

**NEC**

Xen Alpha™



## **INSTALLATION MANUAL**

**NEC Australia Pty Ltd**

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# Table of Contents

## Chapter 1

### System Overview

<b>Section 1</b> .....	<b>3</b>
Your System .....	3
<b>Section 2</b> .....	<b>5</b>
Regulatory Information .....	5
Electromagnetic Interference (EMI) .....	5
Battery Disposal .....	5
Incidence of Harm .....	5
Hearing Aid Compatibility .....	5
Service Requirements .....	5
Compliance Information .....	5
<b>Section 3</b> .....	<b>6</b>
Equipment .....	6
<b>Section 4</b> .....	<b>9</b>
System Capacities .....	9
<b>Section 5</b> .....	<b>10</b>
System Block Diagram .....	10
<b>Section 6</b> .....	<b>11</b>
Cabling Requirements & Specifications ..	11
<b>Section 7</b> .....	<b>12</b>
Power Requirements .....	12
Power Supply Inputs .....	12
Power Supply Consumption .....	12
<b>Section 8</b> .....	<b>13</b>
Environmental Conditions .....	13
<b>Section 10</b> .....	<b>14</b>
Outside Line Type .....	14
<b>Section 11</b> .....	<b>14</b>
Network & Control .....	14
Transmission, Network & Control Specifications .....	14
<b>Section 12</b> .....	<b>15</b>
Dialling Specifications .....	15
Dial Pulse Address Signaling .....	15
Dual-Tone Multifrequency (DTMF) Address Signaling .....	15

<b>Section 13</b> .....	<b>16</b>
External Equipment Connection .....	16
<b>Section 14</b> .....	<b>17</b>
Battery Backup .....	17
System Backup .....	17
Memory Backup .....	17
<b>Section 15</b> .....	<b>18</b>
Visual & Audible Indications .....	18
Tone Patterns Table .....	18
Multiline Terminal Flash Patterns Table ..	21
DSS/BLF LED Indications Table .....	22

## Chapter 2

### KSU Installation

<b>Section 1</b> .....	<b>23</b>
General Information .....	23
<b>Section 2</b> .....	<b>23</b>
Site Preparation .....	23
Precautionary Information .....	23
Site Selection Conditions .....	24
Multiline Telephone Installation Site ....	24
<b>Section 3</b> .....	<b>25</b>
Installing the Key Service Unit (KSU) ...	25
Installation Precautions .....	25
The Key Service Unit .....	25
Removing the KSU Cover .....	26
Wall Mounting the KSU .....	27
Installing or Replacing the Internal Backup Batteries .....	28
Connecting the B614-B13 KSU .....	32
External ROM Card .....	37

<b>Section 5</b> .....	<b>39</b>
Installing an Electronic Telephone Unit ETU .....	39
General Information .....	39
Interface ETUs .....	40
Optional ETUs .....	44
Door Phones .....	48
Door Lock Release .....	49
TRF-B13 ETU .....	49
Trunk Transfer Speech Volume Adjustment .....	49
Power Failure Backup .....	51
<b>Section 6</b> .....	<b>52</b>
Cable Connections .....	52
General Information .....	52
Wiring to the KSU .....	54
Outside Lines .....	54

## Chapter 3

### Installing DTB-Type Multiline Terminals

<b>Section 1</b> .....	<b>59</b>
General Information .....	59
<b>Section 2</b> .....	<b>59</b>
Multiline Terminals .....	59
DTB-16-1A (WH)/(BK) TEL .....	59
DTB-16D-1A (WH)/(BK) TEL .....	60
<b>Section 3</b> .....	<b>61</b>
Wall Mounting .....	61
Wall Mounting Template .....	63

## Chapter 4

### Installing DTU-Type Multiline Terminals

<b>Section 1</b> .....	<b>65</b>
General Information .....	65
<b>Section 2</b> .....	<b>65</b>
Multiline Terminals .....	65
DTU-8-1A (WH) TEL .....	65
DTU-8D-1A (WH) TEL .....	65
DTU-16D-1A (WH) TEL .....	66
DTU-32D-1A (WH) TEL .....	66

<b>Section 3</b> .....	<b>67</b>
Connection A Multiline Terminal To The System .....	67
<b>Section 4</b> .....	<b>68</b>
Adjusting The LCD .....	68
<b>Section 5</b> .....	<b>68</b>
Installing Line Cards & Plastic Panels ..	68
Line Card and Plastic Panel Installation .	68
Plastic Panel Removal .....	69
<b>Section 6</b> .....	<b>70</b>
Removing Softkeys .....	70
<b>Section 7</b> .....	<b>70</b>
Adjusting The Height Of The Multiline Terminal .....	70
<b>Section 8</b> .....	<b>72</b>
Wall Mounting .....	72
<b>Section 9</b> .....	<b>78</b>
Installing Optional Adapters .....	78
Preparing Multiline Terminal for Adapter Installation .....	78
ACA-UA Unit (AC Adapter) .....	80
ADA-UA Unit (Ancillary Device Adapter) .	81
APR-UA Unit (Analogue Port Ringer) ...	86
CTA-UA Unit (Computer Telephony Application) .....	89
HFU-UA (WH) Unit (Handsfree Unit) ...	91

## Chapter 5

### Installing DTW-Type Multiline Terminals

<b>Section 1</b> .....	<b>93</b>
General Information .....	93
<b>Section 2</b> .....	<b>93</b>
ETW-Type Multiline Terminals .....	93
<b>Section 3</b> .....	<b>94</b>
Connecting an ETW-Type Multiline Terminal .....	94
Terminal Update .....	94
Attach a Multiline Terminal to the System	94

## Chapter 6

### Installing Optional Terminal Equipment

<b>Section 1</b> .....	<b>95</b>
SLT(1)-U13 ADP (Single Line Telephone)	95

## Chapter 7

### System Programming

<b>Section 1</b> .....	<b>97</b>
------------------------	-----------

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# List of Figures

Xen Alpha

Release 1.0

## Chapter 1

### System Overview

System Configuration Sample .....	4
NEC Xen Alpha System Block Diagram .....	10
Connecting the ESI to the Multiline Telephone Using Twisted 2-Pair Cable .....	11

## Chapter 2

### KSU Installation

Front View of a KSU .....	25
How to Remove the KSU Cover .....	26
Attaching the Wall Mounting Bracket for the KSU to the Wall .....	27
Attaching the KSU to the Wall Mount Template .....	27
Securing the KSU to the Wall Mount Template .....	28
Inserting a New Battery in the KSU Unit .....	28
Attaching the Battery Connectors .....	29
.....	30
.....	30
.....	30
Mounting the External Battery Cabinet .....	31
Connecting External Batteries .....	31
KSU Grounding .....	32
KSU Switch Settings .....	33
Telephone Connection .....	34
Exchange Line Connection .....	34
Power Fail Telephone and Fax Connection .....	35
External Ringer Connection .....	35
External Paging Connection .....	36
MOH/BGM Source Connection .....	37
External ROM Card .....	37
Inserting the External ROM Card .....	38
Installing a Vertically Mounted KTU .....	39
ESI(8)-B13 ETU .....	40
SLI(2)-B13 ETU .....	41
COI(2)-B13 ETU .....	42
Mounting the CID(2)-B13 Unit onto the Mainboard .....	42
Mounting the CID(2)-B13 Unit onto the COI(2)-B13 ETU .....	43
BRT(1)-B13 ETU .....	44
BRT(1)-B13 ETU Connection Cable .....	44
PBR-B13 ETU .....	45
Removing the Ground Plate .....	45
Mounting the DB-9 Plate .....	45

Connecting the DB-9 Cable	46
MIF-B13 ETU	46
DHP-B13 ETU	47
TRF-B13 ETU	49
Power Failure Backup Flowchart	51
Holding the Connector with the Pliers	53
Attaching the Cables to the Connector	53
Multiline Terminal and SLT Adapter Connection	54
Single Line Telephone Connection	54
KSU Cabling Knockouts	55
Removing the Knockout Panels in the KSU	55
DTB-16-1A (WH)/(BK) TEL Multiline Telephone	59

## Chapter 3

### *Installing DTB-Type Multiline Terminals*

DTB-16D-1A (WH)/(BK) TEL Multiline Telephone	60
DTU-8-1A (WH) TEL Multiline Terminal	65
DTU-8D-1A (BK)/(WH) TEL Multiline Terminal	65

## Chapter 4

### *Installing DTU-Type Multiline Terminals*

DTU-16D-1A (WH) TEL Multiline Terminal	66
DTU-32D-1A (WH) TEL Multiline Terminal	66
Connecting a Multiline Terminal to the System	67
Leading Line Cords on a Multiline Terminal	67
Adjusting the LCD	68
Installing Line Card and Plastic Panel on a Multiline Terminal	68
Installing Plastic Panel	69
Removing the Plastic Panel from the Multiline Terminal	69
Removing Softkeys	70
Locating the Adjustment Tabs on the Multiline Terminal	70
Raising the Base Plate on the Multiline Terminal	71
Adjusting the Line Cord Length	71
Lowering the Base Plate on the Multiline Terminal	71
Positioning the Handset Hanger	72
Removing the Knockout	72
Attaching the Base Plate to the Wall	73
Wall Mounting using a Modular Jack	73
Plugging in the Line Cord using a Wall Jack	73
Plugging in the Line Cord Using a Modular Jack	74
Attaching the Bottom Tabs of the Multiline Terminal to the Base Cover	74

Attaching the Top Tabs of the Multiline Terminal to the Base Plate	74
Installed Wall Mount Unit	75
Removing the Tabs from the Adapter	75
Removing the Tabs from the WMU-UA Unit	76
Leading the Line Cord out of the WMU-UA Unit	76
Attaching the Wall Mount Unit to the Wall	77
Attaching the Multiline Terminal to the WMU-UA Unit	77
Removing the Multiline Terminal from the Base Cover	78
Raising the Base Plate	78
Unlocking Tab	79
Releasing Right Tab	79
Removing Bottom Cover	79
Removing Base Plate Dummy End	79
Cutting Dummy End in Half	80
Installing Adapter in Connector 1	80
Installing Dummy End B	80
ACA-UA Unit Connection	81
Attaching the ADA-UA Unit to the Multiline Terminal	81
Leading the Audio Cable out from the ADA-UA Unit	82
ADA-UA Unit	82
Attaching Cables to the ADA-UA Unit	82
ADA-UA Unit Switch Settings	84
APR-UA Unit	86
Attaching the Unit to the Multiline Terminal	86
Leading the Telephone Cord out from the Unit	87
Closing the Base Plate Cover	87
APR-UA Unit Switches	87
Connecting Cables on the APR-UA Unit	88
Attaching a Xen Multiline Terminal to a PC	89
CTA-UA Unit	89
Attaching the Unit to the Multiline Terminal	90
Connecting the RS-232C Cable to the CTA-UA Unit on the Multiline Terminal	90
HFU-UA (WH) Unit	91
Microphone with Mute	91
Attaching a Microphone to a Multiline Terminal	91
HFU-UA (WH) Unit Switches	92

## Chapter 5

# Installing DTW-Type Multiline Terminals

Modular Terminal Connections for Multiline Terminals & Attendant Add-on Consoles	94
Connecting an ETW-Type Multiline Terminal	94
Connecting a Single Line Telephone to the System using an SLT(1)-U13 ADP	95

**Chapter  
6**

***Installing Optional Terminal Equipment***

Connecting the SLT(1)-U13 ADP .....96  
Removing the Screws from the SLT(1)-U13 ADP .....96  
Attaching the SLT(1)-U13 ADP to the Wall .....96

**Chapter  
7**

***System Programming***

There are no figures for this chapter.

# List of Tables

Xen Alpha

Release 1.0

## Chapter 1

### *System Overview*

Multiline Telephone Loop Resistance and Cable Length .....	11
Cable Connection Between the Analogue Port Adapter and the Single Line Telephone .....	12
Power Consumption .....	12
Weights and Dimensions .....	13
Internal and External Battery Specifications .....	17
Tone Patterns .....	18
Multiline LED Patterns .....	21
DSS/BLF LED Indications .....	22

## Chapter 2

### *KSU Installation*

KSU Switches and Connections .....	33
DPH-B13 ETU Switch Settings .....	48
TRF-B13 ETU Switch Settings .....	50
CO/PBX Line Loss Compensation .....	50

## Chapter 3

### *Installing DTB-Type Multiline Terminals*

There are no tables to list for this chapter.

## Chapter 4

### *Installing DTU-Type Multiline Terminals*

ADA-UA Cable Connections .....	83
ADA-UA Unit Switch Settings .....	85
HFU-UA (WH) Unit Switch Settings .....	92

**Chapter  
5**

***Installing DTW-Type Multiline  
Terminals***

There are no tables to list for this chapter.

**Chapter  
6**

***Installing Optional Terminal Equipment***

Programming Functions ..... 97

**Chapter  
7**

***System Programming***

There are no tables to list for this chapter.

## SECTION 1

### YOUR SYSTEM

Your NEC Xen Alpha provides you a complete communications system to enhance your business. The Xen Alpha telephone provides for a maximum of six lines and sixteen telephones. This system is easy to install, operate, and maintain and provides you the benefits and many of the features of a larger key telephone system.

Your system is easy to install, allowing you to have your system up and running in a very short time using the system defaults. Should you need to customize your system, an easy-to-use Windows 95/98 PC based software is provided. You can also make changes using a telephone.

Your system provides battery backup in case of a power outages. System programming and speed dialling is retained for a minimum of 3 months, if your CPU battery is fully charged. The battery located in key service unit (KSU) allows your telephones to continue operating for approximately 30 minutes in the event of a power outage.

Xen Alpha is a feature-rich system that provides telephone functions and support many advanced features such as:

- Computer Telephony Integration (CTI)
- Call Forward External
- ISDN-BRI Voice Trunks
- Caller ID
- Integrated Digital Voice Mail

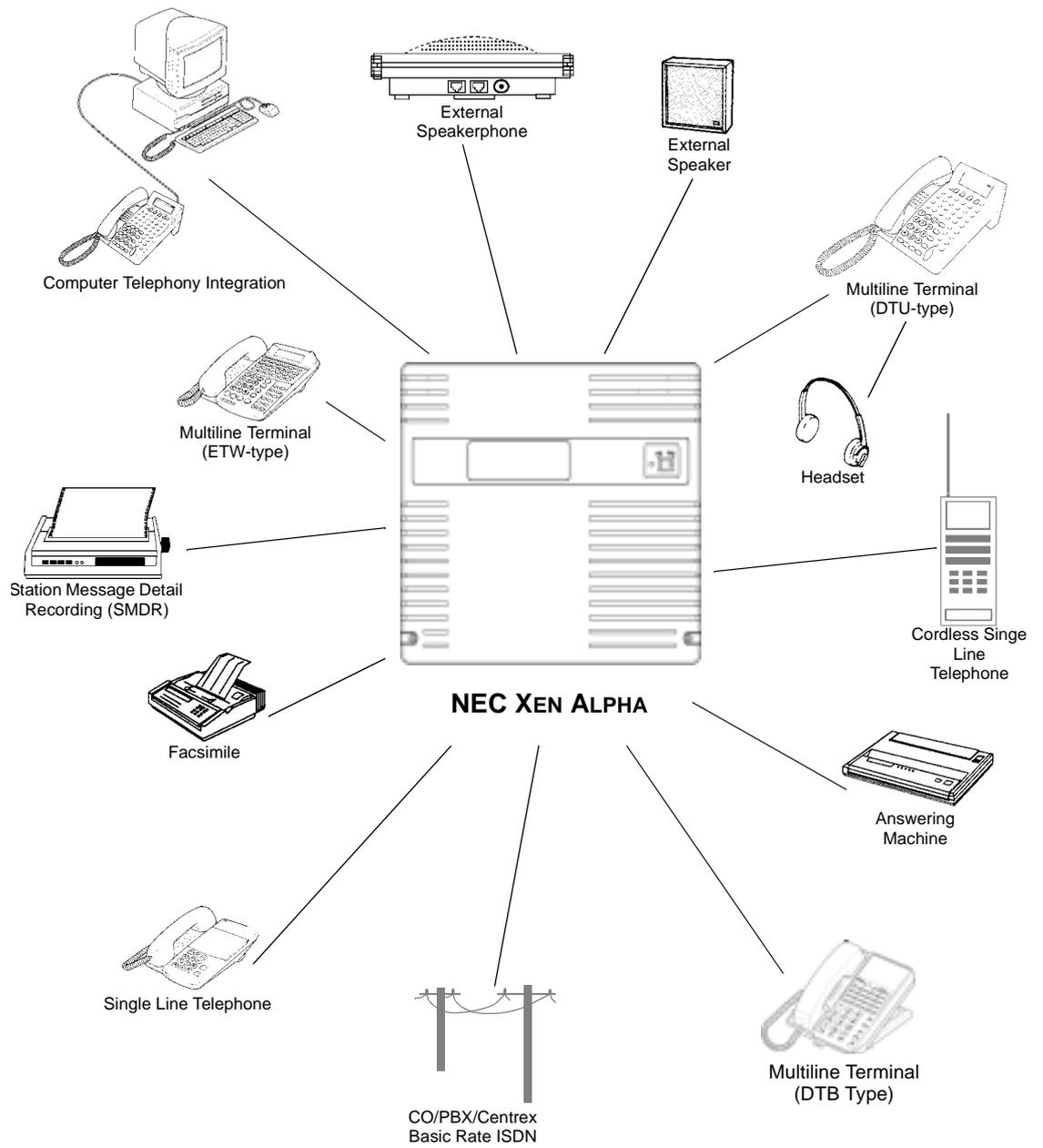
The Xen Alpha system offers a variety of Multiline Terminals. These Multiline Terminals are available in 8-button, 16-button and 32-button capacities and are offered as display and non-display models. A budget and premium range of Multiline Terminals is available.

A customer with existing ETW terminals can easily connect them to the Xen Alpha system, providing inexpensive migration from the NEC Ranger NDK/DK systems. Most Xen Alpha system features are available with the ETW-type Multiline Terminals.

ETW-type terminals are not available in New Zealand.

The Xen Alpha systems support a wide range of additional equipment that can be connected to the system to accommodate individual customer needs.

Equipment such as Single Line Telephones, external speakers, facsimile machines, external microphones, and headsets can be connected. The diagram in *Figure 1-1:: System Configuration Sample, Pg 4* shows a Xen Alpha system with standard and optional equipment (some locally provided).



**Figure 1-1: System Configuration Sample**

## Electromagnetic Interference (EMI)

**Warning:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### Battery Disposal

The NEC Xen Alpha system includes the following batteries. When disposing of these batteries, KSUs and/or KTUs, you must comply with the rules and regulations of your state regarding proper disposal procedures.

Unit Name	Type of Battery	Quantity
B614-B13 KSU	Lead Acid	2
	Lithium	1

### IMPORTANT SAFEGUARDS OF BATTERY DISPOSAL

The product that you have purchased contains a rechargeable battery. The battery must be disposed of properly.

### Incidence of Harm

If the System is malfunctioning, it may also be causing harm to the telephone network. The Telephone system should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the Network Provider may temporarily disconnect the service.

### Hearing Aid Compatibility

The NEC Multiline Terminals that are provided for this system are hearing aid compatible. The manufacturer of Single Line Telephones for use with the system must provide notice of hearing aid compatibility to comply with ACA Technical Standards.

### Service Requirements

In the event of equipment malfunction, all repairs should be performed by an authorised dealer of NEC Australia Pty Ltd or by NEC Australia Pty Ltd. It is the responsibility of users requiring service to report the need for service to one of NEC Australia Pty Ltd authorised agents or to NEC Australia Pty Ltd.

### Compliance Information

This equipment has been tested to comply with all relevant ACA Technical Standards.

## SECTION 3

### EQUIPMENT

The following table lists the equipment that is available with your system. The KSU Quantities column indicates the maximum number of pieces of equipment that can be installed for each system.

Equipment Name	Description	Quantity
<b>Key Service Units, Power Supply Units, and Adapters</b>		
B614-B13 KSU	<p>The Basic Key Service Unit (KSU) for the InfoSet system provides service for outside lines and interconnection of the telephones. The basic KSU supports up to two trunk lines and six telephones.</p> <p>The B614-B13 KSU has a dedicated ESI slot, SLI slot, DPH slot, PBR slot, TRF slot, VRS/VMS slot, 2 x COI/BRT slots and MIF slot.</p>	1 per system
<b>Common Electronic Telephone Units</b>		
MIF-B13 ETU	This unit provides additional memory for processing and backup for PC programming and SMDR.	1 per system
<b>Interface Electronic Telephone Units</b>		
BRT(1)-B13 ETU	<p>This Basic Rate Interface unit provides one circuit for an ISDN Basic Rate Interface (two voice channels).</p> <p>This ETU is installed in the COI/BRT slot.</p>	1 ETU 2 Trunk Lines
CID-B13 UNIT	<p>The Caller ID Unit detects Caller ID signals from the central office and sends caller identification to the main board. This information is then displayed on the LCD of the telephones.</p> <p>This ETU is installed on the main board and COI(2)-B13 ETU and MB614-B13 Mainboard as a piggyback.</p>	1 Unit
COI(2)-B13 ETU	<p>This unit supports two outside (CO/PBX) lines and provides circuitry for ring detection, holding, and dialling. Electrical fuses (posistors) are built into this ETU.</p> <p>The outside lines must be Loop Start DTMF trunks.</p> <p>This ETU is installed in the COI/BRT slot.</p>	1 ETU 2 CO/PBX lines
ESI(8)-B13 ETU	<p>The Electronic Station Interface ETU contains eight circuits. Each circuit can support any type of multiline telephone, or single line telephone adapter.</p> <p>This ETU is installed in the ESI slot. A 6 channel ESI circuit is built in on the B614-B13 KSU.</p>	1 ETU 8 Extensions
SLI(2)-B13 ETU	<p>The Single Line Interface ETU supports a maximum of two analogue single line telephones, faxes, modems or other analogue devices. This ETU provides Ringing Signal Generator (RSG) to single line telephones.</p> <p>This ETU is installed in the SLI slot.</p>	1 ETU 2 Extensions
<b>Optional Electronic Telephone Units</b>		
DPH-B13 ETU	<p>The doorphone interface ETU allows two DP-D-1D Doorphones to be connected. Two simultaneous calls are allowed, and two door lock release relays are provided.</p> <p>This ETU is installed in the DPH slot.</p>	1 ETU
PBR-E10 ETU	<p>The Push Button Receiver ETU detects and translates DTMF tones generated by single line telephones, modems, or facsimile machines.</p> <p>This ETU is installed in the PBR slot.</p>	1 ETU

Equipment Name	Description	Quantity
VMS(2)-13 ETU	The Voice Mail Service ETU provides two digital voice mail ports. Busy tone detectors are built-in and it uses Flash ROM memory to store the recorded messages. This ETU is installed in the VMS/VRS slot.	1 ETU
TRF-B13 ETU	The Trunk Transfer cord allows one trunk to be transferred or forwarded out another trunk, where one of those trunks are analogue. This card provides gain control and call supervision for the transferred call. This ETU is installed in the TRF slot.	1 ETU
<b>DTB-Type Multiline Telephones</b>		
DTB-16-1A (WH)/ (BK) TEL	This digital Multiline Terminal has 16 programmable line keys (each with a two-color LED), built-in speakerphone, and a Large LED to indicate incoming calls and messages.	14
DTB-16D-1A (WH)/ (BK) TEL	This digital Multiline Terminal has 16 programmable line keys (each with a two-color LED), built-in speakerphone, and a Large LED to indicate incoming calls and messages. This terminal also has a 16-character, 2-line, plus symbols, Liquid Crystal Display (LCD).rm	14
<b>DTU-Type Multiline Telephones</b>		
DTU-8-1A (WH) TEL	This digital Multiline Terminal has eight programmable line keys (each with a two-color LED), built-in speakerphone, a Large LED to indicate incoming calls and messages, headset jack, and compatibility with ADA-UA, APR-UA, CTA-UA, and HFU-UA Units.	14
DTU-8D-1A (WH)/ (BK) TEL	This digital Multiline Terminal has eight programmable line keys (each with a two-color LED), built-in speakerphone, a Large LED to indicate incoming calls and messages, headset jack, and compatibility with ADA-UA, APR-UA, CTA-UA and HFU-UA Units. This terminal also has a 24-character, 3-line, adjustable Liquid Crystal Display (LCD), and provides four softkeys.	14
DTU-16D-1A (WH)/ (BK) TEL	These digital Multiline Terminals are equipped with 16 programmable line keys (each with a two-color LED), a built-in speakerphone, a Large LED to indicate incoming calls and messages, headset jack, and compatibility with ADA-UA, APR-UA, CTA-UA and HFU-UA Units. This terminal also has a 24-character, 3-line, adjustable Liquid Crystal Display (LCD), and provides four softkeys.	14
DTU-32D-1A (WH)/ (BK) TEL	These digital Multiline Terminals are equipped with 32 programmable line keys (each with a two-color LED), a built-in speakerphone, a Large LED to indicate incoming calls and messages, headset jack, and compatibility with ADA-UA, APR-UA, CTA-UA and HFU-UA Units. This terminal also has a 24-character, 3-line, adjustable Liquid Crystal Display (LCD), and provides four softkeys.	14

Equipment Name	Description	Quantity
<b>ETW-Type Multiline Telephones</b>		
ETW-8E-1A (SW) TEL	This terminal is a fully modular instrument with tilt stand, eight Flexible Line keys (each with two-color LED), eight function keys, built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.	14
ETW-16C-1A (SW) TEL	This terminal is a fully modular instrument with tilt stand, 16 Flexible Line keys (each with two-color LED), eight function keys, built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.  This terminal has a 16-character by 2-line Liquid Crystal Display (LCD).	14
ETW-16D-1A (SW) TEL	This terminal is a fully modular instrument with tilt stand, 16 Flexible Line keys (each with two-color LED), eight function keys, 20 programmable One-Touch keys with red LEDs, built-in speakerphone, ADA compatibility, and a large LED to indicate incoming calls and messages.  This terminal has a 16-character by 2-line Liquid Crystal Display (LCD).	14
<b>Adapters and Optional Units</b>		
ACA-UA Unit	The AC Adapter unit connects to one of the following: APR-UA, ADA-AU, CTA-UA and HFU-UA Units.	One per Multiline Telephone as required
ADA-UA Unit	This Ancillary Device adapter provides the digital multiline telephone with connection for a tape recorder.  This adapter can be installed on any DTU-Type multiline telephone.	14
APR-UA Unit	When this Analogue Port Ringer adapter is used, an additional single line telephone or a modem can be connected to an DTU-Type multiline telephone.  This adapter can be installed on any DTU-Type multiline telephone.	14
HFU-UA (BK)/(WH) Unit	This optional Handsfree Unit provides full-duplex handsfree communication. This unit comes with the handsfree adapter and an external microphone.  This adapter can be installed on any DTU-Type multiline telephone.	14
SLT(1)-U13 ADP	This Adapter provides an interface for single line telephones and other similar devices from an ESI ETU channel.  This adapter is connected to any ESI port.	2
CTA-UA Unit	TAPI (Microsoft Telephony Application Programming Interface) Adapter allows an DTU-type Multiline Terminal to be connected to a PC.	14
ADA(1)-WA (SW) Unit	This Ancillary Device Adapter provides the ETW-type Multiline Terminal with connection for headset, or audio recorder.	14
WMU-UA Unit	This Wall Mount Unit is used to mount any DTU-type Multiline Terminal to the wall. This unit connects to the back side of the Multiline Terminal.  This unit is required when an APR-UA Unit, CTA-UA Unit or HFU-UA (WH) Unit is installed.	14 Units Max. (1 per DTU-Type MLT)

Equipment Name	Description	Quantity
WMU-W Unit	This universal Wall Mount Unit is used to mount any ETW-type Multiline Terminal to the wall.	14 Units Max. (1 per ETW Type MLT)
<b>Software</b>		
PC Programming	System programming software for easy and convenient installation via a PC.	N/A

## SECTION 4

### SYSTEM CAPACITIES

The Xen Alpha KSU has nine dedicated slots, two for the COI/BRT ETUs and one each for the ESI, SLI, VMS/VRS, DPH, TRF, MIF and PBR ETUs. Each COI ETU, including the MBD has support for the CID ETU.

Some capacities of the Xen Alpha system are listed below.

Category	Item	Standard or Option	Quantity	Comments	
System	Dedicated slots	S	9	1 COI or BRT 2 COI or BRT 3 SLI 4 MIF 5 ESI 6 DPH 7 VMS or VRS 8 TRF 9 PBR	
	MOH/BGM Input	S	1		
	Control Relay	S	1	Either External Paging Control or External Ringer Control.	
	External Paging Zone	S	1		
	Internal Paging Zones	S	2		
	Tenants	S	2		
	Conference	S	6		
	System Speed Dial	S	80	200	Selectable mode.
	Station Speed Dial	S	20	0	
	PBR Circuit	O	4		
	SMDR Port	O	1		Shared port.
	PC Programming Port	O	1		
	Trunk	Analogue CO/PBX Trunks	2S, 4O	6	Combined total of 6 Trunks.
		Basic Rate ISDN Interfaces	O	2 (4ch)	
Analogue Caller ID Circuits		O	6		
Trunk Transfer Circuit		O	1		
Station	MLT	6S, 8O	14	Combined total of 14 Extensions.	
	SLT via SLT Adapter	O	2		
	SLT via SLI Card	O	2		
	Voice Mail Ports	O	2		
	Door Phone Circuits	O	2		
	Door Lock Release Circuits	O	2		
	Power Fail Transfer	S	2	Dual purpose ports.	
	Fax Connections	S	2		

# SECTION 5

## SYSTEM BLOCK DIAGRAM

Figure Figure 1-2: NEC Xen Alpha System Block Diagram, Pg 11 represents an installed system. This diagram shows the ETUs that can be installed in the KSU and the number of channels that are supported when the ETU is installed.

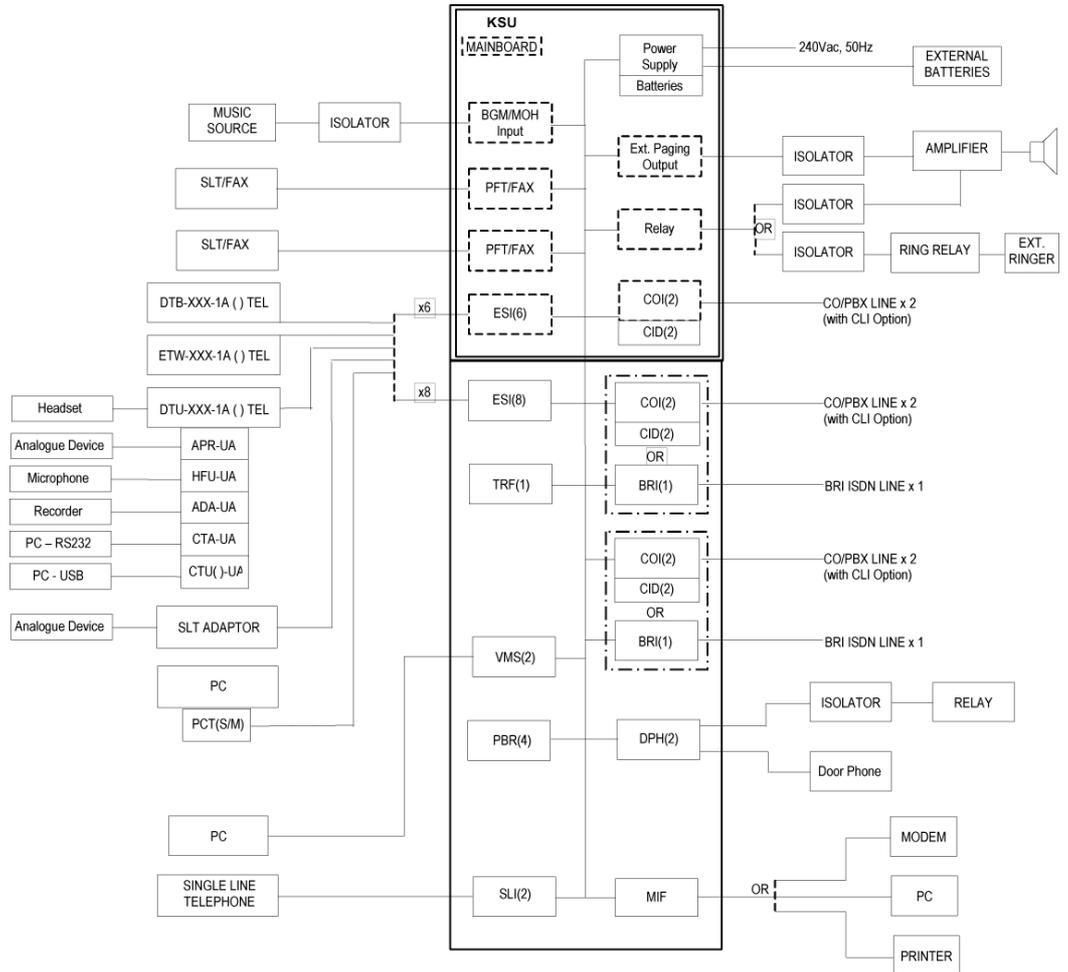


Figure 1-2: NEC Xen Alpha System Block Diagram

This section provides cabling requirements and specifications for various equipment used in the Xen Alpha system.

