Cabling Summary

Introduction

This appendix provides details on the cabling required to install the AXIS shelf.

Note In all cable references, the transmit direction is from AXIS, receive is to AXIS.

T3 Trunk Cabling

Trunk cables connect the T3 port on the BNM backcard to the BNI T3 port on the collocated BPX node. Refer to Table A-1 for details.

able A-1 Trunk Cables		
Cable Paramet	er Description	
Туре:	75-ohm coax cable (RG-59 B/U for short runs, AT&T 734A for longer runs). Two per T3 line (XMT and RCV).	
Max. Length:	450 feet max. between the BPX and the AXIS shelf.	
Connector:	Terminated in male BNC; Rx is receive from trunk, Tx is transmit to trunk.	

Table A-2	T3 Connector Pin Assignments
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Connector	Description
Rx BNC	Receive T3 from trunk
Tx BNC	Transmit T3 to trunk

IMATM T1/E1 Connectors

The IMATM backcard can have eight RJ-48 connectors or eight SMB connectors. Connections are made through short pigtail cables, two adapter cables and two Y-cables for use with redundant IMATM cards.





Frame Relay Cabling

T1 Cabling

Trunk cables connect the customer DSX-1 crossconnect point or T1-E1 Channel Service Unit to the AXIS node at the FRSM T1 back card (DB15-4T1). Refer to Table A-7 for details.

 Table A-3
 T1 Trunk/Circuit Line Cabling Specification

Cable Parameter	Description
Cable Type:	Western Electric 22 AWG, ABAM individually shielded twisted pair (100 ohm balanced). Two pair per T1 line (1 transmit and 1 receive).
Cable Connector:	Male DB-15 subminiature.
Max. Cable Length:	533 ft. (162 m.) maximum between the AXIS and the first repeater or CSU. Selection of cable length equalizers.

Pin #	Description
1	Transmit, Tip
2	Transmit Pair Shield
3	Receive, Tip
4	Receive Pair Shield
9	Transmit, Ring
11	Receive, Ring

Table A-4 T1 Connector Pin Assignments

Note Transmit direction is towards the T1 trunk.

E1 Cabling

BNC Connector

E1 trunk cables connect the customer DSX-1 crossconnect point or E1 Channel Service Unit to the AXIS node at the FRSM E1 back card (BNC-4E1).

Table A-5	E1 Trunk/Circuit Line Cabling	Specification
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Cable Parameter	Description
Cable Type: BNC-4E1	75-ohm coax cable for unbalanced connection Two cables/pairs (1 transmit, 1 receive) per E1 line.
Cable Connector:	Two female BNC for unbalanced connection; male DB15 for balanced connection. See <i>Tables A-2</i> and <i>A-3</i> for pinouts.
Max. Cable Length:	Approx. 100 meters maximum between the AXIS and the first repeater or CSU. Equalizer for cable length.

Table A-6	E1 Connector	Pin Assignments	(unbalanced))
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Connector	Description
Rx BNC	Receive E1 from trunk
Tx BNC	Transmit E1 to trunk

DB15 Connector

E1 trunk cables connect the customer DSX-1 crossconnect point or E1 Channel Service Unit to the AXIS node at the FRSM E1 back card (DB15-4E1)

Table A-7 E1 Trunk/Circuit Line Cabling Specification

Cable Parameter	Description
Cable Type: Db15-4E1	Western Electric 22 AWG, ABAM individually shielded twisted pair (120 ohm balanced). Two pair per T1 line (1 transmit and 1 receive).
Cable Connector:	Male DB-15 subminiature.
Max. Cable Length:	533 ft. (162 m.) maximum between the AXIS and the first repeater or CSU. Selection of cable length equalizers.

Table A-8 E1 Connector Pin Assignments

Pin #	Description
1	Transmit, Tip
2	Transmit Pair Shield
3	Receive, Tip
4	Receive Pair Shield
9	Transmit, Ring
11	Receive, Ring

Note Transmit direction is towards the E1 trunk.

DC Power Cabling

DC Power connections are made to the DC Power Entry Modules at the rear of the AXIS shelf. Refer to Table A-10 and Table A-9. for acceptable cable and wire types.

DC wiring (Table A-9) is generally provided by the customer.

DC Power Wiring
ter Description
Three conductor, 12 AWG recommended wire gauge, 75°C insulation rating, copper conductors only. Solid or stranded wires. Wire insulation stripped back 0.25" (6mm) at the AXIS connector end.
EURO Block.

Figure A-2 DC Power Connections

AC Power Cabling

AC power cables may be provided by the customer or ordered from StrataCom. Several standard cables are available (see Table A-10). AC cables with other plugs or different lengths may be special ordered. For users who wish to construct their own power cables, the cable must mate with an IEC320 16/20A female receptacle on the rear of the AC power module.

Cable Parameter	Description
Cable:	Provided with 8 feet (2.3 m.) of 3-conductor wire with plug.
Plug: customer end	20 A NEMA L620, 3-prong plug (domestic) or 13 A 250 Vac BS1363, 3-prong fused plug (UK, Ireland) CEE 7/7 (Continental Europe) AS3112 (Australia/New Zealand) CEI23-16/VII (Italy)

Table A-10 AC Power Cables

Control and Clock Cabling

Maintenance and Control Ports

The control ports are used to connect one of the nodes in the network to a control terminal, workstation, or modem connections for remote alarm reporting or system monitoring. Refer to Table A-11 and Table A-12 for details on these cables.

