

**Corporate Network Solutions
Business Networks Systems Division**

**Technical
Information
Bulletin**

TITLE:

PN-32IPLA/ DtermIP (IP Adapter).

SYSTEM APPLICATION:

NEAX 2000 IVS II /NEAX 2000 IVS Retrofit System.

SOFTWARE VERSION APPLICATION:

Release 3
SC2991-IXS BSC PROG C2 V0.09

ATTACHMENTS:

Doc-Reg ID:

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INTRODUCTION

PURPOSE

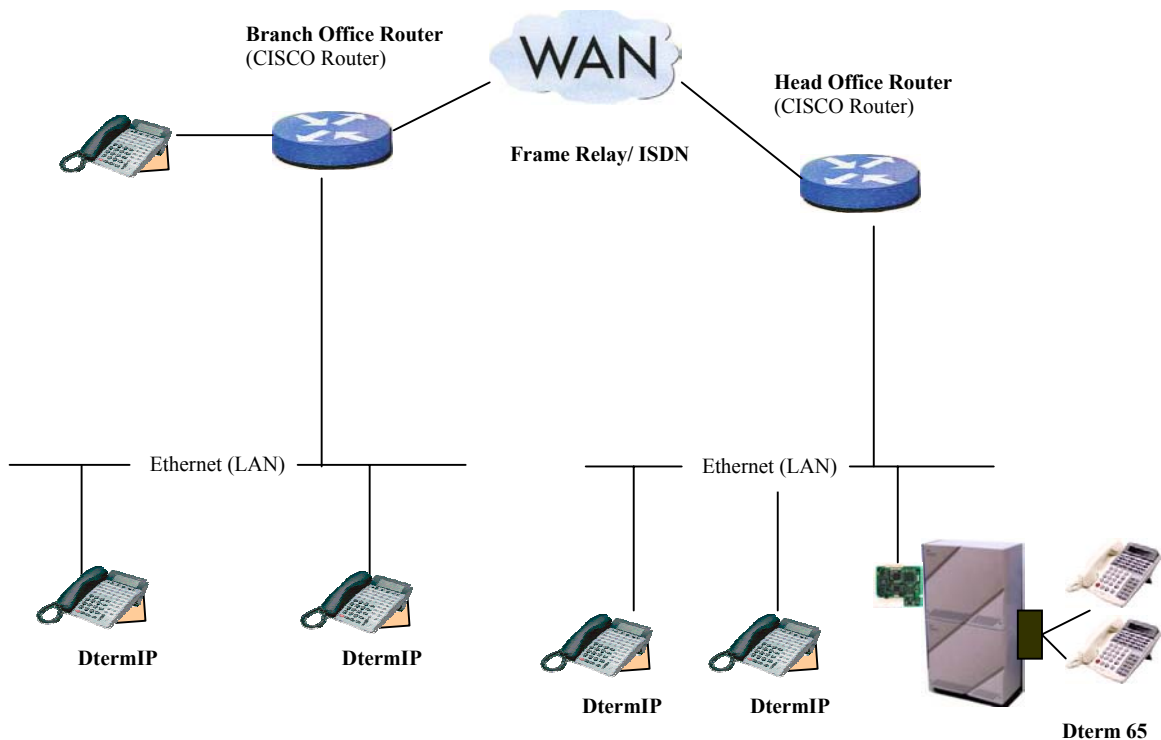
The Purpose of this document is to provide the necessary information on installation and programming of DtermIP (Dterm 75 Series E with the IP Adapter) and the Interface card (PN-32IPLA) for the NEAX2000IVS II and the NEAX2000IVS Retrofit System.

GENERAL INFORMATION

SYSTEM OUTLINE (IP Enabled Dterm)

The DtermIP can be used on any point of the LAN /WAN (Intranet). The DtermIP (Dterm 75/ Series E with the IP adapter) can be used on the NEAX 2000IVS II and the Retrofit System using the IPELC interface card.

The DtermIP have access to all the features currently available in the Dterm 75. The illustration below shows a typical configuration that is possible with the DtermIP.



System Configuration Overview

EQUIPMENT NAME AND FUNCTION

The table below shows the name and function of the required equipment to provide DtermIP on the NEAX 2000IVS II and the Retrofit Systems.

Equipment	Functional Name	Function
PN-32IPLA	IPELC	32-line, IP line Circuit Card for DtermIP <ul style="list-style-type: none"> • 2 cards can be accommodated per FP, 8 per system. • 10BASE-T/100BASE-TX twisted pair cable is connected directly to this card.
Dterm75/E Series	Dterm Terminal	Dterm75/ E Series. DTP-32D-1A or DTP-16D-1A
IPW- 2UA Unit	IP Adaptor Unit	IP adaptor unit for the Dterm75
NEC PS Adaptor or NEC Power Feeding Patch Panel.	Power Supply Unit Power HUB	PSU for the Dterm75. Set the switch provided on the DtermIP adapter to position to 1. For Local Power feed, use the AC adaptor of the Dterm75. <i>NEC PS Adaptor.</i> <i>INPUT 240 VAC 50Hz.</i> <i>OUTPUT 24 VDC 400mA.</i> Inline power for the IP adaptor. To receive power, set the switch provided on the DtermIP adapter to position to 2
Catalyst 3500 series XL (Inline Power) or Ethernet Switch	CISCO Switch with Power Feed. LAN Device	Inline power for the IP adaptor. To receive power, set the switch provided on the DtermIP adapter to position to 2 This is part of the data network of the Customer. It is recommended that 100M LAN device be used.

SOFTWARE REQUIREMENT

The minimum software required for DtermIP to operate on the IVS 2000 and the Retrofit system is SC-2991 IXS BSC PROG – C2 V0.09.

HARDWARE DESCRIPTION

DtermIP

DtermIP uses the existing Dterm E series main unit (DT-32D-1A/DT-16D-1A) with an IP Adapter. The Power to the DtermIP may be supplied via a AC power pack or via the Central power feed using the NEC power HUB or the CISCO switch with in line power.



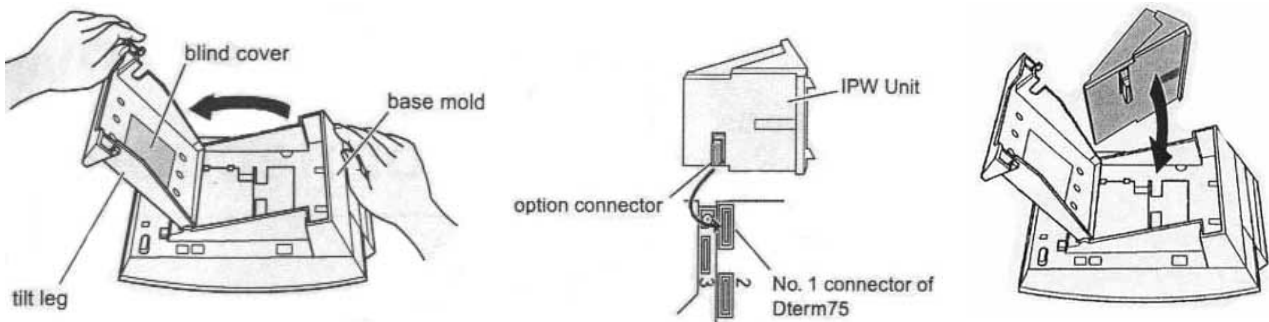
Dterm75 main unit, and IP Adapter Assembly.

