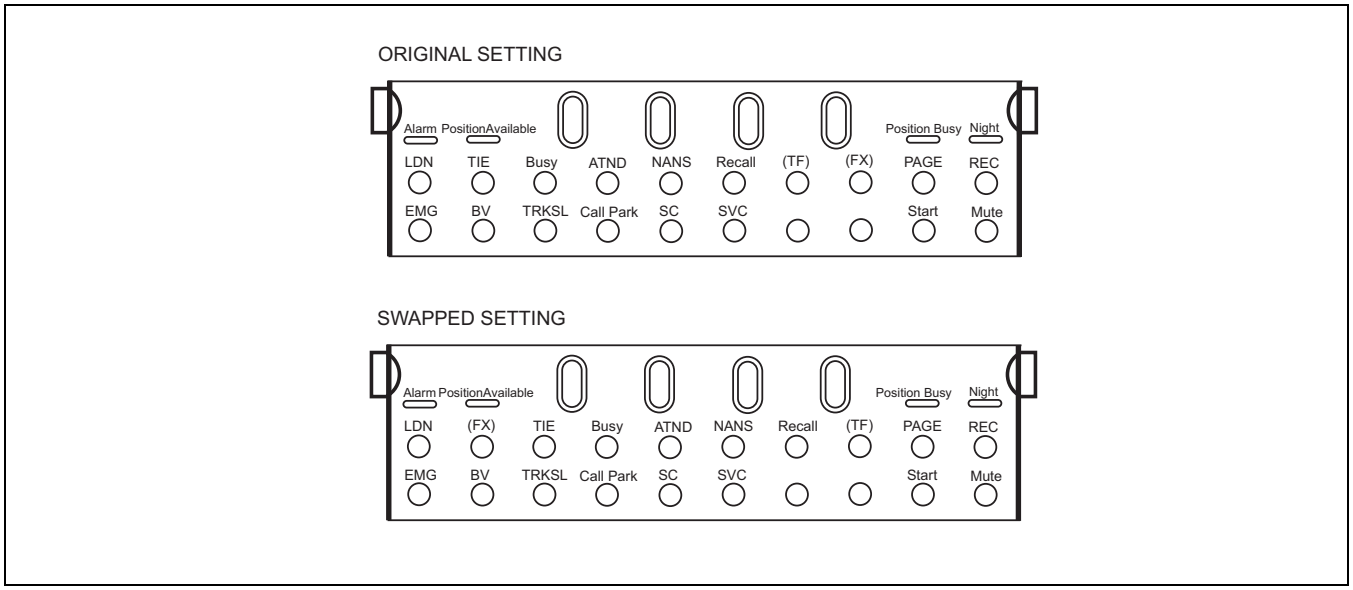
This item specifies the locations of function keys.

(a) Press the desired number. An asterisk (*) shows the selected number.

[FUNCTION KEY SWAP]	SRC: menu
*1: ORIGINAL **Note 2**	
2: SWAPPED	

1. Original setting
2. Swapped setting

Note 1: The location of each key changes as shown below.



SRC: Return to the Configuration Menu

Note 2: Default setting is “1: ORIGINAL”.

(b) Press the SRC key. The display returns to Configuration Menu.

[CONFIG MENU P5] VER x	SRC: prev page
1: FUNCTION KEY SWAP	DEST: next page
2: RINGER VOLUME IN PB	Release: exit
3: POWER CONTROL	Answer: update

(c) When configuration data assignment is completed, proceed to UPDATING CONFIGURATION DATA. When the other item is also specified, return to SELECTION OF CONFIGURATION ITEM.

2.9.3.13 RINGER VOLUME IN PB

This item specifies the ringer volume in the position busy state.

(a) Press the desired number. An asterisk (*) shows the selected number.

[RINGER VOLUME IN PB]	SRC: menu
*1: NORMAL **Note 1**	
2: MINIMUM	

1. The ringer volume is the same level in the operating state.
2. The ringer volume is set to the minimum level.

   SRC: Return to the Configuration Menu

Note 1: Default setting is “1: NORMAL”.

(b) Press the SRC key. The display returns to Configuration Menu.

[CONFIG MENU P5] VER x	SRC: prev page
1: FUNCTION KEY SWAP	DEST: next page
2: RINGER VOLUME IN PB	Release: exit
3: POWER CONTROL	Answer: update

(c) When configuration data assignment is completed, proceed to UPDATING CONFIGURATION DATA. When the other item is also specified, return to SELECTION OF CONFIGURATION ITEM.

2.9.3.14 POWER CONTROL

This item specifies the power control of the CONSOLE in the night mode.

(a) Press the desired number. An asterisk (*) shows the selected number.

[POWER CONTROL]	SRC: menu
*1: NORMAL **Note 1**	
2: LOW POWER (PUT OUT LCD)	

1. Power control is not effective.
2. The LCD back light is put out. When pressing any key, the LCD back light is put on, the light is put out again after 30 seconds.

   SRC: Return to the Configuration Menu

Note 1: Default setting is “1: NORMAL”.

(b) Press the SRC key. The display returns to Configuration Menu.

[CONFIG MENU P5] VER x	SRC: prev page
1: FUNCTION KEY SWAP	DEST: next page
2: RINGER VOLUME IN PB	Release: exit
3: POWER CONTROL	Answer: update

(c) When configuration data assignment is completed, proceed to UPDATING CONFIGURATION DATA. When the other item is also specified, return to SELECTION OF CONFIGURATION ITEM.

2.9.3.15 CONF.TONE FOR ALL KEYS

This item specifies the confirmation tone control for all keys of the CONSOLE.

(a) Press the desired number. An asterisk (*) shows the selected number.

[CONF. TONE FOR ALL KEYS]	SRC: menu
*1: ENABLE **Note 1**	
2: DISABLE	
3: SYSTEM	

1. Confirmation tone is enable for all keys.
2. Confirmation tone is disable for all keys.
3. Confirmation tone is controlled by the system.

SRC: Return to the Configuration Menu

Note 1: Default setting is “1: ENABLE”.

(b) Press the SRC key. The display returns to Configuration Menu.

[CONFIG MENU P6] VER x	SRC: prev page
1: CONF. TONE FOR ALL KEYS	DEST: next page
	Release: exit
	Answer: update

(c) When configuration data assignment is completed, proceed to UPDATING CONFIGURATION DATA. When the other item is also specified, return to SELECTION OF CONFIGURATION ITEM.

2.9.3.16 UPDATING THE CONFIGURATION DATA

When assigning the configuration data is finished, the configuration data can be updated or the update can be cancelled.

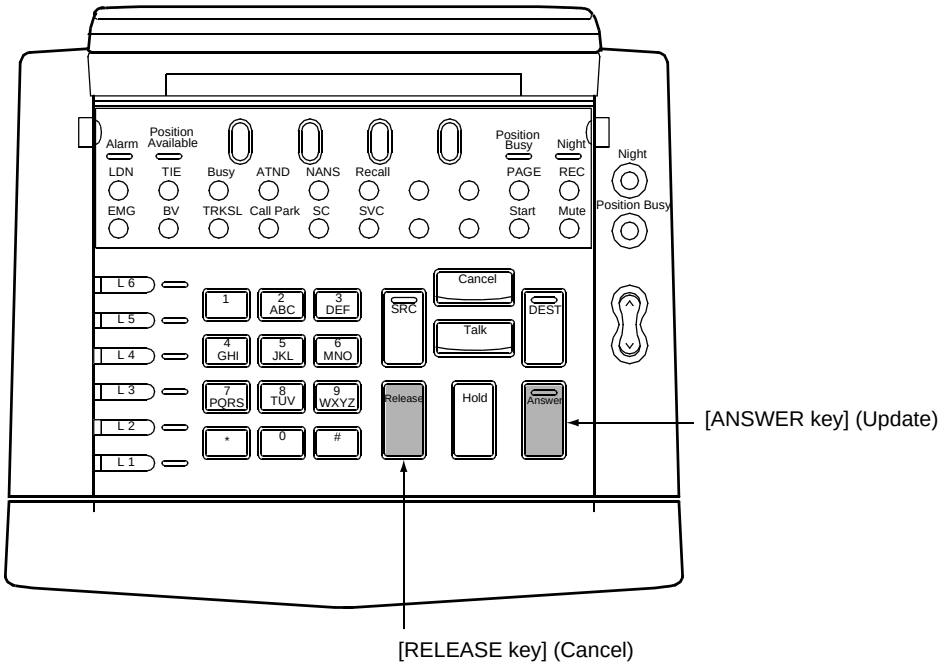
- To update the configuration data:

  While one of the Configuration Menu pages is displayed on the LCD, press the ANSWER key. The system updates the configuration data, and then automatically restarts the Desk Console.

- To cancel the update:

  Press the RELEASE key.

Updating Configuration Data



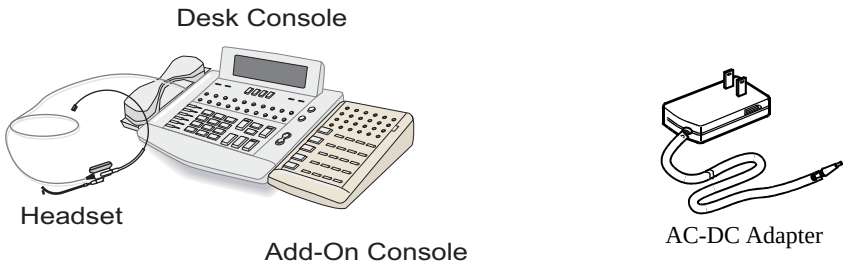
3. ADD-ON CONSOLE

3.1 General

Two types of Dterm Series digital multifunction/multiline terminals are available. Features most commonly used in daily operation and functions required by the user are provided by the dedicated buttons/lamp. How to connect a Dterm is described below.

Note: The maximum distance between the PIR and a Dterm is 850 meters (2789 feet). The installation cable must be 24 AWG (0.5 mm diameter) or larger.

Add-On Console



Note: This figure shows a 32-button terminal as an example.

3.2 Installation Procedure

STEP 1: Run the cables between each Dterm and its modular block (jack), and between the modular blocks and the MDF. (Protect the cables by using cable ducts, etc.)

STEP 2: Install an ELC circuit card into a proper slot of PIR for connecting Dterms. For more information about ELC circuit card, refer to Circuit Card Description. When the Dterm is connected to a vacant port of the existing ELC card, this step is not necessary.

STEP 3: Terminate the installation cables to the MDF and the modular blocks.

STEP 4: Check the terminal locations on the MDF. To identify the lead names and the lead's terminal locations, refer to LT Connector Lead Accommodation of the circuit card in Circuit Card Description.

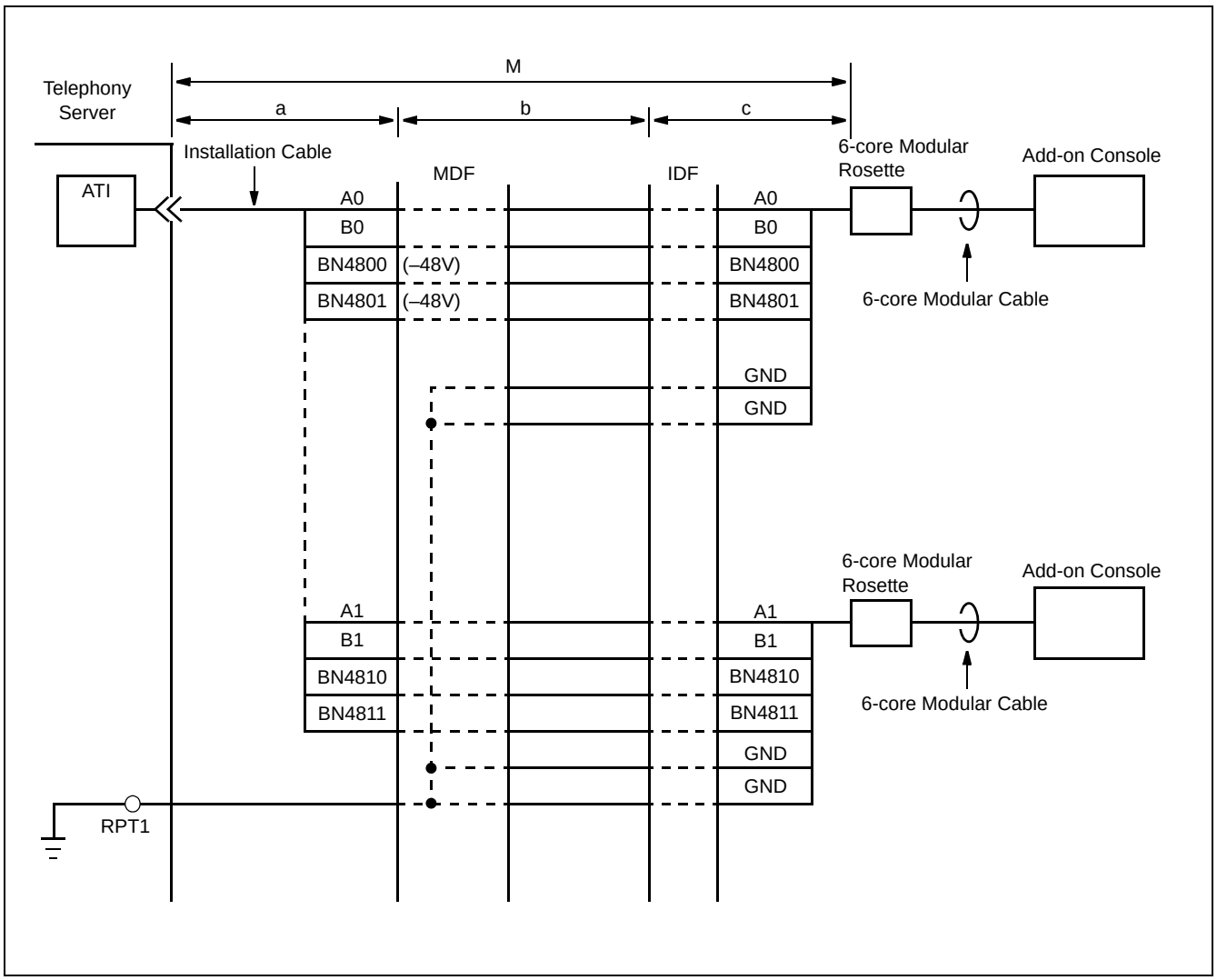
STEP 5: Provide the necessary cross connection on the MDF referring to the following figure.

3.3 Mounting An Add-on Console (For The Hotel System)

An Add-on Console is used in the Hotel System.

(a) Cable Connection Diagram for an Add-on Console (when the power is supplied from the Telephony Server):

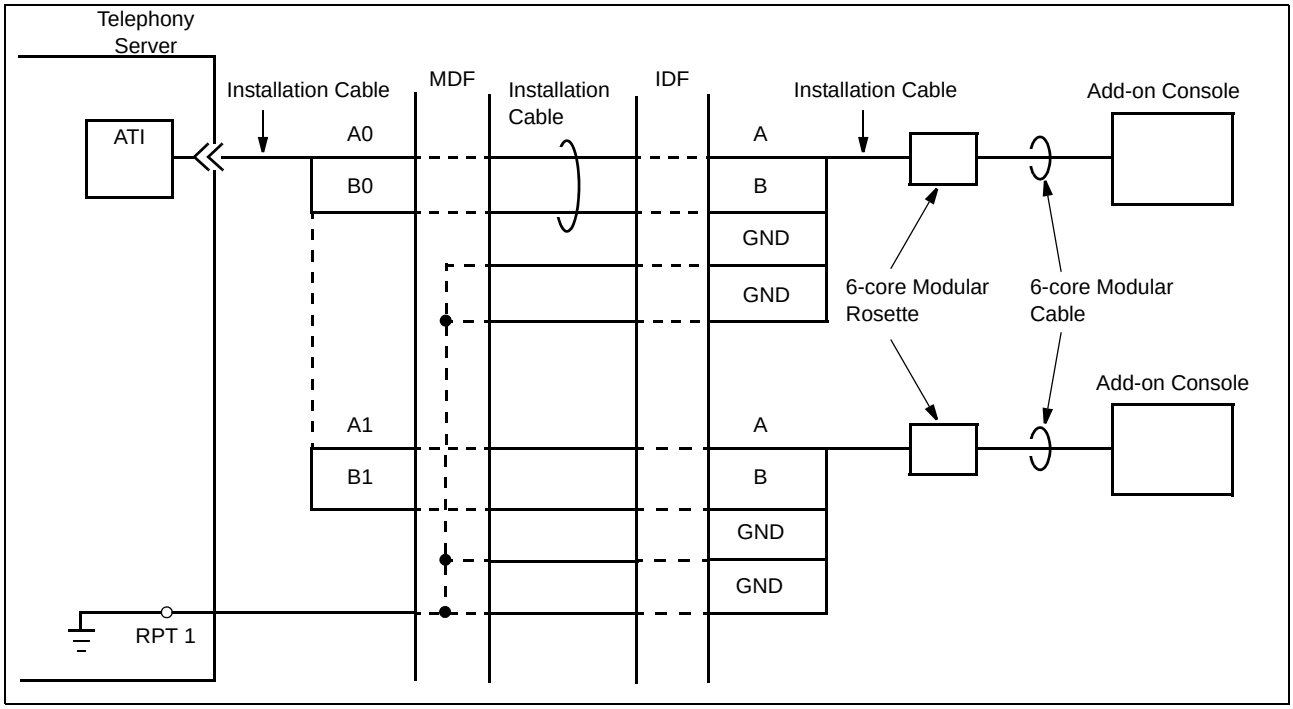
Add-On Console Cable Connection Diagram (when the power Is supplied from the Telephony Server)



(b) Cable Connection Diagram for an Add-On Console (when using a local power supply): **Note 1**

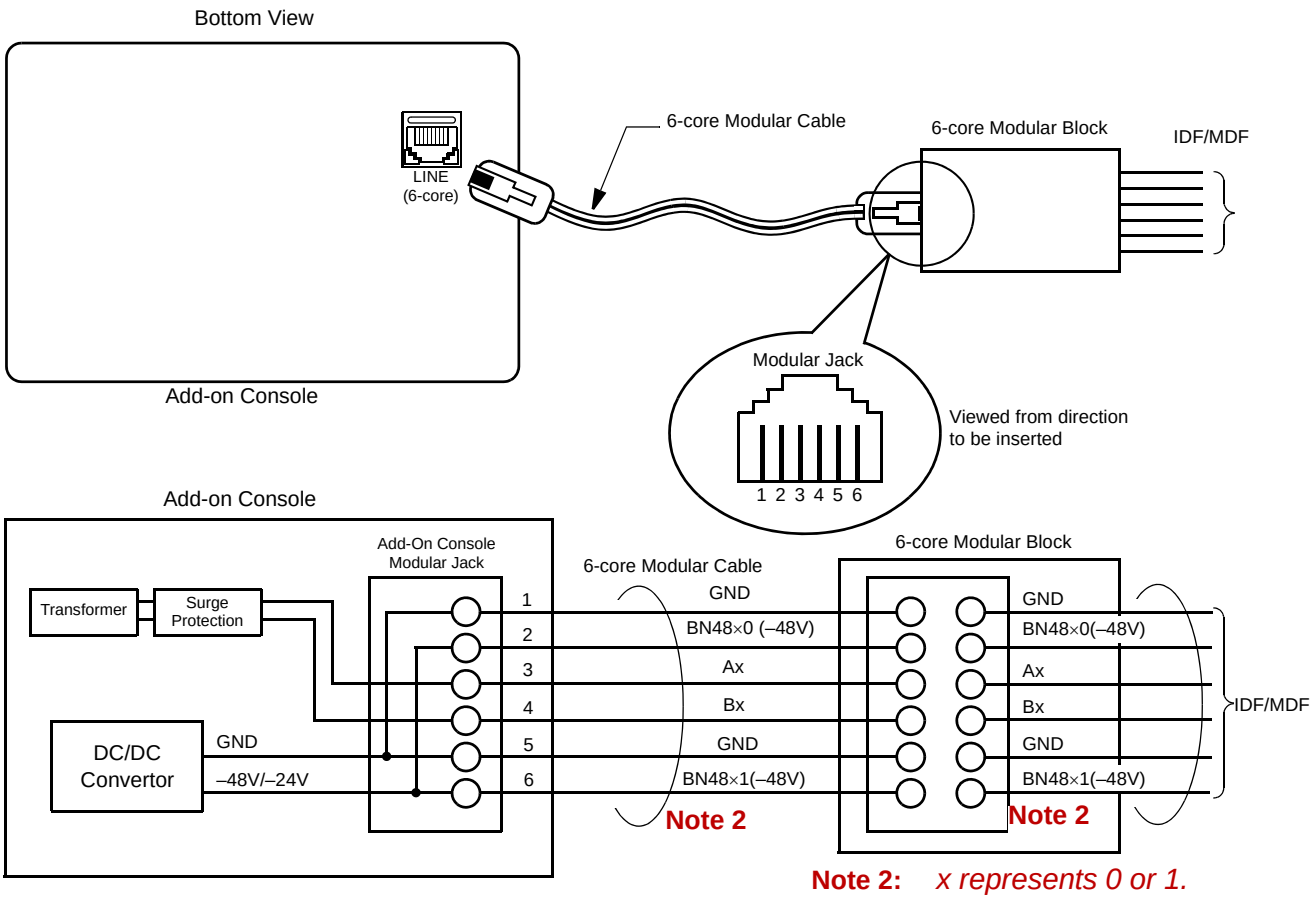
Note 1: When using a local power supply, a Desk Console cannot be used in the event of a power failure.

Add-On Console Cable Connection Diagram (when using a local power supply)



Cable Connection Diagram for an Add-On Console Modular Block

Wire the cables to the modular block as shown below.