- BRT(1)-B13 ETU
- COI(2)-B13 ETU
- DPH-B13 ETU
- ESI(8)-B13 ETU
- SLI(2)-B13 ETU

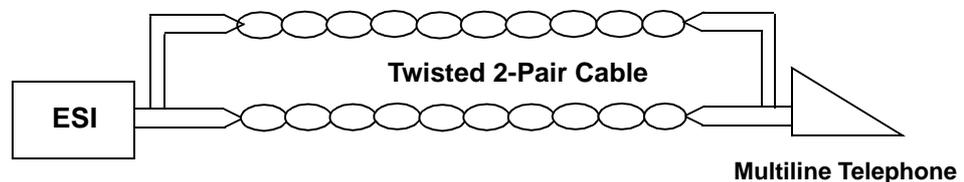
The KSU is connected with each of the Multiline Telephones and Single Line Telephones by a separate twisted 1-pair cable or 2-pair cable (only for Multiline Telephones). (Refer to *Table 1-1: Multiline Telephone Loop Resistance and Cable Length, Pg 12* for the loop resistance and cabling requirements for Multiline Telephones and adapters.)

**Table 1-1: Multiline Telephone Loop Resistance and Cable Length**

Terminal or Adapter	Maximum Loop Resistance (Ohms)	Maximum Metres by Twisted 1-Pair Cable 24 AWG	Maximum Metres by Twisted 2-Pair Cable 24 AWG
DTB-16-1A ( ) TEL	26	135	270
DTB-16D-1A ( ) TEL	26	135	270
DTU-8-1A ( ) TEL	35	180	300
DTU-8D-1A ( ) TEL	35	180	300
DTU-16D-1A ( ) TEL	26	135	270
DTU-32D-1A ( ) TEL	21	110	215
SLT(1)-U13 ADP	35	180	300
ETW-8E-1A (SW) TEL	35	180	300
ETW-16C-1A (SW) TEL	26	135	270
ETW-16D-1A (SW) TEL	21	110	215

**Note 1:** The length specified for the SLT Adapter is the length between the SLT Adapter and the ESI port.

**Figure 1-3: Connecting the ESI to the Multiline Telephone Using Twisted 2-Pair Cable**



**Table 1-2: Cable Connection Between the Analogue Port Adapter and the Single Line Telephone**

Connected Equipment	Cable	Maximum Loop Resistance from Connected Equipment to Telephone	Maximum Feet by Twisted 1-Pair Cable (24 AWG)
APR-UA ADP	Twisted Pair	600	200 m
SLT(1)-U13 ADP	Twisted Pair	600	200 m
SLI(2)-U13 ETU	Twisted Pair	600	200 m

**Note 1:** Mixing digital and analogue ports through the same 25-pair cable runs is not recommended.

**Note 2:** The Maximum Loop Resistance includes the internal resistance of the SLT device.

## SECTION 7

### POWER REQUIREMENTS

#### Power Supply Inputs

The AC input requirements for the Xen Alpha system are listed below:

##### AC Input

- 250 Vac + 10/-15 %
- 50 Hz ± 10%
- Single Phase
- 10A Circuit
- A dedicated outlet, separately fused and grounded, is required.

#### Power Supply Consumption

The power consumption for the Xen Alpha system is listed in *Table 1-3: Power Consumption, Pg 14*.

**Table 1-3: Power Consumption**

KSU	Maximum RMS Current	Watts Used (Idle)	Watts Used (Maximum)
B614-B13 KSU	0.6A	24 W	144 W

Table 1-4: Weights and Dimensions, Pg 15 shows shipping weight, height, width, and depth of each InfoSet KSU, Multiline Telephone, and adapter.

Table 1-4: Weights and Dimensions

Unit	Shipping Weight*	Height	Width	Depth
ACA-UA Unit	638 g	86 mm	107 mm	133 mm
ADA-UA Unit	65 g	29 mm	59 mm	99 mm
APR-UA Unit	122 g	66 mm	59 mm	121 mm
B614-B13 KSU	6500 g	320 mm	385 mm	124 mm
BRT(1)-B13 ETU	130 g	93 mm	138 mm	21 mm
CID(2)-B13 UNIT	98 g	60 mm	110 mm	28 mm
COI(2)-B13 ETU	185 g	93 mm	138 mm	29 mm
CTA-UA Unit	122 g	66 mm	59 mm	121 mm
DPH-B13 ETU	140 g	93 mm	138 mm	21 mm
DTB-16-1A(BK)/(WH) TEL	1100 g	231 mm	168 mm	86 mm
DTB-16D-1A(BK).(WH) TEL	1180 g	231 mm	168 mm	86 mm
DTU-16D-1A (WH) TEL	1233 g	123 mm	197 mm	235 mm
DTU-32D-1A (WH) TEL	1361 g	123 mm	220 mm	235 mm
DTU-8-1A (WH) TEL	1163 g	123 mm	197 mm	235 mm
DTU-8D-1A (WH) TEL	1233 g	123 mm	197 mm	235 mm
ETW-16C-1A (SW) TEL	992 g	101 mm	175 mm	223 mm
ETW-16D-1A (SW) TEL	1106 g	101 mm	205 mm	223 mm
ETW-8E-1A (SW) TEL	907 g	101 mm	175 mm	223 mm
ESI(8)-U13 ETU	185 g	93 mm	138 mm	20 mm
HFU-UA (WH) Unit	201 g	86 mm	107 mm	133 mm
MIF-B13 ETU	340 g	93 mm	138 mm	21 mm
PBR-B13 ETU	70 g	75 mm	65 mm	20 mm
SLI(2)-B13 ETU	170 g	93 mm	138 mm	24 mm
SLT(1)-U13 ADP	255 g	45 mm	70 mm	120 mm
TRF-B13 ETU	100 g	93 mm	138 mm	15 mm
VMS(2)-B13 ETU	TBA	TBA	TBA	TBA
WMU-UA Unit	301 g	104 mm	151 mm	180 mm

\* Shipping weight includes the shipping carton.

## SECTION 9

### OUTSIDE LINE TYPE

The following outside line types can be used with the InfoSet system.

- 2-wire, Loop Start Trunks
- ISDN-BRI Trunks

## SECTION 10

### NETWORK & CONTROL

### Transmission, Network & Control Specifications

#### Transmission

- Data Length
  - From Multiline Telephone to ESI(8)-B13 ETU: 23 bits
  - From ESI(3)-B13 ETU to Multiline Telephone: 23 bits
- Data Transmission Rates:
  - Between ESI(3)-B13 ETU and Multiline Telephone: 184K bps (voice and signaling)
- Scanning Time for each Multiline Telephone: 32 ms.

#### Network

Time Division Multiplexing allows transmission of a number of separate data, voice and/or video simultaneously over one communications medium. The information below indicates the specifications the InfoSet system uses for switching, clock, data bus, time-frame.

- TDM Switching: PCM ( $\mu$  Law)
- TDM Clock: 2.048 MHz
- TDM Data Bus: 8 bit
- TDM Time-frame: 125  $\mu$ s

#### Control

This section indicates the speed and capacities of the control.

- Control: Stored program with distributed processing
- Central Processor: 8-bit microprocessor
- Clock: 12.288 MHz
- Sub-processor: 8-bit microprocessor
- Multiline Telephone: 8-bit microprocessor
- SLT Adapter: 4-bit microprocessor

## Telephone

The voltage, current, ring signal information for the InfoSet multiline telephones, single line telephone equipment, and APR units are listed below.

- Multiline Telephone  
Voltage: -11 ⇒ -26 Vdc  
Maximum Current: 250 mA
- Single Line Telephone  
Standard 2500 Set: 500 type network  
Nominal Current: 35 mA  
Ring Signal: 56 Vac RMS @ 20 Hz
- SLT(1)-U13 ADP  
Standard 2500 Set: 500 type network  
Nominal Current: 30 mA  
Ring Signal: 56 Vac RMS @ 20 Hz
- APR-UA Unit  
Standard 2500 Set: 500 type network  
Nominal Current: 30 mA  
Ring Signal: 70 Vac RMS @ 18 Hz

## SECTION 11

### DIALLING SPECIFICATIONS

#### Dial Pulse Address Signaling

Dial Pulse Signaling is a type of address signaling that uses dial pulses (regular momentary interruptions) to signal the equipment. In the InfoSet system, the following Dial Pulse specifications are used.

- Pulse Rate: 10 ± 0.5 pps/20 ± 1.0 pps
- Percent Break: 60 ± 1.5%
- Inter-digit Interval: 10 pps/20 pps 770 ms ⇒ 830 ms

#### Dual-Tone Multifrequency (DTMF) Address Signaling

DTMF signaling is a term that describes push button or Touchtone dialling. When a key on a telephone is pushed, two tones (one high frequency and one low frequency) are provided. In the InfoSet system, the following DTMF specifications are used.

- Frequencies  
Two sinusoidal frequencies are provided, one from the high frequency group and one from the low frequency group.
- Frequency Deviation: Less than ±1.0%
- Signal Level:  
Nominal level per frequency: -6 ⇒ -4 dBm  
Minimum level per frequency: Low Group: -10 dBm  
High Group: -8 dBm  
Maximum level per frequency: 0 dBm

- Rise Time: Within 5 ms
- Duration of Dual Frequency Signal:
  - 110 ms default/60 ms. minimum
- Inter-digital Time: 80 ms default/70 ms minimum

Nominal Low Group Frequencies (Hz)	Nominal High Group Frequencies (Hz)		
	1209	1336	1477
697	1	2	3
770	4	5	6
852	7	8	9
941	*	0	#

## SECTION 12

### EXTERNAL EQUIPMENT CONNECTION

#### Music Sources for Music on Hold via KSU

- Auxiliary Input: 0.6V PPS Signal Level
- Input Impedance: 600 <Symbol>W

#### Music Source for Station Background Music via KSU

- Auxiliary Input: 0.6V PPS Signal Level
- Input Impedance: 6 00 <Symbol>W

#### External Paging (Audio) via KSU

- Output Power: -10 dBm Signal Level
- Output Impedance: 600 <Symbol>W

#### External Tone Ringer/Night Chime Output

- Output Level: -10 dBm
- Output Impedance: 600 <Symbol>W
- Relay Contact Rating: 500 mA, 24 Vdc

#### SMDR Output

- Female Connector (System Output) Standard RS-232C

#### PC Connection

- Female Connector (System Output) Standard RS-232C

#### Relay Contact

- All Relay Contact Ratings: 500 mA, 24Vdc

The Xen Alpha system has battery backup functions for system backup and for memory backup.

### System Backup

During a mains power failure, the system's operation can be backup up using rechargeable batteries. The internally mounted backup batteries can support all system operations for approximately 30 minutes under average conditions. If longer backup duration's are required, larger externally mounted batteries can be connected. The recommended battery size, as shown in *Table 1-5: Internal and External Battery Specifications, Pg 20* below, can support all system operations for approximately 4 hours under average conditions.

**Table 1-5: Internal and External Battery Specifications**

Specification	Internal Battery	External Battery
Weight	350 g	2.6 kg
Terminal Type	Leaded, JST VHR-2N	Leaded, JST VHR-2N
Size: Length	96 mm	151 mm
Width	25 mm	65 mm
Height	62 mm	94 mm
Max. Discharge Current	2.1 A	2.1 A
Voltage Rating	12 V	12 V
Current Capacity	0.7 Ah	6.5 Ah
Minimum Backup Duration	30 Mins	4 Hrs

### CAUTION

Do not short circuit batteries. The battery could explode and cause damage to personnel and equipment.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

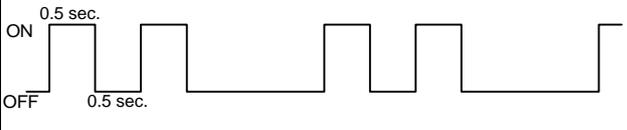
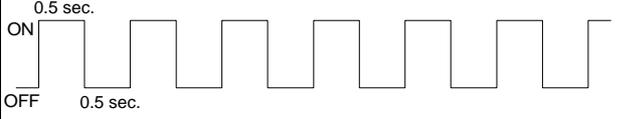
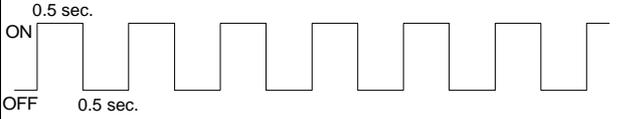
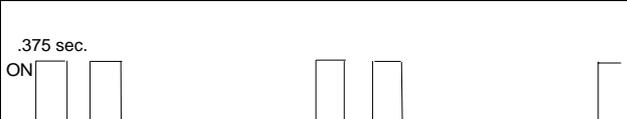
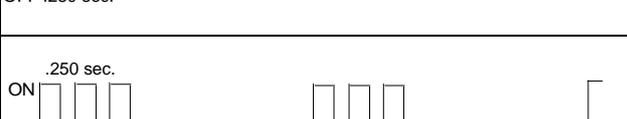
### Memory Backup

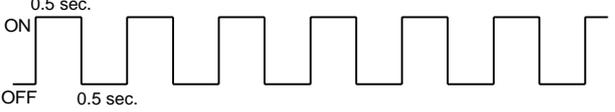
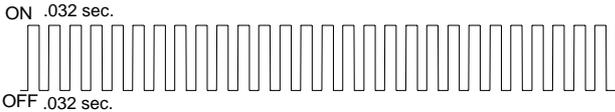
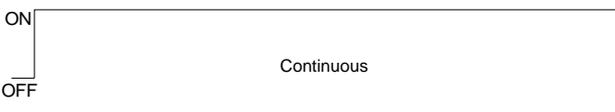
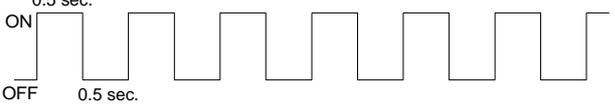
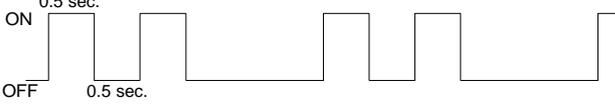
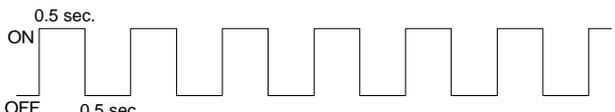
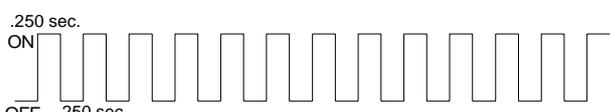
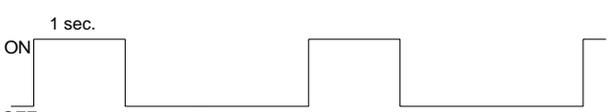
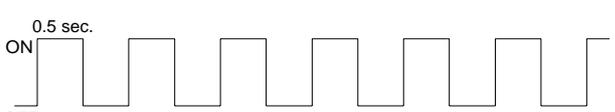
The B614-B13 KSU has a Lithium battery installed to provide backup of system memory. The following functions will be retained for a minimum of 3 months when the battery is fully charged.

- Background Music
- Call Forwarding
- Clock/Calendar
- Do Not Disturb (DND)
- Last CO/PBX Redial
- Message Waiting
- Microphone Status
- Room Monitor
- Speed Dial Memories (System and Station)
- System Programming
- Timed Alarm
- Trunk to Trunk Transfer Destinations
- Volume Control/LCD Contrast

**Tone Patterns Table**

**Table 1-6: Tone Patterns**

System Tone (Fixed)		Frequency (Hz) (Fixed)	Modulation	Cycle
Automatic Callback		500 Hz (I) 540 Hz (D)	N/A	
Barge-In Tone		440 Hz	N/A	
Busy Tone		480 Hz 620 Hz	N/A	
Call Waiting Tone		440 Hz	N/A	
CO/PBX Ring Tone A		High: 1024 Hz/1285 Hz (I) 1100 Hz/1400 Hz (E) Low: 480 Hz/606 Hz (I) 520 Hz/660 Hz (E)	16	
CO/PBX Ring Tone B		High: 1024 Hz/1285 Hz (I) 1100 Hz/1400 Hz (E) Low: 480 Hz/606 Hz (I) 520 Hz/660 Hz (E)	16	
CO/PBX Ring Tone C		High: 1024 Hz/1285 Hz (I) 1100 Hz/1400 Hz (E) Low: 480 Hz/606 Hz (I) 520 Hz/660 Hz (E)	16	
CO/PBX Ring Tone D		High: 1024 Hz/1285 Hz (I) 1100 Hz/1400 Hz (E) Low: 480 Hz/606 Hz (I) 520 Hz/660 Hz (E)	16	
Doorphone 1	Chime Tone	N/A	N/A	
	Busy Chime Tone	1400 Hz/1100 Hz (I & E)	N/A	

System Tone (Fixed)		Frequency (Hz) (Fixed)	Modulation	Cycle
Doorphone 2	Chime Tone	N/A	N/A	
	Busy Chime Tone	1024 Hz (I) 1100 Hz (E)	N/A	
Hold Alarm		1024 Hz (I) 1100 Hz (E)	N/A	
Howler Tone		2400 Hz (I & E)	16 100% AM	
Incoming Dial Tone		360 Hz/440 Hz (I & E)	N/A	
Incoming Ring Transfer		480 Hz/606 Hz (I) 520 Hz/660 Hz (E)	16	
Internal Ring Tone		500 Hz (I) 540 Hz (E)	N/A	
Key Tone		1100 Hz (I & E)	N/A	
Recall Tone		1024 Hz (I & E)	N/A	
Reorder Tone		480/620 Hz	N/A	
Ringback Tone for External Speaker CO/ PBX Ring Tone		440 Hz/480 Hz (I & E)	N/A	
Ringing Transfer Alarm		1024 Hz (I) 1100 Hz (E)	N/A	
Set Tone 1		800 Hz (I & E)	N/A	

System Tone (Fixed)	Frequency (Hz) (Fixed)	Modulation	Cycle
Set Tone 2	500 Hz (I) 540 (E)	N/A	
Timed Alarm	1024 Hz (I) 1100 Hz (E)	N/A	
Tone Override	500 Hz (I) 540 HZ (E)	N/A	
Trunk Queuing	500 Hz (I) 540 HZ (E)	N/A	

# Multiline Terminal Flash Patterns Table

Table 1-7: Multiline LED Patterns

LED	Condition	Col.	Flash Pattern				
Line Key	I-Use	Green					
	Busy	Red					
	Incoming Call	Red	—	—	—	—	—
	I-Hold	Green	—	—	—	—	—
	Call Hold	Red	—	—	—	—	—
	Hold Recall	Green	—	—	—	—	—
	Transfer Recall	Green	—	—	—	—	—
Microphone	ON	Red					
	Monitored	Red					
ICM	I-Use	Red					
	ICM Incoming Call	Red	—	—	—	—	—
Large LED	Incoming Internal Call	Red	—	—	—	—	—
	Incoming CO Line	Green	—	—	—	—	—
	Voice Mail Message	Red	—	—	—	—	—
Speaker	ON	Red					
	System Data Entry	Red					
	Monitor	Red					
Conference	Conference in Progress	Red					
	All Conference Circuits in Use	Red					
	Hold Conference Call	Red	—	—	—	—	—
	ICM Call Hold	Red	—	—	—	—	—
	SPD Confirmation	Red	—	—	—	—	—
Answer	Incoming Trunk	Red	—	—	—	—	—
	Preset	Red					
Call	Trunk Selected	Green					
	Preset	Red					
	No Trunks Available	Red					
Function	Callback Set	Red	—	—	—	—	—
	DND, Call FWD	Red	—	—	—	—	—
	Auto Redial Set	Red	—	—	—	—	—
	ON (to Set Function)	Red	—	—	—	—	—
LNR/SPD	CO Line Key Seized	Green					
	Exclusive Hold	Green	—	—	—	—	—
BLF or DSS Key	Use, Hold, ICM Called	Red					
	DND, Call Fwd All Set	Red	—	—	—	—	—
	Special Mode (While pressing FNC key or going off-line)	Red	—	—	—	—	—

0                      0.5                      1.0                      1.5                      2.0 sec

## DSS/BLF LED Indications Table

Table 1-8: DSS/BLF LED Indications

Function	Colour	Status
Idle		OFF
Talking	Red	ON
Hold	Red	ON
FWD All & DND	Red (flashing)	ON
Other Use (Multiline Terminal is in off-line mode, the station user is programming, Feature Access/One-Touch Key programming, etc.)	Red (flashing)	ON





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## SECTION 1

### GENERAL INFORMATION

This section provides the requirements for installing the system. The installer should be familiar with this section before installing the system.

## SECTION 2

### SITE PREPARATION

The technician should plan the installation before actual work begins. Advanced planning will minimize time, cost and disruption of the customer's business activities. Additional benefits include flexibility for changes and expansion, efficient maintenance and increased customer satisfaction.

### Precautionary Information

**The following warnings shall be observed during installation:**

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.

### Site Survey

In most cases, a survey of the customer's premises is needed to develop cost estimates of the installation. Preliminary information is used to determine the placement of the Main Distribution Frame (MDF). A second visit to the site may be necessary to obtain the exact dimensions of the area selected for MDF, cable lengths and possible IDF (intermediate Distribution Frame) locations.

### Site Limitations

Installation of a telephone system is seldom a routine procedure. The uniqueness of each customer's situation requires a **tailored** approach to each job. In selecting a permanent site for the MDF, the technician may encounter problems such as, but not limited to the following:

- Limited space is available and must be used regardless of its suitability.
- The available space may be adequate, but may pose one or more environmental hazards.
- The proposed location has limitations. Such as insufficient lighting or the lack of a suitable ground for grounding the KSUs.

Whatever the nature of the adversities encountered, the technician must make the necessary decisions to arrive at the best possible solution for installing the equipment. It is beyond the scope of this document to cover all possible situations, precautions and actions.

## Site Selection Conditions

### KSU Installation Site

The following conditions should be met at the site selected for the KSU.

- The KSUs should be wall mounted to protect against accident or flooding.
- The KSU should not be located directly beneath pipes, due to the possibility of leaks or condensation causing damage to the equipment.
- The area where the KSU is to be located must be free of corrosive and inflammable gases, excessive chemical or industrial dusts and other materials that could cause a hazard to personal or to the proper functioning of the equipment.
- Operating ambient temperature and humidity must be within the limits specified in **Section 2.6 – Environmental Conditions** in this chapter.
- The operation of the system is virtually noiseless and allows a wide selection of installation sites. Care should be taken to ensure the KSUs do not present a hazard to office traffic. For purposes of economy, a central location to minimise cabling is often used.
- The basic KSU weighs approximately 4 Kg. Select a strong wall for mounting purposes.
- Place the KSU according to the following spacing specifications
  - Space distance between the KSU and the ceiling: 50 cm or more
  - Space distance on both sides of the KSU: 30 cm or more
  - Space distance on front of KSU: 50 cm or more
- Avoid connection of the KSU to an AC receptacle used in common with any other device (computer, facsimile machine, copier, etc.)
- Ensure that any AC Outlet to be connected is properly grounded.
- Avoid connection of KSU near radio receivers or electrical noise generators (e.g. welding equipment, machinery).

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### CAUTION

1. The socket outlet shall be installed near the equipment and shall be easily accessible.
2. Plug the system into the mains supply (240 V ac) before terminating a telecommunications network conductor to the system.
3. Danger of explosion if batteries are incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturers instructions

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### Multiline Telephone Installation Site

The following conditions should be met at the site selected for MLTs.

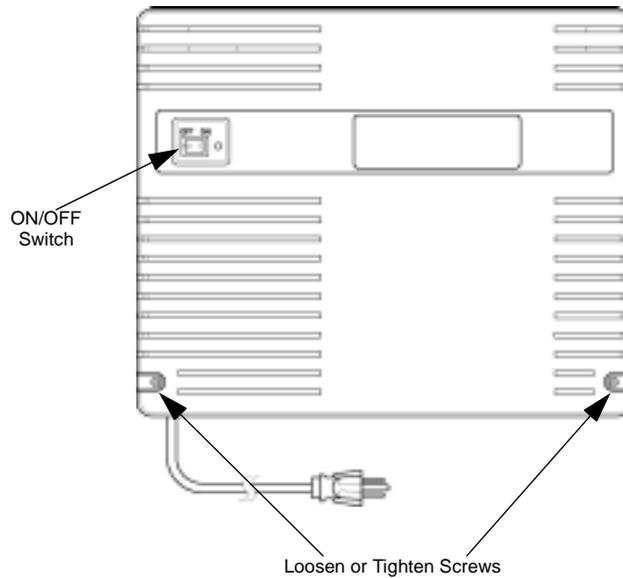
- Ensure the cable length and line resistance (loop), between the KSU and the telephones comply with the specifications shown in Table 1-1: Multiline Telephone Loop Resistance and Cable Length
- Some devices require an external power supply. Select a place where they can be easily connected to an AC outlet.
- Telephones intended for handsfree use should be kept away from areas subject to loud noise or echoing.



## Removing the KSU Cover

Before wall mounting the KSU, the KSU cover must be removed. Below is a diagram showing how to remove the cover of the KSU.

1. Remove the cover by loosening the two bottom screws with a philips head screwdriver (the screws remain in the cover to keep from misplacing them). Pull the cover away from the KSU and lift upward.



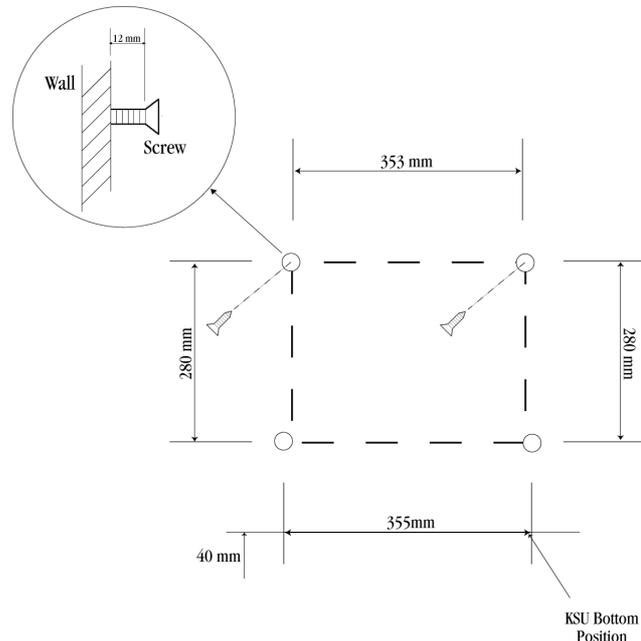
**Figure 2-2: How to Remove the KSU Cover**

2. To replace the cover, locate the tabs on the top of the cover into the slots in the top of the base and then push the bottom of the cover inwards. Tighten the two cover screws.

## Wall Mounting the KSU

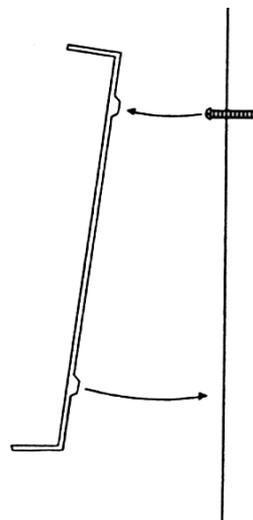
Before wall mounting the KSU, it is recommended that the wall mounting screws be attached to the piece of plywood (13 mm thick or more) or attached to a sturdy wall.

1. Using two of the four screws (provided with the KSU) attach the wall mount template to the wall. (Refer to *Figure 2-3: Attaching the Wall Mounting Bracket for the KSU to the Wall*, Pg 27.)



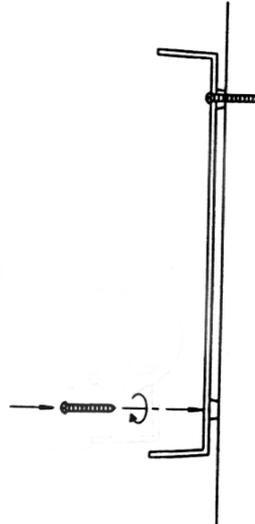
**Figure 2-3: Attaching the Wall Mounting Bracket for the KSU to the Wall**

2. While holding the KSU, hang the upper two openings that are located in the KSU base over the wall mount template. (Refer to *Figure 2-4: Attaching the KSU to the Wall Mount Template*, Pg 27.)



**Figure 2-4: Attaching the KSU to the Wall Mount Template**

- Using the other two provided screws, secure the KSU to the wall mount template by screwing the lower two openings located in the KSU base. (Refer to *Figure 2-5:: Securing the KSU to the Wall Mount Template, Pg 28.*)

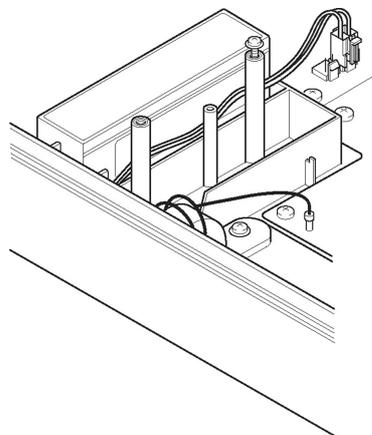


**Figure 2-5: Securing the KSU to the Wall Mount Template**

### **Installing or Replacing the Internal Backup Batteries**

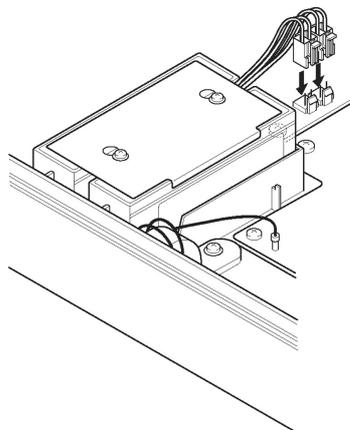
These batteries provide power for the system in case of a power outage. Fully charged batteries provide power for approximately 30 minutes.

- Be sure the system is turned **off** during the installation process.
- Remove the cover by loosening the two bottom screws with a philips head screwdriver (the screws remain in the cover to avoid misplacing them). Pull the cover away from the KSU and lift upward.
- Remove the screw that is attached to the grounding cable and loosen the second screw that secures the metal plate to the batteries. Slide the metal plate until it clears the remaining screw and lift upward to remove the metal plate.
- If replacing existing batteries, detach the battery cables from the connector terminals CN3 (BATT1) and CN4 (BATT2). Lift out the old batteries.
- Insert the new batteries into the slots. Place the notched end of the battery toward the casing on the KSU. Place the battery cables between the inside of the battery and the posts located on the inside of the battery casing.



**Figure 2-6: Inserting a New Battery in the KSU Unit**

6. Replace the metal plate on top of the new batteries. Place the grounding cable on top of the hole and tighten the screw using a philips head screwdriver.
7. Attach the battery connectors to CN3 (BATT1) and CN4 (BATT2) battery terminals. Insert the battery connectors over either battery terminal. The connector tab should be placed over the terminal tab. There is only one direction the tabs can be placed into the connector terminals, therefore you cannot attach them incorrectly.



**Figure 2-7: Attaching the Battery Connectors**

8. Attach the cover and tighten the screws.
9. Turn the power on.

---

### **IMPORTANT SAFEGUARDS FOR BATTERY DISPOSAL**

DO NOT PLACE USED BATTERIES IN YOUR REGULAR TRASH! THE PRODUCT YOU PURCHASED CONTAINS A NICKEL-CADMIUM OR SEALED LEAD BATTERY. NICKEL-CADMIUM OR SEALED LEAD BATTERIES MUST BE COLLECTED, RECYCLED OR DISPOSED ON IN AN ENVIRONMENTALLY SOUND MANNER.

The incineration, land filling or mixing of nickel-cadmium or sealed lead batteries with the municipal solid waste stream is **PROHIBITED BY LAW** in most areas. Contact your local solid waste management officials for other information regarding the environmentally sound collection and disposal of the battery.

---

### **CAUTION**

Do not short circuit batteries. The battery could explode and cause damage to personnel and equipment.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

---

## Connecting External Backup Batteries

1. Disconnect the Built-in Backup Battery Cables from CN3 and CN4 on the Power Supply. Position the loose battery cables safely inside the KSU.
2. Mount the external battery into the External Battery Cabinet (AKB-A-ZD KTU), as follows:

**Note:** Two batteries must be connected per KSU and each cabinet houses just one battery.

- a.) Remove the four cover screws.
- b.) Pass the battery cables through the hole in the left side of the cabinet and connect to the battery terminals.

**Note:** RED CABLE TO  $\oplus$   
BLUE CABLE TO  $-$

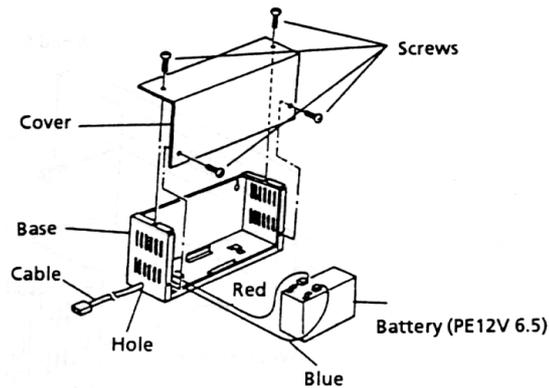


Figure 2-8:

- c.) Mount the battery into the cabinet and secure it using the U-shaped bracket with two screws.