The adapter has the following connections

- 2 x connectors to the telephone
- 2 x Ethernet (10/100Base-tx connectors)
- 1 x AC connector

IP interface Adapter installation.

- Open the tilt leg of the Dterm75.
- Mount the IP adapter unit in the option slot.
- Close the tilt leg.



Power Supply for DtermIP, IP Adapter.

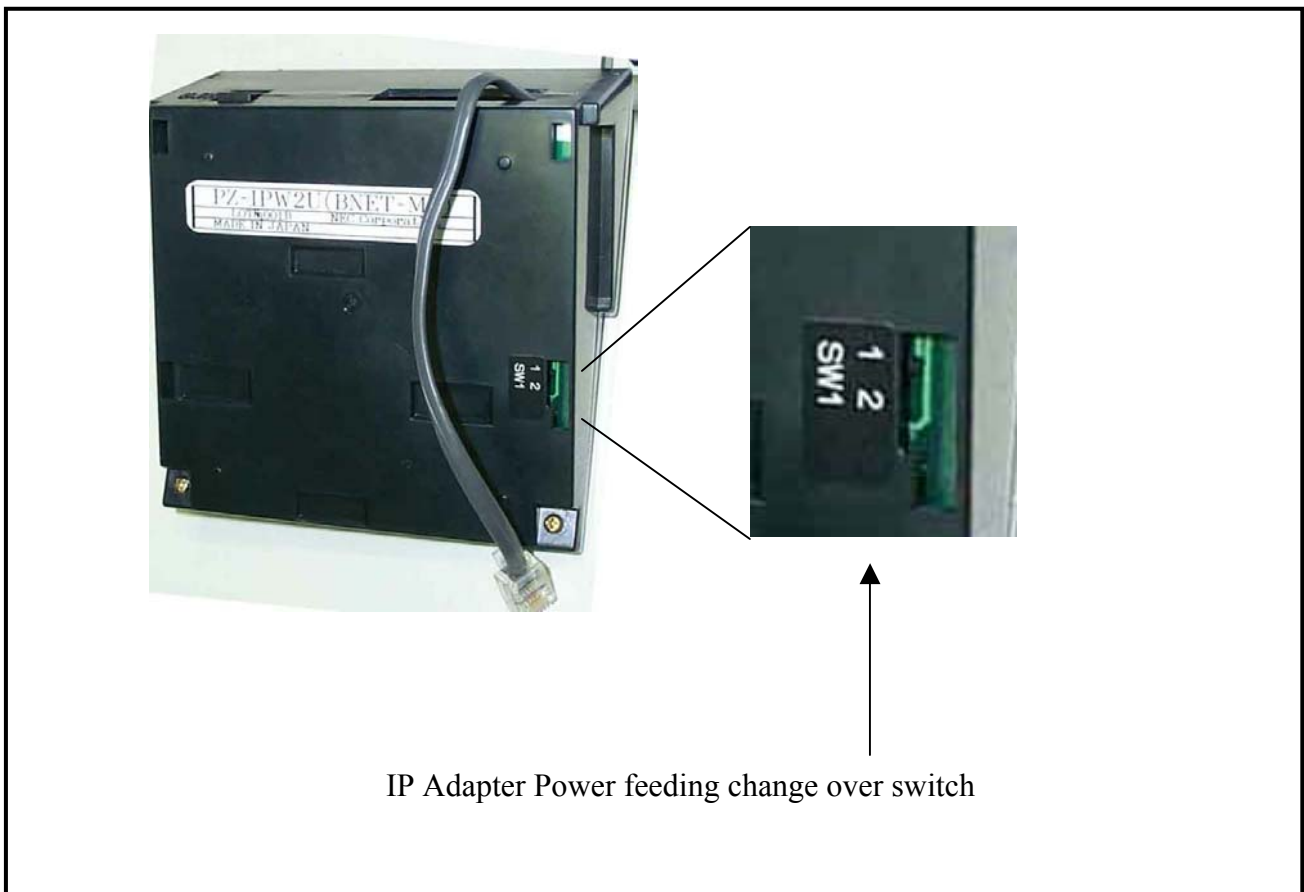
There are 2 types of power supply that can be used to power the DtermIP Adapter.

- 1) Local Power Supply by AC-DC Adapter.(Standard AC/DC Adapter for Dterm 75 series)
 - NEC PS Adaptor.
 - INPUT 240 VAC 50Hz.
 - OUTPUT 24 VDC 400mA.

- 2) Centre power feeding by Power HUB
 - a. NEC Power Feeding Patch Panel.
 - b. Catalyst 3500 series XL (Inline Power) CISCO Switch with Power Feed.

The DtermIP is provided with a change over switch to support the two methods of power feeding.
Change over Switch SW 1:

- Position 1: To use local power feeding (AC adapter).
- Position 2: To use power feeding HUB



Dterm Registration Software (DRS)

DRS is used for establishing a control path between IP enabled Dterm (DtermIP) and the IPELC card. This function is called “registration”.

With this release the DRS function of the IPELC card is used. There is the option to use a DRS Server, but the server is not available with this release.

The DRS function of the IPELC card has limitations compared to the DRS server. Functions such as Login, Password Authorization for Login and DRS redundancy Program download are not available without the DRS Server.

DHCP Server

A DHCP Server installed on the LAN where the IPELC card and the DtermIP are connected can automatically set the following to DtermIPs.

- IP address
- Default Gateway
- Subnet Mask

SYSTEM CAPACITY

The table below shows the system capacity for the DtermIP.

ITEM	CAPACITY		REMARKS
	No EXPMEM	With EXPMEM	
IPELC Card	8	8	Max. Two cards per FP
DtermIP	256	256	Max. 32 per IPELC
IPELC Channels (voice Channels)	256	256	-
LAN Interface	8	8	One LAN Interface per IPELC.

SYSTEM CONDITIONS

- 1) Power feed is required for the DtermIP.
- 2) The service features requiring continuous voice transmission such as background music should not be used because the traffic may reduce the overall performance of the LAN.
- 3) When more than one IPELC card is used, use the Switching HUB to avoid the IP packet transmission from one IPELC to the other.
- 4) 100BASE-TX usage is recommended on the LAN due to possibility of large amounts of voice packet transmission during peak hours.
- 5) Connection via the Internet is not supported.
- 6) The IPELC (PN-32IPLA) card supports G.711 (64k) voice compression only. No other compression is supported.

SYSTEM SPECIFICATIONS

IPELC Specification.

The following table shows the IPELC Specifications.

ITEM	SPECIFICATION	REMARKS
Voice Encoding	G.711 (64kbs PCM) (Voice compression is not available)	A-law/ μ -law, according to MP SW2-1 setting. (A-law for AUS)
FAX Communication	Not available	-
Data Communication	Not available	-
Jitter Control	Dynamic Jitter Buffer Buffer Value: 10ms-320ms	Setting available per card.
LAN Interface	10BASE-T/100BASE-TX	Auto Negotiation is available. 100BASE-TX is recommended.
Echo Canceller	G.168	Setting is available per card.
DtermIP – IPELC Signalling	PROTIMS over IP	-
QoS (Quality of Service)	TOS, IP Precedence	-
Payload Size	10ms – 40ms (10ms unit)	See programming section.
PAD Control	0dB – 16dB (1dB unit)	Setting available per card.

