FORCE10™

Adit 600

QUICK START GUIDE

Part Number: 002-0104-1420
Product Release: 10.1.1
August 2009

Supporting Software Versions:

Adit 600 Controller 10.1.1

IP Router 2.97

CMG Router 2.97

Terminal Server Router 2.97

Multi-Service Router (MSR) 2.1

PREFACE

Safety Information

CAUTION! **ALWAYS USE CAUTION WHEN INSTALLING TELEPHONE LINES. READ THE CAUTIONS BELOW FOR DETAILS ON SAFETY GUIDELINES TO PREVENT INJURY.**

- **Never touch uninsulated telephone wires and terminals** unless the telephone line has been disconnected at the Network Interface (NI) as voltage potentials as high as 300 VAC may be present across the transmit and receive pairs.
- **Only use No. 26 AWG or larger** telecommunication line cord, to reduce the risk of fire.
- Never install telephone wiring during a lightning storm.
- **Never install telephone jacks in wet locations** unless the jack is specifically designed for wet locations.
- Refer to the installation section of this manual for a safe and proper installation procedure. All wiring external to this equipment should follow the current provision of the National Electrical Code.

Electrostatic Discharge (ESD) Precautions

ESD can damage processors, circuit cards, and other electronic components. Always observe the following precautions before installing a system component.

1. Do not remove a component from its protective packaging until ready to install it.

2. Wear a wrist grounding strap and attach it to a metal part of the system unit before handling components. If a wrist strap is not available, maintain contact with the system unit throughout any procedure requiring ESD protection.

WARNING! INTEGRATED CIRCUITS (ICs) ARE EXTREMELY SUSCEPTIBLE TO ELECTROSTATIC DISCHARGE. UNLESS YOU ARE A QUALIFIED SERVICE TECHNICIAN WHO USES TOOLS AND TECHNIQUES THAT CONFORM TO ACCEPTED INDUSTRY PRACTICES, DO NOT HANDLE ICs.

The ESD warning label appears on packages and storage bags that contain static-sensitive products and components.

QUICK START

In this Guide

- Unpacking and Inspection
- Installation Environment
- Assembly of Adit 600
- Wall Mounting
- Compliant Installation
- Chassis Connectors and Buttons
- Interface Connectors
- Management Options
- Configuration
- Controller Card LEDs
- Power Supply LEDs
- Service Card LEDs

Unpacking and Inspection

WARNING! **OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DEVICES.**

1. Inspect containers for damage during shipment. Report any damage to the freight carrier for possible insurance claims.

2. Compare packing list with office records. Report any discrepancies to the office.

3. Open shipping containers, be careful not to damage contents.

4. Inspect contents and report any damage.

5. If equipment must be returned for any reason, carefully repack equipment in the original shipping container with original packing materials if possible.

6. If equipment is to be installed later, replace equipment in original shipping container and store in a safe place until ready to install.

Installation Environment

The environment in which you are installing the Adit 600 must meet the following conditions:

- Operating temperature range: 32° to 104° F (0° to 40° C)
- Storage temperature range: -40° to 158° F (-40° to 70° C)
- Cooling method is by free air convection, requires long axis of unit to be mounted horizontally
- Maximum operating altitude: 10,000 ft. (3,048 m)
- Maximum non-operating altitude: 40,000 ft. (12,192 m)
- Relative humidity (non-condensing) range: 0 to 95%

For operation outside the defined environment requirements, the Adit 600 must be placed in an environmentally controlled enclosure.

Assembly of Adit 600

NOTE: E1 is not supported in this release of the Adit 600 Controller. It will be supported in a future release.

The cards should be positioned in the Adit 600 chassis as follows:
Note: Slots are labeled on the top and the bottom of the chassis.

- Power Supply in the POWER Slot
- E1 or T1 Controller in Slot A
- Service Cards can be in any slot 1 through 6.
  Note: When an Adit 600 is mounted to the wall, cards that use the front cable connections should be loaded from Slot 6 to 1. This will minimize card access issues due to cable interference.
- Always install blank faceplates in any unused slots.
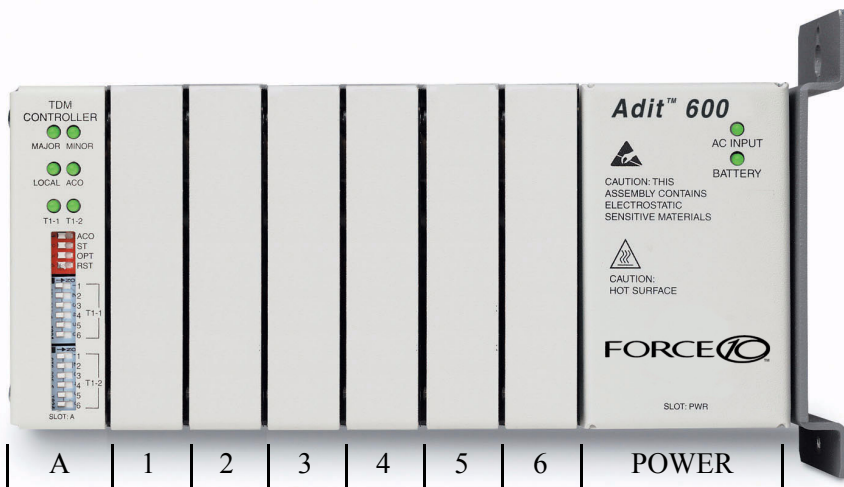
Service Card Slots

Wall Mounting

Before beginning the mounting process, verify that the area meets the following requirements:

- A stable environment
- Clean and free from extremes of temperature, shock, vibration and EMI
- Meets all installation environment requirements, see *Installation Environment on page 3-4*.

Leave adequate clearance at the back for access to connectors

Leave at least 3.5" above and below the Unit for adequate ventilation

Mounting Bracket

Leave at least 14" at the front of the unit for access to cards and DIP switches

The Adit 600 is delivered with a mounting bracket attached for quick and easy wall mounting, as shown in the illustration above.

To install the unit to the wall, attach the unit using the four screws provided, one at each bracket foot.

NOTE: Do not mount the Adit 600 in any other orientation than show above.

Compliant Installation

Power Cables

Ferrite Beads
are in red

Ferrite Bead
with cable loop

Power Cord

Grounding Cable

Alarm Wiring

-48 VDC Battery Power

25-pair telco connector

25-pair telco connector

RS-232 craft port

10Base-T Ethernet

T1/E1 connectors

Signal Cables

US

1. Connect all of the signal cables as shown in the illustration above, and secure them with a plastic tie. Dress the signal cables toward the left of the Adit 600.

2. If using the 115V Power Supply, connect the -48 VDC battery power cable.

3. Secure the ground lugs to the terminals using the nuts provided.

4. Secure the power cable and the ground cable with a plastic tie (not included). Keep these cables separate from the signal cables.

5. Terminate each signal cable to its appropriate connector.

6. Secure signal cables using the holes along the bottom of the rack and plastic ties (not included).

WARNING! **ADDITIONAL PRIMARY PROTECTION IS REQUIRED WHEN CONNECTING T1/E1 OR FXS INTERFACES TO EXPOSED OFF-PREMISE COMMUNICATION CONDUCTORS. SECONDARY OVERVOLTAGE AND OVERCURRENT PROTECTION IS PROVIDED ON THESE INTERFACES FOR LIGHTNING SURGE, AC POWER CONTACT AND INDUCTION. IT WILL BE THE RESPONSIBILITY OF THE INSTALLER TO UTILIZE LISTED PRIMARY PROTECTORS AND FOLLOW INSTALLATION REQUIREMENTS PER LOCAL OR NATIONAL REGULATIONS.**

NOTE: It is important that the Signal Cables are secured separately from the Power Cables, for proper equipment operation.

