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Stinger™

OC3-ATM Trunk Module Guide

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OC3-ATM Trunk Module Guide

The OC3-ATM trunk module provides fiber optic interfaces between the Stinger™ unit and the carrier ATM core network. The OC3-ATM trunk module provides one or two 155.52-Mbps interfaces for connecting to an ATM switch. The following three versions of the OC3-ATM trunk module are supported:

- OC3-ATM—single mode, intermediate reach
- OC3-ATM—single mode, long reach
- OC3-ATM—multimode

All three OC3-ATM trunk modules are installed and configured in the same way.

Introducing the OC3-ATM trunk module

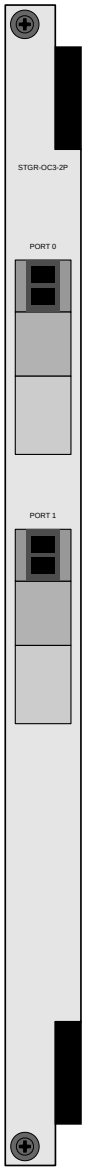
Stinger units support one-port and two-port OC3-ATM modules, each of which is available in three versions.

Platform	Product code	Description
Stinger FS	STGR-TM-OC3-1	One-port trunk module with OC3c/STM-1 interface (single mode, intermediate reach) for operation at 155 Mbps per port over single-mode fiber, at distances up to 20 km (12.4 miles).
Stinger LS	STGRLS-TM-OC3-1	
Stinger FS	STGR-TM-OC3-1L	One-port trunk module with OC3c/STM-1 interface (single mode, long reach) for operation at 155 Mbps over single-mode fiber, at distances up to 40 km (24.9 miles).
Stinger LS	STGRLS-TM-OC3-1L	

Platform	Product code	Description
Stinger FS	STGR-TM-OC3-1M	One-port trunk module with OC3c/STM-1 interface (multi-mode) for operation at 155 Mbps over multi-mode fiber, at distances up to 2 km (1.2 miles).
Stinger LS	STGRLS-TM-OC3-1M	
Stinger FS	STGR-TM-OC3-2	Two-port trunk module with OC3c/STM-1 interface (single mode, intermediate reach) for operation at 155 Mbps per port over single-mode fiber, at distances up to 20 km (12.4 miles).
Stinger LS	STGRLS-TM-OC3-2	
Stinger FS	STGR-TM-OC3-2L	Two-port trunk module with OC3c/STM-1 interface (single mode, long reach) for operation at 155 Mbps per port over single-mode fiber, at distances up to 40 km (24.9 miles).
Stinger LS	STGRLS-TM-OC3-2L	
Stinger FS	STGR-TM-OC3-2M	Two-port trunk module with OC3c/STM-1 interface (multi-mode) for operation at 155 Mbps per port over multi-mode fiber, at distances up to 2 km (1.2 miles).
Stinger LS	STGRLS-TM-OC3-2M	

Figure 1 shows the OC3-ATM trunk module.

Figure 1. OC3-ATM trunk module



Installing an OC3-ATM trunk module

See the *Stinger Hardware Installation Guide* for installation instructions. You can install up to two OC3-ATM trunk modules in a Stinger unit.

After installing the OC3-ATM trunk module and connecting it to an ATM switch, you verify connections by checking the status lights. You then configure the physical link. Use a status profile to display the state of the OC3 line and any error conditions.

Configuring an OC3-ATM trunk module

Each OC3-ATM trunk module supports two 155.52 Mbps-interfaces, and each OC3-ATM interface connects to one ATM switch. With two OC3-ATM modules installed, the total trunk-side bandwidth is 622 Mbps.

The Stinger unit creates an OC3-ATM profile for each OC3 interface detected in the system. The OC3-ATM profiles provide an interface to the physical ATM framer associated with each interface, which supports the standard Universal Test and Operations Interface for ATM (UTOPIA).

