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XMU+

Installation Handbook

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XMU+ Installation Handbook
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Note: For the latest revision of this guide please go to http://www.interalia.com/xmu.php

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1 Before You Start

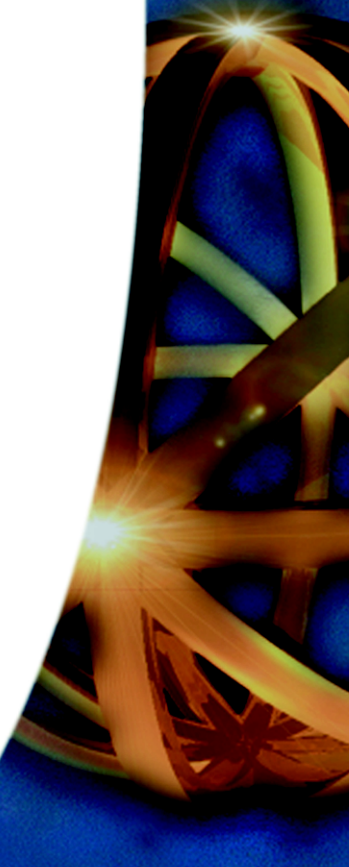
This handbook is a guide to aid installation of your XMU+ unit. Full instructional manuals can be found on the CD included in your shipment.

Because of its ability to adapt to a variety of situations, the technical features of the XMU+ unit ordered by your company are unique. Before you start to install the XMU+ unit, you should:

- Unpack the XMU+ unit, using the checklists provided, to ensure that all required components are available.
- Identify the features of your particular XMU+ unit.
- Understand the general requirements of the XMU+ unit, including environmental, power connection, and PBX requirements.

In this chapter...

- *Unpacking the XMU+* on page 3.
  - *Hardware Accessories Checklist* on page 3.
  - *Cable Checklist* on page 4.



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Unpacking the XMU+

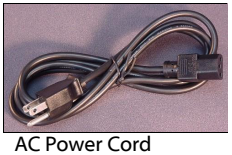
The XMU+ has a number of standard components that accompany it, as well as several optional accessories that may have been ordered by your company. When you unpack the XMU+, use the following checklists to ensure that all required components have been included with your XMU+ unit:

- All standard hardware accessories. See *Hardware Accessories Checklist* on page 3.
- All cables and connectors associated with the XMUCOM+ software. See *Cable Checklist* on page 4.
- Any optional line cards.

Hardware Accessories Checklist

Use the following checklist to ensure that all standard hardware accessories have been supplied with the XMU+ unit:


Handset


AC Power Cord

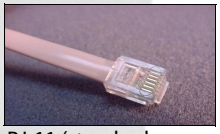

Rack Mounting Bracket

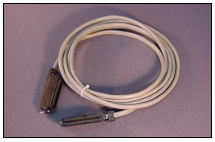
- ☐ Handset.
- ☐ Power Cord (AC systems only). Two power cords are required for XMU+ units with dual AC supplies.
- ☐ 19" Rack Mounting Bracket and screws (for rack and wall mounting large chassis).
- ☐ XMU+ Installation and Maintenance Guide. *XMU+ QuickStart Guide*. XMUCOM+ software. (on same CD)
- ☐ MOH cable kit (with MOH line cards only). See *Cable Checklist* on page 4 for a list of items included in the MOH cable kit.
- ☐ Standard cable kit. See *Cable Checklist* on page 4 for a list of items included in the standard cable kit.
- ☐ Line Cards (pre-installed).
- ☐ Rubber feet for XMU+ tabletop mounting.
- ☐ 23" Rack Mounting Bracket and screws, small XMU+ chassis only (optional).
- ☐ Wall Mounting Bracket - small XMU+ chassis only (optional).

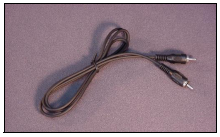
Cable Checklist

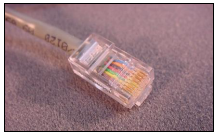
Several cables and connectors are required to connect the XMU+ unit to XMUCOM+ software, a PBX, and other external devices. Use the following checklist to ensure that all required cables and converters have either been:

- Included in the cable kit(s) shipped with the XMU+. The standard cable kit is always included with the XMU+, while the MOH cable kit is only shipped with those XMU+ units ordered with an MOH card.
- Purchased separately. Many industry standard cables are *not* provided with the XMU+, since the number and types of these cables needed depend on the number and types of line cards installed in the XMU+.

Type of cable...	# included...	# to be purchased...
 RJ-11 (standard telephone) cable	0	# required:_____
RJ-45 to RJ-45 crossover cable for Ethernet (direct) connection to the XMUCOM+ PC.	1 in standard cable kit	# required:_____
 RJ-45 to RJ-45 crossover cable	0	# required:_____
RJ-45 connector and Category 5 UTP cable for Ethernet (direct) connection to the XMUCOM+ PC.		


RJ-21 cable


RCA/Phono cable


RJ-45 connector

Type of cable...	# included...	# to be purchased...
RJ-21 50-pin male connector and appropriate coaxial cable to connect each line card to a PBX or other external device.	0	# required: _____
Standard RCA/Phono male connector and appropriate cable for each MOH input and output port.	In each MOH cable kit: ◆ 4 RCA to lead ◆ 2 RCA to RCA	# required: _____
RJ-45 connector and Category 5 UTP cable for each T1 line card.	0	# required: _____
RJ-21 to RJ-11 breakout cable (optional). This cable converts the RJ-21 to eight RJ-11 connectors.	Can be included (if ordered with XMU+).	# required: _____
RJ-21 to unterminated 20 ft. cable (optional).	Can be included (if ordered with XMU+).	# required: _____
RJ-21 to eight RJ45 connector	Can be included (if ordered with XMU+).	# required _____

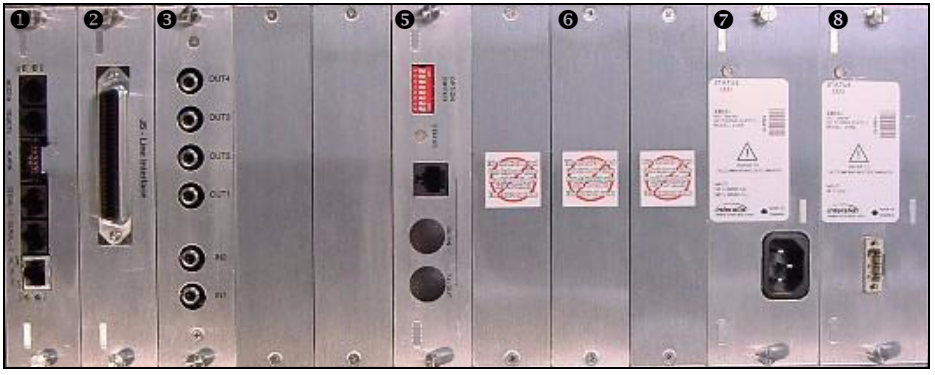
Rear Panel

The rear panel features differ between the small and large XMU+ chassis.

