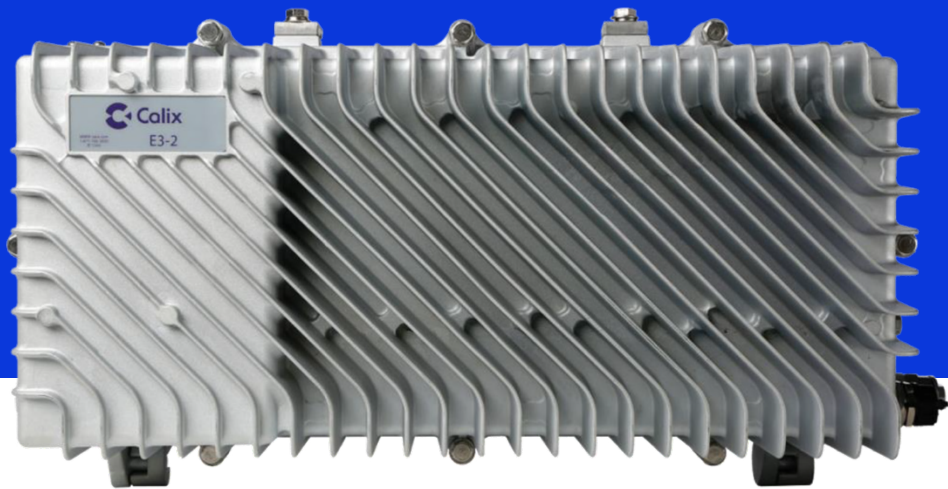


AXOS **e32**®

Intelligent PON Node
High Density XGS/GPON/Multi-PON



Are you seeking to rapidly connect subscribers anywhere in your serving area with flexible deployment and the latest FTTP PON technology in a rugged outdoor PON node?

Introducing the Calix AXOS E3-2 Intelligent PON Node – A multi-faceted FTTP network expansion solution that meets all your needs. Reliability, lower total cost of ownership, and seamless operation are just a few reasons today's broadband service providers choose the AXOS E3-2 network solution.

Designed with unparalleled deployment flexibility and modularity in mind, Calix's AXOS E3-2 Intelligent PON Node brings unprecedented network expansion opportunities. The system has a 'deploy anywhere' design that can be mounted aerially, in a pedestal, in a CoolPed enclosure, or on a pole. This flexibility dramatically reduces costs while accelerating construction and service activation. By operating in the most hostile and unforgiving places, you can reach more customers while keeping them all connected.

SYSTEM OVERVIEW:

The Calix E3-2 Intelligent PON Node is a flexible and upgradable system that can be deployed cost effectively in environmentally challenged remote locations to provide PON services. Each E3-2 provides two pluggable subscriber interface modules supporting XGS-PON, GPON, and Multi-PON optics.

E3-2 features and capabilities include:

- Sealed remote OLT requiring no active cooling.
- Pluggable module design.
- Multiple powering options.
- Supports XGS-PON, GPON, or Multi-PON SFP+ optics.
- Configurable upstream encryption using MACsec.
- Integrated fiber management including splice tray.
- Interoperability with Calix ONTs.
- DOCSIS® provisioning support using DPx.
- Software Defined Access enabled by the Network Innovation Platform (AXOS).

DEPLOY ANYWHERE

The Calix E3-2 Intelligent PON Node is a compact, self-enclosed product designed to be installed in OSP locations: strand mount, wall, pole, cabinet, or pedestal. The E3-2 is temperature-hardened and does not require active cooling, significantly reducing the total cost of ownership over a cabinet-based solution and eliminating many challenges associated with deploying a cabinet, such as land acquisition and construction permits.

SECURE THE NETWORK

The E3-2 integrates configurable MACsec encryption, enabling secure traffic transmission between the E3-2 uplinks and the upstream edge router or aggregation node.

DOUBLE-DENSITY REMOTE OLT

The latest E3-2 hardware enables twice the 10G PON capacity from the previous generation and consumes up to 50% less power per PON. Using the XG401 PON interface module with the RSX2001 switch module, an E3-2 supports up to 8 XGS-PON ports, each capable of servicing up to 128 customers. The E3-2 connects to the upstream network using 4x10GE or 4x25GE transport (using the XE402) or 2x100GE transport (using the CE211).