Overview of OC3-ATM settings

Following are the parameters for configuring an OC3-ATM interface. The parameters are shown with default settings for the first port of a trunk module in slot 18.

```
[in OC3-ATM/{ shelf-1 trunk-module-2 1 }]
name = 1:18:1
physical-address* = { shelf-1 trunk-module-1 1 }
enabled = no
spare-physical-address = { any-shelf any-slot 0 }
sparing-mode = inactive

[in OC3-ATM/{ any-shelf any-slot 0 }:line-config]
trunk-group = 0
nailed-group = 801
call-route-info = { any-shelf any-slot 0 }
loopback = no-loopback
framer-rate = STS-3c
framer-mode = sonet
tx-scramble-disabled = no
tx-cell-payload-scramble-disabled = no
loop-timing = no
vpi-vci-range = vpi-0-255-vci-32-8191
vc-switching-vpi = [ 0 0 0 0 0 0 0 ]
clock-source = not-eligible
clock-priority = middle-priority
```

Parameter	Specifies
Name	Name of the interface. The default value is the interface address in *shelf*`:`*slot*`:`*item* format (for example, `1:2:3`), but you can assign a text string of up to 16 characters.

Parameter	Specifies
Physical-Address	Physical address of the trunk port in the Stinger unit.
Enabled	Enable/disable the OC3-ATM interface. (Disabled by default.) When the OC3 interface is disabled, it transmits the OC3 idle signal to the far end.
Spare-Physical-Address	Physical address of the trunk port to be used as a spare.
Sparing-Mode	Redundancy mode for the port.
Trunk-Group	*Not currently used.* Leave the default value (zero).
Nailed-Group	Nailed-group number for the OC3-ATM physical interface. A Connection or RADIUS profile specifies this number to make use of the interface. Each interface is assigned a unique default number, so you do not need to modify this parameter. If you assign a new value, it must be a number from 1 to 1024 that is unique within the system. See “Displaying OC3 status and nailed groups” on page 6 for related information.
Call-Route-Info	*Not currently used.* Leave the default value (the zero address).
Loopback	Enable/disable loopback for diagnosing connectivity or possible equipment problems. Loopback is disabled by default, which is required for normal operations.
Framer-Rate	Framing operations. Only the default STS-3C setting is used, which represents both the 155.52-Mbps interface in the U.S. and the equivalent European 155.52-Mbps interface (STM-1). For more information, see “Changing physical-layer interface settings” on page 6.
Framer-Mode	Specify `sonet` or `sdh`. Synchronous optical network (SONET) and synchronous digital hierarchy (SDH) are American National Standards Institute (ANSI) optical digital transmission standards. SONET supports data transmission rates from 51.84 Mbps (STS-1) to 13.2192 Gbps (STS-48). SDH is the corresponding international standard, supporting rates from 155.52 Mbps (STM-1) to 4.976 Gbps (STM-32). SONET is the default.
Tx-Scramble-Disabled	Enable/disable scrambling and descrambling of the entire transmit and receive stream. This function is enabled by default. Disable it only if the far-end switch has disabled the corresponding functions.
Tx-Cell-Payload-Scramble-Disabled	Enable/disable scrambling and descrambling of the 48-byte ATM cell payload in transmitted and received cells. This function is enabled by default. Disable it only if the far-end switch has disabled the corresponding functions.
Loop-Timing	Enable/disable derivation of transmission timing from receiver inputs.`Yes` causes the TAOS unit to derive TX timing for all trunk ports from the receiver inputs of the ports. Loop timing is disabled by default. With the default setting, transmission timing is derived from the reference clock.

Parameter	Specifies
VPI-VCI-Range	Valid range of virtual channel identifier (VCI) numbers to be used with specified virtual path identifiers (VPIs) for virtual channel connections (VCCs).
VC-Switching-VPI	Array of up to seven VPIs to use for VC switching.
Clock-Source	Enable/disable obtaining the system clock signal from the port.
Clock-Priority	Priority for choosing an interface as the system's clock source.