Small Chassis



Large Chassis



Feature...		Provides ports for the following functions...
❶	Control Card	◆ MODEM - RJ-11 port used to connect to XMUCOM+. ◆ REMOTE - RJ-11 port used to program messages from a remote location using a touch tone telephone. ◆ ALARM - Provides 2 x 5 header connections for alarm circuitry. ◆ SERIAL-1 - RS-232 port used for future applications. ◆ SERIAL-2 - RS-232 port used for future applications. ◆ NETWORK - RJ-45 port used to connect to XMUCOM+ via an Ethernet network. ◆
❷	Hybrid Analog Line Card	RJ-21 port used to perform analog ACD, Call Processing, and Auto Attendant applications.

Feature...		Provides ports for the following functions...
❸	MOH Line Card	Standard RCA/Phono input/output ports used to perform music-on-hold functions.
❹	T1 Line Card	RJ-45 port used to perform digital ACD, Call Processing, and Auto Attendant applications.
❺	Blank Face Plate Warning	Warning sticker placed on unusable slots.
❻	AC Power Input	AC power input connector. On the XMU+ small chassis, the front panel LED illuminates to indicate power to the unit. On the XMU+ large chassis, a status indicator is associated with each power input. ◆ Green - OK/Online. ◆ Red - Fault/Power Fail.
❼	DC Power Input	DC power input connector. On the XMU+ small chassis, the front panel LED illuminates to indicate power to the unit. On the XMU+ large chassis, a status indicator is associated with each power input. ◆ Green - OK/Online. ◆ Red - Fault/Power Fail.

2

Installing the XMU+

The installation process consists of physical installation at the appropriate location, connecting the XMU+ to its designated power supply, and checking system startup.

Before beginning the installation process, line card settings must be applied to the appropriate line cards.

ESD

Electrostatic Discharge

Caution: The installation of an XMU+ unit should only be completed by a qualified telecommunications / electronics technician. Standard static discharge precautions must be followed when handling any internal components. ESD precautions should also be observed.



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In this chapter...

- *Connecting the XMU+ to its Power Supply* on page 11.

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Connecting the XMU+ to its Power Supply

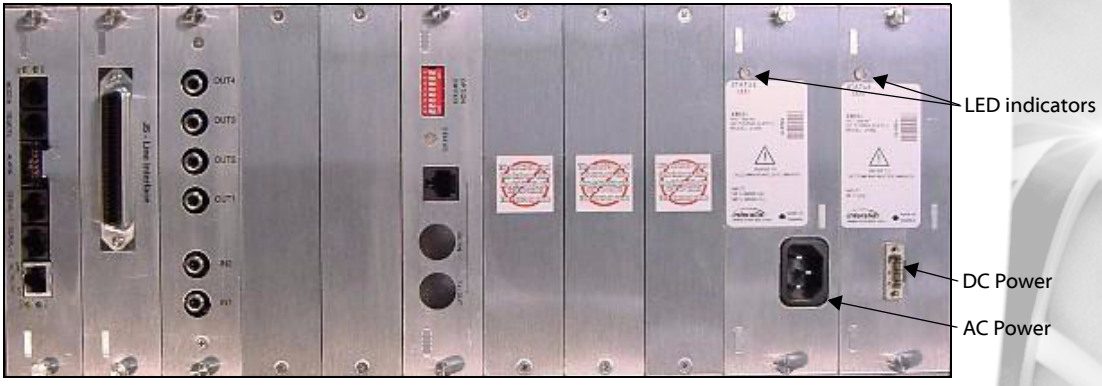
The XMU+ small chassis can be connected to either an AC or DC power supply. The appropriate Power Supply card comes pre-installed in the back of the unit, as shown below:

Small Chassis with AC Power Supply



The XMU+ large chassis can also be connected to either an AC or DC power supply. In some cases, the XMU+ large chassis will have dual power supplies installed to ensure that a secondary power supply is available if the primary power supply to the XMU+ fails, as shown below. The dual power supplies can be one AC and one DC, dual AC, or dual DC. In these cases, you will need to connect both XMU+ power supplies.

Large Chassis with Dual Power Supply (AC and DC)



When dual power supplies are available, both supplies will have an LED indicator that will be green when the supplies are working normally (sharing the power supply load). If one of the power supplies goes out of service (the LED showing red), the other power supply takes over the entire load.

To connect AC Power

The AC outlet on the XMU+ is auto voltage sensing, from 110 VAC to 240 VAC.

To meet XMU+ power requirements, ensure that the necessary power sockets (AC or DC) are available, unoccupied, and have a protective earth/ground connection.

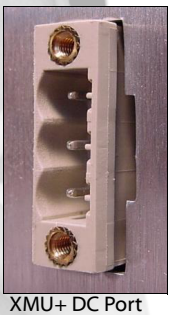
Note: **Note:** Since the AC power cord is the disconnect for the XMU+, ensure that the AC receptacle is near the unit.
Sicherheitshinweis: Der Netzstecker ist die An-/Ausschaltung für die XMU+. Vergewissern Sie sich deshalb, daß der Nestzanschluß in der Nähe der Maschine und leicht erreichbar ist.


XMU+ AC Port

1. Connect the appropriate end of the detachable power cord to the nearest 110/240 VAC outlet.
2. Connect the other end of the power cord to the AC port on the XMU+.
3. Since the XMU+ immediately activates when it is supplied with AC power, you should check system startup.
4. Repeat Steps 1 and 2 for systems with a secondary AC power supply.

To wire DC Power

Certain PBX units supply a DC voltage to which the XMU+ can be connected using a flying lead wire. For dual DC power supplies, use two flying lead wires and a separate terminal strip and fuse for each. XMU+ DC power should always be wired by a DC-wiring trained technician.


XMU+ DC Port

Note: Before you start to wire DC power, ensure the correct fuse rating (5 amps minimum) is used by the PBX. The actual fuse rating used to wire the XMU+ DC power should not exceed the safe rating of the wire used.

1. Connect the appropriate -48 VDC wires to the designated inputs on the XMU+ terminal strip:
   - Ground to ⏚
   - Positive to +
   - Negative to -
2. Connect the appropriate -48 VDC wires to the designated outputs on the PBX.
3. Since the XMU+ immediately activates when it is supplied with DC power, you should check system startup.
4. Repeat Steps 1 to 3 for systems with a secondary DC power supply.


Flying Lead Wire & Terminal Strip

3

Applying Hardware Settings to XMU+ Line Cards

Each XMU+ line card is unique, in both its design and its effect on the functional capabilities of the XMU+. Some XMU+ line cards require specific settings to be applied so they can perform appropriately with your PBX.

Note:

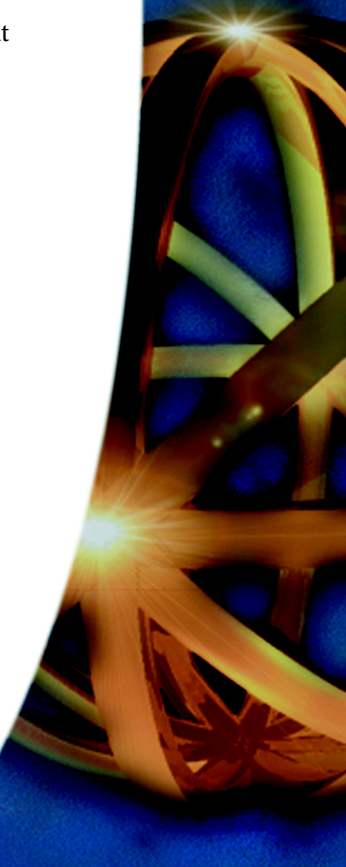


Note: Since the AC power cord is the disconnect for the XMU+, ensure that the AC receptacle is near the unit.
Sicherheitshinweis: Der Netzstecker ist die An-/Ausschaltung für die XMU+. Vergewissern Sie sich deshalb, daß der Nestzanschluß in der Nähe der Maschine und leicht erreichbar ist.