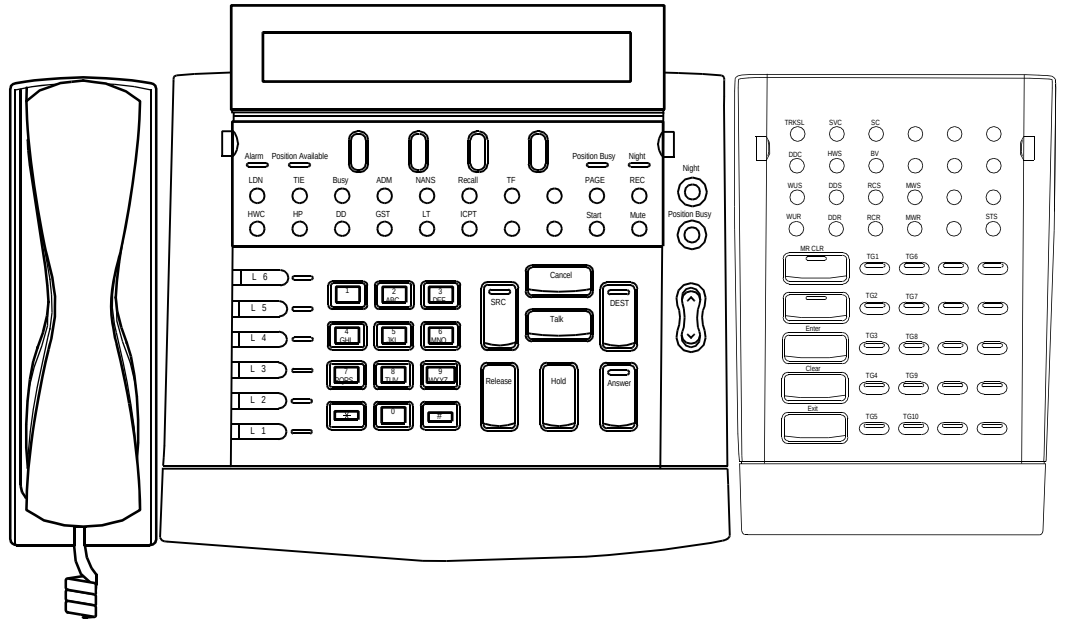


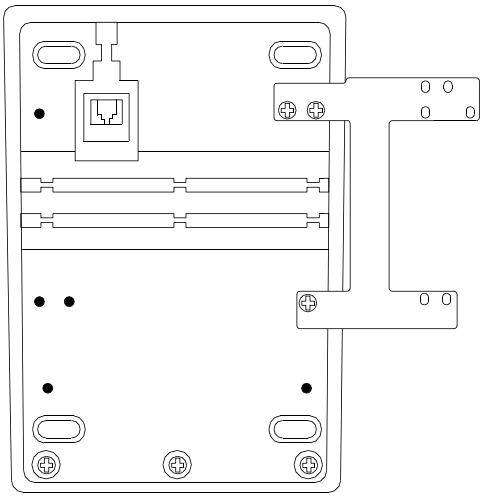
Note 2: *x represents 0 or 1.*

3.4 Mounting An Add-on Console

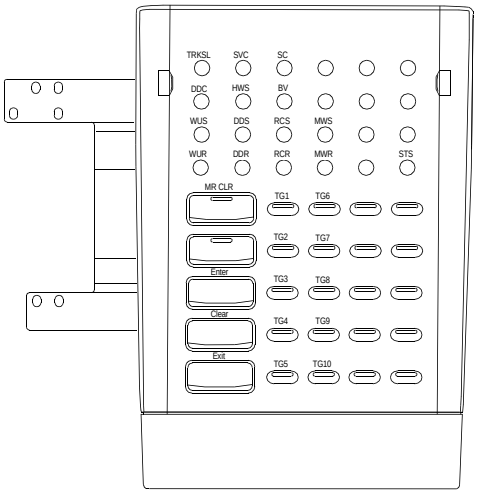
(a) When mounting at the right side of a Desk Console

Mounting an Add-On Console (right side of a Desk Console) (1/2)





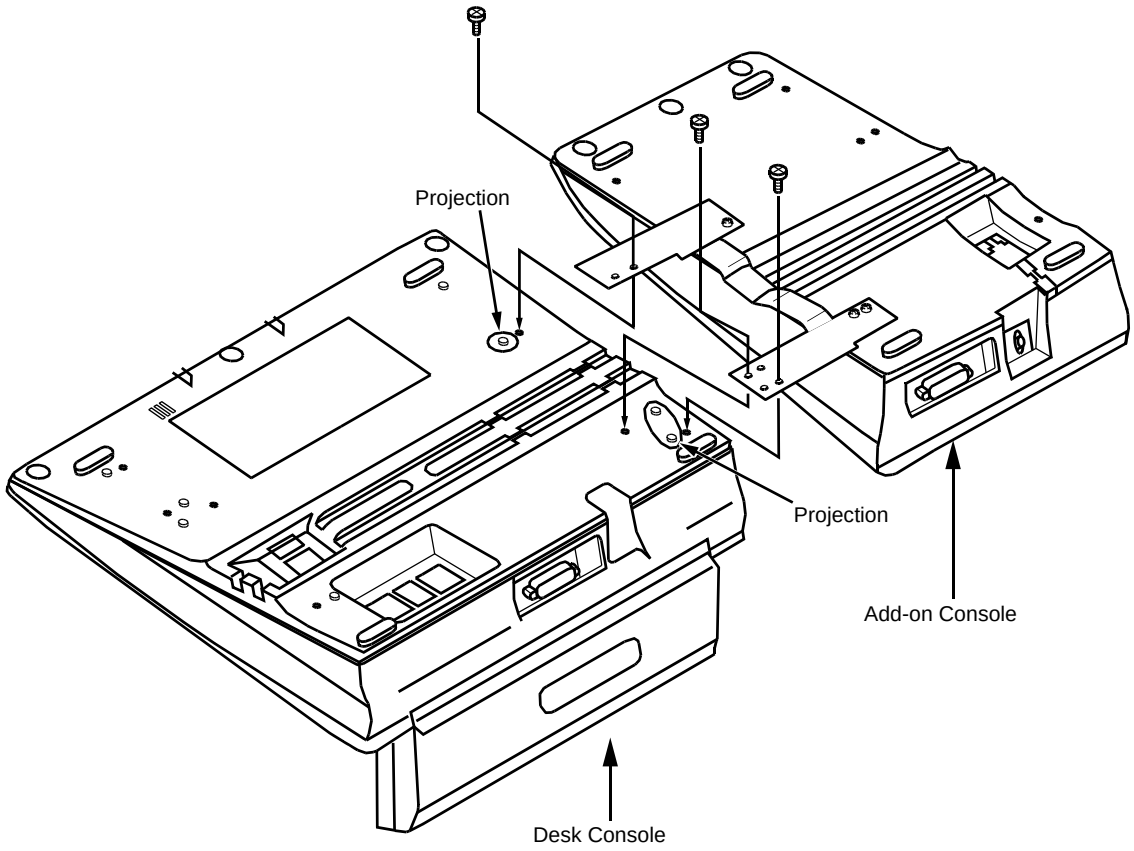
Bottom View



Top View

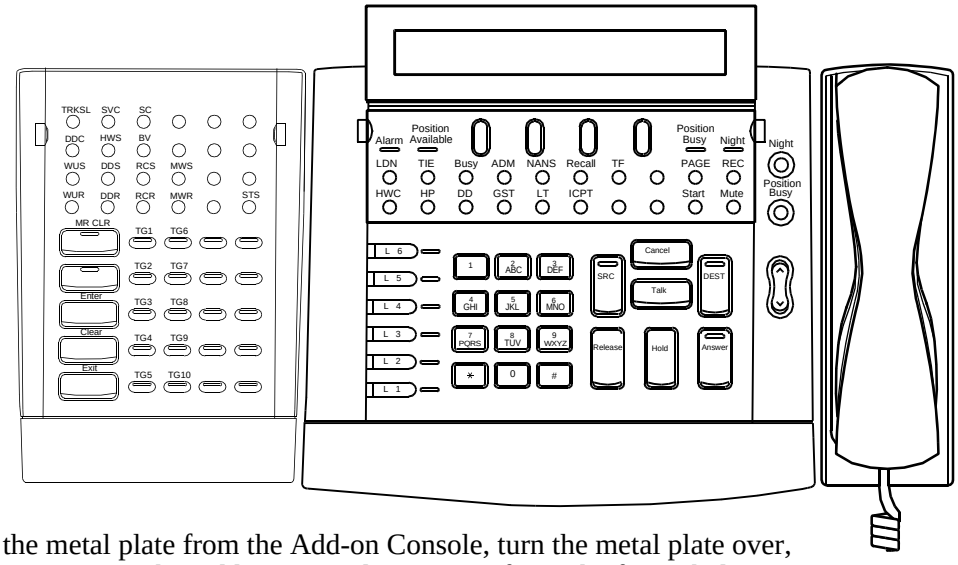
Mounting an Add-On Console (right side of a Desk Console) (2/2)

Mount the Add-on Console to a Desk Console with three screws, as shown below.

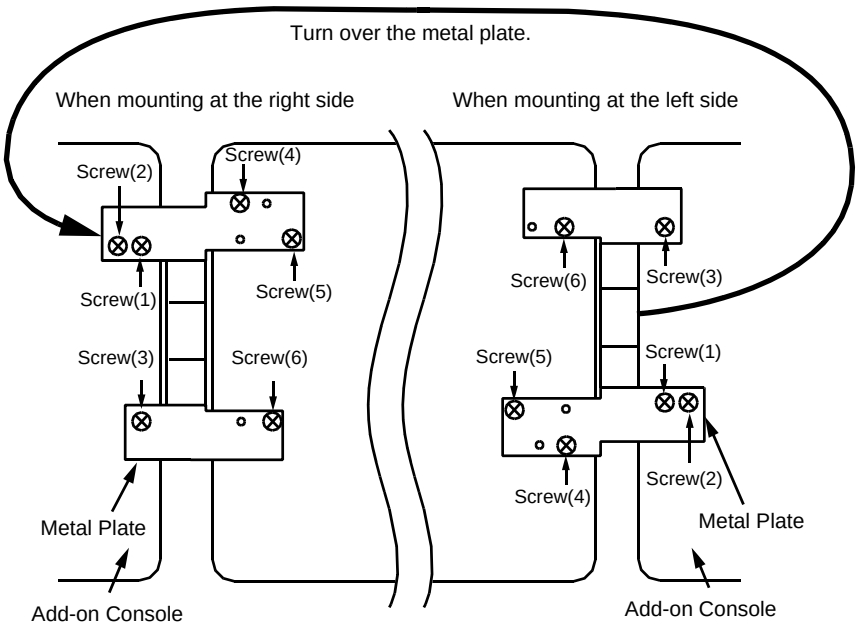


(b) When mounting at the left side of a Desk Console.

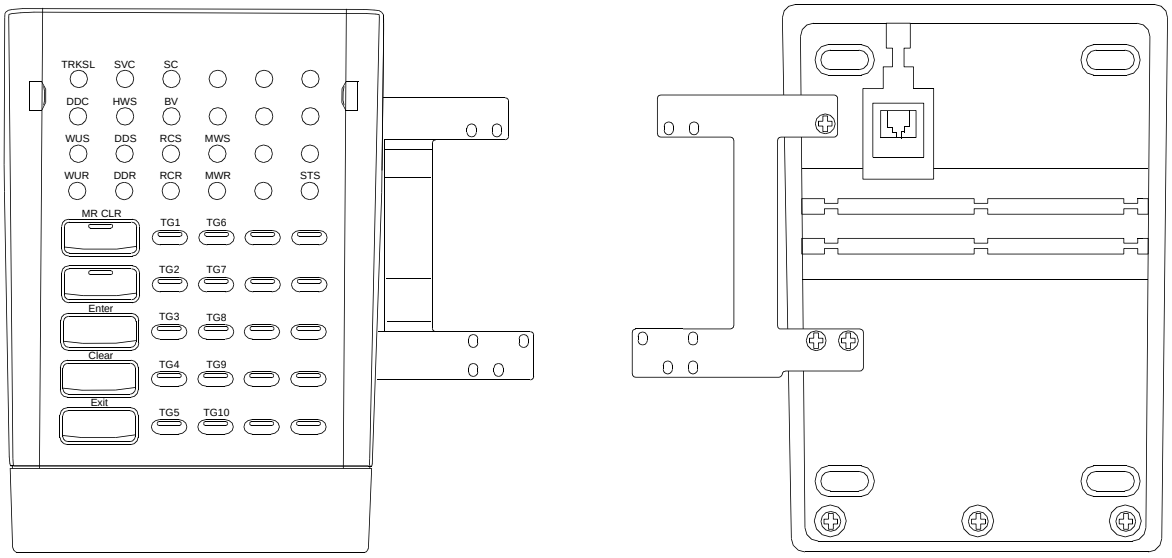
Mounting an Add-On Console (left side of a Desk Console) (1/2)



1. Remove the metal plate from the Add-on Console, turn the metal plate over, and then mount it on the Add-on Console again. Refer to the figure below.



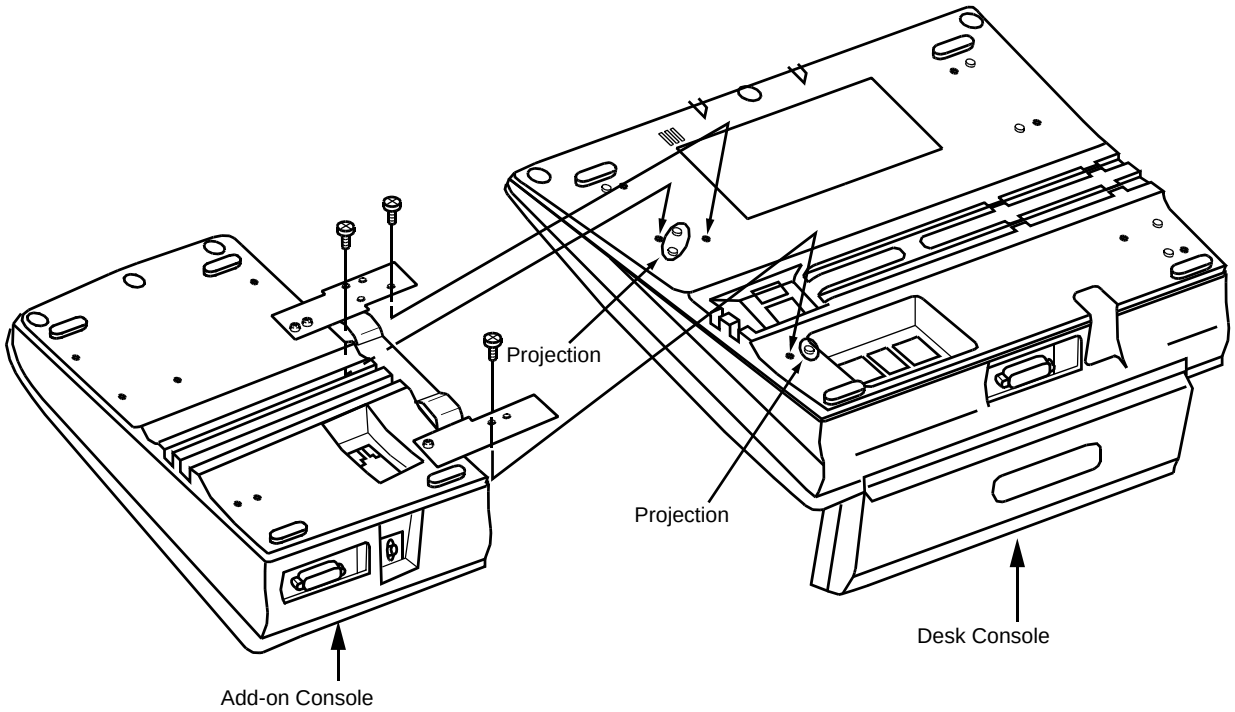
Mounting an Add-On Console (left side of a Desk Console) (2/2)



Top View

Bottom View

2. Mount the Add-on Console to Desk Console with three screws, as shown below.

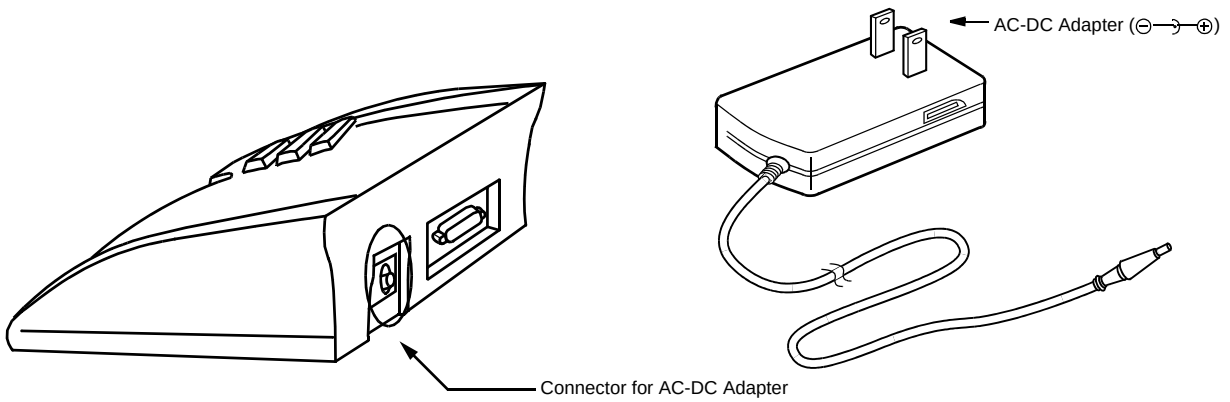


3.5 Connecting An AC-DC Adapter To An Add-on Console (Optional)

The AC-DC adapter is required when the distant PBX power supply is not available.

AC-DC Adapter Connection for an Add-On Console

The connector for the AC-DC adapter is on the rear side of Add-on Console.



4. ZONE TRANSCEIVER (ZT)/CELL STATION (CS)

4.1 ZT/CS Installation Design

4.1.1 Basic Knowledge on ZT/CS Installation

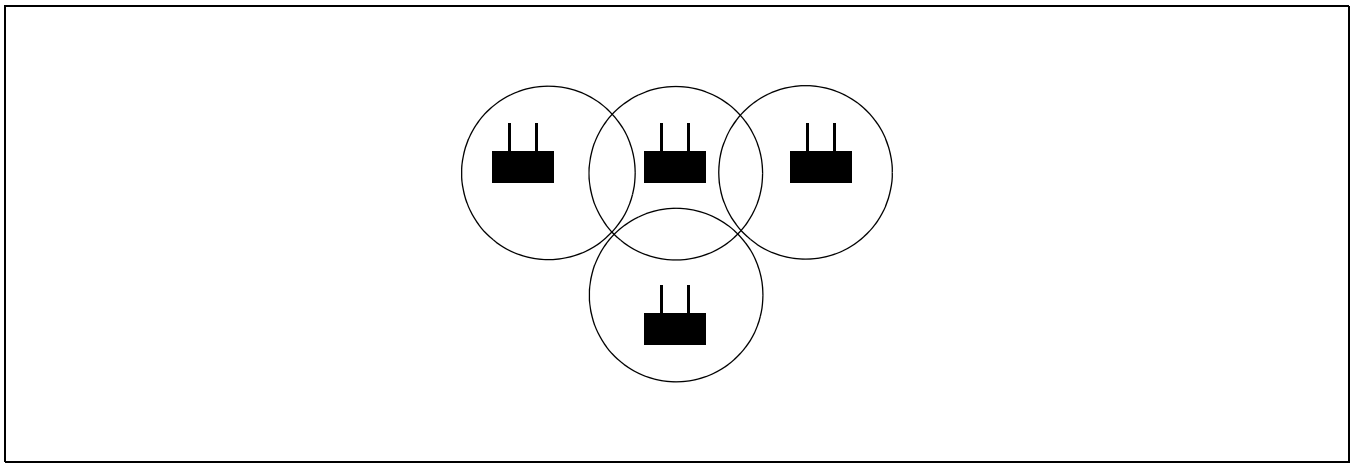
4.1.1.1 Hypothetical Range of Radio Zone

When designing the image of a radio zone provided by a ZT/CS, the radio zone can be drawn by using a specific prefixed distance characteristics value. Provided that a ZT/CS is installed on a wall, the hypothetical distance characteristics range of the radio zone are as follows:

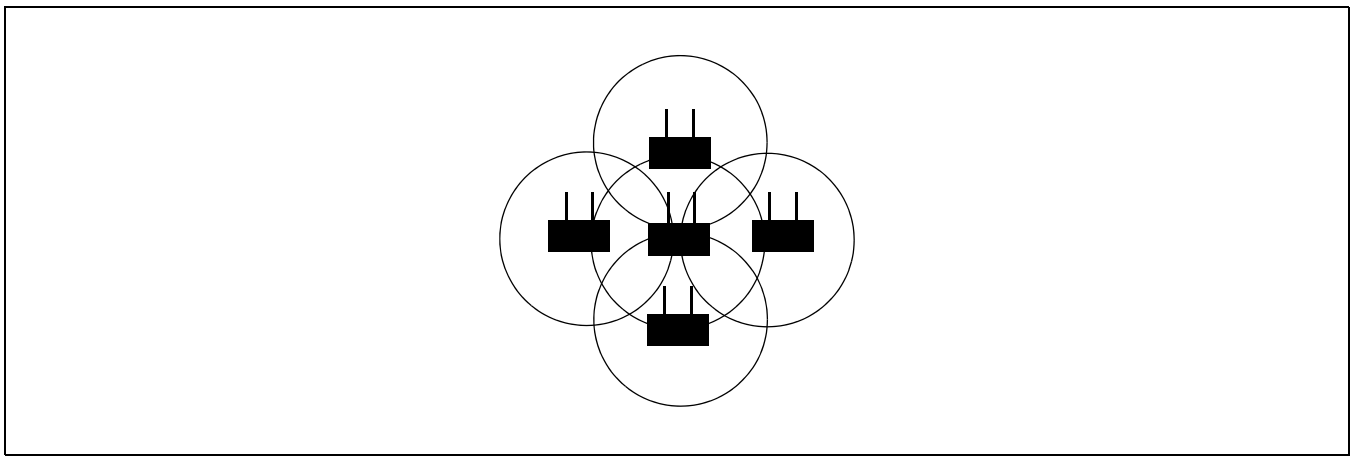
Indoor (general): Radius of 49 feet (15 meters) approximately
Indoor (floor and corridor with unobstructed view): Radius of 65 feet (20 meters) approximately
Outdoor: Radius of 164 to 196 feet (50 to 60 meters) approximately

The range shown represents model values. Adjustment of the radio zone should be needed to design the final drawings as the radio wave fluctuates unpredictably. It is fundamental that each radio zone be assigned to ensure sufficient overlap as shown below.

