

RIC-155

Fast Ethernet over STM-1/OC-3c Network Termination Unit



- Connection of Fast Ethernet LANs over STM-1/OC-3c links
- Wide range of STM 1/OC-3c interfaces, including long haul, WDM fiber optic, and coaxial options
- Monitoring diagnostic tools for quick fault isolation on TDM and Ethernet ports
- Fault propagation of STM 1/OC-3c error conditions to Ethernet port

Connects Fast Ethernet LANs over STM-1/OC-3c links

RIC-155 is a Network Termination Unit (NTU) that bridges between Fast Ethernet networks and STM 1/OC 3c networks, providing simple, efficient, and cost-effective Fast Ethernet connectivity over SDH/SONET networks.

The unit can be ordered with a wide variety of STM 1/OC-3c interfaces, including long haul, WDM fiber optic, and coaxial options.

Typical applications include:

- Transparent LAN services (see *Figure 1*)
- Wireless backhaul (see *Figure 2*)
- Enterprise connection over SDH/SONET
- Low-cost alternative to STM-1/OC-3c router interface.



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TRAFFIC SEPARATION

Management and user traffic can be tagged with a different VLAN, fully separating user traffic from management data, to ensure management security.

MANAGEMENT

Setup, control, and monitoring are performed either inband, within the Ethernet flow, or out of band using a dedicated Ethernet port or the terminal control port.

Management options include:

- ASCII terminal
- Telnet
- ConfiguRAD via Web browser
- RAD's SNMP-based network management application, RADview-Lite.

FAULT PROPAGATION

If a failure is detected on the STM-1/OC-3c port, the fault propagation mechanism deactivates the Fast Ethernet link. This enables routers and switches on both ends of the link to reroute the traffic to alternative paths.

DIAGNOSTICS AND MONITORING

Comprehensive diagnostic capabilities include:

- Real-time alarms to alert the user to fault conditions. Alarms are reported to the management station and simultaneously relayed via a dry contact port.
- Ethernet and SDH/SONET link monitoring and statistic collection.

Specifications

USER LAN INTERFACE

Number of Ports

1

Type

10/100 Mbps, autonegotiation, full/half duplex, flow control, MDI/MDX crossover

Compliance

IEEE 802.3u, 802.3x, 802.1Q, relevant sections

Data Rate

10/100 Mbps, user-configurable

Line Code

10BaseT: Manchester
100BaseT: MLT3

Maximum Frame Size

1553 bytes

LAN Table

1,024 MAC addresses with automatic learning and aging

Connector

RJ-45

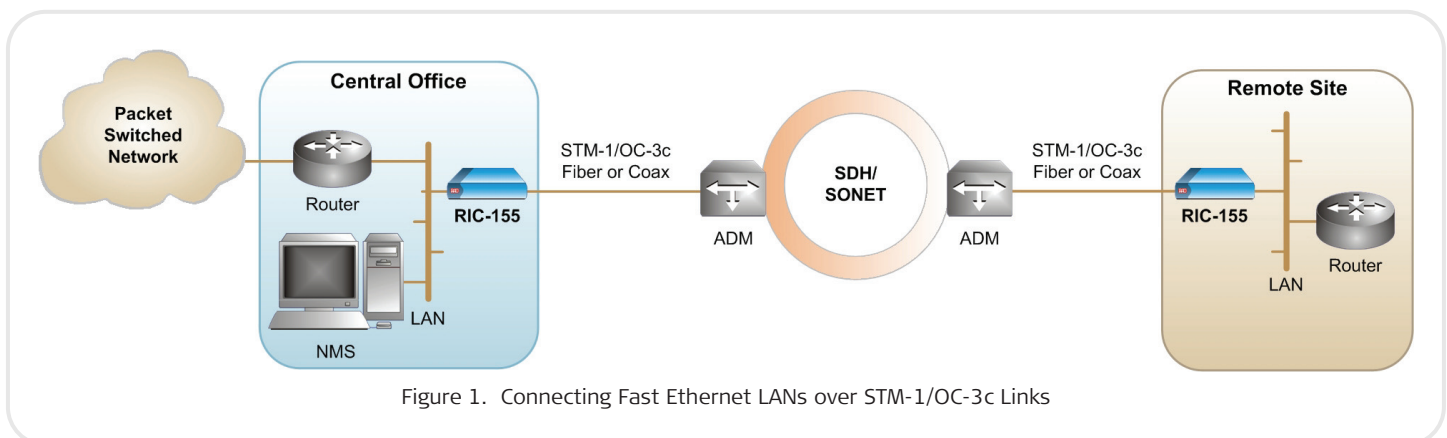


Figure 1. Connecting Fast Ethernet LANs over STM-1/OC-3c Links

STM-1/OC-3C INTERFACE

Number of Ports

1

Data Rate

155 Mbps

Operation Mode

SDH/SONET

Timing

Internal, from internal oscillator

LBT, from received signal

Fiber Optic Interface Type

See Table 1

Connector

BNC coax (electrical)

FC, SC, SC/APC, ST (fiber optic)

FAST ETHERNET MANAGEMENT INTERFACE

Number of Ports

1

Interface Type

10/100BaseT

Data Rate

10/100 Mbps

Maximum Frame Size

1536 bytes

Connector

RJ-45

GENERAL

Management

Out-of-band via dedicated terminal port:

Interface: V.24/RS-232 DTE

Format: asynchronous

Data rate: 9.6 to 115.2 kbps

Connector: DB-9, female

Out-of-band via dedicated Fast Ethernet management port

Inband via Fast Ethernet data port

Indicators

PWR (green) – Power status

ALM (red) – Alarm status

SPEED (green) – LAN speed

LINK/ACT (yellow) – Ethernet link integrity and activity

SIG (green) – Fiber optic signal status

Table 1. RIC-155 SDH/SONET Fiber Optic Interface Specifications

Wavelength [nm]	Fiber Type [μm]	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max Range		Connector
			[min]	[max]	[min]	[max]	[km]	[mi]	
1310	9/125 single mode	Laser	-28	-8	-15	-8	15	9.3	ST, SC, FC
1310	9/125 single mode	Laser (long haul)	-34	-10	-5	0	40	24.8	ST, SC, FC
1550	9/125 single mode	Laser (long haul)	-34	-10	-5	0	80	49.7	SC
SF1 (WDM)	9/125 single mode	Laser, Tx – 1310 Rx – 1550	-28	-8	-14	-8	20	12.4	SC
SF2 (WDM)	9/125 single mode	Laser, Tx – 1550 Rx – 1310	-28	-8	-14	-8	20	12.4	SC
SF3 (single fiber)	9/125 single mode	Laser, Tx and Rx – 1310	-29	-8	-15	-8	20	12.4	SC/APC

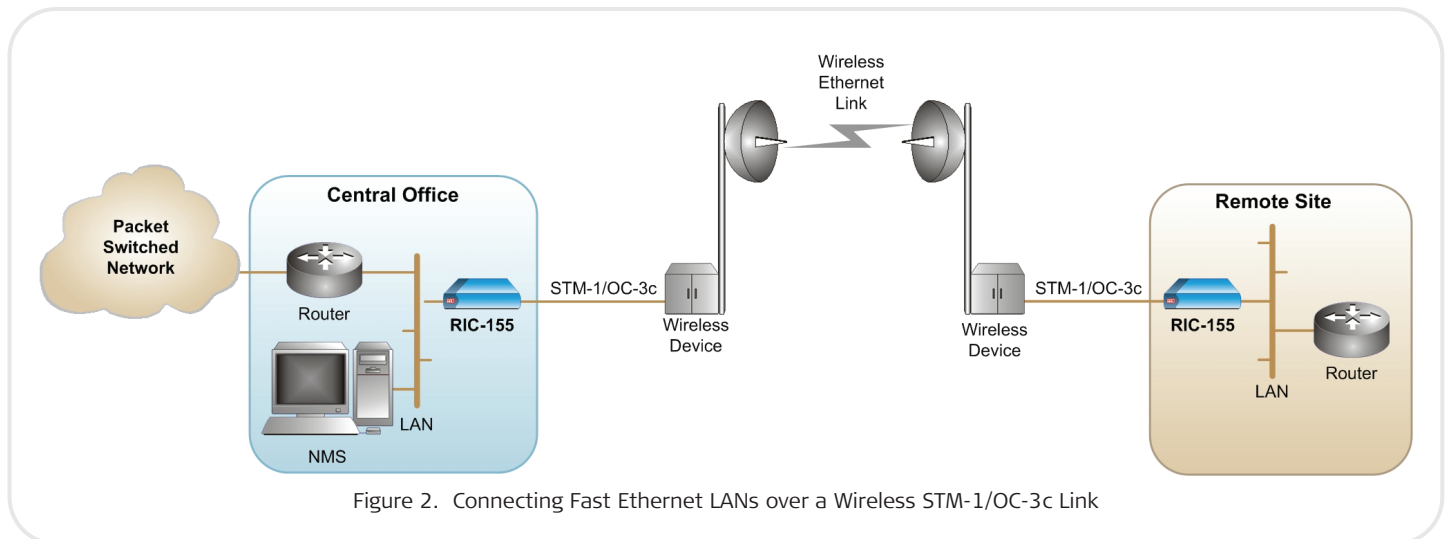


Figure 2. Connecting Fast Ethernet LANs over a Wireless STM-1/OC-3c Link

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Alarm Relay

Type: Dry relay contact for major and minor alarms

Connector: DB-9, female

Operates as Normally Open and Normally Closed, using different pins

Power

AC/DC: 100–240 VAC, 50/60 Hz or 48/60 VDC nominal (40–72 VDC)

Power Consumption

8.8W

Physical

Height: 44 mm (1.7 in) 1U

Width: 240 mm (9.4 in)

Depth: 170 mm (6.6 in)

Weight: 1.7 kg (3.7 lb)

Environment

Temperature: 0–50°C (32–122°F)

Humidity: Up to 90%, non-condensing

Ordering

RIC-155/#/⊗

Legend

- # SDH/SONET connector type:
- BNC** Electrical coaxial connector
 - ST** Fiber optic ST connector
 - SC** Fiber optic SC connector
 - FC** Fiber optic FC connector
 - SC/APC** Fiber optic SC/APC connector (SF3 option only)
- ⊗ SDH/SONET optical wavelength, fiber, and transmitter type (see *Table 1* for details):
- 13L** 1310 nm single mode, laser
 - 13LH** 1310 nm single mode, long haul laser
 - 15LH** 1510 nm single mode, long haul laser (SC connector only)
 - SF1** WDM laser, transmit 1310 nm (SC connector only)
 - SF2** WDM laser, transmit 1550 nm (SC connector only)
 - SF3** Laser diode, transmit 1310 nm (SC/APC connector only)

Note: For WDM connection, one of the devices must be ordered with an SF1 interface and the other with an SF2 interface.

SUPPLIED ACCESSORIES

AC power cord
DC power connection kit

OPTIONAL ACCESSORIES

RM-35/⊗

Hardware kit for mounting one or two RIC-155 units in a 19-inch rack

Legend

- ⊗ Rack mounting kit type:
- P1** For mounting one unit
 - P2** For mounting two units

WM-35-TYPE1

Hardware kit for mounting one RIC-155 unit on the wall

CBL-DB9-DB9/NULL

Control port cable

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