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In this chapter...

- *Applying T1 Line Card Settings* on page 15.



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Applying T1 Line Card Settings

T1 is a high-speed, dedicated connection that is capable of transferring digital signals at 1.544 Mbps (megabits per second).

The XMU+ T1 line card provides support for industry standard T1 digital communication interfaces. It lets the XMU+ connect to a T1 communication link, which provides 24 T1 user channels, each capable of 64Kbps (kilobits per second).

When placed in a small chassis XMU+, the T1 line card controls all the lines. When placed in a large chassis XMU+, T1 line cards can only be placed in the 1st and 5th slots, since they control not only the slot they are placed in, but also the following 3 slots.

For example, when a T1 line card is plugged into slot 1, it controls all of the lines in slots 1 to 4, but slots 5 to 8 remain available for other line cards.

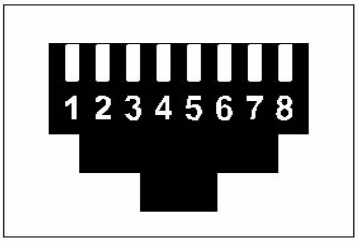
The following table maps the 24 T1 channels to the XMU+ lines:

T1 Channel...	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
XMU+ Slot 1: Line	1	2	3	4	5	6	7	8
T1 Channel	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
XMU+ Slot 2: Line	1	2	3	4	5	6	7	8
T1 Channel	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
XMU+ Slot 3: Line	1	2	3	4	5	6	7	8

Note: Slot 4 is used to control slots 1, 2, and 3.

RJ45 Pin-Out

The diagram below shows the RJ45 jack on the T1 line card. The XMU+ receives data on pins 1 & 2, and transmits on pins 4 & 5.



The pins must be swapped if the PBX T1 card uses the same transmit and receive pins

To set T1 Primary Option Switch

The Primary Option Switch determines the line coding method, the transmit line buildout, and the receiver equalization.

1. Locate the T1 line card in the back of the XMU+ unit.
2. Locate the primary option switch T1 line card faceplate, as shown below:



3. Use the table below to set primary option switch 1 to the correct line coding method.

Line Coding Method	Option Switch 1
AMI	On
B8ZS *	Off

Note: * = default factory setting
On = Up, Off = Down

4. Use the table below to set primary option switches 2, 3, and 4 to the correct transmit line buildout.

Transmit Line Build Out	Option Switch 2	Option Switch 3	Option Switch 4
0 to 133 Ft / 0 dB *	On	On	On
133 to 266 Ft	On	On	Off
266 to 399 Ft	On	Off	On
399 to 533 Ft	On	Off	Off
533 to 655 Ft	Off	On	On
-7.5 dB	Off	On	Off
-15 dB	Off	Off	On
-22.5 dB	Off	Off	Off

Note: * = default factory setting
On = Up
Off = Down

5. Use the table below to set primary option switch 5 to enable or disable receiver auto equalization. If receiver auto equalization is enabled, option switches 6, 7, and 8 have no effect.

Receiver Auto Equalization	Option Switch 5
Enabled	On
Disabled *	Off

Note: * = default factory setting
On = 0 (Up), Off = 1 (Down)

6. Use the table below to set primary option switches 6, 7, and 8 to the correct receiver equalization. Receiver auto equalization must be disabled (switch 5) before option switches 6, 7, and 8 can be set.

Receiver Equalization Select	Option Switch 6	Option Switch 7	Option Switch 8
None *	On	On	On
6dB	On	On	Off
12dB	On	Off	On
18dB	On	Off	Off
24dB	Off	On	On
Reserved for future equalization settings.	Off	On	Off
Reserved for future equalization settings.	Off	Off	On
Reserved for future equalization settings.	Off	Off	Off

Note: * = default factory setting
On = Up, Off =Down

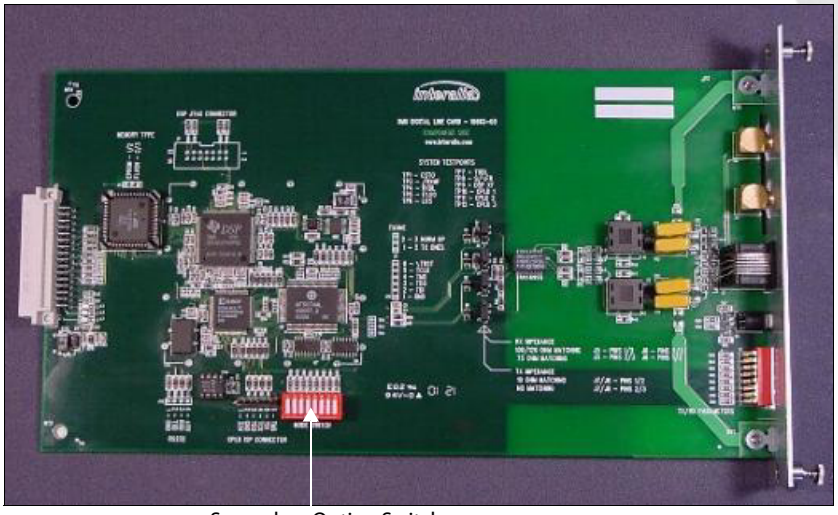
7. Ensure the LED status indicator on the faceplate is flashing green, indicating proper operation. If the LED indicator is flashing red, troubleshoot.

To set T1 Secondary Option Switch

The Secondary Option Switch is used to select the protocol/signaling method to be used by the line card. By default, the secondary option switch of the T1 line card is set to the Loop Start protocol.

1. Locate the T1 line card in the back of the XMU+ unit.
2. Loosen the two thumbscrews on either end of the line card's faceplate.

3. Pull the T1 line card straight out.
Locate the secondary option switch on the side of the T1 line card, as shown below:



4. Set the secondary option switch on the side of the T1 line card to the appropriate protocol, as defined by the following table.

T1 Protocol Selector...								
Reserved	0	0	0	0	0	0	0	1
Loop Start (FXS) D4 *	0	0	0	0	0	0	1	0
Loop Start (FXS) ESF	0	0	0	0	0	0	1	1
Clear Channel D4	0	0	0	0	0	1	0	1
Clear Channel ESF	0	0	0	0	0	1	1	0

Note: * = default factory setting Closed = 0, Open = 1

Caution...

Forcing the T1 line card into place could bend the pins on the connector.

5. Line up the line card's circuit board on the plastic rails in the chassis.

6. Slide the line card into place. When seating the line card, there should be slight resistance. Do *not* force the line card into place.

7. Tighten the thumbscrews.

8. Repeat Steps 1 to 8 if another T1 line card is to be installed in the XMU+.

Cabling the XMU+

4

Cabling the XMU+ involves connecting and/or wiring each line card to the appropriate PBX, transmitter, or amplifier. In addition, it involves cabling the Control card to the appropriate connections, which could include:

- Alarm connection.
- Telephone lines for Remote Access and modem connections.
- Ethernet connection.
- Direct RS-232 connection.

