ADTRAN®

TOTAL ACCESS OPTI-3 CONTROLLER MODULE
1550 NM
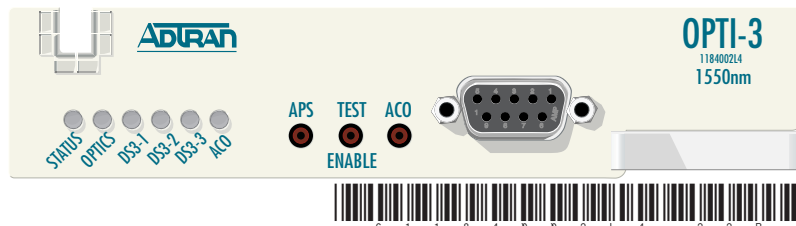
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OPTI-3 CONTROLLER

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DESCRIPTION

The Total Access® OPTI-3 Controller Module (OCM) provides an OC-3 interface to the network and three ADD/DROP DS3 interfaces to the Loop. The OCM can be configured for a point-to-point configuration or subtended from 3rd party SONET equipment. The OCM operates in terminal mode only. The compact design mounts in either a rackmount or wallmount chassis, requiring less space and provides optional redundancy. It can automatically switch to the offline unit in the event of optical signal failure or degradation. The modules are fully hot-swappable.

Compliant with SONET standards, the OCM functions as a terminal multiplexer. It supports 1+1 OC-3 equipment and facility protection, 1:1 OC-3 equipment protection (system provisioned for optical Ycable), 1:1 DS3 facility protection, and detects standard optical related alarm conditions. The OCM can be configured to operate redundantly with optional protection of the optics components. It can be upgraded online from un-protected to protected and operating software can be upgraded remotely in Back-to-Back configurations.

The OCM is easily managed with TL1 commands over the Data Communications Channel (DCC) or via Command Line Interface (CLI) through the local craft interface. Additional features include remote alarm transport via DCC and alarm reporting to legacy alarm systems.

FIRMWARE RELEASE

This job aid relates to OPTI-3 System Release 1.3 (Dseries). The menus and functionality are an extension of the prior system release (OPTI-3 System Release 1.2 - Cseries). The latest software is not compatible with System Release 1.1 (Bseries).
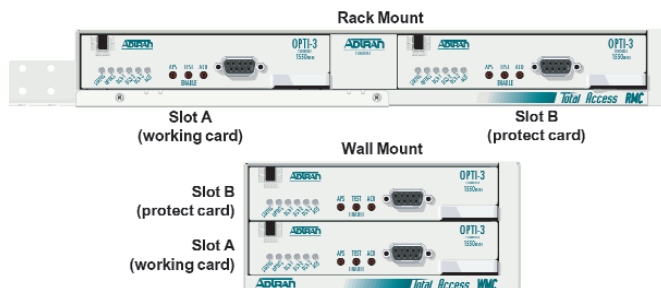
INSTALLATION

1 The Total Access OPTI-3 can be installed in either a Rackmount Chassis (RMC), P/N 1184003L1, or a Wallmount Chassis (WMC), P/N 1184001L1. The RMC provides two OCM slots, side by side, with slot A on the left and slot B on the right. (See Figure below.) The WMC provides two OCM slots, positioned vertically with slot A below slot B. Ensure the appropriate chassis is installed before proceeding with the OCM installation.

Carefully insert the OCM halfway into the selected slot. Route the fiber cables through the notch on the OCM front panel and approximately 4 inches past the SC receptacles (to create slack). Gently but firmly push the OCM all the way into the slot, being careful not to pinch the fibers between the front panel and the shelf. Push the latch/ejector tab toward the front panel to lock it into place.

WARNING: Once fully inserted into the chassis, the module will be powered (provided power is connected to the chassis).

2 When the OCM powers up, it performs a self-test. The front panel LEDs illuminate for approximately 8 seconds. The self-test is complete once the STATUS LED illuminates green.

3 If installing a redundant system, repeat the preceding procedure for slot B. If not installing a second OCM, a blank faceplate (P/N 1184005L1) must cover the empty slot.

Rack Mount

Slot A (working card)   Slot B (protect card)

Wall Mount

Slot B (protect card)

Slot A (working card)

CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY.

HANDLING PRECAUTIONS REQUIRED.