Standard Installation Image



High Traffic Installation Image

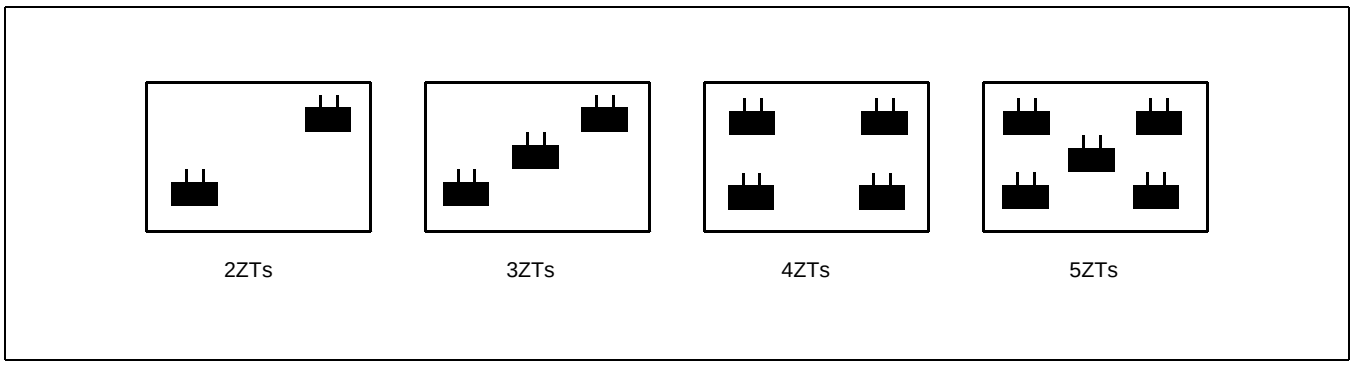


4.1.1.2 Image of ZT/CS Installation

Assuming a ZT/CS is installed in a general office environment, one ZT/CS can rarely cover the entire service area. A general service area is composed of multiple ZT/CSs. The following diagrams show the image of ZT/CS installation.

a. Single Floor Installation

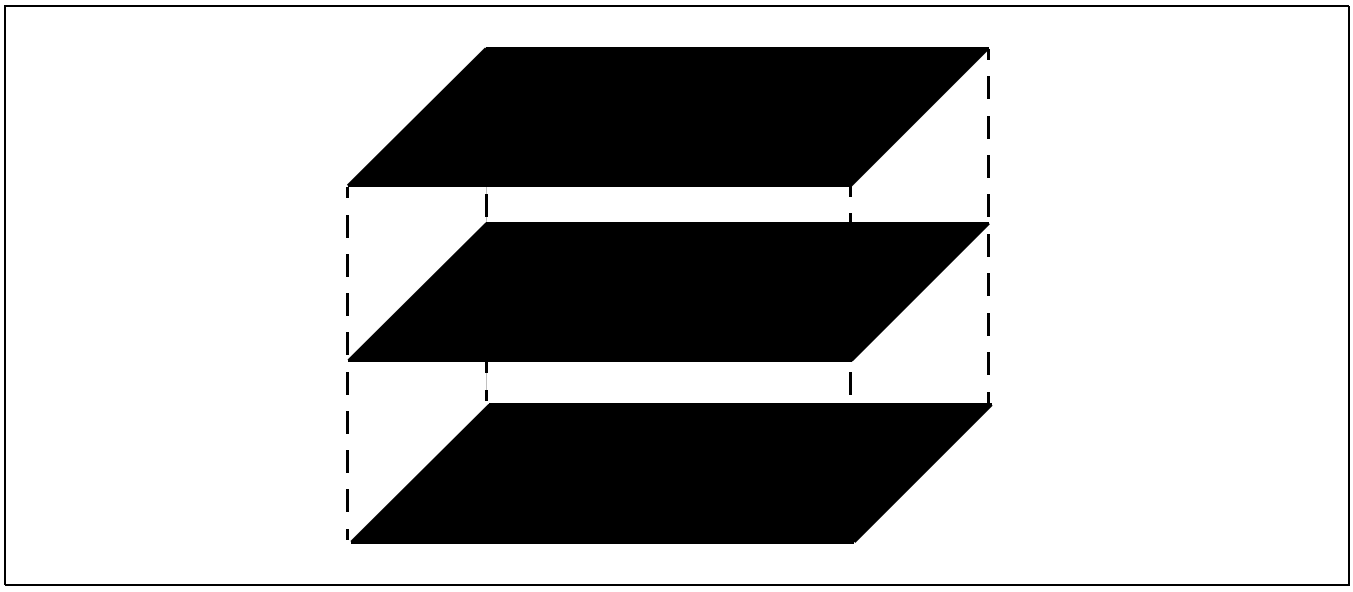
ZT/CSs are ideally installed at right angles or zigzag like spots in a dice.



b. Vertical Successive Floor Installation

Install the ZT/CSs at zigzag positions alternately by even-number and odd-number floors. The transparent radio waves penetrating floors or ceilings are sufficient enough to receive an electric field to be a radio zone and the transparent radio wave between floors is sensed.

Image of ZT/CS Installation

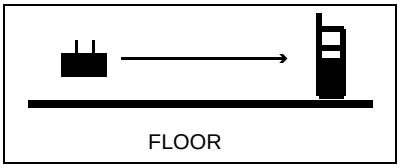


4.1.1.3 Radio Wave Propagation

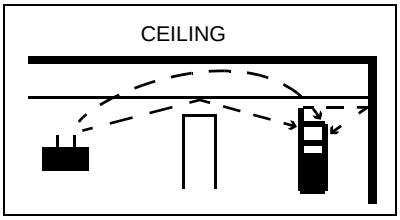
Radio waves used by the Built-in PCS System employ a digital signal of service frequency of approximately 1.9 GHz band. The types of radio waves and types of propagation involved with basic radio wave propagation are considered to be the same as other analog radio waves.

- Types of radio waves

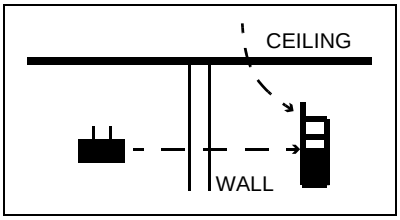
a. Direct waves: Radio waves that are propagated directly and linearly.



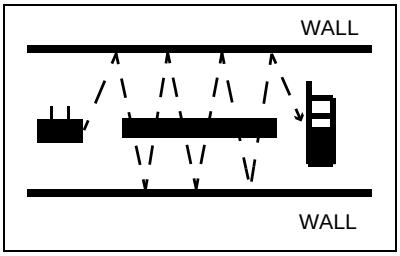
b. Reflected waves/ diffracted waves (indirect waves): Radio waves that are propagated by being reflected or diffracted from an obstacle, such as a wall and ceiling.



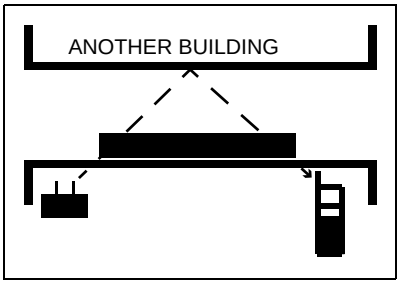
c. Transmitted waves: Radio waves that travel through a wall, floor, partition.



d. Propagating corridor waves: Radio waves that travel along a corridor. (One type of reflected waves.)



e. Re-entering building waves: Radio waves that go out of a building through a window and enter the building again.



- Types of propagation

  There are two major types of radio wave propagation:

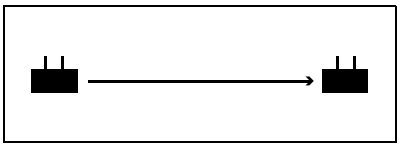
  1. Line-of-sight propagation

  2. Propagation beyond the horizon.

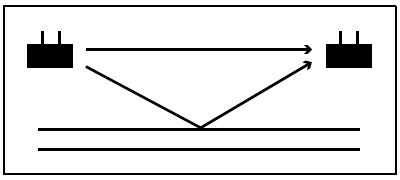
  As opposed to a cellular phone, consideration must be given to the line-of-sight propagation characteristics, where a ZT/CS can be seen directly. As for the propagation beyond the horizon, radio waves travel through walls, ceilings, partition on the same floor, or another floor for a Wireless system used on private premises with a very small service area.

  Line-of-sight propagation

  a. Free spaces propagation:
     - When a distance doubles, propagation loss increases by 6 dB.
     - When a wavelength is halved, propagation loss increases by 6 dB.

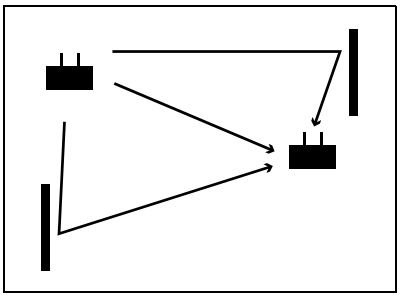


  Plane earth propagation: When a distance doubles, propagation loss increases by 12 dB (it is wavelength-independent).



  b. Propagation beyond the horizon

  Multiple wave propagation: Propagation where numerous reflected and diffracted waves are received. (the original mobile communications use this type of propagation.)



4.1.2 Installation of the Zone Transfer (ZT)/Cell Station (CS)

How to install the ZT/CS and precautions made when mounting it is explained as follows:.

a. The ZT/CS is a communication device that sends a weak signal as radio waves. It should not be installed near and around equipment or an environment listed below, to ensure speech quality and various kinds of control operations. Care must be taken.

Indoor Installation

Do not install around equipment capable of emitting noise (high frequency electric waves) such as a Wireless apparatus, television set, radio set, fluorescent lightening, and microwave oven.

Outdoor Installation

Avoid places easily affected by radio disturbances from cars, etc. (e.g., near a principal road).

When installing by the sea, protect the ZT/CS from salt using the outdoor mounting box and other protection if necessary.

Avoid places where there is a possibility to cause malfunction by radio waves.

When installing by the sea, protect the ZT/CS from salt using the outdoor mounting box and other protection if necessary.

Avoid abnormal places where a fear of an explosion may be present, or those subjected to malfunction by radio waves or to a strong electromagnetic field.

b. Avoid installing on a clay wall or plasterboard.

c. Ensure the wall or pillar used is strong enough to support the weight of the ZT/CS, so that it does not shake, and has very little vibration.

d. If a possible installation wall contains reinforced steel, keep the antenna away from the wall by slightly tilting it.

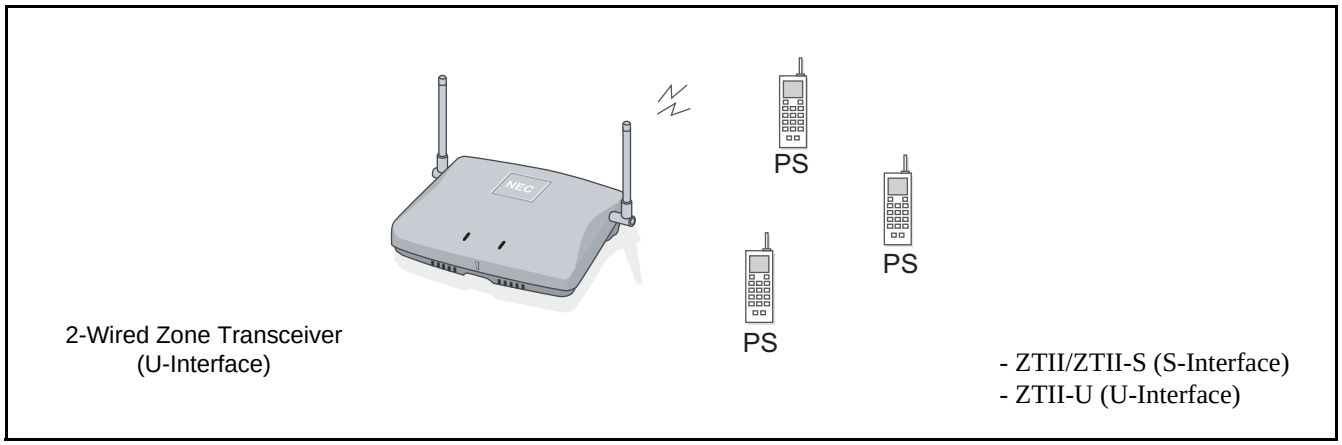
When raising the antenna of the ZT/CS, make sure that it does not touch the wall.

4.2 Zone Transceiver (ZT)

4.2.1 General

Zone Transceiver (ZT) is used for the Wireless/PCS system. The following shows the outer view of 2-Wired Zone Transceiver as an example. A maximum three Personal Stations (PS) can be simultaneously accessed to a ZT.

Zone Transceiver Outerview



Interface Circuit Cards:

The following circuit card can be used for connecting ZT to the system.

Circuit Card	2W/4W	Remarks
PA-8CSIE PA-8CSIE-A	2W	U Interface

4.2.2 Installation Procedure

STEP 1: Run the cables between ZT and its modular block (jack), and between the modular blocks and the MDF.

STEP 2: Install CSINT circuit card into a proper slot of PIR for connecting CS. For more information about CSINT circuit card, refer to Circuit Card Description. When the CS is connected to a vacant port of the existing CSINT card, this step is not necessary.

STEP 3: Terminate the installation cables to the MDF and the modular blocks.

STEP 4: Check the terminal locations on the MDF. To identify the lead names and the lead's terminal locations, refer to LT Connector Lead Accommodation of the circuit card in Circuit Card Description.

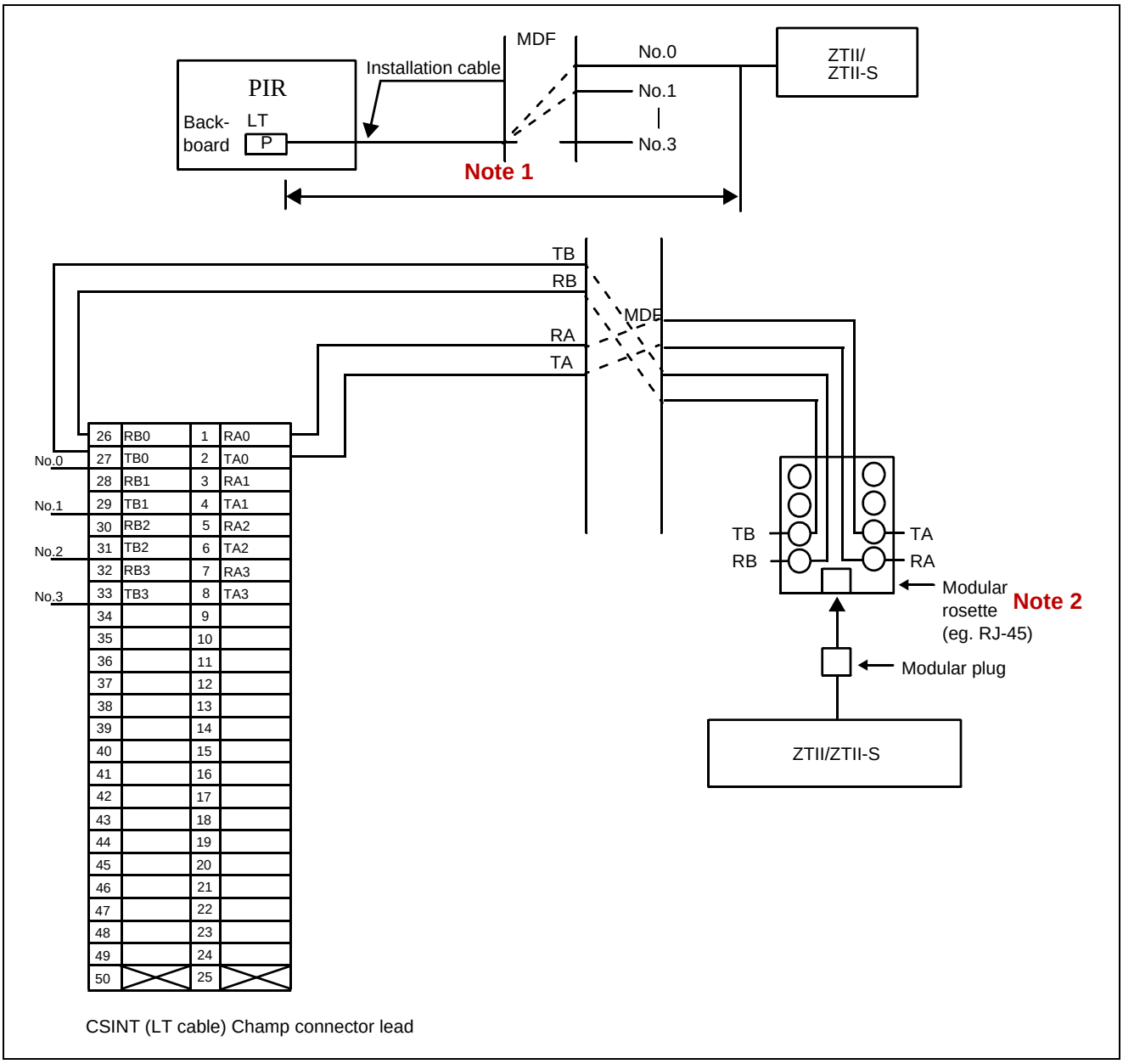
STEP 5: Provide the necessary cross connection on the MDF referring to the following figures.

4.2.3 Cable Connection Diagram and Maximum Length

When using PA-8CSIE-A (S Interface):

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Related Equipment for Built-in Wireless System (When using PA-8CSIE-A)



CSINT (LT cable) Champ connector lead

Note 1: The maximum length of the cable to each ZTII/ZTII-S depends on the kind of cable (diameter) and the type of power supply (power supply from the Built-in Wireless system/local power supply).

Power supply from the Built-in Wireless system (Without arrester, when feed output is -48V)

Diameter	26 AWG (0.4ϕ)	24 AWG (0.5ϕ)	22 AWG (0.65ϕ)	19 AWG (0.9ϕ)
Distance	762 meters	1219 meters	1676 meters	2438 meters
	2500 feet	4000 feet	5500 feet	8000 feet

Power supply from Built-in Wireless system (Without arrester, when feed output is -43V)

Diameter	26 AWG (0.4ϕ)	24 AWG (0.5ϕ)	22 AWG (0.65ϕ)	19 AWG (0.9ϕ)
Distance	548 meters	883 meters	1340 meters	1948 meters
	1800 feet	2900 feet	4400 feet	6400 feet

Local power supply (Without arrester)

Diameter	26 AWG (0.4ϕ)	24 AWG (0.5ϕ)	22 AWG (0.65ϕ)	19 AWG (0.9ϕ)
Distance	1189 meters	1341 meters	1676 meters	2438 meters
	3900 feet	4400 feet	5500 feet	8000 feet

Note 2: Confirm that the electric potential between TA/TB and RA/RB (feed polarity) is normal before connecting ZTII/ZTII-S to modular rosette.
TA/TB: negative (-)
RA/RB: positive (+)

Note: The connection of the connector lead depends on the mounting location of the CSINT circuit card. For details, refer to Circuit Card Description.

4.2.4 Installation of Zone Transceiver (ZT)

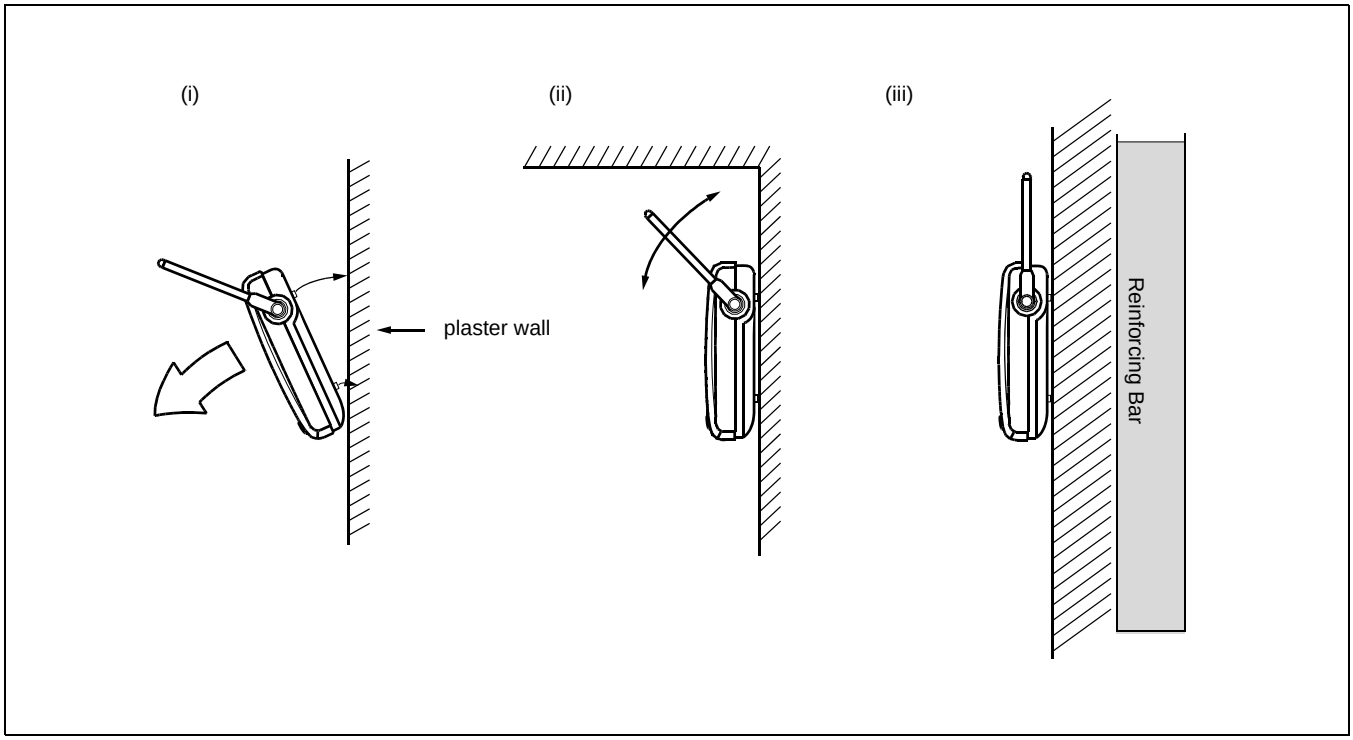
STEP 1: When mounting a ZT on a wall/ceiling, observe the following instructions.

i Do not mount a ZT on a wall/ceiling that cannot sustain the weight of ZT (e.g. a plaster wall, plywood wall).

ii Make sufficient space so that the antenna can be placed at any angle.

iii When mounting a ZT on a wall that contains a reinforcing bar near the mounting location, place the antenna at an angle with the wall to make a space between the antenna and the reinforced bar.