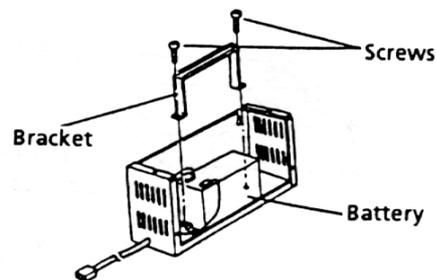


Figure 2-9:

- d.) Secure the battery cables using the grommet supplied.

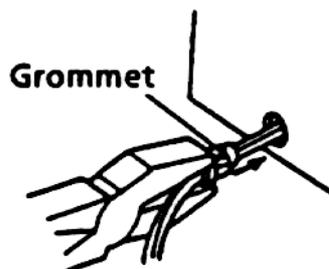
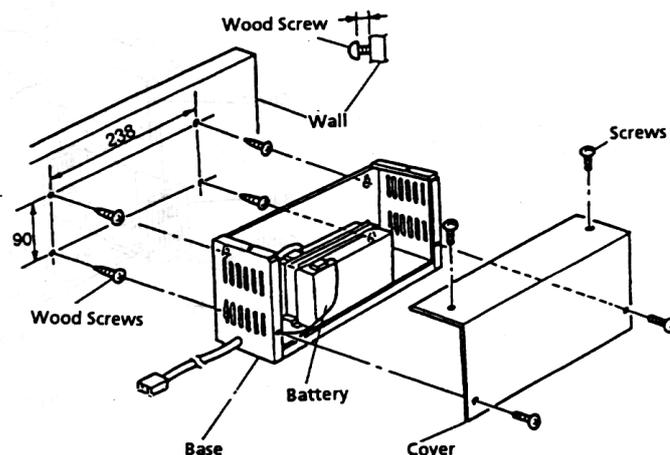


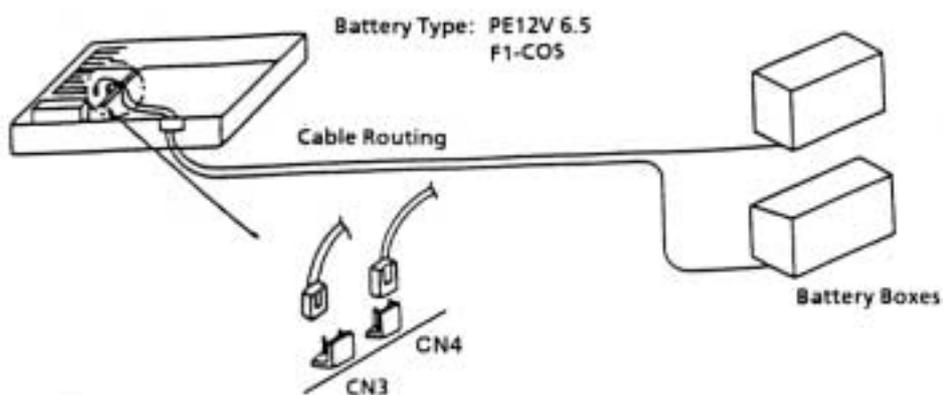
Figure 2-10:

3. Mount the two External Battery Cabinets close to the KSU using the wood screws supplied and replace the cover using the four screws. (Refer to *Figure 2-11:: Mounting the External Battery Cabinet, Pg 31.*)



**Figure 2-11: Mounting the External Battery Cabinet**

4. Connect the two external cable assemblies to CN3 and CN4 on the power supply. (Refer to *Figure 2-12:: Connecting External Batteries, Pg 31.*)



**Figure 2-12: Connecting External Batteries**

## Grounding Requirements

The KSU must be properly grounded. This can be achieved by a correctly wired AC outlet. If there is any uncertainty, obtain advice from a licensed electrical contractor. Where a ground (other than conduit ground) is used, a grounding terminal is provided on a B614-B13 KSU. (Refer to *Figure 2-13:: KSU Grounding, Pg 32.*)

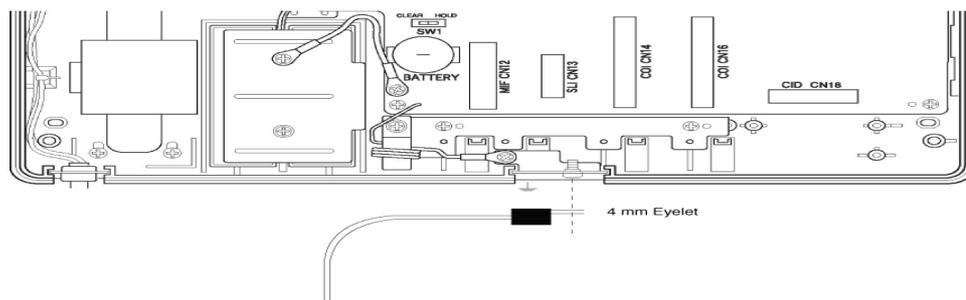


Figure 2-13: KSU Grounding

## Connecting the B614-B13 KSU

The CPU is the central processing unit (CPU). An 8-bit microprocessor executes the programs stored on the ROM ICs to control the whole system, while transferring data to and from other KTUs.

The KSU consists of a main control section and a Time Division Switch (TDSW) section. It also has an external ringer interface six 4-party conference circuits, two CO/PBX interfaces, six station interfaces and two power failure transfer circuits.

The RAM memory, on the CPU is back up with a non-rechargeable lithium battery which will retain the memory for up to 18 months.

## Switch Settings

Before programming System Data, the non-rechargeable lithium battery must be switched on (SW1→HOLD) to allow memory content retention in case of a power failure or brownout. Failure to activate the backup battery circuit may result in System Data being reset to the default values, the status of all stations will reset to the default values and the data programmed on the station may clear if a power failure or brownout occurs. (If programming using a Multiline Terminal, refer to Chapter 2, Programming in this manual for instructions.)

👉 **NOTE:** Wait at least 30 seconds after turning on system power before changing memory switch SW1 from CLEAR to HOLD.

When the KSU is removed for long term storage, switch off the lithium battery (SW1→CLEAR). This will prevent the battery from constantly discharging. The battery, when fully charged will retain memory contents for a minimum of three months. (Refer to *Figure 2-14:: KSU Switch Settings, Pg 33* and *Table 2-1: KSU Switches and Connections, Pg 33.*)

To clear the system memory, use the following procedure.

1. Turn system power OFF.
2. Change SW1 to CLEAR position.
3. Turn system power ON.

- After waiting at least 30 seconds, change SW1 to HOLD position.



**Figure 2-14: KSU Switch Settings**

**Table 2-1 KSU Switches and Connections**

Name	Default Setting	Description/Purpose
SW1	CLEAR	System Memory Battery Backup (Hold/Clear)
CN1	ST 1⇒6	ESI Station Ports 1⇒6
	EXT.SPK	External Paging Speaker
	MOH/BGM	Music on Hold and Background Music Source
CN2	CO 1⇒2	Analogue Trunks 1⇒2
	FAX/PFT 1⇒2	Fax or Power Fail Transfer Ports 1⇒2
CN3	RLY	External Paging Amplifier or External Ringer Control Relay
CN4	ESI	ESI(8)-B13 ETU
CN5	DPH	DPH-B13 ETU
CN6	VRS	VRS-B13 ETU ( <i>Future Use</i> )
CN7	VMS	VMS(2)-B13 ETU
CN8	TRF	TRF-B13 ETU
CN9	PBR	PBR-B13 ETU
CN11	External ROM	Flash ROM Card
CN12	MIF	MIF-B13 ETU
CN13	SLI	SLI(2)-B13 ETU
CN14	COI	COI(2)-B13 ETU
CN15	BRT	BRT(1)-B13 ETU
CN16	COI	COI(2)-B13 ETU
CN17	BRT	BRT(1)-B13 ETU
CN18	CID	CID(2)-B13 ETU
CN20	PSU	Power Supply CN103

## Telephone Connections

The B614-B13 ETU supports the connection of 6 digital extensions via CN1. Each port requires a single twisted pair cable and the connection is not polarity conscious. (Refer to *Figure 2-15:: Telephone Connection, Pg 34*)

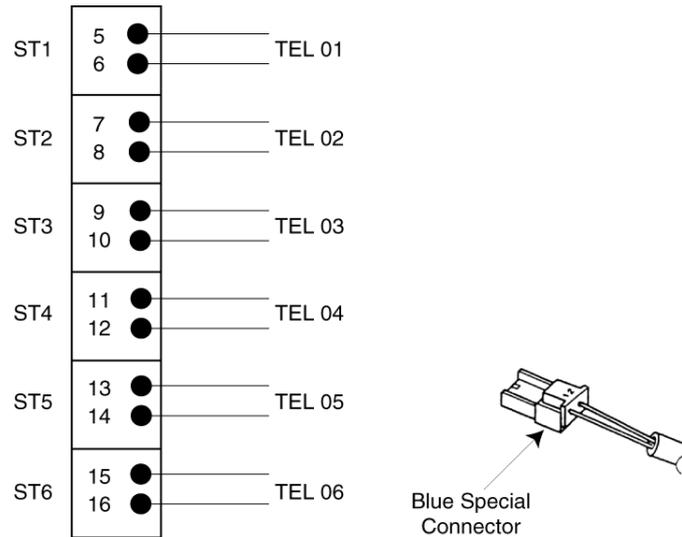


Figure 2-15: Telephone Connection

## Exchange Line connection

The B614-B13 ETU supports the connection of 2 analogue exchange lines (Central Office or PABX) via CN2. This 2-wire connection is not polarity conscious. (Refer to *Figure 2-16:: Exchange Line Connection, Pg 34.*)

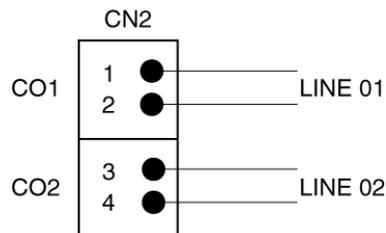


Figure 2-16: Exchange Line Connection

## Power Fail Telephone and Fax Connection

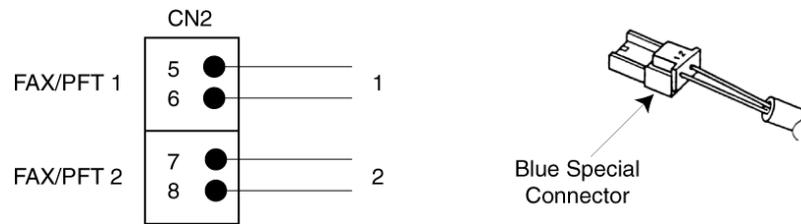
The B614-B13 ETU supports the connection of 2 analogue telephones via CN2 for use during period of power failure (i.e. when AC power is lost and the system backup batteries are depleted). Connection of each 2 wire analogue telephone is shown in *Figure 2-17:: Power Fail Telephone and Fax Connection, Pg 35*. In the event of a power failure the analogue telephones are connected immediately to a CO/PBX line as follows:

FAX/PFT1 → CO1  
(CN2, pins 5-6)

FAX/PFT2 → CO2  
(CN2, pins 7-8)

A detailed explanation of the operation and usage of Power Fail Telephones is given at the end of Section 5.

If not required as power fail telephone ports, the FAX/PFT ports of CN2 can be used to connect other analogue equipment such as faxes and modems. These devices can make and receive calls as per the normal operation, when the associated trunks are not in used by other users of the system. Note that each device is dedicated to a trunk (CO1 or CO2) as indicated above. Any activity by these devices will be shown as a busy trunk status on the handsets of other users on the system.



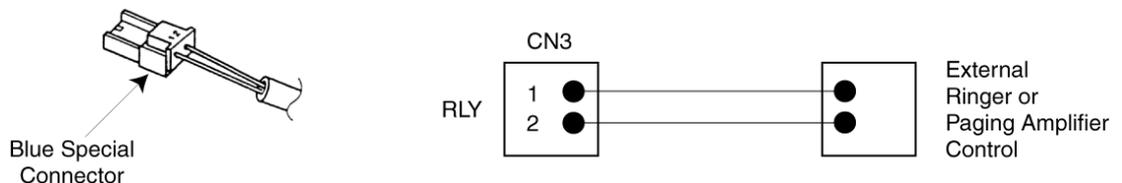
**Figure 2-17: Power Fail Telephone and Fax Connection**

### External Ringer and External Paging Control connection

The B614-B13 ETU supports the connection of an External Ringer, via CN3-RLY, which can be used to activate a locally supplied loud sounding alarm. This alarm can be programmed to sound while an incoming CO/PBX, DID or DIT call is ringing and is ideal for large or noisy areas, or for the hearing impaired. The output of CN3 is a no-voltage relay contact operation with the following specifications.

Cadence (Cycle): 1 second ON (closed)/2 seconds OFF (open)  
 Maximum Voltage: 24 Vdc  
 Maximum Current: 200 mA

Alternatively, CN3-RLY can be programmed to operate as an External Paging Amplifier Controller. In this mode, the relay of CN3 will close when an external page is initiated and will remain closed until the page is terminated. This no-voltage signal can be used to turn on (and off) the locally supplied external paging amplifier. But not that the voltage and current limits shown above will always apply!



**Figure 2-18: External Ringer Connection**

### External Speaker Connection

The B614-B13 ETU provides one pre-amp level output for connection of an External Paging System. This paging system would include as a minimum, a Line Isolation Unit, Audio Amplifier and Speaker. As well as external paging, this speaker may also be used as alert upon incoming external calls.

If On/Off control of the amplifier is required, Memory Block 001-0 must be set. Then when an External Page is performed, that control relay will close providing a dry indication to the amplifier. (Refer to External Ringer and External Paging Control connection.)

If a Paging Alert Tone is required to precede each External Paging message, Memory Block 002-3 must be set.

The paging equipment terminates onto the EXT.SPK connector of CN1 using a Special Connector. If amplifier on/off control is required, this terminates onto the General Purpose Relay connector (CN3-RLY), again using a Special Connector.

Connection of this equipment must be via a Line Isolation Unit with a Telecommunications compliance label. The Bateford Electronics Model BE-104 is an example.

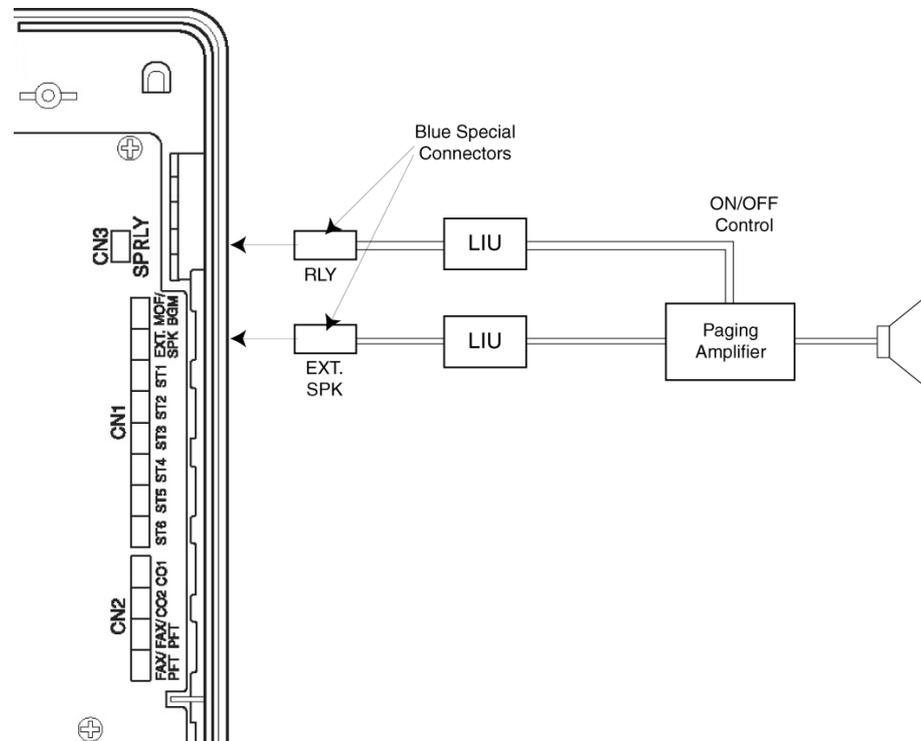


Figure 2-19: External Paging Connection

### External Music-On-Hold (MOH)/Background Music (BGM) Source Connection

The B614-B13 ETU can be used to connect an external music source for use with the Music-On-Hold and Background music facilities e.g. radio, CD player or tone source.

Connect two wires from the music source to the MOH/BGM connection of CN1 (using a Blue Special connector). This is not polarity sensitive.

Adjust the music source to a suitable level by making an internal call, placing it on Hold and listening to the music whilst adjusting the output level of the music source itself.

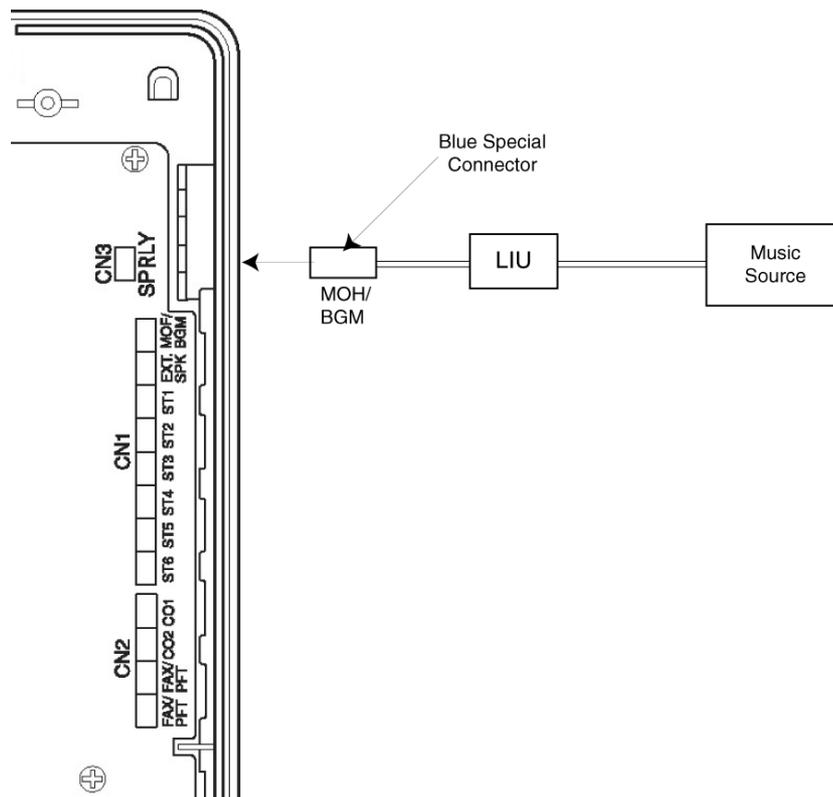


Figure 2-20: MOH/BGM Source Connection

### External ROM Card

To upgrade the main system software of the Xen Alpha you will need an External ROM card and an EPROM containing the new software. The ROM card can be used to upgrade many systems and can be reused as new software versions are released by fitting a new EPROM.

Preparing the ROM Card:

1. Carefully remove the ROM card from its packaging, using a wrist strap connected to protective earth to avoid static discharge.
  2. Mount the new EPROM onto the ROM card into socket ICI.
- ☞ **NOTE:** Check for correct orientation of the EPROM and ensure that all pins are properly aligned over the socket before firmly pushing in the EPROM.

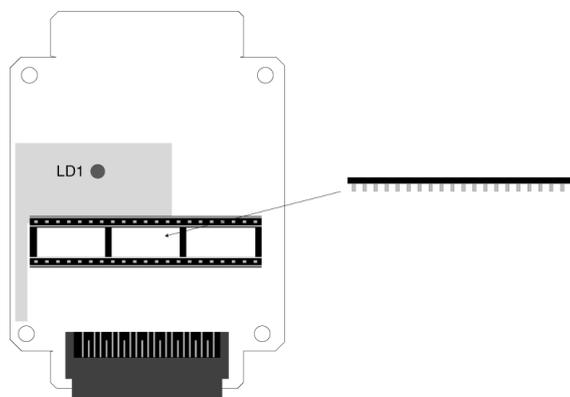
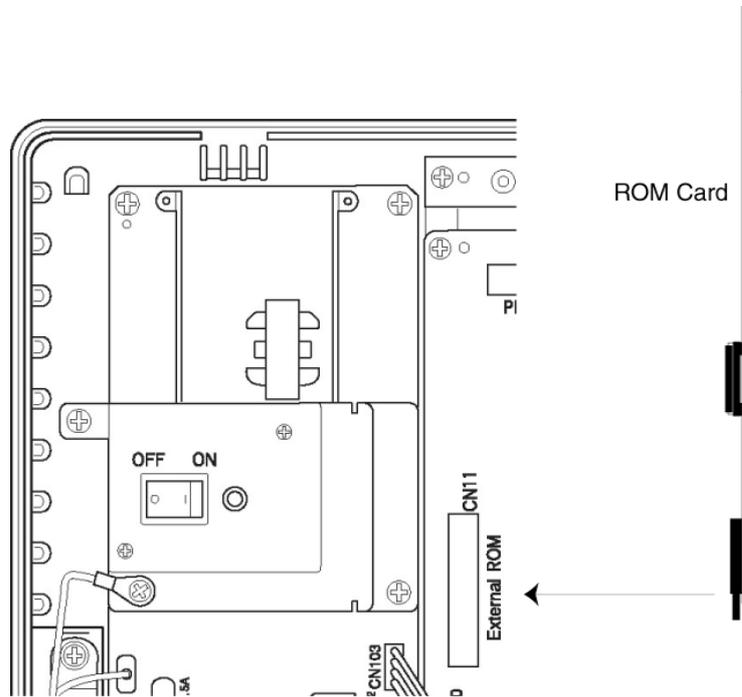


Figure 2-21: External ROM Card

To upgrade a Xen Alpha system:

1. Use PC Programming, download and 'save to disk' the current system setup.
2. Switch the system OFF.
3. Remove the cover from the KSU.
4. Locate connector CN11 (marked **External ROM**) on the mainboard and plug the ROM card into it.



**Figure 2-22: Inserting the External ROM Card**

5. Turn the system ON. LED LD1 on the ROM card and the LIVE LED on the mainboard will light red. The ROM LED on the mainboard will flash red to indicate that the program is in the process of being transferred.
6. Once the ROM LED has stopped flashing, turn the system OFF and remove the ROM card.
7. Replace the KSU cover.
8. Turn the system ON.
9. Using PC Programming, upload the saved system setup.

## SECTION 4

### INSTALLING AN ELECTRONIC TELEPHONE UNIT ETU

#### General Information

#### Installation Precautions

Before installation of the KTUs, observe the below precautions.

1. To prevent accidental damage to equipment, the power must be OFF during installation and maintenance.
2. The KTUs used in this system make extensive use of CMOS technology. CMOS technology is very susceptible to static; therefore **extreme care** must be taken to avoid static discharge when handling KTUs.

#### KTU Installation

Be sure to mount the KTUs in the correct position inside the KSU. Make any connections and switch settings on the KTUs before inserting them in the KSU. Also refer to *Figure 2-23: Installing a Vertically Mounted KTU, Pg 39.*)

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#### CAUTION

When a KTU is installed or removed, ensure that the power switch of the KSU is in the OFF position.

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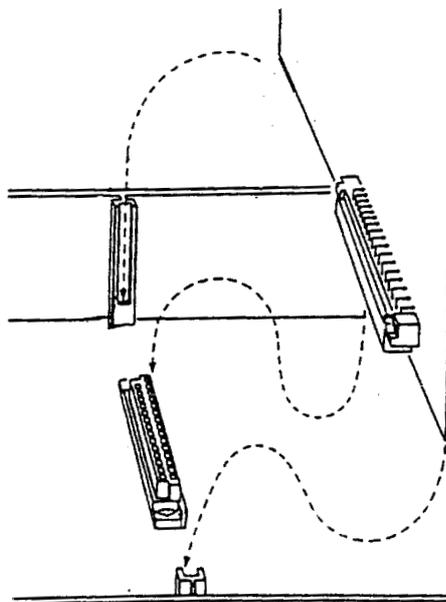


Figure 2-23: Installing a Vertically Mounted KTU

## Interface ETUs

### ESI(8)-B13 ETU

The ESI ETU is an interface for Multiline Telephones and SLT Adapters and allows a further eight such devices to be connected to the system. One ESI(8)-B13 ETU can be installed in the system, providing a total of 14 Multiline telephones. These ESI ports are arranged as follows:

Mainboard (Built-in ESI) → Extension Ports 01 to 06

ESI(8)-B13 ETU (CN4) → Extension Ports 07 to 14

To install the ESI(8)-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Locate connector CN4 (marked ESI) on the mainboard and slide the ETU between the posts. Press the ETU down firmly to lock into place.
5. Using a philips head screwdriver, secure the ETU to the KSU by tightening the screw captive in the metal bracket on the ETU.
6. Run the ESI cabling from the ETU to the external MDF. A single twisted-pair is required for each connection and this is not polarity sensitive. Crimp the special connector supplied to each cable pair.
7. Replace the KSU cover.
8. Turn the system ON.
9. Program the system as required, although the additional ports are automatically assigned default values.

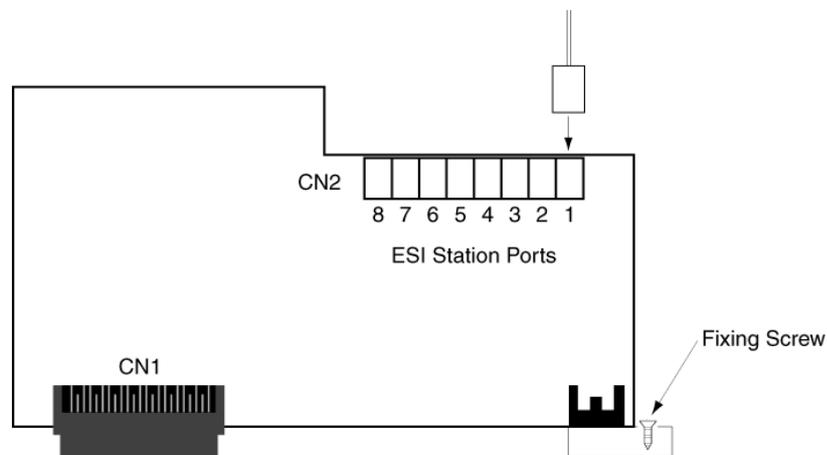


Figure 2-24: ESI(8)-B13 ETU

### SLI(2)-B13 ETU

The SLI ETU is an interface for two Single Line telephones or other analogue devices such as cordless telephones, facsimiles, modems and answering machines. One SLI(2)-B13 ETU can be installed in the system, taking the total number of extension ports to 16. These ports are numbered as follows:

Mainboard (Built-in ESI) → Extension Ports 01⇒06

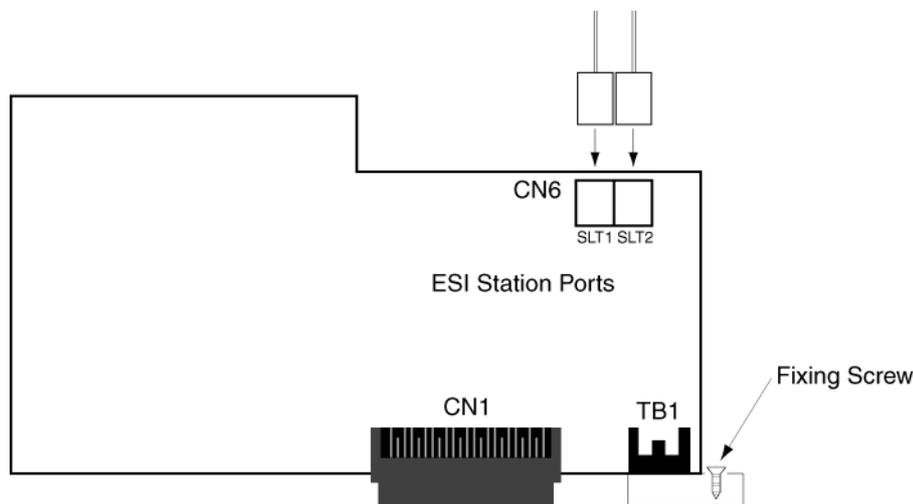
ESI(8)-B13 ETU (CN4) → Extension Ports 07⇒14

SLI(2)-B13 ETU (CN13) → Extension Ports 15⇒16

To install the SLI(2)-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.

3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Using a philips head screwdriver, secure the ETU to the KSU by tightening the screw captive in the metal bracket on the ETU.
5. Run the SLI cabling from the ETU to the external MDF. A single twisted-pair is required for each connection, this is not polarity sensitive. Crimp the special connector supplied to each cable pair.
6. Replace the KSU cover.
7. Turn the system ON.
8. Program the system as required, although the additional ports are automatically assigned default values.



**Figure 2-25: SLI(2)-B13 ETU**

### **COI(2)-B13 ETU**

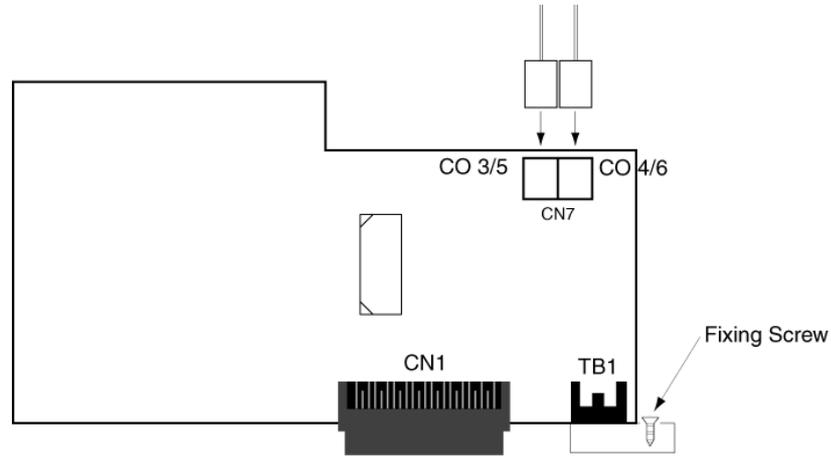
The COI ETU is an interface for two analogue Central Office Trunks (exchange lines) and contains circuitry for ring detection, holding, dialling and control functions. Each Loop Start trunk may be programmed as either DTMF or Decadic dialling. Two COI(2)-B13 ETUs can be installed in the system, providing a total of 6 CO/PBX trunks. These ports are arranged as follows:

- Mainboard (Built-in COI) → Trunk Ports 01 to 02
- COI(2)-B13 ETU (CN14) → Trunk Ports 03 to 04
- COI(2)-B13 ETU (CN16) → Trunk Ports 05 to 06

To install the COI(2)-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Using a philips head screwdriver, secure the ETU to the KSU by tightening the screw captive in the metal bracket on the ETU.
5. Run the COI cabling from the ETU to the external MDF. A single twisted-pair is required for each connection, this is not polarity sensitive. Crimp the special connector supplied to each cable pair.
6. Replace the KSU cover.
7. Turn the system ON.

Program the system as required, although the additional ports are automatically assigned default values.



**Figure 2-26: COI(2)-B13 ETU**

### **CID(2)-B13 Unit**

The CID Unit provides analogue COI trunks with incoming Caller ID indication. Three CID(2)-B13 Units can be installed in the system, one on the mainboard and one on each of the COI(2)-B13 ETUs, providing each of the 6 analogue COI trunks with Caller ID indication. This arrangement is indicated as follows:

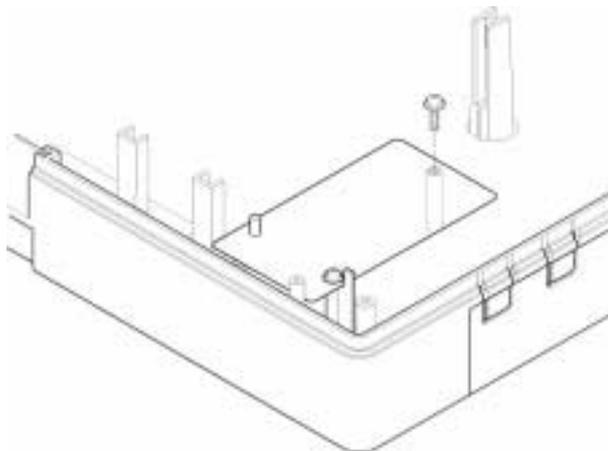
- Mainboard (Built-in COI) → Trunk Ports 01 to 02
- COI(2)-B13 ETU (CN14) → Trunk Ports 03 to 04
- COI(2)-B13 ETU (CN16) → Trunk Ports 05 to 06

To install the CID(2)-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the Unit from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.