LED STATUS

STATUS	● Green	In-Service	
	● Yellow	Unit is Out-of-Service – Unassigned	
	✳ Flashing Yellow	Unit is Out-of-Service – Maintenance or is ONLINE and inhibited from switching	
	● Red	Unit has an equipment failure	
OPTICS	● Green	Normal Operation	
	● Yellow	Soft failure (e.g. RDI)	
	✳ Flashing Yellow	Unit in Test (e.g. Loopback)	
	● Red	LOS, LOL, and other hard alarms on optical interface	
	✳ Flashing Red	Unit in Test (e.g. Loopback) with an alarm present on the Optical Interface	
DS3-1 – DS3-3	● Green	Unit is ONLINE (DS3 TX ON)	
	● Yellow	Soft failure (e.g. RDI)	
	✳ Flashing Yellow	Unit in Test (e.g. Loopback)	
	● Red	LOS, LOL, and other hard alarms on DS3 interface	
	✳ Flashing Red	Unit in Test (e.g. Loopback) with an alarm present on the DS3 Interface	
ACO	● Yellow	When displayed on the OCM at the CO, indicates acknowledged active alarms at the RT	
	✳ Flashing Yellow	When displayed on the OCM at the CO, indicates an unacknowledged active alarms at the RT	
	● Red	Acknowledged alarms active on the shelf	
	✳ Flashing Red	Unacknowledged alarms active on the shelf	

APS PUSHBUTTON

- When depressed simultaneously with the TEST/ENABLE switch on the Offline unit, a switch is forced between the two OCMs.
- When depressed with the TEST/ENABLE switch on the Online unit, it toggles LOCKOUT status.

TEST/ENABLE BUTTON

- When depressed alone, tests all unit LEDs (multicolor LEDs appear YELLOW).
- When depressed simultaneously with the APS switch on the Offline unit, a switch is forced between the two OCMs.

ACO BUTTON

- When depressed after an audible alarm is sounded, silences the alarm.
- When depressed after any other alarm is triggered, acknowledges alarm.

CRAFT INTERFACE

- Provides menu access via RS-232 (Craft) port on the front panel.
- Connects to VT100 compatible terminal using a DB-9 serial cable.
- Requires setting VT100 terminal emulation (to 9600, 19200, 38400, 57600, or 115200 bps), 8 Data Bits, No Parity, 1 Stop Bit, and No Flow Control. (The baud rate default is 9600 bps, which can be modified through the VT100 menu system.)
- Provides access to both OCMs installed in the chassis with connection to either OCM craft port.

NOTE: The OPTI-3 is an LR (long reach) optical product. When interfacing with IR (intermediate reach) 3rd party equipment, the optical receive signal may need to be padded to avoid overloading the optical receive signal. The receive signal level should be within –8 dbm to –28 dbm for IR equipment.

WARRANTY

ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found at www.adtran.com/warranty. U.S. and Canada customer Faxback: 877-457-5007, Document 414.

■ For a complete Installation and Maintenance Practice (P/N 61184002L4-5): 877-457-5007, Faxback Document 964. Please have your fax number ready. ■

TOTAL ACCESS OPTI-3 CONTROLLER MODULE
1550 NM

PRICING AND AVAILABILITY 800.827.0807
TECHNICAL SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61184002L4-22B

PROVISIONING OPTIONS

Upon initial installation, the OCM uses factory default settings. To provision the OCM, connect a terminal emulator via the RS-232 (DB-9) connector on the front panel. The terminal must be VT100 compatible and set for 9600 bps, 8 data bits, no parity and 1 stop bit. The following table lists the provisioning settings and their default values. The settings are retained in a nonvolatile memory device in case of power loss to the OCM.