Ferrite Beads (US)

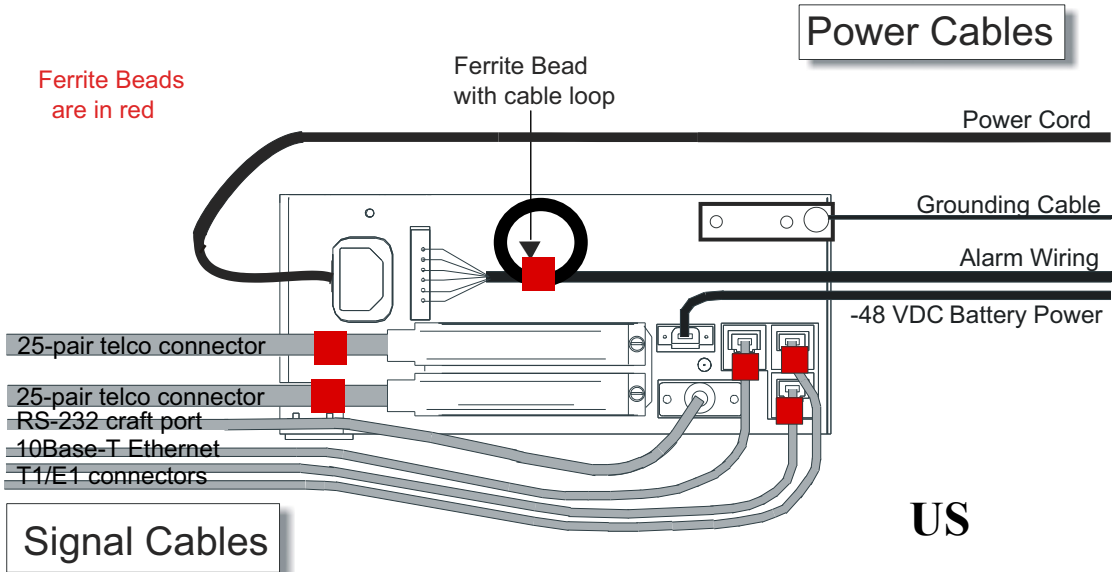**NOTE:** E1 is not supported in this release of the Adit 600 Controller. It will be supported in a future release.

To be compliant with Part 15A of the FCC and for NEBS compliant facilities, the following ferrite beads are required for the chassis and service cards listed below.

Ferrite beads for Adit 600 chassis:

Ferrite	Part Number	Intended For
3 small	P/N 010-0095	(2) One on each T1 or E1 cable (1) Ethernet (10Base-T) cable
1 large	P/N 010-0051	(1) Alarm cable, which requires a loop through the bead (see drawing)

Service card cables requiring ferrite beads:

Card	Ferrite	Part Number	Intended For
ISDN BRI	1 large	P/N 010-0051	(1) 25-pair Telco cable (ISDN BRI card in slot 1-3 top telco, 4-6 bottom)
Quad DS1/E1 Quad T1 Quad E1	1 large	P/N 010-0051	Cables from front of card (1 bead can hold 1-4 cables) **or,** (1) One on 25-pair Telco cable
IP Router	1 small	P/N 010-0095	Ethernet Cable (from front of card)
CMG Router*	1 small	P/N 010-0095	Ethernet Cable (from front of card)

*The CMG-01 and CMG-02 Router cards do not require a ferrite bead.

For additional information on ferrite beads and their installation on the Adit 600, please contact Force10 Networks Customer Support at 1-866-887-4638 (US) or 1-707-665-4355 (International/Direct).

Ferrite Beads (Europe, Australia and Canada)

NOTE: E1 is not supported in this release of the Adit 600 Controller. It will be supported in a future release.

To be compliant with EN55022 and CISPR22 Class A emissions, the following beads are required for the chassis and components listed below. Also, shielded cables are required for the V.35/54 service card and must be ordered separately.
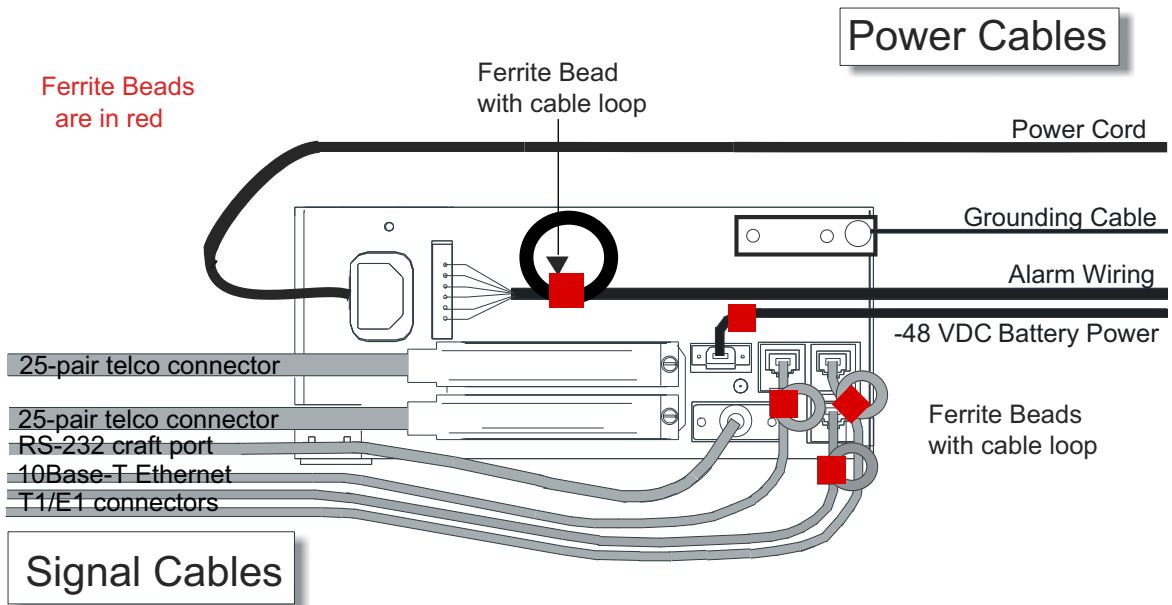
Power Cables

Ferrite Beads
are in red

Ferrite Bead
with cable loop

Power Cord

Grounding Cable

Alarm Wiring

-48 VDC Battery Power

25-pair telco connector

25-pair telco connector
RS-232 craft port
10Base-T Ethernet
T1/E1 connectors

Ferrite Beads
with cable loop

Signal Cables

Ferrite beads for Adit 600 chassis:

Ferrite	Part Number	Intended For
4 large	P/N 010-0051	All of these ferrites require a loop through the bead (see drawing). (1) Alarm cable (2) One on each or E1 cable (E1-1/E1-2) (1) Ethernet (10Base-T) cable

Additional components requiring ferrite beads:

Card	Ferrite	Part Number	Intended For
CMG Router*	1 small	P/N 010-0095	Ethernet Cable (from front of card)
Quad DS1/E1 Quad E1	2 large	P/N 010-0051	E1 cables from front of Quad E1card (1 bead can hold 1-4 cables) **or,** (2) One on each 25-pair Telco cable
Battery Unit	1 small	P/N 010-0095	Battery Cable
DC Power Kit	1 small	P/N 010-0095	DC Input Cable

*The CMG-01 and CMG-02 Router cards do not require a ferrite bead.