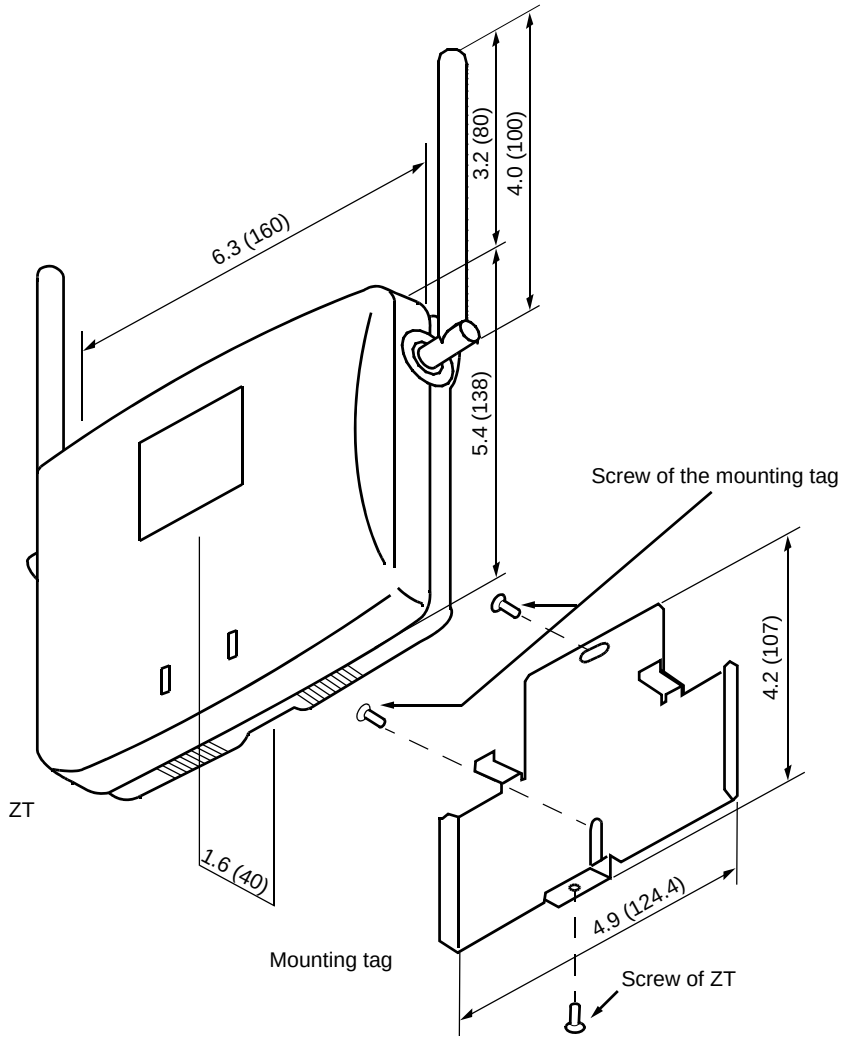
ZT Mounting Example



STEP 2: Post the attached dimension drawing on the mounting location to mark the locations of the screw holes. Two screw holes are provided for the lower mounting position. Depending on the mounting location, select either of the two mounting position. Leave a space [more than 4.3 inches (110 millimeters)] for the antenna.

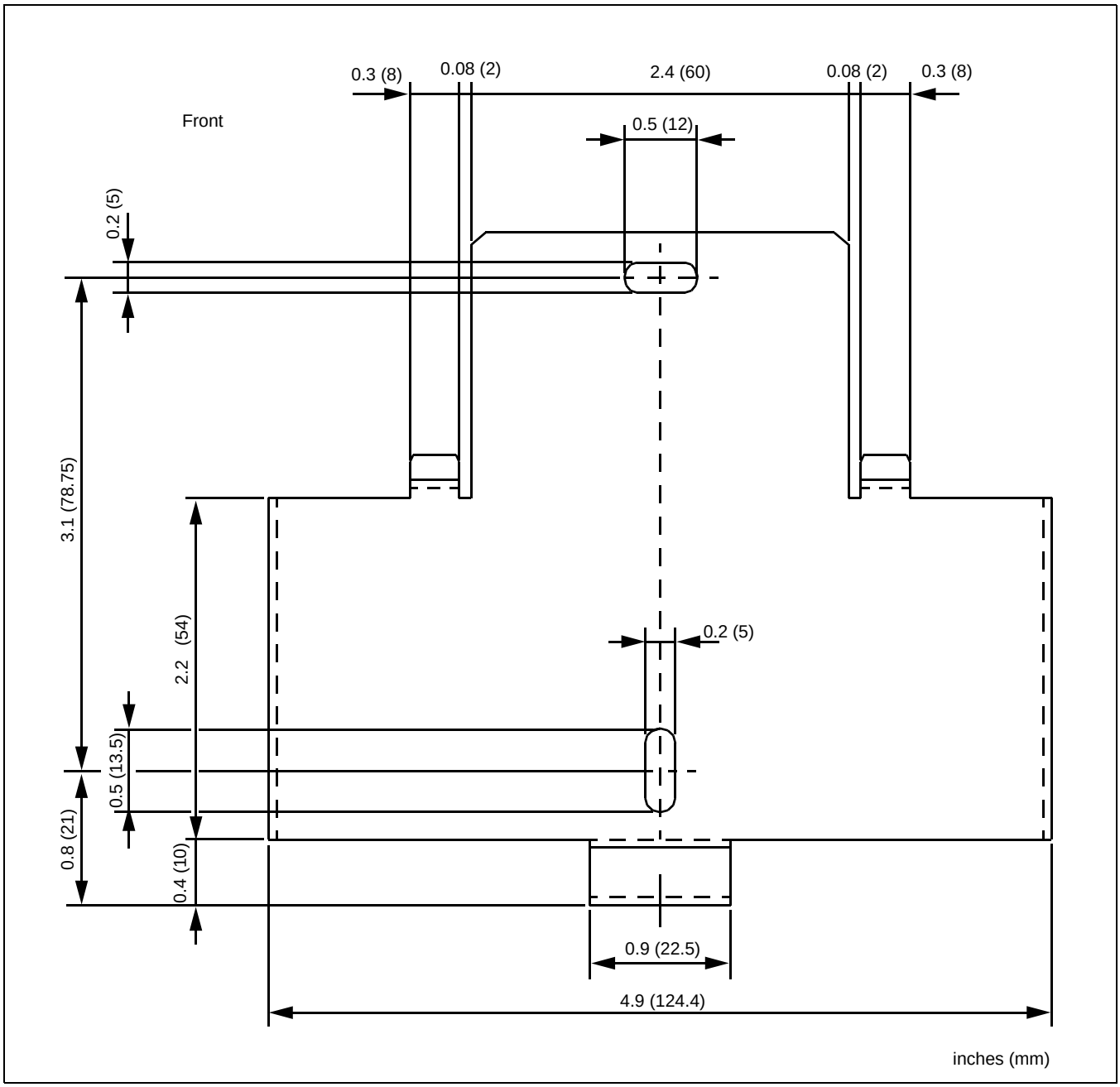
Dimension Drawing for ZT Installation (1/2)

Leave a space [more than 4.3 in (110 (mm)] for the antenna.



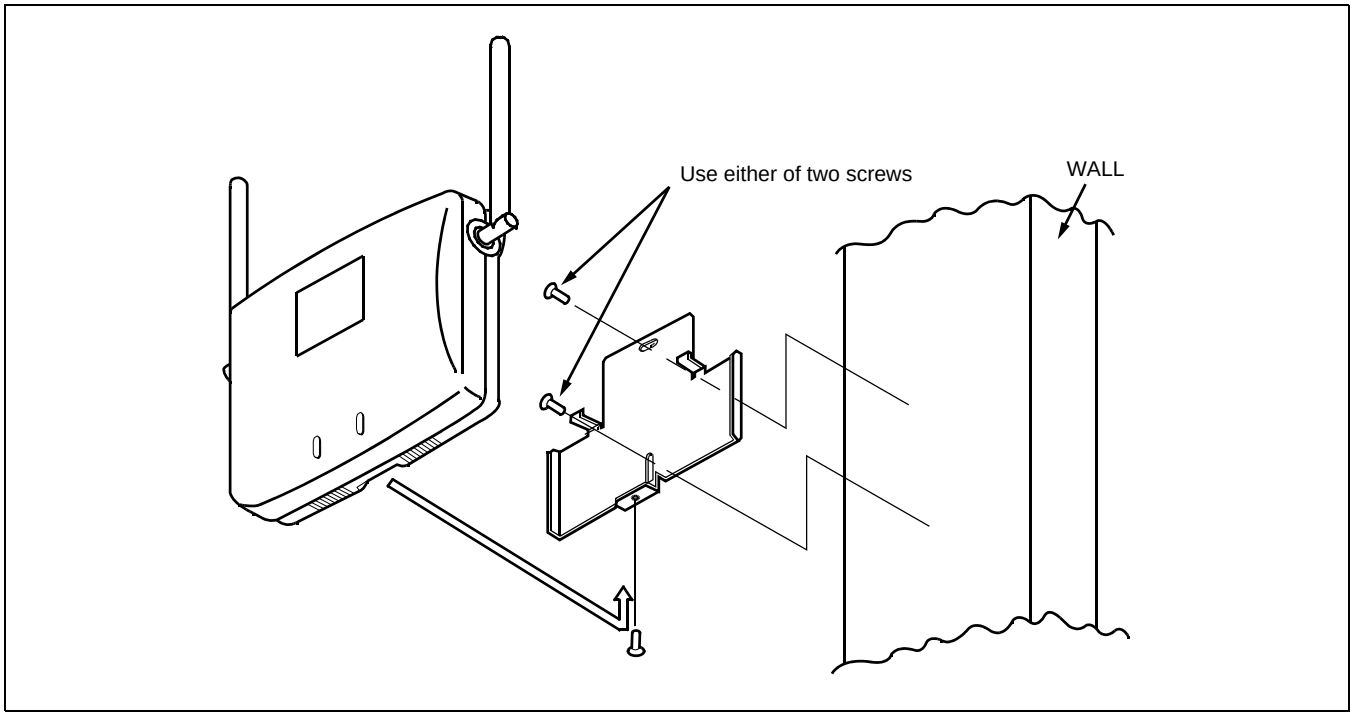
STEP 3: Secure the furnished screws to the marked locations. In this instance, for the lower mounting screw hole, select either of the mounting options depending on the mounting location.

Dimension Drawing for ZT Installation (2/2)



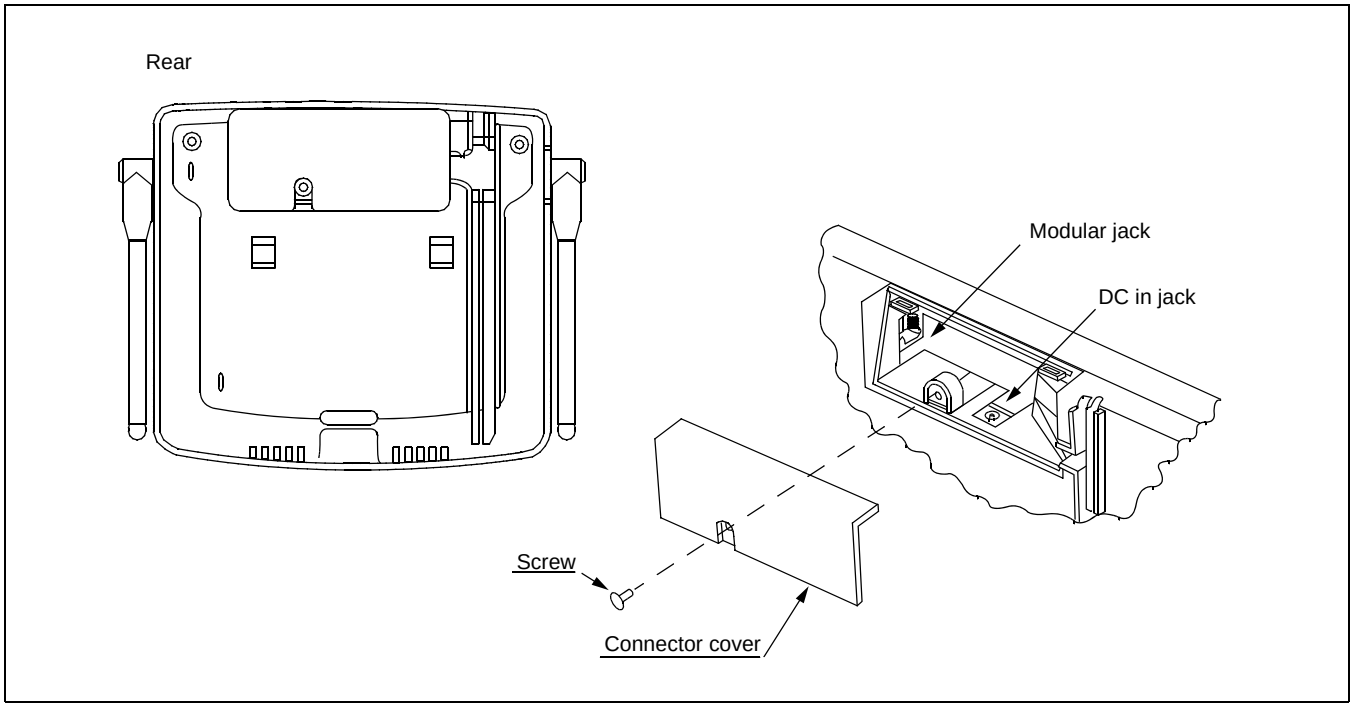
STEP 4: Mount the ZT on the wall and slide it so that the heads of the screws fix the ZT tightly.

Mounting of the ZT



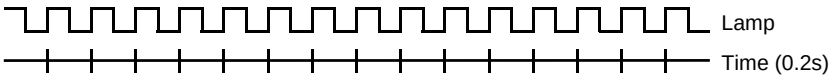
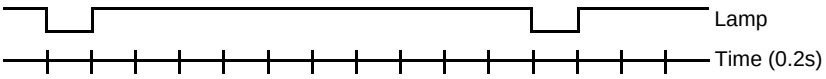
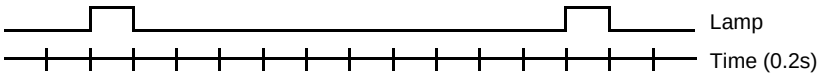
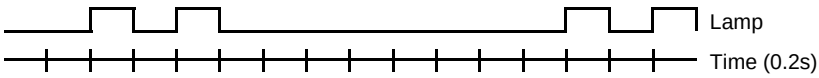
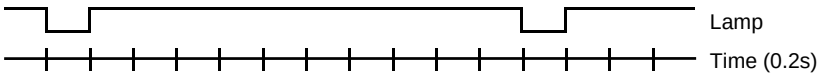
STEP 5: If power feeding from the Telephony Server is impossible, use the AC adapter for local power feeding. The “AC adapter” is connected to the ZT as shown below.

Local Power Feeding



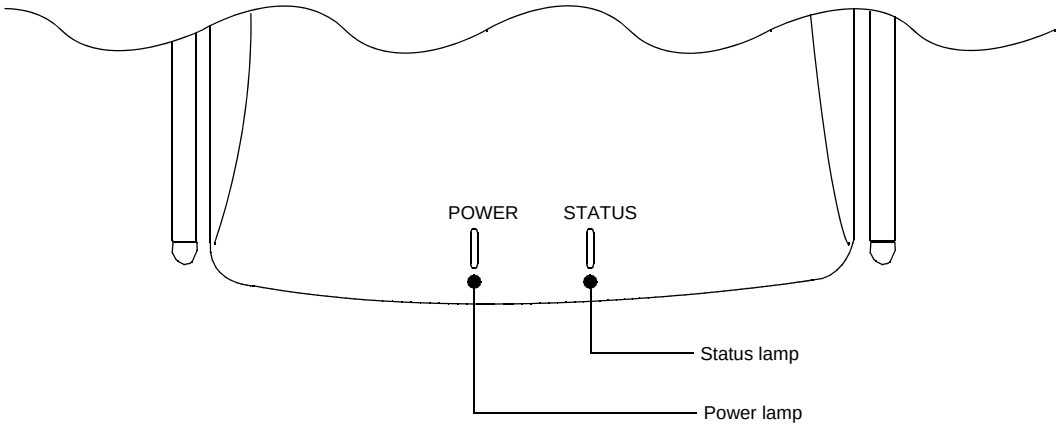
STEP 6: Turn ON the power to the ZT to confirm the lamp indications are normal. Refer to the table and figure below.

Meaning of LED Indications

LAMP	LIGHT	STAGE	MEANING
POWER	LIT		Light when the power is supplied
STATUS	OFF		Line is not open
	LIT	The flicker cycle is 0.1 seconds.	ZT does not stand by 
	LIT	The light cycle is 1.8 seconds.	All ZT lines are busy. 
	LIT	The flicker cycle is 0.2 seconds by standard.	The number of ZT line used. (The number of flicker indicates the number of ZT line used.) 1 line used.  2 lines used.  3 lines used. (All ZT lines are busy.) 

Note: One cycle is 2 second.

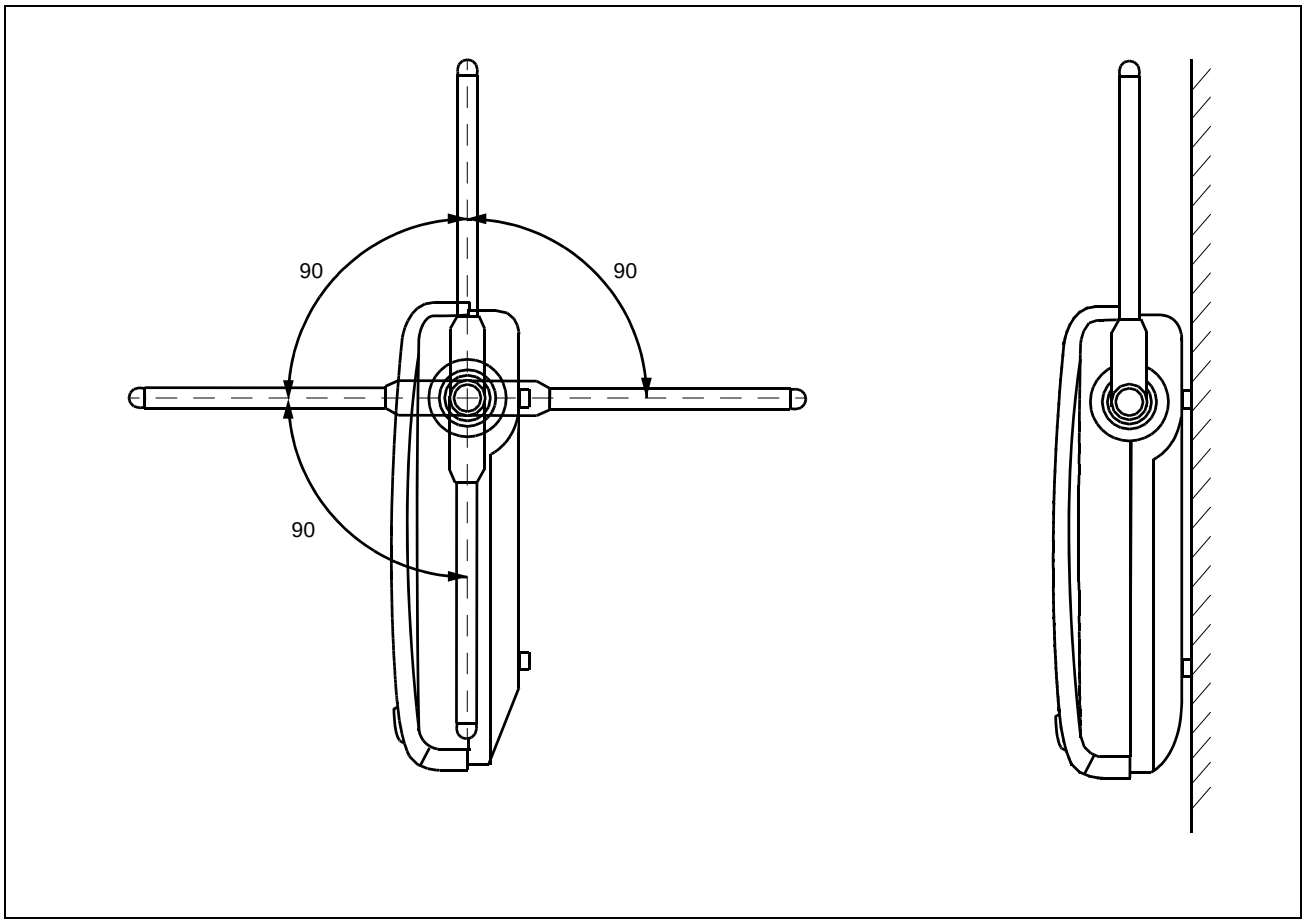
LEDs on the Zone Transceiver



STEP 7: The angle of the antenna is variable between 0º and 180º as shown below. In a wall-mount installation, normally the antenna is set at an angle of 0º so that the antenna may be vertical with the radio zone.

Note: Since the antenna is easily broken, handle it with care.

Adjustment of Antenna



4.2.5 How to Make-busy a ZT

Observe the following procedure to make-busy a ZT.

- Use MBCSL/MBCSN to make-busy an individual line.
- Use the MB key on the CSINT card to perform make-busy on a CSINT card basis.
- Disconnect the line cable from the ZT that is set make-busy.

In the following cases, PS using the ZT and the counter party hear momentary noise. Be sure to make-busy the ZT before performing CSINT and ZT maintenance work.

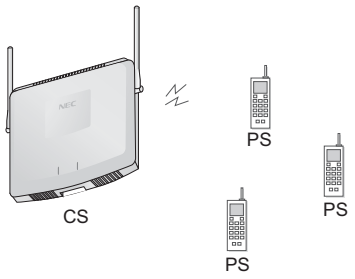
- When performing CSINT card make-busy operation
- When disconnecting the cable between a CSINT card and the ZT

4.3 Cell Station (CS)

4.3.1 General

Cell Station (CS) is used for the PHS system. The following shows the outer view of CS. A maximum three Personal Stations (PS) can be simultaneously accessed to a CS.

Cell Station



2-Wired Cell Station
(U-Interface)

Interface Circuit Cards:

The following CSINT circuit card can be used for connecting CS to the system.

CSINT Circuit Card	2W/4W	Remarks
PA-8CSIE PA-8CSIE-A	2W	U Interface

4.3.2 Installation Procedure

STEP 1: Run the cables between CS and its modular block (jack), and between the modular blocks and the MDF.

STEP 2: Install CSINT circuit card into a proper slot of PIR for connecting CS. For more information about CSINT circuit card, refer to Circuit Card Description. When the CS is connected to a vacant port of the existing CSINT card, this step is not necessary.

STEP 3: Terminate the installation cables to the MDF and the modular blocks.

STEP 4: Check the terminal locations on the MDF. To identify the lead names and the lead's terminal locations, refer to LT Connector Lead Accommodation of the circuit card in Circuit Card Description.

STEP 5: Provide the necessary cross connection on the MDF referring to the following figures.

4.3.3 Cable Connection Diagram and Maximum Length

Maximum length of the cable to each CS depends on the kind of cable (diameter) and the way of power supply (Power supply from Built-in PHS system or Local power supply).