SERVICE FEATURES

All of the Dterm 75 series E features are available on the DtermIP.

INSTALLATION

Precautions.

Static Electricity Guard.

You must wear a grounded wrist strap to protect circuit cards from static electricity, when plugging and unplugging a circuit card.

When holding a circuit card, never touch the components of the soldered surface with bare hands.

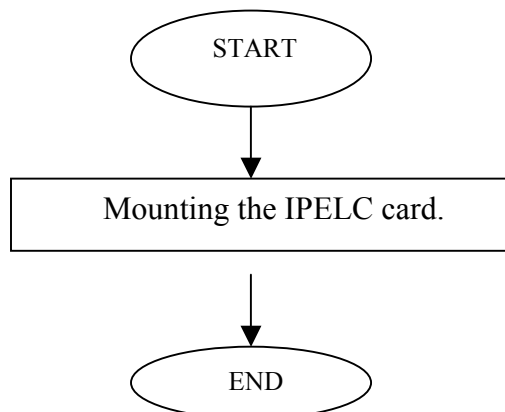
When making a switch setting on a circuit card wear a wrist strap and perform the work on a grounded conductive work surface.

When carrying or transporting a circuit card, keep the card in a conductive polyethylene bag.

Unplugging / Plugging IPELC card.

The IPELC card must be plugged in or unplugged under Make Busy condition or power off to prevent damage to the card or the system circuitry.

IPELC INSTALLATION PROCEDURE

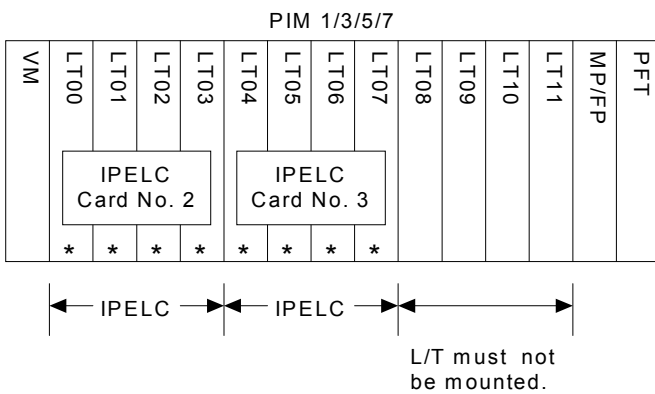


MOUNTING THE IPELC (PN-32IPLA) CARD

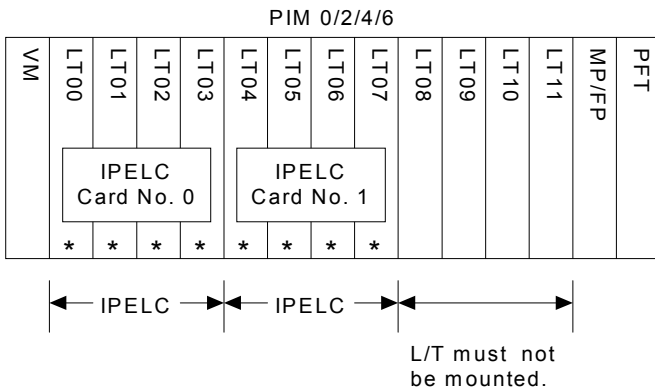
- (1) Before mounting the IPELC card (PN-32IPLA) card, set the MB switch to UP position.
- (2) Set the other switch setting to the appropriate position. (See under circuit card layout).
- (3) Maximum two IPELC cards per FP, and Maximum of eight per system.
- (4) Mount the IPELC card in one of the following slots.

NEAX2000 IVS II

- LT00-LT03 on PIM0/2/4/6: Card No.0
- LT04-LT07 on PIM0/2/4/6: Card No.1
- LT00-LT03 on PIM1/3/5/7: Card No.2
- LT04-LT07 on PIM1/3/5/7: Card No.3



* must be vacant except for the IPELC card.



* must be vacant except for the IPELC card.

NOTE 1: One IPELC card requires three vacant slots.

NOTE 2: Do not mount any other L/T cards to the LT08-LT11 slots when you mount the IPELC card to the LT00-07 slots.

NOTE 3: Only 2 IPELC can be mounted in the 4 available positions per FP.

NEAX 2000 IVS II Retrofit System, (Model 120).

LT01-LT07 on PIM0/2/4/6: Card No.0
 LT08-LT15 on PIM0/2/4/6: Card No.1
 LT01-LT07 on PIM1/3/5/7: Card No.2
 LT08-LT15 on PIM1/3/5/7: Card No.3

PIM 1/3/5/7

LT00	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT10	LT11	LT12	LT13	LT14	LT15	FP	MP/FP	BUS
IPELC Card No. 2								IPELC Card No. 3										
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			

PIM 0/2/4/6

LT00	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT10	LT11	LT12	LT13	LT14	LT15	FP	MP/FP	BUS
IPELC Card No. 0								IPELC Card No. 1										
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*			

* must be vacant except for the IPELC card.

NEAX2000 IVS II Retrofit System (Model 110)

LT00- LT03 on PIM0: Card No.0
 LT04- LT07 on PIM0: Card No.1

PIM0

LT00	LT01	LT02	LT03	LT04	LT05	LT06	LT07	LT08	LT09	LT010	AP	MP
IPELC Card No. 0				IPELC Card No. 1								
*	*	*	*	*	*	*	*					



* must be vacant except for the IPELC card.

SYSTEM DATA PROGRAMMING

IPELC Assignment.

START

DESCRIPTION

DATA

CM0A

Define the LAN interface on the IPELC card.

IPELC INITIAL

- Y = 00

(1) 00-15: LAN Interface No. **NOTE 1**

(2) XXZ : FP No. + IPELC Card No.

XX : FP No. 00-03 which accommodates the LAN Interface.

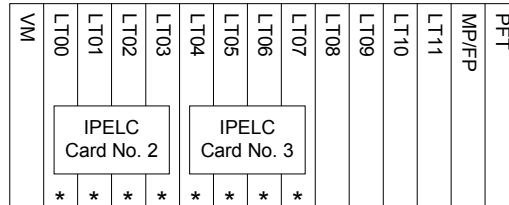
Z : IPELC Card No. 0-3.

NOTE 1: Max.8 LAN interface number can be assigned for IPELC cards.

NOTE2

NOTE 2: Set the IPELC card number according to the accommodated PIM and slot as follows. For the card number for the retrofit system, refer to section on mounting the IPELC card.

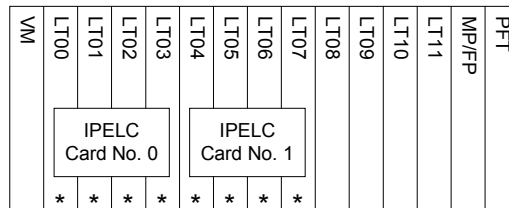
When Accommodated in odd numbered PIM 1/3/5/7



L/T must not be mounted.

* must be vacant except for the IPELC card.

When Accommodated in even numbered PIM 0/2/4/6



L/T must not be mounted.

Assign the IP address for the LAN Interface of the IPELC card.

IPELC INITIAL

- Y = 01

(1) 00-15: LAN Interface No.

(2) 000000000000-255255255255: IP Address.

Assign the Subnet Mask for the LAN Interface.

