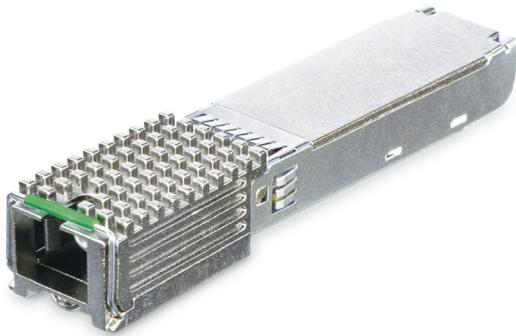


# GPON ONU SFP Transceiver



## Perfectly Designed for FTTx Applications

PLANET GPN-SFP is an SFP GPON ONU device designed in compliance with the **ITU-T G.984** standard. It is a cost-effective GPON customer premises system that provides broadband services with **1244 Mbps** upstream and **2488 Mbps** downstream by connecting to subscribers' switches or routers. The device complies with **G.984.x (1/2/3/4/5)** standards and features **SFP packaging** while integrating a bidirectional optical transceiver and a GPON media access control (**MAC**) layer function. It delivers Gigabit Ethernet (**GigE**) service to any device capable of hosting an **SFP module**, such as Ethernet switches, wireless backhaul equipment, Ethernet access devices (**EADs**), routers, remote digital subscriber line access modules (**DSLAMs**), and other customer premises equipment (**CPE**).

## Excellent Access Capacity

GPON supports a PON transmission rate of 2.5 Gbps downstream and 1.25 Gbps upstream. When connected to OLTs, it supports a 1:128 splitting ratio. The network coverage radius can reach up to 20 km.

## Compact and Easy-to-Install ONU Stick for SFP Slots

The GPN-SFP is a device that integrates the functions of a traditional Optical Network Terminal (ONT) or Optical Network Unit (ONU) into a compact Small Form-Factor Pluggable (SFP) module. It is designed to be inserted directly into the SFP slot of a switch, router, or industrial device, enabling Passive Optical Network (PON) access.



## GPON SFP

- 1 SC/APC type GPON port
- Up to 2.5Gbps downstream and 1.25Gbps upstream
- Maximum distance of up to 20km
- Compliant with ITU-T G.984/988

## Physical Hardware

- SFP feed power input
- Less than 2.5W power consumption
- High-sensitivity optical receiver: -28dBm or better
- Optical TX power: 0~5dBm

## Multicast Features

- IGMP snooping
- Internet Group Management Protocol (IGMP)
- CTC defined dynamic multicast
- MLD snooping

## QoS Features

- Back pressure flow control (half duplex)
- IEEE 802.3x flow control (full duplex)
- Head of Line (HoL) mechanism
- IEEE 802.1p, CoS
- 4 priority queues per port
- WR, SP and FIFO
- Rate limit

## Security

- Limitation to the MAC addresses on the port (1K)

## Management

- Received Signal Strength Indication (RSSI)
- Multiple Source Agreement (MSA)
- Full Service Access Network (FSAN)
- Dying gasp notification
- ONU Management and Control Interface (OMCI)

**Secure Service Carrying Capability**

To ensure the secure service carrying capability of the ONU, PLANET has developed various technologies, including VLAN, STP, port isolation, ACL, QoS and security filtering.

**High-Service Control Capability**

PLANET GPN-SFP supports DBA and rate limiting. It also features advanced dynamic bandwidth allocation and precise bandwidth control, enabling users to efficiently share 2.5 Gbps (GPON) and 1.25 Gbps (EPON) bandwidth resources. In addition, the QoS function ensures reliable service quality and prioritization.

**Rich OMCI Functions**

PLANET GPN-SFP supports the standard OMCI defined by ITU-T, as well as standard OAM and extended OAM defined by Telecom CTC 2.1/3.0, including configuration, alarm management, performance monitoring, fault isolation, and security management. Additionally, it supports private OMCI and OAM defined by PLANET.

