

MIRICi-155

Intelligent Miniature GbE over STM-1/OC-3 NTU



Connects Gigabit Ethernet LANs over STM-1/OC-3 links

- Gigabit-to-STM-1/OC-3 bridge
- Gigabit Ethernet connectivity over SDH/SONET networks
- Standard GFP encapsulation
- Fault propagation to LAN link
- Inband and out-of-band management for configuration, monitoring and diagnostics
- I²C management interface for simple management integration with host devices

MIRICi-155 is a state-of-the-art network termination unit that bridges between Gigabit Ethernet networks and STM-1/OC-3 networks, providing simple, efficient, and cost-effective Gigabit Ethernet connectivity over SDH/SONET networks.

MIRICi-155 offers a migration path for connecting future-ready IP devices to existing SDH/SONET networks.

Typical applications include connecting Gigabit Ethernet LANs over STM-1/OC-3 lines (*Figure 1*), and connecting Gigabit Ethernet LANs over wireless STM-1/OC-3 links (*Figure 2*).

The unit supports frame sizes of 64–10000 bytes, including VLAN-tagged frames.

MANAGEMENT

The unit can be monitored, configured, and tested using the following ports and applications:

- Out-of-band via the I²C channel (off the SFP edge connector)
- Inband via the Ethernet port using a Web browser.

To facilitate integration of a new device into an IP network, if no IP address has been manually configured, MIRICi-155

automatically requests one from the DHCP server upon booting.

Application software can be downloaded to MIRICi-155 via the central server, using TFTP.

DIAGNOSTICS

Remote (RLB) and local loopbacks (LLB) are used for physical layer troubleshooting.

LOS AND FAULT PROPAGATION

The LAN link is deactivated if one of the following user-defined alarms is issued and fault propagation is enabled:

- LOS (Loss of Signal)
- AIS (Alarm Indication Signal)
- RDI (Remote Defect Indication).

In addition, the above-listed error conditions are propagated towards the host by sending an electrical signal via the LOS pin on the MSA edge connector.

ENCAPSULATION

MIRICi-155 uses standard GFP encapsulation according to ITU-T G.7041/Y.1303 requirements.

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QUALITY OF SERVICE – QOS

For prioritizing user traffic, MIRICi-155 features up to four separate queues.

The queues handle traffic with different services based on VLAN priority (802.1p), which enables to map the 8 priority levels of VLAN to 4 traffic classes.

SDH/SONET TIMING OPTIONS

The user can define the following SDH/SONET clock sources:

- Internal
- Recovered from STM-1/OC-3 interface.

SFP ENCLOSURE

Housed in a Small Form Factor Pluggable (SFP) package (Figure 3), MIRICi-155 complies with the Multi-Source Agreement (MSA).

Running on power derived from the host device, it requires no additional power supply.

MIRICi-155 is hot swappable and features a special release mechanism for easy extraction from the SFP socket.

SFP CONFIGURATION ADAPTER

An optional configuration adapter module, SFP-CA (Figure 4), is available for configuring MIRICi-155 by connecting it to a PC via a USB port. The configuration adapter is used for preliminary configuration such as assigning an IP address for first use or specifying the mode of operation. It is also used to download software to the MIRICi-155 units.

POSSIBLE APPLICATIONS

Possible applications include Gigabit Ethernet LANs over STM-1/OC-3 lines (Figure 1) and Gigabit Ethernet LANs over wireless STM-1/OC-3 links (Figure 2).

FLEXIBILITY

MIRICi-155 operates with the following devices using standard encapsulation:

- RAD's RICi-155GE (Central Ethernet gateway)
- RAD's FCD-155E
- Third-party devices that employ standard GFP encapsulation.

