

# ETX-1300

## Gigabit Ethernet Aggregation Switch



- Aggregation of 32 fiber optic or electrical Fast Ethernet interfaces into Gigabit Ethernet Network
- Link resiliency and service continuity, using Link Aggregation (IEEE 802.3ad) and Ethernet ring protection (G.8032)
- Quality of Service with queue mapping per port, P-bit, DSCP, or ToS
- Ethernet bridging and switching with VLAN-aware, VLAN-unaware, and VLAN stacking modes
- Link-level Ethernet OAM per IEEE 802.3ah for network monitoring and troubleshooting

ETX-1300 is a compact Ethernet aggregation switch with four Gigabit Ethernet ports and 32 Fast Ethernet ports providing resilient network architecture with G.8032 ring support or 802.3ad linear protection. Featuring non-blocking architecture, the device enables wire-speed data transmission for Layer-2 Ethernet connectivity.

ETX-1300 introduces a robust, carrier class design with redundant extractable power supplies, external alarm port and clock interfaces for input or output clock synchronization.

### ETHERNET

ETX-1300 features the following PSN ports:

- Four Gigabit Ethernet ports with SFP-UTP combo connectors
- 32 Fast Ethernet ports with fiber optic SFP or UTP connectors.

### Forwarding

ETX-1300 includes an internal bridge, operating in VLAN-aware and VLAN-unaware modes.

VLAN stacking can be used for traffic separation between different users or services, by defining a service provider VLAN ID per customer or service. When

VLAN stacking is used, a service provider VLAN tag is added to the user traffic and removed from network traffic. Both service provider VLAN ID and service provider VLAN priority can be defined.

### Classification

Policing and classification of the traffic flows are performed between any ingress and any egress Ethernet port of the device. ETX-1300 monitors traffic with specified flow parameters, allocates bandwidth, forwards traffic to different queues according to classification parameters etc.

### OAM

ETX-1300 supports link level OAM per IEEE 802.3ah enabling link management including OAM discovery, link monitoring, remote fault detection, and remote loopback control operations.

### Traffic Management

User traffic can be queued and prioritized according to VLAN priority and ToS/Diffserv.

Ingress and egress rate can be limited per user and network ports.

### Smart SFPs

When equipped with a removable MiRiCi-E3T3 module (ver. 2.5), a fiber FE port can operate as an E3 or T3 port, forwarding LAN packets to TDM-based WAN. When operating in the T3 mode, MiRiCi-E3T3 modules are fully controllable via ETX-1300 management application.

*Note: ETX-1300 equipped with the AC or 48 power supply modules supports up to 16 MiRiCi-E3T3 units. When equipped with two high-power ACHP or 48HP power supply modules, ETX-1300 can host up to 32 MiRiCi-E3T3 units.*

### RESILIENCY

#### LAG

Link aggregation is performed as per 802.3ad (with or without LACP). This enables operators to use up to four Ethernet links as a single virtual interface, sharing traffic load and providing link resiliency.

#### Ethernet Ring Protection

Ethernet Ring Protection technology per G.8032 provides resilient network connection over ring architecture and rapid service restoration.

## ETX-1300

### Gigabit Ethernet Aggregation Switch

#### TIMING AND SYNCHRONIZATION

ETX-1300 features a flexible clock mechanism using external and internal timing signals coming from:

- Timing from GbE ports (Sync-E)
- External station clock source via station clock port, providing out-of-band synchronization.

#### MANAGEMENT AND SECURITY

The unit can be managed using different ports and applications:

- Local out-of-band management via a terminal connected to the RS-232 port
- Remote out-of-band management via the dedicated 10/100BaseT port
- Remote inband management via the GbE or FE interface. Remote management is performed using Telnet or RADview, RAD's SNMP-based EMS.

#### OPERATION AND MAINTENANCE

Software download is available via local terminal using XMODEM/YMODEM, or remotely using TFTP/FTP.

#### Syslog

ETX-1300 uses the Syslog protocol to generate and transport event notifications over IP networks to the central Syslog server. The Syslog operation complies with the RFC 3164 requirements.

#### MONITORING AND DIAGNOSTICS

Comprehensive monitoring and diagnostic capabilities include port status indication and statistic counters for Gigabit Ethernet interfaces.

#### Alarms

The device includes a dry-contact connector for reporting alarms to external equipment. The connector also has an external alarm input for monitoring external sensors.

For diagnostic purposes, ETX-1300 maintains a cyclic event log file that stores up to 2048 time-stamped events and a real-time current alarm list.

#### Self-Test

An internal built-in test (BIT) performed after power-up checks the internal circuitry of the unit. The results of the test are visible via the local terminal.