IPELC INITIAL

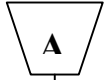
- Y = 02

(1) 00-15: LAN Interface No.

(2) 000000000000-255255255255: Subnet Mask.

A





CM0A

DESCRIPTION

DATA

Assign the Default Gateway Address for the LAN Interface.

IPELC INITIAL

- Y = 03
- (1) 00-15: LAN Interface No.
- (2) 000000000000-255255255255: Default Gateway Address.

NOTE: This data setting is required only when the DtermIPs are accommodated in Plural Subnets and connected to each other via router, etc.

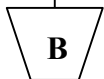
Assign the DRS (Dterm Registration Service) Server Address for the LAN Interface.

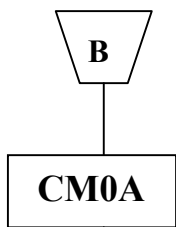
IPELC INITIAL

- Y = 04
- (1) 00-15: LAN Interface No.
- (2) 000000000000-255255255255: DRS Server IP Address.

If you use the internal DRS Server on the IPELC card, enter the same IP Address as which assigned by CM0A Y = 01.

If you use the external DRS Server provided on the LAN, enter the IP Address of that.





DESCRIPTION	DATA
<p>Assign the default voice compression method for the LAN Interface.</p> <p style="text-align: center;">IPELC INITIAL</p> <p>NOTE: Usually follow the initial data setting.</p>	<ul style="list-style-type: none"> • Y = 20 (1) 00-15: LAN Interface No. (2) 00 :G.711 (64kbps μ-law) 01 :G.711 (64kbps A-law) 99 : No Compression. NONE \blacktriangleleft : G.711 (64kbps μ-law/A-law according to MP SW2-1 setting)
<p>Assign whether the Echo Canceller control is provided for the LAN Interface.</p> <p style="text-align: center;">IPELC INITIAL</p> <p>NOTE: Usually follow the initial data setting.</p>	<ul style="list-style-type: none"> • Y = 21 (1) 00-15: LAN Interface No. (2) 0 :Not to provide 1 \blacktriangleleft : To provide
<p>Assign whether the Non Linear Processor Control is provided for the LAN Interface.</p> <p style="text-align: center;">IPELC INITIAL</p> <p>NOTE: Usually follow the initial data setting.</p>	<ul style="list-style-type: none"> • Y = 22 (1) 00-15: LAN Interface No. (2) 0 :To provide 1 \blacktriangleleft : Not provided
<p>Assign the sending (Origination) side PAD level for the LAN Interface.</p> <p style="text-align: center;">IPELC INITIAL</p> <p>NOTE: Usually follow the initial data setting.</p>	<ul style="list-style-type: none"> • Y = 23 (1) 00-15: LAN Interface No. (2) 00-16 :0-16 dB NONE \blacktriangleleft :0 dB
<p>Assign the receiving (Destination) side PAD level for the LAN Interface.</p> <p style="text-align: center;">IPELC INITIAL</p> <p>NOTE: Usually follow the initial data setting.</p>	<ul style="list-style-type: none"> • Y = 24 (1) 00-15: LAN Interface No. (2) 00-16 :0-16 dB NONE \blacktriangleleft :0 dB

C

CM0A

DESCRIPTION

DATA

Assign the Jitter Buffer Operating Mode for the LAN Interface.

IPELC INITIAL

NOTE: Usually follow the initial data setting.

For the Dynamic Jitter Buffer, assign the minimum value of Jitter Buffer for the LAN Interface. For the Static Jitter Buffer, assign the Jitter Buffer value by this command.

IPELC INITIAL

NOTE: Usually follow the initial data setting.

For the Dynamic Jitter Buffer, assign the maximum value of Jitter Buffer for the LAN Interface.

IPELC INITIAL

NOTE: Usually follow the initial data setting.

Assign the Payload Size for the LAN Interface.

IPELC INITIAL

NOTE: Usually follow the initial data setting.

Specify the TOS (Type Of Service) field precedence for the IPELC voice and control packets.

IPELC INITIAL

NOTE: The priority of PRECEDENCE 0-7 is as follows. PRECEDENCE 0: Lowest priority / PRECEDENCE 7: Highest priority

- Y = 25
- (1) 00-15 :LAN Interface No.
- (2) 0 :Dynamic
- 1 :Static
- NONE ← :Dynamic

- Y = 26
- (1) 00-15 :LAN Interface No.
- (2) 01-32 : 10 ms.-320 ms. (Dynamic/Static)
- NONE ← : 10 ms. (Dynamic) 120 ms. (Static)

- Y = 27
- (1) 00-15 :LAN Interface No.
- (2) 01-32 : 10 ms.-320 ms.
- NONE ← : 150 ms

- Y = 28
- (1) 00-15 :LAN Interface No.
- (2) 01-04 : 10 ms.-40 ms.
- NONE ← : 40 ms

- Y = 29
- (1) 00-15 :LAN Interface No.
- (2) XZ
- X: 0-7 : PRECEDENCE 0-7 for voice packet
- Z: 0-7 : PRECEDENCE 0-7 for control packet
- NONE ← : 45 ms (Recommended setting 53)

END

Station Number Assignment

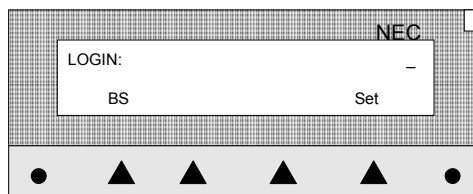
START	DESCRIPTION	DATA
CM10	Assign the station number of the DtermIP to the associated LEN.	(1) 000-763: LEN (2) FX-FXXXXXXXXX: Dterm Station No. X-XXXXXXXXX: represents My Line No.
CM12	Specify the type of Dterm accommodated in each IPELC/DLC card. NOTE: Only Dterm75 (series E) is available as DtermIP in Australia. Assign the kind of Dterm. NOTE: After the 2 nd data of CM12 Y=24 is changed, pull out and reconnect the modular connector of the Dterm.	<ul style="list-style-type: none"> • Y = 17 (1) X-XXXXXXXXX: My Line No. (2) 0 : Dterm65 (Dterm Series III) 1 : Dterm70 (Elite Terminal) 3 ◀ : Dterm75 (Dterm Series E)
CM20	Specify the number of digits for the station number.	<ul style="list-style-type: none"> • Y = 24 (1) X-XXXXXXXXX: My Line No. (2) 0 : 24 Line/Trunk/Feature keys + 8/12 One touch keys 7 ◀ : 16 Line/Trunk/Feature keys + 16/20 One Touch keys.
CM20	Specify the number of digits for the station number.	<ul style="list-style-type: none"> • Y = 0-3 Numbering Plan Group 0-3 (1) X: First digit of station No. 801: 1 digit 802: 2 digits 803: 3 digits 804: 4 digits 805: 5 digits 806: 6 digits 807: 7 digits 808: 8 digits
CM90	Assign the MY Line key on the DtermIP.	<ul style="list-style-type: none"> • Y = 00 (1) My Line No. + ' + Key No. (2) X-XXXXXXXXX: My Line No.
CM93	Assign the Prime Line on the DtermIP.	(1) X-XXXXXXXXX: My Line No. (2) X-XXXXXXXXX: Station No.
END		

Dterm IP Logout Assignment

	DESCRIPTION	DATA
START		
CM12	Assign the Service Restriction Class A to the required DtermIP station.	<ul style="list-style-type: none"> • Y = 02 (1) X-XXXXXXXX: Station No. (2) XXZZ XX: 00-15◀ : Service Restriction Class A
CM15	Allow Logout operation in the Service Restriction Class A assigned by CM12 Y=02.	<ul style="list-style-type: none"> • Y = 143 (1) 00-15 : Service Restriction Class A assigned by CM12 Y=02 (2) 0 : To allow 1 ◀ : Not allowed.
CM20	Assign the Logout access code.	<ul style="list-style-type: none"> • Y = 0-3 Numbering Plan Group 0-3 (1) X-XXXX: Access Code (2) A239: DtermIP Logout
CM90	Assign the Logout key on the DtermIP if required.	<ul style="list-style-type: none"> • Y = 00 (1) My Line No + ' + Key No. (2) F0B39: DtermIP Logout.
END		

Login and Logout process

- To Logout Go Off Hook and press the Pre-programmed Logout Key on the DtermIP, The DtermIP display is as follows.



