

Gigabit Broadband Optical Module



AI Overview

Gigabit broadband optical modules are standardized under ITU-T G.984 for GPON and ITU-T G.9807.1 for XGS-PON, defining data rates, wavelengths, and module specifications for high-speed fiber access networks.

GPON Optical Modules (Gigabit-Level) GPON (Gigabit Passive Optical Network) modules are designed to provide high-speed broadband access over a single optical fiber using point-to-multipoint architecture. They are typically installed in Optical Line Terminals (OLTs) at the service provider side and Optical Network Units/Terminals (ONUs/ONTs) at the customer premises. Key specifications include:

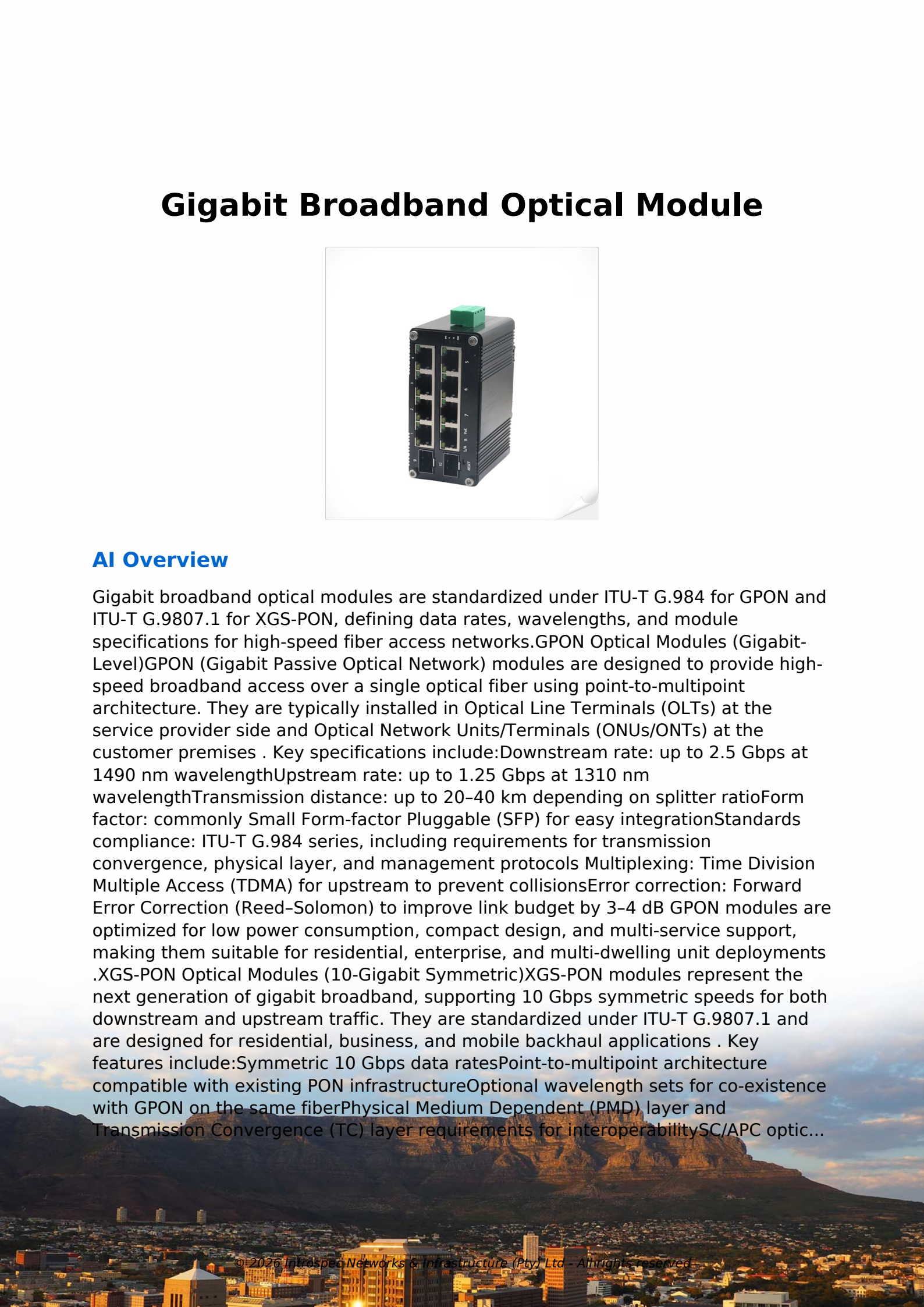
- Downstream rate: up to 2.5 Gbps at 1490 nm wavelength
- Upstream rate: up to 1.25 Gbps at 1310 nm wavelength
- Transmission distance: up to 20–40 km depending on splitter ratio
- Form factor: commonly Small Form-factor Pluggable (SFP) for easy integration
- Standards compliance: ITU-T G.984 series, including requirements for transmission convergence, physical layer, and management protocols
- Multiplexing: Time Division Multiple Access (TDMA) for upstream to prevent collisions
- Error correction: Forward Error Correction (Reed-Solomon) to improve link budget by 3–4 dB

GPON modules are optimized for low power consumption, compact design, and multi-service support, making them suitable for residential, enterprise, and multi-dwelling unit deployments.