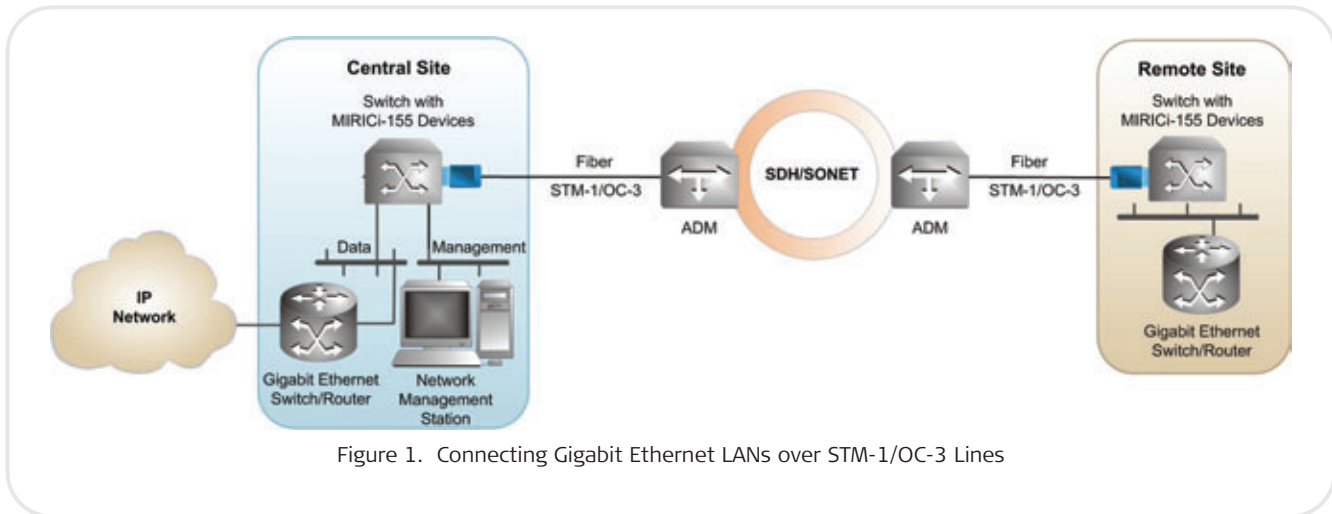


Figure 1. Connecting Gigabit Ethernet LANs over STM-1/OC-3 Lines

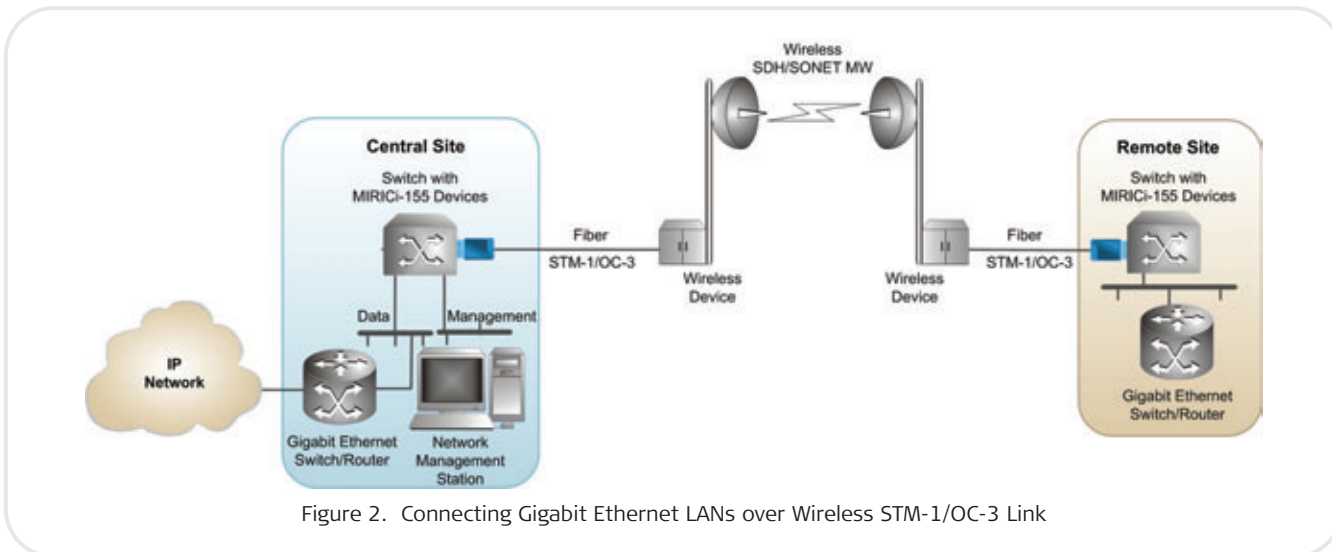


Figure 2. Connecting Gigabit Ethernet LANs over Wireless STM-1/OC-3 Link

Specifications

STM-1/OC-3 INTERFACE

Number of Ports

1, optical

Data Rate

155.52 Mbps

Operation Mode

SDH/SONET

Compliance

SDH: ITU-T G.957

SONET: GR-253-core

Framing

SDH: ITU-T, G.707

SONET: GR-253-core, OC-3

Encapsulation

Generic Framing Procedure

(ITU T G.7041/Y.1303)