Displaying OC3 status and nailed groups

To see the nailed-group numbers for trunk ports, use the `atmtrunks` command. For example, the command output that follows shows the nailed-group numbers for OC3 trunks. In this example, the system has one OC3-ATM trunk module installed in slot 17.

```
admin> atmtrunks  -a

All OC3 ATM trunks:
OC3 Lines                    (dvOp   dvUpSt  dvRq    sAdm    nailg)
Line    {    1 17  1 }       (Up      Idle    UP      UP     00801)
Line    {    1 17  2 }       (Up      Idle    UP      UP     00802)

All DS3 ATM trunks:
DS3 Lines                     (dvOp   dvUpSt  dvRq    sAdm    nailg)
```

Changing physical-layer interface settings

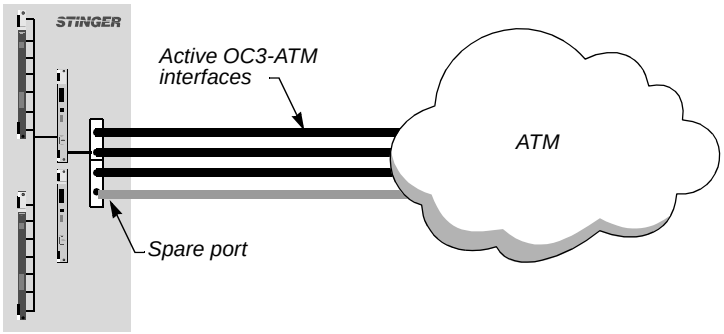
The ATM framer multiplexes ATM cells into the SONET payload and extracts cells from the SONET payload for reassembly into packets. It uses the STS-3C frame format. The default STS-3C setting indicates a 155.52-Mbps interface in the U.S. as well as the equivalent European 155.52-Mbps interface (STM-1).

The interface provides a SONET-level scrambler and one at the cell payload level. Typically, these functions are enabled. Disable them only if the far-end switch requires it.

Example of OC3-ATM configuration

Figure 2 shows three active OC3-ATM interfaces and one spare port that remains inactive until one of the other trunk ports becomes inactive.

Figure 2. OC3 interfaces to the ATM network



The following commands list the trunk port profiles:

```
admin> dir oc3-atm
40  08/03/1999 15:33:35  { shelf-1 trunk-module-1 2 }  1:17:2
25  08/03/1999 15:37:13  { shelf-1 trunk-module-2 1 }  1:18:1
25  08/03/1999 15:38:25  { shelf-1 trunk-module-2 2 }  1:18:2
40  08/04/1999 10:18:22  { shelf-1 trunk-module-1 1 }  1:17:1
```

The following commands enable the first three ports and make the second port in the second module the spare:

```
admin> read oc3-atm {1 trunk-module-1 1}
OC3-ATM/{ shelf-1 trunk-module-1 1 } read

admin> set enabled = yes

admin> set spare-physical-address shelf = 1

admin> set spare-physical-address slot = 18

admin> set spare-physical-address item-number = 2

admin> set sparing-mode = automatic

admin> write
OC3-ATM/{ shelf-1 trunk-module-1 1 } written

admin> read oc3-atm {1 trunk-module-1 2}
OC3-ATM/{ shelf-1 trunk-module-1 2 } read

admin> set enabled = yes

admin> set spare-physical-address shelf = 1

admin> set spare-physical-address slot = 18

admin> set spare-physical-address item-number = 2

admin> set sparing-mode = automatic

admin> write
OC3-ATM/{ shelf-1 trunk-module-1 2 } written

admin> read oc3-atm {1 trunk-module-2 1}
OC3-ATM/{ shelf-1 trunk-module-2 1 } read

admin> set enabled = yes

admin> set spare-physical-address shelf = 1

admin> set spare-physical-address slot = 18
```

```
admin> set spare-physical-address item-number = 2

admin> set sparing-mode = automatic

admin> write
OC3-ATM/{ shelf-1 trunk-module-2 1 } written
```