- To Login enter the DtermIP extension number and press set key.

Note: To use the Login mode use “*” as the Terminal ID during the Dterm programming, instead of the extension number. (see section on DtermIP Programming)

DtermIP PROGRAMMING

PRECAUTIONS BEFORE STARTING DtermIP OPERATION

- DtermIP is equipped with a Switching HUB function, however do not cascade DtermIP using the RJ 45 connection PC(X) at the rear of the IP adapter.
- Downloading “Config file” is required to change PORT NUMBERS, this function is not provided with this release. Therefore Do Not Change Port Numbers during DtermIP programming.
- In the following cases the DtermIP operation becomes unstable, however no related messages are displayed on the terminal.
 - o Duplicate IP address is assigned to multiple DtermIPs on the same network.
 - o Duplicate Terminal ID is assigned to multiple DtermIPs.

DtermIP Setup.

In addition to the System programming the DtermIP programming is required before the DtermIP is operational.

Do the following set-up after completing the system programming and connecting the DtermIP to the LAN where the IPELC card and the DHCP server (if available) is accommodated.

STEP 1:

Connect power to the DtermIP either by the AC adapter, if local power is used or via Central power feeding if central power feed method is used via the LAN connection. (see under Power Supply for DtermIP).

STEP 2:

Connect the LAN (RJ45) cable to the connection marked LAN on the IP adapter. If the DtermIP is using the Power HUB or SWITCH with IN-LINE power this will connect the power to the DtermIP as well.



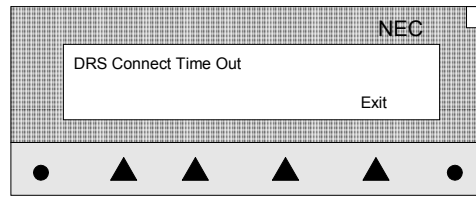
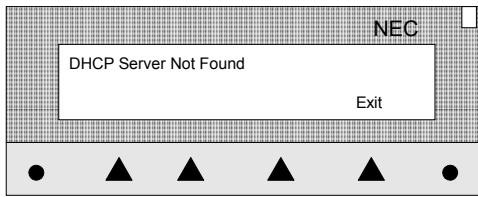
For Local Power feed, (AC adaptor).

LAN connection

PC connection

STEP 3:

You must wait until either “Parameter Missing or “DHCP Server Not Found” or “DRS Connect Time Out” is indicated on the LCD before you can enter the “User Menu”.

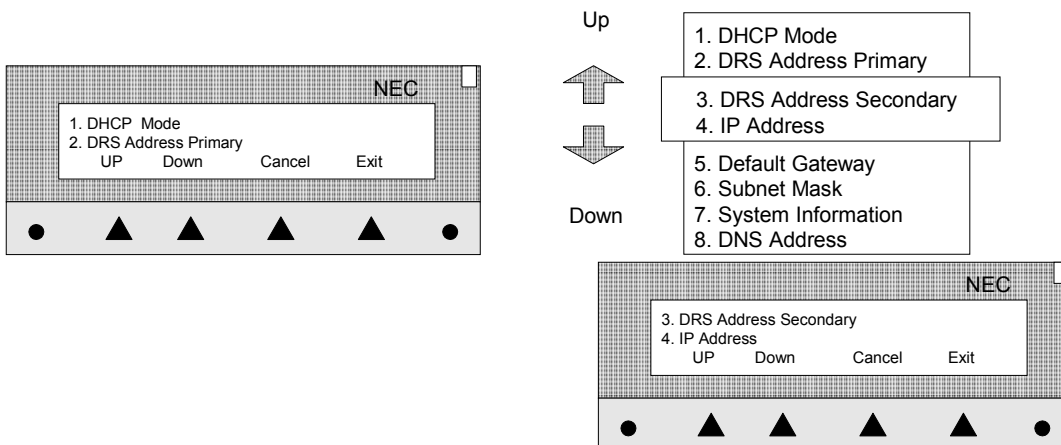


STEP 4:

Press **Hold, Transfer, * , #** keys in that order.

You are now in the “User Menu” of the DtermIP.

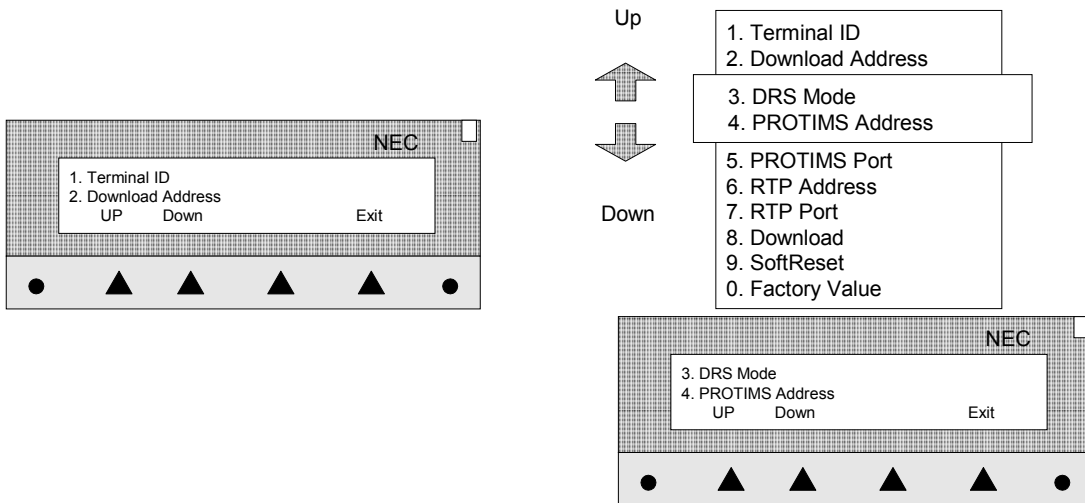
You can scroll through the menu using the UP and DOWN soft keys indicated on the display.



Enter the “Administration Menu” as shown in step 5 and set the “Factory Value” first before programming with the “User Menu”.

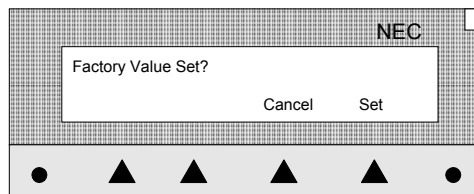
STEP 5:

From the “User Menu” Press Hold, #, 0 keys in that order to enter the “Administration Menu”.



