

cOS™ Pier Optical Line Terminal

FIBER BROADBAND HARDENED OLT SHELF



Pier is a compact, powerful connectivity device for enabling fiber-to-the-x (FTTx) broadband services across extended distances.

The Pier optical line termination (OLT) shelf is part of the industry-leading Harmonic cOS™ virtualized broadband platform. The device strengthens the versatile cOS portfolio of edge devices with the ability to streamline network layout and design. With Pier, operators can scale quickly and efficiently to deliver high-speed internet in historically hard-to-reach communities.

The temperature-hardened, one-rack-unit Pier is designed to serve thousands of FTTx subscribers from data centers and remote outdoor cabinets. When utilized in conjunction with Distributed Access Architecture Switches (DAAS), including the Harmonic Wharf and the Harmonic Jetty, operators can span vast mid-mile links with fewer points of presence hosting telecommunication infrastructure.

Pier supports leading FTTx standards, including XGS-PON, Combo PON and GPON, making it the ideal platform to address both greenfield growth and brownfield upgrades. Optional high-power XGS-PON optics extend last-mile reach to 60km from each device. For high-density regions, Pier offers dual-density optics that power two PON networks simultaneously from a single physical port, resulting in reduced need for equipment, power and space.

The Pier OLT's modular, and stackable design is a cost-effective solution for deployments ranging from apartment buildings or small sites, to centralized hubs with hundreds of active PON ports.

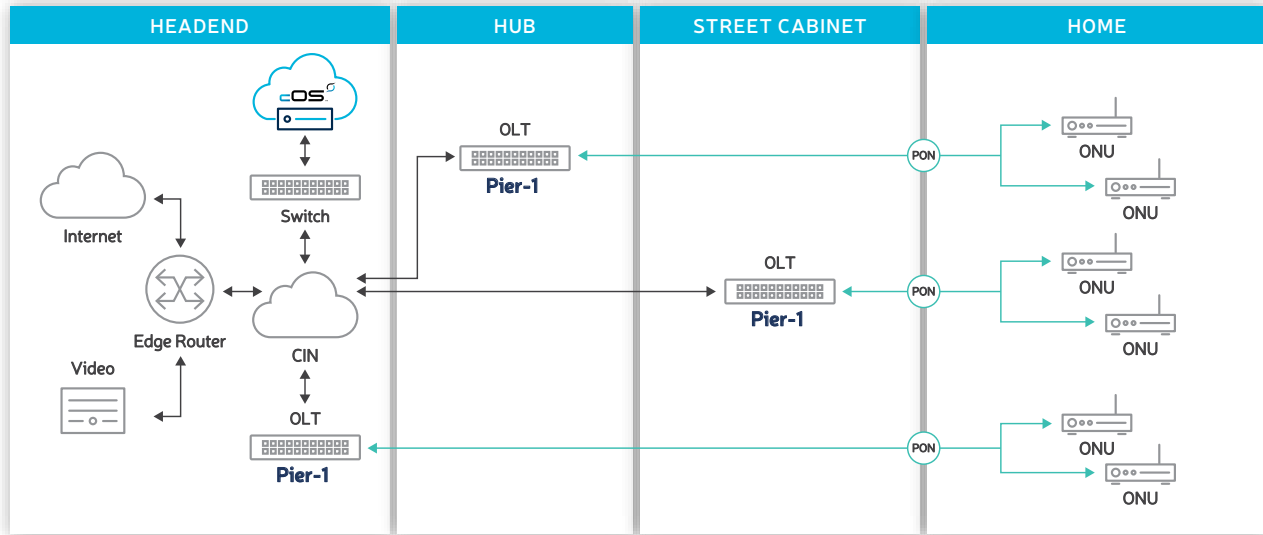
Harmonic's virtualized cOS core software enables centralized management, monitoring and routing. The solution provides an overall superior economic solution with low power consumption, unparalleled scalability and native quality-of-service capability. The Emmy Award-winning virtualized cOS core provides support for Pier alongside Harmonic's node-based OLT modules and Remote PHY devices, giving broadband service providers the ability to deploy high-speed broadband services anywhere, across an array of network types with minimal operational overhead. Support for third-party optical network terminals (ONT) and optical network units (ONU) ensures operators have access to the latest consumer premise equipment and best-in-class gateways.

Key Benefits

- Dual-density and high-power optics expand service areas and optimize use of space in telecommunication equipment sites
- Support for XGS-PON, GPON and Combo PON enables streamlined solutions to serve greenfield and brownfield market requirements
- Compact, modular, stackable form factor cost-effectively scales down for small remote sites and up for massive aggregation hubs
- Hardened temperature rating for use in outdoor cabinetry and equipment closets
- Third-party ONT & ONU support provides operators flexibility to select industry-leading in-home devices options

HIGHLIGHTS

- Up to 32 GPON or XGS-PON ports, or 16 Combo PON ports, per 1 RU
- 225mm depth (ETSI compliant)
- Modular chassis architecture
- Highly scalable and stackable
- Versatile deployment options
- High-power, long-range XGS PON optics



Deployment Diagram

World Class Service and Support

Harmonic's broadband solutions include cOS Central. Central offers an advanced set of online applications to provide streaming telemetry for real-time analytics and AI-driven insights with actionable recommendations to ensure optimal network and system health. Harmonic customers benefit from the company's extensive knowledge of the cable access environment and Emmy award winning product expertise.