ESD

Electrostatic Discharge

Caution: The cabling of the XMU+ to the PBX should only be completed by a qualified telecommunications / electronics technician. Standard static discharge precautions must be followed when handling any internal components. ESD precautions should also be observed.



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In this chapter...

- *Matching XMU+ Cables and Connectors* on page 23
- *Cabling the XMU+ Control Card* on page 27.
- *Common Interface Tables (By Application)* on page 28.
- *About XMU+ Operating Modes* on page 39.

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Matching XMU+ Cables and Connectors

Use the following table to match Control card and line card connectors to the appropriate cables and mating connectors. While Control card connectors are the same on every XMU+ unit, the number and type of line cards can vary.

Some cables are shipped with the XMU+, but others may need to be purchased separately.

XMU+ Card...	Connector on card...	Used to...	Requires connector and cable...
Control Card	MODEM - RJ-11 connector	Communicate with XMUCOM+.	RJ-11 Mating Connector (telephone jack) and telephone cable.
	REMOTE - RJ-11 connector	Program messages from a remote location using a touch tone telephone.	RJ-11 Mating Connector (telephone jack) and telephone cable.
	SERIAL-1 - RS-232 connector	Perform future applications.	
	SERIAL-2 - RS-232 connector	Perform future applications.	
	NETWORK - RJ-45	Set up connections to XMUCOM+ software via an Ethernet network.	One of the following: ◆ RJ-45 to RJ-45 (6ft.) Category 5 UTP network connector and cable for LAN connection. ◆ RJ-45 to RJ-45 crossover cable for (direct) connection.
Low Impedance Line Card	J5 - RJ-21 Female Connector	Performs ACD/UCD applications only.	Amphenol RJ-21 50-pin male connector and cable.
MWR Line Card	J5 - RJ-21 Female Connector	Performs Mini Weather Radio applications only.	Amphenol RJ-21 50-pin male connector and cable.

ACD
Automatic Call Distribution

MWR
Mini Weather Radio

MOH
Music On Hold

CAT5
Standard Category 5

XMU+ Card...	Connector on card...	Used to...	Requires connector and cable...
MOH Line Card	2 RCA /Phono Inputs 4 RCA/ Phono Outputs	Perform MOH applications only.	Standard RCA/Phono connector and suitable coaxial cable.
Hybrid Analog Line Card	J5 - RJ-21 Female Connector	Perform ACD, Call Processing, and Auto Attendant applications.	Amphenol RJ-21 50-pin male connector and cable.
T1 Line Card	RJ-45 Female Connector	Perform ACD, Call Processing, and Auto Attendant applications.	RJ-45 mating connector and Standard Category 5 (CAT5) UTP cable.

Matching Connector Pinouts to XMU+ Line Cards

Most XMU+ line cards are cabled using the *RJ-21 50-pin Connector* on page 25. Exceptions include:

- The MOH line card, which uses the *RCA/Phono Connectors* on page 26.
- T1 line cards, which use a digital signal to connect to the XMU+.

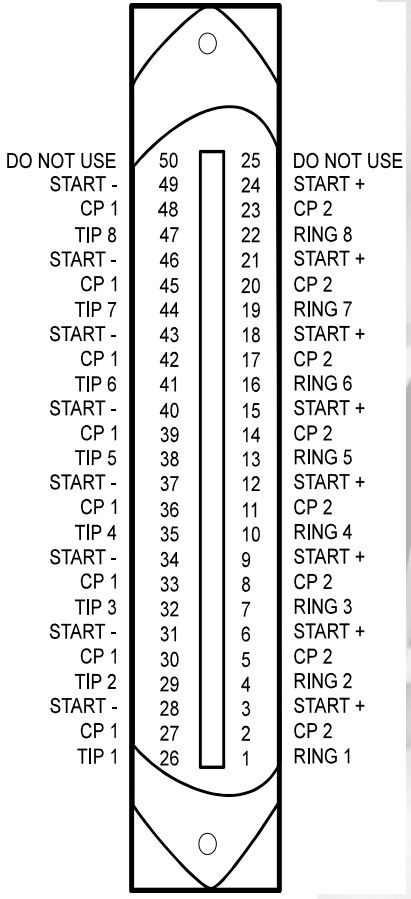
RJ-21 50-pin Connector

Use the Amphenol RJ-21 50-pin Connector to connect the following line cards to telephone lines or PBX trunks:

- Hybrid Analog line card.
- Low Impedance line card.
- MWR line card.

Each line on the Amphenol 50-pin connector has a tip (-)/ring (+) pair. The tip/ring pair performs like a regular telephone extension operating in the Ring Start Mode

For lines operating in other modes, the tip/ring pair provides the message audio path.



RCA/Phono Connectors

Use RCA/Phono connectors to connect MOH line cards to a PBX and/or an external music source. The two MOH input slots are used when music is provided by an existing external source, such as Muzak. The four MOH output slots connect to the MOH inputs on the PBX.



The following table outlines these input/output slots:

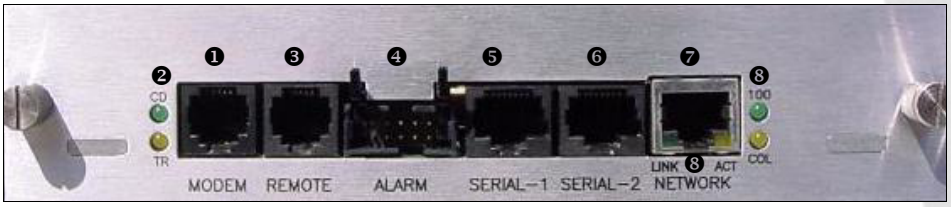
These connectors...	Do this...
IN1 IN2	Accepts a wide dynamic range of audio input (20mVrms to 1.6Vrms) to yield good recording quality audio.
OUT1 OUT2 OUT3 OUT4	◆ 600Ω output impedance drives a high impedance load such as “Line in” of a PA system, Music on Hold input of a key system, transmitter input, etc. ◆ 8Ω output impedance drives standard 8Ω speakers. ◆ Each output volume is adjustable up to the following levels: - 8Ω - 1.0W@2.8Vrms. - 600Ω - 13mW@2.8Vrms (8Vpp or =9dBm).

Caution: The large chassis (model numbers 28094/28095/48094/48095) can accommodate no more than two model 27804/47804 MOH cards configured for 8 Ohm operation.

Caution: **Achtung!** Das große Platinenaufnahmerahmen (Modellnummern 28094/28095/48094/48095) kann nicht mehr als zwei für den 8 Ohm Betrieb konfigurierte (Modellnummern 27804/47804) MOH-Karten beherbergen.

Cabling the XMU+ Control Card

The XMU+ Control card must be cabled to handle the inputs and outputs from alarms, remote access, and PC communications. The Control card has 6 connector ports, as shown below:



This Port...		Is used by XMU+ to...
❶	MODEM (RJ-11 connector)	Provide external communication with XMUCOM+ software. **Note:** the modem must be connected with 26 AWG hook-up wire / PSTN line cord
❷	Modem Status Indicators	The indicator displays the MODEM port status: ◆ Green - carrier detect. ◆ Yellow - transmit and receive data.
❸	REMOTE (RJ-11 connector)	Program messages from a remote location using a touch tone telephone.
❹	ALARM (2 x 5 header connection)	Connect XMU+ to alarm circuitry.
❺	SERIAL-1 (RS-232 connector)	Provide future applications.
❻	SERIAL-2 (RS-232 connector)	Provide future applications.
❼	NETWORK (RJ-45 connector)	Provide external communication with XMUCOM+ software.
❽	Network Status Indicators	The indicators display the NETWORK port status: ◆ Green (in connector)- link. ◆ Yellow (in connector) - activity (transmit and receive data). ◆ Green - 100 Base T (when on) and 10 Base T (when off). ◆ Yellow - collision.