XGS-PON Optical Modules (10-Gigabit Symmetric) XGS-PON modules represent the next generation of gigabit broadband, supporting 10 Gbps symmetric speeds for both downstream and upstream traffic. They are standardized under ITU-T G.9807.1 and are designed for residential, business, and mobile backhaul applications. Key features include:

- Symmetric 10 Gbps data rates
- Point-to-multipoint architecture compatible with existing PON infrastructure
- Optional wavelength sets for co-existence with GPON on the same fiber
- Physical Medium Dependent (PMD) layer and Transmission Convergence (TC) layer requirements for interoperability
- SC/APC optical connectors

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Article Content

TP-LINK Omada Gigabit SFP Module, 1000Base-SX

TP-LINK Omada Gigabit SFP Module, 1000Base-SX Multi-Mode Fiber Mini GBIC Module, Plug and Play, LC/UPC Interface, Up to 550/220m Distance (SM311LM)

Installation and Maintenance Guide for Gigabit Optical Modules and 10 ...

As an essential component of network communication, optical modules have been widely used in various scenarios such as data centers, enterprise LANs, and WANs. An optical module is

SFP modules - transceivers for 1/2/4G fibre channel

With support for Fast Ethernet, Gigabit Ethernet, Fibre Channel and legacy protocols such as SDH/SONET and BiDi, SFP modules enable seamless metro, regional

Cisco Transceiver Modules

Cisco Transceiver Modules - Learn product details such as features and benefits, as well as hardware and software specifications.

Cisco SFP Modules for Gigabit Ethernet Applications

This data sheet describes the benefits, specifications, and ordering information for the Cisco SFP Modules for Gigabit Ethernet Applications.

Nokia unveils world's first 50G PON solution for post

Nokia today announced the launch of the world's first 50G PON solution designed to provide ultra-fast, post-quantum broadband connectivity for operators serving

SFP und SFP+: Alles, was Sie über optische Module

Lernen Sie die wichtigsten Unterschiede zwischen SFP- und SFP+-Modulen und deren Anwendungen kennen.

Gigabit Fiber SFP Optical Transceiver Module

Compatibility in your network is everything, and the Intellinet SFP Transceiver Module delivers. Use it with any Intellinet SFP equipped network switch or any

SFP Optical Transceiver | SFP Optical Module | Perle

Perle SFP Optical Transceivers are hot-swappable, compact media connectors

Understanding SFP, Optical Modules, and Gigabit

Discover the features of SFP, optical modules, and gigabit transceivers for fast data transmission and network connectivity.

Overview of SFP Gigabit Optical Module

Usage of SFP Optical Modules To correctly use an SFP gigabit optical module, follow these professional steps: Select a suitable SFP optical module based on network requirements and

Introduction to GPON Optical Modules and Their

In this blog post, we'll provide an introduction to GPON optical modules and explore the key classification standards that define their

Gigabit single-mode single-core fiber optic module

Gigabit single-mode single-core optical fiber modules usually have the following specifications: multi-mode 550m, single-mode 15km, 40km, 80km, 120km, etc. In addition to the

What Are The Types Of Gigabit Optical Modules

Gigabit optical modules are mainly used in Gigabit switches, Gigabit routers, servers, firewalls and other devices. Of course, they can also be used in storage devices, because gigabit

GPON vs XG-PON vs XGS-PON, What's the

As demand for high-speed and high-capacity broadband grows, Passive Optical Network (PON) technologies continue to evolve. GPON, XG

Browse Maps and Check Broadband Performance and

Check progress on superfast and ultrafast broadband roll-outs across the UK and the speeds people are recording?

Accelerating Gigabit and Ultra-Gigabit Development,

Feng pointed out that the rapid emergence of AI applications is driving the optical broadband industry to evolve towards "Intelligent-powered

Gigabit Fiber Optic Internet | Google Fiber

Google Fiber offers limitless access to fiber internet. Find out what you can do with speeds up to 8 gigabits per second. Equipment and Wi-Fi are included.

The 8 Best Gigabit Internet Modems of 2023

The 8 best gigabit modems compared When you partner a good gigabit modem with one of our picks for the best high-speed internet providers,

Gigabit Fiber SFP Optical Transceiver Module

The Intellinet Network Solutions Gigabit Fiber SFP Optical Transceiver Module (model 545013) is fully hot-pluggable, and that allows you to install the module

1G SFP Transceivers | Mini-GBIC SFP Modules

Click to get your 1GBE transceiver modules from nearby warehouses. 30-Day Free Return. Trusted by 260K+ Enterprise Users.

What is a 100 Gigabit Singlemode SFP-FE-LX Optical Module?

The 100 Gigabit Singlemode Optical Module SFP-FE-LX is an optoelectronic converter module with SFP interface, supporting 100 Gigabit Ethernet standard and transmission distance up

Passive optical network

Passive optical network A fiber optic cable assembly with SC APC connectors, as commonly used to link optical network terminals to passive optical networks A

Contact Us

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