Timing

Internal

Recovered from STM-1/OC-3 interface

Interface Type

Laser 1310 nm, single mode

Connector

LC

GIGABIT ETHERNET INTERFACE

Type

Gigabit Ethernet

Edge Connector

SFP-based, MSA-compliant

Data Rate

1000 Mbps

Frame Size

64 bytes–10,000 bytes (jumbo frames)

Compliance

Conforms to the relevant sections of IEEE 802.3

GENERAL

Power

3.3V

Power Dissipation

1.5W

Environment

Temperature:

Ambient: -10 to 65°C (50 to 149°F)

Case: -10 to 80°C (50 to 176°F)

Humidity: Up to 90%, non-condensing

Physical

Height: 12.2 mm (0.48 in)

Width: 13.7 mm (0.53 in)

Depth: 76.2 mm (3 in)

Weight: 15g (0.5 oz)

Table 1. Fiber Optic Gigabit Ethernet Characteristics

Ordering Name	Wavelength, Fiber Type [nm], [μm]	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
			[min]	[max]	[min]	[max]	[km]	[miles]
MIRIGI-155 Gigabit Ethernet/STM-1, LC, Internal calibration	1310, 9/125 single mode	Laser	-28	-8	-15	-8	15	9.3

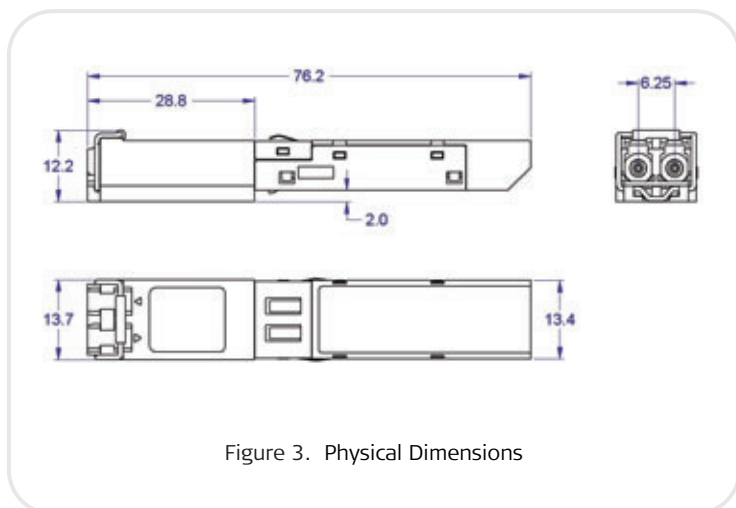


Figure 3. Physical Dimensions

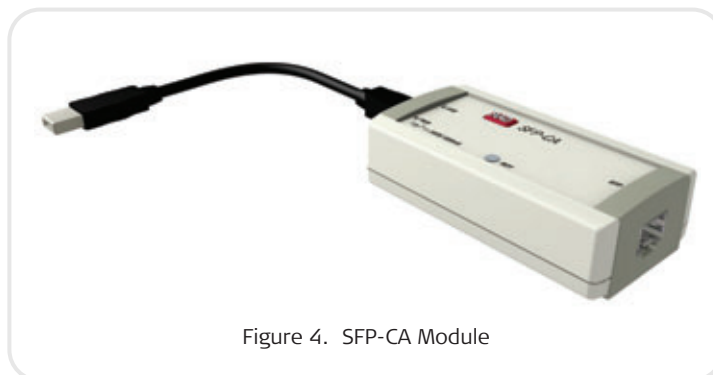


Figure 4. SFP-CA Module

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Ordering

MIRiCi-155

OPTIONAL ACCESSORIES

SFP-CA

Configuration adapter module for configuring MIRiCi-155 by connecting it to a PC