To install the COI Ports 1 to 2:

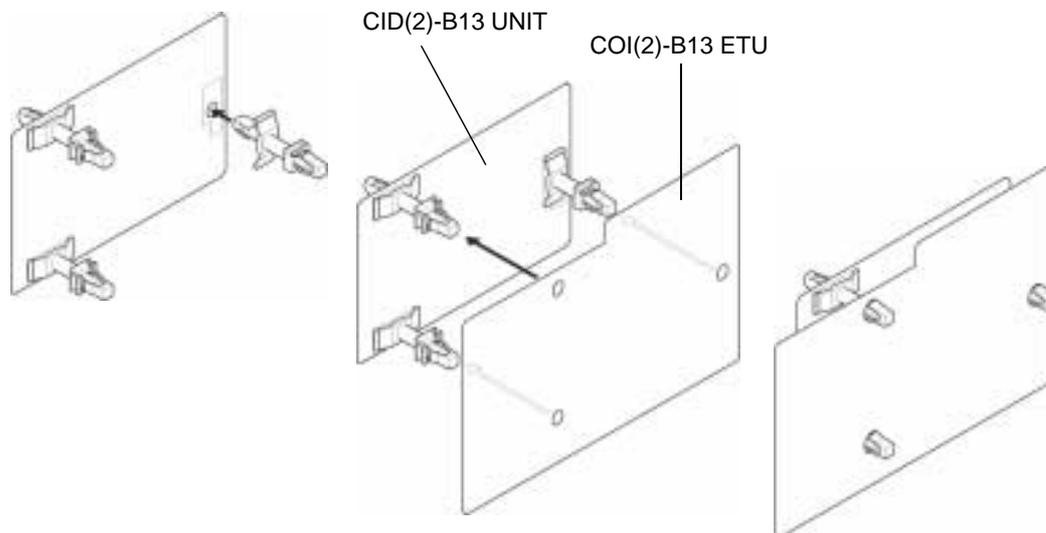
4. Locate connector CN18 (marked CID) on the mainboard, then position the CID Unit over it making sure that the small hole in the CID Unit is aligned with the post on the KSU. Press the unit down firmly to lock it into place and secure with the two screws supplied using a philips head screwdriver.



**Figure 2-27: Mounting the CID(2)-B13 Unit onto the Mainboard**

To install for COI Ports 3⇒4 or 5⇒6:

1. If the COI(2)-B13 ETU is already installed, remove its screw using a philips head screwdriver and then carefully remove the board from its slot.
2. Attach the three plastic stand-offs supplied to the CID Unit by pressing the large flanged end into the hole in the CID Unit. Place these onto the side of the Unit where connector CN1 is located.
3. Locate connector CN2 (marked CID) on the COI ETU, then position the CID Unit over it making sure that the stand-offs on the CID Unit are aligned with the holes in the COI ETU. Press the two boards together firmly to lock into place each standoff and the mating connectors.
4. Reinstall the COI ETU into the KSU. (Refer to *COI(2)-B13 ETU, Pg 41.*)



**Figure 2-28: Mounting the CID(2)-B13 Unit onto the COI(2)-B13 ETU**

5. Replace the KSU cover.
6. Turn the system ON.

### **BRT(1)-B13 ETU**

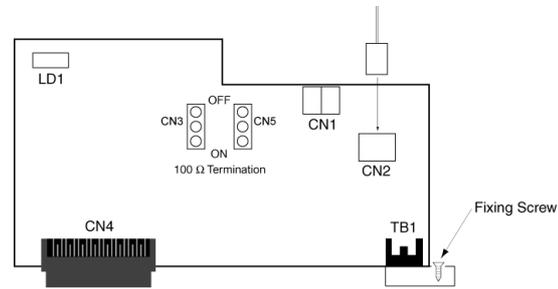
The BRT ETU provides an interface for one ETSI compliant, Point-to-Multipoint, Basic Rate ISDN service. This digital service supplies two 64 kbps channels, which can each carry a voice call. Therefore providing the system with two trunks. Two BRT(1)-B13 ETUs can be installed in the system, providing a total of 6 CO/PBX trunks. These ports are arranged as follows:

Mainboard (Built-in COI) → Trunk Ports 01 to 02  
BRT(1)-B13 ETU (CN15) → Trunk Ports 03 to 04  
BRT(1)-B13 ETU (CN17) → Trunk Ports 05 to 06

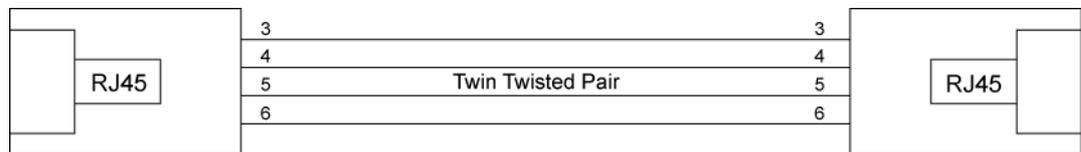
To install the BRT(1)-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Locate connector CN15 or CN17 (marked BRT) on the mainboard and slide the ETU between the posts. Press the ETU down firmly to lock into place.
5. Using a philips head screwdriver, secure the ETU to the KSU by tightening the screw captive in the metal bracket on the ETU.

6. Run the BRT cable from the ETU to the external NT-1 (the interface box installed by the ISDN service provider). A twin twisted-pair cable is required, terminated at each end with an RJ-45 plug in a 1-1 configuration. CAT-5 or similar cable is recommended. (Refer to *Figure 2-30:: BRT(1)-B13 ETU Connection Cable, Pg 44.*)
7. Replace the KSU cover.
8. Turn the system ON.
9. Program the system as required, although the additional ports are automatically assigned default values.



**Figure 2-29: BRT(1)-B13 ETU**



**Figure 2-30: BRT(1)-B13 ETU Connection Cable**

## Optional ETUs

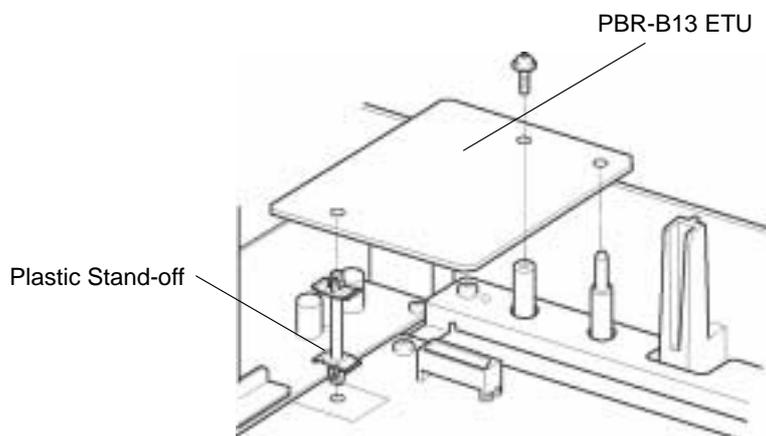
### PBR-B13 ETU

The Push Button Receiver (PBR) ETU detects and translates DTMF dialling tones generated by single line telephones, faxes, modems etc., connected to the system via the SLI(2)-B13 ETU, APR-UA Unit or the FAX Port. One PBR-B13 ETU can be installed in the system, providing 4 PBR circuits.

To Install the PBR-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Attach the plastic stand-off (supplied) to the PBR ETU by pressing the large flanged end into the hole in the lower left of the ETU. Place this onto the side of the ETU where connector CN1 is located.
5. Locate connector CN9 (marked PBR) on the mainboard, then position the PBR ETU over it making sure that the stand-off on the ETU and the post on the KSU are both properly aligned. Press the ETU down firmly to lock into place the stand-off and the mating connectors.
6. Secure the PBR ETU with the screw supplied using a philips head screwdriver.
7. Replace the KSU cover.

- Turn the system ON.



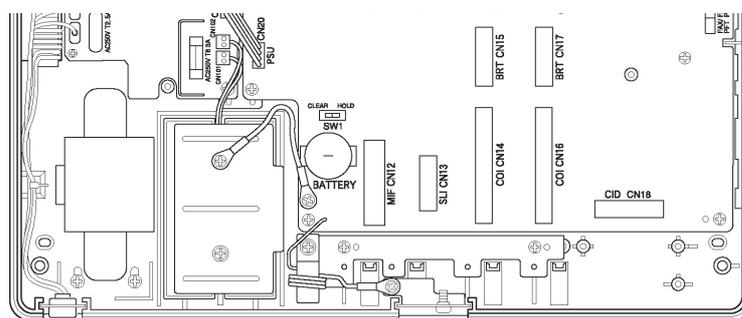
**Figure 2-31: PBR-B13 ETU**

### MIF-B13 ETU

The MIF-B13 ETU provides one RS-232 port and additional memory to support the PC Programming and Station Message Detail Recording (SMDR) facilities. One PBR-B13 ETU can be installed in the system.

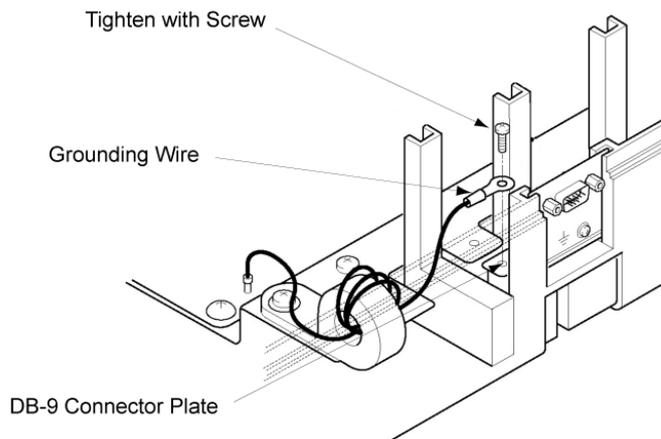
To install the MIF-B13 ETU:

- Ensure that the system is turned OFF.
- Remove the cover from the KSU.
- Remove the ground place (located at the bottom of the KSU) by removing its crew located inside the KSU.



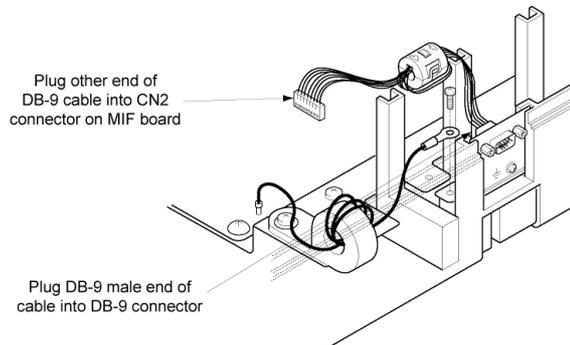
**Figure 2-32: Removing the Ground Plate**

- Place the green grounding wire on top of the DB-9 plate (supplied) and tighten with the original screw.



**Figure 2-33: Mounting the DB-9 Plate**

5. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
6. Locate connector CN12 (marked MIF) on the mainboard and slide the ETU between the posts. Press the ETU down firmly to lock into place.
7. Using a philips head screwdriver, secure the ETU to the KSU by tightening the screw captive in the metal bracket on the ETU.
8. Plug the 8-way connector on the end of the DB-9 CABLE into CN2 on the MIF ETU. Plug the male DB-9 end of the serial cable connecting to your PC or Printer into this DB-9 socket on the KSU.



**Figure 2-34: Connecting the DB-9 Cable**

9. Replace the KSU cover.
10. Turn the system ON.
11. Program the system as required.

**RS-232C Interface Specifications:**

Baud Rate: SMDR – 1200, 2400, 4800\*, 9600 bps  
 PS Programming – 19200 bps (fixed)

Data Length: 8 bits

Stop Bits: 1\*, 2 bits

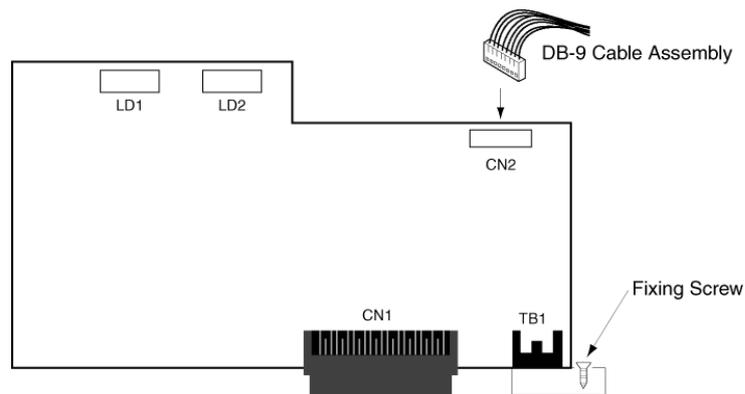
Parity: None

Flow Control: XON/XOFF

(\* = Default Setting)

**RS-232C Cable Requirements:**

Straight RS-232C serial cable terminated with male DB-9 connector at one end. The other end of the cable will be terminated to suit the connected equipment (i.e. printer, PC, etc.).



**Figure 2-35: MIF-B13 ETU**

## DPH-B13 ETU

The Door Phone (DPH) ETU provides connection for two Door Phone units and two Door Lock Release devices. Use only the NEC DP-D-1D Door Phone Unit. A suitable third-party door lock release device must be locally supplied. One DPH-B13 ETU can be installed in the system.

To install the DPH-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Locate connector CN5 (marked DPH) on the mainboard and slide the ETU between the posts.
5. Using a philips head screwdriver, secure the ETU to the KSU by tightening the screw captive in the metal bracket on the ETU.
6. Run the cabling for the door phones and door lock releases from the ETU to the external MDF. A single pair is required for each connection, and this is not polarity sensitive. Crimp the special connector supplied to each cable pair.
7. Replace the KSU cover.
8. Turn the system ON.
9. Program the system as required.

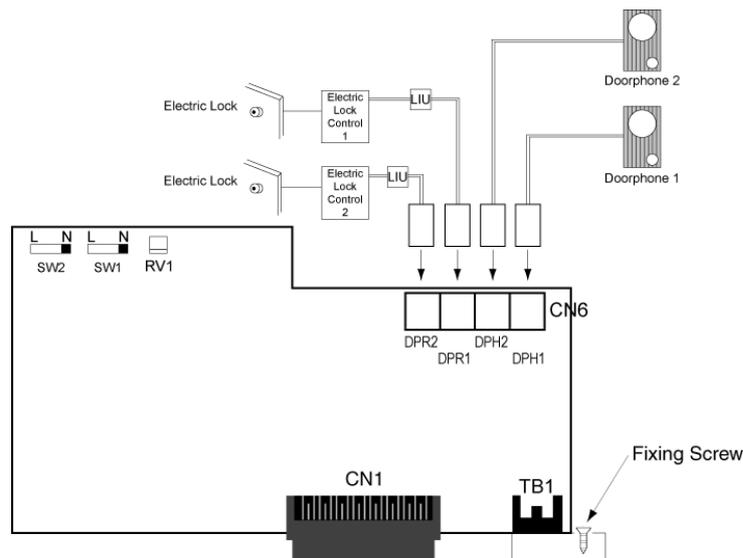


Figure 2-36: DHP-B13 ETU

## Door Phones

Switches SW1, SW2 and RV1 allow the volume levels between the doorphone units and the KSU to be adjusted. Adjust these switches as required to achieve optimal door phone performance. (Refer to *Table 2-2: DPH-B13 ETU Switch Settings, Pg 48.*)

**Table 2-2 DPH-B13 ETU Switch Settings**

Function	Reference	Default	Settings
Volume Adjustment: Telephone to Doorphone	SW1	NORMAL	This adjustment effects DP1 & DP2. NORMAL: Normal Volume LOUD: Increased Volume
Volume Adjustment: Telephone to Doorphone	SW2	NORMAL	This adjustment effects DP1 & DP2. NORMAL: Normal Volume LOUD: Increased Volume
Balance Adjustment: Between DP1 & DP2	RV1		Turn RV1 to adjust the Sidetone of the doorphone call. Lower the Sidetone if howling occurs in either the telephone or doorphone.

When the Door Phone button is pressed, one of two tones is produced at the assigned telephones (ports 01 and 02 as default).

### Connections:

Wiring to each Door Phone requires a single-pair cable, to a maximum Loop Resistance of 20  $\Omega$ . Connections DPH1 and DPH2 are not polarity sensitive.

## Door Lock Release

While on a Door Phone call, the telephone user can enter an Access Code to operate the associated Door Lock Release momentarily so that the caller can enter the door.

### Connections

Connection between terminals DPR1, DPR2 and the door lock device is via a single pair cable, not polarity sensitive. A dry contact closure is provided to the external device.

Connection of door lock release equipment must be via a Line Isolation Unit with a Telecommunications compliance label. The Batesford Electronics Model BE-104 is an example.

### TRF-B13 ETU

The Trunk Transfer (TRF) ETU allows an analogue trunk to be used as the incoming or outgoing trunk in a Call Forward External operation. Note that the outgoing trunk must be provided with Line Reversal on Answer by the service provider. The TRF ETU is not required however, if both trunks are ISDN. One TRF-B13 ETU can be installed in the system, providing one trunk transfer circuit.

To install the TRF-B13 ETU:

1. Ensure that the system is turned OFF.
2. Remove the cover from the KSU.
3. Carefully remove the ETU from its packaging, using a wrist strap connected to the frame ground on the KSU to avoid static discharge.
4. Locate connector CN8 (marked TRF) on the mainboard and slide the ETU between the posts. Press the ETU down firmly to lock into place.
5. Replace the KSU cover.
6. Turn the system ON.
7. Program the system as required.

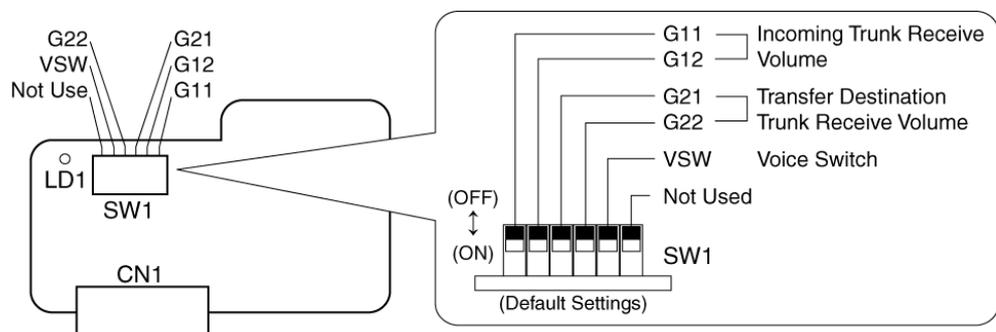


Figure 2-37: TRF-B13 ETU

### Trunk Transfer Speech Volume Adjustment

Refer to *Table 2-3: TRF-B13 ETU Switch Settings, Pg 50*, and *Table 2-4: CO/PBX Line Loss Compensation, Pg 50* if speech volume during a transferred call is too low.

When operating with Auto Level Control and Voice Switches OFF, take note of the following points during transmission tests. If satisfactory settings cannot be achieved under the following conditions, operate with the Voice Switch ON.

1. If the incoming trunk receiving volume is too low, change the G11/G12 switch setting to one level higher.
2. If the transfer destination trunk receiving volume is too low, change the G21/G22 switch setting to one level higher.
3. If the incoming trunk receiving signal contains a 'booming' noise, change the G11/G12 switch setting to one level lower.
4. If the transfer destination trunk receiving signal contains a 'booming' noise, change the G21/G22 switch setting to one level lower.

### CAUTION

1. Depending on line conditions, speech levels may decrease during trunk transfer.
2. Hold tones may become distorted when the Voice Switch is ON.

**Table 2-3 TRF-B13 ETU Switch Settings**

Item	Switch	Default	Setting
Voice Switch Usage	Voice Switch (VSW)	ON	<p>ON: Transmitter/receiver switching as in a transceiver.</p> <p>*Use same setting for destination trunk receiving volume switch and incoming trunk receiving volume switch.</p> <p>*If speech volume cannot be adjusted using the procedure below, set switch to ON.</p>
Speech Volume Control for Trunk Transfer	Incoming Trunk Receiving Volume Switch	G11:OFF G12:OFF	<ul style="list-style-type: none"> <li>• Refer to Table <i>Table 2-4: CO/PBX Line Loss Compensation, Pg 50</i> for details.</li> <li>* Adjust transfer destination trunk and incoming trunk speech volume during a trunk transferred call.</li> <li>• Set receiving volume level according to line loss (in dBm) in the circuit up to the exchange line destination point.</li> </ul>
	Outgoing Trunk Transmit Volume Switch	G21:OFF G22:OFF	

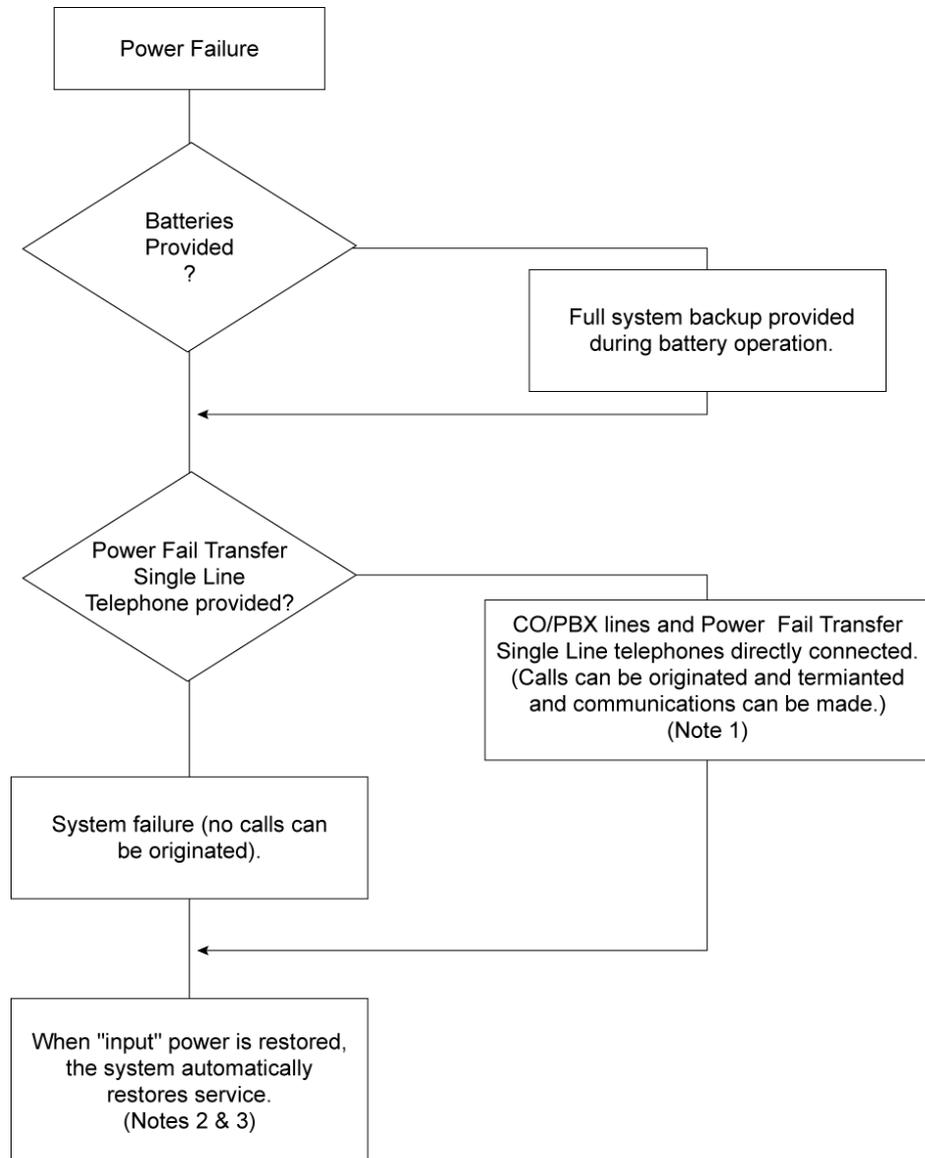
**Table 2-4 CO/PBX Line Loss Compensation**

Level	CO/PBX Line Resistance	Compensation Level	Incoming Trunk Receive Volume		Outgoing Trunk Transmit Volume	
			G11	G12	G21	G22
4	1281 $\Rightarrow$ 1880 $\Omega$ (9.0 $\Rightarrow$ 14.0 dBm)	+12 dBm	ON	ON	ON	ON
3	911 $\Rightarrow$ 1280 $\Omega$ (6.0 $\Rightarrow$ 9.0 dBm)	+9 dBm	ON	OFF	ON	OFF
2	551 $\Rightarrow$ 910 $\Omega$ (3.0 $\Rightarrow$ 6.0 dBm)	+6 dBm	OFF	ON	OFF	ON
1	<550 $\Omega$ (<3.0 dBm)	+3 dBm	OFF	OFF	OFF	OFF

## Power Failure Backup

### Operation in the Event of a Power Failure

In the event of a power failure, the optional built-in batteries or external batteries (locally provided) provide full backup of the service of the system for a period dependent on the system configuration and service conditions. Two Power Fail Transfer (PFT) Single Line telephone Interface Circuit are built into the KSU. The KSU connects each Single Line Telephone directly to CO/PBX line (01 ans 02) to allow origination and termination of calls. (Refer to *Figure 2-38:: Power Failure Backup Flowchart, Pg 51.*)



**Figure 2-38: Power Failure Backup Flowchart**

- ☞ Note 1: All calls in progress are interrupted when switch over is made to connect the Power Fail Transfer Single Line telephones directly to the CO/PBX Line 1. This occurs after backup batteries have expired.
- ☞ Note 2: If the power switch of the KSU is in the OFF position, the system will not automatically restart service.
- ☞ Note 3: When power is restored, calls in progress on the Power Fail telephones will not be interrupted.

## Operation When Input Power is Restored

When input power is restored, the system automatically resets and restores service.

## Single Line Telephone for Power Fail Transfer

A Single Line telephone can be used as a Power Fail Transfer telephone. (Refer to Power Fail telephone and Fax connection for details.)

### Operating Procedure

To use the Single Line telephone for power fail transfer during a power failure, proceed as follows:

Originating:

1. Lift the handset. (Ensure that dial done is heard.)
2. Dial the desired number.
3. Talk.

Receiving:

1. Receive ringing tone.
2. Lift the handset and answer.

 **Note:** The Single Line telephone, designated for Power Fail Transfer, must match the dialling type of the corresponding CO/PBX line (10 pps, 20 pps or DTMF) where it is connected.

## SECTION 5

### CABLE CONNECTIONS

## General Information

### Connection Requirements

The KSU is connected with each of the Multiline Terminals, Single Line telephones, optional equipment and analogue trunks by a separate twisted-pair cable through the MDF. ISDN connection requires two twisted-pair cables. (Refer to Chapter 2 for details.)

### Cabling Precautions

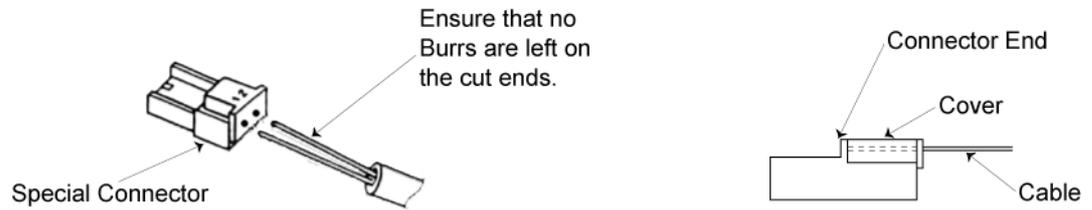
When selecting cables and the MDF, future expansion or assignment changes should be given due consideration. Avoid running cables in the following places:

- A place exposed to wind or rain.
- A place near heat radiating equipment or where the quality of PVC covering could be affected by gases and chemicals.
- An unstable place subject to vibration.
- Close proximity to computers or radio frequency generating equipment.

## Terminating Cables to Special Connectors

When installing a B614-B13, KSU, ESI(8)-B13 ETU, COI(2)-B13 ETU, DPH-B13 ETU or SLI(2)-B13 ETU, the cables must be terminated to the connectors provided in the KTU packing box. The following instructions explain this procedure.

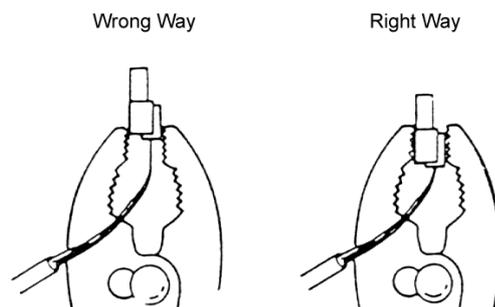
1. Cut the two cables the same length and insert them into the connector. Ensure that each cable has been inserted all the way to the end of the cover. (Refer to *Figure 2-39: Attaching the Cables to the Connector, Pg 53.*)



Adapter Cable		
	Core Diameter	Insulation Diameter
ICT Cable	0.40 mm	0.66 mm
	0.50 mm	0.80 mm
	0.65 mm*	1.20 mm
*Remove insulation from wire before inserting into connector.		

**Figure 2-39: Attaching the Cables to the Connector**

2. Lightly hold the connector with the pliers. In this case, make sure that the crimping portion is held between the lower portion of the jaws of the pliers. (Refer to *Figure 2-40: Holding the Connector with the Pliers, Pg 53.*)



**Figure 2-40: Holding the Connector with the Pliers**

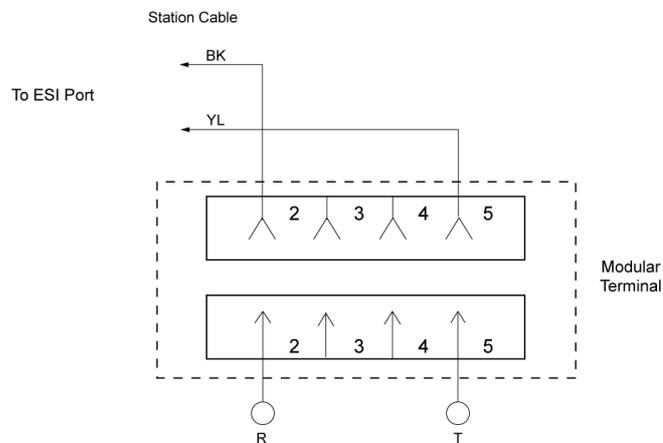
3. Squeeze the pliers to crimp the cables. If the cover is loose, press the cover again with the pliers. Be careful when squeezing the handles of the pliers as excessive pressure may cause damage to the connectors.
4.
  - a) After crimping the leads into the special connectors, insert them into the appropriate socket in the KSU, pushing firmly until the connector snaps securely into position.
  - b) To disconnect the plug from the socket, grasp it firmly using a pair of pliers and pull while holding the unit in place. Do not pull on the wires directly.
  - c) Do not reuse the plugs once they have been clinched as this may result in a poor connection.

## Wiring to the KSU

### Multiline Telephone Connection

When connecting Multiline Terminals to the MDF, individually twisted 1-pair cabling must be used. (Refer to *Figure 2-41:: Multiline Terminal and SLT Adapter Connection, Pg 54.*)

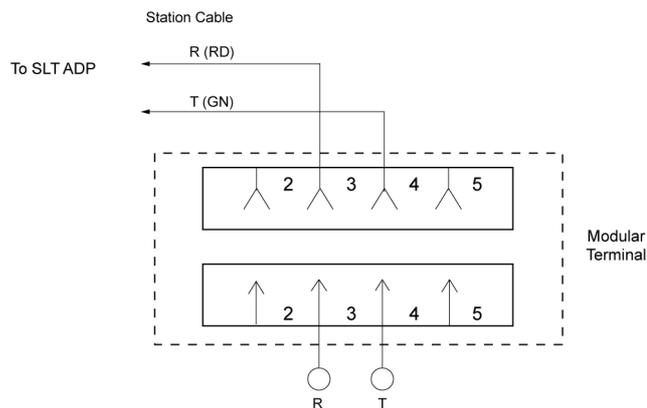
**Note:** Polarity is not critical as the Multiline Terminals are not polarity conscious.



**Figure 2-41: Multiline Terminal and SLT Adapter Connection**

### Single Line Telephone Connection

DTMF or DP dialling and Single Line Telephones can be used to dial within the system. One-pair cabling is required, it is recommended that twisted pair cabling be used. (Refer to *Figure 2-42:: Single Line Telephone Connection, Pg 54.*)



**Figure 2-42: Single Line Telephone Connection**

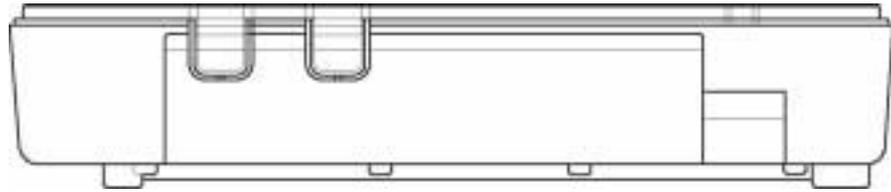
### Outside Lines

CO/PBX lines are connected to this system using twisted pair wiring to cross-connect the lines from the RJ11 termination block to the system.

Do not use half-tapping or parallel connections on outside lines connected to the system.