Shielded Cable (order separately):

Card	Part Number	Intended For
V.35/54 (HD)	P/N 005-0008	D-sub Male to Winchester Male, 10 ft.
	P/N 005-0009	D-sub Male to Winchester Male, 25 ft.
	P/N 005-0010	D-sub Male to Winchester Male, 50 ft.
	P/N 005-0014	D-sub Male to Winchester Female, 10 ft.
	P/N 005-0068	D-sub Male to Winchester Female, 25 ft.
	P/N 005-0069	D-sub Male to Winchester Female, 50 ft.

For additional information on Ferrite beads and their installation on the Adit 600, please contact Force10 Networks Customer Support at 1-866-887-4638 (US) or 1-707-665-4355 (International/Direct).

Chassis Connectors and Buttons

The following illustrations show all connectors on the back of the Adit 600.
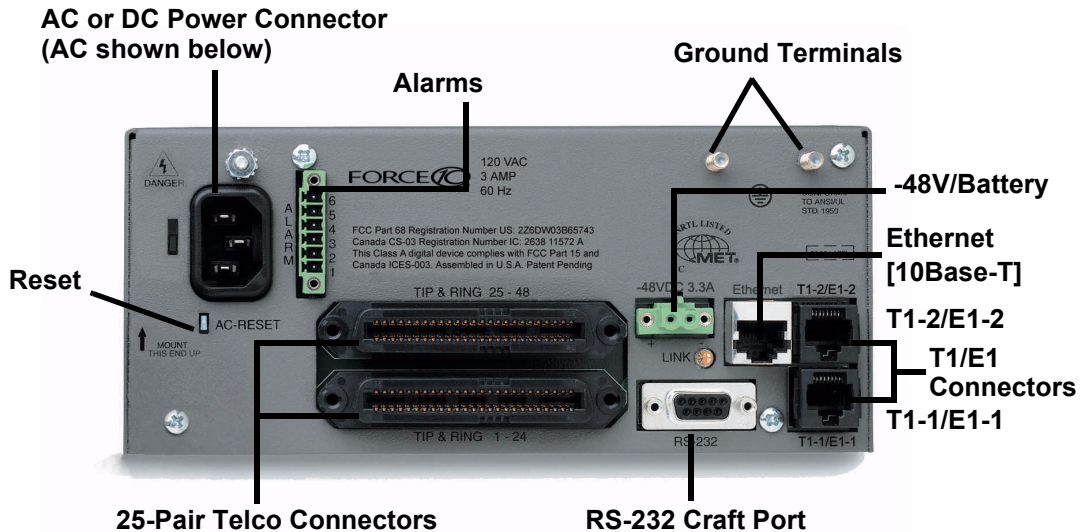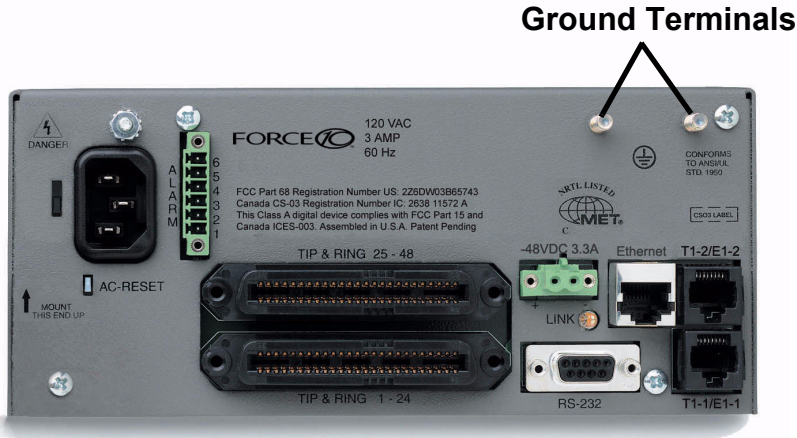
Interface Connectors

The following are the Adit 600 interface connectors:

- T1-1/E1-1 and T1-2/E1-2 line connection ports each equipped with standard RJ-48C 8-pin connector jack
- RS-232 craft port connector
- Tip and Ring Analog Interfaces equipped with standard 25-pair Telco Connectors
- 10Base-T Ethernet port to be connected to a remote management tool such as Telnet or an SNMP-based Network Management System with an RJ-45 8-pin connector jack
- External Alarm Connector
- Ground Lugs

Chassis Ground Connector

Ground Terminals

WARNING! THIS EQUIPMENT IS REQUIRED TO HAVE A PERMANENT GROUND CONNECTION. IF CONNECTED TO EXPOSED OUTDOOR COMMUNICATION CONDUCTORS, A **#6 AWG** COPPER WIRE MUST BE PERMANENTLY CONNECTED FROM AN APPROVED GROUNDING ELECTRODE TO THE CHASSIS GROUND LUG. OTHERWISE, A **#14** AWG COPPER WIRE MAY BE UTILIZED. INSTALL THE GROUNDING CONDUCTOR IN ACCORDANCE WITH NATIONAL OR LOCAL REGULATIONS.

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1. Route wire (#6 or #8 AWG copper) from building ground to lug on Adit 600.
2. Strip insulation off wire end, if necessary.

Compression Screw

Ground Lug
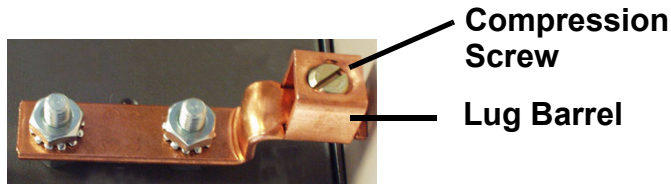
Lug Barrel

3. Loosen compression screw until opening is large enough to accept ground wire.
4. Insert ground wire into lug barrel, beneath compression plate and tighten compression screw.
5. Attach ground lug to chassis

Power Reset

This is a resetable circuit breaker. If at any time there is a short or power surge on the incoming AC/DC line, the breaker will trip to protect the Power supply from damage.
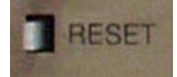
Power Connections

There are four power supplies available for the Adit 600.

- 115 VAC/-48 VDC
- 230 VAC/-48 VDC
- 24/-48 VDC
- 24 VDC with -48 Output

These power supplies have different connectors as shown in the following. For additional information, see *Chapter 15, Power Supply* of the *Adit 600 User Manual.*

Fuse Recommendation

When using -48 VDC input power, use a 3.5 Amp fast-acting fuse if the power connector is wired to a fuse panel.

Power Cord AC

An AC Power cord is provided with the 115 VAC and the 230 VAC Power Supplies.

To connect the Power Cord:

AC Power Connector

1. Insert power cord (male-end) to AC power source.
2. Plug connector into the Adit 600.
3. A green light should appear on the DC Input LED on the front of the Power Supply.