Options	Settings (Default in Bold)
Working Service State	**In Service**, Out Of Service – Maintenance, Out Of Service – Unassigned
Protect Service State	**In Service**, Out Of Service – Maintenance, Out Of Service – Unassigned
DS3 Provisioning	
DS3#1 Name	User Defined
DS3#1 Interface	**Enable**, Disable
DS3#1 Line Build Out	**Short**, Long
DS3#2 Name	User Defined
DS3#2 Interface	**Enable**, Disable
DS3#2 Line Build Out	**Short**, Long
DS3#3 Name	User Defined
DS3#3 Interface	**Enable**, Disable
DS3#3 Line Build Out	**Short**, Long
Signal Fail (SF) Thresh	$1x10^{-3}$, $1x10^{-4}$, $1x10^{-5}$
Signal Degrade (SD) Thresh	$1x10^{-5}$, $1x10^{-6}$, $1x10^{-7}$, $1x10^{-8}$, $1x10^{-9}$
Provisionable Alarms	See the *Provisionable Alarms* section to the right of this table.
Clock Source (TX)	1. **Receive OC-3 from both Fiber A & Fiber B**
	2. Receive OC-3 from Fiber A
	3. Receive OC-3 from Fiber B
	4. Free Run
	5. External DS1 SF or ESF from both inputs
	6. External DS1 SF or ESF from Primary input
	7. External DS1 SF or ESF from Secondary input
	8. External DS1 ESF w/Sync from both inputs
	9. External DS1 ESF w/Sync from Primary input
	10. External DS1 ESF w/Sync from Secondary input
OC3 TX SYNC MSG	**Derive From Source**, Don't Use
DCC Provisioning	
DCC Service State	Network, **User** (Option is available when Mount Location is Subtended)
DCC IP Address	User Defined
CLLI Code	User Defined – up to 20 alphanumeric characters
NSAP Area Address	User Defined – (Option is available when Mount Location is Subtended)
LAPD Window Size	1..**7**..127 (Option is available when Mount Location is Subtended)
LAPD T200 Value	**200**..20000 (Option is available when Mount Location is Subtended)
LAPD T203 Value	4000..**10000**..120000 (Option is available when Mount Location is Subtended)
LAPD N200 Value	2..**3**..16 (Option is available when Mount Location is Subtended)
LAPD N201 Value	**512**..1500 (Option is available when Mount Location is Subtended)
Network Configuration	
Baud Rate	**9600**, 19200, 38400, 57600, 115200
Screen Height	20..**24**..9999
Screen Width	40..**80**..9999
Ethernet Interface	**Enable**, Disable
IP Address	User Defined – Format = x.x.x.x where x = 0-255
Subnet Mask	User Defined – Format = x.x.x.x where x = 0-255
Default Gateway	User Defined – Format = x.x.x.x where x = 0-255
SNMP Trap Hosts	User Defined – Format = x.x.x.x (x4)
SNMP System Name	User Defined
SNMP System Location	User Defined
SNMP Read Community	**Public**, Private
SNMP Write Community	Public, **Private**
Time and Date	User Defined
Mount Location	Central Office, **Remote**, Subtended
Account Provisioning	Account 1-14 (Username, Password, Permission)
Remote Alarm Reporting	**Enabled**, Disabled (Option is available only in Central Office mode)
TL-1 Server	**Enabled**, Disabled
TL-1 Port	256..**2001**..2999 (Note: TL-1 Port and Menu Port cannot be the same value)
TL-1 Echo	**On**, Off
Menu Server	**Enabled**, Disabled
Menu Port	**23**..2999 (Note: TL-1 Port and Menu Port cannot be the same value)
Restore Factory Defaults	
Restore Management Defaults	

LINKED PROVISIONING

The online unit's provisioning settings are written to the standby unit. Linked Provisioning is always enabled.

DCC MODES

1. **Back-to-Back Mode**

Back-to-Back mode is used when OCMs are connected together in a point-to-point setup. It consists of one OCM configured for Central Office and the other for Remote. This mode of operation supports accessing the remote OCM menus, either by the CO craft port or the CO Ethernet LAN (via Telnet). This remote management is carried over the DCC section on the fibers between the OCMs. This mode of operation supports remote management of other ADTRAN equipment subtended from the OCM at the remote site. TFTP and SNMP are supported in this mode, both on a local Ethernet access and to the remote OCM. NMA access is supported with TL1 via Telnet, where NMA can access both devices via the CO TL1 session (CO acts as GNE, 1 IP address assigned).

2. **Subtended Mode**

The OCM functions as a full SONET terminal multiplexer in a new or existing SONET network. It consists of one OCM configured for Subtended mode. This mode allows each OCM to directly connect to SONET backbone equipment. Management access is also provided over the DCC to other network elements on the SONET ring. The DCC Interface must be properly configured, LAPD parameters and NSAP Area Address, for the SONET network for remote OCM management. The OCM can be also used as a GNE device to allow TL1 access to the existing SONET network.

PROVISIONABLE ALARMS

1. Regular Alarms <Regular Alarm List, 27 available choices>
2. Threshold Alarms <Threshold Alarm List, 22 available choices>
3. Environment Alarms
4. Restore Alarm Defaults

NOTE: Refer to the Installation and Maintenance Practice (P/N 61184002L3-5) for details and options.

SOFTWARE UPGRADE

Software downloads for the local OCM are provided using TFTP, XModem, and YModem protocols in any DCC mode. Software downloads to the remote OCM through the CO OCM is only supported in a Back-to-Back mode. TFTP downloads are provided through the Ethernet interface (provided through the rear of the chassis) or over the DCC channel (TFTP over DCC channel only provided when configured for Back-to-Back mode). XModem and YModem downloads are provided through the craft port and Telnet connections.

COMPLIANCE

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

WARNING: The 10/100baseT interface and DS3 interfaces MUST NOT be metallically connected to interfaces which connect to the Outside Plant or its wiring. These interfaces are designed for use as intra-building interfaces only. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

This product intended for use in Restricted Access Areas only, and is intended to be installed in a Type "B" or "E" enclosure. This product complies with UL 60950.

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, and (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.