## Applications

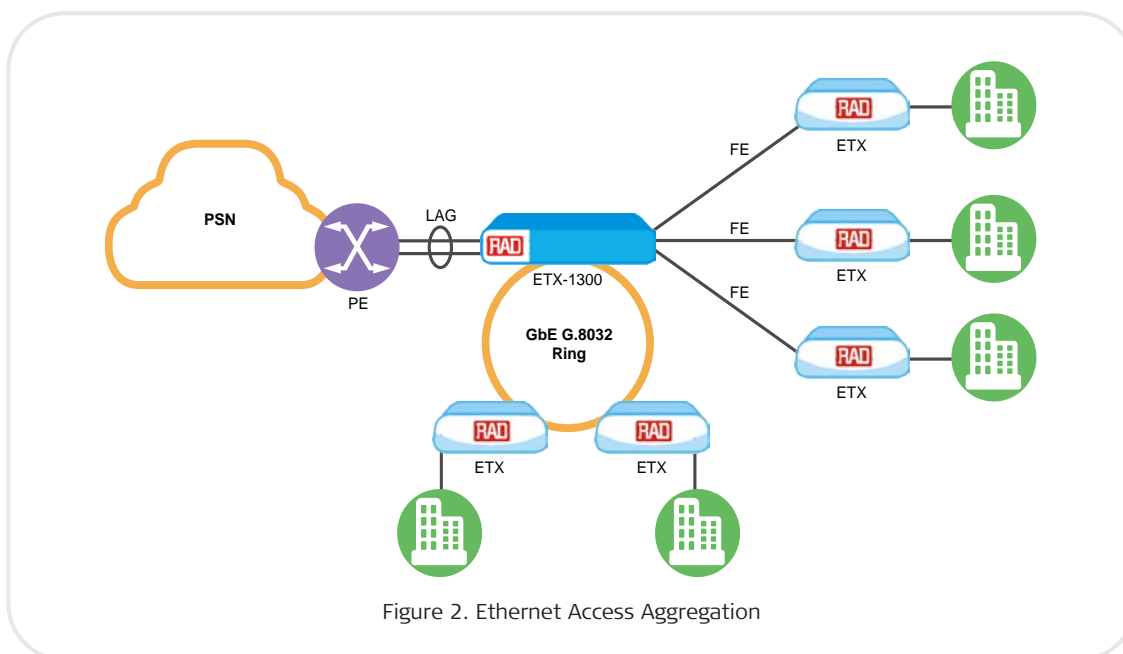


Figure 2. Ethernet Access Aggregation

## Specifications

### GIGABIT ETHERNET INTERFACES

#### Number of Ports

4

#### Type

1000BaseSX, 1000BaseLX,  
10/100/1000BaseT

#### Compliance

IEEE 802.3, 802.1, 802.1 Q

#### Connector

SFP-UTP combo

### FAST ETHERNET INTERFACES

#### Number of Ports

32

#### Type

100BaseFX, 100BaseLX10, 100BaseBX10,  
10/100BaseT

#### Connector

Fiber optic (via SFP) or built-in RJ-45

### BRIDGE

#### Type

VLAN-aware, VLAN-unaware

#### Filtering and Forwarding

MAC learning and filtering

### FLOWS

Ingress port, egress port, drop action,  
traffic class

Policer profile: CIR+CBS

Classification rules: VLAN, VLAN + P-bit, IP  
ToS, IP DSCP

### QUALITY OF SERVICE (QOS)

#### Rate Limitation

Ingress, ingress storm, egress

#### Scheduling

HQP, WRR

#### Classification

VLAN, P-bit, IP Precedence, IP DSCP

### MANAGEMENT

#### Authentication

RADIUS client

#### Control Port

Interface: V.24/RS-232 DCE  
Connector: 9-pin D-type, female

#### Ethernet Management Port

Interface: 10/100/1000BaseT  
Connector: RJ-45

#### Management Options

SNMPv1, SNMPv2c, SNMPv3

Telnet

ASCII terminal

### TIMING

#### Synchronous Ethernet

Per ITU-T G.8261

#### External Clock

2.048 Mbps input/output via two BNC,  
unbalanced (75Ω) connectors, G.703,  
HDB3/AMI code

2.048 Mbps via dedicated RJ-45 balanced  
120 connector, G.703, HDB3/AMI code,  
2048 kHz squarewave (RS-485 electrical  
levels)

### RESILIENCY

#### Link Aggregation

Up to 4 GbE ports only, with or without  
LACP

#### Ethernet Ring

Per G.8032

### DIAGNOSTICS

#### Connectivity Verification Tools

Ping, traceroute, Virtual Cable Test (VCT)

#### External Alarm Interface

Via dedicated DB-9 female connector

### GENERAL

#### Indicators

LINK (green) – Ethernet link status

ACT (yellow) – Ethernet activity status

TST (yellow) – Test status

ALM (red) – Alarm status

PS1 (green) – Power supply status

PS2 (green) – Power supply 2 status

#### Power

AC: 100 to 240 VAC (115/230 VAC nominal),  
50/60 Hz

DC: 40 to 72 VDC (48 or 60 VDC nominal)

#### Power Consumption

75W max

#### Physical

Height: 43 mm (1.7 in)

Width: 440 mm (17.5 in)

Depth: 350 mm (13.7 in)

Weight: 5 kg (11 lb)

#### Environment

Temperature: 0 to 50°C (32 to 122°F)

Humidity: Up to 90%, non-condensing

**ETX-1300****Gigabit Ethernet Aggregation Switch****Ordering****RECOMMENDED CONFIGURATIONS****ETX-1300/48R/32N**

Gigabit Ethernet aggregation switch,  
redundant -48 VDC power supply,  
32 empty SFP slots

**ETX-1300/48R/32UTP**

Gigabit Ethernet aggregation switch,  
redundant -48 VDC power supply,  
32 10/100BaseT UTP ports

**ETX-1300/ACR/32N**

Gigabit Ethernet aggregation switch,  
redundant AC power supply, 32 empty SFP  
slots

**ETX-1300/ACR/32UTP**

Gigabit Ethernet aggregation switch,  
redundant AC power supply,  
32 10/100BaseT UTP ports

**SPECIAL CONFIGURATIONS**

Please contact your local RAD partner for  
additional configuration options

**SUPPLIED ACCESSORIES**

Power cord

DC power connection kit

**RM-34**

Hardware kit for mounting one ETX-1300  
unit into a 19-inch rack

**OPTIONAL ACCESSORIES****ETX-1300-PS/@**

Power supply and fan module

@ Power supply:

<b>AC</b>	100 to 240 VAC
<b>48</b>	-48 VDC

**CBL-DB9F-DB9M-STR**

Control port cable

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