Common Interface Tables (By Application)

The following tables describe the PBX, announcer, and transmitter interfaces for each XMU+ application.

Call Processing/Auto Attendant Applications

This table describes the cabling of Hybrid Analog line cards (Ring Start) to the following PBXs:

- Public Telephone Network
- PBX Analog Station Port.
- Analog Centrex Line.

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
PBX Operation Mode: Ring Start (R).									

GPT iSDX and Realitis; Siemens 9005-9006, HiPath 3000/4000; Intecom; ITT 3100; HICOM 300 Series; Mitel SX50, SX200, SX2000; Toshiba Perception Rolm 9751, CBX 8000, CBX 9000; TadarianCoral.

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7- Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26- Wht/Blu	29 -Wht/Brn	32 Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org

PBX Operation Mode: Ring Start (R).

GPT iSDX and Realitis use the 1HAC 50049 ADB card to interface.

AT&T Dimension 2000

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery *	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
S2	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
AL1	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Battery *	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return (PS/LR NC).

Set the switches on the LC 13 circuit pack as follows:

Circuit 0	Circuit 1
Switch 4 - Open	Switch 1 - Open
Switch 5 - Closed	Switch 2 - Closed
Switch 6 - Open	Switch 3 - Open

Connect announcer to Dimension 2000 LC13 Circuit Pack, Recorded Announcement Interface.

AT&T G2, G3, and Definity (option 1)

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34- Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
S	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
AL1	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return (PS/LR NO).

Configuration is using a SN 231 card. Ground must come from Circuit Pack.

AT&T G2, G3, and Definity (option 2)

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34- Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
SZ1	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
S1	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
S	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Level Start/Pulse Return (LS/PR NO).

Configuration is using a TN 763C card. Ground must come from Circuit Pack, Strap the SZ lead to ground

AT&T System 75/85

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34- Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
S	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
AL1	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return (PS/LR NO).

Ground must come from Circuit Pack.

Ericsson MD 110

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
T Rec	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
R Tx	Tip	26 - Wht/Blu	29 - Wht/ Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
Aux. GND	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
S -GND	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
E	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return Single Play (PS/LR SP NO).

MD 110 is set to type II 2 wire. Var=00, Type=RA1

Connect S - Batt from PABX to Aux - Batt

Harris 20/20 LH and 20/20 M

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
Ground*	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
E	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground*	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Level Start/Pulse Return Single Play (LS/PR SP NO).

Connect announcer to a 2 wire or 4-wire E&M Trunk Card.

Configure E&M Trunk Card for Type I E&M signaling.

Hitachi EDX, MDX, and LDX

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
SSLO	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt

PBX Operation Mode: Level Start/Pulse Return Single Play (LS/PR SP NO).

Connect announcer to Hitachi card number 4SRBWT. Connect SS0 lead to system ground.

Hitachi HCX-5000

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
SG	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
E	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
SG	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Level Start/Pulse Return Single Play (LS/PR SP NO).

Set the strapping on the 4 ANIF card as follows: TM00 1-2 TM02 3-4
TM01 1-2 TM03 1-2

HCX Programming: System Features Screen 2.1.2.1 (Specify one or two announcements played to caller. This affects announcements system wide).
Announcement Trunk Group Set Up Screen 2.1.5.1 (Trunk Type=OGT, Connection Class=TKTH).

Microtel GTD-5

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
C	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
SSG	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
E	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return Multiple Play (PS/LR MP NO).

Connect SSG lead to system ground.

Microtel Omni

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
Gound*	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
E	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground*	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return (PS/LR NO).

NEC NEAX2400

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
Ground	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt

PBX Operation Mode: Level Start/Pulse Return Single Play (LS/PR SP NO).

Set the switches on the TLT circuit board as follows:

Switch 00 - EM
Switch 10 - 600Ω
Switch 20 - Ground Idle
Switch 01 - EM
Switch 11 - 600Ω
Switch 21 - Ground Idle

Switch 02 - EM
Switch 12 - 600Ω
Switch 22 - Ground Idle
Switch 03 - EM
Switch 13 - 600Ω
Switch 23 - Ground Idle

Connect announcer to NEC 4TLT - Loop and Tie-Line Interface Circuit Card.

Nortel SL-1®or Meridian-1® (option 1), DMS-100, SL-100, and Centrex

The Low Impedance option is required when 4 to 24 RAN trunks are connected in parallel to a single channel.

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
CP/E	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground	CP2	2 - Org/ Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Continuous Play (CP NO).

Meridian-1: Connect announcer to NT8D14 Universal Trunk Card or NT5K19 or NT5K72AA. Configure Meridian-1 for an Audichron Announcer. IMPORTANT: Do not connect MB lead. Software must be downloaded to card by disabling, then re-enabling card

SL-1: Connect announcer to QP C74 Recorded Announcement Circuit Pack. Configure SL-1 for an Audichron Announcer.

DMS: Connect announcer to NT2X72AA Card. Configure DMS for an Audichron Announcer. Connect announcer's Tip and Ring to the NT2X72AA card's Tip 1 and Ring 1.

Nortel SL-1®or Meridian-1® (option 2)

The Low Impedance option is required when 4 to 24 RAN trunks are connected in parallel to a single channel

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
Start/ MB	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
CP	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return (PS/LR NO).

Meridian-1: Connect announcer to QPC74 Recorded Announcement Circuit Pack or NT8D14BA (or later) Universal Trunk Card or NT5K19 or NT5K72AA. Software release X19 (or later) must be used when connecting to the Universal Trunk Card.
Configure Meridian-1 for a Cook Electric 201 Announcer. Software must be down be downloaded to card by disabling, then re-enabling card.

SL-1: Connect announcer to QPC74 Recorded Announcement Circuit Pack. Configure SL-1 for a Cook Electric 201 Announcer.

ROLM 9200

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
SG	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
E	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Battery	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Level Start/Pulse Return (LS/PR NO).

Strap SB lead to Battery.

Siemens Saturn

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Battery*	Start-	28 - Wht/Grn	31 - Red/Blu	34 - Red/Brn	37 - Blk/Org	40 - Blk/Slt	43 - Yel/Grn	46 - Vlt/Blu	49 - Vlt/Brn
EB & MB	Start+	3 - Grn/Wht	6 - Blu/Red	9 - Brn/Red	12 - Org/Blk	15 - Slt/Blk	18 - Grn/Yel	21 - Blu/Vlt	24 - Brn/Vlt
EA	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground*	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Pulse Start/Level Return (PS/LR NC).

Connect announcer to E&M Trunk Card.

Solid State Junior and Senior Executive

PABX Signal	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Ring	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Tip	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
M Sync	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Ground	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

PBX Operation Mode: Synchronized Continuous Play (SCP NC).

