ADTRAN®

Total Access 1248
Octal T1 IMA DSLAM

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Product P/N: 1179641L4

Issue Date: 0905
Document P/N: 61179641L4-22A

DESCRIPTION

The Total Access 1248 is a mini-DSLAM that accepts up to eight T1 network feeds assigned to a single IMA group. Inverse Multiplexing over ATM (IMA) is a technology used to bond multiple (DS1) links into a single data pipe.

The Total Access 1248 provides ADSL2+ service for up to 48 subscribers per unit. Plain Old Telephone Service (POTS) is brought in from an on-board splitter and is placed on the same pair as the ADSL2+ signal. Since ADSL2+ and POTS are transported on the same twisted pair, the subscriber must use a low-pass filter on the line before attempting to use analog services. The lines are configured for service with flow-through provisioning using a network configuration application such as Telcordia's Network Configuration (NCON). Permanent Virtual Circuits (PVCs) in the ATM network to the subscriber's chosen Internet Service Provider (ISP) allow the subscriber access to the internet.

The Total Access 1248 is rack-mountable and measures 1.75 inches (1U) high, 17.25 inches wide, and 11.125 inches deep (measurements do not include the mounting brackets). The device may be powered using one or two –48 VDC sources, one for a non-redundant power configuration, two for a redundant power configuration.

REQUIRED TOOLS

The following tools and materials are required to install the Total Access 1248:

- Wire-wrap tool
- #2 phillips-head screwdriver
- #1 phillips-head screwdriver
- Straight-slot screwdriver
- Multimeter (ohmmeter and voltmeter)
- Crimping tool for ground and power lugs
- Wire strippers and side cutters

MOUNTING THE TOTAL ACCESS 1248

The Total Access 1248 is shipped with two sets of mounting brackets that accommodate either a 19-inch or 23-inch rack.

- The mounting brackets used for a 19-inch rack are P/N 3265540.
- The mounting brackets used for a 23-inch rack are P/N 3265541.

Attach the mounting brackets to the front of a rack for both flush or mid-mount configurations.

19-inch Mounting Brackets

23-inch Mounting Brackets
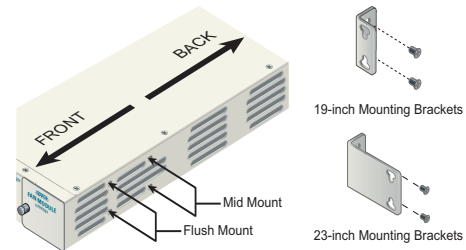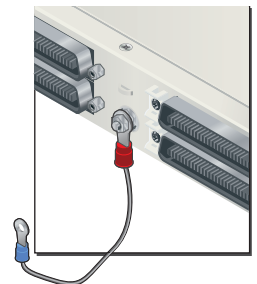
TOTAL ACCESS 1248 CONNECTIONS

The following sections describe the Total Access 1248 ground connections and power connections.

Ground Connection

The ground wire can be 12 to 18 AWG, however, it must be equal to or greater than the wire gauge used for power. The Total Access 1248 must be grounded to a reliable grounding source.
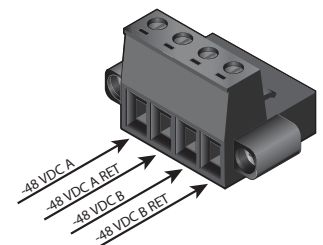

To connect the ground wire, perform the following steps:

1. Connect the ground wire (fitted with a loop terminal end) to the ground lug on the front of the Total Access 1248.
2. Clean the surface of the frame ground source and apply an appropriate antioxidant.
3. Connect the other end of the ground wire to the grounded frame.
4. Using an ohmmeter, verify continuity between the ground lug and a known good frame ground. The reading should be less than 1 ohm.

Power Connection

The Total Access 1248 provides redundant power inputs. Two sources of –48 VDC must be provided to use the redundant power feature. The power wires must be 12 to 18 AWG stranded copper. The Total Access 1248 uses a four-point terminal block to accept the –48 VDC and –48 VDC RET leads.

-48 VDC A
-48 VDC A RET
-48 VDC B
-48 VDC B RET

NOTE

If a non-redundant power configuration is required, use the connections marked **–48 VDC A** and **–48 VDC A RET**.

To connect the power source, perform the following steps:

1. With the power disconnected at the source, remove approximately 1/4 inch of insulation from the ends of the power wire.

> **NOTE**
>
> ADTRAN recommends an external fuse rated at 3.0 amps.

2. Using a small flat-head screwdriver, loosen the setscrew on the top of the terminal block.

3. Insert the bare wire into the opening on the front of the terminal block, making sure that the wire is inserted correctly according to the labeling on the unit above the terminal block.

4. While holding the wire in place, tighten the setscrew until the wire is secure.

5. Repeat steps 1 to 4 until all power leads are connected.

6. Apply power to the Total Access 1248 and test the voltage and polarity on the terminal block using the tops of the setscrews as test points.