MODULAR, SERVICEABLE, UPGRADEABLE

Every module in the E3-2 can be easily and quickly removed and replaced in the field, providing complete field serviceability. This allows you to migrate your network from one PON technology to another without replacing every module, enabling a comprehensive, cost-effective and future-proof solution.

MULTIPLE POWER SOURCES

Featuring modular power supplies, the E3-2 supports multiple powering options allowing complete flexibility to support power requirements. For outside plant applications utilizing cable plant powering, the Calix E3-2 Intelligent PON Node supports coaxial square wave input from 60VAC to 90VAC. For other applications, the E3-2 supports 48VDC powering, commercial AC, and (using an external unit) +/- 190VDC span power.

XGS-PON, GPON, OR MULTI-PON

Using the XG401 module, the Calix E3-2 Intelligent PON Node delivers up to 8 PON ports that accept SFP+ optics. Each port can be independently selected to support XGS-PON, GPON, or Multi-PON. A Multi-PON optic contains a GPON laser, an XGS-PON laser, and an integrated coexistence element. Using Multi-PON optics allows a broadband service provider to simplify the transition from GPON to XGS-PON without requiring any hardware modifications to the E3-2 system.

SPECIFICATIONS

Minimum System Requirements

- Calix AXOS Software Release 22.4

Replaceable Modules

- 2 Subscriber Interface Modules
- 1 WAN Module
- 2 Power Supply Modules Control Module
- 1 Switch Module

Physical Dimensions

- Width: 11.5 in (29.2 cm)
- Height: 9.65 in (24.5 cm)
- Depth: 22 in (55.9 cm)

Weight

- 33 lbs. (15.0 kg) without modules
- 45 lbs. (20.4 kg) with all modules

Management Support

- Calix SMx
- Calix DPx
- Calix CLI for local management interface
- SNMPv2c and v3 performance and fault monitoring
- NETCONF/YANG

Packet Switching Capacity

- Wire speed forwarding across all 10GE ports and PON ports
- 9,000 byte jumbo frames
- 4,096 VLANs
- 32,000 MAC addresses
- 16 DOCSIS service flows per ONT (8 upstream, 8 downstream)

Alarm I/O Interfaces

- 3 User definable alarm inputs
- 1 Door open alarm

Compliance

- ANSI/SCTE 158 2009
- IEC-60950
- ICES-003 Class A
- UL 62368
- FCC 47 CFR Part 15 Class B NEBS Level 3 compliance
- GR-1089 issue 6
- GR-3108 Class 4
- ETSI EN-300 386
- EN-60950
- EN IEC 61000 6-2
- IP 68

Management Interfaces

- Ethernet 10/100 (RJ-45 connector on Control Module)
- RS-232 (RJ-11 connector on Control Module)
- USB 2.0 interface (on Control Module)

Quality of Service

- Layer 2 Service classification based on port, SVLAN-ID, CVLAN-ID, P-Bit
- Layer 3 Service classification based on Source IP, DestinationIP, Protocol, Source Port, Destination Port
- CoS mapping between DSCP and 802.1p
- Port and flow-based policing to 1Mbps increments
- 8 CoS queues per port
- Strict priority scheduling with minimum bandwidth guarantee
- Congestion avoidance: Tail Drop

Standards And RFC Support

- TR101 VLAN Service models
- IEEE 802.1ag CFM
- IEEE 802.1p CoS
- Prioritization IEEE 802.1
- MAC Bridges
- IEEE 802.1Q VLAN tagging
- IEEE 802.1ad VLAN stacking(Q-in-Q) support
- IEEE 802.3ad/802.1AX Link Aggregation
- RFC 2236 IGMP v2
- RFC 2376 IGMP v3
- RFC 3046 DHCP Relay Agent Information Option ("Option 82")
- RFC 3315 DHCPv6
- RFC 4861 NDP
- RFC 4443 ICMPv6
- RFC 3810 MLDv2
- RFC 4541 IGMP snooping ITU-T G.8032v2 Ethernet Ring Protection Switching (ERPS)/ Enhanced EAPS