MOH Applications

The following table describes the cabling of MOH line cards to a PBX.

PABX Signal	Input 1	Input 2	Output 1	Output 2	Output 3	Output 4
External	grn	grn				
External	red	red				
MOH Input			grn	grn	grn	grn
MOH Input			red	red	red	red

MWR Applications

The following table describes the cabling of MWR line cards to a transmitter.

Transmitter	Announcer Signal	Line 1 Pin-Color	Line 2 Pin-Color	Line 3 Pin-Color	Line 4 Pin-Color	Line 5 Pin-Color	Line 6 Pin-Color	Line 7 Pin-Color	Line 8 Pin-Color
Audio	Ring	1 - Blu/Wht	4 - Brn/Wht	7 - Org/Red	10 - Slt/Red	13 - Grn/Blk	16 - Blu/Yel	19 - Brn/Yel	22 - Org/Vlt
Audio	Tip	26 - Wht/Blu	29 - Wht/Brn	32 - Red/Org	35 - Red/Slt	38 - Blk/Grn	41 - Yel/Blu	44 - Yel/Brn	47 - Vlt/Org
Keying (GND)	CP1	27 - Wht/Org	30 - Wht/Slt	33 - Red/Grn	36 - Blk/Blu	39 - Blk/Brn	42 - Yel/Org	45 - Yel/Slt	48 - Vlt/Grn
Keying (20+ Vdc)	CP2	2 - Org/Wht	5 - Slt/Wht	8 - Grn/Red	11 - Blu/Blk	14 - Brn/Blk	17 - Org/Yel	20 - Slt/Yel	23 - Grn/Vlt

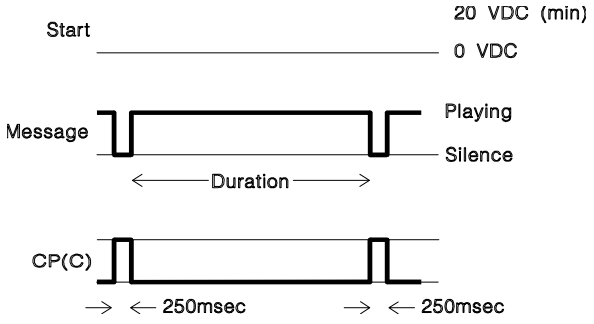
About XMU+ Operating Modes

XMU+ operating modes are PBX dependant. They determine the specific way XMU+ lines behave when communicating with a PBX. See the *XMU+ QuickStart Guide* for more information about operating modes.

If required, determine the appropriate operating mode (listed below) and set the PBX line card to that operating mode. The Control Pulse (CP) relay in the following diagrams can be configured for Normally Open (NO) or Normally Closed (NC) during message play.

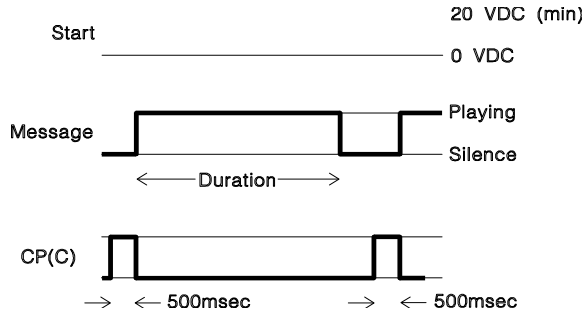
Continuous Play (CP)

The message plays continuously to the line, independent of what is happening on other lines. The CP contacts toggle position for approximately 250 msec. at the start of the message.



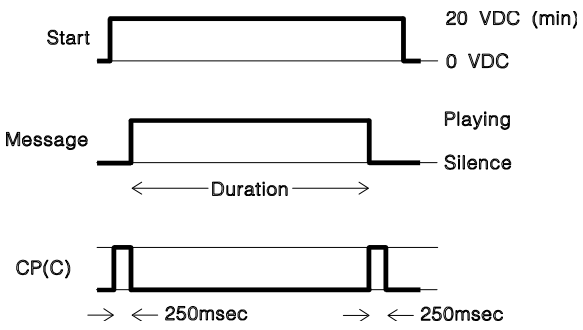
Synchronized Continuous Play (SCP)

The message plays continuously to the line. All lines begin playing the message(s) at the same time. The CP contacts toggle position for approximately 500 msec. at the start of the message(s).



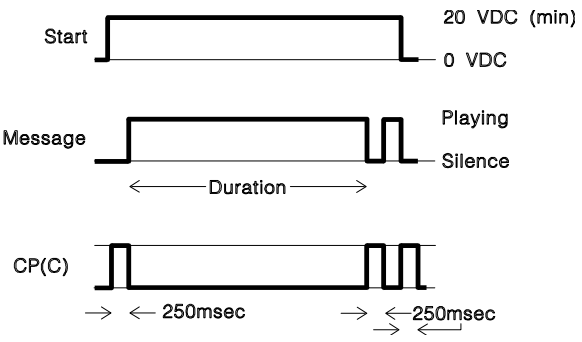
Level Start/Pulse Return - Single Play (LS/PR-SP)

The message plays in response to a start signal. The CP contacts toggle position for approximately 250 msec. at the start and end of the message. The message stops playing if the start signal is removed.



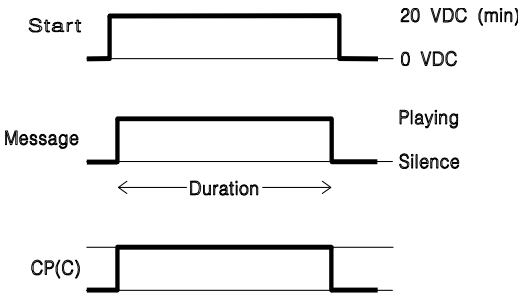
Level Start/Pulse Return - Multiple Play (LS/PR-MP)

The message plays in response to a start signal. The CP contacts toggle position for approximately 250 msec. at the start and end of the message. The message stops playing if the start signal is removed. The message plays repeatedly until the start signal is removed.



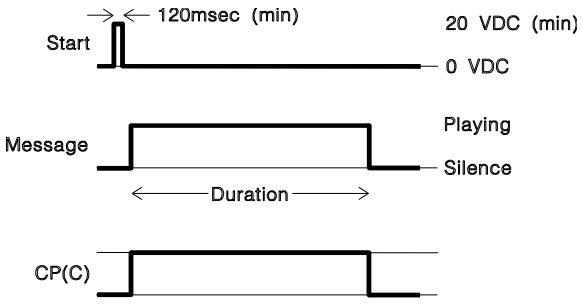
Level Start/Level Return - Single Play (LS/LR-SP)

The message plays in response to a start signal. The CP contacts toggle position while the message is playing. The message stops playing if the start signal is removed.



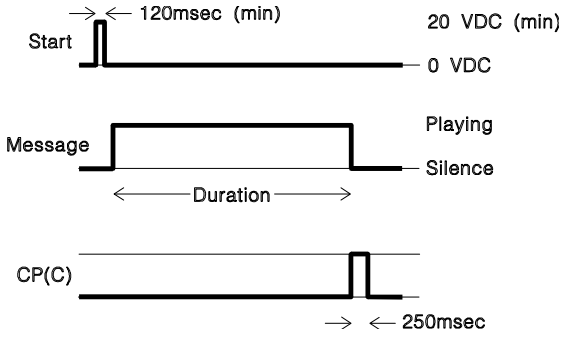
Pulse Start/Level Return (PS/LR)

The message plays in response to a start signal. The CP contacts toggle position while the message is playing.