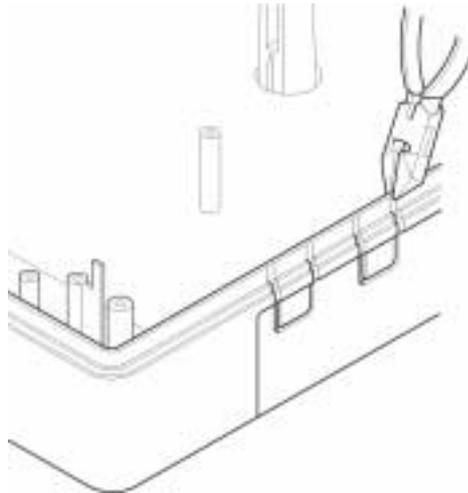
## KSU Cable Routing

All cabling should exit the KSU through the knockout panels on the right hand side. Two knockout panels are provided.



**Figure 2-43: KSU Cabling Knockouts**

Remove one or both of these knockouts as required, using side cutters or other suitable tool, to cut the tabs at the top of the knockout. Once the top is free, move the knockout back and forth until the tab at the bottom breaks free. Remove any burrs using a sharp knife.



**Figure 2-44: Removing the Knockout Panels in the KSU**

Run the cabling from each ETU neatly around the perimeter of the mainboard against the side of the case and exit from the removed knockout(s). Secure cables to side of KSU with the self adhesive cable tie mounts and cable ties supplied (quantity 2).

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## **SECTION 1**

### **GENERAL INFORMATION**

The Xen Alpha system provides a choice of two different DTB-Type Multiline telephones. This chapter describes each terminal and provides applicable installation instructions.

## **SECTION 2**

### **MULTILINE TERMINALS**

#### **DTB-16-1A (WH)/(BK) TEL**

This digital non-display Multiline Terminal is equipped with eight programmable line keys (each with a two-colour LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with ADA-UA, APR-UA, CTA-UA, and HFU-UA Units.

A maximum of 119 DTU-8-1 (WH) TELs can be installed in the Xen Master system and a maximum of 31 in the Xen Axis system.



**Figure 3-1: DTB-16-1A (WH)/(BK) TEL Multiline Telephone**

## DTB-16D-1A (WH)/(BK) TEL

This digital Multiline Terminal has eight programmable line keys (each with the two-colour LED), four softkeys, a built-in speakerphone, headset jack, a Large LED to indicate incoming calls and messages, and compatibility with ADA-UA, APR-UA, CTA-UA and HFU-UA Units.

This terminal is also equipped with a 3-line, 24-character, adjustable Liquid Crystal Display (LCD).



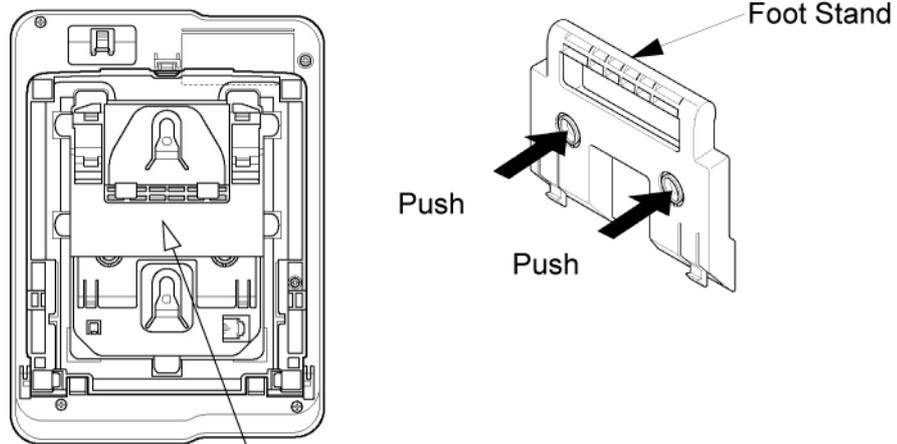
**Figure 3-2: DTB-16D-1A (WH)/(BK) TEL Multiline Telephone**

## SECTION 3

### WALL MOUNTING

The DTB-16-1A (BK)/(WH) TEL and DTB-16D-A1 (BK)/(WH) TEL can be mounted to a wall.

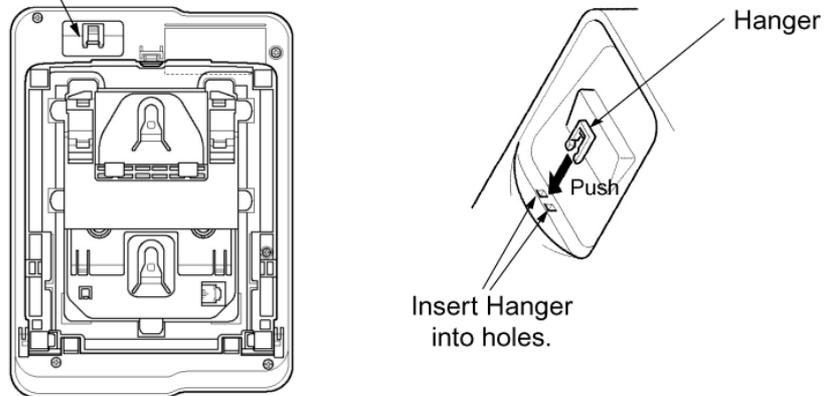
1. Locate the stoppers under the height adjustment stand on the bottom of the telephone. You will need to lift the adjustment stand to expose the foot stand holding the stoppers. Remove the two plastic stoppers from the foot stand by firmly pushing on them.



Lift the adjustment stand to expose the foot stand.

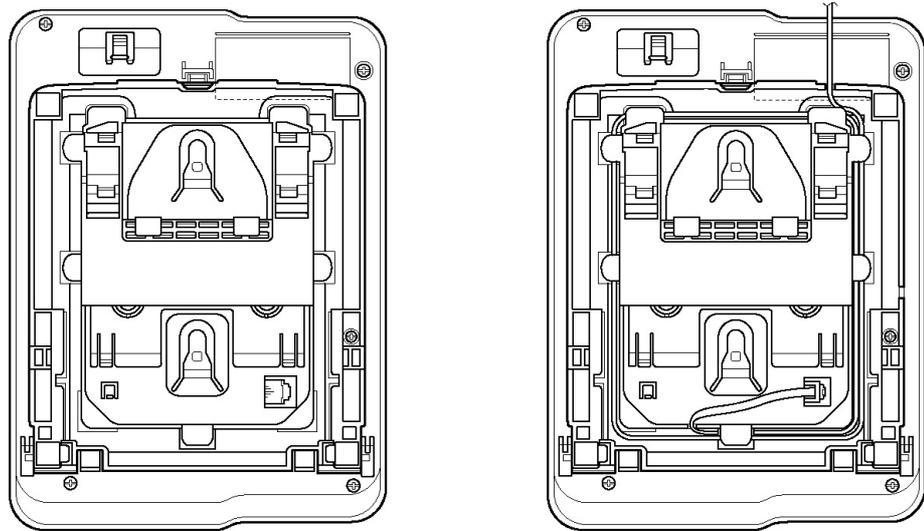
2. Remove the hanger (located on the bottom of the telephone). Insert the hanger into the holes as indicated in the above diagram.

Remove hanger from bottom of telephone.

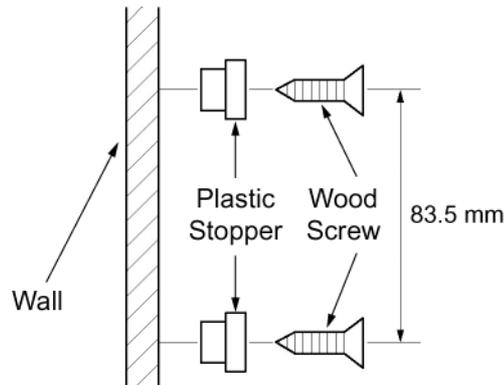


3. Use the wall mounting template (provided) to mark the screw positions on the wall.

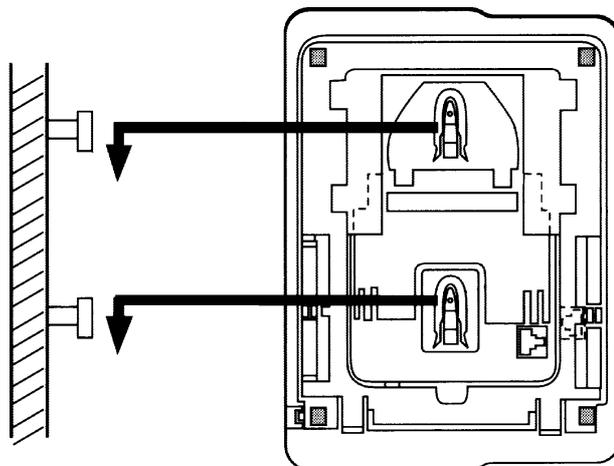
4. Insert one end of the telephone line cord into the RJ-11 jack. Route the cord inside the height adjustment stand as indicated in the diagram. The cord can be wrapped more than once inside the height adjustment stand to shorten the length of cord. The cord can exit either the top of the telephone or the side, depending on the most convenient location of the RJ-11 wall jack.



5. Using a philips head screwdriver, insert the flat head wood screw (provided) into the stopper and fasten to the wall.



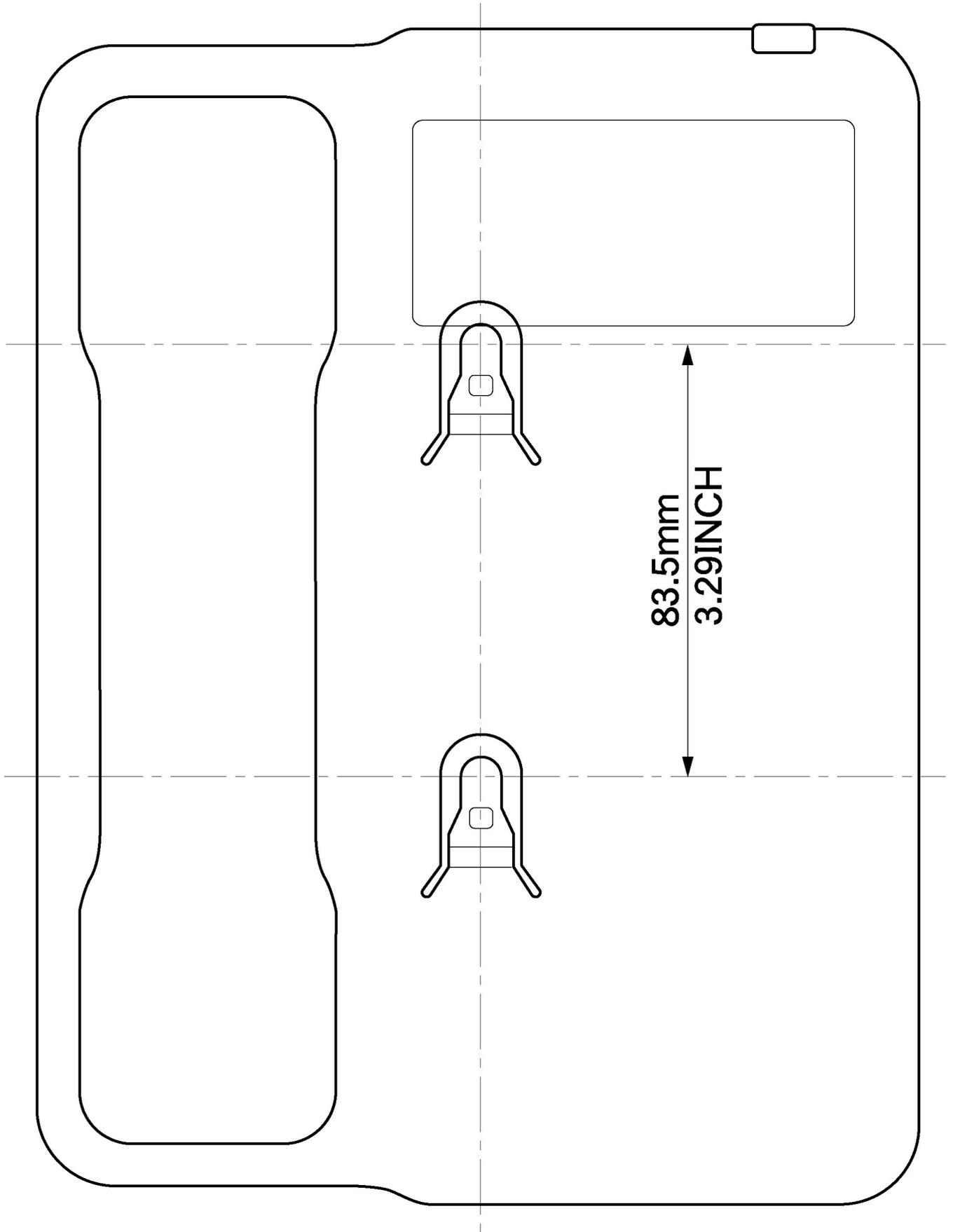
6. to hand the telephone on the wall, place the grooves (located on the bottom of the telephone) over the plastic stopper, which has been fastened to the wall. If the telephone is difficult to mount, you may want to loosen the screws holding the stopper.



7. Insert the other end of the telephone line cord into an RJ-11 jack.

## Wall Mounting Template

Use this template to mark the location of the screws on the wall. (Actual size.)



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## **SECTION 1**

### **GENERAL INFORMATION**

The Xen Alpha system provides four different DTU-Type Multiline Terminals, and several adapters that allow peripheral equipment to be attached to these Terminals. This chapter describes each terminal and adapter, it also provides applicable installation instructions.

## **SECTION 2**

### **MULTILINE TERMINALS**

#### **DTU-8-1A (WH) TEL**

This digital non-display Multiline Terminal is equipped with eight programmable line keys (each with a two-colour LED), a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with ADA-UA, APR-UA, CTA-UA, and HFU-UA Units.

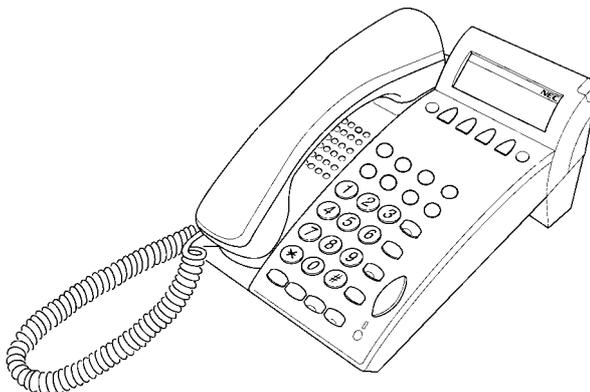


**Figure 4-1: DTU-8-1A (WH) TEL Multiline Terminal**

#### **DTU-8D-1A (WH) TEL**

This digital Multiline Terminal has eight programmable line keys (each with the two-colour LED), four softkeys, a built-in speakerphone, headset jack, a Large LED to indicate incoming calls and messages, and compatibility with ADA-UA, APR-UA, CTA-UA, and HFU-UA Units.

This terminal is also equipped with a 3-line, 24-character, adjustable Liquid Crystal Display (LCD).



**Figure 4-2: DTU-8D-1A (BK)/(WH) TEL Multiline Terminal**

### **DTU-16D-1A (WH) TEL**

This digital Multiline Terminal has 16 programmable line keys (each with a two-colour LED), four softkeys, a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with ADA-UA, APR-UA, CTA-UA, and HFU-UA Units.

This terminal is also equipped with a 3-line, 24-character, adjustable Liquid Crystal Display (LCD).



**Figure 4-3: DTU-16D-1A (WH) TEL Multiline Terminal**

### **DTU-32D-1A (WH) TEL**

This digital Multiline Terminal has 16 programmable line keys (each with a two-colour LED), 16 one-touch keys, four softkeys, a built-in speakerphone, headset jack, a large LED to indicate incoming calls and messages, and compatibility with ADA-UA, APR-UA, CTA-UA, and HFU-UA Units.

This terminal is also equipped with a 3-line, 24-character, adjustable Liquid Crystal Display (LCD).

System software can be changed so this Multiline Terminal can have 24 programmable line keys and 8 one-touch keys.



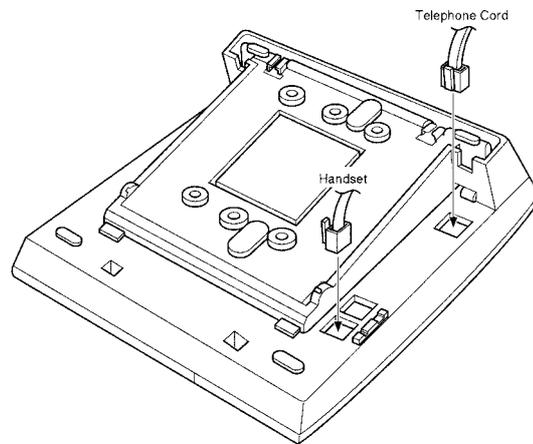
**Figure 4-4: DTU-32D-1A (WH) TEL Multiline Terminal**

## SECTION 3

### CONNECTING A MULTILINE TERMINAL TO THE SYSTEM

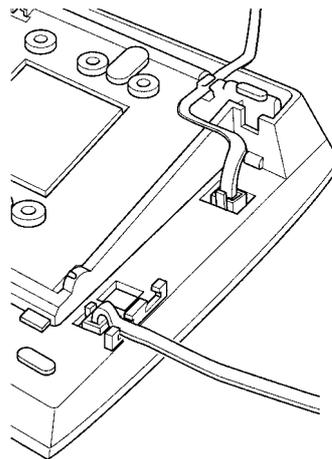
These instructions for connecting a Multiline Terminal to the system applies to all of the DTU-type Multiline Terminals.

1. Plug the telephone cord into the modular jack on the bottom side of the Multiline Terminal. The handset is also attached to the bottom side of the Multiline Terminal.



**Figure 4-5: Connecting a Multiline Terminal to the System**

2. Lead the telephone and handset cords through the appropriate grooves.



**Figure 4-6: Leading Line Cords on a Multiline Terminal**

## SECTION 4

### ADJUSTING THE LCD

The adjustable Liquid Crystal Display (LCD) comes equipped on the display DTU-type Multiline Terminals. The LCD can be adjusted by pushing downward and upward as desired.

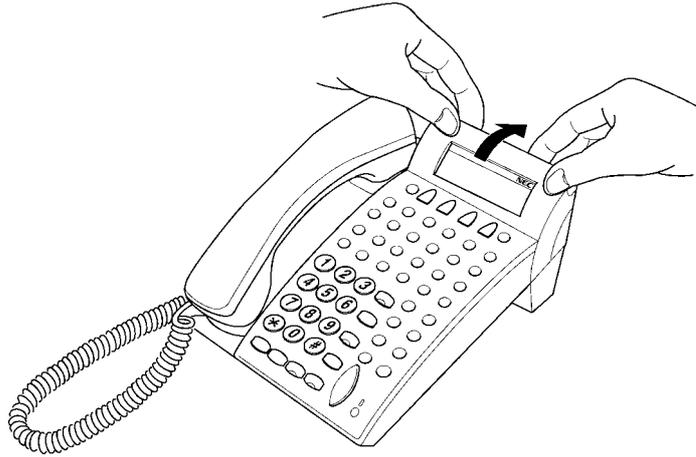


Figure 4-7: Adjusting the LCD

## SECTION 5

### INSTALLING LINE CARDS & PLASTIC PANELS

#### Line Card and Plastic Panel Installation

Line Cards can be used to print the line key designations. These are then placed on the Multiline Terminal providing a quick reference of key designations to the Multiline Terminal users. The Line Cards can be changed as necessary. The Plastic Panel is placed on top of the Line Card to hold it in place.

1. Place the Line Card over the keys on the Multiline Terminal.
2. Place the tabs on the bottom of the plastic panel into the grooves at the terminal bottom, and press top right and left ends to secure plastic panel to the Multiline Terminal. Refer *Figure 4-8: Installing Line Card and Plastic Panel on a Multiline Terminal, Pg 68*.

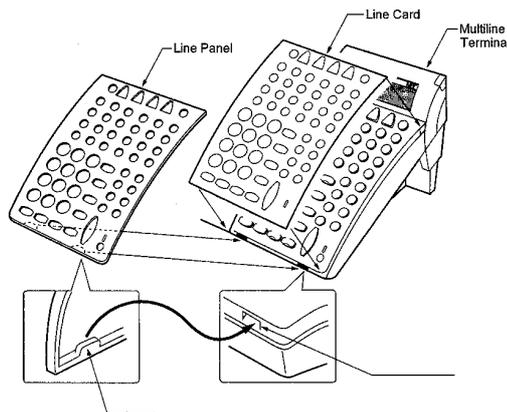
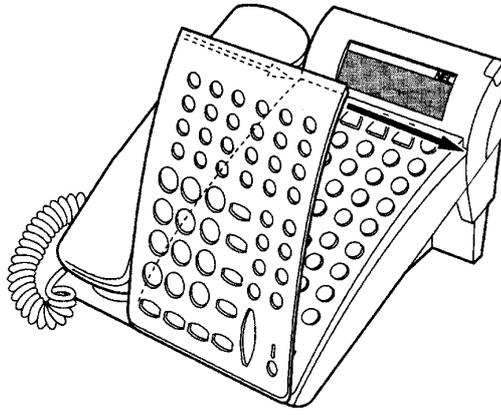


Figure 4-8: Installing Line Card and Plastic Panel on a Multiline Terminal



**Figure 4-9: Installing Plastic Panel**

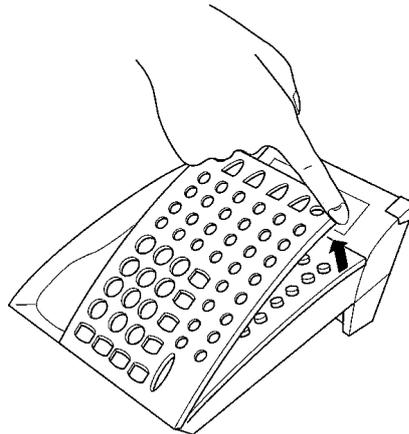
### **Plastic Panel Removal**

Lift the right corner, raise the panel and slide the bottom away from the Multiline Terminal.

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NEVER pull on the bottom of the plastic panel to remove it. Damage to the plastic panel could result

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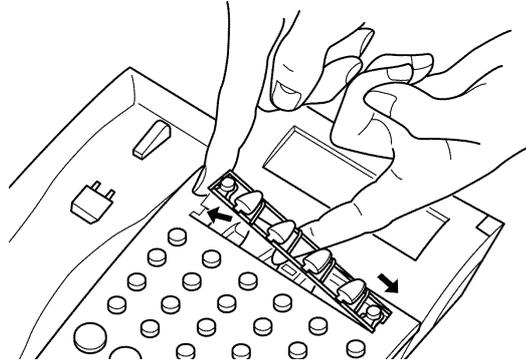
**Figure 4-10: Removing the Plastic Panel from the Multiline Terminal**

## SECTION 6

### REMOVING SOFTKEYS

If softkeys are not going to be used on the Multiline Terminal they can be removed. This section describes the process for removing the keys.

1. Remove the softkeys by pulling the softkey plate upward as shown in *Figure 4-11:: Removing Softkeys, Pg 70.*



**Figure 4-11: Removing Softkeys**

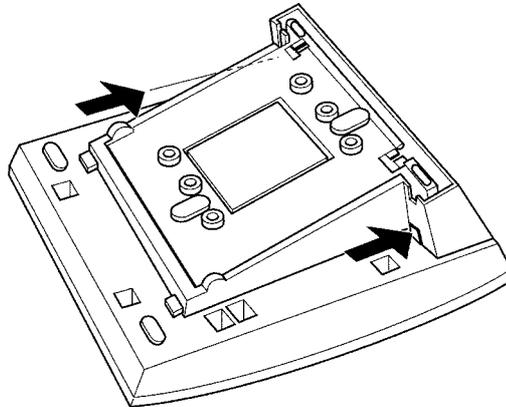
2. Install the plastic panel again.

## SECTION 7

### ADJUSTING THE HEIGHT OF THE MULTILINE TERMINAL

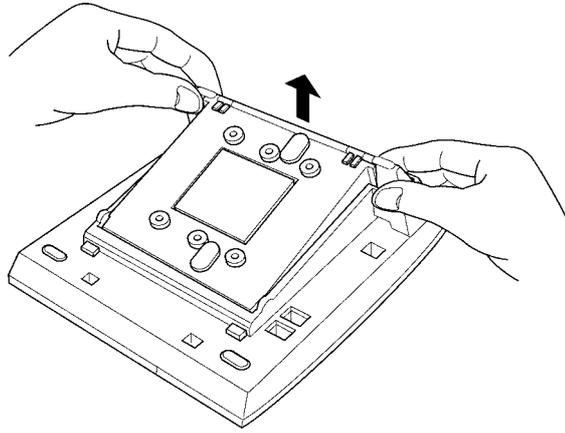
The base plate on DTU-type Multiline Terminals are hinged. The bottom portion can be adjusted up or down to raise or lower the height of the terminal.

1. Turn the Multiline Terminal upside down and locate the tabs as shown in *Figure 4-12:: Locating the Adjustment Tabs on the Multiline Terminal, Pg 70.*



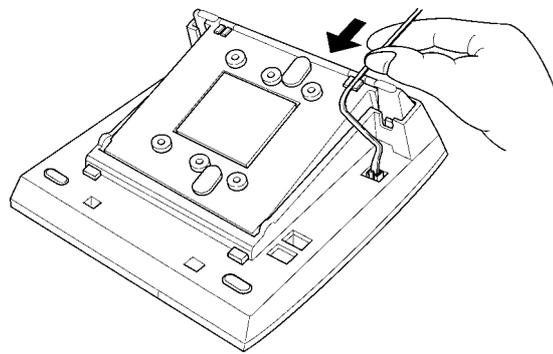
**Figure 4-12: Locating the Adjustment Tabs on the Multiline Terminal**

2. Push the adjustment tabs and raise the base plate until it locks.



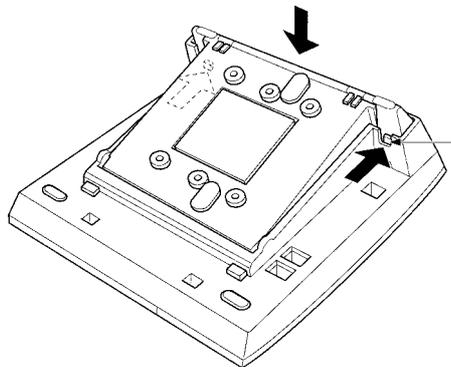
**Figure 4-13: Raising the Base Plate on the Multiline Terminal**

3. The length of the cord can be adjusted by pulling the line cord through the groove in the bottom of the Multiline Terminal.



**Figure 4-14: Adjusting the Line Cord Length**

4. To lower the base plate on the Multiline Terminal, push on the adjustment tabs and push the base plate downward.



**Figure 4-15: Lowering the Base Plate on the Multiline Terminal**

Any DTU-Type Multiline Terminal can be mounted on a wall. Multiline Terminals can be wall mounted by using the base unit that comes with the Multiline Terminal or by using the WMU-UA Unit to accommodate adapters that are installed on the Multiline Terminal.

### Removing and Remounting the Handset Hanger

1. Remove the hanger by sliding it out of the slot.
2. Install it back in its original position so that the hanger protrudes providing a rest for the handset. (This procedure applies when using either the base unit or the WMU-UA Unit.) Refer to *Figure 4-16:: Positioning the Handset Hanger, Pg 72* for the steps for removing and remounting the handset hanger.

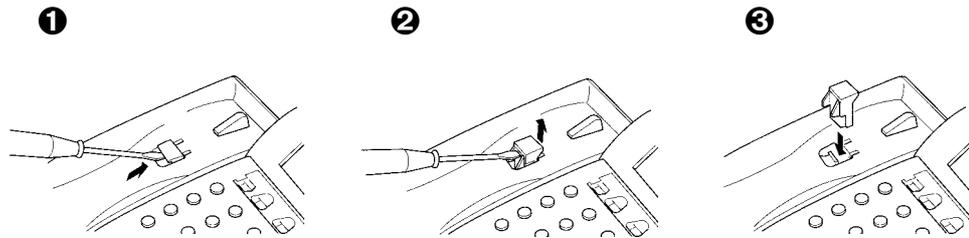


Figure 4-16: Positioning the Handset Hanger

### Wall Mounting, Using the Base Unit

1. Refer to *Section 9: Preparing Multiline Terminal for Adapter Installation, Pg 78*, and perform Steps 1 – 5.
2. Press both sides of the base cover and turn it left to remove it.
3. Rotate base cover 180° and install it again on the Multiline Terminal.
4. Remove the shaded base plate knockout shown on *Figure 4-17:: Removing the Knockout, Pg 72*

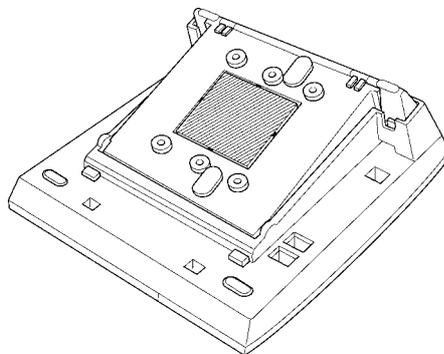
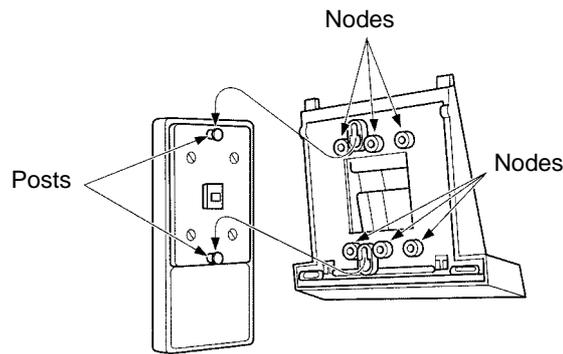


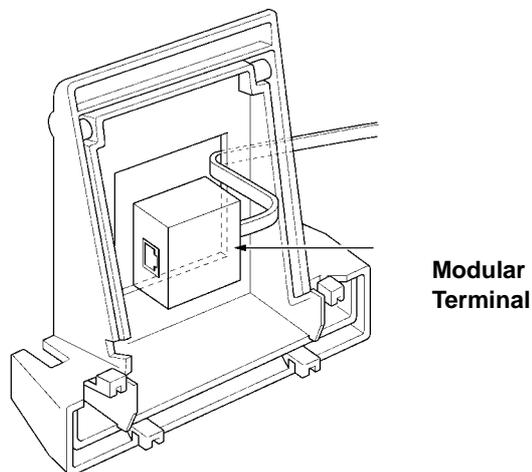
Figure 4-17: Removing the Knockout

5. Assemble the base plate and base cover.
6. As illustrated in *Figure 4-18: Attaching the Base Plate to the Wall, Pg 73*, attach the base plate and base cover assembly (wide end down) to the posts on the locally provided and installed wall plate. Place locally provided screws in the nodes on the base plate and secure the assembly to the wall.



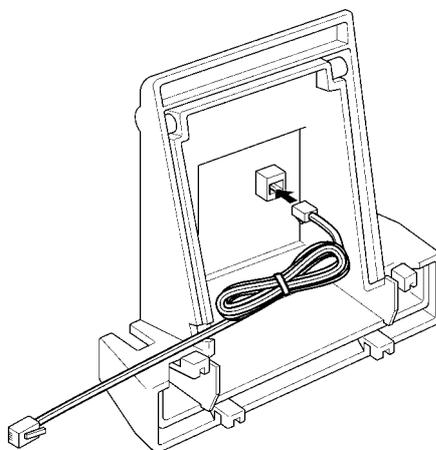
**Figure 4-18: Attaching the Base Plate to the Wall**

If using a modular jack instead of a wall plate, put the modular jack inside the base unit as shown in *Figure 4-19: Wall Mounting using a Modular Jack, Pg 73*. Use the locally provided screws to attach the base unit directly to the wall.



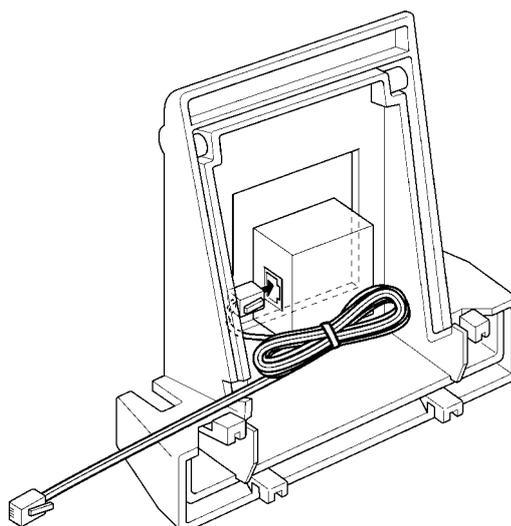
**Figure 4-19: Wall Mounting using a Modular Jack**

7. Plug the line cord into the jack on the wall plate, wrap the extra cord and secure it with a tie wrap, and lead the line cord out through the groove in the side of the base unit.