Because one port is a spare, the administrator increases the number of VCCs that can be handled by the first trunk port from 8K (8192) to 16K (16384). This increase allows the system to handle the full 32K (32768) maximum number of VCCs on the trunk-side, even though it has only three active ports. The following commands increase the valid range of VCIs from 8K to 16K on port 1 of the first trunk module:

```
admin> read oc3-atm {1 trunk-module-1 1}
OC3-ATM/{ shelf-1 trunk-module-1 1 } read

admin> set line-config vpi-vci-range = vpi-0-255-vci-32-16383

admin> write
OC3-ATM/{ shelf-1 trunk-module-1 1 } written
```

Checking OC3-ATM trunk interface status

The Stinger unit creates an OC3-ATM-Stat profile for each of its OC3 interfaces. The profiles provide information about the state of the physical interfaces, error counters, and ATM framer status information. The Performance-Monitoring and Interval-Performance-Monitoring subprofiles provide counters for the SONET payload.

The following display shows OC3-ATM-STAT parameters for the physical interface, with sample settings for an active line:

```
[in OC3-ATM-STAT/{ shelf-1 trunk-module-2 1 }]
physical-address* = { shelf-1 trunk-module-2 1 }
line-state = active
spare-physical-address = { any-shelf any-slot 0 }
sparing-state = sparing-none
vpi-vci-range = vpi-0-255-vci-32-8191
vc-switching-vpi = 0
vcc-vpi = [ 0 0 0 0 0 0 0 0 ]
loss-of-signal = False
loss-of-frame = False
out-of-frame = False
section-state = sonet-section-active-no-defect
path-state = sonet-path-active-no-defect
ais-receive = False
yellow-receive = False
out-of-cell-delineation = False
loss-of-cell-delineation = False
aps-receive = False
rsop-bip-error-count = 0
rlop-bip-error-count = 0
rlop-febe-error-count = 0
rpop-bip-error-count = 0
rpop-febe-error-count = 0
racp-chcs-error-count = 0
racp-uchcs-error-count = 12064
racp-rx-cell-count = 32855
```

```
tacp-tx-cell-count = 16
frequency-justification-count = 0
HEC-cell-drop-counter = 0
FIFO-overflow-counter = 0
idle-cell-counter = 0
valid-cell-counter = 0
performance-monitoring = { 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 }
interval-performance-monitoring = [ { 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0+
```

Parameter	Indicates
Physical-Address	Physical location of the OC3-ATM line within the Stinger system.
Line-State	Overall state of the OC3 line, which can be any of the following states: • `active`—Line is enabled and a multipoint connection is established. • `does-not-exist`—Link is not physically on the trunk module. • `disabled`—Line is disabled. • `loss-of-signal`—Near end has lost the signal. • `loss-of-frame`—Near end has lost framing (also known as a Red Alarm). • `yellow-alarm`—Near end is receiving a Yellow alarm from the far end, indicating a loss of framing. • `ais-receive`—Near end is receiving an alarm indication signal (AIS).
Spare-Physical-Address	The redundant peer of this trunk port. If the current port is the primary trunk port, the value identifies its spare (secondary) trunk port. If the current port is the secondary trunk, the value identifies the primary trunk port.
Sparing-State	The state of the redundancy function. `sparing-none` indicates that redundancy is not enabled. If redundancy is enabled and the current port is the primary trunk port, the value can be `primary-active` or `primary-inactive.` If redundancy is enabled and the current port is the secondary trunk port, the value can be `secondary-active` or `secondary-inactive`.
VPI-VCI-Range	Current valid VCI range configured for the port.
VC-Switching-VPI	Array of VPIs used for virtual circuit switching.
VCC-VPI	*For internal use only.*
Loss-of-Signal	Loss of signal on the line. `False` indicates that the carrier is maintaining a connection.
Loss-of-Frame	Loss of frame on the line (also known as a Red Alarm). `False` indicates that the line is up and in frame.
Out-of-Frame	Near end is out of frame. `False` indicates that the line is up and in frame.