-48V Battery
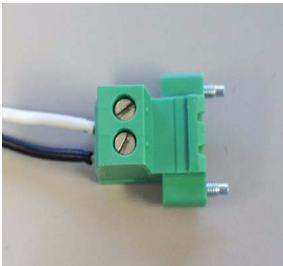
The -48 VDC input connector on the Adit 600 is used for either direct DC powering of the Adit 600 unit or for a Battery Backup connection when AC is used. There is no power cable provided for this connector, however the connector is provided.

WARNING! POSSIBLE SHOCK HAZARD EXISTS, PLEASE FOLLOW INSTRUCTIONS CAREFULLY.

To connect -48 VDC power:

1. Ensure that no power is present on the two wires to be connected.
2. Strip the two wires (approx. 5/16 in. bare wire) from the power source. 16 or 18 AWG insulated copper wire is recommended for power connections.
3. Insert the Battery Return and DC wires into the appropriate square holes.
4. Tighten screws to clamp wires.
5. Ensure that no bare wire shows after the wires are installed.
6. Plug connector in the -48 VDC connector, as seen below and secure with set screws.
7. Apply power to connector from -48 VDC power source.
8. Verify with voltmeter that voltage is correct and polarity is correct.

9. Plug connector in the Adit 600 -48 VDC connector, as seen in the graphic and secure with set screws.
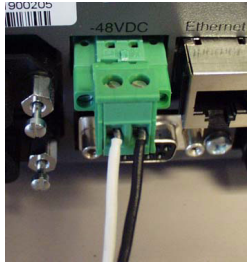
Connector
on back
of Adit 600
(male)
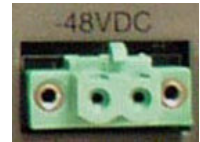
1(+) 2(-)

Provided connector (female)

Battery
Return (+)
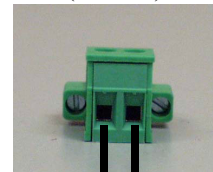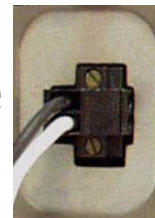
-48 VDC (-)

Battery
Return 1(+)

-48 VDC
2(-)

Power Cord DC

There is no power cable provided with the 24 VDC Power Supply, however the connector is provided. This connector will need to be wired, the following chart prides the wire gauge recommended.

24 VDC
6 Amp

Battery
Return (-)

Battery (+)

To connect 24 VDC power:

DC Power Connector

1. Ensure that no power is present on the two wires to be connected.

WARNING! **POSSIBLE SHOCK HAZARD EXISTS, PLEASE FOLLOW INSTRUCTIONS CAREFULLY.**

2. Strip the two wires from the power source so that approximately 5/16 inch of bare wire is exposed. see Wire Gauge chart below for wire recommendations.

3. Insert the Battery Return (-) and Battery (+) wires into the appropriate square holes, one at a time.

4. Tighten screws to clamp wires.

5. Ensure that no bare wire shows after the wires are installed.

6. Apply power to connector.

Battery Return (-)

7. Verify with voltmeter that voltage is correct and polarity is correct.

Battery (+)

8. Plug connector(s) into the Adit 600 DC Power connector, as seen in the graphic and secure with set screws

9. A green light should appear on the DC OK LED on the front of the Power Supply.
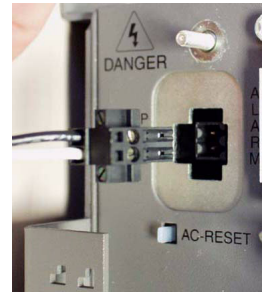
Wire Gauge	18 AWG	16 AWG	14 AWG
Maximum Distance	12 Feet	20 Feet	35 Feet

External Alarm Connector

The external alarm 6-pin connector with one input pair (pins 5 and 6) and two output pairs (pins 1 and 2 - major alarms; pins 3 and 4 - minor alarms).

A
L
A
R
M

○ 6
○ 5
○ 4
○ 3
○ 2
○ 1
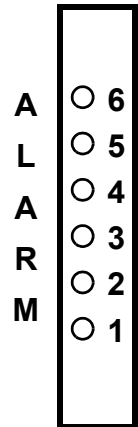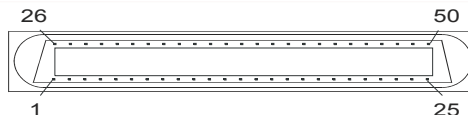
The pinouts are as follows:

Pin #	Description	Explanation
1 2	Major Alarm + Major Alarm -	The major alarm output is available for power supply or major alarm failure alerting. The maximum voltage across the contacts is 350 V, and the maximum current is 150 mA. This alarm is closed when power is off.
3 4	Minor Alarm + Minor Alarm -	The minor alarm output is available for power supply or minor alarm failure alerting. The maximum voltage across the contacts is 350 V, and the maximum current is 150 mA. This alarm remains open when power is off.
5 6	Alarm In + Alarm In -	The alarm inputs provide 5 VDC across the two contacts, and generate an alarm when a short circuit is detected between the contacts. The alarm generated is a minor severity alarm.

25-Pair Telco Connectors

Tip and Ring Analog Interfaces equipped with standard 25-pair Telco Connectors (female) for connection to key systems, fax machines, modems, and PBXs. These interfaces are also used for ISDN BRI ports and are jumper selectable on the Quad T1, Quad E1, Quad DS1/E1 and Quad ADPCM service cards.

Circuit connections are made at the 25-pair telco connectors. A standard 25-pair telephone cable with RJ-21X wiring and a male D-type connector at the Adit 600 end is required.

The pinouts are as follows:

Pair	Pin Location	Function	Color Code
1	26 1	Tip Channel 1 Ring Channel 1	White/Blue Blue/White
2	27 2	Tip Channel 2 Ring Channel 2	White/Orange Orange/White
3	28 3	Tip Channel 3 Ring Channel 3	White/Green Green/White
4	29 4	Tip Channel 4 Ring Channel 4	White/Brown Brown/White
5	30 5	Tip Channel 5 Ring Channel 5	White/Slate Slate/White
6	31 6	Tip Channel 6 Ring Channel 6	Red/Blue Blue/Red
7	32 7	Tip Channel 7 Ring Channel 7	Red/Orange Orange/Red
8	33 8	Tip Channel 8 Ring Channel 8	Red/Green Green/Red
9	34 9	Tip Channel 9 Ring Channel 9	Red/Brown Brown/Red
10	35 10	Tip Channel 10 Ring Channel 10	Red/Slate Slate/Red

Pair	Pin Location	Function	Color Code
11	36 11	Tip Channel 11 Ring Channel 11	Black/Blue Blue/Black
12	37 12	Tip Channel 12 Ring Channel 12	Black/Orange Orange/Black
13	38 13	Tip Channel 13 Ring Channel 13	Black/Green Green/Black
14	39 14	Tip Channel 14 Ring Channel 14	Black/Brown Brown/Black
15	40 15	Tip Channel 15 Ring Channel 15	Black/Slate Slate/Black
16	41 16	Tip Channel 16 Ring Channel 16	Yellow/Blue Blue/Yellow
17	42 17	Tip Channel 17 Ring Channel 17	Yellow/Orange Orange/Yellow
18	43 18	Tip Channel 18 Ring Channel 18	Yellow/Green Green/Yellow
19	44 19	Tip Channel 19 Ring Channel 19	Yellow/Brown Brown/Yellow
20	45 20	Tip Channel 20 Ring Channel 20	Yellow/Slate Slate/Yellow
21	46 21	Tip Channel 21 Ring Channel 21	Violet/Blue Blue/Violet
22	47 22	Tip Channel 22 Ring Channel 22	Violet/Orange Orange/Violet
23	48 23	Tip Channel 23 Ring Channel 23	Violet/Green Green/Violet
24	49 24	Tip Channel 24 Ring Channel 24	Violet/Brown Brown/Violet
25	50 25	Reserved	Violet/Slate Slate/Violet
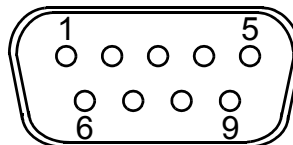
RS-232 Craft Port (Female DB-9)

The RS-232 craft port connector (female) is for connection to an external PC or Hayes-compatible modem for local or remote configuration, management, and performance monitoring using the Adit 600 Command Line Interface (CLI).