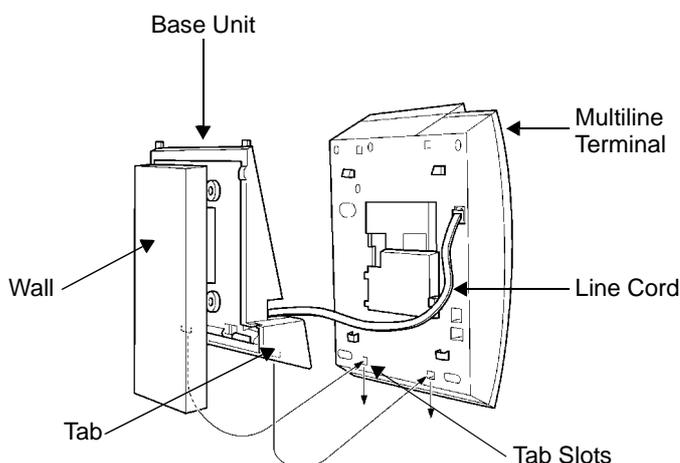
**Figure 4-20: Plugging in the Line Cord using a Wall Jack**

If using a modular jack instead of a wall plate, plug the line cord into the modular jack, wrap the extra cord and secure it with a tie wrap, and lead the line cord out through the groove in the side of the base unit.



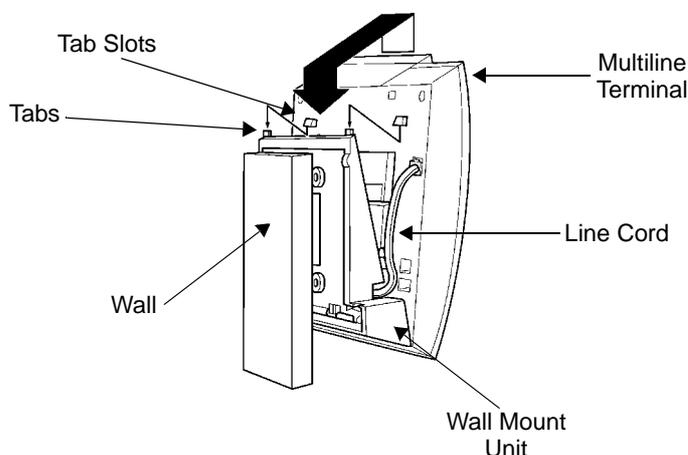
**Figure 4-21: Plugging in the Line Cord Using a Modular Jack**

8. With the base plate and base cover assembly attached to the wall, hook the two bottom tabs on the base cover into the tab slots on the base of the Multiline Terminal.



**Figure 4-22: Attaching the Bottom Tabs of the Multiline Terminal to the Base Cover**

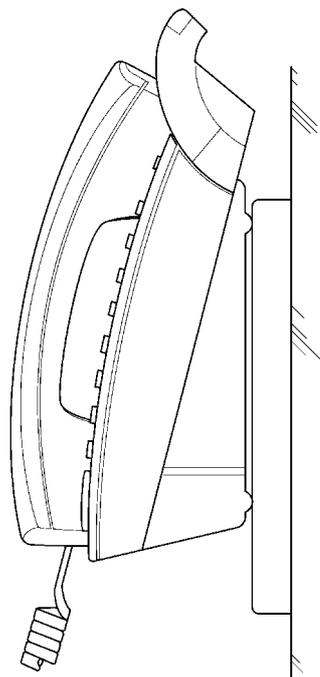
9. Push up on the Multiline Terminal and lock the top tabs on the base cover into the tab slots on the base of the Multiline Terminal. Turn terminal slightly clockwise to interface with base cover. *Figure 4-23: Attaching the Top Tabs of the Multiline Terminal to the Base Plate, Pg 74 shows how the Multiline Terminal is attached.*



**Figure 4-23: Attaching the Top Tabs of the Multiline Terminal to the Base Plate**

- When properly installed, the wall-mounted Multiline Terminal looks similar to the one shown in *Figure 4-24: Installed Wall Mount Unit, Pg 75*.

**NOTE:** Do not adjust the tilt panel LCD after the Multiline Terminal is mounted on the wall.

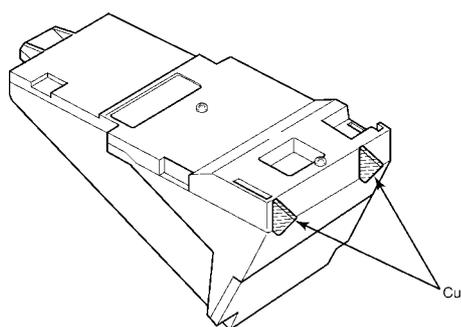


**Figure 4-24: Installed Wall Mount Unit**

#### **Installing the Wall Mount Unit & Mounting the Multiline Terminal Using the WMU-UA Unit**

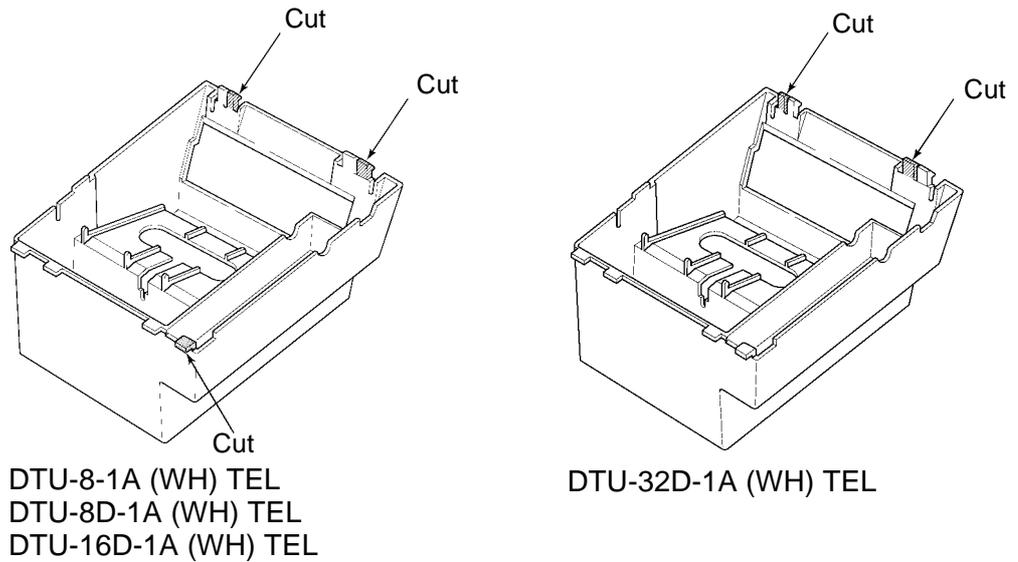
If installing an HFU-UA Unit, CTA-UA Unit, or APR-UA Unit, a separate WMU-UA Unit must be purchased to accommodate these units.

- Remove the line cord, base plate and base cover from the Multiline Terminal as shown in the previous section.
- Cut off the tabs on the adapter as shown in *Figure 4-25: Removing the Tabs from the Adapter, Pg 75*.



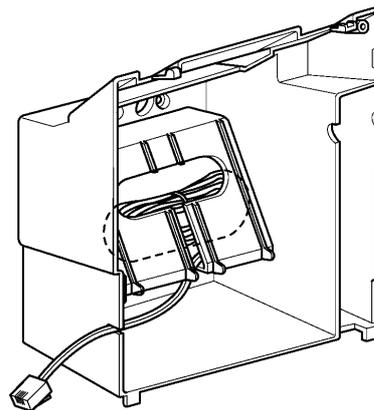
**Figure 4-25: Removing the Tabs from the Adapter**

3. Remove the tabs from the WMU-UA Unit as shown in *Figure 4-26:: Removing the Tabs from the WMU-UA Unit, Pg 76.* (Tabs removed depends on the Multiline Terminal type.)



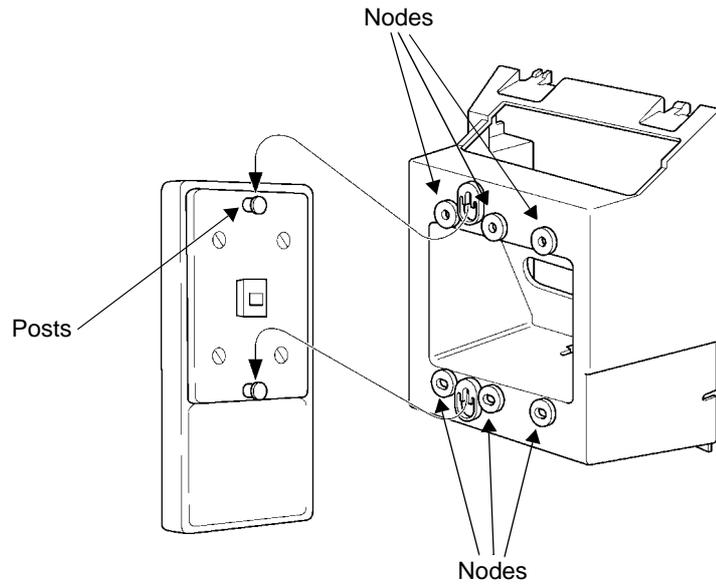
**Figure 4-26: Removing the Tabs from the WMU-UA Unit**

4. Bundle the cord from the modular jack leaving about eight inches. Use a tie wrap to secure the bundled cord.
5. Place the bundled line cord in the space between the WMU-UA Unit and the wall. Lead the line cord out through the slits as shown in *Figure 4-27:: Leading the Line Cord out of the WMU-UA Unit, Pg 76.*



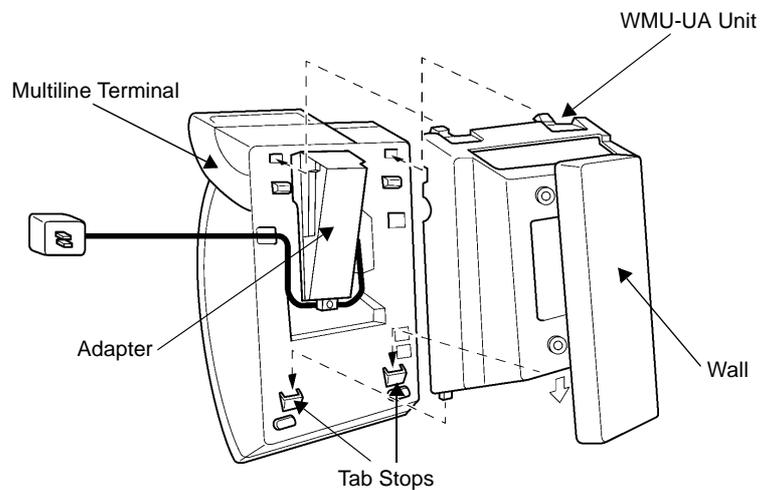
**Figure 4-27: Leading the Line Cord out of the WMU-UA Unit**

6. Attach the WMU-UA Unit to the posts on the wall plate (locally provided). Place locally provided screws in the nodes on the WMU-UA Unit and secure the WMU-UA Unit to the wall.



**Figure 4-28: Attaching the Wall Mount Unit to the Wall**

7. Connect the line cord to the Multiline Terminal.
8. With the WMU-UA Unit attached to the wall, hook the two bottom tabs on the WMU-UA Mount Unit into the tab slots on the Multiline Terminal. Then push the two top tabs on the WMU-UA Unit into the tab slots on the Multiline Terminal. If the adapter has a power supply, lead the AC adapter cord out through the opening at the bottom of the Multiline Terminal. Refer to *Figure 4-29: Attaching the Multiline Terminal to the WMU-UA Unit*, Pg 77.



**Figure 4-29: Attaching the Multiline Terminal to the WMU-UA Unit**

## Removing the Multiline Terminal from the Base Cover

To remove the Multiline Terminal from the base cover, lift the Multiline Terminal to disengage top tabs, turn it slightly counter clockwise to unlock lower tabs on base cover, and remove it.

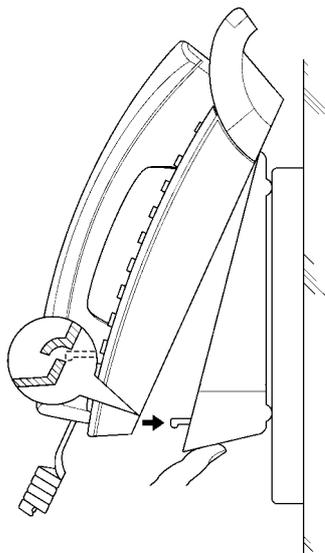


Figure 4-30: Removing the Multiline Terminal from the Base Cover

## Removing the Multiline Terminal from the WMU-UA Unit

To remove the Multiline Terminal from the WMU-UA Unit, lift the Multiline Terminal to disengage top tabs and lower the terminal from the WMU-UA Unit.

## SECTION 9

### INSTALLING OPTIONAL ADAPTERS

Optional equipment is available to enhance the Xen system. This equipment can be purchased separately from the system and added as the customer business needs grow. All these adapters can be installed on the DTU-Type Xen Multiline Terminals.

A Multiline Terminal can have up to three adapters installed at the same time. If attaching an APR-UA Unit, a CTA-UA Unit, or an HFU-UA Unit, an external power supply is required. Only **one** power supply is needed even if more than one adapter is installed.

When an adapter is installed for the first time into a telephone, the base cover on the Multiline Terminal may have to be modified. The base cover has two access panels that are removed before the cover can be closed over the adapters to complete the installation.

## Preparing Multiline Terminal for Adapter Installation

To prepare the Multiline Terminal for adapter installation:

1. Unplug the telephone cord from the terminal.
2. Turn the terminal upside down. Push the tabs indicated in *Figure 4-31: Raising the Base Plate, Pg 78*, and raise the inner area of the base plate.

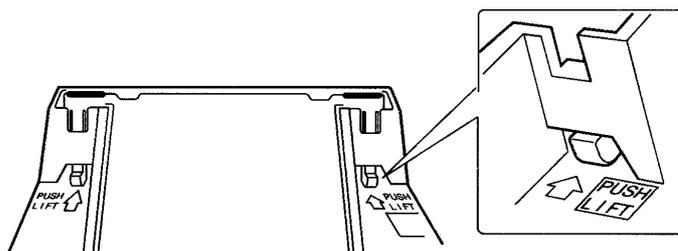
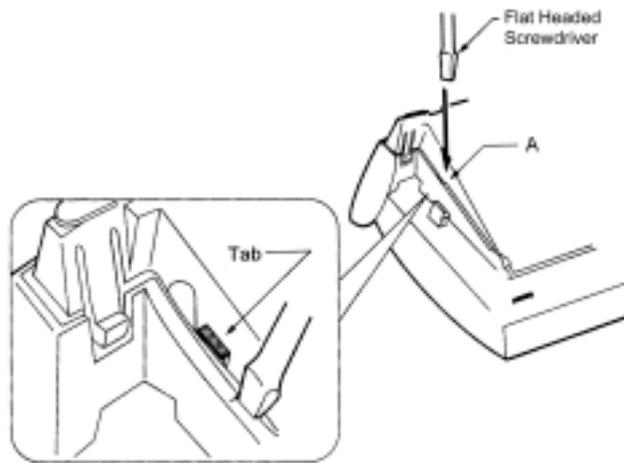


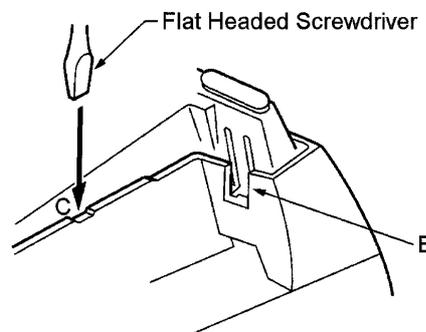
Figure 4-31: Raising the Base Plate

3. Insert flat head screwdriver into A in *Figure 4-32:: Unlocking Tab, Pg 79* and press straight down until tab unlocks.



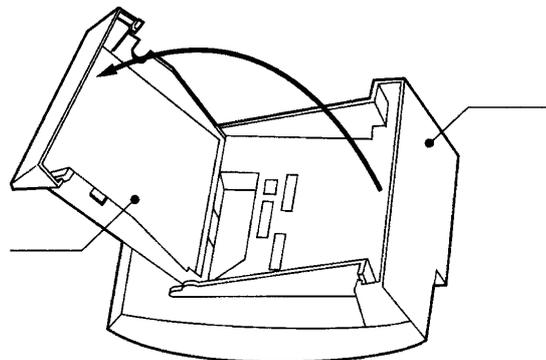
**Figure 4-32: Unlocking Tab**

4. Lightly press right side of leg shown as B in *Figure 4-33:: Releasing Right Tab, Pg 79*, insert flat head screwdriver at C and Press straight down until other tab unlocks.



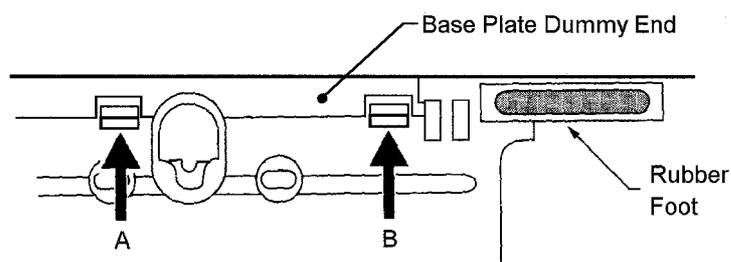
**Figure 4-33: Releasing Right Tab**

5. Open and remove Bottom Cover by rotating counterclockwise as shown in *Figure 4-34:: Removing Bottom Cover, Pg 79*.



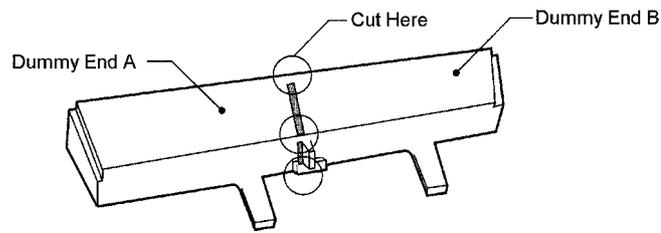
**Figure 4-34: Removing Bottom Cover**

6. If an adapter is being installed, press tabs A and B to remove the dummy end from the base plate as shown in *Figure 4-35:: Removing Base Plate Dummy End, Pg 79*.



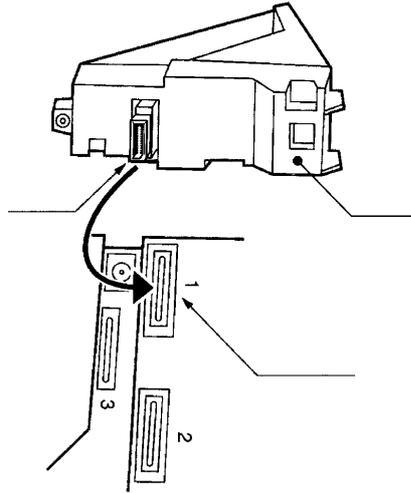
**Figure 4-35: Removing Base Plate Dummy End**

- Cut the dummy end in half as shown in *Figure 4-36:: Cutting Dummy End in Half, Pg 80*.

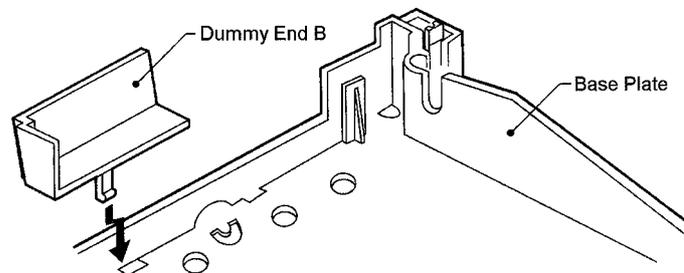


**Figure 4-36: Cutting Dummy End in Half**

- If Adapter is installed in Connector 1 as show in *Figure 4-37:: Installing Adapter in Connector 1, Pg 80*, Install Dummy end B as shown in *Figure 4-38:: Installing Dummy End B, Pg 80*.



**Figure 4-37: Installing Adapter in Connector 1**



**Figure 4-38: Installing Dummy End B**

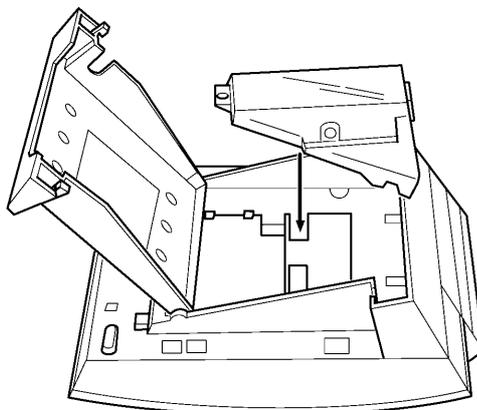
### ACA-UA Unit (AC Adapter)

This unit provides power to ancillary devices or Attendant Consoles. The ACA-UA Unit must be connected to an adapter that is installed on a Multiline Terminal. If more than one adapter is installed on a Multiline Terminal, only one ACA-UA Unit is necessary.

The power requirements for the ACA-UA Unit are:

- Input: 240 Vac, 50 Hz
- Output: 24V DC, 400 mA
- Polarity:  $\ominus$  —————  $\oplus$

1. Connecting the ACA-UA Unit
  - a) Unplug the line cord from the Multiline Terminal and unplug the ACA-UA Unit from the AC outlet. (Failing to do this can damage the unit and/or the Multiline Terminal.)
  - b) Turn the Multiline Terminal upside down and open the base plate.
2. Locate the AC adapter plug on the ancillary device that is connected to the bottom of the Multiline Terminal and plug in the AC adapter.



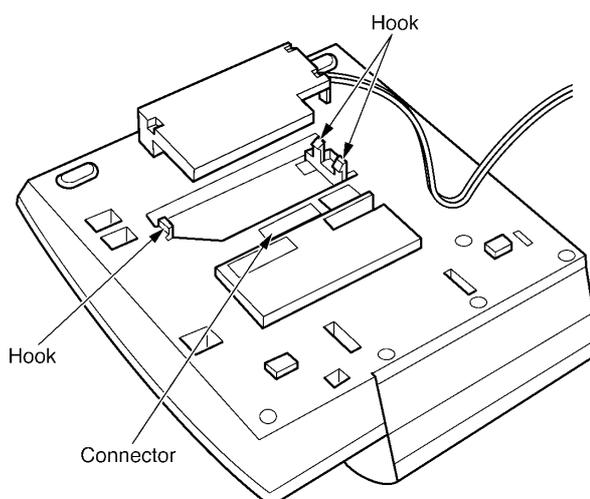
**Figure 4-39: ACA-UA Unit Connection**

### **ADA-UA Unit (Ancillary Device Adapter)**

Ancillary Device Adapters allow connection of a recording device to DTU-type Multiline Terminals.

When installing an ADA-UA Unit, first connect the cables to the ADA-UA Unit, set the dip switches, and then install the ADA-UA Unit on the Multiline Terminal.

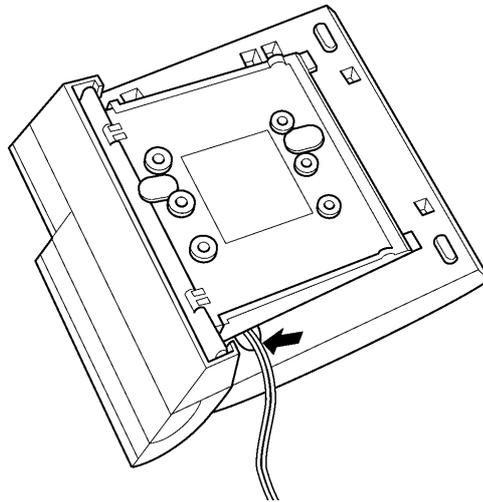
1. Installing an ADA-UA Unit on a Multiline Terminal
  - a) Unplug the telephone cord from the Multiline Terminal.
  - b) Prepare Multiline Terminal for adapter installation. Refer to Section 2 Preparing Multiline Terminal for Adapter Installation.
  - c) Plug the ADA-UA Unit connector into the receptacle connector on the back of the Multiline Terminal. Snap the ADA-UA Unit into the hooks on the Multiline Terminal to secure it.



**Figure 4-40: Attaching the ADA-UA Unit to the Multiline Terminal**

- d) Replace base plate.

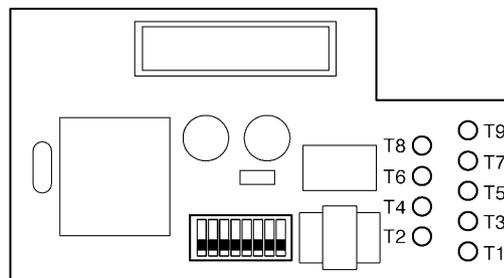
- e) Lead the audio cable out through the groove on the base cover. Plug in the telephone cord.



**Figure 4-41: Leading the Audio Cable out from the ADA-UA Unit**

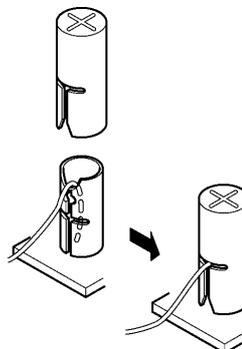
### Connecting Cables to the ADA-UA Unit

Cable terminal connectors are located on the right side of the ADA-UA Unit. Cables should be connected on this unit before installing the unit on the Multiline Terminal.



**Figure 4-42: ADA-UA Unit**

1. Cut off the plug on one end of the cable.
2. Locate the adapter terminals on the right side of the unit as illustrated in *Figure 4-42:: ADA-UA Unit, Pg 82*.
3. Remove the cap on the adapter terminal to expose the metal receptacle. Push the cable in the applicable receptacle, and replace the cap. Line up the slot on the cap with the slot on the metal receptacle to ensure proper contact. Refer to *Figure 4-43:: Attaching Cables to the ADA-UA Unit, Pg 82*.



**Figure 4-43: Attaching Cables to the ADA-UA Unit**

4. Insulate the end of the cable that needs to be shielded with insulating tape. *Table 4-3: ADA-UA Cable Connections, Pg 83* provides a list of cable connections to ADA-UA ADP terminals and describes the specifications for the terminals.

*Table 4-3: ADA-UA Cable Connections, Pg 83* provides a list of cable connections to ADA-UA ADP terminals and describes the specifications for the terminals.

**Table 4-3 ADA-UA Cable Connections**

Terminal Number	Cables to Connect	Terminal Specifications
T1	When warning tone is not being sent from the recorder, connect wire pair input from tone generator to T1:T2. The warning tones from the generator are sent to T1:T2 on a dedicated wire pair while the speech path is sent from the ADA-UA on T3:T4 over a separate wire pair to the recorder.	Input Terminal:T1 and T2 are enabled for tone generating device when DIP switches 3 and 4 are OFF.
T2		(If switches 3 and 4 are ON, a humming sound may be recorded due to impedance mismatch.) Input Impedance on T1 and T2: 100K <Symbol>W Input Level on T1 and T2: -15 dB ~ 40 dB
T3	Connect recorder device wire pair speech input to T3:T4. If the recorder used supplies a warning tone, this tone may also be sent over the T3:T4 wire pair back to the terminal.	Input/Output Terminal: Refer to dip switch settings in <i>Table 4-4: ADA-UA Unit Switch Settings, Pg 85</i> .
T4		
T5	Connect the bare end of the control cable.	When a Multiline Terminal is idle, this contact is closed. When the Multiline Terminal goes off-hook (using the handset, headset, or speakerphone), this contact is open.  <b>If recorder owner manual specifies start on open circuit, connect T5 and T6.</b>
T6	Connect the shielded end of the control cable.	Provides common connection for control cable.
T7	Connect the bare end of the control cable.	When the Multiline Terminal is idle, this contact is open. When the Multiline Terminal is busy (using the handset, headset, or speakerphone), this contact is closed.  <b>If recorder owner manual specifies start on closed circuit, connect T6 and T7.</b>
T8	Unused	
T9	Unused	

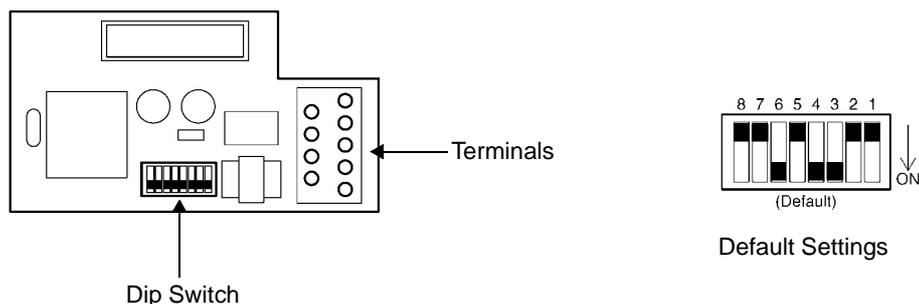
**Table 4-3 ADA-UA Cable Connections (Continued)**

**Notes:**

- When recording in handsfree (half-duplex) mode using the built-in speakerphone, the record warning tone may not be audible to the far-end party.
- The transmit recording level is lower than the receiving voice level for intercom calls; the transmit recording level for CO calls is normal.
- Depending on the recording device(s), separate cables may be required for the warning tone and speech path. In this case, connect the warning tone cables to input terminals T1 and T2 on the ADA-UA Unit. (T3 and T4 are used as the Analogue recorder input.)
- If remote control of the recorder is necessary, the record start/stop control is provided by connecting to T5 (or T7) and T6 on the ADA-UA Unit. (Connecting to T5 or T7 is determined by the specifications of the recorder.)
- If a warning Tone is provided from the recording equipment, it should be input via T3 and T4 on ADA-UA Unit. (Do not use T1 and T2 to input Beep Tone.)
- Conversations cannot be recorded from terminals connected to an APR-UA Unit. Speakerphone calls through the HFU-UA Unit cannot be recorded.

**Switch Settings**

The DIP Switch is located at the bottom center of the ADA-UA Unit. The DIP Switch allows a technician to configure the board to specific settings. *Figure 4-44: ADA-UA Unit Switch Settings, Pg 84* shows the default settings.



**Figure 4-44: ADA-UA Unit Switch Settings**

The following switch settings should be made on the ADA-UA Unit to enable or disable the record start warning tone. Switch settings should be made before installing the ADA-UA Unit in the Multiline Terminal. (Refer to *Table 4-4: ADA-UA Unit Switch Settings, Pg 85.*)

**Table 4-4 ADA-UA Unit Switch Settings**

Switch	Setting		Description
SW1-1	On		If the ADA-UA provides control to the recorder, SW1-1 should be set to On, otherwise set it to Off.
SW1-2	Off		Leave Off
SW1-3 and SW1-4	SW1-3 ON	SW1-4 ON	Warning Tone from recording device over same wire pair as speech path.
	SW1-3 OFF	SW1-4 OFF	Warning Tone from recorder or generator equipment on dedicated wire pair to recorder MIC input
SW1-5 and SW1-6	SW1-5 OFF	SW1-6 ON	Input impedance is 600 Ω
	SW1-5 ON	SW1-6 OFF	Input impedance is less than 600 Ω
SW1-7	ON		If warning tone from any device is sent to telephone
SW1-8	Off		Leave Off

☛ Do not connect T1 and T2 when switches 3 and 4 are ON.

## APR-UA Unit (Analogue Port Ringer)

The Analogue Port adapter with Ringing provides an interface for installing Single Line Telephones, modems, NEC VoicePoint Conferencing unit, and other compatible analogue devices. The APR-UA Unit also generates ringing signals. By providing ring generation, the user can install a personal fax machine or an answering machine for convenience. Two user-adjustable switches are provided on the adapter; one allows for 600Ω or a complex impedance interface to devices such as a modem or Single Line Telephone, the second switch (SW1) is permanently set to position 2. The APR-UA Unit **requires** an AC adapter (ACA-UA Unit). If a CTA-UA Unit or the HFU-UA Unit and an APR-UA Unit are both installed, only one AC adapter is required.

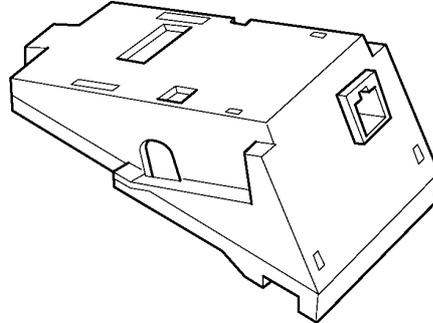


Figure 4-45: APR-UA Unit

### Installing an APR-UA Unit on a Multiline Terminal

1. Unplug the telephone cord from the Multiline Terminal.
2. Prepare Multiline Terminal for adapter installation. Refer to *Section 9: Preparing Multiline Terminal for Adapter Installation, Pg 78*.
3. Plug the unit into the receptacle connector inside the base plate. Refer to *Figure 4-46:: Attaching the Unit to the Multiline Terminal, Pg 86*.