Parameter	Indicates
Section-State	State of the SONET section.
Path-State	State of the SONET path.
AIS-Receive	Far end is sending an alarm indication signal (AIS). `False` indicates that the local device has not received an AIS.
Yellow-Receive	Far-end loss-of-frame (Yellow Alarm) occurred on the line. `False` indicates that a Yellow Alarm was not received.
Out-Of-Cell-Delineation	Out of cell delineation. A header error control (HEC) check failed.
Loss-Of-Cell-Delineation	Loss of cell delineation.
Aps-Receive	*Not currently used.*
RSOP-Bip-Error-Count	Number of Receive Section Overhead Processor (RSOP) bit-interleaved parity (BIP)-8 errors. The RSOP synchronizes and descrambles frames and provides section-level alarms and performance monitoring.
RLOP-BIP-Error-Count	Number of Receive Line Overhead Processor (RLOP) BIP-8 errors. The RLOP is responsible for line-level alarms and for monitoring performance.
RLOP-FEBE-Error-Count	Number of RLOP far-end block errors (FEBE).
RPOP-BIP-Error-Count	Number of Receive Path Overhead Processor (RPOP) BIP-8 errors. The RSOP interprets pointers and extracts path overhead and the synchronous payload envelope. It is also responsible for path-level alarms and for monitoring performance.
RPOP-FEBE-Error-Count	Number of RPOP far-end block errors (FEBE).
RACP-CHCS-Error-Count	Number of Receive ATM Cell Processor (RACP) correctable header check sequence (CHCS) errors. The RACP delineates ATM cells and filters cells on the basis of their idle or unassigned status or HCS errors. It also descrambles the cell payload.
RACP-UCHCS-Error-Count	Number of RACP uncorrectable header check sequence (UCHCS) errors.
RACP-Rx-Cell-Count	Receive ATM Cell Processor (RACP) receive cell count.
TACP-Tx-Cell-Count	Transmit ATM Cell Processor (TACP) transmit cell count.
Frequency-Justification-Count	Number of frequency justification operations.
Hec-Cell-Drop-Counter	Number of cells dropped by HEC processing.
Fifo-Overflow-Counter	Number of cells dropped because of first in, first out (FIFO) overflow.
Idle-Cell-Counter	Total number of idle cells received.
Valid-Cell-Counter	Total number of valid cells received.

Monitoring errors and performance of the SONET payload

The Performance-Monitoring and Interval-Performance-Monitoring subprofiles include counters for SONET performance and error conditions.

The Performance-Monitoring values are the cumulative performance counters, which are reset at the end of every 15-minute interval. The information in the Performance-Monitoring counters is used to update the values in the Interval-Performance-Monitoring subprofile.

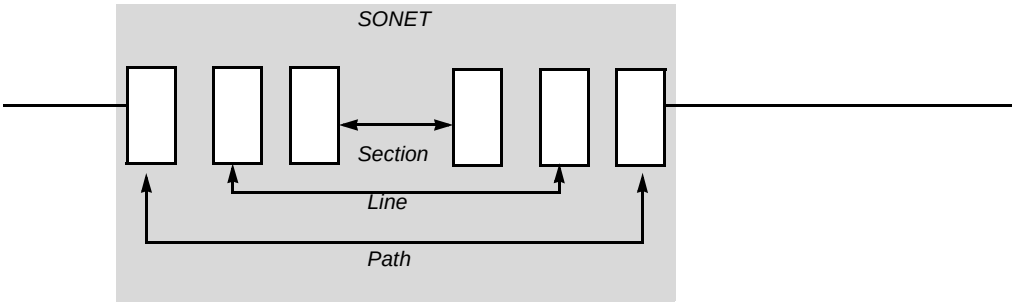
The Interval-Performance-Monitoring values represent performance for the preceding four 15-minute intervals, thereby providing performance data about the past hour.

Events that constitute errors (such as severely errored frames, loss of signal, alarm indication signal, or STS-path loss of pointer events) are defined in RFC 1595, *Definitions of Managed Objects for the SONET/SDH Interface Type*.