ETHERNET CONNECTION

The Total Access 1248 interfaces with networks for management through an Ethernet port. The following Ethernet protocols are supported:

♦ IEEE 802.3, 10/100Base-T

♦ DHCP Client Mode for Management

♦ SNMP

ALARM CONNECTIONS

The Total Access 1248 provides an alarm port with three auxiliary alarm inputs and three alarm outputs (Major, Minor, and Critical). Alarm inputs are activated by shorting A and B contacts (closing an externally connected relay). The outputs provide both normally open and normally closed pins (through internal relay contacts) for proper operation with a variety of alarm panels. Each alarm event generates an autonomous TL1 message that is transmitted via the in-band management channel to a monitoring device.

A cable with a high density DB-15 male connector on one end and a stub at the other end is available (P/N 1196DB901L1) for wire-wrap connections to an alarm panel.

NETWORK CONNECTIONS

Network connections are accomplished via the 50-pin amphenol connector labeled **T1/E1 1-8**.

ADSL2+ and POTS Connections

The Total Access 1248 uses four 25-pair amphenol connectors which are used as follows:

♦ Two are for connection to the POTS pairs

♦ Two are for connection to the ADSL2+ plus POTS pairs

POTS Connections

To establish a POTS connection, perform the following steps:

1. Connect the cables with the 25-pair female amphenol connectors to the male amphenol connectors provided, labeled **POTS**.

2. Tighten the screws (normally provided with each amphenol connector attached to the cable) on the right side of each amphenol connector, and use the cable ties (provided) threaded through the tie-down brackets (provided) to secure the left side of the amphenol connectors.

> **NOTE**
>
> ♦ This cable tie may be used to assist in routing the power cables and the ADSL+POTS cables that originate from the right most amphenol connector.
>
> ♦ The POTS interface may be connected to the outside plant.

Customer Connections (ADSL+POTS)

The Total Access 1248 provides 48 ADSL+POTS ports on two 50-pin male amphenol connectors. POTS is brought in from the CO on the POTS amphenol connectors as described in the preceding section. The ADSL is generated locally and placed on the same pair as the corresponding POTS signal for delivery to the subscriber.

There is a one-to-one correlation between the pins on the ADSL+POTS amphenol connectors and the pins on the POTS amphenol connectors.The 25th pair is not used. To establish the ADSL+POTS connection, perform the following steps:

1. Connect the 25-pair female amphenol connectors to the male amphenol connectors provided, labeled **ADSL+POTS**.

2. Tighten the screws (normally provided with each amphenol connector attached to the cable) on the right side of each amphenol connector, and use the cable ties (provided) threaded through the tie-down brackets (provided) to secure the left side of the amphenol connectors.

FRONT PANEL LEDS

The Total Access 1248 provides front panel LEDs to reflect the condition of the hardware. The table below lists the LEDs and their status.

Label	Status	Description
PWR	● Green	Total Access 1248 is In Service
	● Yellow	Total Access 1248 is Out of Service-Maintenance
	● Red	Total Access 1248 Failed self-test
	○ Off	No power present on Total Access 1248
ALM	● Yellow	Total Access 1248 is reporting a Minor alarm
	● Red	Total Access 1248 is reporting a Major alarm
	○ Off	No alarms reported on Total Access 1248
EXPANSION IN	● Green	Connected to an upstream box
	✳ Flashing	Connected with traffic
	● Yellow	No signal
EXPANSION OUT	● Green	Connected to a downstream box
	✳ Flashing	Connected with traffic
	● Yellow	No signal

CRAFT INTERFACE

Connection to the Total Access 1248 system can be made through the DB-9 connector, labeled **CRAFT,** located on the front of the 1248/1200F Host unit. A DB-9 straight cable is required.

Craft Port
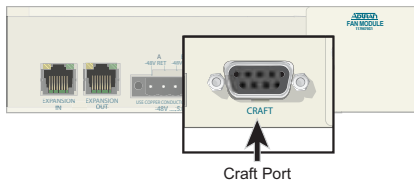
Most personal computers or laptops can run communications software that will emulate a VT100 terminal. Windows programs such as Terminal or HyperTerminal are two such examples in the Windows format, but there are many other adequate, commercially available software packages, virtually all of which allow the PC or laptop to emulate a VT100 terminal. Certain configuration items must be set on a PC or laptop to act as a VT100 terminal for the Total Access 1248.

1. Set the parameters of the communications software to the following settings:
   - 9600 baud rate
   - 8 data bits
   - No parity
   - 1 stop bit
   - No flow control
2. Set the PC for direct connect on the appropriate communications port (as opposed to dial up connection).
3. Plug the male end of the data cable into the Total Access 1248. Make connection to the PC or laptop as appropriate for the equipment.

TOTAL ACCESS 1200F CONVERSION

⚠ CAUTION

The order of subtended Total Access 1200 Series DSLAMS must be preserved when connecting to the Total Access 1200F for translation to the legacy ATM mode PVCs. See the following table.

Total Access 1200F Expansion Port	Total Access 1200 Series Client
1	Total Access 1200 Series Host (Client 1)
2	Client 2
3	Client 3
4	Client 4

Existing Total Access 1200 Series DSLAM installations require a software upgrade to convert the Total Access 1200 Series DSLAMs to function with a Total Access 1200F.