Power Specifications

- Power/heat dissipation: GPON: 100 Watts max
- XGS-PON: 115 Watts max

Power Options

- 60VAC/90VAC coaxial quasi square wave input power (170W max)
- -48VDC, input range -42.5VDC to -72VDC (150W max)
- Commercial AC, input range 90VAC to 250 VAC, 50/60 Hz (170W max)
- ±190VDC span power (using an external Alpha supply)

Operating Environment

- Temperature: -40° C to +65° C (-40° F to +149° F)
- Humidity: 5 to 95% (non-condensing)

Storage Environment

- Temperature: -40° C to +85° C (-40° F to +185° F)
- Humidity: 5 to 95% (non-condensing)

ORDERING INFORMATION

* **Note:** Product part numbers designated with the term “BEAD” are Buy America compliant for BEAD projects.

Calix E3-2 Packages

- 000-01252** E3-2 8-Port PON (XGS-PON/GPON/MPM)
Includes: 100-04582, 100-04667, 100-04672, 100-05591 Qty 2, 100-05592, 100-05682
- 000-01253** E3-2 Starter Package with 4-Ports PON (XGS-PON/GPON/MPM)
Includes: 100-04582, 100-04667, 100-04672, 100-05591 Qty 1, 100-05592, 100-05682
- 000-01317** E3-2 4-Port PON (XGS-PON/GPON/MPM) – BEAD*
Includes: 100-04582, 100-04667, 100-04672, 100-06094 Qty 1, 100-06095, 100-05682
- 000-01316** E3-2 8-Port PON (XGS-PON/GPON/MPM) – BEAD*
Includes: 100-04582, 100-04667, 100-04672, 100-06094 Qty 2, 100-06095, 100-05682
- 000-01318** E3-2 8-Port PON (XGS-PON/GPON/MPM) with 2x100GE WAN – BEAD*
Includes: 100-04582, 100-04667, 100-04672, 100-06094 Qty 2, 100-06095, 100-05682

Calix E3-2 Powering Modules

- 100-04586** E3-2 RPS1000CX 60VAC/90VAC Coaxial Input Power Supply Module
- 100-04584** E3-2 RPS1000AC AC (Mains) Power Supply Module

Calix E3-2 Replaceable Modules

- 100-05591** E3-2 XG401 XGS-PON (4xXGS-PON/GPON/MPM SFP+ OIM)
- 100-05592** E3-2 RSX2001 Switch Module
- 100-05682** E3-2 XE402 10GE/25GE WAN (4x10GE/25GE SFP28)
- 100-04667** E3-2 RCX3001 Control Module
- 100-05593** E3-2 CE211 2x100GE WAN (2x100GE QSFP28)
- 100-06094** E3-2 XG401 XGS-PON (4xXGS-PON/GPON/MPM SFP+ OIM) – BEAD*
- 100-06095** E3-2 RSX2001 Switch Module – BEAD*

Calix E3-2 Accessories

- 100-04590** E3-2 Pole/Wall Mount Kit
- 100-04767** E3-2 Fiber Pigtail, 8xSC/UPC, 8xLC/UPC, 2xUn-connectorized (Spare), 30 feet, OSP rated
- 100-04589** E3-2 Negative 48VDC Power/Alarm Cable 20'

Calix E3-2 Spare Parts

- 120-00368**..... E3-2 Power Shunt, quantity 10
- 120-00369**..... E3-2 Surge Suppressor, quantity 10
- 120-00370** E3-2 Fiber Tray
- 120-00371** E3-2 Power Cable, Base to Lid
- 120-00372** E3-2 Data Cables, Base to Lid
- 120-00387** E3-2 Desiccant Replacement Kit

Pluggable Transceiver Modules

The E3-2 supports pluggable modules for all service and network interfaces. Refer to the Calix Optical Transceiver Modules Datasheet (#250-00191) for a complete list of modules and specifications.

- SFP+** 10GE optical Small Form-factor Pluggable (SFP+) modules
- AXOS GPON B+ OIM** 2.5Gbps GPON (Class B+, 20Km, I-Temp, AXOS)
- AXOS GPON C+ OIM** 2.5Gbps GPON (Class C+, 60Km, I-Temp, AXOS)
- AXOS XGS-PON OIM** XGS-PON optical Small Form-factor Pluggable (SFP+) modules
- AXOS MULTI-PON OIM** Multi PON optical Small Form-factor Pluggable (SFP+) modules