Cisco 10G Routed PON ONT

Contents

Product overview

Cisco's family of 10-Gbps symmetrical passive optical network (XGS-PON) Optical Network Terminals (ONTs) delivers flexible, high-performance broadband connectivity for a wide range of fiber-to-the-premises use cases, including residential spaces, Multidwelling Units (MDUs), Small Office/Home Office (SOHO), and Small to Medium-Sized Business/Enterprise (SMB/SME) environments. Cisco® ONTs enable cost-effective, reliable, high-density fiber deployments designed for efficient serviceability and management at scale.

Cisco 10G Routed PON ONTs are fully compliant with the XGS-PON ITU-T G.9807.1 standard and support symmetrical 10-Gbps downstream and upstream optical connectivity via an SC/APC optical connector, helping ensure support for both current and future networking needs. With integrated XGS-PON optics, MAC, and Ethernet switching capabilities, Cisco PON ONTs help network operators optimize the network's Total Cost of Ownership (TCO) by reducing edge transport, switching, and routing costs, as well as minimizing footprint and power consumption. Cisco PON ONTs, in conjunction with Cisco routed PON modules, are an ideal end-to-end solution to support today's cost-effective, agile, and diverse networking requirements. An example of a PON deployment using Cisco ONTs and Optical Line Terminals (OLTs) is shown below.

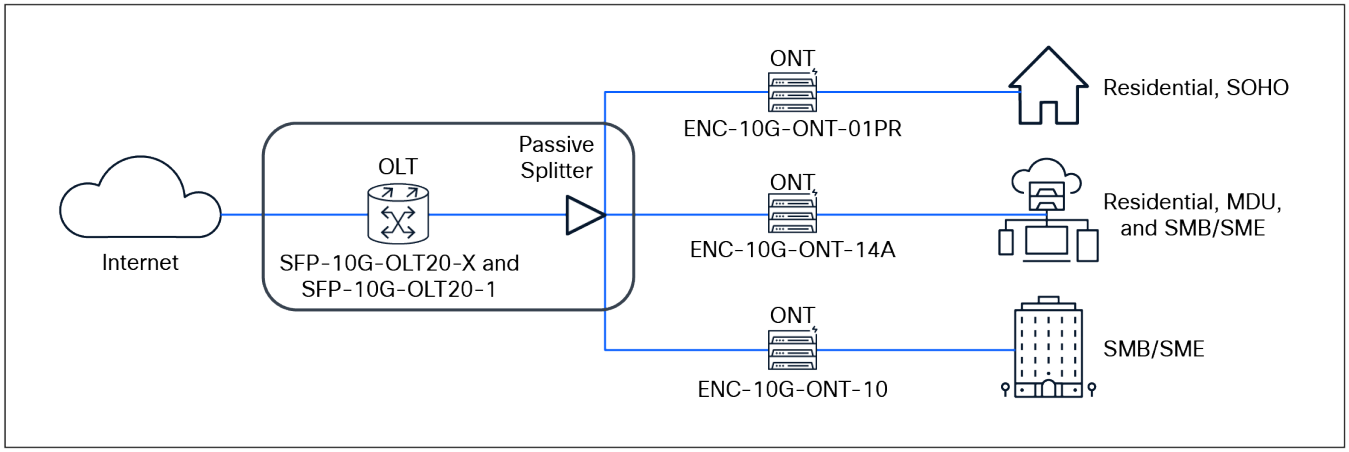

Figure 1.
Example of a Passive Optical Network (PON)

Features

ENC-10G-ONT-10, the XGS-PON ONT for high-speed single-port RJ-45 deployments

This small, slim low-noise desktop ONT is optimized to be deployed in a wide variety of indoor SMB/SME environments. It delivers secure, high-speed broadband access with flexible deployment in metro and business settings. The ENC-10G-ONT-10 comes with built-in XGS-PON optics and MAC, an Ethernet switch, and one RJ-45 interface that supports up to 10 Gbps.

Figure 2.
The ENC-10G-ONT-10 model

ENC-10G-ONT-14A, the multiport and ATA XGS-PON ONT

Offering multiple business broadband and voice port options, the ENC-10G-ONT-14A is the ideal ONT solution for providing access and service diversity spanning the residential, MDU, SOHO, and SMB/SME use cases. This single-box desktop solution comes with built-in XGS-PON optics, MAC, an Ethernet switch, and multiple ports, including one RJ-45 port at 10 Gbps, four RJ-45 ports at 1 Gbps, and a FXS voice port (RJ-11).