Our teams and field engineers manage live production networks for operators of all sizes, worldwide, providing experienced technical support and guidance. With decades of collective experience in the cable industry and advanced skills our teams partner with operators to minimize service impacting events, reduce onsite interventions and to lower trouble ticket numbers by proactively accelerating issue prevention and time to resolution. The Harmonic Global Service and Support organization also understands the intricacies of every ancillary system touched by the cable access network, from back-office video control planes to IP backbones to deep-fiber HFC nodes to best support NOC teams and engineers with network planning and strategy.

SPECIFICATIONS

CHASSIS

Dimensions (HxWxD)	1-RU, 225mm deep 44.45 mm x 482.6mm x 225mm 1.45 in x 19 in x 8.86 in
Operating temperature	-40C to +60C
Mechanical configuration	Two Pier-1 OLT modules, two Pier-1 redundant power supply modules, one Fan module (All modules are field replaceable, hot-swappable)
Power consumption	Max 160W fully loaded, including OLT modules and optics.

PIER-1 OLT MODULE SPECIFICATION (TWO MODULES PER CHASSIS)

Uplink port	Single QSFP28 port
Uplink port data rates	100Gbps, 40Gbps, 4x 25Gbps, 4x 10Gbps
Uplink Port Transceiver types	Single-mode and multi-mode fiber Standard SR, LR, ER, ZR (Up to 80 km range) Coherent optics (Up to 300 km) Breakout cables
Internet protocols	IPv4, IPv6
Management protocols	gNMI, gNMO, sZTP
Network security	MACSEC, 802.1x, SSH
QoS	Eight egress queues, DSCP CoS, 802.1p CoS, Trust boundary
Tunneling	VxLAN

Operation	DHCP, NTP, LAG, LACP, TFTP
PON OLT ports	16x OLT PON ports over 8x SFP ports
Supported PON protocols	XGS-PON, Combo PON, GPON, 10G EPON, EPON
PON Ports SFP Transceiver types	Long range XGS-PON, Combo PON, dual XGS-PON GPON, dual GPON, 10G EPON, dual 10G EPON EPON, dual EPON
Console port	RJ45, UART

PIER-1 POWER MODULE

Input voltage	-48VDC nominal
Range	-60VDC to -40VDC
Redundancy mode	1+1

FAN MODULE

Total fans	4
Fan speed control	Adaptive
Redundancy mode	N+1

ORDERING INFORMATION

BUNDLE P/Ns OF A FULLY CONFIGURED DEVICE

Quotable Part	Description
COS-PIER1-BDL-1XOLT1-2DC-NN	Pier-1 Bundle with 1 X OLT1 Module, 2 X DC Power Supply units, side to side airflow
COS-PIER1-BDL-2XOLT1-2DC-NN	Pier-1 Bundle with 2 X OLT1 Module, 2 X DC Power Supply units, side to side airflow

INDIVIDUAL PRODUCT MODULES

Quotable Part	Description
COS-PIER1-CHS	Pier-1 Chassis, 2 X PSU Slots, 2 X PON-OLT Module slots
COS-PIER1-PS-DC	DC Power Supply unit for Pier-1
COS-SPR-PIER1-FANS	Spare Fans Block for Pier-1, side to side airflow
COS-PIER1-PM-OLT1-8P-1C	Pier-1 OLT1 Processing Module, 8 X Dual/Single PON Ports: XGS/ GPON/ COMBO/ 10G-EPON, and 1 X QSFP28 uplink Port

OLT OPTICS

Part Number	Description
SFP-OLT-I-10G-COMBO-N2C+	cSFP+ OLT Transceiver, XGS-PON/GPON COMBO OLT Quadplexer, N2- C+, 20km, -40~90 deg C
SFP-OLT-I-10G-DUXGS-N1	cSFP+ Dual XGS OLT Transceiver, Symmetrical 9.95328Gbps With Digital RSSI, N1, 20km, -40~90 deg C
SFP-OLT-I-10G-XGS-E1-60KM	SFP+ XGS-PON OLT Transceiver, Symmetrical 9.95328GBPS With Digital RSSI, E1, 60km, -40~85 DEG C
SFP-OLT-I-10G-XGS-N1	SFP+ XGS-PON OLT Transceiver, Symmetrical 9.95328Gbps With Digital RSSI, N1, 20km, -40~85 deg C
SFP-OLT-I-1G-DUGPON-C+	cSFP+ Dual GPON OLT Transceiver, With Digital RSSI, C+, 60km, -40~85 deg C
SFP-OLT-I-1G-GPON-C+	SFP GPON OLT Transceiver, 2488/1244 Mb/s With Digital RSSI Function, C+, 60km, -40~85 deg C
SFP-OLT-I-10G-EPON-PR30	SFP+ 10G EPON OLT Transceiver, 2 LAMBDA (1577NM TX; 1270NM RX), 20km, -40~90 deg C

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