Cable Parameter	Description
Interface:	RS-232 DCE ports.
Suggested Cable:	24 AWG, 25-wire. A straight-through RS-232 cable is used for a terminal or printer connection. A null modem cable may be needed when interfacing with modems on either port.
Cable Connector:	DB-25, subminiature, male. Table A-12 contains a list of the port pin assignments.
Max. Cable Length:	50 feet (15 m.)

Table A-11 Maintenance and Control Port Cabling

Table A-12 Maintenance and Control Port Pin Assignments

Pin#	Name	Source	Description
1	FG	both	Frame Ground
2	TxD	DTE	Transmit Data
3	RxD	DCE	Receive Data
4	RTS	DTE	Request to Send
5	CTS	DCE	Clear to Send
6	DSR	DCE	Data Set Ready
7	SG	both	Signal Ground
8	CD	DCE	Carrier Detect
18 ¹	LL	DTE	Local loop
20	DTR	DTE	Data Term Ready
21 ¹	RL	DTE	Remote loop
22 ¹	RI	DCE	Ring indicator

1. Used on control port cable only.

Modem Cable

Figure A-3 shows a modem cable that is used for connecting modems to the AXIS Control and Maintenance ports.

Figure A-3 Null Modem Cable

External Clock Input Cabling

The external clock input cable connects the external clock inputs through the T3E3-D and T3E3-B EXT. TMG. connectors. The clock may be 1.544 Mbps for T3E3-D or 2.048 Mbps for T3E3-D. Refer to Table A-13 through Table A-14.

T1 Clock Cabling

Cable Parameter	Description
Cable Type:	Western Electric 22 AWG, ABAM individually shielded twisted pair (100 ohm balanced). One pair per T1 line (1 receive).
Cable Connector:	Male DB-15 subminiature. See Table A-14 for pinouts.
Max. Cable Length:	533 ft. (162 m.) maximum between the AXIS and the first repeater or CSU. Selection of cable length equalizers is used. Wire buildout is required.

Table A-13 External Clock Cabling—T3E3-D

Table A-14	T1 Connector Pin Assignments for EXT. TMG.
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Pin #	Description
1	
2	Transmit Pair Shield
3	Receive, Tip
4	Receive Pair Shield
9	
11	Receive, Ring

E1 Clock Cabling

	-
Cable Parameter	Description
Cable Type: BNC-4E1	75-ohm coax cable for unbalanced connection One cable pair (1 receive) per E1 clock input.
Cable Connector:	One female BNC for unbalanced connection; male DB15 for balanced connection.
Max. Cable Length:	Approx. 100 meters maximum between the AXIS and the first repeater or CSU. Equalizer for cable length.

Table A-15	E1 Clock Cabling—T3E3-B

Table A-16	E1 Connector Pin Assignments for EXT.TMG (unbalanced)
		,

Connector	Description
Rx BNC	Receive E1 from trunk

External Alarm Cabling

This cable (Table A-17) is for connecting network alarm outputs to the LM-BNM ALARM OUTPUT connector only. Table A-18 lists the pinouts for the network alarm outputs.

Table A-17	External Alarm	Cabling
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Cable Parameter	Description	-
Interface:	Dry-contact relay closure.	
Wire:	24 AWG, shielded, 6-pair.	
Connector:	DB-15, Subminiature, male	

Pin	Alarm	Description
1	Audible—Major	Normally open
2		Common
9		Normally closed
4	Visual—Major	Normally open
5		Common
12		Normally closed
7	unused	n.c.
8	unused	n.c.
3	Audible—Minor	Normally open
11		Common
10		Normally closed
6	Visual—Minor	Normally open
14		Common
13		Normally closed
15	unused	n.c.

 Table A-18
 Network Alarm Pin Assignments

Standard AXIS Cables

Table A-19 lists the various cables that may be ordered directly from StrataCom. Cable lengths are specified as a suffix to the StrataCom model number. For example 5610-50 indicates a 50 foot cable. Cables are generally available in standard lengths of 10 ft. (3 m.), 25 ft. (7.6 m.), 50 ft. (15 m.), 75 ft. (22.8 m.) and 100 ft. (30 m.) Lengths of 101 ft. (30 m.) to 600 ft. (183 m.) are available on a special order.

When a cable is connectorized, the connector gender (male-female) will be indicated as well as the number of pins. For example RS-232/M25-M25 indicates a cable terminated with a male DB25 at both ends.

Model#	Description	Usage
T3-E3-10	75 Ω coax/BNC-BNC, 10'	T3 or E3 trunk interface
T3-E3-25	25'	
T3-E3-50	50'	
T3-E3-75	75'	
T3-E3-xx	length to be specified	
5620	RS-232/M25-F25	Control port to control terminal, StrataView, or ext. window device
5621	RS-232/M25-M25 special	Control or Maintenance. port to modem
5601	Ground cable	DC
5670	Molex-pigtail	DC
5671	Spade lug-pigtail	DC

 Table A-19
 Standard Cables Available from StrataCom

Redundancy "Y" Cable

The redundancy cables are a special "Y" cable available from StrataCom. They are required for redundant trunk and data interfaces. Table A-20 lists the Y-cables used with various AXIS back cards.

Table A-20	Redundancy Y-Cables		
Y- Cable	Used On	StrataCom P/N	
T3 trunk	T3E3-D T3E3-B	Т3-Е3-Ү	