To upgrade each Total Access 1200 Series DSLAM, perform the following steps:

⚠ CAUTION

Upgrading the firmware disrupts DSL service to the customer.

1. Connect a VT100-capable laptop/terminal to the **CRAFT** port of a Total Access 1200 Series DSLAM.
2. Set the terminal baud rate to 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.

NOTE

The 4-MB Flash Upgrade must be made at 9600 baud.

3. Press and hold the Y key on the terminal keyboard and apply power to the Total Access 1200 Series DSLAM. When prompted, select 38400 for a faster transfer rate (20 minutes at 38400 compared to 60 minutes at 9600).
4. If using HyperTerminal, go off-line, select properties, change the baud rate, then go back online. VT100 settings should be set as follows:
   - Baud Rate: 38400
   - Data Bits: 8
   - Parity: None
   - Stop Bits: 1
   - Flow Control: None

   If properly connected, a row of CCCCs should begin to display on the screen.
5. Download the current file identified by network administration using the Y-Modem protocol.

   If using HyperTerminal, use the Transfer > Send File... Browse... dialogue box and identify the file by name and location. Select YModem, then click Send.
6. Several messages are displayed that report system progress for the upgrade procedure, including the following:
   - Erasing Flash
   - Erase Complete
   - Programming Flash
   - Programming Complete
   - Comparing Flash to SDRAM
   - Verify Done
   - Please set Baud Rate to 9600 and Reboot Unit Now
7. Reboot the Total Access 1200 Series DSLAM when the download is completed.
8. Repeat steps 1 through 7 for each Total Access 1200 Series DSLAM.
9. Connect the Total Access 1200F expansion cables at the DSLAM end.
10. Provision, test, and turn up the equipment. Refer to "Section 4, Provisioning Defaults" and "Section 5, User Interface" of the *Total Access 1200F Installation and Maintenance Practice* (P/N 61179660L1-5) for detailed instructions on provisioning the equipment.

MAINTENANCE

The Total Access 1248 does not require routine hardware maintenance for normal operation. Do not attempt repairs in the field. Repair services may be obtained by returning the defective unit to ADTRAN. Refer to the warranty for further information. Field support for software is provided through upgrade facilities.

Fan Modules

Four fans are installed in the Total Access 1248 in a removable module to maintain the hardware within proper operating temperature tolerances. With the exception of the filter, the fan module is not field serviceable. The fan module (P/N 1179675G1) is field replaceable and is available from ADTRAN.

To remove a fan module, perform the following steps:

1. Loosen the screw that holds the fan module in place.
2. Remove the fan module by pulling it straight out of the chassis.

To install a new fan module, perform the following steps:

1. Insert the new fan module by pushing it straight into the chassis.
2. Tighten the screw that holds the fan module in place.

Fan Filters

The Total Access 1248 fan module comes with a single fan filter. The filter is designed to remove particles from the air before it is pushed through the system.

Replacement filters are available from ADTRAN individually (P/N 1179676G1) and in quantities of 20 (P/N 1179676G2). The filter should be inspected at least every 90 days and replaced as necessary.

To replace a filter, remove the fan module, remove the old filter material and tuck the new filter in, ensuring that the edges of the filter are behind the metal tabs provided to hold the filter.

COMPLIANCE

The Total Access 1248 is NRTL listed to the applicable UL standards. The Total Access 1248 meets or exceeds all applicable requirements of NEBS, Telcordia GR-63-CORE, issue 3, and GR-1089-CORE, issue 4. The Total Access 1248 is intended for deployment in EEC's, in Pedestals, directly in the OSP, and in locations where the NEC applies. Install the Total Access 1248 in a restricted access location.

Configuration Code	Input	Output
Power Code (PC)	F	C
Telecommunication Code (TC)	X	X
Installation Code (IC)	A	–

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.

⚠ CAUTION

- Electrostatic Discharge (ESD) can damage electronic modules. When handling modules, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.
- Per GR-1089-CORE, Section 9, the Total Access 1248 is designed to be deployed in DC-C (common) configuration or DC-I (isolated) installation.
- Per GR-1089-CORE the Total Access 1248 is designed and intended for installation as part of a Common Bonding Network (CBN). The Total Access 1248 is not designed nor intended for installation as part of an Isolated Bonding Network (IBN).
- The Total Access 1248 frame ground terminal must be connected to a reliable earth ground.
- Connect to a reliably grounded –48 VDC source which is electrically isolated from the AC source. The branch circuit overcurrent protection shall be a fuse or circuit breaker rated minimum –48 VDC, Maximum 3A.

NOTE

- The **POTS** and **ADSL+POTS** ports are classified as Type 1, 3, and 5 as defined in Appendix B of GR-1089-CORE, Issue 4 and meet the lightning and power fault criteria with any primary protector that meets any of the voltage limits of GR-974-CORE or GR-1361-CORE (i.e., carbon blocks, gas tubes, solid states, etc.). Solid-state primary protectors are not recommended as they could affect the signal integrity of the ADSL.
- Current limiting protectors are not required.

PRICING AND AVAILABILITY 800.827.0807
TECHNICAL SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722

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