The RS-232 craft port connects via a female DB-9 connector on the Adit 600.
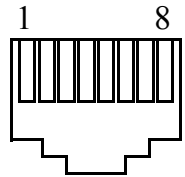
The pinouts are as follows:

Pin Number	Direction	Description
1	Outbound	Carrier Detect
2	Outbound	Receive Data
3	Inbound	Transmit Data
4	Inbound	Data Terminal Ready
5	N/A	Signal Ground
6	Outbound	Data Set Ready
7	Inbound	Request to Send
8	Outbound	Clear to Send
9	N/C	Not connected

T1 and E1 Connection Ports

The T1 and E1 connection ports are each equipped with a standard RJ-48C (female) on the Adit 600 unit.

The pinouts are as follows:

T1/E1 (RJ-48C)

Pin	Name	Description
1	Receive Ring	Receive from DS1 network
2	Receive Tip	Receive from DS1 network
3	N/C	Not connected
4	Transmit Ring	To DS1 network
5	Transmit Tip	To DS1 network
6 -8	N/C	Not connected

10Base-T Ethernet

The 10Base-T Ethernet (female) port to connect to a remote management tool such as Telnet or an SNMP-based Network Management System. **Note:** A LINK LED on the back of the unit displays green when the system has a good Ethernet link.

The pinouts are as follows:
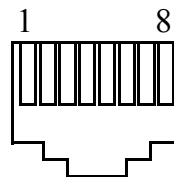
Ethernet (RJ-45)

Pin	Name	Description
1	Receive +	Receive from network
2	Receive -	Receive from network
3	Transmit +	Transmit to network
4 - 5	N/C	Not connected
6	Transmit -	Transmit to network
7	N/C	Not connected
8	N/C	Not connected

NOTE: This Ethernet port uses a "hub" pinout. Use a straight-through cable to connect a PC.

Management Options

Options for managing the Adit 600 are as follows:

- Local using CLI, Telnet, SNMP, or DIP Switches (Controller and voice cards)
- Remotely over an in-band DS0 or through the Access Navigator over the FDL or an in-band DS0

This *Quick Start Guide* focuses on the CLI and DIP switches. If you need further information on other management options, please refer to the *Adit 600 User Manual*.

Command Line Interface (CLI)

You can access the CLI using either of the following methods:

- Telnet via Ethernet (10Base-T)
- RS-232 connected to the DB-9 port

Setting up a CLI Connection
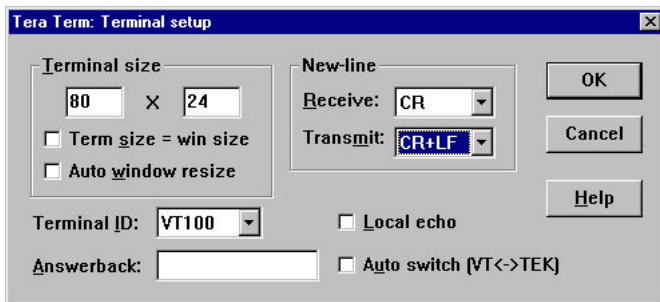
- If connecting via the Ethernet 10Base-T connection, use a Telnet TCP/IP program to access the CLI. This requires the IP address of the Controller. Controllers are shipped with the IP address set to 10.0.0.10. If this address has been changed and is not known, use HyperTerm to access the Controller and use the CLI command *show ip*. If an IP address needs to be set, use the CLI command *set ethernet ip address*.
- If connecting via RS-232, the port settings should be set to:
  Bits per second: **9600**   Data bits: **8**
  Parity: **None**   Stop bits: **1**
  Flow control: **None**
- Set your Terminal Emulation to **VT100**.
- By default, the Adit 600 is set for local configuration (using DIP switches). Use the *set local off* command to enable the use of CLI commands.

Note: If you are using Tera Term TCP/IP, CLI commands will not be recognized until the following setup is completed.

- In Tera Term go to **Setup/Terminal.**
- Set the **New-line/Transmit** value "CR+LF".

Configuration

The following basic setups and upgrades for the Adit 600 are shown using CLI commands. For more information on CLI commands and configurations, see the *Adit 600 User Manual*.

- Initial Setup
- Basic Security Setup
- DS1/T1 Setup
- E1 Setup
- DS0/Channel Setup
- Analog Port Setup
- 4-Wire E&M Setup
- Establish a Static Channel Connection
- ISDN BRI Service Setup
- OCU-DP Card Setup
- ADPCM Card Setup
- V.35 Port Setup
- Change the IP Address of the DS0 Management Channel
- Upgrade the Adit 600 Software
- Upgrade the Router Card Software
- Basic Router Setup

Initial Setup

Use the following commands for your initial setup. For further information see the *Adit 600 User Manual*.

Command	Description
`set local off`	Disables DIP switches.
`set date {mm/dd/yyyy}`	Set the date used for event logging.
`set time {hh:mm:ss}`	Set the time used for event logging.
`set id {"id-name"}`	Set a system ID name.
`set clock1 {slot:port}` `internal`	Set the primary clock source.
`set clock2 {slot:port}` `internal`	Set the secondary clock source.
`set ethernet ip address` `{ip-addr} {mask}`	Set the ethernet IP address, in the conventional IP address format.
`set ip gateway {ip-addr}`	Set the IP gateway, in the conventional IP address format.

Basic Security Setup

Use the following commands to set up the security on the Adit 600.   For further information see the *Adit 600 User Manual*.

Command	Description
`set password length {long|short}`	Set user password length requirement.
`add user {"user-name"} [password {"password"}]`	Add user and password as necessary.
`set user {"user-name"} level {1-3}`	Specify the user's security level.
`set user {"user-name"} password`	Set/change password for the user as necessary.

DS1/T1 Setup

Use the following commands to set up a DS1. See the *set (ds1)* command for more details.

Command	Description
`set {ds1-addr} up`	Activate the port of the DS1 (slot:port)
`set {ds1-addr} id {"id-string"}`	Set the identification string.
`set {ds1-addr} lbo {1-9}`	Set the line buildout value for the DS1.
`set {ds1-addr} linecode {ami|b8zs}`	Set the linecode for the DS1.
`set {ds1-addr} framing {d4| esf|tr8afdl|tr8anofdl|tr8b}`	Set the framing option for the DS1.
`set {ds1-addr} loopdetect {on|off}`	Set the detection/reaction to CSU loopcodes.

E1 Setup

> **NOTE:** E1 is not supported in this release of the Adit 600 Controller. It will be supported in a future release.

Use the following commands to set up an E1. See the *set (e1)* command for more details.

