Data Sheet

ETX-550

Ethernet Aggregator

- Up to four Gigabit Ethernet ports (100Fx, SFP-based or 10/100/1000BaseT) with optional 1:1 or 2:2 redundancy
- 24 × Fast Ethernet user ports (100Fx, SFP-based or 10/100BaseT)
- VLAN-aware and VLAN-unaware bridging and VLAN stacking for transparent end-to-end services
- Rate limitation per user port
- Secure Telnet and Web applications (SSH, SSL), secure SNMP-SNMPv3 and RADIUS

Combines multiple Fast Ethernet links into up to four Gigabit Ethernet connections

ETX-550 is a high-performance Ethernet aggregator, which combines multiple Fast Ethernet links to higher rate Gigabit Ethernet connections upstream. It provides up to 24 Ethernet/Fast Ethernet links into up to four Gigabit Ethernet links.

Typically, ETX-550 is used in 'fan out' applications, where it is deployed in the service providers' first POP, to deliver Fast Ethernet services over fiber to several remote Ethernet network termination units (NTUs), such as RAD's ETX-102, located at the customer premises (see Figure 1).

ETHERNET CAPABILITIES

ETX-550 operates as a Layer-2 Ethernet aggregation device and is transparent to higher protocols.

The internal bridge functions in VLAN-aware or VLAN-unaware bridging modes. Using VLAN stacking (also known as double tagging or Q-in-Q), the service provider can assign different customers to different Service VLANs (S-VLANs) to separate the traffic of customers within the service provider network. Customer VLANs are encapsulated by the S-VLAN, allowing transparent LAN service.

ETX-550 handles jumbo frames of up to 14 kB in size and is transparent to Layer-2 control protocols (L2CP).

RAD
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SERVICE DIFFERENTIATION AND TRAFFIC CONTROL

Customer bandwidth can be policed to adhere to the service agreement using rate limitation per user port. Rate limitation is based on single rate bandwidth control with CIR (Committed Information Rate) and CBS (Committed Burst Size) parameters.

REDUNDANCY

The network-facing GbE ports support 1:1 (two GbE ports) or 2:2 (four GbE ports) redundancy.

Two redundant power supply modules provide AC or DC power to the device. In case any one PS module fails or loses its input power, the remaining PS module continues to supply power to the chassis, without any service disruption.

MiRIC SUPPORT

MiRIC-E1/T1 and MiRIC-E3/T3 are RAD's SFP-based remote bridges that forward Fast Ethernet packets over TDM-based WAN at full duplex wire-speed. The bridges can be installed instead of the Fast Ethernet SFPs, providing Ethernet services over framed/unframed E1, T1, E3 or T3 links (see Figure 2).

The MiRICs can be mixed with the regular Fast Ethernet SFPs in the same ETX-550. This provides a flexible solution for both fiber Ethernet and Ethernet over TDM access services in one aggregation device.

MANAGEMENT CAPABILITIES

The unit can be managed using different ports and applications:

- Local management via an ASCII terminal connected to the RS 232 port
- Remote inband management via user or the network ports using a dedicated management VLAN. Remote management is performed using Telnet, Web browser or RADview, RAD's SNMP-based management system
- Remote out-of-band management via dedicated Fast Ethernet port.

IP address, IP mask and default gateway can be automatically obtained using DHCP.

Up to ten different stations can manage ETX-550 simultaneously, enabling monitoring the network status from different locations.

The following security protocols ensure client-server communication privacy and correct user authentication:

- RADIUS (client authentication only)
- SSL for Web-based management application
- SSH for Secure Shell communication session.

Specifications

Number of Ports

- Network: 2 or 4
- User: 12 or 24

NETWORK INTERFACE – FIBER OPTIC

Type

SFP-based (1000BaseSx, 1000BaseLX10, 1000BaseBx10)

Specifications and Ranges

- SFP-5: 850 nm, 0.55 km (0.3 miles)
- SFP-6: 1310 nm, 10 km (6.2 miles)
- SFP-7: 1550 nm, 80 km (49.7 miles)
- SFP-8: 1310 nm, 40 km (24.8 miles)
- SFP-17a: Tx – 1310 nm, Rx – 1490 nm, single fiber, 10 km (6.2 miles)
- SFP-17b: Tx – 1490 nm, Rx – 1310 nm, single fiber, 10 km (6.2 miles)
- SFP-20: 1550 nm, 120 km (74.5 miles)
- SFP-22a: Tx – 1490 nm Rx – 1570 nm, single fiber, 80 km (49.7 miles)
- SFP-22b: Tx – 1570 nm, Rx – 1490 nm, single fiber, 80 km (49.7 miles)

