

ENS-3060

ETHERNET NODE SWITCH



A cost-effective, seamless way for cable operators to take part in the growing business services market

Product Overview

The ENS-3060 is a remotely managed, multi-port Ethernet node switch that delivers advanced voice, video, and data business services over fiber-based Ethernet networks. Utilizing the appropriate system design and Motorola optical passives and SFPs, cable operators can now add business services customer traffic onto fibers that currently service their residential traffic, providing them with a way to transition seamlessly to MEF-certified Ethernet services. As a result, cable operators can use the ENS-3060 to pursue new revenue opportunities, such as adding Ethernet services onto their current HFC network or by expanding new Ethernet services into Greenfield projects.

Designed to integrate into existing Layer 2 Networks, the ENS-3060 allows cable operators to leverage their Motorola SG4000 optical nodes' mounting and power assets. The ENS-3060 includes two SFP+ ports operating at up to 10 Gbps speeds, four SFP ports, and two RJ45 ports operating up to 1 Gbps speeds. The ENS-3060 supports multiple management options, including standards-based SNMP management, which enables cable operators to assign the device an IP address and manage it as an independent network element.

Features:

- 10 Gbps, fully non-blocking architecture
- Link aggregation up to 20 Gbps
- Node-based module conserves optical fibers and wavelength between the headend and node locations
- Reduces aggregation switch and/or router ports in headend/hub
- Provides a MEF UNI to the customer site directly, eliminating the need for a demarcation unit



- Two combination SFP+ or SFP ports, four SFP ports, and two RJ-45 ports for flexible deployment options
- Deploy up to 22 customer-facing SFP ports per SG4 with full 10 Gbps redundancy
- Managed aggregation for advanced Ethernet business services (voice, video, and data)
- Hot swappable with SG4 units, ensuring service continuity
- Small footprint retains real estate within the SG4 for additional HFC segmentation or advanced modules
- Standards-based proxy management for scalable customer deployments
- Jumbo frame support up to 10056 bytes
- Carrier class resiliency for sub 50 ms protection switching using ITU-T G.8031/G.8032
- Optional redundant uplinks for protected Services and Link Aggregation
- Rich set of standards-based Link and Service OAM features (IEEE 802.1ag CFM, ITU-T.Y.1731, IEEE 802.3ah)
- Clock/Time synchronization using either Synchronous Ethernet or IEEE 1588v2
- Standards-based compliance for multi-vendor interoperability

Specifications

INTERFACES

- 2 x 1/10 Gbps SFP/SFP+ Ports
- 4 x 100/1000 Mbps SFP Ports
- Pluggable optics, including CWDM and BiDirectional
- 2 x 10/100/1000 Mbps RJ-45 ports
- 1 Console port

ETHERNET FEATURES

- Non-blocking switching performance for all supported frame sizes
- Port Mirroring
- 32k MAC addresses
- Jumbo frames up to 10056 bytes
- IEEE 802.1Q, IEEE 802.1P – Priority Queuing
- IEEE 802.1ad – Q-in-Q or Double tagging
 - Transparent LAN Service (TLS): Q-in-Q-based
 - 4094 system-wide VLAN space
 - Port-based VLANs
- IEEE 802.3u; 802.3z Ethernet
- IEEE 802.1ab Link Layer Discovery Protocol (LLDP)*

MULTICAST FEATURES*

- IGMP v2 and v3 supported*
- Multicast Listener Discovery (MLD v1 and v2)*

CARRIER ETHERNET SERVICES

- MEF 9 Ethernet Private Line (EPL)
- MEF 9 Ethernet Private LAN (E-LAN)*
- MEF 9 Ethernet Virtual Private Line (EVPL)
- MEF 14 Traffic Management

OAM FEATURES

Link OAM

- IEEE 802.3ah (clause 57)
- Remote loopback, Dying gasp

Service OAM

- IEEE 802.1ag – Connection Fault Management (CFM)*
- ITU-T Y.1731 Performance monitoring*

SECURITY FEATURES

- Secure management protocols
- HTTPS, SSHv2
- Port/MAC based access control (IEEE 802.1X)

TRAFFIC MANAGEMENT FEATURES

- Four system-wide traffic classes with strict or weighted fair queuing scheduling
 - Ingress port
 - Egress shaper per port
- Source and/or destination MAC address
- IEEE 802.1ad priority code points (PCP)
- IPv4 TOS/DSCP field

PROTECTION FEATURES

- ITU-T G.8031/G.8032 — Linear/Ring Protection Switching*
 - Sub 50 ms service restoration*
- IEEE 802.1d/802.1s/802.1w — STP/RSTP/MSTP
- IEEE 802.3ad — Link Aggregation Control Protocol

SYNCHRONIZATION FEATURES

- IEEE 1588v2 Precision Time Protocol
- ITU – G.8261/G.8262 — Synchronous Ethernet*

MANAGEMENT FEATURES

- Multiple management access protocols and tools
 - SNMPv1/v2c/v3
 - Telnet, SSHv2, TFTP,HTTPS
 - Remote Authentication via RADIUS/TACACS+
 - DHCP (client)
 - Syslog
- Supports dual firmware bank
- Embedded command line interface (CLI)
- Direct IP-based management mode
- RFC 2674 VLAN MIB
- RFC 1213 MIB II
- RFC 4188 MAC Bridge
- RFC 3635 Ethernet Like
- RFC 2863 Interfaces
- RFC 3636 802.3 Interfaces PHY
- RFC 4133 Entity MIB
- IEEE 802.3ad Link Aggregation MIB

PHYSICAL SPECIFICATIONS

- Dimensions:** Occupies 2 SG4/MPN Optical Slots
- Installation:** Installs in SG4 or MPN Optical Node
- Power:** Up to 24 W with all ports loaded
- Operating temp.:** –40°C to +60°C (–40°F to +140°F)

*Hardware ready. Features supported in future software release. Specifications are subject to change without notice or obligation.



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