Command	Description
`set {e1-addr} up`	Activate the port of the E1 (slot:port)
`set {e1-addr} id {"id-string"}`	Set the identification string
`set {e1-addr} lbo {1 - 9}`	Set the line buildout value for the E1
`set {e1-addr} linecode {ami|hdb3}`	Set the linecode for the E1
`set {e1-addr} framing {e1fr|lefrcrc}`	Set the framing option for the E1
`set {e1-addr} loopdetect {on|off}`	Set the detection/reaction to CSU loopcodes

DS0/Channel Setup

Use the following commands to set up a DS0. See the *set (ds0)* command for details.

Command	Description
`set {slot:port:channel} up`	Activate the channel.
`set {slot:port:channel} signal {ls|gs|emw|emdw|emicpd|dpt}`	Set the signaling option for the channel.
`set {slot:port:channel} type {data|voice}`	Set the channel type.

Analog Port Setup

Use the following commands to set up an analog port.

Command	Description
`set {slot:port} up`	Activate the port. See *set (ds1)* command for details.
`set {slot:port} signal {dpt|gs| gsrb|gsw|gswrb|ls|lscpd|lsrb}`	Set the signaling option for the port. See the *set (fxs)* or *set (fxo)* command for details.
`set {slot:port} rxgain {n}`	Set the receive gain/loss in dB. See the *set (fxs)* or *set (fxo)* command for details.
`set {slot:port} txgain {n}`	Set the transmit gain/loss in dB. See the *set (fxs)* or *set (fxo)* command for details.

4-Wire E&M Setup

For this example the 4 E&M ports will be connected to the first 4 DS0s on T1-1 (a:1). This can be changed to match the customer's desired DS0 connections.

For Transmission Only mode, the DS0s on the DS1 should be set to data, as well as the E&M card channels.

Command	Description
For Normal or Tandem E&M:	
set a:1:1-4 type voice	Set DS0s to voice.
set connect a:1:1-4 1:1-4	Connect DS0s to the 4 ports of the 4-Wire E&M card.
show connect a: 1	Verify cross connects.
set a:1:1-4 signal emi	Set DS0 signal type to EMI.
set 1:1-4 signal emi	Set 4-Wire E&M ports signal type to EMI.
show connect a:1	Verify cross connects.
For TO Mode:	
set a:1:1-4 type data	Set DS0s to data.
set 1:1-4 type data	Set 4-Wire E&M port to data.
set connect a:1:1-4 1:1-4	Connect DS0s to the 4 ports of the 4-Wire E&M card.
show connect a: 1	Verify cross connects.

Establish a Static Channel Connection

Use the following commands to establish a static channel connection.

Command	Description
`set {slot:port:channel} type {voice|data}`	Set the channel type for the channel to map. See *set (ds0)* command for details.
`set {slot:port:channel} signal {ls|gs|emw|emdw|emicpd|dpt}`	Set the channel signaling option. See *set (ds0)* command for details.
`connect {slot:port} {slot:port}`	Connect the channels. See the *connect (card-trunk) (card-trunk)* command.

ISDN BRI Service Setup

Use the following commands to set up a ISDN BRI Service. See the *set (bri)* command for details.

Command	Description
`set {slot:port} up`	Put the ISDN line In-Service.
`set {slot} mode {lt3ds0|lt4to1tdm|nt3ds0}`	Set the ISDN mode.
`set {slot:port} crv {1-768}`	Set the Call Reference Value. **Note:** value must be the same as the Access Navigator.
`set {slot:port} threshold {day|hour} {es|ses}`	Set the threshold for the IDSN lines.
`set {slot} pmsync {adit|switch}`	Set the source for performance monitoring synchronization.
`set {slot:port} autoactivate {on|off}`	Only used in 4-to-1 mode. Establishes the D channel when the FDL link can not be used.

OCU-DP Card Setup

The following is a basic setup for the OCU-DP card.

Command	Description
`set {ocudp-addr} baud {2400|4800|9600|19200|38400| 56000*|64000}`	Set the OCU-DP Baud rate. Where ocudp-addr = {slot:port} of the OCU-DP card to apply settings to.
`set {ocudp-addr} up`	Set the OCU-DP port 1 up.
`show {ocudp_card-addr}`	Show the OCU-DP card settings. Where ocudp_card-addr = {slot} of the OCU-DP card.
`disconnect a`	Disconnects all connections to slot a (controller)
`set {ds0-addr} type data`	Sets a DS0 data signaling type
`connect {ds0-addr} {ocudp-addr}`	Connects DS0 (in previous step) to OCU-DP port (in previous step).
`show connect (ocudp_card-addr}`	Displays connect information for OCU-DP card.

ADPCM Card Setup

Command	Description
`Connect T1 cable to port 1 of the ADPCM service card`	
`set {adpcm_card-addr} {none|map1|map2|map3}`	Enable compressing by selecting Map type. Note: **none** disables compression.
`show (adpcm_card-addr}`	Displays the status of the card, and the mapping.
`connect 2:1:1-12 2:4:1-12`	Set ADPCM cross-connects. The example connects all 24 channels of the ADPCM to the 12 channels of the T1 (now compressed) on port 4. This example is with **map2**
`show connect {2:1}`	Displays the connections made above.

V.35 Port Setup

Use the following commands to set up a V.35 port. See the *set (v35)* command for details.

Command	Description
`set {slot:port} cts {cd|high|low|rts}`	Set the Clear to Send operation mode.
`set {slot:port} data {invert|normal}`	Set the data mode.
`set {slot:port} clock {source|external}`	Set the clock mode.
`set {slot:port} speed {56K|64K}`	Set the speed.
`set {slot:port} txclkinv {invert|normal}`	Set the transmit clock inversion mode.
`set {slot:port} rxclkinv {invert|normal}`	Set the receive clock inversion mode.

Change the IP Address of the DS0 Management Channel

Use the following commands to change the IP over DS0 Management Channel for the Adit 600.

Command	Description
`set ipds0 down`	Set the DS0 management channel down
`set ipds0 ip address {ip-addr}`	Set the DS0 management channel IP address.
`set ipds0 up`	Set the DS0 management channel up.

Upgrade the Adit 600 Software

Use the following commands to determine the system software level, then upgrade the software to the latest version.

Command	Description
status equipment	Determine the system software level. The Slot A line (SW Vers) will display the current software level
load tftp {ip-addr} {"file-name"} (or load xmodem)	Load the new controller system software. See the *load tftp* and *load xmodem* command for more information. **Note:** A TFTP server must be running on the host system. You can use any TFTP server utility you wish. One example is the program "TFTPD32" which can be downloaded free-of-charge at tftpd32.jounin.net/tftpd32.html.

Upgrade the Router Card Software

Use the following commands to determine the Router card software level, then upgrade the software to the latest version.

Command	Description
`status equipment`	Determine the Router software level. The Router Slot line (SW Vers) will display the current software level
`load {rtr_card-addr} tftp {ip-addr} {"file-name"}`	Load the new Router software to a Router card. See the *load tftp* command for more information. **Note:** A TFTP server must be running on the host system. You can use any TFTP server utility you wish. One example is the program "TFTPD32" which can be downloaded free-of-charge at tftpd32.jounin.net/tftpd32.html.