Power supply from the Telephony Server (Without arrestor)

Diameter	0.4 ϕ	0.5 ϕ	0.65 ϕ	0.9 ϕ
Distance (No arrestor)	260 m	435 m	740 m	1400 m
	853 ft	1427 ft	2428 ft	4593 ft

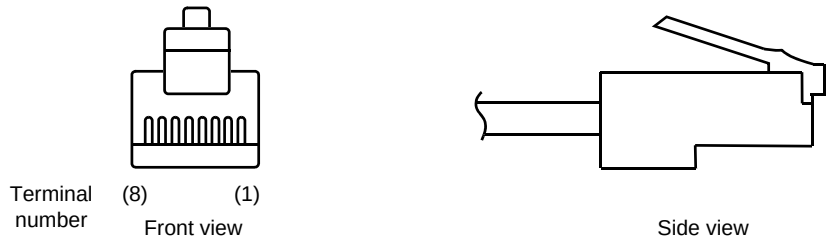
Local power supply

Diameter	0.4 ϕ	0.5 ϕ	0.65 ϕ	0.9 ϕ
Distance (No arrestor)	560 m	960 m	1280 m	2080 m
	1837 ft	3149 ft	4199 ft	6824 ft

Note: Connection of the connector lead depends on the mounting location of CSINT circuit card. For more detail, refer to Circuit Card Description.

Below is the specification of modular plug that is used for the connection to CS.

- RJ-45 modular plug

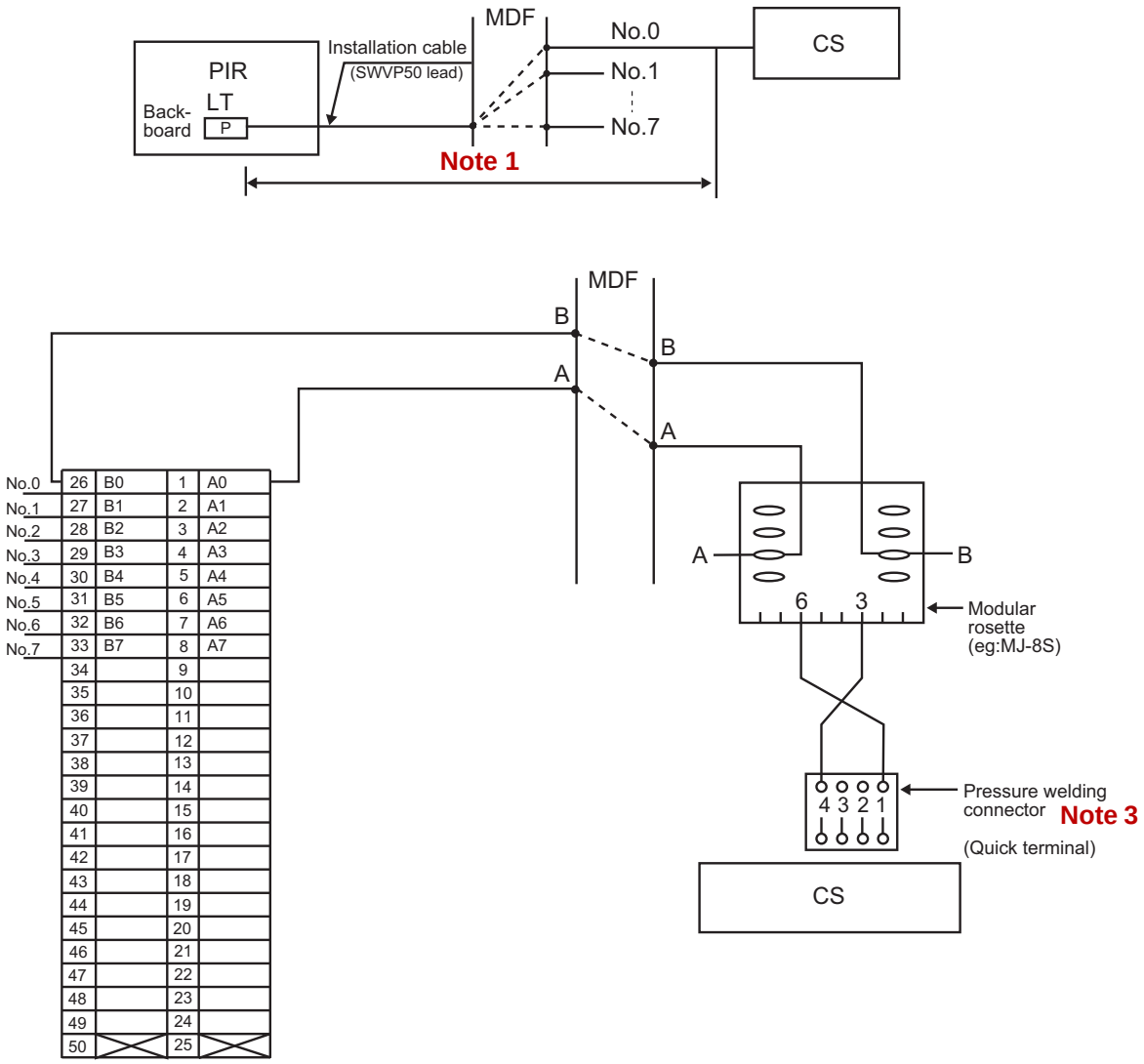


TERMINAL NUMBER	TERMINAL NUMBER	FUNCTION		POLARITY		CSINT TERMINAL
		TERMINAL EQUIPMENT	CSINT	SIGNAL	POWER FEED	
1	a	Not used	Not used			
2	b	Not used	Not used			
3	c	Transmission	Reception	+	-	RA
4	d	Reception	Transmission	+	+	TA
5	e	Reception	Transmission	-	+	TB
6	f	Transmission	Reception	-	-	RB
7	g	Not used	Not used			
8	h	Not used	Not used			

- Cable Connection for BS41

ATTENTION
Contents
Static Sensitive
Handling
Precautions Required

Cable Connection for BS41 (U interface)



Note 1: The Maximum length of the cable to each CS depends on the kind of cable (diameter) and the way of power supply (Power supply from PHS system/Local power supply).

Power supply from Built-in PHS system (Without arrestor)

Diameter	0.4 ϕ	0.5 ϕ	0.65 ϕ	0.9 ϕ
Distance (No arrestor)	500 m	800 m	1350 m	2400 m
	1640 ft	2625 ft	4429 ft	7874 ft

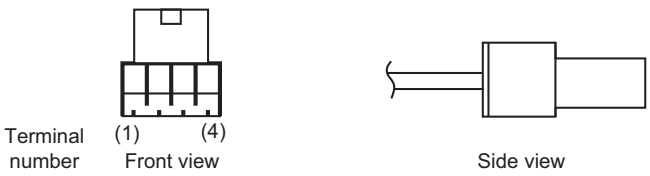
Local power supply

Diameter	0.4 ϕ	0.5 ϕ	0.65 ϕ	0.9 ϕ
Distance (No arrestor)	3500 m	5000 m	7000 m	9000 m
	11484 ft	16405 ft	22967 ft	29529 ft

Note 2: Connection of the connector lead depends on the mounting location of CSINT circuit card. For more detail, refer to Circuit Card Description.

Note 3: Below is the specification of 4-wire pressure welding connector that is used for the connection to CS.
Installation procedure of 4-wire pressure welding connector.

4-wire pressure welding connector



Note: There are no polarity for L1/L2 quick terminal of CS side. Make sure terminal numbers 1 and 4 are connected.

Note: User can arrange an optional cable for conversion from RJ-45 modular plug to 4-wire pressure welding connector.
Product Name: NG-049251-000 BS21 CABLE

Note: By ordering a BS41, also attached to is a single 4-wire pressure welding connector (color = blue). If more connector is necessary, arrange the following (18 additional connectors as a set; color = all black):
Product Name: 232D-04S1B-DA5-18

4.3.4 Installation of Cell Station

4.3.4.1 How to Install BS41

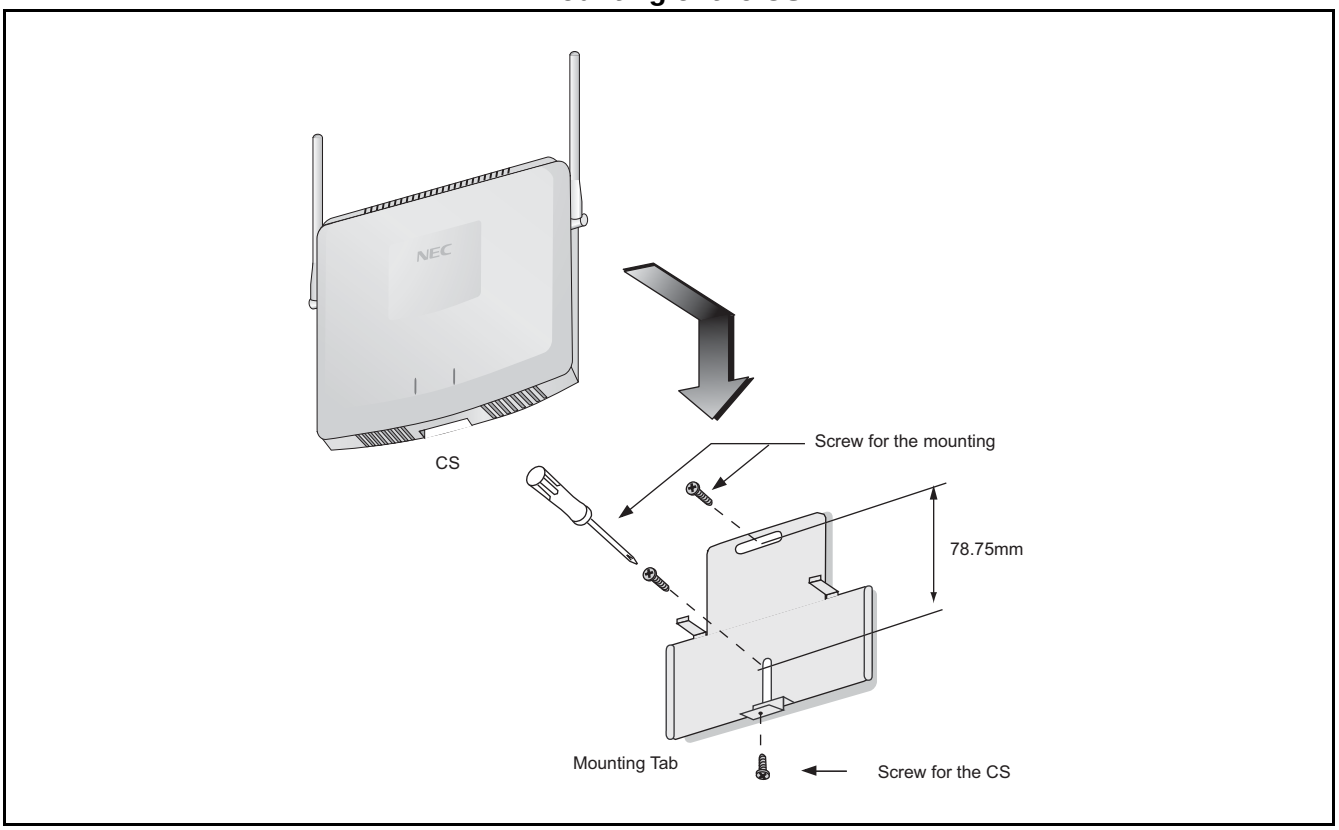
STEP 1:

[1]Secure the mounting tag using three screws as shown below. When drilling holes, the diameter and depth should be as follows.

Diameter : ϕ 3.0~3.2
Depth : 20mm (0.8 inch)

[2]Mount the CS on the mounting tag, and secure the CS using the screw for CS.

Mounting of the CS

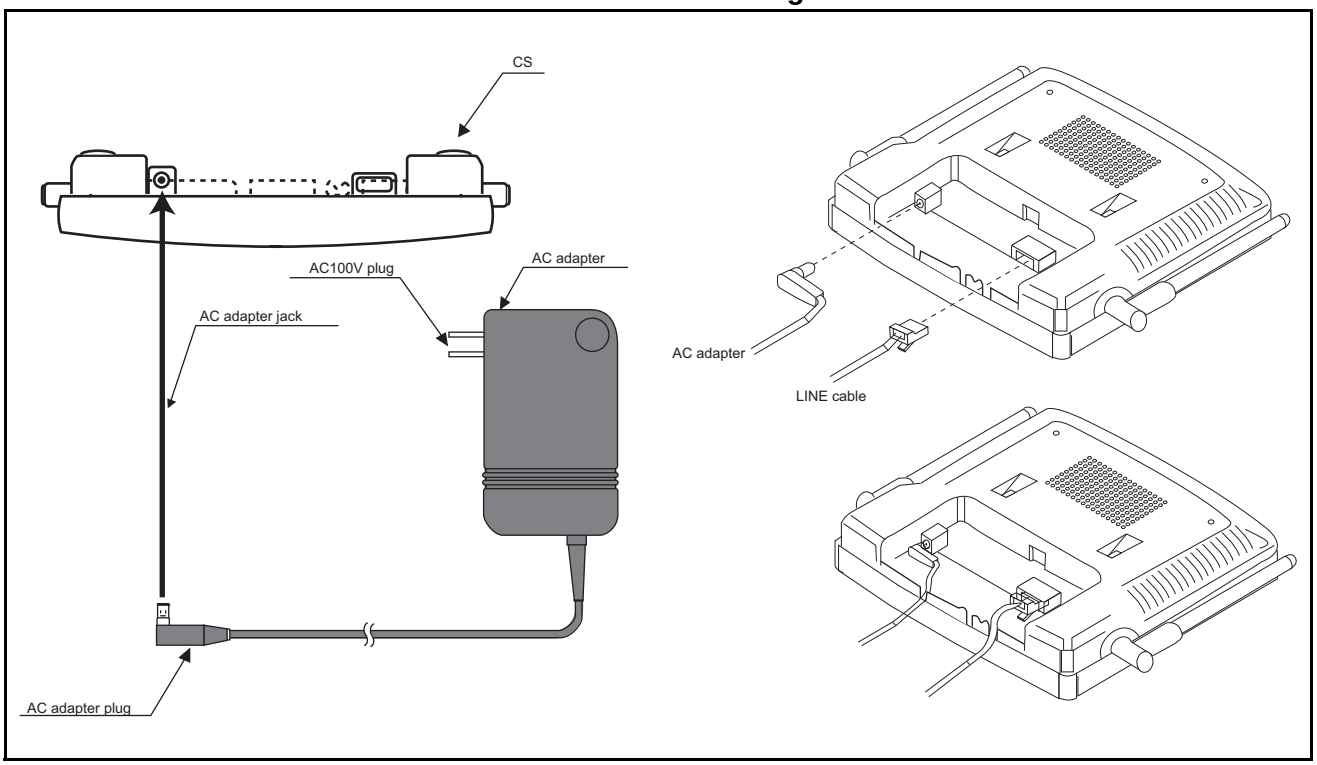


STEP 2:

[1]If power feeding from the Telephony Server is not available, use the “AC adapter” for local power feeding. Remove the cover from the reverse side of the CS.

[2]The “AC adapter” and “LINE cable” are connected to the CS as shown below.

Local Power Feeding

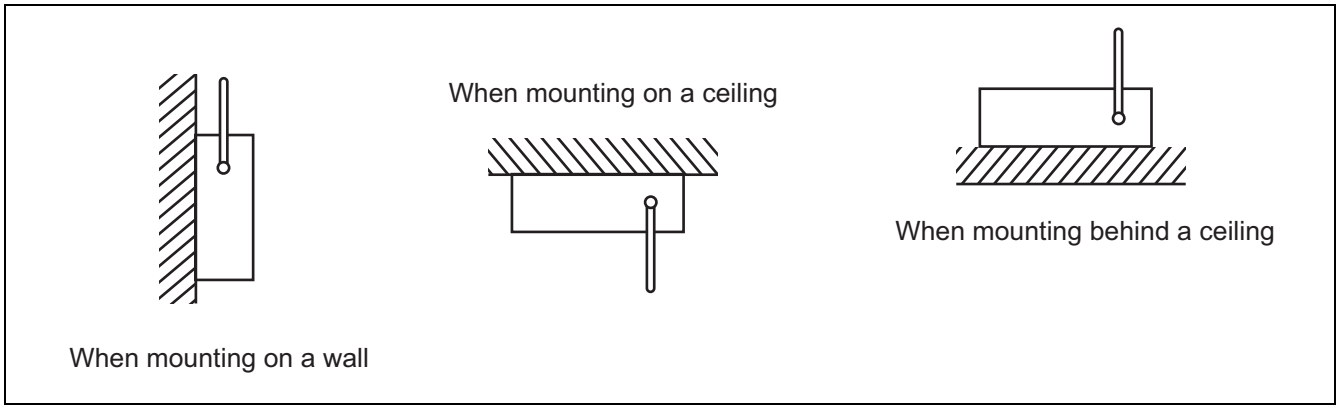


[3]Attach the removed cover again.

STEP 3: Adjust antenna angle so that the antenna may be vertical with the ground.

Note: Since the antenna is easily broken, handle it with care.

Adjustment of Antenna



STEP 4: Turn ON the power to the CS to confirm the lamp indications are normal.

LAMP INDICATION		STATE	REMARKS
POWER	STATUS		
Green	Green	Normal	-
Green	Red	Make-Busy	Cancel the make-busy state.
Green	Flash (Red)	Faulty	Need to be repaired.
OFF	OFF	Power OFF	Check the connections of cables.
Green	Flash (Green)	Speech channels are all busy	Please wait for a while.

[Reference] How to Make Busy a CS

Observe the following procedure to make busy a CS.

- Use MBCSN to make busy an individual line.
- Use the MB key on the CSINT card to perform make-busy on a CSINT card basis.
- Disconnect the line cable from the CS that is set make-busy.

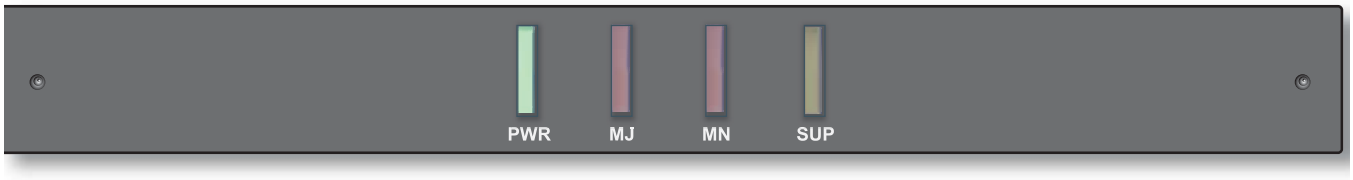
In the following cases, PS using the CS and the counter party hear momentary noise. Be sure to make busy the CS before performing CSINT and CS maintenance work.

- When performing CSINT card make-busy operation.
- When disconnecting the cable between a CSINT card and the CS.

5. ALARM DISPLAY PANEL (DSPP)

5.1 General

Alarm Display Panel (DSPP) can notify the maintenance personnel of power state (PWR) and failure occurrence (MJ/MN/SUP) of the system by an audible and visual indicator as shown below. The alarm information (MJ/MN/SUP) is obtained via EMA SUB-A [SCG-M03-B] card that is mounted in the Telephony Server.



5.2 Specification

- Indication

Indication	Color	Description	State
PWR	Green	Power State	ON: Normal operation OFF: Power failure occurs.
MJ	Red	Major Alarm	ON: Major failure occurs. OFF: Normal operation
MN	Red	Minor Alarm	ON: Minor failure occurs. OFF: Normal operation
SUP	Yellow	Supervisor Alarm	ON: Monitoring is required. OFF: Normal operation

- Others

Item	Specification
Environmental Requirements	Same as Environmental Requirements of the Telephony Server. [Operating] Operational Temperature Range: 0°C to 40°C (32°F to 104°F) Operational Humidity Range: 20% to 90% (non-condensing) [Non-operating] Storage Temperature Range: -20°C to 60°C (12°F to 124°F) Storage Humidity Range: 20% to 90%
Quake-proof Strength	Horizontal acceleration 0.5g when mounting on a generic 19-inch rack *1.1g when mounting on a 19-inch rack installed in consideration of regular quake-proof
Chassis Color	Black (Same as devices including the Telephony Server) Dark Aster (Same as devices including the Telephony Server)
Dimensions width × depth × height	19-inch rack mount, 1U size 483 × 45 × 43.7 mm (19.0 × 1.8 × 1.7 inch)

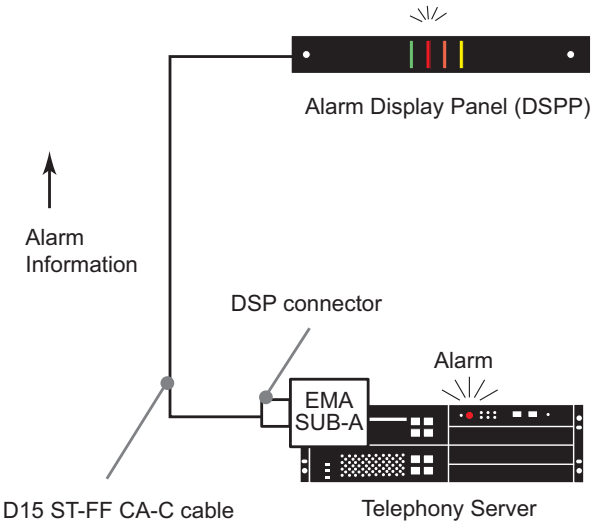
Item	Specification
Weights	0.4 kg
Consumption Current	Delivered by adding up the consumption current of the Telephony Server. • When the Telephony Server is configured with AC-powered model of PIR, add up 2.1VA with the consumption current of the Telephony Server. • When the Telephony Server is configured with DC-powered model of PIR, add up 0.4A with the consumption current of the Telephony Server.

