



RAX711 | Ethernet Demarcation Device RAX700 Series



Product Overview

The RAX700 series is a Carrier-Class, Ethernet Demarcation Device (EDD) that is fully compliant with CE2.0 EPL, EVPL, EP-LAN, EVP-LAN and E-Access services. It is a universal network terminal for last mile access networks, ideal for business connections and mobile backhaul applications. Incorporation of latest standards supports interoperability in existing networks and SLA compliance.

With its auto-provisioning capability, the RAX700 series simplifies deployment across MPLS-core and Carrier Ethernet networks with minimal training of field technicians. Embedded ITU-T Y.1564 test capability supports service turn-up and verification in minutes significantly reducing CAPEX and OPEX costs, by reducing need for test equipment, faster service activation and improved trouble-shooting. The RAX700 series supports Y.1731 capability with Key Performance Indicators including, throughput, jitter, delay, packet loss and availability that can be easily integrated with NMS reports.

In its compact 1U platform, RAX700 supports full OAM features, including IEEE802.3ah, IEEE802.1ag, and delivers hardware-based SLA performance to ensure ultra-low delay and jitter for mission-critical services. It is also compliant with G.8031/8032 standards to provide complete Ethernet Ring and Ethernet Link Protection with 50 millisecond protection switching.

For Wireless Backhaul applications, the RAX700 series supports SyncE or clock-and-time synchronizations, which greatly extends the backhaul bandwidth at an affordable price in comparison with traditional T1/E1 or GPS-based synchronization. The hardened design allows this product to be deployed in wide range of environmental conditions and facilities.

Highlights

- Creation, identification and isolation of CE2.0-compliant services, end-to-end or end-to-core
- Auto Provisioning for large-scale deployment & upgrades
- G.8031/G.8032v2 protection switching
- Service turn-up verification based on embedded Y.1564 real-traffic simulation test suite
- Stable and reliable network assurance with real-time monitoring and per-service visualized SLA parameters
- Low latency and low jitter for delivery of high performance services
- Comprehensive OAM solutions based on 802.3ah, 802.1ag and Y.1731 for OPEX reduction
- Carrier-class EDD supporting SyncE for mobile backhaul applications
- Eco-system warranty with low power consumption design

Port Specifications

NNI: 2 x GE SFP
(100BASE-FX/1000BASE-X SFP and 10/100/1000BASE-T SFP)

UNI: 4 x Combo SFP
(100BASE-FX/1000BASE-X optical SFP; 10/100/1000BASE-T electrical port)

SNMP interface: 1 x RJ45

Console interface: 1 x RJ45

Hardware Specifications

Dimensions: 320(L), 200(W), 43.6(H) mm

Operating temperature: - 40 to 70°C

Storage temperature: -45 to 85°C

Humidity: 10 to 90%, non-condensing

Lightning proof: 6kV/AC, 2kV/DC

PSU: 110/240V AC, -36 to -72V DC

Max power consumption: 20 W

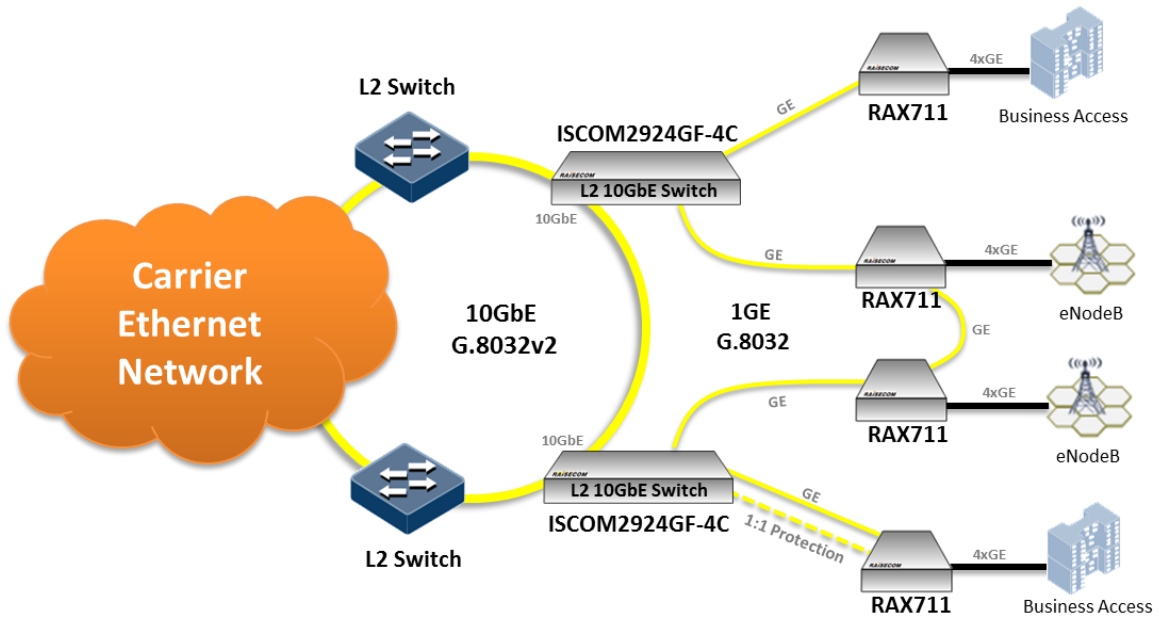
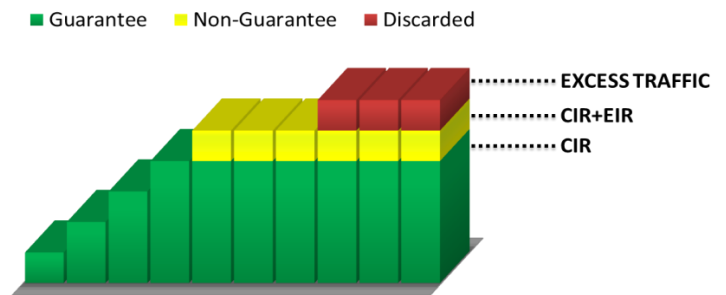