NOTE: For additional information about upgrading MSR card software, see the following manuals:
-Adit 600 User Manual
-Adit 3000 Series and Multi-Service Router (MSR) Card GUI Reference Manual
-Adit 3000 Series and Multi-Service Router (MSR) Card CLI Reference Manual

Basic Router Setup

The following is the basic router setup. For more information and examples of various router configurations, see the *Adit 600 User Manual* and the Router family *User Manuals*.
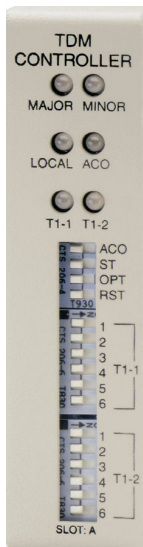
NOTE: For MSR router setup information, see the following manuals:
-Adit 600 User Manual
-Adit 3000 Series and Multi-Service Router (MSR) Card GUI Reference Manual
-Adit 3000 Series and Multi-Service Router (MSR) Card CLI Reference Manual

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Command	Description
`set {ds0-addr} type data`	Confirm DS0 is set to type data. ds0-addr = {slot:port:channel} of DS0 Example: set a:1:1-24 type data
`connect {slot:port:trunk}` `{slot:port:channel}`	Cross-connect T1 to router card (in slot 6). Example: connect a:1:1-24 6:1:1
`set {router-addr} proxy`	Disable/enable router proxy. router-addr = {slot:port}| of router card. Example: set 6:1 proxy disable.
`set {slot:port} up`	Set Router LAN as In-Service. Example: set 6:1 up
`telnet {router_card-addr}`	Telnet to Router card. router_card-addr = {slot} of router card Example: telnet 6 (if earlier than 3.0 release {slot:port} must be used)
Local and Remote Profile Setup	
`reset {slot}`	For most router configuration changes to go into effect, the router must be reset. Best practice is to always reset the router after making configuration changes.

Controller Card LEDs

T1 Controller Card

The T1 Controller has a set of six LEDs you can use to troubleshoot your Adit 600. The table below describes each LED.

LED	State	Description
MAJOR	Off	No major alarms present
	Red	Major alarm present
MINOR	Off	No minor alarms present
	Yellow	Minor alarms present
LOCAL	Off	Remote mode (DIP switches disabled)
	Green	Local mode (DIP switches enabled)
ACO	Off	Normal mode. No alarms are being suppressed.
	Yellow	Alarm cutoff active. One or more active alarms suppressed.
T1-1 and T1-2	Off	Off line
	Green	Normal
	Red	Loss of Signal (LOS) detected
	Yellow	Bipolar Violation (BPV) detected
	Flashing Green	Loopback active
	Flashing Red	Loss of Frame (LOF) or Alarm Indication Signal (AIS) detected
	Flashing Yellow	Yellow alarm (Remote Alarm Indication) detected.

0 (Off) 1 (On)

E1 Controller Card

NOTE: E1 is not supported in this release. It will be supported in a future release.

The E1 Controller has a set of six LEDs. The table below describes each LED.

LED	State	Description
MAJOR	Off	No major alarms present
	Red	Major alarm present
MINOR	Off	No minor alarms present
	Yellow	Minor alarms present
LOCAL	Off	Remote mode (DIP switches disabled)
	Green	Local mode (DIP switches enabled)
ACO	Off	Normal mode. No alarms are being suppressed.
	Yellow	Alarm Cut Off active. One or more active alarms suppressed.
E1-1 and E1-2	Off	Off line
	Green	Normal
	Red	Loss of Signal (LOS) detected
	Yellow	Bipolar Violation (BPV) detected, LCV
	Flashing Green	Loopback active
	Flashing Red (slow)	Loss of Frame (LOF) or Alarm Indication Signal (AIS) detected
	Flashing Red (fast)	Card Failure
	Flashing Yellow	Yellow alarm (Remote Alarm Indication) detected.

Power Supply LEDs

115 VAC/-48 VDC and 230 VAC/-48 VDC Power Supplies

The power supply card has two LEDs, as described in the table below.

LED	State	Description
AC Input	Off	AC input missing or failure
	Green	AC input present
Battery	Off	Battery input not used
	Green	Battery charging or operating from DC source only.
	Yellow	Battery discharging
	Red	Battery low (less than 42V), ringer disabled

24 VDC/-48 VDC Power Supply

The power supply card has two LEDs, as described in the table below.

LED	State	Description
DC OK	Off	DC input missing or failure
	Green	DC input present
-48 Battery Low	Off	Normal
	Red	VDC is low (less than 42 VDC), ringer disabled

Service Card LEDs

- 4-Wire E&M Card
- FXO Card
- FXS Card
- ISDN BRI Card*
- OCU-DP Card*
- P-Phone Card*
- Single Channel POTS Card*
- Quad DS1 ADPCM Service Card*
- Quad DS1/E1 and Quad T1 Cards
- Quad E1 Card*
- IP Router Card*
- CMG Router Card
- Terminal Server Router Card
- MSR Card
- RS-232 and V.35/V.54 Cards**

*Discontinued cards.

**RS-232 discontinued.

4-Wire E&M Card

Each channel/port has two LEDs. Only the top LED is used in this application. LED definitions are listed below.

State	Description
When in E&M Mode	
Off	Channel is idle or disabled
Green	Analog interface is off-hook
Red	Digital interface is off-hook
Yellow	Both analog and digital interfaces are off-hook, or channel is being trunk processed
When in TO Mode	
Off	Disconnected
Green	Connected, T1/E1 not in alarm
Yellow	Connected, T1/E1 in alarm (trunk processed)

FXO Card

Each port on the FXO card has its own LED, as described in the table below.

State	Loop Start Meaning	Ground Start Meaning	Dial Pulse Termination Meaning
Off	N/A	Idle (tip open)	Idle (loop open)
Green	Idle	Tip ground (incoming seizure)	Incoming seizure
Red	N/A	Ring ground (outgoing seizure)	Loop closure (outgoing seizure)
Yellow	Call in progress	Call in progress	Call in progress (reverse battery)
Flashing Green	Ringing	Ringing	N/A

FXS Card
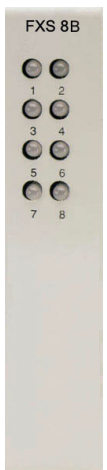
There is an LED for each port on the FXS card, as described in the table below.

State	Loop Start Meaning	Ground Start Meaning
Off	N/A	Idle (tip open)
Green	Idle	Tip ground (incoming seizure)
Red	Note: This can be seen with Forward Disconnect (tip open)	Ring ground (outgoing seizure)
Yellow	Call in progress	Call in progress
Flashing green	Ringing	Ringing

ISDN BRI Card

OCTAL BRI

1 2
3 4
5 6
7 8

There is an LED for each ISDN BRI on a card, as described in the table below:

State	Description
Off	Line U-interface is attempting synchronization, or BRI is Out-of-Service.
Red	Line alarm (LOS or self test failure)
Yellow	ES or SES has occurred.
Flashing yellow	Line U-interface is synchronized with customer equipment, but is not passing customer data.
Flashing green	Line U-interface is in external loopback toward the switch at the unit.
Green	Normal (Line U-interface is active and transparently passing customer data)

OCU-DP Card

OCU-DP
1

4

Each channel has two LEDs, described in the table below:

State		Description
Yellow Flickering	ALL	Boot Software in control.
Green (walking down) Red (walking up)	ALL	Application Software in control (repeated 3.5 times).
Red, slow flash	ALL	In Boot. Application flash code checksums did not match and Boot is waiting for application download.
Red	ALL	In Application code waiting for Controller to issue SW/HW revision request. This is the first request that comes from the OCU-DP card manager in the Controller.
Green Yellow	Top Bottom	Port in Self-test. Duration is 5-8 seconds.
Off	Top Bottom	Port is set down (Out-Of-Service).
Green	Top	Port is receiving valid signals.
Red	Top	Port is receiving no signal (primary) or no frame sync (secondary or clear channel).
Red Flashing	Bottom	Port is receiving bipolar violations
Yellow	Bottom	Port is in loopback.