5.3 Installation Procedure

(1) Required Equipment

EMA SUB-A card

(2) Connecting Route



(3) Conditions for Mounting Position

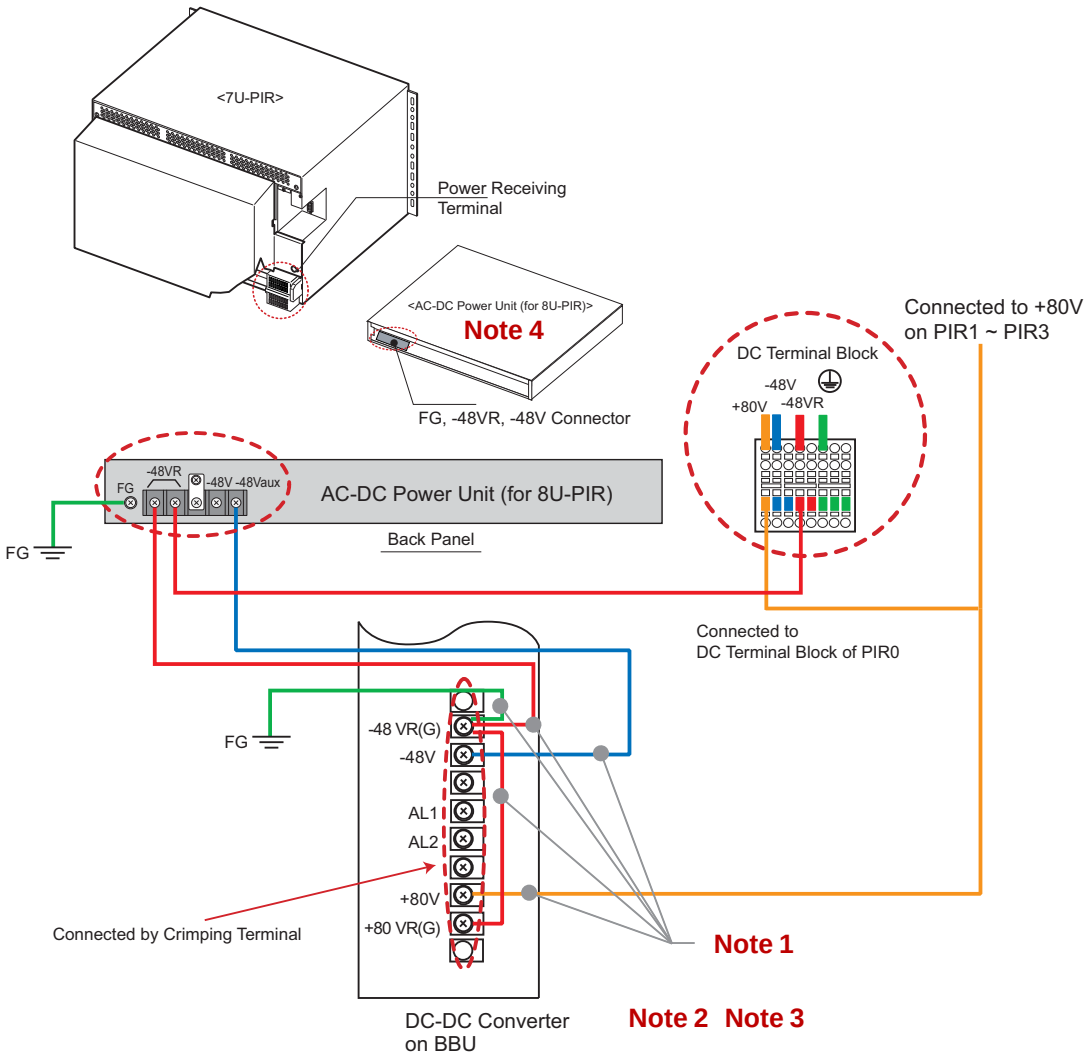
- Alarm Display Panel needs to be mounted on a 19-inch rack. (1U-size high).
- When the Telephony Server is configured with DC-powered model of PIR, the Alarm Display Panel needs to be mounted on the highest PIR of 19-inch rack. Do not mount it between PIRs.
- For 4-IMG configuration, the Alarm Display Panel can be also mounted on an IMG adjacent to a 19-inch rack accommodating the Telephony Server.
- D15 ST-FF CA-C cable is required to connect the Telephony Server and the Alarm Display Panel. Its cable length is 6000 mm (19.7 feet). Be sure to avoid connecting the cable too tightly.

6. SN1757 BBUB INSTALLATION DESIGN

SN1757 BBUB is a booster battery unit (hereinafter called BBU) that is used to light message waiting lamp. This BBU is able to supply power for up to 100 message waiting lamps. A maximum of two units can be connected per system.

Note: This BBU is unavailable for PIR-B/SPIR.

<How to connect the BBU to the system (AC-Powered Model of 7U-PIR)>

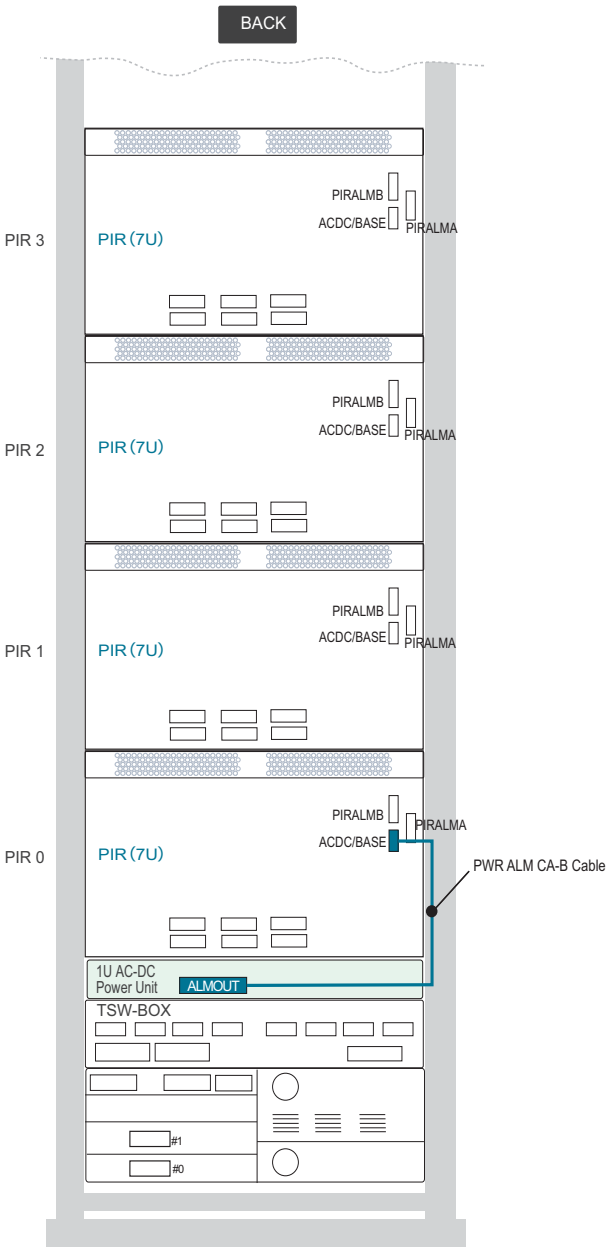


Note 1: Use the following installation cable.
- Installation Cable: AWG16 or 1.25mm^2
- Crimping Terminal: R1.25-3

Note 2: When connecting the BBU to the system, be sure to remove the short piece (SP PWR CAL) before inserting the cable.

Note 3: The BBU can be installed in a maximum of two PIRs.

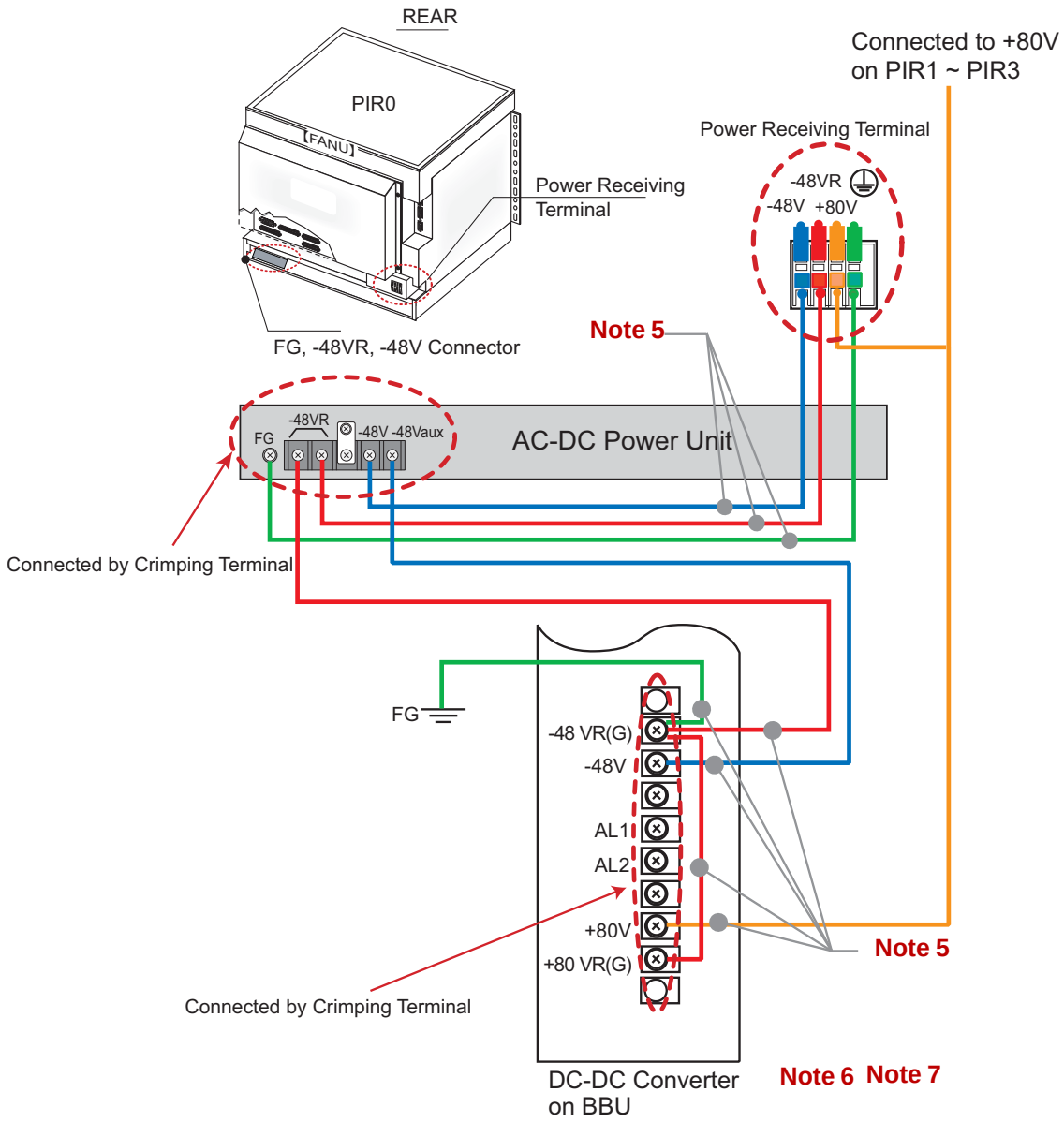
Note 4: If your system is a 1-IMG configuration consisting of 7U-PIRs only, cable connection between 1U AC-DC Power Unit and the bottom PIR (PIR 0) is also required. Using the PWR ALM CA-B cable, connect the ALMOUT connector on the power unit and the ACDC/BASE connector on the PIR. See the figure below:



Note: The consumption current for +80V is 0.5A, and 0.88A for -48V.

Note: A clear cover is attached on the BBU for an electrical shock guard. Remove this cover before inserting the cables.

<How to connect the BBU to the system (AC-Powered Model of 8U-PIR)>



Note 5: Use the installation cable in the combination below.
- Installation Cable: AWG12, Crimping Terminal: R3.5-5
- Installation Cable: AWG14 or 2sq, Crimping Terminal: R2-5

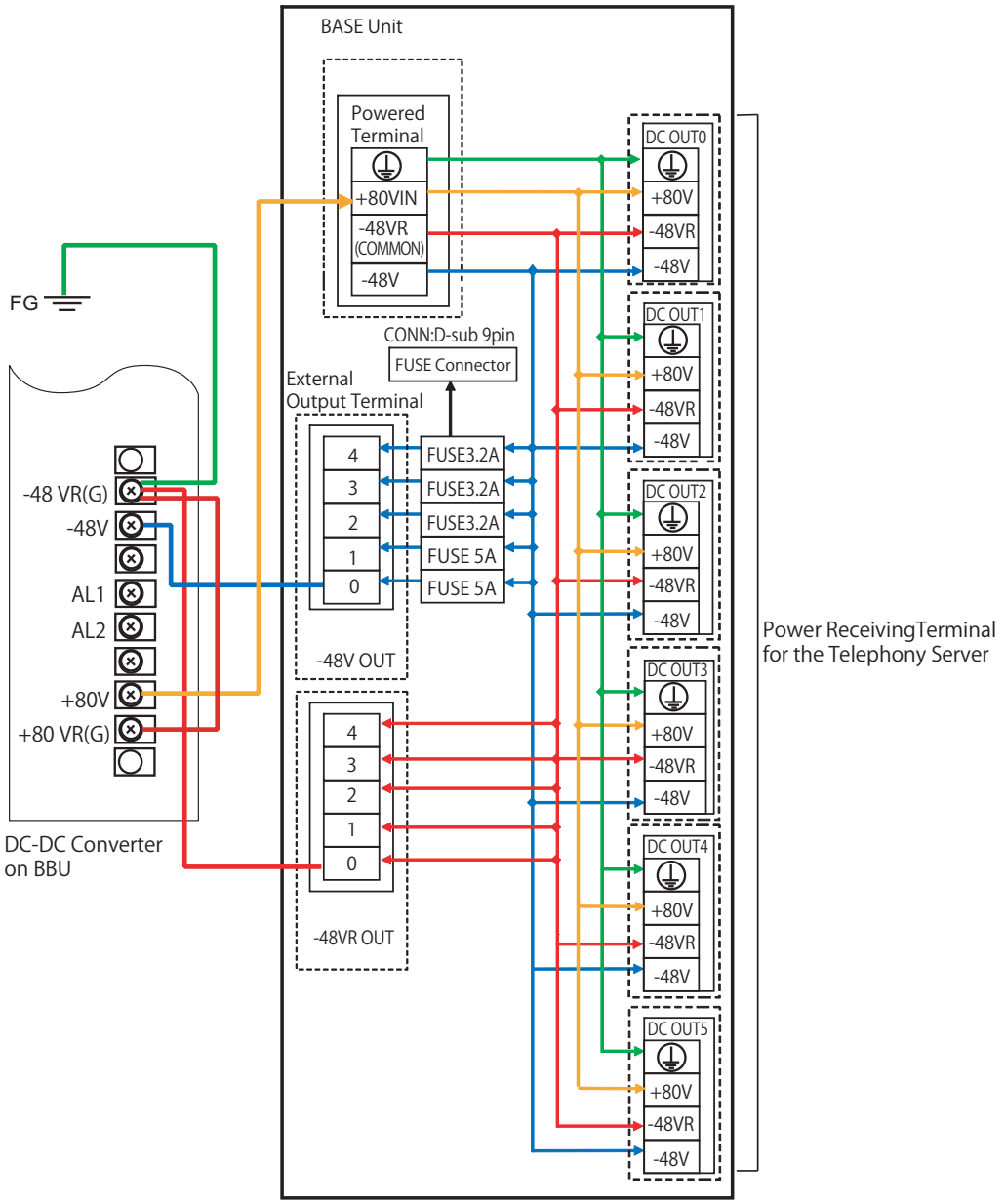
Note 6: When connecting the BBU to the system, be sure to remove the short piece (SP PWR CA-L) before inserting the cable.

Note 7: The BBU can be installed in a maximum of two PIRs.

Note: The consumption current for +80V is 0.5A, and 0.88A for -48V.

Note: A clear cover is attached on the BBU for an electrical shock guard. Remove this cover before inserting the cables.

<How to connect the BBU to the system (DC-Powered Model of (7U-PIR/8U-PIR)>



Note: Up to two BASE Units can be connected to each BBU since the output capacity of a BBU can support up to two IMGs (8 PIRs).

7. STATION MESSAGE DETAIL RECORDING (SMDR) TERMINAL

This section explains the cable connection for the Station Message Detail Recording (SMDR) terminal. SMDR provides a call record for all outgoing Station to Trunk Calls and Incoming Trunk to Station Calls. When this system is equipped with this feature, an RS232C output port or a SOCKET interface (LAN) is provided, permitting interface with a customer-owned computer system. Refer to "STATION MESSAGE DETAIL RECORDING (SMDR) [S-10]" in Data Programming Manual - Business for more details on SMDR.

The SMDR terminal can be connected to the system via one of the following:

- Using LAN Cable
- Using RS-232C Cable (IOC card provides RS-232C interface.) **Note 1**
- Using RS-232C Cable via MODEMs (IOC card provides RS-232C interface.) **Note 1**

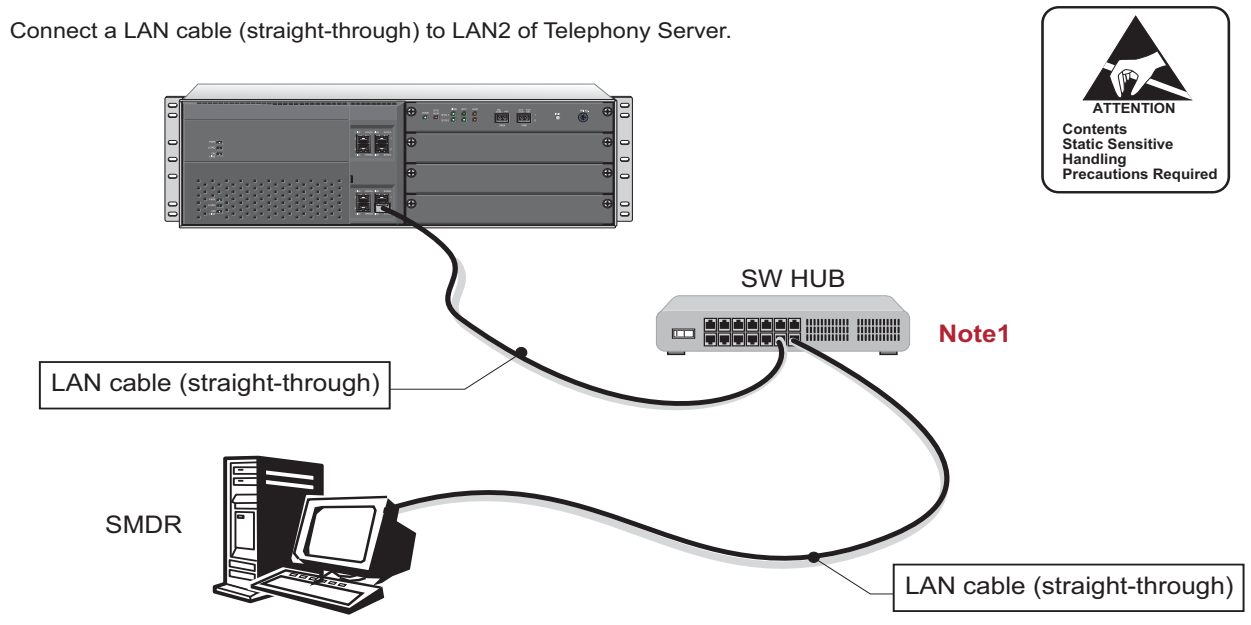
Note 1: The IOC circuit card (PX-IO00), which has four RS-232C interfaces, can only be mounted in Slot 7 and/or Slot 6 of the LPR. The system can have a maximum of eight ports for RS-232C terminals. The SMDR RS-232C interface specifications are:

- *Synchronization—Asynchronous*
- *Data Speed—9600 bps (maximum)*
- *Code—ASCII 7-bit + Parity Bit*
- *Maximum Distance—15 meters (49 feet) without Modems.*

7.1 When using LAN Cable

Connect the cable as shown below for connecting the SMDR via LAN.

SMDR Cabling, when using Ethernet

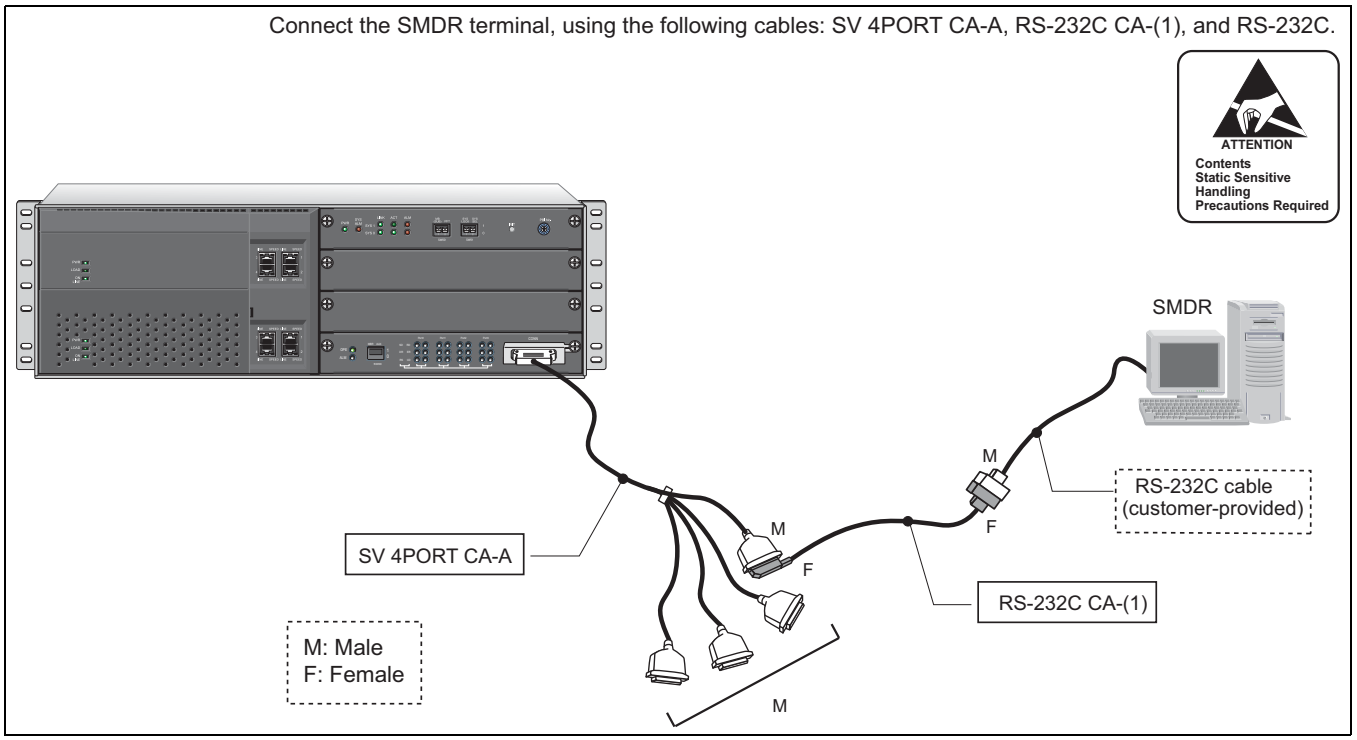


Note1: *In the case of connecting some devices such as MC, IPPAD, a switching hub is necessary to connect them with SMDR.*

7.2 When using RS-232C cable (Direct Connection)

When the distance between Telephony Server and the SMDR terminal is within 15 meters (49 feet), Telephony Server can be directly connected using RS-232C cables. See the figure below for details.