Figure 3.
The ENC-10G-ONT-14A model

ENC-10G-ONT-01PR, the XGS-PON ONT for outdoor deployments

Purpose-built for secure, reliable broadband service delivery in the most demanding outdoor environments, the ENC-10G-ONT-01PR is the ideal weatherized access device solution for residential and SOHO applications. The small, slim, ruggedized design enables this ONT to be deployed in a wide variety of outdoor environments and comes with built-in XGS-PON optics and MAC, an Ethernet switch, and one 2.5-Gbps RJ-45 electrical port. The ENC-10G-ONT-01PR is intended to be powered by PoE but can also be powered with a DC power supply (not included).

Figure 4.
The ENC-10G-ONT-01PR

Scaling up bandwidth

Over the past several decades, PON has proven to be highly effective for fiber-to-the-premises applications. With bandwidth requirements projected to increase tenfold over the next decade due to multiple factors, including the growing proliferation of AI, the data bandwidth provided by legacy asymmetrical Ethernet PON (EPON) and Gigabit PON (GPON) technologies is no longer sufficient. This accelerating demand is driving operators to adopt next-generation XGS-PON solutions to help ensure that they stay ahead of evolving market needs and have the high-performance connectivity that demanding subscribers expect.

End user benefits

Positioned across the spectrum of end-customer use cases, these ONTs enable network operators to efficiently create, deploy, manage, and maintain cost-effective broadband and voice services. Cisco 10G Routed PON ONTs are optimized to minimize physical space and noise levels, and are tailored for flexible deployments across diverse environments, ranging from outdoor installations to constrained office cubicle environments. Supporting high-speed Gigabit broadband, advanced voice features, and a variety of port configurations, Cisco 10G Routed PON ONTs enable operators to maximize resource utilization, accelerate new service rollouts, and enhance both end user experiences and network operator competitiveness in today's fast-moving market.

PON single optical fiber connectivity

Cisco's 10G Routed PON ONT family of solutions provides XGS-PON-compliant functionality, where symmetrical 10-Gbps data is transmitted in both the upstream and downstream directions over a single strand of single-mode optical fiber. The use of one optical fiber enables network operators to minimize fiber and deployment costs and maximize the return on investment of deployed fiber. The ONT's optical receiver receives the downstream data on the 1577 nm wavelength, while its optical transmitter transmits upstream data on the 1270 nm wavelength. Cisco 10G Routed PON ONTs are compliant with the N2 optical link budget per the ITU-T G.9807.1 standard at up to a 1:64 split ratio over links spanning up to 20 kilometers. Fully compliant with the XGS-PON standards, multiple generations of PON services can interoperate, coexist, migrate, and provide differentiated service levels over the same optical fiber network without contention.

Convergence of PON and Ethernet

Cisco's Routed PON Modules and PON ONTs enable network operators to unlock more value from their networks by making available converged PON and Ethernet services within a single router. Customers can easily add new services without the need for costly dedicated OLT chassis, opening up unparalleled choice and control over service offerings, increased service velocity, exceptional interoperability and scalability, optimized space and energy consumption, and lower costs.

Compliant with the industry-standard Optical Network Unit (ONU) Management and Control Interface (OMCI), Cisco 10G Routed PON ONTs can be managed remotely in band when an optical link is established with Cisco Routed PON Modules. For example, new services can be launched and firmware upgraded, enabling operators greater ease and flexibility when managing large, deployed fleets of ONTs. For the ENC-10G-ONT-14A, TR-69 is used for the management of gateway mode and ATA attributes.

Product specifications

Tables 1 through 6 list the Cisco 10G Routed PON ONT parameters and characteristics.

Cabling and optical characteristics

Table 1. Optical cabling

Product number	Connector type	Media	Cable type	OLT compatibility
ENC-10G-ONT-10	SC/APC	Single-mode fiber (SMF)	Single fiber	SFP-10G-OLT20-X SFP-10G-OLT20-I
ENC-10G-ONT-14A				
ENC-10G-ONT-01PR				

Table 2. Optical characteristics

Product number	Transmit average launch power	Receive sensitivity	Downstream wavelength	Upstream wavelength
ENC-10G-ONT-10	+4 to +9 dBm	-8 to -28 dBm	1575 nm to 1580 nm	1260 nm to 1280 nm
ENC-10G-ONT-14A				
ENC-10G-ONT-01PR				