STEP 6:

Select Factory Value by pressing “0” key on the Administrator Menu.



Press Set key, the display automatically returns to the Administrator Menu.

STEP 7:

Exit from Administration menu and return to the User menu by pressing the Exit key.

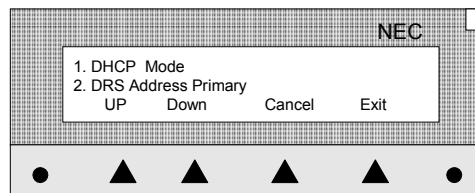
Before continuing to the next step confirm if a DHCP server is used on the network to allocate IP addresses automatically.

If a DHCP server is used **GO TO STEP 10** and assign the “DRS Primary Address” and **skip STEPS 12, 13, 14, 15, 16 and 17** and continue on from **STEP 18** to the end.

If no DHCP Server is continue on to **Step 8**.

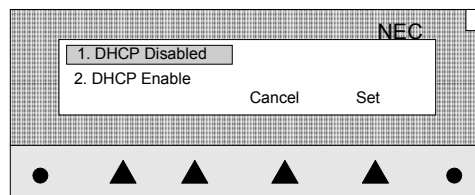
STEP 8:

Select the DHCP mode by pressing 1 key on the User menu.



STEP 9:

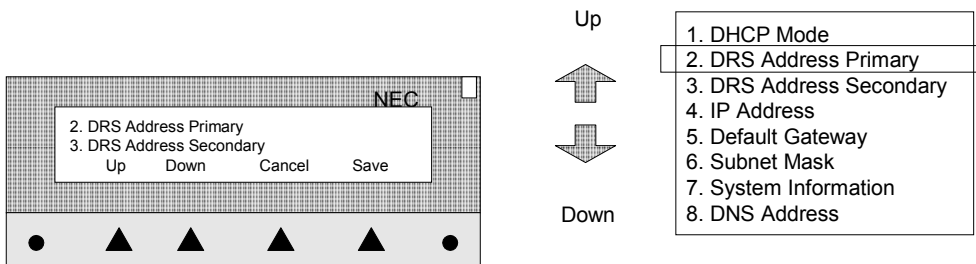
Select “1.DHCP Disabled” on the IP Dterm and press Set key. When an item is selected, the selected item changes to blinking indication. Press set key to confirm the selection.



STEP 10:

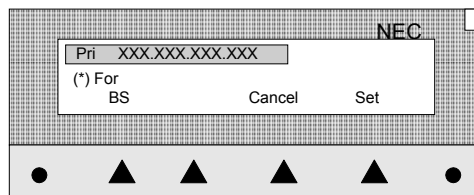
Select “2. DRS Address Primary” and assign the IP address of the DRS connected to the LAN.

The DRS Primary Address is the IP Address of the IPELC card. (This uses the internal DRS embedded in the IPELC card).



STEP 11:

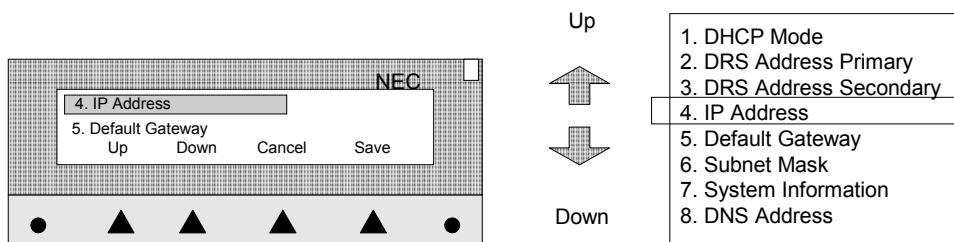
Press Set key to confirm the entry.



Note: Do Not Assign “DRS Address Secondary”, this is assigned when an external DRS Server is used. This function is not available.

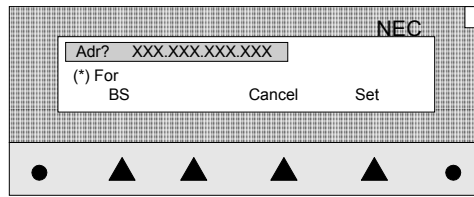
STEP 12:

Select “4.IP Address” by pressing “4” on the User Menu.



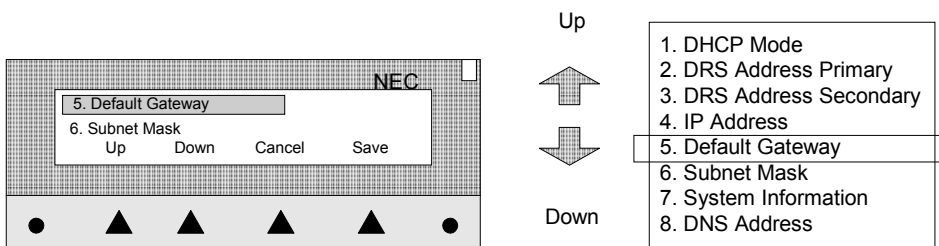
STEP 13:

Enter the IP address of the DtermIP and press the “Set” key to confirm the entry. Any attempt to set incomplete data is ignored. To stop data enter, press “Cancel” key.



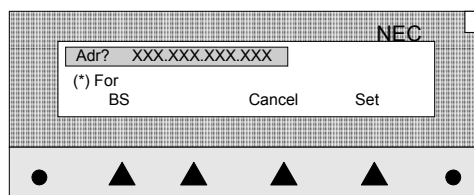
STEP 14:

Select the “5. Default Gateway” on the User Menu by pressing “5” when a default Gateway is used.



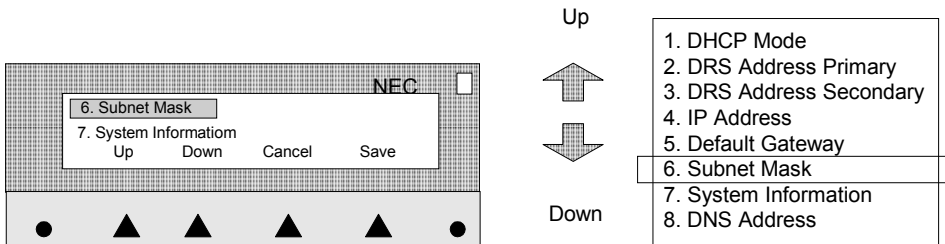
STEP 15:

Enter the IP Address of the Default Gateway when a default gateway is used. Press “Set” key to confirm the entry. Any attempt to set incomplete data is ignored. To stop data enter, press “Cancel” key.



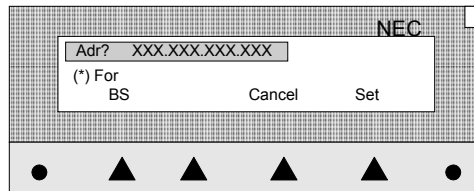
STEP16:

Select "6.Subnet Mask" on the User Menu by pressing "6" when a subnet mask is used.