Performance and error counters

Performance and error counters are maintained at the section, line, path SONET layers (see Figure 3).

Figure 3. SONET layers



As shown in Figure 3, a SONET section is a single run of cable. Section-terminating equipment is any adjacent pair of switches. A line is one or more sections. A path is an end-to-end circuit.

Coding violations are bit-interleaved parity errors detected in the incoming signal. A severely errored frame defect begins when four contiguous words are detected with an error in frame alignment, and ends when two contiguous words occur with error-free frame alignment.

An errored second is a second in which one or more coding violations or incoming errors have occurred at the specified layer.

A severely errored second is a second in which more than a certain number of coding violations or incoming errors have occurred, with the number based on line rate and bit error rate (BER).

A severely errored framing second is a second in which one or more severely errored frame defects occur at the section layer.

An unavailable second is a second in which the interface is unavailable at the specified layer. An interface is considered unavailable after 10 consecutive severely errored seconds.

Performance-Monitoring and Interval-Performance-Monitoring subprofiles

Following are the two levels of performance-monitoring counters, shown with no errors (zero counts):

```
[in OC3-ATM-STAT/{ shelf-1 trunk-module-2 1 }:performance-monitoring]
sonet-section-errored-seconds = 0
sonet-section-severely-errored-seconds = 0
sonet-section-severely-errored-framing-seconds = 0
sonet-section-coding-violations = 0
sonet-line-errored-seconds = 0
sonet-line-severely-errored-seconds = 0
sonet-line-coding-violations = 0
sonet-line-unavailable-seconds = 0
sonet-far-end-line-errored-seconds = 0
sonet-far-end-line-severely-errored-seconds = 0
sonet-far-end-line-coding-violations = 0
sonet-far-end-line-unavailable-seconds = 0
sonet-path-errored-seconds = 0
sonet-path-severely-errored-seconds = 0
sonet-path-coding-violations = 0
sonet-path-unavailable-seconds = 0
sonet-far-end-path-errored-seconds = 0
sonet-far-end-path-severely-errored-seconds = 0
sonet-far-end-path-coding-violations = 0
sonet-far-end-path-unavailable-seconds = 0
```

```
[in OC3-ATM-STAT/{ shelf-1 trunk-module-2 1 }:interval-perfor-
mance-monitoring[1]]
sonet-section-errored-seconds = 0
sonet-section-severely-errored-seconds = 0
sonet-section-severely-errored-framing-seconds = 0
sonet-section-coding-violations = 0
sonet-line-errored-seconds = 0
sonet-line-severely-errored-seconds = 0
sonet-line-coding-violations = 0
sonet-line-unavailable-seconds = 0
sonet-far-end-line-errored-seconds = 0
sonet-far-end-line-severely-errored-seconds = 0
sonet-far-end-line-coding-violations = 0
sonet-far-end-line-unavailable-seconds = 0
sonet-path-errored-seconds = 0
sonet-path-severely-errored-seconds = 0
sonet-path-coding-violations = 0
sonet-path-unavailable-seconds = 0
sonet-far-end-path-errored-seconds = 0
sonet-far-end-path-severely-errored-seconds = 0
sonet-far-end-path-coding-violations = 0
sonet-far-end-path-unavailable-seconds = 0
```

Parameter	Indicates
SONET-Section-Errored-Seconds	Number of errored seconds at the section layer.
SONET-Section-Severely-Errored-Seconds	Number of severely errored seconds at the section layer.