Pulse Start/Pulse Return (PS/PR)

The message plays in response to a start signal. The CP contacts toggle position for approximately 250 msec. at the end of the message.



Ring Start (R)

The message plays in response to a Loop or Ground Start signal. The message will stop playing, before completion, if loop current is removed from the line.

Ring Start without Loop Current Check (RN)

The message plays in response to a Loop or Ground Start signal. The line will not disconnect until the message has played out completely.

Ring Start/Tone Disconnect (RT) & (RT+)

Will disconnect after 4 seconds of continuous tone (RT+ is less sensitive to far-end background noise than RT)

Ring Start/DTMF Disconnect (RD)

Will disconnect on A, B, C or D.

Ring Start/Busy Disconnect (RB)

Will disconnect on two cycles of busy tone.

Ring Start/Busy Disconnect (RB+)

Will disconnect after four cycles of busy tone.

Ring Start/Quick Answer (RQ)

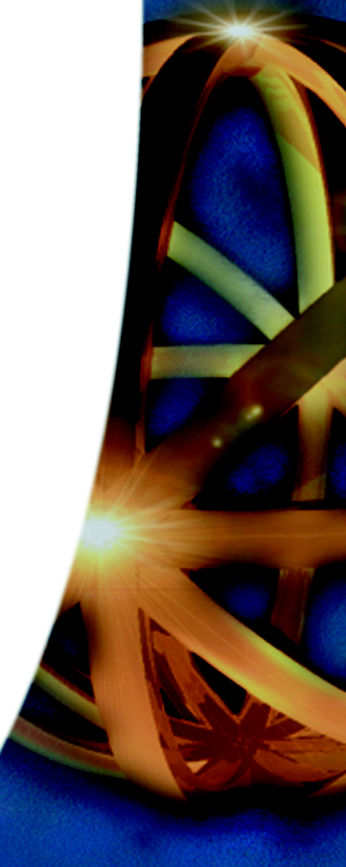
Line is answered 1/10 second after first ring cycle.

Ring Immediate (RI)

Only available with T1, line is answered after 1/4 second (during ring cycle.)

5

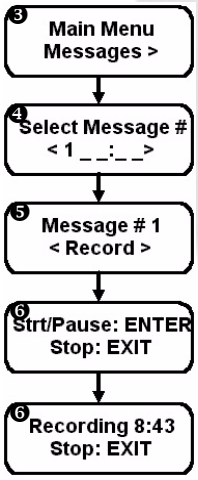
Recording and playing a message from the front panel



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To record a message

1. Connect a handset (included with the XMU+) or tapedeck to the XMU+ unit.
2. Press **Enter** to access the Main Menu.
3. Press **Enter** to select **Messages**.
4. Press the **Right Arrow** button until you reach the desired message number and press **Enter**.
5. Press the **Right Arrow** button until you reach **Record** and press **Enter**.
6. Press **Enter** (again) to begin recording your message. XMU+ monitors your recording time.
7. Press **Exit** to stop recording.
8. Press **Exit** until the menu returns to the main display.

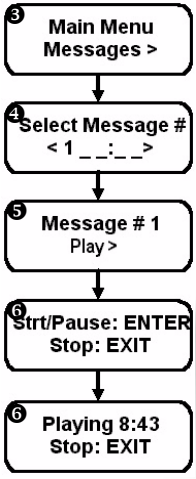


TIP...

To pause while recording, press **Enter**. To resume recording, press **Enter** again.

To play a message

1. Connect a handset (included with the XMU+) to the XMU+ unit.
2. Press **Enter** to access the Main Menu.
3. Press **Enter** to select **Messages**.
4. Press the **Right Arrow** button until you reach the desired message number and press **Enter**.
5. Press **Enter** to select **Play** on the menu.
6. Press **Enter** (again) to play the message. XMU+ plays the message, counting-down the remaining playing time of the message.
7. Press **Exit** to stop playing (or allow the message to play itself out).
8. Press **Exit** until the menu returns to the main display.

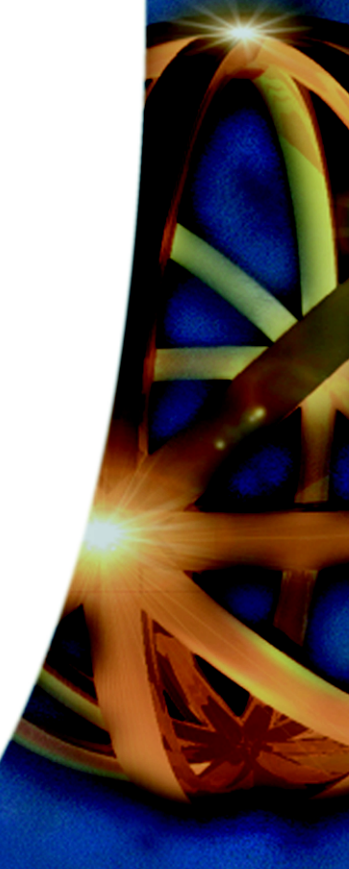


TIP...

To pause while playing, press **Enter**. To resume playing, press **Enter** again.

6

Setting line card operating mode

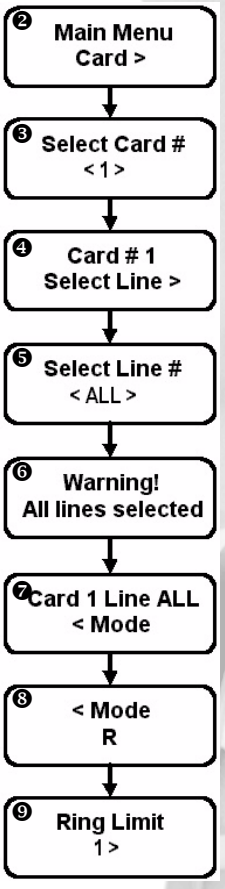


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To set line card operating modes

The mode of operation specified for the lines of each XMU+ line card controls the signaling to and from the PBX. Set the operating mode for each line card in your XMU+ unit.

1. Press **Enter** to access the Main Menu.
2. Press the **Right Arrow** to reach **Card** on the Main Menu, and press **Enter**.
3. Press the **Right Arrow** button until you reach the desired **card number** on the menu, and press **Enter**.
4. Press **Enter** to select **Select Line** on the menu.
5. Press the **Right** or **Left Arrow** buttons until you reach the **ALL** option on the menu, and press **Enter**. The display will now show Warning! All lines selected.
6. Press **Enter** to acknowledge your selection of all XMU+ lines on this line card.
7. Press the **Right Arrow** button until you reach the **Mode** option on the menu, and press **Enter**. Press **Enter** a second time to change the operating mode.
8. Press the **Right Arrow** button until you reach the desired operating mode, and press **Enter**. Listed here in the order they are displayed on the XMU+, you can choose from the following operating modes:



Note: The Front Panel will show only the operating modes that are valid for the particular card that is installed. For example, the list of operating modes displayed for an Interactive line card is much shorter than the list of operating modes displayed for a Hybrid Analog line card.