Note: *It is strongly recommended to order this device with* ***original*** *RAD SFPs* ***installed****. This will ensure that prior to shipping, RAD has performed comprehensive functional quality tests on the entire assembled unit, including the SFP devices. RAD cannot guarantee full compliance to product specifications for units using non-RAD SFPs. For detailed specifications of the SFP transceivers, see the SFP Transceivers data sheet.*

Connector

LC

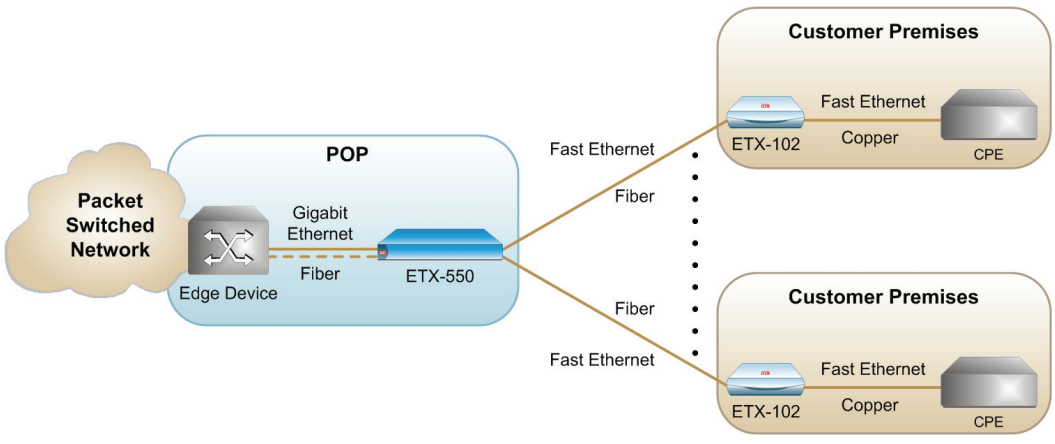

Figure 1. Aggregating Multiple Traffic Flows from the Ethernet Network Termination Units (E-NTUs) over Fiber Optic Cables

NETWORK INTERFACE – COPPER

Type
10/100/1000BaseT

Connector
RJ-45

USER INTERFACE – FIBER OPTIC

Type
SFP-based (100BaseFx, 100BaseLX10, 100BaseBx10)

Specifications and Ranges

- SFP-1: 1310 nm, 2 km (1.2 miles)
- SFP-2: 1310 nm, 15 km (9.3 miles)
- SFP-3: 1310 nm, 40 km (24.8 miles)
- SFP-4: 1550 nm, 80 km (49.7 miles)
- SFP-13: Tx/Rx, single fiber, 20 km (12.4 miles)
- SFP-10a: Tx – 1310 nm, Rx – 1550 nm, single fiber, 20 km (12.4 miles)
- SFP-10b: Tx – 1550 nm, Rx – 1310 nm, single fiber, 20 km (12.4 miles)
- SFP-18A: Tx – 1310 nm, Rx – 1550 nm, single fiber, 40 km (24.8 miles)
- SFP-18B: Tx – 1550 nm, Rx – 1310 nm, single fiber, 40 km (24.8 miles)
- SFP-19a: Tx – 1490 nm Rx – 1570 nm, single fiber, 80 km (49.7 miles)
- SFP-19b: Tx – 1570 nm, Rx – 1490 nm, single fiber, 80 km (49.7 miles)

Connector
LC, SFP-13 – SC/APC

USER INTERFACE – COPPER

Type
10/100BaseT

Connector
RJ-45

GENERAL

Compliance
IEEE 802.3, 802.3u, 802.1D, 802.1Q, 802.1p

Management
Out-of-band:

Via dedicated terminal port; V.24/RS-232 DCE; 9.6, 19.2, 115.2 kbps; DB-9 female connector

Via dedicated 10/100BaseT port

Inband:

Via Ethernet network and user ports

Jumbo Frames
Up to 14 kB

Indicators
RDY (green): System initialization status

ALARM (red): Major alarm status

LINK (yellow): Ethernet link status

ACT (green): Ethernet activity status

Power
AC: 100–240 VAC

DC: -48 (-40 to -60 VDC)

Power Consumption
AC: 112VA max

DC: 75W max

Physical
Height: 43 mm (1.7 in)
Width: 440 mm (17.5 in)
Depth: 240 cm (9.4 in)
Weight: 3 kg (6.6 lb)

Environment
Temperature:

ETX-550 with regular SFPs: 0 to 50°C (32 to 122°F)

ETX-550 with built-in RJ-45 ports or industrial-grade SFPs: 0 to 65°C (322 to 149°F)