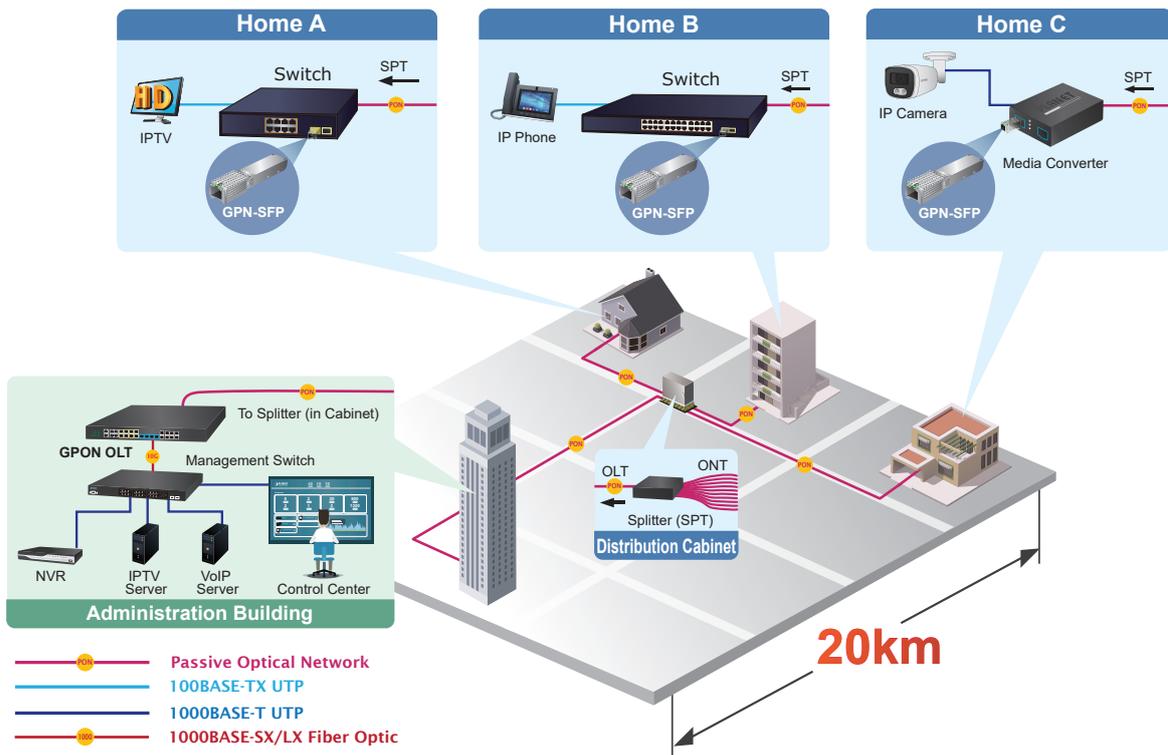
**Comprehensive Interoperability**

PLANET GPN-SFP complies with international standards, including ITU-T G.984.x (1/2/3/4/5), ITU-T G.988, IEEE 802.3ah, PRC Communication Industry Standard GB/T 33845-2017, YD/T 1475-2006, and China Telecom GPON Technical Requirement (CTC). With high interoperability and operability, PLANET GPN-SFP can seamlessly interconnect with OLTs from mainstream manufacturers in the industry, minimizing network construction costs.

**Passive Optical Network Connection Solution**

With the increasing adoption of network services such as HDTV, IPTV, Voice over IP (VoIP), and multimedia broadband applications, the demand for broadband communication has grown rapidly. PLANET GPN-SFP is one of the most promising next-generation networking (NGN) technologies to meet these needs. Compared to other broadband access technologies such as xDSL and cable modems, PON technology offers several competitive advantages, including the long-term viability of fiber infrastructure, lower operating costs due to the reduction of active components, support for long-distance connections of up to 20 km between equipment nodes, and, most importantly, significantly greater bandwidth.