Parameter	Indicates
SONET-Section-Severely-Errored-Framing-Seconds	Number of severely errored framing seconds at the section layer.
SONET-Section-Coding-Violations	Number of bit-interleaved parity errors at the Section layer.
SONET-Line-Errored-Seconds	Number of errored seconds at the line layer.
SONET-Line-Severely-Errored-Seconds	Number of severely errored seconds at the line layer.
SONET-Line-Coding-Violations	Number of bit-interleaved parity errors at the line layer.
SONET-Line-Unavailable-Seconds	Number of unavailable seconds at the line layer.
SONET-Far-End-Line-Errored-Seconds	Number of errored seconds at the far-end device's line layer.
SONET-Far-End-Line-Severely-Errored-Seconds	Number of severely errored seconds at the far-end device's line layer.
SONET-Far-End-Line-Coding-Violations	Number of bit-interleaved parity errors at the far-end device's line layer.
SONET-Far-End-Line-Unavailable-Seconds	Number of unavailable seconds at the line layer.
SONET-Path-Errored-Seconds	Number of errored seconds at the path layer.
SONET-Path-Severely-Errored-Seconds	Number of severely errored seconds at the path layer.
SONET-Path-Coding-Violations	Number of bit-interleaved parity errors at the path layer.
SONET-Path-Unavailable-Seconds	Number of unavailable seconds at the path layer.
SONET-Far-End-Path-Errored-Seconds	Number of errored seconds at the far-end device's path layer.
SONET-Far-End-Path-Severely-Errored-Seconds	Number of severely errored seconds at the far-end device's path layer.
SONET-Far-End-Path-Coding-Violations	Number of bit-interleaved parity errors at the far-end device's path layer.
SONET-Far-End-Path-Unavailable-seconds	Number of unavailable seconds at the far-end device's path layer.

OC3-ATM trunk module specifications

The OC3-ATM trunk module provides up to two 155.52-Mbps ports for optical connections. Each port supports the OC-3 and the STM-1 interface standards (see Figure 1) and comes with 64-KB cell buffers per port, enabling you to customize your network for specific traffic needs.

The port buffers and the 64-KB cell buffers on the control module are based on the Stinger architecture.

You can configure each port as one of the following:

- User-to-Network Interface (UNI)
- Interim Interswitch Signaling Protocol (IISP) connection
- Direct trunk

Table 1 provides OC3-ATM module specifications.

Table 1. OC3-ATM trunk module specifications

Category	Specification
Physical dimensions	Height: 15 inches (38.1 cm) Width: 1.06 inches (2.69 cm) Depth: 5 inches (12.7 cm) Weight: 1.5 pounds (0.68 kg)
Power requirements	11.5 W (optical)
Temperature range	0° to 40°C (32° to 104°F)
Operating humidity	0 to 90%, noncondensing
Agency approvals	Electromagnetic Emissions Certifications: FCC Part 15 Class A, and CISPR Class A
Interface standards (OC3c)	ANSI T1.105 ANSI T1.106
Interface standards (STM-1)	ITU G.957 (optical) ITU G.709 (optical)
Physical connectors	Subscriber Connector (SC)
Physical interfaces	Two UNI 3.0/3.1 cell-bearing OC-3c/STM-1 155.52-Mbps ports (optical)
Maximum modules	Two per unit

Table 2. OC3-ATM trunk module specifications

Category	Specification
Signal distance/levels (single-mode laser optics)	Medium-Reach: • Up to 15 kilometers (9.3 miles) • TX power: -15 decibels referred to 1 milliwatt to -8dBm • RX Sensitivity: -8dBm, -28dBm • Nominal wavelength: 1310 nanometers
Minimum bend radius	3 inches (7.62 cm)
Other OC-3c standards	ATM Forum UNI 3.0/3.1 ANSI T1M1.3/92-005R1 Bellcore TR-NWT-001112 Bellcore GR-253-CORE RFC 1595
Other STM-1 standards	ATM Forum UNI 3.0/3.1 ANSI T1M1.3/92-005R1 Bellcore GR-253-CORE RFC 1595

Cable specifications

Table 3 provides cable specifications.

Table 3. Cable Specifications

Interface Type	Number Twisted Pairs	DC Resistance	Nominal Impedance	Nominal Capacitance	Shield	Maximum Length
G.703 - 75-ohm	N/A	49.2 ohms/km	75 ohms	66.7 picofarads (pf)/m	95%	120 m