Humidity: Up to 90%, non-condensing

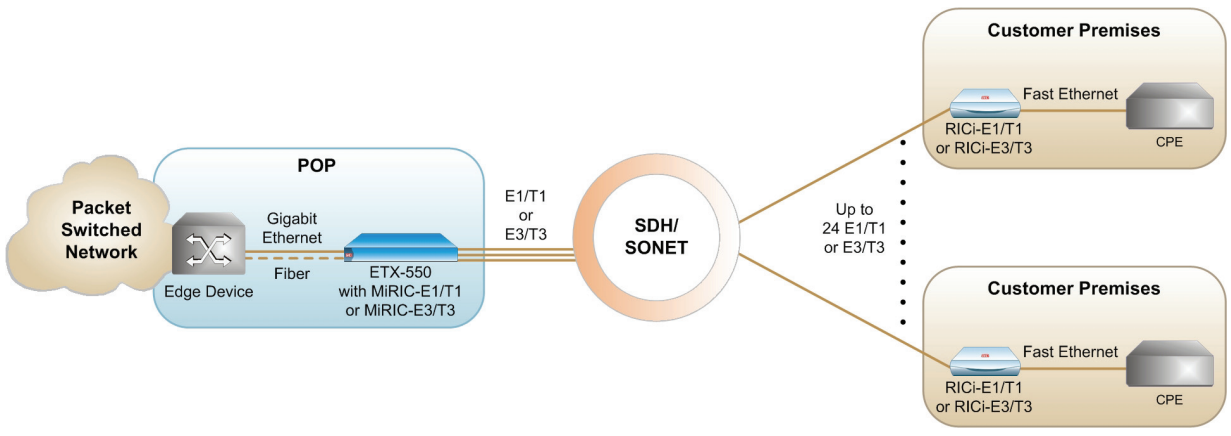

Figure 2. Terminating Ethernet over E1/T1 or E3/T3 Services

ETX-550

Ethernet Aggregator

Ordering

ETX-550/$/*/%

Legend

$ Power supply type:

AC	Single AC power supply
DC	Single DC power supply
ACR	Dual AC power supply
DCR	Dual DC power supply

***** User port type:

12NULL	12 empty SFP slots
12SFP-1	12 × SFP-1 transceivers
12SFP-2	12 × SFP-2 transceivers
12SFP-3	12 × SFP-3 transceivers
12SFP-4	12 × SFP-4 transceivers
12SFP-10A	12 × SFP-10A transceivers
12SFP-10B	12 × SFP-10B transceivers
12SFP-13	12 × SFP-13 transceivers
12SFP-18A	12 × SFP-18A transceivers
12SFP-18B	12 × SFP-18B transceivers
12SFP-19A	12 × SFP-19A transceivers
12SFP-19B	12 × SFP-19B transceivers
12UTP	12 × 10/100BaseT
24NULL	24 empty SFP slots
24SFP-1	24 × SFP-1 transceivers
24SFP-2	24 × SFP-2 transceivers
24SFP-3	24 × SFP-3 transceivers
24SFP-4	24 × SFP-4 transceivers
24SFP-10A	24 × SFP-10A transceivers
24SFP-10B	24 × SFP-10B transceivers
24SFP-13	24 × SFP-13 transceivers
24SFP-18A	24 × SFP-18A transceivers
24SFP-18B	24 × SFP-18B transceivers
24SFP-19A	24 × SFP-19A transceivers
24SFP-19B	24 × SFP-19B transceivers
24UTP	24 × 10/100BaseT

% Network port type:

2NULL	Two empty SFP slots
2SFP-5	2 × SFP-5 transceivers
2SFP-6	2 × SFP-6 transceivers
2SFP-7	2 × SFP-7 transceivers
2SFP-8	2 × SFP-8 transceivers
2SFP-17A	2 × SFP-17A transceivers
2SFP-17B	2 × SFP-17B transceivers
2SFP-20	2 × SFP-20 transceivers
2SFP-22A	2 × SFP-22A transceivers
2SFP-22B	2 × SFP-22B transceivers
2UTP	2 × 10/100/1000BaseT
4NULL	Four empty SFP slots
4SFP-5	4 × SFP-5 transceivers
4SFP-6	4 × SFP-6 transceivers
4SFP-7	4 × SFP-7 transceivers
4SFP-8	4 × SFP-8 transceivers
4SFP-17A	4 × SFP-17A transceivers
4SFP-17B	4 × SFP-17B transceivers
4SFP-20	4 × SFP-20 transceivers
4SFP-22A	4 × SFP-22A transceivers
4SFP-22B	4 × SFP-22B transceivers
4UTP	4 × 10/100/1000BaseT

***Note**: ETX-550 supports the following port combinations: 2 GbE network + 12 FE user ports or 4 GbE network + 24 FE user ports.*

SUPPLIED ACCESSORIES

AC power cord (with AC power supply only)

DC power connection kit (with DC power supply only)

RM-34
Hardware kit for mounting one ETX-550 unit into a 19-inch rack

WM-34
Hardware unit for mounting one ETX-550 unit on a wall

OPTIONAL ACCESSORIES

CBL-DB9F-DB9M-STR
Control port cable

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