SMDR Terminal Cable Connection Diagram, when using RS-232C



7.3 When using RS-232C cable via MODEMs

If the distance between Telephony Server and the SMDR terminal exceeds 15 meters (49 feet), then connect Telephony Server and the terminal using modems.

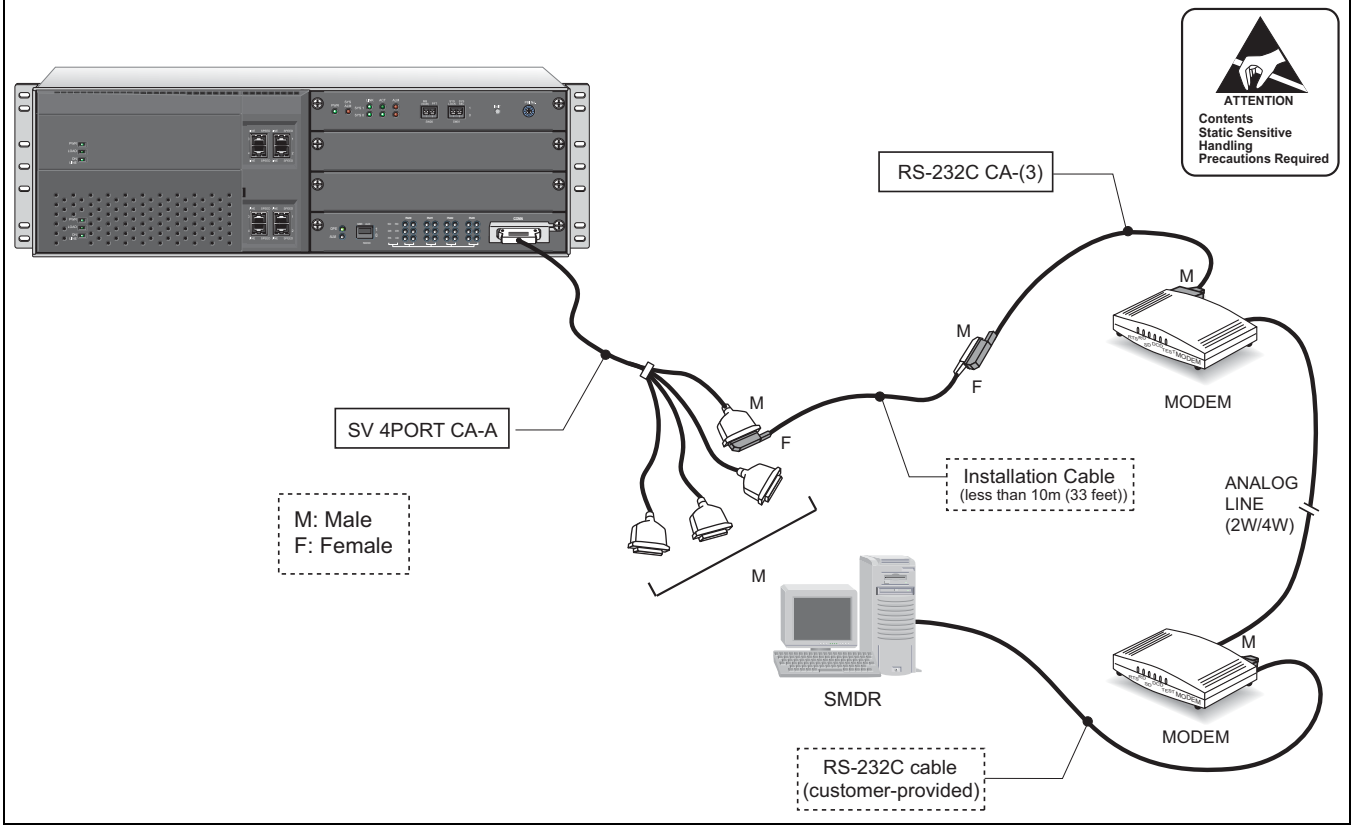
START

- Prepare the PC. — Set up the personal computer, monitor, printer, etc.
- Prepare the modems. — Set up the modems, referring to the modem's instruction manual.
- Connect the cables — Referring to the figure below, connect the cables.

END

SMDR Terminal Cabling, when using Modems

Use the following cables to connect Telephony Server and the SMDR terminal through modems.
The customer should provide the RS-232C cable.

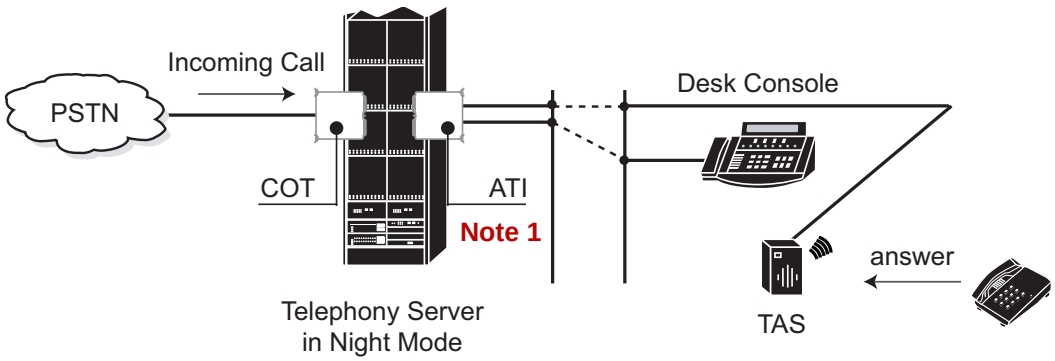


8. TRUNK ANSWER FROM ANY STATION (TAS) INDICATOR

8.1 General

TAS indicator allows any station (except stations with incoming restrictions) to answer Incoming Calls when the system is in Night Mode. Incoming Calls will activate a common alert (TAS) signal at the customer's premises. By dialing a specified Code, any Station may answer the call and then extend it to any other Station.

Trunk Answer from Any Station (TAS) Indicator



Note 1: ATI: PA-CS33/PA-CS-33-C (accommodated in 8U-PIR). CH-CS00 (accommodated in 7U-PIR) does not have TAS interface.

8.2 Installation Procedure

STEP 1: Install the TAS Indicator by using AY plugs, curl plugs, board plugs, etc.and protect the cables by using cable ducts, etc.

STEP 2: Run the cables between the TAS Indicator and the MDF.

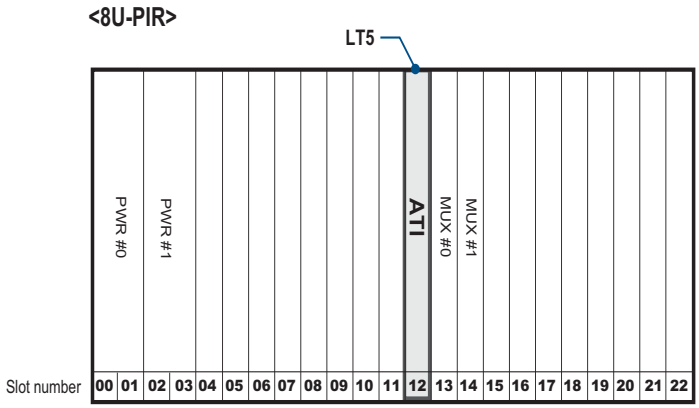
STEP 3: Terminate the installed cables to the TAS Indicator and the MDF.

STEP 4: Referring to the Port Accommodation Sheet and the description of the ATI circuit card in the Circuit Manual, identify the lead names for the ATI circuit card and the leads' terminal locations.

STEP 5: Referring to the following figures, provide the necessary cross connections at the TAS Indicator side and the Telephony Server side.

TAS Cable Connection Diagram

The ATI circuit card (PA-CS33/PA-CS33-C) is the interface for connecting Desk Consoles. The ATI circuit card must be mounted in slot 12 of PIR for 8U-PIR as shown below.



- LT cable Pin assignment

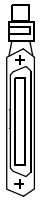
Pins are assigned as follows on the LT connector for the ATI circuit card.

PA-CS33/PA-CS33-C Pin Assignment

PIN No.	LEAD NAME	PIN No.	LEAD NAME
26		1	
27		2	
32		7	
33		8	
34	BN4800	9	BN4801
35		10	
36	BN4820	11	BN4821
37		12	
38	TAS1B	13	TAS1A
39	BN4810	14	BN4811
40	TAS0B	15	TAS0A
41	BN4830	16	BN4831
42		17	
43		18	
44	B2	19	A2
45		20	
46		21	
47		22	
48	B3	23	A3
49		24	
50		25	

for TAS #1 →

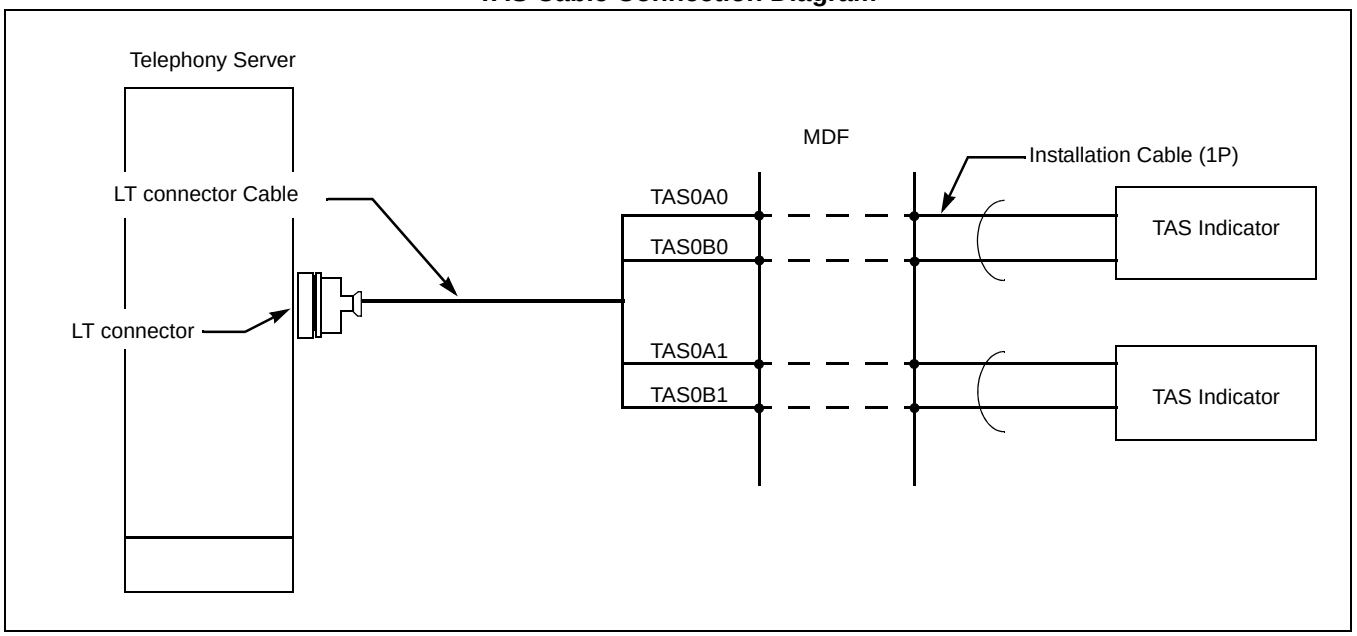
for TAS #0 →



LT Connector

- Cable Connection Diagram
  Provide the following connections at the MDF.

TAS Cable Connection Diagram

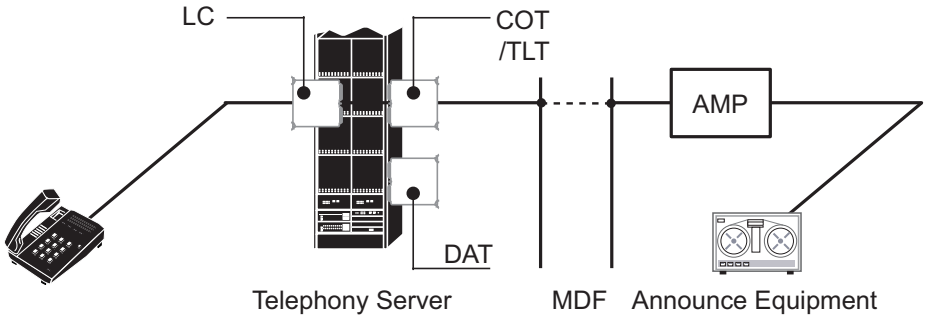


9. ANNOUNCEMENT MACHINE

9.1 General

This feature allows a user to hear a prearranged announcement when the user dials a predetermined Access Code.

Announcement Machine



9.2 Installation Procedure

The following shows when using COT/TLT. When using DAT circuit card, install the card and assign the related data referring to [A-15] Announcement Service of Data Programming Manual - Business.

STEP 1: Mount the announcement machine by using AY plugs, curl plugs, board plugs, etc. and protect the cables by using cable ducts, etc.

STEP 2: Run the cables between the announcement machine and the MDF.

STEP 3: Terminate the installed cables to the announcement machine and the MDF.

STEP 4: Referring to the Port Accommodation Sheet and the description of the COT circuit card in Circuit Card Description, identify the lead names of the announcement trunk (ANTK) and the leads' terminal locations.

STEP 5: Provide the necessary cross connections at the announcement machine side and the Telephony Server side.

Announcement Machine Connection

Configuration of CH-12COTB and CH-12COTA Lead

NO. OF CKT	LEAD	
	T	R
No. 0	T0	R0
No. 1	T1	R1
No. 2	T2	R2
No. 3	T3	R3
No. 4	T4	R4
No. 5	T5	R5

When Circuit 0 is used for a Central Office Trunk.

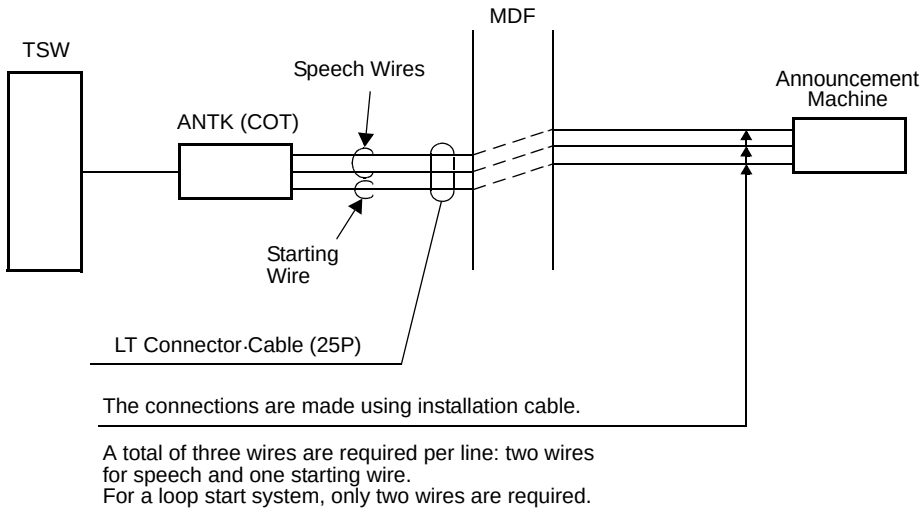
ANTK

NO. OF CKT	LEAD	
	T	R
No. 0	T0	R0
No. 1	T1 (M)	R1
No. 2	T2	R2
No. 3	T3	R3
No. 4	T4	R4
No. 5	T5	R5

Starting Wire
Speech Wires
When using CH-12COTB/A, connect to ground

When Circuit 0 is used for a Announcement Trunk.

Announcement Machine Cabling Diagram



Note: An ANTK circuit is available only on Circuit 0 of the CH-12COT card. If a starting wire is required, Circuit 1 cannot be used for a COT.

10. PAGING EQUIPMENT

10.1 General

This feature provides both Desk Console and station users with dial access to PAGING equipment by using a interface card (Paging Trunk). The user can seize the Paging Trunk by dialing the special access code.

10.2 Installation Procedure

Depending on the interface used, installation procedure is as follows:

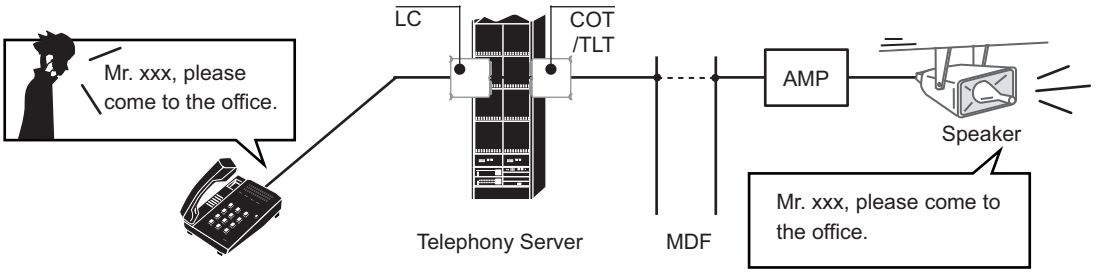
- 10.2.1COT Circuit Cards and TLT Circuit Cards
- 10.2.2UG50 (GCD-PGTA Card)
- 10.2.3MC&MG-COT (4LC2COT) and MG-COT (6COT)

Note: If UG50 is used as the interface, see Peripheral Equipment Description (UG50) for the Telephony Server side settings, for other interfaces, see Data Programming Manual - Business.

10.2.1 COT Circuit Cards and TLT Circuit Cards

This section explains the installation procedure when using COT or TLT circuit card as illustrated in the image below.

Paging Equipment



STEP 1: Mount the paging equipment by using AY plugs, curl plugs, board plugs, etc.

STEP 2: Run the cables between the paging equipment and the MDF and protect the cables by using cable ducts, etc.

STEP 3: Terminate the installed cables to the paging equipment and the MDF.

STEP 4: Referring to the Port Accommodation Sheet and the description of the COT circuit card in Circuit Card Description, identify the lead names of the paging trunk (PGT) and the leads' terminal locations.

STEP 5: Provide the necessary cross connections at the paging trunk side and the Telephony Server side.

Paging Equipment Connection

Configuration of COT Circuit Card Lead

NO. OF CKT	LEAD	
	T	R
No. 0	T0	R0
No. 1	T1	R1
No. 2	T2	R2
No. 3	T3	R3
No. 4	T4	R4
No. 5	T5	R5

When Circuit 0 is used for a Central Office Trunk.

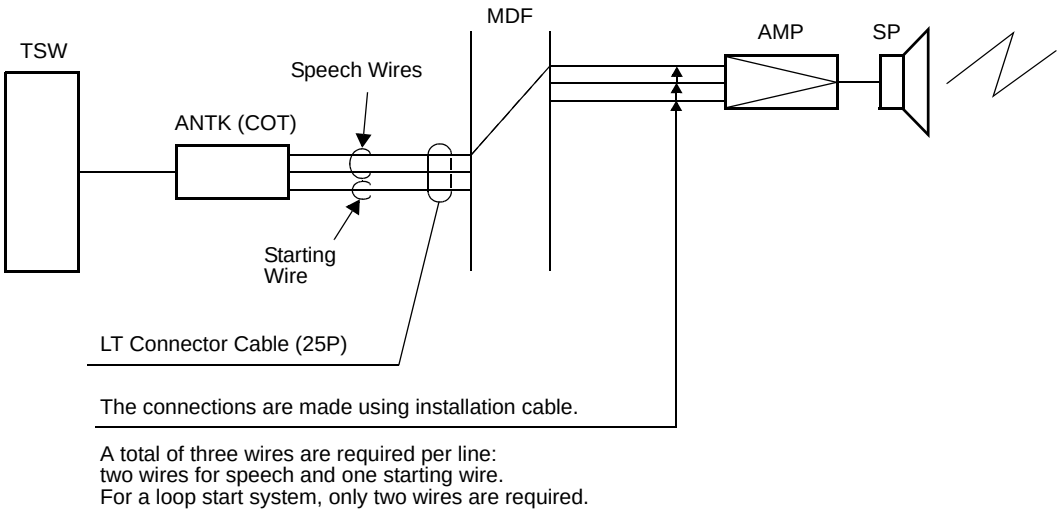
ANTK

NO. OF CKT	LEAD	
	T	R
No. 0	T0	R0
No. 1	T1 (M)	R1
No. 2	T2	R2
No. 3	T3	R3
No. 4	T4	R4
No. 5	T5	R5

Starting Wire
Speech Wires
When using COT circuit card, connect to ground

When Circuit 0 is used for a Paging Trunk.

Paging Equipment Cabling Diagram



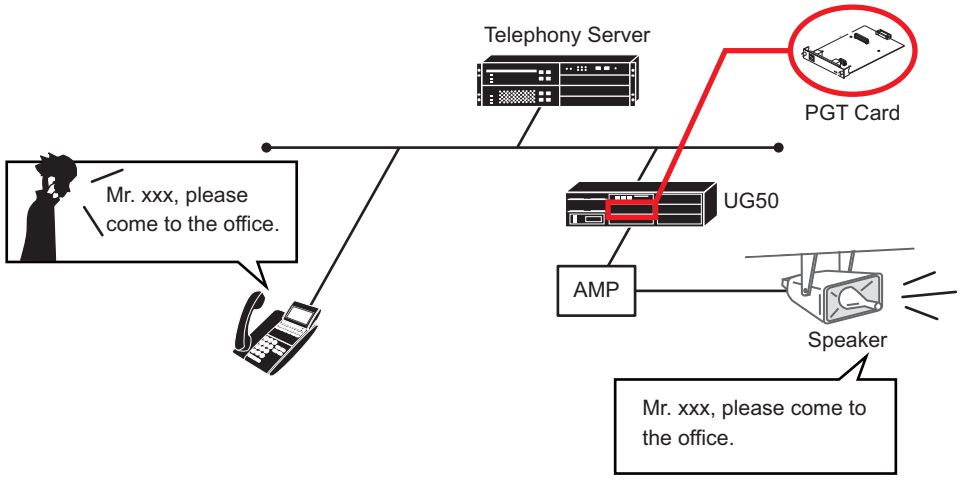
A total of three wires are required per line:
two wires for speech and one starting wire.
For a loop start system, only two wires are required.

Note: A PGT circuit is available only on the Circuit 0 of the COT circuit card. If a starting wire is required, Circuit 1 cannot be used for a COT.

10.2.2 UG50 (GCD-PGTA Card)

This section explains the installation procedure when using a PGT card mounted in UG50 as illustrated in the image below.

Paging Equipment



STEP 1: Mount the paging equipment by using AY plugs, curl plugs, board plugs, etc.