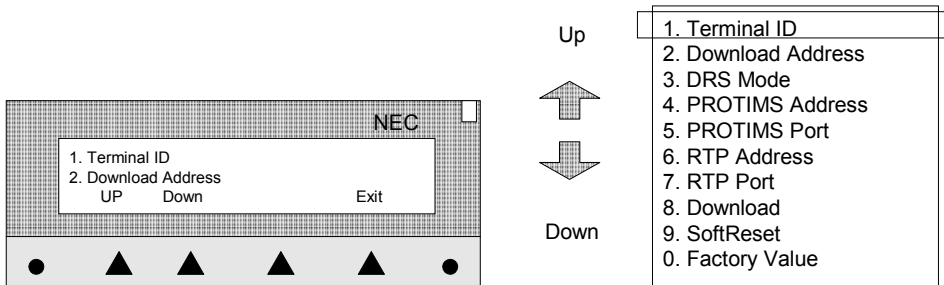
STEP 17:

Enter the Subnet Mask data when a subnet mask is used. Press the "Set" key to confirm the entry. Any attempt to set incomplete data is ignored. To stop data enter, press "Cancel" key.



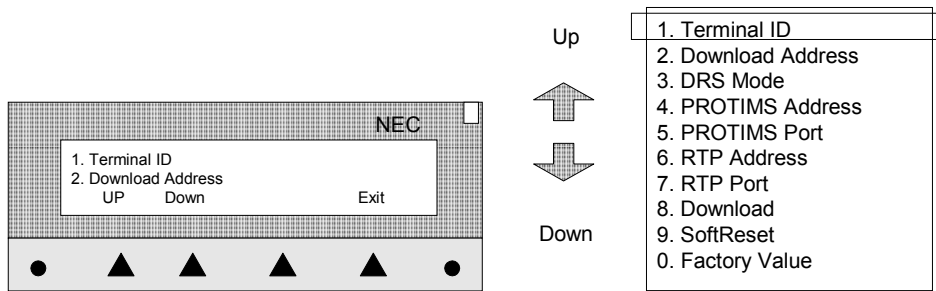
STEP 18:

Open the Administration Menu by pressing, "Hold" + "#" + "0" on the User Menu. The following Administration Menu is displayed.



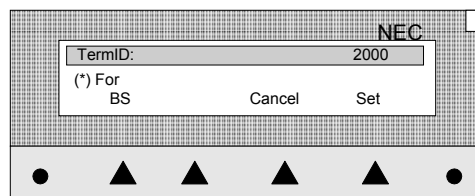
STEP 19:

Select "1.Terminal ID" by pressing, "1" on the Administration Menu.



STEP 20:

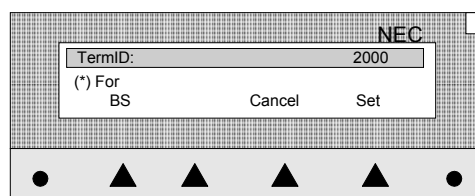
Assign the station number as the Terminal ID. (Example: 2000).



Use 0-9, #, and * as Terminal ID
To stop data entry, press Cancel key.
By pressing the Set key, data is assigned. To correct an error, enter the correct data again.

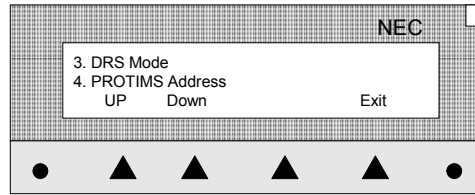
STEP 21:

Press the Set key to confirm your entry. By pressing the Set key, the display automatically returns to the Administration Menu.



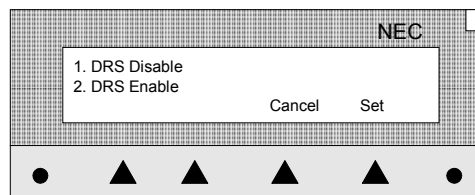
STEP 22:

Select "3.DRS Mode" by pressing "3" on the Administration Menu.



STEP 23:

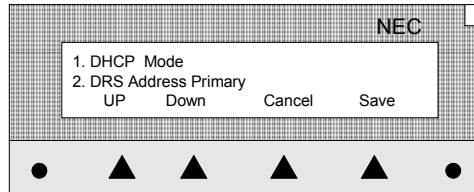
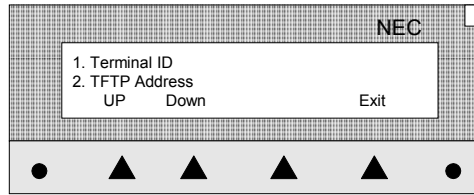
Select "2.DRS Enable" by pressing "2" on the IP Enabled Dterm. "2. DRS Enable" is default data.



By pressing "2", "2.DRS Enable" starts blinking. Then Press "Set" key to confirm your entry. By pressing the "Set" key, the display returns to the Administration Menu.

STEP 24:

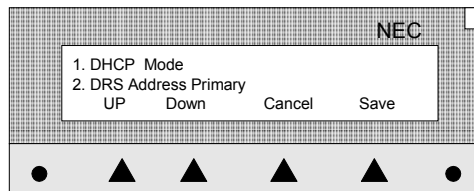
Return to the User Menu by pressing “Exit key”



STEP 25:

Press “Save” key to save the data changes.

When the data saving ends successfully, configuration data assignment is complete.



Note: By pressing the Cancel key at this time, all assigned data is discarded returning to the previous settings.

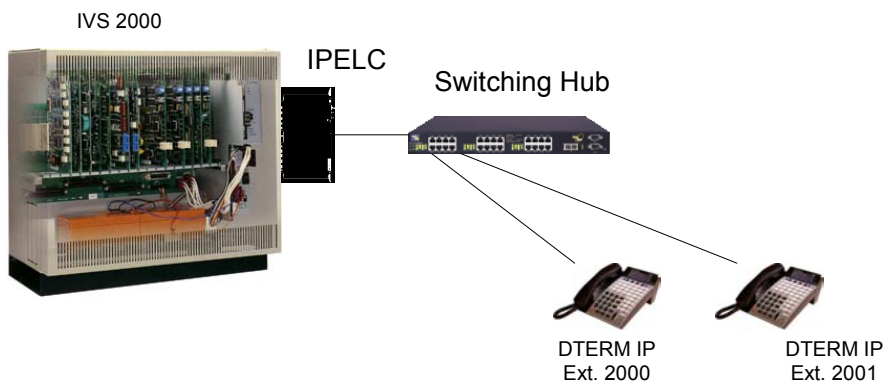
END OF SET-UP:

When STEP 25 is performed, the IP Enable Dterm starts a set-up process with the DRS on the IPELC card. If all the programming is correct at this stage the DtermIP should come on line.