P-Phone Card

Each P-Phone channel has a corresponding LED, described in the table below.

State	Line State
Off	No P-Phone connected
Green	No call in process
Flashing Green	Alert (Ringing)
Yellow	Call in progress
Flashing Yellow	P-Phone Loopback in Progress
Flashing Red	Self-test failed

Single Channel POTS Card

The POTS channel LED (left) status is described in the table below.

State	Loop Start Meaning
Off	Calling Party Disconnect
Green	Idle
Red	N/A
Yellow	Call in progress
Flashing green	Ringing

The second LED (right) is a status LED is not used on this card.

Quad DS1 ADPCM Service Card

Top LED (active)

Bottom LED (not used)

Each channel on the Quad DS1 ADPCM card has two LEDs. The description of the top LED is shown below, the bottom LED is not used with this application.

State	Description
Off	Off line
Green	Normal
Red	Loss of Signal (LOS)
Yellow	Bipolar Violation (BPV)
Flashing Green	Loopback active
Flashing Yellow	Yellow Alarm (Remote Alarm Indication)
Flashing Red (Slow)	Loss of Frame (LOF) or Alarm Indication Signal (AIS)
Flashing Red (Fast)	Self-test Failure

Quad DS1/E1 and Quad T1 Cards
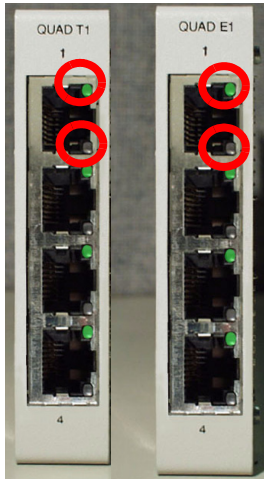
Each channel on the Quad T1/E1 cards have two LEDs. The description of the top LED is shown below, the bottom LED is not used with this application.

State	Description
Off	Off line
Green	Normal
Red	Loss of Signal (LOS)
Yellow	Bipolar Violation (BPV)
Flashing Green	Loopback active
Flashing Yellow	Yellow Alarm (Remote Alarm Indication)
Flashing Red (Slow)	Loss of Frame (LOF) or Alarm Indication Signal (AIS)
Flashing Red (Fast)	Self-test Failure

IP Router Card

The following chart describes each LED and its state.

LED	State	Description
CRD	Off	Loss of power
	Green	No current alarms
	Red	Alarm state active. See alarm log for cause
	Red Flashing	Self-test or Boot in-process
	Yellow Flashing	Card is saving data to flash RAM, do not power down
10/100	Off	10 Mb ethernet
	Green	100 Mb ethernet
LNK	Off	No ethernet link
	Green	Good ethernet link
COL	Off	No current ethernet transmit collisions
	Yellow	Ethernet collisions have occurred and have not dropped to minimum level
	Yellow Flashing	Ethernet collision occurring
TX	Off	No ethernet transmit activity
	Green	Ethernet transmit activity
RX	Off	No current ethernet receive activity
	Green	Current ethernet receive activity

CMG Router Card

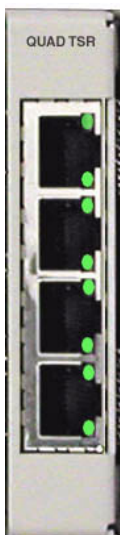The following chart describes each LED and its state.

LED	State	Description
CRD	Off	Loss of power
	Green	No current alarms
	Red	Alarm state active. See alarm log for cause
	Red Flashing	Self-test or Boot in-process
	Yellow Flashing	Card is saving data to flash RAM, do not power down
VOIP	Off	No active VoIP calls or if the MGCP protocol is optioned **down**
	Green	Active VoIP calls
	Red	Call agent unreachable
	Yellow	Insufficient VoIP resources to complete call
LNK	Off	No Ethernet link
	Green	Good Ethernet link
10/100	Off	10 Mb Ethernet
	Green	100 Mb Ethernet
TX	Off	No Ethernet transmit activity
	Green	Ethernet transmit activity
	Yellow	Current Ethernet transmit collision
RX	Off	No current Ethernet receive activity
	Green	Current Ethernet receive activity

Terminal Server Router Card

The Terminal Server Router card has 2 LEDs per port.

At Power-up

QUAD TSR

TOP LED	Bottom LED	Description
Off	Off	At Power Up/Boot = Loss of power
Red	Red	Card is inoperative
Flashing Red	Flashing Red	Self-test or Boot in-process

Normal Operation

TOP LED	Bottom LED	Description
Green Solid (Link)	Green Solid (Link)	Port set for Ethernet - see below
Flashing Red	Flashing Red	Self-test or Boot in-process

Port Set for Ethernet

Top LED indicates 100M Link, Bottom LED indicates 10M Link

State	Description
Off	No Ethernet link
Green	Link but no activity
Red Flashing	Current Ethernet collision
Green Flashing	Current Ethernet receive
Yellow Flashing	Current Ethernet transmit

Port Set for RS-232

TOP LED	Bottom LED	Description
Yellow	Off	No Activity
Yellow	Flashing Yellow	Current transmit
Yellow	Flashing Green	Current receive

MSR Card

The following chart describes the MSR card's LEDs.

LED	State	Description
CRD	Off	Loss of power
	Green	No current alarms
	Red	Alarm state active. See alarm log for cause.
	Red Flashing	Self-test or boot in process
	Yellow Flashing	Card is saving data to flash RAM, do not power down.
VOIP	Off	No SIP proxy, or registration attempts for all lines have succeeded, but no calls are active.
	Green	Active VoIP call(s)
	Red	Inability to reach the SIP proxy, or negative response to register attempts from all lines.
	Yellow	Register attempts from some lines have succeeded, but not for all lines.
ETH1 and ETH2 Top LED	Off	10 Mbit/sec, down, or not connected
	Green	100 Mbit/sec
ETH1 and ETH2 Bottom LED	Off	Link down
	Green	Link up
	Flashing Green	Traffic on link
	Yellow	Collision status

RS-232 and V.35/V.54 Cards
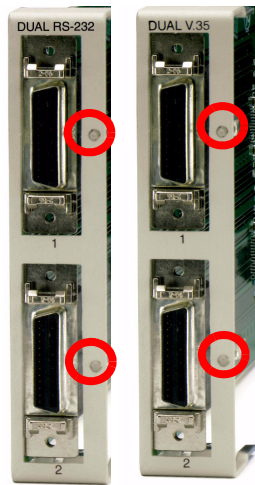
Each port has its own LED, as described in the table below.

State	Description
Off	No T1 Assignment
Green	Normal (CD/RTS) Active
Red	CD inactive (T1-side failure)
Yellow	RTS inactive (equipment-side failure)
Flashing Yellow	Loopback toward T1 or equipment loop test
Flashing Green	Loopback toward equipment or network loop test