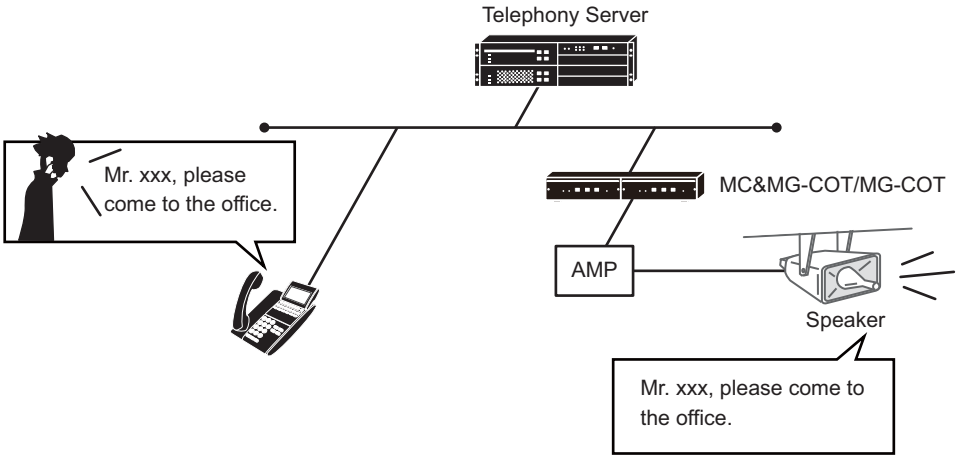
STEP 2: Referring to the Connecting Paging Device and PGT Card section of Peripheral Equipment Description (UG50), prepare the connection cable.

STEP 3: Connect the cable between the PGT card of UG50 and the paging equipment.

10.2.3 MC&MG-COT (4LC2COT) and MG-COT (6COT)

This section explains the installation procedure when using MC&MG-COT (4LC2COT) or MG-COT (6COT) as illustrated in the image below.

Paging Equipment



STEP 1: Mount the paging equipment by using AY plugs, curl plugs, board plugs, etc.

STEP 2: Prepare the connection cable.

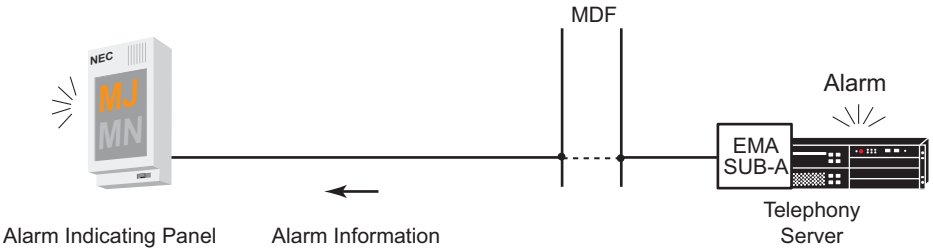
STEP 3: Connect the cable between the MC&MG-COT (4LC2COT) or MG-COT (6COT) and the paging equipment.

11. ALARM INDICATING PANEL

11.1 General

Alarm Indication Panel can notify the maintenance personnel the occurrence of faults of the system by an audible and visual indicator as shown below. The alarm information (MJ/MN) is obtained via EMA SUB-A card (SCG-M03-B) that is mounted in the Telephony Server.

Alarm Indicating Panel



11.2 Installation Procedure for Alarm Indicating Panel

STEP 1: Mount the Alarm Indicating Panel by using AY plugs, curl plugs, board plugs, etc. Up to four Alarm Indicating Panels can be connected. **Note 1**

STEP 2: Run the cables between the equipment and the MDF and protect the cables by using cable ducts, etc.

STEP 3: Connect the cable (D25 EXALM CA-A) for EMASUB-A card to the proper connector of the Telephony Server.

STEP 4: Provide the necessary cross connections on the MDF.

Note 1: Only an Alarm Indicating Panel can ring the BELL.

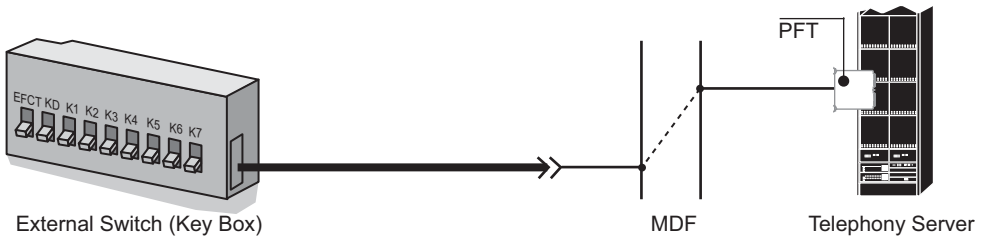
12. EXTERNAL SWITCH (EXTERNAL KEY BOX)

12.1 General

External Switch is used to change over DAY/NIGHT mode and other status of the system such as Class of Service by operating the External Switch. Eight keys are provided on the External Switch. As an interface card between the equipment and the Telephony Server, PFT circuit card is required.

External Switch (External Key Box) Outer view

The K0 through K7 keys are operative only when the EFCT keys are in the UP position. To turn on a circuit, set the corresponding key (K0-K7) in the UP position.



12.2 Installation Procedure

STEP 1: Mount the External Switch by using AY plugs, curl plugs, board plugs, etc.

STEP 2: Run the cables between the equipment and the MDF referring to the figure listed on the next page.

STEP 3: Run the cables between the External Switch and the PRT terminal on the BASEU.

STEP 4: Protect the cables by using cable duct, etc.

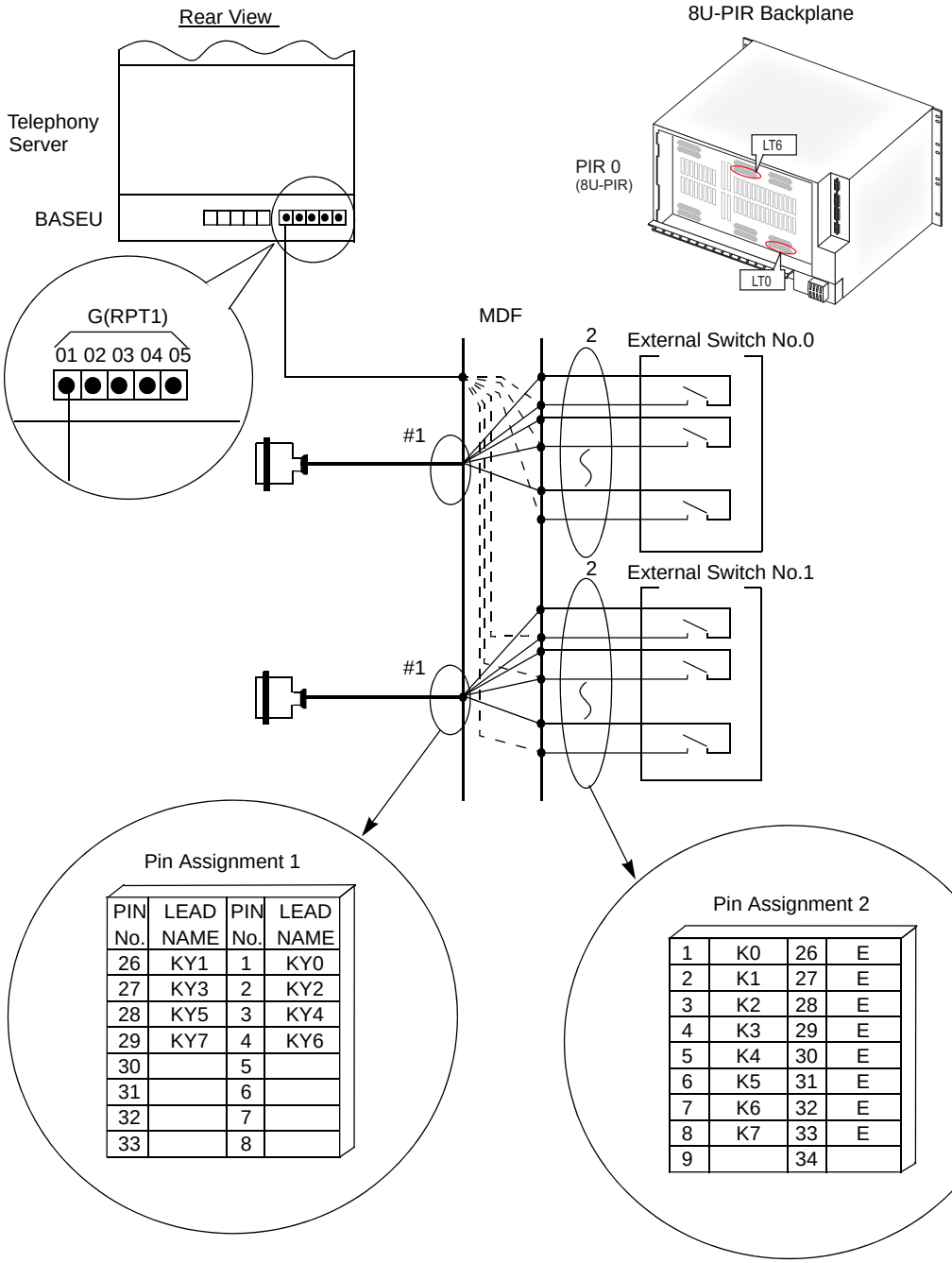
STEP 5: Terminate the installed cables to the External Switch and the MDF.

STEP 6: Referring to Port Accommodation Sheet and Circuit Card Description, identify the lead names for the LT connector and the leads' locations.

STEP 7: Provide the necessary cross connections on the MDF.

External Switch Connections

Provide cable connections at the MDF as shown below.



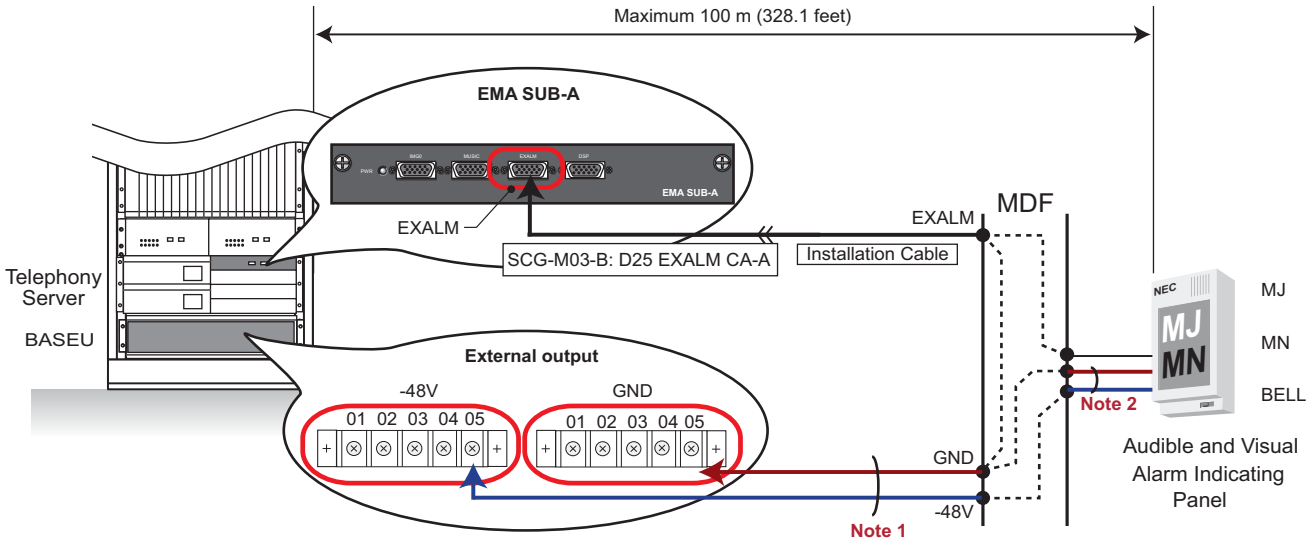
PIN No.	LEAD NAME	PIN No.	LEAD NAME
26	KY1	1	KY0
27	KY3	2	KY2
28	KY5	3	KY4
29	KY7	4	KY6
30		5	
31		6	
32		7	
33		8	

1	K0	26	E
2	K1	27	E
3	K2	28	E
4	K3	29	E
5	K4	30	E
6	K5	31	E
7	K6	32	E
8	K7	33	E
9		34	

Cabling Diagram for EMA SUB-A Card (SCG-M03-B)

- Terminal and Connector Locations

The EXALM connector appears on the rear side of Telephony Server.



Note 1 : This connection is for power deeding from Telephony Server.

Note 2 : The following quantity of cables (-48V lead/GND lead) are required, depending on the wire gauge.

0.4 ϕ (mm)/26 AWG: More than 6 wires (-48V lead: more than 6 wires/GND lead: more than 6 wires)
0.5 ϕ (mm)/24 AWG: More than 3 wires (-48V lead: more than 3 wires/GND lead: more than 3 wires)
0.65 ϕ (mm)/22 AWG: More than 2 wires (-48V lead: more than 2 wires/GND lead: more than 2 wires)

The following shows the maximum distance between the Telephony Server and Alarm Indicating Panel based on Quantity of Cables and Cable Diameter.

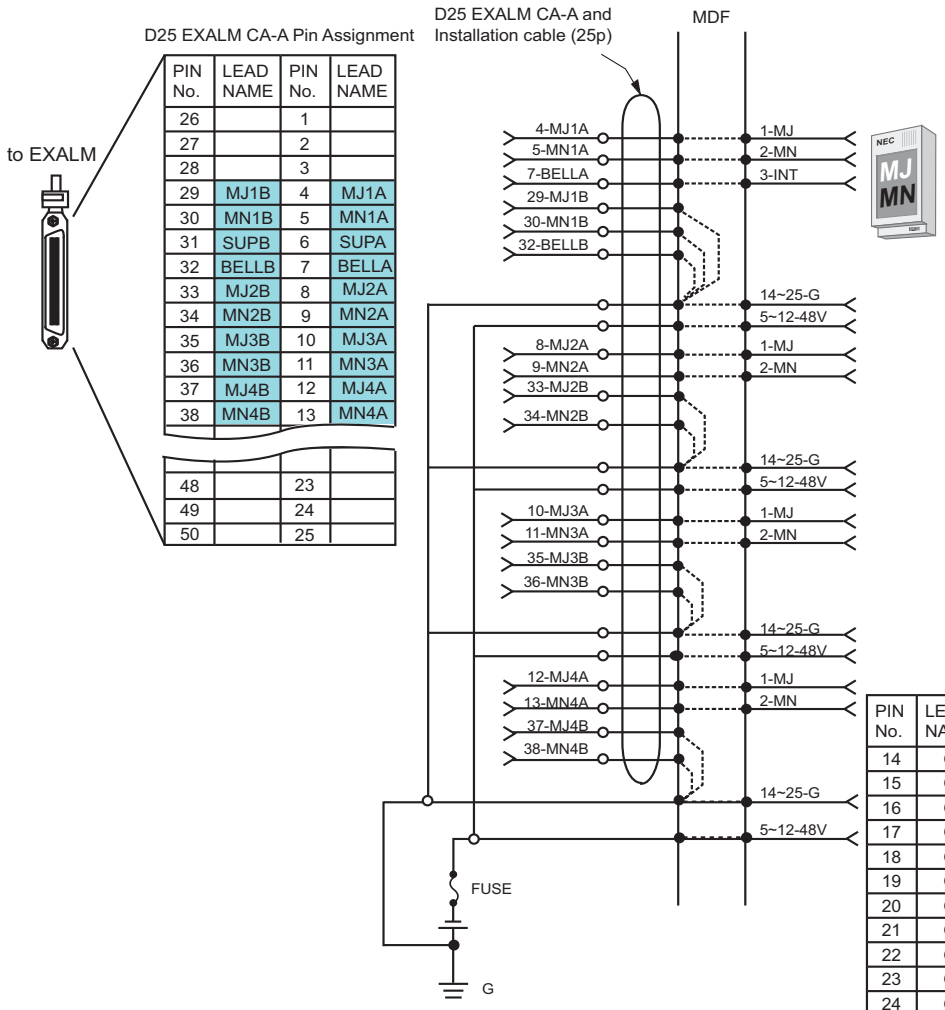
		Quantity of -48 V / GND Cables							
		1*	2	3	4	5	6	7	8
Cable Diameter	0.4 ϕ (mm)/26 AWG	-	24 m (79 feet)	36 m (118 feet)	48 m (158 feet)	52 m (171 feet)	72 m (236 feet)	84 m (276 feet)	96 m (314 feet)
	0.5 ϕ (mm)/24 AWG	-	40 m (131 feet)	60 m (196 feet)	80 m (263 feet)	100 m (328 feet)	120 m (394 feet)	140 m (459 feet)	160 m (524 feet)
	0.65 ϕ (mm)/22 AWG	-	72 m (236 feet)	108 m (354 feet)	144 m (473 feet)	180 m (591 feet)	216 m (709 feet)	252 m (827 feet)	288 m (944 feet)

** Be sure to use multiple wires to avoid wire failure.*

Alarm Indicating Panel Connection When EMA SUB-A Card (SCG-M03-B) Is Used

- Cross Connections

The MPALM is used to receive alarm information from the rectifier. When ground is detected, Telephony Server regards it as an "alarm."



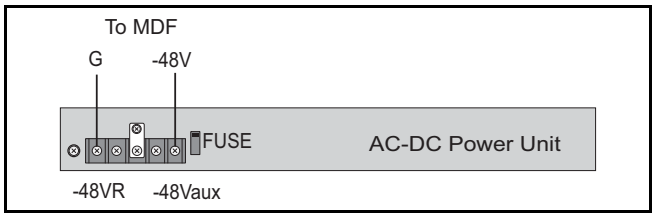
PIN No.	LEAD NAME	PIN No.	LEAD NAME
26		1	
27		2	
28		3	
29	MJ1B	4	MJ1A
30	MN1B	5	MN1A
31	SUPB	6	SUPA
32	BELLB	7	BELLA
33	MJ2B	8	MJ2A
34	MN2B	9	MN2A
35	MJ3B	10	MJ3A
36	MN3B	11	MN3A
37	MJ4B	12	MJ4A
38	MN4B	13	MN4A
48		23	
49		24	
50		25	

PIN No.	LEAD NAME	PIN No.	LEAD NAME
14	G	1	MJ
15	G	2	MN
16	G	3	INT
17	G	4	
18	G	5	-48V
19	G	6	-48V
20	G	7	-48V
21	G	8	-48V
22	G	9	-48V
23	G	10	-48V
24	G	11	-48V
25	G	12	-48V
		13	

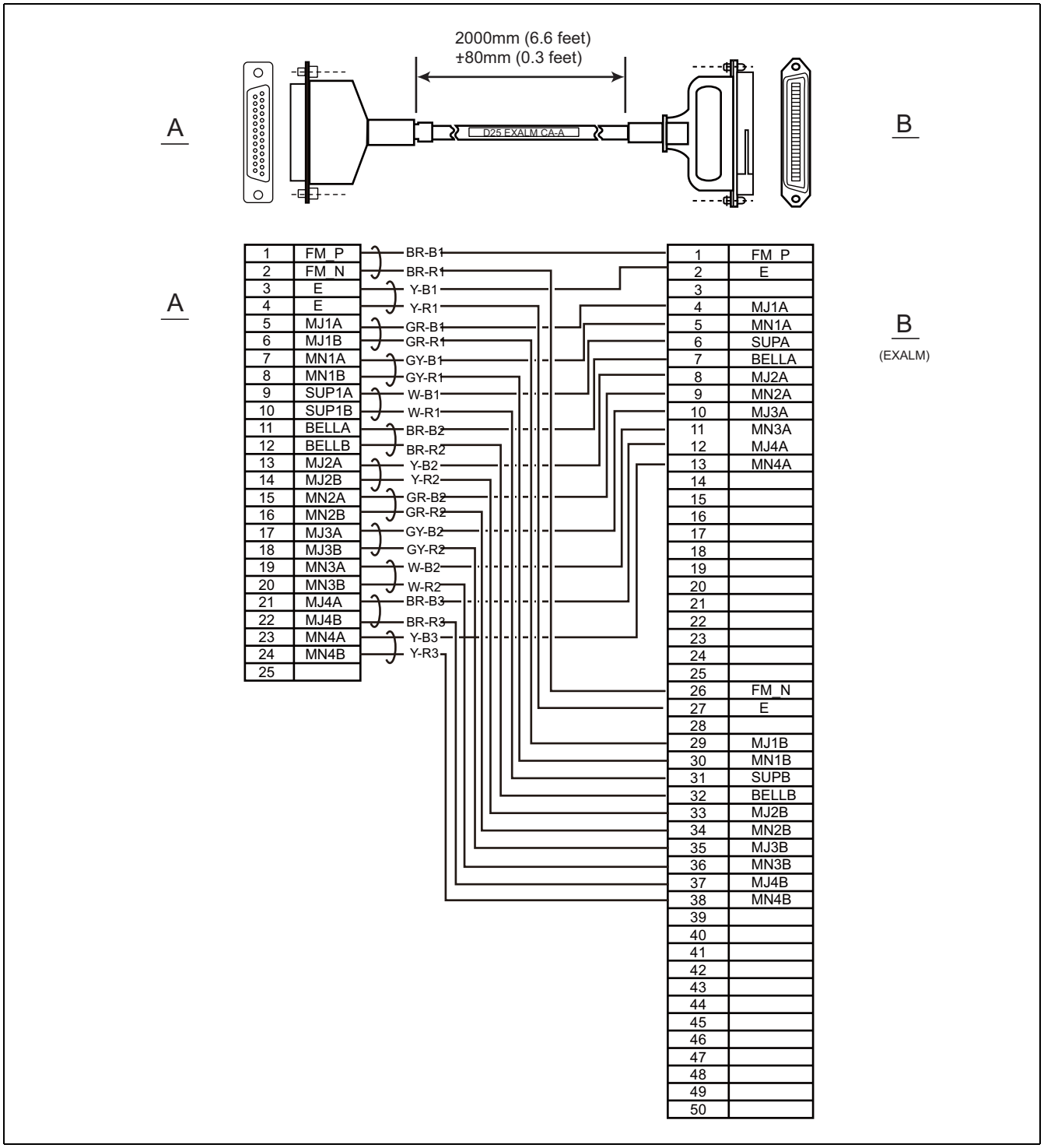
Note : Signals colored blue are used for controlling Alarm Indicating Panel.

Note : To probide external Music-on-Hold to IP terminals, set ASYDL, Index 810, b2=1, and employ an IPPAD circuit card.

Note: If your Telephony Server is AC power type, Alarm Indicating Panel can be powered from the AC-DC Power Unit (8U-PIR). In this case, connect the AC/DC power unit to MDF at G and -48 V terminals. Only one cable can be connected to each terminal (Single-wire connection between AC/DC power unit and MDF).The Alarm Indicating Panel can be connected to a power line branched from the MDF.



D25 EXALM CA-A Cable



UNIVERGE SV9500
Peripheral Equipment Description (Digital/Analog Devices)

NWD-165796-001

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