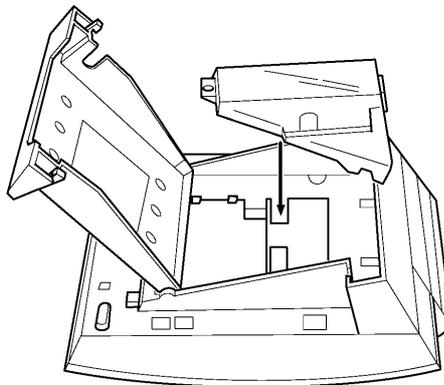
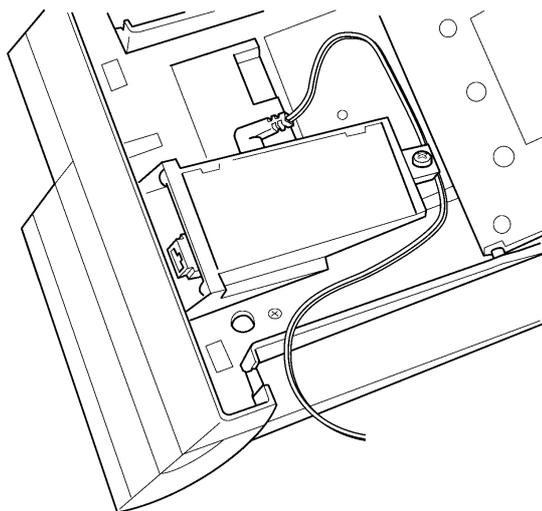


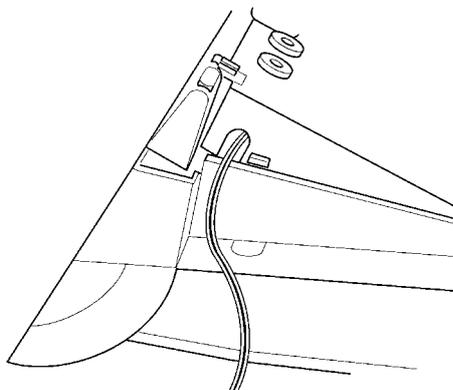
Figure 4-46: Attaching the Unit to the Multiline Terminal

4. Plug the cord of the ACA-UA Unit (AC adapter) into the jack on the APR-UA Unit. Lead the telephone cord out through the groove in the base as shown in *Figure 4-47:: Leading the Telephone Cord out from the Unit, Pg 87.*



**Figure 4-47: Leading the Telephone Cord out from the Unit**

5. Close the base plate, lead the AC adapter cord out through the hole, and snap the cover in place.

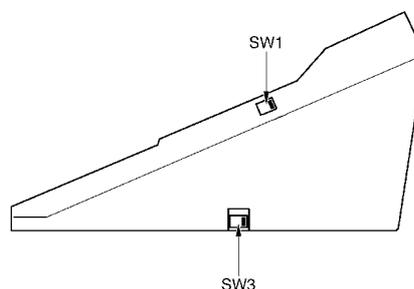


**Figure 4-48: Closing the Base Plate Cover**

6. Plug in the power cord on the AC adapter and the telephone cord in the jack.

### Switch Settings

There are two switch settings on the APR-UA Unit.



**Figure 4-49: APR-UA Unit Switches**

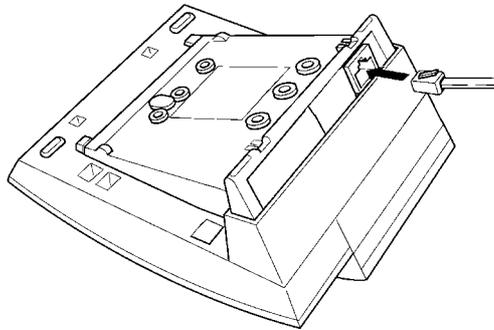
The following table lists the switch settings for SW1 and SW3.

Switch	Description
SW1-1	Do not use
SW1-2	A Single Line Telephone and Multiline Terminal are used alternately. (The Multiline Terminal and the APR-UA Unit share the same B1 channel.)
SW3-1	Sets impedance to 600Ω for devices such as modems or facsimile machines
SW3-2	Used for complex impedance devices such as Single Line Telephones.

### Connecting Cables on the APR-UA Unit

Plug the telephone cord from the Single Line Telephone into the modular jack on the APR-UA Unit.

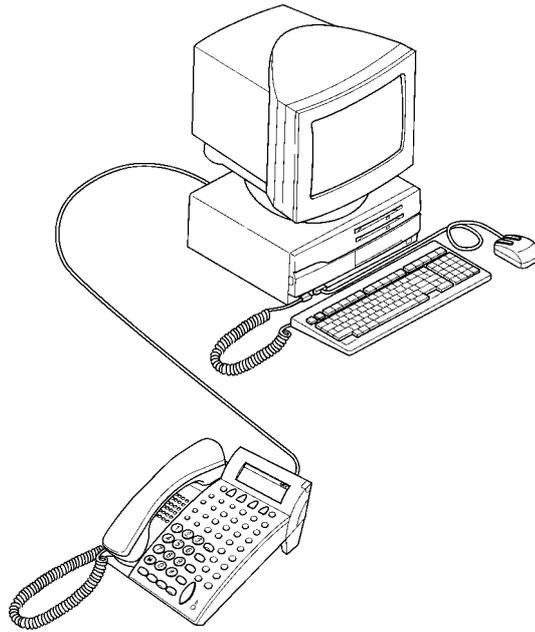
Limit the cable length from the APR-UA Unit to the Single Line Telephone to a maximum of 15 metres.



**Figure 4-50: Connecting Cables on the APR-UA Unit**

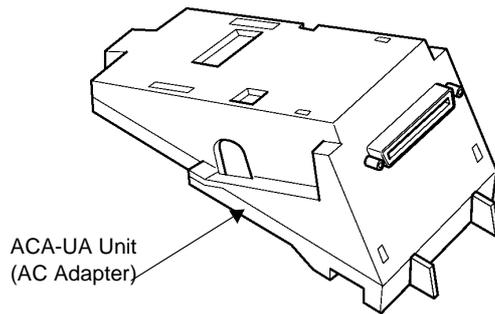
## CTA-UA Unit (Computer Telephony Application)

Computer Telephony Application allows a DTU-type Multiline Terminal to be connected to a PC. The PC can then be used to perform all of the functions of the Multiline Terminal by using a TAPI compatible application software.



**Figure 4-51: Attaching a Xen Multiline Terminal to a PC**

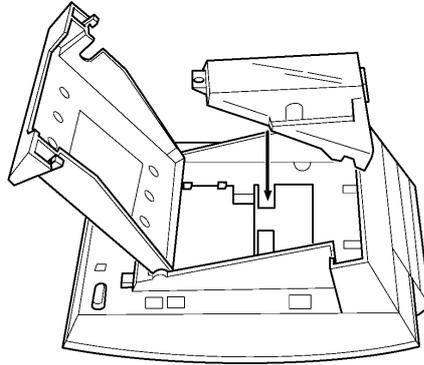
The CTA-UA Unit is attached to the bottom of a DTU-type Multiline Terminal.



**Figure 4-52: CTA-UA Unit**

## Installing the CTA-UA Unit

1. Unplug the telephone cord from the Multiline Terminal.
2. Prepare Multiline Terminal for adapter installation. Refer to *Section 9: Preparing Multiline Terminal for Adapter Installation, Pg 78*.
3. Plug the unit into the receptacle connector inside the base plate on the Multiline Terminal. Refer to *Figure 4-53:: Attaching the Unit to the Multiline Terminal, Pg 90*.

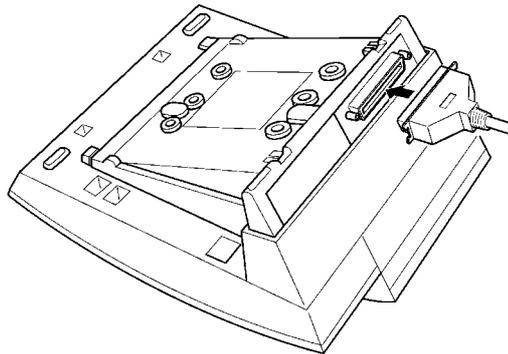


**Figure 4-53: Attaching the Unit to the Multiline Terminal**

4. Close the base plate.

## Connecting the Cables on the CTA-UA Unit

Connect the RS-232C cable from the computer to the connector on the CTA-UA Unit as shown in *Figure 4-54:: Connecting the RS-232C Cable to the CTA-UA Unit on the Multiline Terminal, Pg 90*.



**Figure 4-54: Connecting the RS-232C Cable to the CTA-UA Unit on the Multiline Terminal**

## Installing the Driver on the PC

Using the setup disk provided with the CTA-UA Unit install the driver onto your PC. Refer to the *CTA installation Guide* for instructions on installing CTA setup disks.

## HFU-UA (WH) Unit (Handsfree Unit)

The Handsfree Unit provides full-duplex handsfree communication. Large areas may cause poor full-duplex operation. This unit comes with the handsfree adapter and an external microphone. With terminal upside down, facing from the bottom of the open cover, install this unit on the left side.

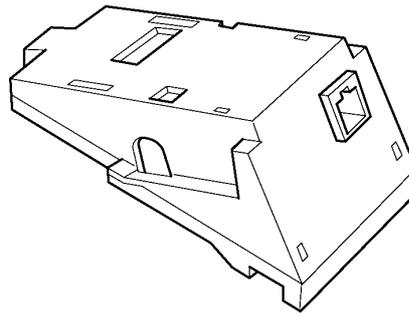


Figure 4-55: HFU-UA (WH) Unit

### Installing an HFU-UA (WH) Unit on a Multiline Terminal

Refer to *Section 9: Installing an APR-UA Unit on a Multiline Terminal, Pg 86*. The instructions for installing these units are the same.

### Installing the External Microphone

An external microphone can be installed on the HFU-UA (WH) Unit. These instructions apply to the external microphone supplied with the HFU-UA (WH) Unit. This microphone is equipped with a mute button.

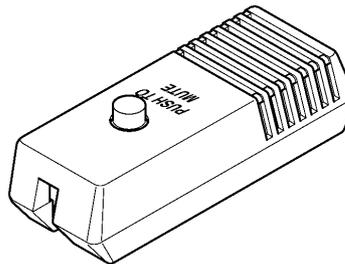


Figure 4-56: Microphone with Mute

1. Plug the microphone cord into the jack on the HFU-UA (WH) Unit as shown in *Figure 4-57:: Attaching a Microphone to a Multiline Terminal, Pg 91*.
  - ☞ The microphone should be at least 30 cm away from the Multiline Terminal, but not more than 1 metre.

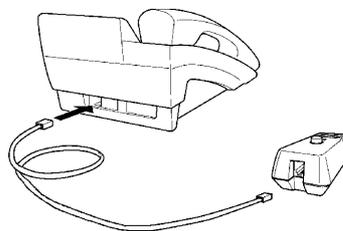


Figure 4-57: Attaching a Microphone to a Multiline Terminal

## Switch Settings

The HFU-UA (WH) Unit uses two-position switches SW1 and SW2.

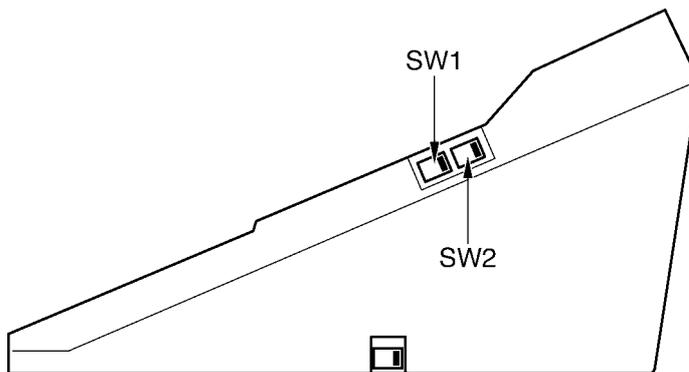


Figure 4-58: HFU-UA (WH) Unit Switches

The following table lists the SW1 and SW2 switch settings.

Table 4-5 HFU-UA (WH) Unit Switch Settings

SW1		SW2		Description
Position 1	Position 2	Position 1	Position 2	
OFF	ON	OFF	ON	Full Duplex (Default)
ON	OFF	OFF	ON	Half Duplex (6db mix ratio)
OFF	ON	ON	OFF	Half Duplex (12db mix ratio)
ON	OFF	ON	OFF	Half Duplex (18db mix ratio)

**NOTE:** Full Duplex: In some large areas or noisy locations half duplex should be used. There are limits to the echo cancelling ability of the HFU-UA.

Half Duplex: If voice clipping occurs, use a lower decibel setting.

## **SECTION 1**

### **GENERAL INFORMATION**

ETW-type Multiline Terminals can be installed on a Xen Alpha system providing inexpensive migration from other NEC key telephone systems. This chapter provides instructions for connecting these terminals to the Xen Alpha system.

☞ ETW-type Multiline Terminals are not available in New Zealand.

## **SECTION 2**

### **ETW-TYPE MULTILINE TERMINALS**

The following ETW-type Multiline Terminals can be connected to the Xen system.



ETW-8E-1A (SW) TEL



ETW-16C-1A (SW) TEL



ETW-16D-1A (SW) TEL

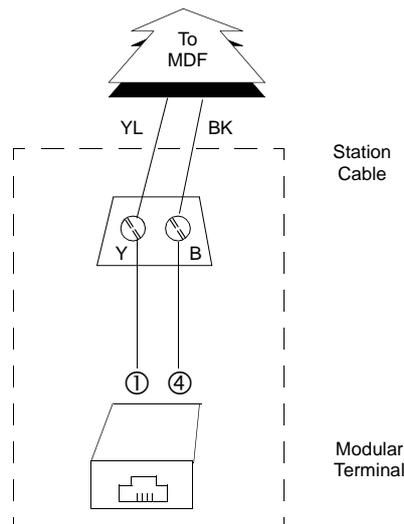
## Terminal Update

Before ETW-type Multiline Terminals can be operated on a Xen Alpha system, the keypad may need to be changed. Replacement keypads and installation instructions are available for purchase from the NEC PPG Service Department.

## Modular Terminal Connections

Connecting Multiline Terminals, Attendant Add-On Consoles, and SLT Adapters

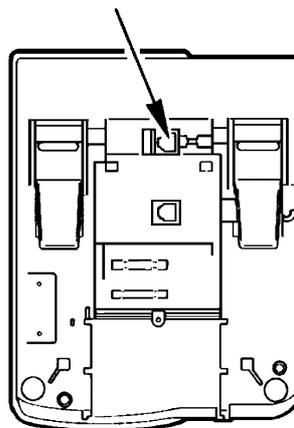
When connecting ETW-type Multiline Terminals or Attendant Add-On Consoles, or SLT Adapters to the MDF or IDF, individually twisted 1-pair cabling must be used. Refer to Figure 5-1:: Modular Terminal Connections for Multiline Terminals & Attendant Add-on Consoles, Pg 94 for an illustration of connections.



**Figure 5-1: Modular Terminal Connections for Multiline Terminals & Attendant Add-on Consoles**

## Attach a Multiline Terminal to the System

1. Plug a telephone cord into the modular jack on the bottom side of the Multiline Terminal.
2. Lead the cord out through the cord groove as shown in Figure 5-2:: Connecting an ETW-Type Multiline Terminal, Pg 94 to the Xen Alpha system.



**Figure 5-2: Connecting an ETW-Type Multiline Terminal**

## SECTION 1

### SLT(1)-U13 ADP (SINGLE LINE TELEPHONE)

The Single Line Telephone adapter provides an interface for Single Line Telephones and other similar devices from an ESI ETU channel. This adapter can be connected to any ESI port.

#### Connecting the SLT(1)-U13 ADP to the System

1. Connect one end of the RJ-11 to the ESI port on the KSU and one end to the jack on the SLT adapter marked **ESI**.
2. Connect one end of a second RJ-11 to the jack marked **TEL** on the SLT adapter and the other end to the Single Line Telephone.

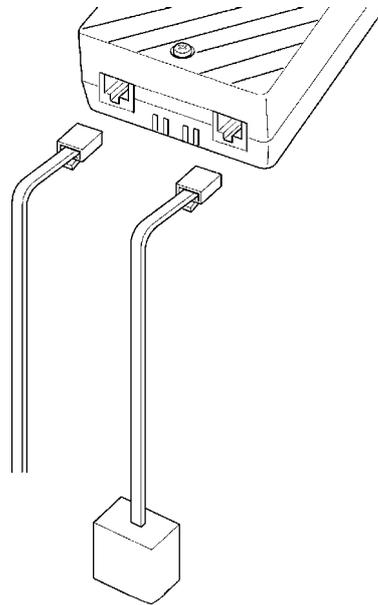
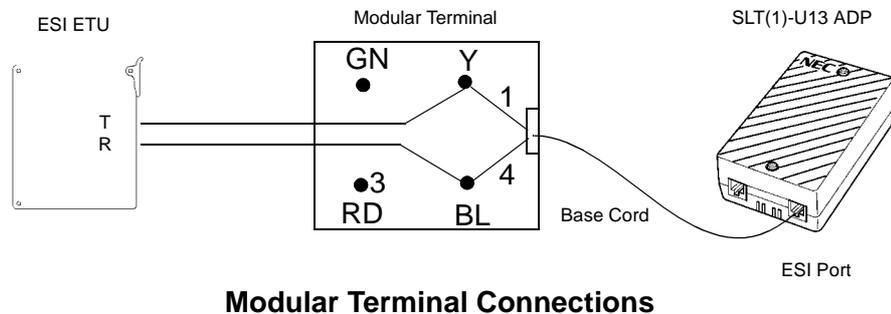
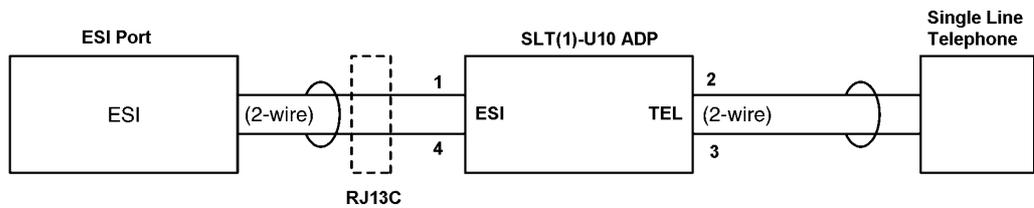


Figure 6-1: Connecting a Single Line Telephone to the System using an SLT(1)-U13 ADP





### Single Line Telephone Connections

Figure 6-2: Connecting the SLT(1)-U13 ADP

#### Wall Mounting the SLT(1)-U13 ADP

1. Remove the two screws from the top to open the SLT adapter as shown in Figure 6-3: Removing the Screws from the SLT(1)-U13 ADP.

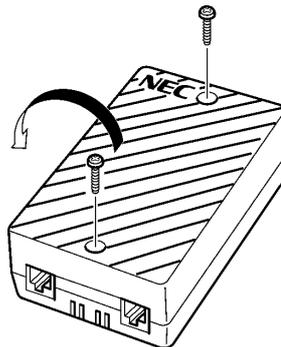


Figure 6-3: Removing the Screws from the SLT(1)-U13 ADP

2. Using the two provided wood screws, attach the unit to the wall. Close the unit and secure with the two screws that were previously removed.

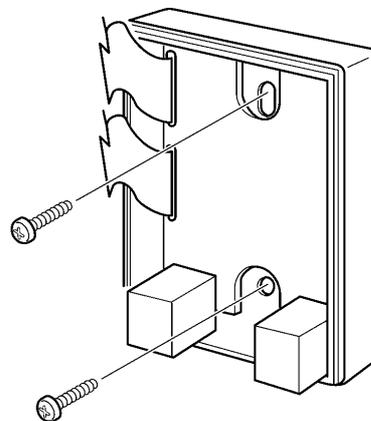


Figure 6-4: Attaching the SLT(1)-U13 ADP to the Wall

SECTION 1

Table 7-1: Programming Functions

Function Number	Function Name and Telephone Display	Description	Programming Values
<p><b>Programming Note</b> To change a default setting for function numbers 001, 002, 018, 019 and 060 dial the number that corresponds to the setting position you want to change (1⇒9 or 0, as appropriate). For example, to change the setting for 001-1, dial [1] to toggle its setting between the two values.</p>			
001-1	Internal Call Notification <i>P001 SYS SETUP 1</i> <i>098-65432-</i>	Used to indicate how users are notified of internal calls. If Voice is selected, users can voice announce calls. If Signal Tone is selected, the system sends an audible tone to the called party.	1 = Voice – = Signal Tone
001-2	Speed Dial Assignment	Used to assign the number of speed dial memory locations used for system (common) speed dialing and personal (individual) speed dialing.	1 = 80 System/20 Personal – = 200 Slots/0 Personal
001-3	One-Touch Key Assignment for Call Recording	Used to indicate if a one-touch key is assigned exclusively for Call Notification or if the key can be also be used to enter the call destination during call recording.	3 = Call Notification and Call Recording – = Call Recording Only
<p><b>Programming Note:</b> On DTB-Type telephones, any unused line keys can be assigned as one-touch keys.</p>			
001-4	Ringing Transfer	Used to enable or disable ringing transfer for external calls. If enabled, the called party hears ringing. If disabled, the called party does not hear ringing.	4 = Enabled – = Disabled
001-5	Automatic Transfer	Used to enable or disable the automatic transfer function. If enabled, the calling party hangs up and the call is automatically transferred. If disabled, the calling party must remain off-hook until the called party answers.	5 = Enabled – = Disabled
001-6	Trunk Line Direct Access	Used to assign how an outside line is accessed. If enabled, the user can press the designated line to directly access the outside line. If disabled, the user must dial the access code before accessing the outside line.	6 = Enabled – = Disabled

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
001-7	One-Touch Key Direct Access for Outgoing Calls	Used to assign how a one-touch key accesses an outside line. If enabled, the user can press the one-touch key, the outside line is directly accessed and the number is dialed. If disabled, the user must first manually access the outside line before pressing the one-touch key.	- = Disabled <b>7 = Enabled</b>
001-8	One-Touch Key Duplication Assignment	This feature is used to set a one-touch feature key. If enabled, the one-touch feature key assignment is duplicated to all other telephones in the system.	<b>8 = Enabled</b> - = Disabled
<b>Programming Note:</b>	This function can only be set from the telephone attached to port 1 or 2 (attendant position telephone). When using the DTB-16D-1A TEL telephones, any unused line keys can be assigned as one-touch feature keys. When using DTU-Type telephones, the DTU-32D-1A TEL must be used to set this feature and the one-touch keys (not the line keys) must be used to set one-touch key duplication.		
001-9	Single Line Telephone Hookflash Assignment	Used to assign how the hookflash is used on a single line telephone.	<b>9 = Used for Hold</b> - = Used for Hookflash
001-0	General Purpose Relay Assignment	Assigns the function of General Purpose Relay on the Mainboard to either External Paging Speaker Control or External Ringer Control.	<b>0: External Ringer Control</b> -: External Paging Control
002-1	Music Source for Music On Hold  <i>P002 SYS SETUP 2 0987654321</i>	Used to indicate whether the system is connected to an external source for Music on Hold.	1 = Connected - = <b>Not Connected</b>
002-2	External Speaker Connection	Used to indicate if an external speaker is connected to the system.	1 = Connected - = <b>Not Connected</b>
002-3	Call Notification Using External Speakers	Used to assign if an audible tone is sent from the external speaker when call notification is used.	<b>3 = Enabled</b> - = Disabled
002-4	All Call Paging Tone	Used to enable or disable an audible tone during call paging.	<b>4 = Enabled (Tone Sent)</b> - = Disabled
002-5	Barge-In Notification Tone	Used to enable or disable an audible tone when barging into a conversation.	<b>4 = Enabled (Tone Sent)</b> - = Disabled (No Tone Sent)
002-6	Background Music Source	Indicates whether a background music source is connected to the system.	6 = Connected - = <b>Not Connected</b>
002-7	Time Format for Telephone Display	Selects the format used when displaying time on the telephone.	<b>7 = 12 Hour (12:00 a.m. – 11:50 p.m.)</b> - = 24 Hour (0:00 – 23:59)
002-8	Privacy Release	Assigns if extensions are required to enter a feature code to enable another extension entering a conversation by pressing a line key.	<b>8 = Disabled (feature code required)</b> - = Enabled (feature code not required)

Table 7-1: Programming Functions (Continued)

Function Number	Function Name and Telephone Display	Description	Programming Values																				
002-9	Station Message Detail Recording	Enables or disables Station Message Detail Recording (SMDR). SMDR provides detailed telephone usage records.	9 = Enabled - = Disabled																				
002-0	0. Station Camp-on Selection	Assigns whether or not Station Camp-on is allowed to a busy station.	0: Yes -: No																				
003	Hold Warning Timer <i>P003 HOLD RECALL</i> 0	Sets the timer that is used to indicate a call has been on hold past the time set.	0 = 1 minute 1 = 2 minutes 2 = 3 minutes 3 = 4 minutes 4 = No Limit (No warning indication sent)																				
004	Exclusive Hold Warning Timer <i>P004 EX-HOLD REC</i> 0	Sets the timer that is used to indicate a call has been on exclusive hold past the time set.	0 = 1 minute 1 = 2 minutes 2 = 3 minutes 3 = 4 minutes 4 = No Limit (No warning indication sent)																				
005	Automatic Redial Timer <i>P005 REDIAL TIME</i> 1	Used to set three parameters associated with the Automatic Redial feature. <i>Duration</i> indicates the amount of time the system continues to redial the number. <i>Wait Duration</i> is the amount of time the system waits between call attempts. <i>Number of Times</i> indicates the number of times the system redials to a busy number or when there is no answer.	<table border="0"> <thead> <tr> <th></th> <th>Wait Duration</th> <th>Duration</th> <th>Number of Times</th> </tr> </thead> <tbody> <tr> <td>0 =</td> <td>5 sec.</td> <td>5 sec.</td> <td>3</td> </tr> <tr> <td>1 =</td> <td><b>10 sec.</b></td> <td><b>30 sec.</b></td> <td><b>3</b></td> </tr> <tr> <td>2 =</td> <td>15 sec.</td> <td>60 sec.</td> <td>3</td> </tr> <tr> <td>3 =</td> <td>15 sec.</td> <td>90 sec.</td> <td>3</td> </tr> </tbody> </table>		Wait Duration	Duration	Number of Times	0 =	5 sec.	5 sec.	3	1 =	<b>10 sec.</b>	<b>30 sec.</b>	<b>3</b>	2 =	15 sec.	60 sec.	3	3 =	15 sec.	90 sec.	3
	Wait Duration	Duration	Number of Times																				
0 =	5 sec.	5 sec.	3																				
1 =	<b>10 sec.</b>	<b>30 sec.</b>	<b>3</b>																				
2 =	15 sec.	60 sec.	3																				
3 =	15 sec.	90 sec.	3																				
006	Hookflash Duration <i>P006 HOOKFLASH</i> 5	Used to specify time it takes for the system to recognize the signal as a hookflash. A hookflash can be generated by pressing the hookswitch on single line telephones or by press a key on a multiline telephone.	<table border="0"> <tbody> <tr> <td>0 = 40 ms.</td> <td>5 = 600 ms.</td> </tr> <tr> <td>1 = 90 ms.</td> <td>6 = 800 ms.</td> </tr> <tr> <td>2 = 140 ms.</td> <td>7 = 1 sec.</td> </tr> <tr> <td>3 = 200 ms.</td> <td>8 = 1.5 sec.</td> </tr> <tr> <td>4 = 400 ms.</td> <td>9 = 2 sec.</td> </tr> </tbody> </table>	0 = 40 ms.	5 = 600 ms.	1 = 90 ms.	6 = 800 ms.	2 = 140 ms.	7 = 1 sec.	3 = 200 ms.	8 = 1.5 sec.	4 = 400 ms.	9 = 2 sec.										
0 = 40 ms.	5 = 600 ms.																						
1 = 90 ms.	6 = 800 ms.																						
2 = 140 ms.	7 = 1 sec.																						
3 = 200 ms.	8 = 1.5 sec.																						
4 = 400 ms.	9 = 2 sec.																						
008	Call Forward Busy/No Answer Transfer Duration <i>P008 FWD NOANS</i> 0	Indicates the time between when a call is received and the time the system recognizes that the called telephone is either busy or there is no answer before the call has been forwarded.	<table border="0"> <tbody> <tr> <td>0 = 10 sec.</td> <td>3 = 25 sec.</td> </tr> <tr> <td>1 = 15 sec.</td> <td>4 = 30 sec.</td> </tr> <tr> <td>2 = 20 sec.</td> <td>5 = 60 sec.</td> </tr> </tbody> </table>	0 = 10 sec.	3 = 25 sec.	1 = 15 sec.	4 = 30 sec.	2 = 20 sec.	5 = 60 sec.														
0 = 10 sec.	3 = 25 sec.																						
1 = 15 sec.	4 = 30 sec.																						
2 = 20 sec.	5 = 60 sec.																						

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
009	Outgoing Call Line Selection  <i>P009 OUTPUT LN</i> 2	Used to assign the type of line the system connects to when 0– (outside call access code) is used, S is pressed, or a one-touch key is pressed.  If '0' programming value, is specified, the line key must be pressed to access a trunk line. If analog only or analog prioritized is selected, an analog trunk line is selected first. If ISDN prioritized is selected, an ISDN line is selected first.	0 = Manual Line Seizure Only 1 = Analogue Only <b>2 = Analogue Prioritised</b> 3 = ISDN Prioritised
010	Outgoing Call Access Code for PBX  <i>P010 PBX AC</i> 0–	Used to specify the code (number) dialed to access an outside line from a PBX.	<b>Default value = 0 – (2 digit access code)</b> Maximum digits = 6 (3 numbers and 3 pauses) <b>Note:</b> Press Answer Key for Pause.
<b>Programming Note:</b>	To enter pauses, press   on the TD200 telephone and J on the DTU-Type telephone. You cannot enter two consecutive pauses, there must be a number between a pause.		
011	Background Music Destination  <i>P011 BGM DESTIN</i> 1	Indicates where background music is heard.	0 = External Speaker <b>1 = Telephone Speaker</b> 2 = External Speaker and Telephone Speaker 3 = Background Music Not Heard
012	Music On Hold Melody  <i>P012 MSC ON HLD</i> 0	Used to select the melody used for the Music on Hold.	<b>0 = "Je te veus"</b> 1 = Minuet
014	Night Mode Start Time (Assignment 1)  <i>P014 N MD TM1 ST</i> □□:□□	Used to select the time of day the system switches from day mode to night mode.	<b>Not Set</b> Use 24 hour mode to set the time (00:00 – 23:59).
<b>Programming Note:</b>	When setting the time for Functions 014⇒017, use line key 13 to move the cursor to the left and 16 to move the cursor to the right.		
015	Night Mode End Time (Assignment 1)  <i>P015 N MD TM1 ED</i> □□:□□	Used to select the time of day the system switches from night mode back to day mode.	<b>Not Set</b> Use 24 hour mode to set the time (00:00 – 23:59).
016	Night Mode Start Time (Assignment 2)  <i>P016 N MD TM2 ST</i> □□:□□	Used to select the time of day the system switches from day mode to night mode.	<b>Not Set</b> Use 24 hour mode to set the time (00:00 – 23:59).
017	Night Mode End Time (Assignment 2)  <i>P017 N MD TM2 ED</i> □□:□□	Used to select the time of day the system switches from night mode back to day mode.	<b>Not Set</b> Use 24 hour mode to set the time (00:00 – 23:59).