- R - Ring Start with loop detect (default for Hybrid Analog line cards).
- RN - Ring Start with no loop detect.
- RQ - Ring Quick with loop detect.
- RD - Ring with DTMF disconnect. (Use A, B, C or D to disconnect.)
- RB - Ring with busy disconnect.
- RT - Ring with Dial Tone disconnect.
- LS/PR SP NO - Level Start/Pulse Return single play, CP relay normally open.
- LS/PR SP NC - Level Start/Pulse Return single play, CP relay normally closed.
- LS/PR MP NO - Level Start/Pulse Return multiple play, CP relay normally open.

- LS/PR MP NC - Level Start/Pulse Return multiple play, CP relay normally closed.
- LS/LR SP NO - Level Start/Level Return single play, CP relay normally open.
- LS/LR SP NC - Level Start/Level Return single play, CP relay normally closed.
- PS/LR NO - Pulse Start/Level Return, CP relay normally open.
- PS/LR NC - Pulse Start/Level Return, CP relay normally closed.
- PS/PR NO - Pulse Start/Pulse Return, CP relay normally open.
- PS/PR NC - Pulse Start/Pulse Return, CP relay normally closed.
- CP - Continuous Play, no relay toggle.
- CP NO - Continuous Play, CP relay normally open. (Default for low impedance line cards.)
- CP NC - Continuous Play, CP relay normally closed.
- SCP NO - Synchronized Continuous Play, CP relay normally open.
- SCP NC - Synchronized Continuous Play, CP relay normally closed.
- Off-line - Line will not operate.

9. If required (for operating modes **R**, **RN**, **RQ**, **RT**, and **RD**), press the **Right Arrow** button until you reach the desired ring limit, and press **Enter**. The ring limit is the number of cycles (rings) that the XMU+ will wait before answering the line (default is 1).
10. Press **Exit** until the menu returns to the main display.
11. If operating mode **R** is selected, perform a line check.

XMU+ Approvals

7

The Approvals information in this chapter details the standards that XMU+ conforms with.

- Safety approvals: XMU+ compliance with safety standards.
- Telecom approvals: XMU+ compliance with telephone network standards.
- Emissions: XMU+ compliance with radiated and conducted emission (and immunity) standards.

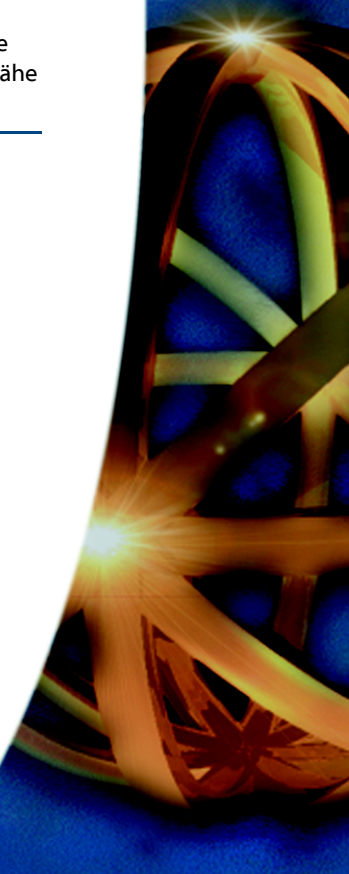
Note: **Note:** Since the AC power cord is the disconnect for the XMU+, ensure that the AC receptacle is near the unit.



Sicherheitshinweis: Der Netzstecker ist die An-/Ausschaltung für die XMU+. Vergewissern Sie sich deshalb, daß der Nestzanschluß in der Nähe der Maschine und leicht erreichbar ist.

In this chapter...

- *XMU+ Approvals* on page 53.



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XMU+ Approvals

The following approvals information details the North American and European Information Technology Equipment (ITE) standards with which the XMU+ conforms:

- Safety Approvals: XMU+ compliance with safety standards.
- Telecom Approvals: XMU+ compliance with telephone network standards.
- Emissions Approvals: XMU+ compliance with radiated and conducted emission (and immunity) standards.

Safety Approvals

CSA Test report 1678029

CSA C22.2 No 60950 - 00	Safety: Information Technology Equipment (Canada)
UL 60950 - 3rd Edition	Safety: Information Technology Equipment (US)
IEC 60950-1	Safety: Information Technology Equipment (CE)

Telecom Approvals

TUV RHEINLAND TEST REPORTS CS03/121001/01, Part68/121002/01, TBR21/121001/01

Industry Canada (IC) CS-03	Terminal Equipment Standard (Canada) *
47 CFR Part 68	Terminal Equipment Standard (US)
TBR 21 (with AN 14, 15, 16)	Terminal Equipment Standard (CE)

Emissions Approvals

CSA Test report 1678029

FCC Part 15	Radiated Emissions - Class A (North America)
FCC Part 15	Conducted Emissions - Class A (North America)
EN55022	Radiated Emissions - Class A (CE) **
EN55022	Conducted Emissions - Class A (CE) **
EN61000-3-2	Harmonics - Class A (CE)
EN61000-3-3	Flicker (CE)
EN61000-4	Immunity (CE)

* The abbreviation “IC” before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

** This is a Class A product compatible with commercial/industrial environments. In a domestic environment, this product may cause radio interference that the user may be required to take adequate measures to control.

Waste Electrical and Electronic Equipment (WEEE) Directive



In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

End User License Agreement

Limited Warranty Interalia® warrants this equipment to be free of defects in material and workmanship for a period of one year from the date of shipment. All defects will be repaired without charge upon return of the unit to the factory.

This warranty is null and void if any modifications have been made to the unit or if the unit has been subject to physical or electrical stress as determined by the manufacturer.

This warranty covers parts and labour only and does not include shipping costs, traveling expenses or travel time.

Installation of the equipment is the sole responsibility of the purchaser. The manufacturer, its agents or distributors, accept no responsibility for malfunction or damage caused by improper connection of the unit.

THE MANUFACTURER, ITS AGENT OR DISTRIBUTORS, ARE NOT LIABLE FOR LOSSES INCURRED THROUGH THE USE OF THE EQUIPMENT, OR BY THE MALFUNCTION OF THE EQUIPMENT, OR FOR ANY LOSSES OR DAMAGE INCURRED BY THE USE OF THE EQUIPMENT IN ANY MEANS WHATSOEVER.

THIS WARRANTY IS LIMITED TO THE REPAIR OF THE EQUIPMENT TO ITS NORMAL FUNCTIONAL CAPABILITY.

THIS WARRANTY IS COMPLETE AS STATED AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARE NOT VALID.

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   - **Storage Use**: You may also store or install a copy of the software product on the computer to allow other computers within your company to use the software product over an internal network. However, you must acquire and dedicate a license for the software product for each computer on which the software product is used. A license for the software product may not be shared or used concurrently on different computers.
   - **Back up Utility**: You may create a back-up copy of the software product solely for archival purposes.

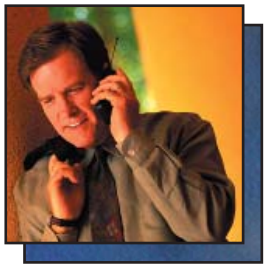
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Interalia recognizes that to be successful today we need to listen to our customer's suggestions and implement them in our products.

Our solutions are the result of collective input from our Customers and the engineering excellence Interalia has become known for over the last 1- (years.

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