Figure1. Carrier Ethernet Next Generation Network

Service Turn-up

RAX711 can delivery end-to-end service monitoring and control ensuring that Service Level Agreements (SLA) are met. With built-in monitoring tools; IEEE 802.3-2008 and IEEE 802.1ag end-to-end CFM/Y.1731, engineers can test real-time parameters including connectivity, latency, jitter and frame-loss. For quick service turn-up, RAX711 provides ITU-T Y.1564 test suites to assist engineers with a reliable and fast service activation process.



Ethernet OAM

- IEEE 802.3-2008 EFM-OAM link management
- IEEE 802.1ag connectivity fault management (CFM) with 3.3ms CCM resolution
- ITU-T Y.1731 performance monitoring (PM)
- Hardware-based frame delay (FD) measurement
- ITU-T Y.1564 service activation test
- Hardware-based SLA KPIs per port or EVC, which include throughput, delay, jitter, packet loss and availability
- E-LMI (MEF 16)
- Dying gasp message in case of power failure

Access Capacity

- MTU: 12k byte (default 1,526 byte)
- Switching buffer size: 16Mbit

Synchronization¹

- ITU-T G.8262 Synchronous Ethernet
- Clock in/out interface: 1 x RJ45
- E1 mode (120 Ohm): -2Mhz or 2M BITS
- T1 mode (100 Ohm): -1.5Mhz or 1.5M BITS
- Sync-E output BNC interface
- Support sync status message

Ethernet

- Up to 32k MAC addresses
- Support 4,094 VLANs (C-tag), stacked VLANs (QinQ, S-tag), VLAN mapping and 1:1 inner/outer VLAN translation
- Recommended 16 Ethernet virtual circuits (EVC) per network interface device (NID)
- Layer 2 loopback on single and multiple flows
- Interface protection, port monitoring
- Layer 2 control protocol (L2CP) handling

IP Services

- ARP
- DHCP client, snooping, option61/82
- IPv4, IPv6
- Static routing

Traffic Management

- Service classification per port/VLAN/CoS(DSCP)
- Support SP, WRR and SP+WRR scheduling modes, and up to 8 queues per port
- MEF-compliant 3-color policing with color-aware and color-blind mode
- Bandwidth throttling per port/VLAN/CoS(DSCP)
- Support hierarchical bandwidth profile in the ingress direction
- Traffic shaping for both UNI and NNI

Security

- Secure MAC address
- ACL based on VLAN, CoS, MAC, Ether Type, IPv4, IPv6, or user-define combinations
- RADIUS, TACACS+
- Storm control (broadcast, multicast, DLF)

Reliability

- Link aggregation group (LAG) – up to 3 groups with 4 ports in each group, and six load balancing modes based on source/destination IP and/or MAC
- Interface backup
- ITU-T G.8031 Ethernet link protection switching (ELPS) and G.8032 Ethernet ring protection switching (ERPS) with the automatic protection switchover time less than 50ms
- Port/VLAN-based Ethernet local loop detection
- Fault propagation

Auto-Provisioning

- Auto-Discovery: Provides carriers the ability to

¹ Available on RAX711-CLK model

deploy devices and discover them as soon as they are powered on without technician intervention.

- Auto-Configuration: Provides carriers the ability to automatically download customizable preconfigured templates directly to the devices once they are discovered.
- Recommended management and monitoring ratio up to 1:128 (extendable)
- IEEE 802.1x port authentication
- Easy generation and distribution of massive configuration files using GUI-based toolkit

System Management

- Remote management via SNMP v1/v2/v3, Telnet and SSH v1/v2
- Local management via console interface
- MEF 36 compliant MIB
- Keep-Alive, RMON, LLDP, Syslog
- Port/VLAN/Cos-based statistics
- Alarm management
- SFP digital diagnostic management (DDM)
- FAN, CPU monitoring
- Voltage and temperature monitoring
- Dual system

Standard Compliance

- IEEE802.1Q (VLAN)
- IEEE802.1ad (QinQ)
- IEEE802.3-2008 (EFM)
- IEEE802.1ag (CFM)
- IEEE802.1D (STP)
- IEEE802.1w (RSTP), IEEE802.1s (MSTP)
- IEEE802.1p (QoS/CoS Priority)
- IEEE802.1x (Security)
- IEEE802.3ad (LAG)
- ITU-T G.8262 (SyncE)
- ITU-T G.8031 (ELPS), G.8032 (ERPS)
- ITU-T Y.1564 (SAT)
- ITU-T Y.1731
- IETF RFC 2865 (RADIUS), 2819 (RMON)
- MEF-6,MEF-9, MEF-10, MEF-14, MEF-16, MEF-36
- CE1.0 & CE2.0
- Safety CE certified, UL and RoHS compliant
- EMI Class A

Ordering Information

RAX711-AC_DC Next Generation Ethernet Demarcation device. 2xGE SP NNI Ports + 4x UNI Combo ports. Dual Feed Power Supply AC+DC

RAX711-CLK-AC_DC Next Generation Ethernet Demarcation device. 2xGE SP NNI Ports + 4x UNI Combo ports. Dual Feed Power Supply AC+DC. SyncE Clock

Optional Accessories (Ordered Separately):

Hardware kit for mounting one unit in 19" rack