Sample Data Programming and Setup

<Example>

- DHCP Not provided
- DRS Use Internal DRS on IPELC card
- FP No. 00
- IPELC Card No. 0
- IPELC IP Address 147.76.32.80
- IPELC Subnet Mask 255.255.0.0
- DRS IP Address 147.76.32.80
- Station No. DtermIP- 1 = 2000
DtermIP- 2 = 2001



Sample Data Programming

COMMAND	1 st DATA	2 nd DATA
CM0A Y = 00	00	000
CM0A Y = 01	00	147076032080
CM0A Y = 02	00	255255000000
CM0A Y = 04	00	147076032080
CM10	000	F2000
CM10	001	F2001
CM20 Y= 0	2	804
CM90 Y = 00	2000,01	2000
CM90 Y = 00	2001,01	2001
CM93	2000	2000
CM93	2001	2001

MENU	MENU INDICATION	SETTING DATA
User Menu	1. DHCP Mode	1. DHCP Disable
	2. DRS Address Primary	147076032080
	4. IP Address	147076032081
	6. Subnet Mask	255255000000
Administration Menu	1. Terminal ID	2000
	2. DRS Mode	2. Enable
	4. PROTIMS Address	147076032080
	6. RTP Address	147076032080

DtermIP – 2 Setup

MENU	MENU INDICATION	SETTING DATA
User Menu	1. DHCP Mode	1. DHCP Disable
	2. DRS Address Primary	147076032080
	4. IP Address	147076032082
	6. Subnet Mask	255255000000
Administration Menu	1. Terminal ID	2001
	2. DRS Mode	2. Enable
	4. PROTIMS Address	147076032080
	6. RTP Address	147076032080

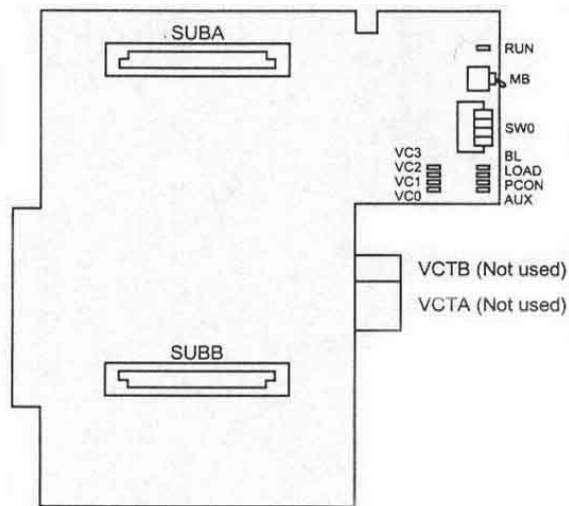
NOTE: For DtermIP setup, each DtermIP must be programmed separately.

CIRCUIT CARD INFORMATION

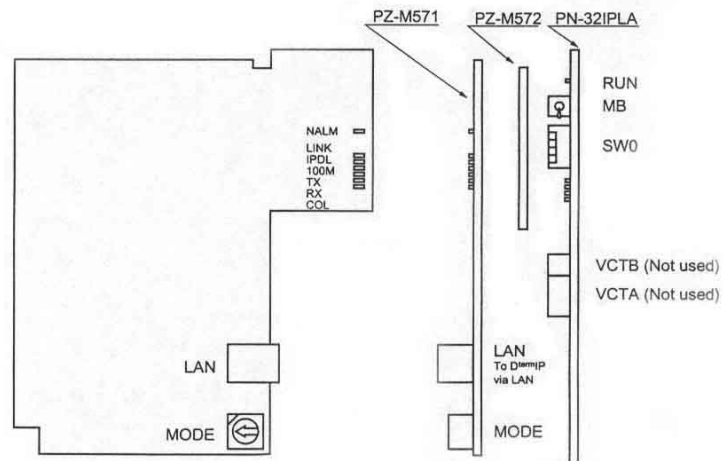
PN-32IPLA (IPELC)



PN-32IPLA



PZ-M571



Lamp Indications

PN-32IPLA



LAMP NAME	COLOR	FUNCTION
RUN	Green	Flash (120 IPM) : This card is operating normally. Flash (rapidly) : Communication error with MP/FP. OFF : This card is not operating.
BL	Red	ON : Even one line is busy. OFF : All lines are idle.
LOAD	-	Not Used
PCON	-	Not Used
AUX	-	Not Used
VC3	-	Not Used
VC2	-	Not Used
VC1	-	Not Used
VC0	-	Not Used

PZ-M571

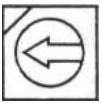
LAMP NAME	COLOR	FUNCTION
NALM	-	Not used
LINK	Green	ON : Connected to IP network OFF: Disconnected from IP network
IPDL	-	Not Used
100M	Green	ON : Ethernet is operating at 100Mbps OFF: Ethernet is operating at 10Mbps
TX	Green	ON : Sending IP data OFF: Not sending IP data
RX	Green	ON : Receiving IP data OFF : Not Receiving IP data
COL	Yellow	ON : Detecting IP data collision OFF : Operating normally

Switch Settings

PN-32IPLA

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
MB (Toggle SW) 	-	UP	For make-busy	
		DOWN	For normal operation	
SW0 (Piano SW) 	1	OFF	Not used	
	2	OFF	Not used	
	3	OFF	Not used	
	4	OFF	Not used	

PZ-M571

SWITCH NAME	SWITCH NUMBER	SETTING POSITION	FUNCTION	CHECK
MODE (Rotary SW) 	0-F	0	Auto Negotiation ON (Ethernet 10Mbps/100Mbps automatic change)	
		3	Auto Negotiate OFF (10 Mbps fixed)	
		4	Auto Negotiation OFF (100 Mbps fixed)	
		1,2,5-F	Not used	

NOTE: When under power, flip the MB switch ON (up) before plugging/unplugging the card.

DATA NETWORK CONSIDERATIONS

Before implementing DtermIPs on a customers data network it is important to determine the capability of the data network to handle DtermIPs

The following factors should be considered when determining the suitability of the data network for using DtermIPs

- Are there spare Ethernet ports available on the core network switch HUB for the DtermIP
- Are the Ethernet connections 10MB or 100MB? Is it switched or shared media? (If it is shared it need to be upgraded to switched).
- Does the current network utilise Cisco routers? (If not, the routers may need to be changed to Cisco routers or the existing routers may need to be tested for IP Voice operation, Consult Sales Engineer for assistance).
- Does the network support QoS features? If not these features (WFQ, CBWFQ, LFI, DiffServ, RTP Header Compression) should be implemented.
- Can the router CPU handle VoIP traffic? (if not the routers need to be upgraded).
- Does the router have enough memory?
- Is there sufficient bandwidth on the WAN link?

IMPORTANT:

The above issues relating to the Customer data network should be addressed before considering DtermIP solutions. Please consult a Sales Engineer for assistance prior to any potential sale.

NETWORK CONSIDERATION FOR THE DtermIP

- The IPELC card does not support VLAN tagging.
- It is recommended that the IPELC cards and DtermIPs be installed on a separate segment of the customer network for maximum speech quality.

BANDWIDTH MEASUREMENTS

The following bandwidth measurements were made using RADCOM analyzer. The graphs show the bandwidth used per call (both way). To work out the total amount of bandwidth required for simultaneous call multiply the bandwidth by the number of DtermIP calls.

PAYLOAD SELECTION

Payload Selection (for G.711)

Maximum channel number for simultaneous speech depends on payload size. See the table below.

Payload Cycle (ms)	Required Bandwidth per call (kbps)	Max. Channel
10	225	12 [ch]
20	175	20 [ch]
30	165	30 [ch]
40 (standard)	151	32 [ch]

NOTE: The standard setting of 40ms is recommended.

Measured Bandwidth.

The bandwidth measurements measured using the RADCOM are shown below.

The bandwidth requirements were found to be exactly the same as for the IMX, and they are as follows.

- G.711, Payload period = 40ms. Bandwidth = 151Kbps /call
- G.711, Payload period = 30ms. Bandwidth = 165Kbps /call
- G.711, Payload period = 20ms. Bandwidth = 175Kbps /call
- G.711, Payload period = 10ms. Bandwidth = 225Kbps /call

FAULT MESSAGES

There are no new fault messages.