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
018-1	Night Mode – Monday <i>P018 NIGHT MODE MONDAY:0</i>	Used to assign night mode for Monday.	<b>0 = Continuous Day Mode</b> 1 = Night Mode Assignment 1 2 = Night Mode Assignment 2 3 = Continuous Night Mode (Holidays) Press Transfer to advance to next day setting. Exiting program mode will enter new data.
018-2	Night Mode – Tuesday <i>P018 NIGHT MODE TUESDAY:0</i>	Used to assign night mode for Tuesday.	
018-3	Night Mode – Wednesday <i>P018 NIGHT MODE WEDNESDAY:0</i>	Used to assign night mode for Wednesday.	
018-4	Night Mode – Thursday <i>P018 NIGHT MODE THURSDAY:0</i>	Used to assign night mode for Thursday.	
018-5	Night Mode – Friday <i>P018 NIGHT MODE FRIDAY:0</i>	Used to assign night mode for Friday.	
018-6	Night Mode – Saturday <i>P018 NIGHT MODE SATURDAY:0</i>	Used to assign night mode for Saturday.	
018-7	Night Mode – Sunday <i>P018 NIGHT MODE SUNDAY:0</i>	Used to assign night mode for Sunday.	
<p><b>Programming Note:</b> <i>It is important to note that programming values 1 and 2 are only available if 014 and 015 (Night Mode Assignment 1) or 016 and 017 (Night Mode Assignment 2) have been programmed. If you attempt to enter 1 or 2 when 014 – 017 have not been programmed, the system simply ignores the entry and continues to blink.</i></p>			
019-1	Primary Hunt Number 10 <i>P019 PILOT - - - - -</i>	Used to assign extension numbers 10⇒19 to Primary Hunt Number 10.	1 = Primary Hunt Number Valid – = Primary Hunt Number Invalid A hunt group consists of a series of telephone lines that are organized so that if the first line is busy the system hunts for the next line in the series that is available.
019-2	Primary Hunt Number 20	Used to assign extension numbers 20⇒29 to Primary Hunt Number 20.	2 = Primary Hunt Number Valid – = Primary Hunt Number Invalid
019-3	Primary Hunt Number 30	Used to assign extension numbers 30⇒39 to Primary Hunt Number 30.	3 = Primary Hunt Number Valid – = Primary Hunt Number Invalid
019-4	Primary Hunt Number 40	Used to assign extension numbers 40⇒49 to Primary Hunt Number 40.	4 = Primary Hunt Number Valid – = Primary Hunt Number Invalid
019-5	Primary Hunt Number 50	Used to assign extension numbers 50⇒59 to Primary Hunt Number 50.	5 = Primary Hunt Number Valid – = Primary Hunt Number Invalid

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
020	Restricted Dialing – Table 1 <i>P020 RSTRC DL1</i> 01:□□□□□□□□	Used to record numbers that users are not allowed to dial (e.g., long distance numbers). The table allows eight numbers to be entered and the maximum length of each number is eight digits.	Enter the numbers (maximum 8 digits) that are restricted dialing.
021	Restricted Dialing – Table 2 <i>P021 RSTRC DL2</i> 01:□□□□□□□□		
022	Authorized Dialling – Table 1 <i>P022 ALLOW DL1</i> 01:□□□□□□□□	Used to record numbers that users are permitted to dial (e.g., certain long distance numbers). The table allows eight numbers to be entered and the maximum length of each number is eight digits.	Enter the numbers (maximum 8 digits) that are authorized dialing.
023	Authorized Dialling – Table 2 <i>P023 ALLOW DL2</i> 01:□□□□□□□□		
<p><b>Programming Note:</b> When setting the restricted dial number for Functions 020⇒023, use line keys 13 to move the cursor to the left and 16 to move the cursor to the right.</p> <p>To advance to the next location where the restricted dial numbers can be entered, press <b>U</b>.</p> <p>To enter an “X”, which indicates to the system to use any number where X is found, press <b>R</b>. An “s” should appear in the second line of the display to indicate shift mode. To enter an “X”, which indicates a wildcard number, press <b>G</b>. To enter “N”, which indicates numbers 2⇒9, press <b>I</b>. To enter an * or #, press <b>K</b> or <b>L</b> (you must not be in shift mode).</p>			
024	Print Format <i>P024 PRN FORMAT</i> 1	Used to indicate how the number is printed on the Station Message Detail Report. The options include printing the entire number or just printing the prefix and masking the last four digits.	0 = Entire Number <b>1 = Print entire number</b>
025	Baud Rate to Printer <i>P025 PRN SPEED</i> 2	Used to assign the baud rate for outputting to the printer.	0 = 1200 bps    3 = 9600 bps 1 = 2400 bps    4 = 19200 bps <b>2 = 4800 bps</b> 5 = 38400 bps
026	Stop Bit for Printer <i>P026 PRN CONTROL</i> 1	Used to assign the stop bit for outputting to the printer.	0 = 1 Stop Bit <b>1 = 2 Stop Bits</b>
028	Automatic Disconnect Timer <i>P028</i>	Specifies the maximum time a trunk transfer call (including CFE) will remain in place before being forcibly disconnected. A pip tone will be heard by both parties 30 seconds before the trunks are released by the system.	<b>1 = 30 minutes</b> 2 = 1 hour 3 = 2 hours 4 = 3 hours

Table 7-1: Programming Functions (Continued)

Function Number	Function Name and Telephone Display	Description	Programming Values
060-1	ISDN Setup – MSN or Indial Number Range  <i>P060 ISDN SETUP</i> 21	Specifies whether the numbering of the BRI ISDN services connected to the system are part of a 100 number indial range or a smaller number range.	1: MSN Mode – 1, 2 or 8 numbers. –: Indial Mode – 100 sequential numbers.  For indial mode, the last 2 digits of a number or range are used for matching.  060⇒MSN mode must have the ISDN interface number, excluding area code assigned to an index number in P065. The index number (01⇒16) is then used for matching incoming calls in P155/156.
060-2	ISDN Setup – Malicious Call Trace	Specifies whether the BRI ISDN service is able to send a Malicious Call Trace (MCT) to the Network.  <b>Note:</b> ISDN MCT must be enabled by the service provider and system programming for feature to function.	2: MCT enabled –: MCT disabled. Stops Function code being entered while on a call.
065	ISDN Number assignment for MSN mode.  <i>P065 ISDN TABLE</i> 01=	Assigns up to 16 ISDN numbers to be used as DID or GDN numbers through the system. This data applies only when this system is set to MSN mode (1, 2 or 8 numbers), not Indial mode (100 numbers).	ISDN TABLE 01 = □□□□□□□□ 02 = ↓ 16 = Area code not required. If P060 = indial mode, then P155/156 use last 2 digit indial number matching If P060 = MSN mode, then P155/156 use index number 01⇒16 data.
066	DID Number assignment to Station Port. (Day mode)  <i>P066 DID DAY</i> 00=	Assigns a Station number to each Indial number for Day mode ringing.  <b>Note:</b> Last 2 digit matching only.	01⇒14 = MLT 15⇒16 = SLT 17⇒18 = VMS Indial last 2 digits (00⇒99)
067	DID Number assignemnt to Station Port. (Night mode)  <i>P067 DID NIGHT</i> 00=	Assigns a Station number to each Indial number to Night mode ringing.  <b>Note:</b> Last 2 digit matching only.	01⇒14 = MLT 15⇒16 = SLT 17⇒18 = VMS Indial last 2 digits (00⇒99)

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
<p><b>Trunk Programming</b>  <b>Programming Note</b>                      To change the default setting for a trunk port, dial the 1 digit number that corresponds to the trunk you want to change (1 to 6, as appropriate). For example, to change the setting for trunk Port 1, dial "1". Depending on the function number, dialling the port number will either toggle its setting between two values or, where more than two values are available, will cause that setting to flash. When the setting flashes, you are required to enter a third digit, this being the new programming value (0 to 9, as appropriate). Port numbers are shown in ascending order, with Port 01 on the right-hand side of the display.</p>			
101	Telephone Number Display for Trunk Line 1  <i>P101 LN1 TEL NO</i>	Used to assign the trunk line telephone number that is displayed when making and answering trunk line calls.	<b>Not Assigned</b> Maximum of 13 digits.
102	Telephone Number Display for Trunk Line 2  <i>P102 LN2 TEL NO</i>		
103	Telephone Number Display for Trunk Line 3  <i>P103 LN3 TEL NO</i>		
104	Telephone Number Display for Trunk Line 4  <i>P104 LN4 TEL NO</i>		
105	Telephone Number Display for Trunk Line 5  <i>P105 LN5 TEL NO</i>		
106	Telephone Number Display for Trunk Line 6  <i>P106 LN6 TEL NO</i>		
107	Trunk Line Type  <i>P105 TRUNK TYPE</i> <i>654321</i>	Used to indicate the trunk line type; from a Central Office or from a PBX.	<b>1 = Central Office Line</b> – = PBX Line
108	Trunk Line Function  <i>P107 TRUNK STS</i> <i>654321</i>	Used to indicate the trunk line type; from a Central Office or from a PBX.	<b>1 = Allows outgoing/incoming calls</b> – = Incoming calls only
109	Trunk Line Dialing Type  <i>P109 CO LN SLCT</i> <i>111111</i>	Used to indicate the type of dialing; Dial Pulse (10 pps/20 pps), Dual Tone Multifrequency, ISDN, or uninstalled.  DP = Rotary Dial DTMF = Touchtone ISDN = Integrated Services Digital Network	0 = Uninstalled 1 = Dial Pulse (DP) 10 pps 2 = Dial Pulse (DP) 20 pps 3 = Dual Tone Multifrequency (DTMF) or ISDN
110	Touchtone Signal Duration and Pause Interval  <i>P110 MF PATTERN</i> <i>111111</i>	Used to assign the length of the touchtone (Dual Tone Multifrequency) signal and the pause time before the next signal is sent. This is used when DTMF is assigned to the trunk line and Dial Pulse (DP) is assigned for the switching signal.	0 = 400 ms(duration)/100 ms (pause) <b>1 = 100 ms(duration)/70 ms (pause)</b>

Table 7-1: Programming Functions (Continued)

Function Number	Function Name and Telephone Display	Description	Programming Values
111	NOT USED		
112	Line Reversal Assignment <i>P112 LINE REVERS</i> -----	Specifies whether a trunk is assigned with Line Reversal Signalling at the exchange.	<b>1 = YES</b> --: = NO
119	Ring Tone Type <i>P119 RING CYCLE</i> 654321	Used to select either a low or high ringing tone.	<b>1= Low</b> - = High
124	External Speaker Tone Duration for Day Mode <i>P124 EXTSP DY</i> 555555	Used to assign the length of the tone sent to the external speaker to indicate an incoming call during day mode.	0 = 0 sec.            3 = 30 sec. 1 = 10 sec.           4 = 60 sec. 2 = 20 sec. <b>5 = No Tone</b>
125	External Speaker Tone Duration for Night Mode <i>P125 EXTSP NT</i> 555555	Used to assign the length of the tone sent to the external speaker to indicate an incoming call during night mode.	
140	Direct Calling for Day Mode on Trunk Line 1 <i>P140 DIT LN1 DY</i>	Used to indicate an extension number (or voice mail number) that is used for direct calls (i.e., calls that are not routed through an attendant). This assignment applies to day mode.	<b>Blank = No Assignment</b> Extension Number 10⇒59
141	Direct Calling for Day Mode on Trunk Line 2 <i>P141 DIT LN2 DY</i>		
142	Direct Calling for Day Mode on Trunk Line 3 <i>P142 DIT LN3 DY</i>		
143	Direct Calling for Day Mode on Trunk Line 4 <i>P143 DIT LN4 DY</i>		
144	Direct Calling for Day Mode on Trunk Line 5 <i>P144 DIT LN5 DY</i>		
145	Direct Calling for Day Mode on Trunk Line 6 <i>P145 DIT LN6 DY</i>		
146	Direct Calling for Night Mode on Trunk Line 1 <i>P146 DIT LN1 NT</i>		
147	Direct Calling for Night mode on Trunk Line 2 <i>P147 DIT LN2 NT</i>		
148	Direct Calling for Night mode on Trunk Line 3 <i>P148 DIT LN3 NT</i>		

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
149	Direct Calling for Night mode on Trunk Line 4 <i>P149 DIT LN4 NT</i>		
150	Direct Calling for Night mode on Trunk Line 5 <i>P150 DIT LN5 NT</i>		
151	Direct Calling for Night mode on Trunk Line 6 <i>P151 DIT LN6 NT</i>		
152	Direct Calling Answer Delay Time <i>P152 DIT DLY 000000</i>	Used to specify the duration of the delay of incoming direct calls. This applies to calls received on a line assigned for direct calling.	0 = 0 sec.      4 = 30 sec. 1 = 1.5 sec.    5 = 40 sec. 2 = 10 sec.     6 = 50 sec. 3 = 20 sec.     7 = 60 sec.
153	Direct Calling Delay for Night Mode <i>P153 DIT DLY NT 654321</i>	Used to indicate whether the answer delay for direct called that are received in night mode are delayed.	<b>1⇨6 = Enabled</b> – = Disabled
154	Call Forward External Assignment (trunk based) <i>P154 CFE ALLOW T - - - - -</i>	Specifies whether a trunk is allowed to be set as the outgoing trunk of a Call Forward External Assignment.	<b>1⇨6 = CFE Allowed</b> – = CFE Disabled
155	GDN to Trunk Assignment (Day Mode - ISDN only) <i>P155 GDN DAY</i>	Assigns a GDN to each ISDN trunk for Day mode operation.	Indial Mode = 2 digit ISDN Table NO (00⇨99) MSN Mode = 2 digit index Table No (01⇨16) <b>Default: Not Assigned</b>
156	GDN to Trunk Assignment (Night mode - ISDN only) <i>P156 GDN NIGHT 1 = - -</i>	Assigns a GDN to each ISDN trunk for Night mode operation.	<b>Note:</b> Indial mode setting uses the last 2 digits of an incoming number for matching. Therefore, valid data values for P155/156 in this mode are (00⇨99). MSN mode must have the ISDN interface number, excluding area code assigned to an index number in P065. The index number (01⇨16) is then used for matching incoming calls in P155/156.

**Telephone Port Programming Programming Note**

To change the default setting for a telephone port, dial the 2 digit number that corresponds to the telephone you want to change (01 to 6, as appropriate). For example, to change the setting for telephone Port 10, dial "1", "0". Depending on the function number, dialling the port number will either toggle its setting between two values or, where more than two values are available, will cause that setting to flash. When the setting flashes, you are required to enter a third digit, this being the new programming value (0 to 9, as appropriate). Port numbers are shown in descending order, with Port 01 on the right-hand side of the display.

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
202	Off-Hook Ringing Tone <i>P202 OFFHK RING</i> 11111111111111	Used to indicate whether a ringing tone is sent when the user is engaged in a conversation. This tone signals the user that there is an incoming call (on a trunk line).	1 = Enabled 2 = Disabled
203	Trunk Line Barge-In <i>P203 CO BRG IN</i> -----	Used to indicate (for each telephone) if barge-in is allowed when the user is engaged in a call using a trunk line.	1 = Enabled - = Disabled
206	Extension Number Assignment <i>P206 STATION NO</i> NO01 = 10	Used to assign an extension number to each telephone in the system.	Available Extension Numbers = 10⇒59 Default: Ports 01⇒16 = Exts 10⇒25
<b>Programming Note:</b>	To change the extension number for the displayed port, press the numbers on the dial pad that correspond to the extension number.		
207	Single Line Port Type <i>P207 SLT TYPE</i> --	Used to designate whether the single line port is connected to a single line telephone.	- = Not Connected 1 = Single Line Telephone
208	Single Line Dialing Type <i>P208 SLT TYPE</i> 1111111111111111	Used to assign the dialing type for single line telephones. The options are rotary (Dial Pulse) or touchtone (Dual Tone Multifrequency).	- = Dial Pulse (Rotary) 1 = Dual Tone Multifrequency (Touchtone)
<b>Programming Note:</b>	<i>Even though you can assign all 10 ports as single line telephones, this is not recommended. If you are going to use a telephone to program the system, one telephone must be a multiline telephone.</i>		
209	Outgoing Call Priority Mode <i>P209 CALL PREFER</i> -----	Used to select the line that is seized first when the user goes off-hook. The system can be programmed to either seize an internal or external line for multiline telephones and single line telephones.	1 = External Line - = Internal Line
210	Doorphone 1 Tone for Day Mode <i>P210 DPH1 CHM DY</i> 1111111111111111	Used to assign a specified telephone to produce a tone (chime) signal when the doorphone receives a call. This assignment applies to day mode for multiline and single line telephones.	1 = Tone - = No Tone *Does not ring for SLT connected to APR, or SLT Adapter. SLI card Ports 15 and 16 can be assigned to ring.
211	Doorphone 2 Tone for Day Mode <i>P211 DPH2 CHM DY</i> 1111111111111111		
213	Doorphone 1 Tone for Night Mode <i>P213 DPH1 CHM NT</i> -----11	Used to assign a specified telephone to produce a tone (chime) signal when the doorphone receives a call. This assignment applies to night mode for multiline and single line telephones.	1 = Tone (this is the default setting for telephones 1 and 2) - = No Tone (this is the default setting for telephone Ports 3⇒10)
214	Doorphone 2 Tone for Night Mode <i>P214 DPH2 CHM NT</i> -----11		

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
216	Handsfree Assignment  <i>P216 HFU</i> <i>1111111111111111</i>	Used to assign (for each multiline telephone) handsfree operation.	<b>1 = Enabled</b> – = Disabled
217	Internal All Call Paging Tone  <i>P217 PAGE EXT</i> <i>1111111111111111</i>	Used to enable or disable call paging tone for each multiline telephone. The page will still be displayed on each multiline telephone and can be answered by any multiline telephone in the system.	<b>1 = Enabled</b> – = Disabled
218	Headset Connection  <i>P218 HEADSET</i> <i>1111111111111111</i>	Used to indicate if a headset is connected an DTU-Type multiline telephone.	<b>1 = Not Connected</b> – = Connected
219	Restricted Calling for External Calls  <i>P219 REST DIGIT</i> <i>1111111111111111</i>	Used to restrict outgoing calls on a specific line. Restrictions can be set for multiline telephones and single line telephones.	<b>1 = Not Restricted</b> – = Restricted
220	Restricted Dialing Table Selection  <i>P220 RSTRC TABLE</i> <i>0000000000000000</i>	Specifies which Restricted Dialing Table (1 or 2) is used for each telephone in the system (includes both multiline and single line telephones).	<b>0 = Not Used</b> 1 = Table 1 (Table assigned using function 020) 2 = Table 2 (Table assigned using function 021) 3 = Tables 1 & 2 (table assigned using function 020 and 021)
<b>Programming Note:</b> To change the defaults value for function 220 and 221, dial the 2 digit number. The number will blink, indicating your selection. Press the number that corresponds to the programming value (0, 1, 2).			
221	Authorized Dialing Table Selection  <i>P221 ALLOW TABLE</i> <i>0000000000000000</i>	Specifies which Authorized Dialing Table (1 or 2) is used for each telephone in the system (includes both multiline and single line telephones).	<b>0 = Not Used</b> 1 = Table 1 (Table assigned using function 020) 2 = Table 2 (Table assigned using function 021) 3 = Tables 1 & 2 (table assigned using function 020 and 021)
222	Authorized Dialing for System Speed Dial Calls  <i>P222 RST SPD DL</i> <i>1111111111111111</i>	Used to assign specific system (common) speed dial memory locations (60⇒99), which follow Toll Restrictions when a port is set to Deny. System speed dial memory locations (20⇒59) always bypass Toll restrictions.  When system speed dial 200 is set in P001–2, then a deny setting will invoke Toll restrictions for buffers (000⇒199) and an ‘allow entry’ will bypass.	<b>1 = Denied (number cannot be dialed)</b> – = Allowed (number can be dialed)
223	Automatic Outgoing Calling  <i>P223 NO MATCH DL</i> <i>1111111111111111</i>	Used to allow or deny automatic outgoing calling when the dialed number is not found in one of the Restricted or Authorized Dialing Tables (020⇒023).	<b>1 = Allowed (outgoing calls can be made)</b> – = Denied (outgoing calls cannot be made)

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
225	External Ring Assignment (Day) – Station Based  <i>P225 EXT RG-ST DY</i> <i>5555555555555555</i>	External ringing operates for incoming DID, DIT and CO Ring Transferred calls to telephones 1⇒16 (Day mode).	0 = 0 sec      4 = 60 sec 1 = 10 sec <b>5 = Doesn't sound</b> 2 = 20 sec 3 = 30 sec
226	External Ring Assignment (Night) – Station Based  <i>P226 EXT RG-ST NT</i> <i>5555555555555555</i>	External ringing operates for incoming DID, DIT and CO Ring Transferred calls to telephones 1⇒16 (Night mode).	0 = 0 sec      4 = 60 sec 1 = 10 sec <b>5 = Doesn't sound</b> 2 = 20 sec 3 = 30 sec
227	Telephone to Paging Zone A Assignment  <i>P227 ZONE A</i> -----	Assigns terminals to Paging Zone A.	<b>1 = Assigned</b> – = Not Assigned
228	Telephone to Paging Zone B Assignment  <i>P228 ZONE B</i> -----	Assigns terminals to Paging Zone B.	<b>1 = Assigned</b> – = Not Assigned
229	Call Forward External Assignment – Station Based  <i>P229 CFE ALLOW S</i> -----	Specifies whether each station is allowed to set Call Forward External.	<b>1 = CFE Allowed</b> – = CFE Denied
231	Station Indial Ring Pattern Selection  <i>P231 DID RNG PAT</i> <i>0000000000000000</i>	Select a ring pattern for indial calls to each station port. A DID call will ring with this cadence.  <b>PATTERN:</b> 0s   1s   2s   3s   4s   5s   6s  <b>A</b>  <b>B</b>  <b>C</b>  <b>D</b> 	0 = Pattern A 1 = Pattern B 2 = Pattern C 3 = Pattern D
232	Station Indial Ring Tone Selection  <i>P232 DID RNG TON</i> <i>0000000000000000</i>	Select ring tone for indial calls to each station port. A DID call to a station will ring with this tone.	<b>0: Low Tone (520/660 Hz)</b> <b>1: High Tone (1100/1400 Hz)</b>

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
<p><b>Trunk Telephone Menu Programming</b></p>			
<p><b>Programming Note</b></p>			
<p>To change the default setting for a telephone port, dial the 2 digit number that corresponds to the telephone you want to change (01 to 14, or 01 to 16, as appropriate). For example, to change the setting for telephone Port 10, dial "1", "0". Depending on the function number, dialling the port number will either toggle its setting between two values or, where more than two values are available, will cause that setting to flash. When the setting flashes, you are required to enter a third digit, this being the new programming value (0 to 9, as appropriate). Port numbers are shown in descending order, with Port 01 on the right-hand side of the display.</p>			
<p><b>301</b></p>	<p>Delayed Ringing for Trunk Line 1 for Day Mode</p> <p><i>P301 CO1 RING DY 0000000000000000</i></p>	<p>Used to assign the duration of the delay between the time the call is received and the time the ringing tone is heard. This option allows you to delay ringing to another telephone. This assignment is for day mode.</p>	<p><b>0 = 0 sec.</b>      3 = 30 sec.            1 = 10 sec.     4 = 60 sec.            2 = 20 sec.      5 = No Tone</p>
<p><b>302</b></p>	<p>Delayed Ringing for Trunk Line 2 for Day Mode</p> <p><i>P302 CO2 RING DY 0000000000000000</i></p>		
<p><b>303</b></p>	<p>Delayed Ringing for Trunk Line 3 for Day Mode</p> <p><i>P303 CO3 RING DY 0000000000000000</i></p>		
<p><b>304</b></p>	<p>Delayed Ringing for Trunk Line 4 for Day Mode</p> <p><i>P304 CO4 RING DY 0000000000000000</i></p>		
<p><b>305</b></p>	<p>Delayed Ringing for Trunk Line 5 for Day Mode</p> <p><i>P305 CO5 RING DY 0000000000000000</i></p>		
<p><b>306</b></p>	<p>Delayed Ringing for Trunk Line 6 for Day Mode</p> <p><i>P306 CO6 RING DY 0000000000000000</i></p>		
<p><b>311</b></p>	<p>Delayed Ringing for Trunk Line 1 for Night Mode</p> <p><i>P311 CO1 RING NT 0000000000000000</i></p>	<p>Used to assign the duration of the delay between the time the call is received and the time the ringing tone is heard. This option allows you to delay ringing to another telephone. This assignment is for night mode.</p>	<p><b>0 = 0 sec.</b>      3 = 30 sec.            1 = 10 sec.     4 = 60 sec.            2 = 20 sec.      5 = No Tone</p>
<p><b>312</b></p>	<p>Delayed Ringing for Trunk Line 2 for Night Mode</p> <p><i>P312 CO2 RING NT 0000000000000000</i></p>		
<p><b>313</b></p>	<p>Delayed Ringing for Trunk Line 3 for Night Mode</p> <p><i>P313 CO3 RING NT 0000000000000000</i></p>		
<p><b>314</b></p>	<p>Delayed Ringing for Trunk Line 4 for Night Mode</p> <p><i>P314 CO4 RING NT 0000000000000000</i></p>		

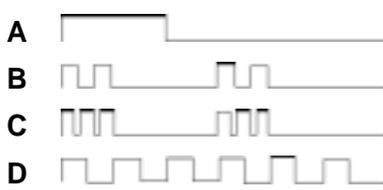
Table 7-1: Programming Functions (Continued)

Function Number	Function Name and Telephone Display	Description	Programming Values
315	Delayed Ringing for Trunk Line 5 for Night Mode  <i>P315 CO5 RING NT 0000000000000000</i>		
316	Delayed Ringing for Trunk Line 6 for Night Mode  <i>P316 CO6 RING NT 0000000000000000</i>		
331	Automatic Line Selection for Trunk Line 1  <i>P331 CO1 ATL ORG 1111111111111111</i>	Used to designate which line keys are used for automatic line key selection. This is used to automatically seize a line by pressing  (DTB-Type telephones) or  or going off-hook and dialing the appropriate outside line access code. This is designated for each telephone.	<b>1 = Enabled</b> – = Disabled
332	Automatic Line Selection for Trunk Line 2  <i>P332 CO2 ATL ORG 1111111111111111</i>		
333	Automatic Line Selection for Trunk Line 3  <i>P333 CO3 ATL ORG 1111111111111111</i>		
334	Automatic Line Selection for Trunk Line 4  <i>P334 CO4 ATL ORG 1111111111111111</i>		
335	Automatic Line Selection for Trunk Line 5  <i>P335 CO4 ATL ORG 1111111111111111</i>		
336	Automatic Line Selection for Trunk Line 6  <i>P336 CO4 ATL ORG 1111111111111111</i>		
341	Automatic Answering using Trunk Line 1  <i>P341 CO1 ATL ANS 1111111111111111</i>		
342	Automatic Answering using Trunk Line 2  <i>P342 CO2 ATL ANS 1111111111111111</i>		
343	Automatic Answering using Trunk Line 3  <i>P343 CO3 ATL ANS 1111111111111111</i>		
344	Automatic Answering using Trunk Line 4  <i>P344 CO4 ATL ANS 1111111111111111</i>		

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
345	Automatic Answering using Trunk Line 5  <i>P345 CO5 ATL ANS 1111111111111111</i>		
346	Automatic Answering using Trunk Line 6  <i>P346 CO6 ATL ANS 1111111111111111</i>		
351	Restricting Outgoing Calls for Trunk Line 1  <i>P351 CO1 RST OUT 1111111111111111</i>	Used to enable or disable (for each telephone) the ability to make outgoing calls when 105 – Trunk Line Function is set to “Outgoing/Incoming Calls.” This option can be used with multiline and single line telephones.	<b>1 = Outgoing Calls Enabled</b> – = Outgoing Calls Disabled
352	Restricting Outgoing Calls for Trunk Line 2  <i>P352 CO2 RST OUT 1111111111111111</i>		
353	Restricting Outgoing Calls for Trunk Line 3  <i>P353 CO3 RST OUT 1111111111111111</i>		
354	Restricting Outgoing Calls for Trunk Line 4  <i>P354 CO4 RST OUT 1111111111111111</i>		
355	Restricting Outgoing Calls for Trunk Line 5  <i>P355 CO5 RST OUT 1111111111111111</i>		
356	Restricting Outgoing Calls for Trunk Line 6  <i>P356 CO6 RST OUT 1111111111111111</i>		

Table 7-1: Programming Functions (Continued)

Function Number	Function Name and Telephone Display	Description	Programming Values
361	Ringing Cycle for Trunk Line 1  <i>P361 CO1 RNG SND</i> <i>1111111111111111</i>	Select a ring pattern for indial calls to each station port. A DID call will ring with this cadence.  0 = Pattern A 1 = Pattern B 2 = Pattern C 3 = Pattern D  <b>PATTERN:</b> 0s 1s 2s 3s 4s 5s 6s 	0 = Pattern A 1 = Pattern B 2 = Pattern C 3 = Pattern D
362	Ringing Cycle for Trunk Line 2  <i>P362 CO2 RNG SND</i> <i>1111111111111111</i>		
363	Ringing Cycle for Trunk Line 3  <i>P363 CO3 RNG SND</i> <i>1111111111111111</i>		
364	Ringing Cycle for Trunk Line 4  <i>P364 CO4 RNG SND</i> <i>1111111111111111</i>		
365	Ringing Cycle for Trunk Line 5  <i>P365 CO5 RNG SND</i> <i>1111111111111111</i>		
366	Ringing Cycle for Trunk Line 6  <i>P366 CO6 RNG SND</i> <i>1111111111111111</i>		
371	NOT USED		
372	NOT USED		
373	NOT USED		
374	NOT USED		
375	NOT USED		
376	NOT USED		

**Table 7-1: Programming Functions (Continued)**

Function Number	Function Name and Telephone Display	Description	Programming Values
<b>Tenant Programming</b>			
<b>Programming Note</b>			
<p>To change the default settings, dial the 1 digit trunk Port numbers 1⇒6 (function 401⇒402) or 2 digit telephone Port numbers 01⇒16 (function 403) to toggle its setting between 'assigned' and 'not assigned'. For example, to change the setting for telephone Port 10, dial "1" and "0". Port numbers are shown in descending order with Port 01 on the right-hand side of the display.</p>			
<p><b>401</b></p>	<p>Trunk Line Assignment for Tenant 1</p> <p style="text-align: center;"><i>P401 TENANT1 CO</i> 654321</p>	<p>Used to specify the trunk lines assigned as part of the tenant.</p>	<p><b>1 = Assigned to Tenant 1</b> – = Not Assigned to Tenant 1</p>
<p><b>402</b></p>	<p>Trunk Line Assignment for Tenant 2</p> <p style="text-align: center;"><i>P402 TENANT2 CO</i> -----</p>		<p>1 = Assigned to Tenant 2 – = <b>Not Assigned to Tenant 2</b></p>
<p><b>403</b></p>	<p>Tenant-to-Telephone Assignment</p> <p style="text-align: center;"><i>P403 TENANT</i> 1111111111111111</p>	<p>Used to assign each telephone to a tenant. Both multiline and single line telephones can be assigned to a tenant.</p>	<p><b>1 = Assigned to Tenant 1</b> – = Assigned to Tenant 2</p>
<b>System Mode Programming</b>			
<b>Programming Note</b>			
<p>To change the default setting for a telephone port, dial the 1 digit number which corresponds to the new programming value. For example, to change the setting for functionnumber 503 to 90 ms, dial "1".</p>			
<p><b>501</b></p>	<p>Doorphone Call Timer</p> <p style="text-align: center;"><i>P501 DPH RING TM</i> 0</p>	<p>Used to indicate how long "Doorphone X" appears on the telephone display when a call is received from a doorphone.</p> <p>Note: X = Doorphone Number (1 &amp; 2).</p>	<p><b>0 = 15 sec.</b> 1 = 30 sec.</p>
<p><b>502</b></p>	<p>Single Line Telephone Bounce Time</p> <p style="text-align: center;"><i>P502 BOUNCE TIME</i> 1</p>	<p>Used to indicate the time that passes before a valid hookflash is detected from a single line telephone.</p>	<p>0 = 0 ms.            2 = 600 ms. <b>1 = 300 ms.</b>        3 = 900 ms.</p>
<p><b>503</b></p>	<p>Single Line Telephone Hookflash Start Time</p> <p style="text-align: center;"><i>P503 SLT FLSH ST</i> 0</p>	<p>Start time indicates the minimum time that passes before the system accepts a hookflash signal.</p> <p>Start time is used in conjunction with 504 (Single Line Telephone Hookflash End Time).</p>	<p><b>0 = 40 ms.</b>            5 = 700 ms. 1 = 90 ms.            6 = 900 ms. 2 = 140 ms.          7 = 1.1 sec. 3 = 190 ms.          8 = 1.3 sec. 4 = 240 ms.          9 = 1.5 sec.</p>

Table 7-1: Programming Functions (Continued)

Function Number	Function Name and Telephone Display	Description	Programming Values
504	Single Line Telephone Hookflash End Time  <i>P504 SLT FLSH ED</i> 1	End time indicates the maximum time that passes before the system recognizes the flash as a valid hookflash. If the flash is longer than the time set, the system considers the flash as a disconnect signal.  To determine the duration of the hookflash signal, the system computes using the following formula: SLT Hookflash Start Time + SLT Hookflash End Time = SLT Duration.  End time is used in conjunction with 503 (Single Line Telephone Hookflash Start Time).	0 = 0 ms.      5 = 700 ms. 1 = <b>100 ms.</b> 6 = 900 ms. 2 = 200 ms.      7 = 1.1 sec. 3 = 400 ms.      8 = 1.3 sec. 4 = 500 ms.      9 = 1.5 sec.
505	Trunk Line Prepause Duration  <i>P505 PRE PAUSE</i> 2	Used to specify the time (prepause) before the system sends dial pulse (rotary) or dual-tone multifrequency (touchtone) signals to the local telephone company.	0 = 0 sec      5 = 5 sec 1 = 1 sec      6 = 6 sec 2 = <b>2 sec</b> 7 = 7 sec 3 = 3 sec      8 = 8 sec 4 = 4 sec      9 = 9 sec
<p><b>Programming Note:</b> To access 501⇒505 you must press <b>L</b> to and enter the function number using the dialpad. You cannot access these functions by scrolling.</p>			
<b>Maintenance Modes:</b>			
<b>L + P</b>	Check ROM Version  <i>1:MAIN ROM = 0.1</i>	Used to check the ROM versions for the central processing unit, voice mail, PC programming and SMDR units.	1 = <b>Main ROM (Main CPU)</b> 2 = Optional Sub-CPU 3 = Digital Voice Mail 4 = MIF Unit TRF to Advance
<b>L + R + A + K +</b>	Clear Speed Dial Numbers System-Wide  <i>CLR</i>	Used to delete all of the speed dial numbers for the entire system.	N/A
<p><b>Programming Note:</b> To complete this operation you must press <b>U</b>.</p>			
<b>L + R + C + L + U</b>	Clear Speed Dial Numbers for Individual Telephones  <i>TEL SPED CLR?</i>	Used to delete all of the speed dial numbers for an individual telephone.	N/A
<b>L + R + B - L + U</b>	Clear Automatic Speed Dial Numbers  <i>AUTO DIAL CLR?</i>	Used to clear all the one-touch numbers for an individual telephone.	N/A

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