Environmental and operational characteristics

Table 3. Environmental and operational characteristics

Product number	Operating temperature range	Relative humidity	Dying Gasp support	Power adapter	Maximum power consumption (W)
ENC-10G-ONT-10	0° to 40°C (32° to 104°F)	10% to 95%	Yes	100-240 VAC, 50/60 Hz input, 12VDC output	< 10W
ENC-10G-ONT-14A	0° to 40°C (32° to 104°F)			100-240 VAC, 50/60 Hz input, 12VDC output	< 10W
ENC-10G-ONT-01PR	-40° to 65°C (-40° to 149°F)			• 802.3af PoE PD • Connector for BBU/12VDC Remark: ENC-10G-ONT-01PR does not have a power adapter included	< 5W

Table 4. Enclosure port options

Port	Port type (optical / electrical)	ENC-10G-ONT-10	ENC-10G-ONT-14A	ENC-10G-ONT-01PR
10G XGS-PON, ITU-T G.9807.1 Class N2 (SC/APC)	Optical	1	1	1
1/2.5/5/10G RJ-45	Electrical	1	1	0
10M/100M/1G/2.5G RJ-45	Electrical	0	0	1
100M/1G RJ-45	Electrical	0	4	0
FXS RJ-11 Voice Port	Electrical	0	1	0

Table 5. Dimensions

Part number	L (mm, inches in parentheses)	W (mm, inches in parentheses)	H (mm, inches in parentheses)	Weight (grams)	Mounting Method
ENC-10G-ONT-10	145 (5.71)	110 (4.33)	30 (1.18)	220	Desk or wall mount
ENC-10G-ONT-14A	260 (10.24)	175 (6.89)	44 (1.73)	220	Desk mount
ENC-10G-ONT-01PR	176 (6.93)	130 (5.12)	35 (1.38)	350	Outdoors

Table 6. Ethernet support

Ethernet support	ENC-10G-ONT-10	ENC-10G-ONT-14A	ENC-10G-ONT-01PR
IEEE 802.3 Ethernet	Y	Y	Y
IEEE 802.3z Gigabit Ethernet	Y	Y	Y
IEEE802.3ab 1000BASE-T	Y	Y	Y
IEEE 802.3an 10GBASE-T	Y	Y	N
IEEE 802.1D MAC bridges	Y	Y	Y
IEEE 802.1Q VLANs, including .1p priority	Y	Y	Y
IEEE 802.1ad provider bridging (Q-in-Q) VLAN, tag classification and manipulation	Y	Y	Y
Jumbo frames to 9216 bytes	Y	Y	Y
Layer 2 control frame tunneling	Y	Y	Y
OMCI management	Y	Y	Y

ENC-10G-ONT-14A: Gateway mode feature list for Ethernet client interfaces

- Support for dynamic and static routes
- Configurable choice of Dynamic Host Configuration Protocol (DHCP) (IPoE) or PPPoE protocol stack encapsulation
- Support for dual-stack IPv4/IPv6
- Firewall support with several filtering options, including:
  - URL filtering
  - MAC filtering
  - IP/port filtering
  - Application Layer Gateway (ALG)
  - Denial-of-Service (DoS) protection

Regulatory and standards compliance

Table 7. Regulatory and standards compliance

	ENC-10G-ONT-10	ENC-10G-ONT-14A	ENC-10G-ONT-01PR
ITU-T G.9807.1 Class N2	Yes	Yes	Yes
UL 62368-1	Yes	Yes	Yes
CAN/CSA-C22.2 No. 62368-1	Yes	Yes	Yes
47 CFR Part 15	Class B	Class B	Class A
ICES 003	Class B	Class B	Class A
VCCI-CISPR 32	Class B	Class B	Class A
RoHS	Yes	Yes	Yes

Ordering information

To place an order, please visit the Cisco Ordering homepage. Table 8 lists the ordering information for the Cisco 10G Routed PON ONT solutions.

Table 8. Ordering information

Product number	Product description
ENC-10G-ONT-10=	XGS-PON ONT
ENC-10G-ONT-14A=	Multiport and ATA XGS-PON ONT
ENC-10G-ONT-01PR=	Ruggedized XGS-PON ONT, powered by PoE

Warranty

- Standard warranty: 5 years
- Expedited replacement is available via a Cisco SMARTnet™ service support contract.

Product sustainability

Information about Cisco's environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the "Environmental Sustainability" section of Cisco's Corporate Social Responsibility (CSR) report.

Reference links to information about key environmental sustainability topics (mentioned in the "Environment Sustainability" section of the CSR Report) are provided in the following table:

Table 9. Links to sustainability topics

Sustainability topic	Reference
Information on product material content laws and regulations	Materials
Information on electronic waste laws and regulations, including products, batteries, and packaging	WEEE compliance

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

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Document history

New or revised topic	Described in	Date
Datasheet updated with the latest diagrams and additional information	All Sections	December 15, 2025

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Printed in USA C78-5201127-01 1/26