## Fiber To The Home (FTTH) Application



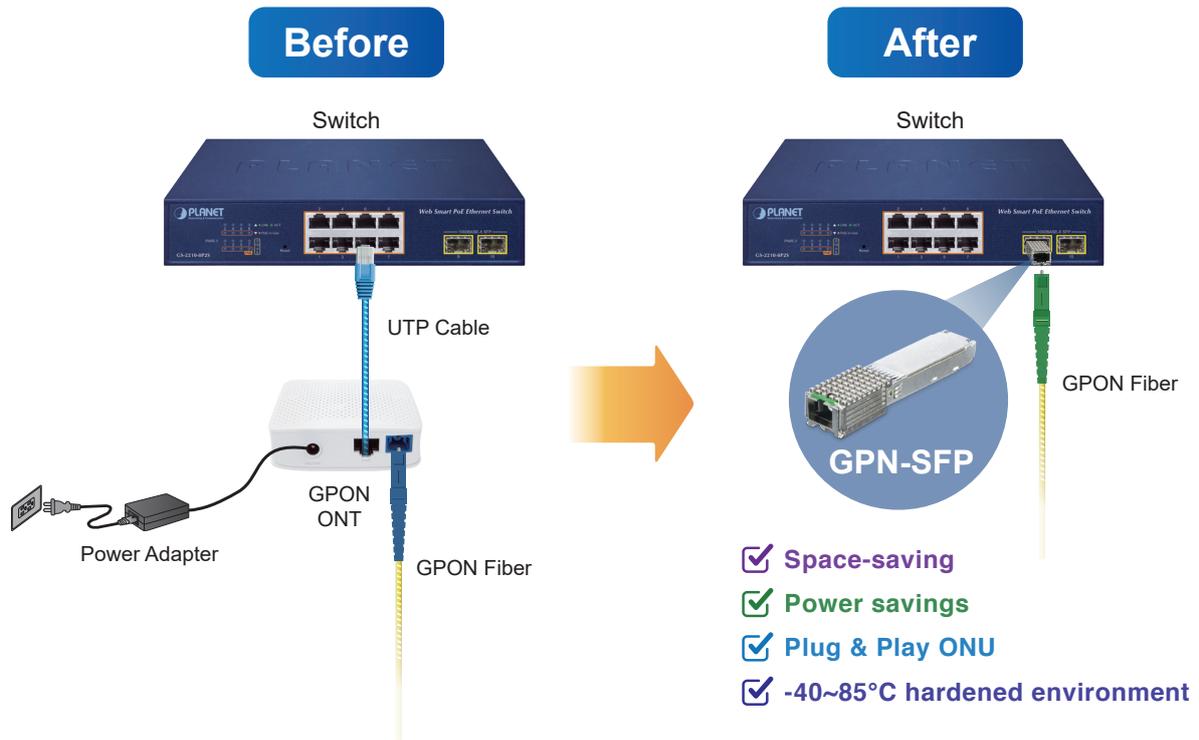
### Industrial-Grade Module Built for Extreme Environments

The GPN-SFP is a high-performance module designed for demanding environments, featuring a wide operating temperature range from **-40 to 85 degrees C**. It delivers reliable, quiet, and stable performance even under extreme heat or cold, without compromising functionality. With its SFP type hot-swappable design, installation and configuration are simplified, allowing for fast and easy deployment. Whether used in harsh outdoor conditions or high-vibration industrial settings, the GPN-SFP ensures robust communication within industrial Ethernet networks, making it the ideal solution for building a resilient and efficient network infrastructure.

### Simplify PON Deployment with Space-Saving, Plug-and-Play GPN-SFP Module

In traditional setups, the switch requires an external ONU (Optical Network Unit) and a separate power supply, which consumes space and energy. With the GPN-SFP module, the ONU functionality is integrated directly into the SFP port of the switch, enabling a true “plug-and-play” fiber access solution. This streamlined design significantly reduces equipment footprint, saves power, and simplifies deployment. Additionally, it supports industrial-grade operation in harsh environments ranging from -40 to 85°C, making it ideal for demanding applications. The GPN-SFP module offers a highly efficient and reliable solution for building modern, high-performance PON networks.

## A fast and easy to use xPON solution

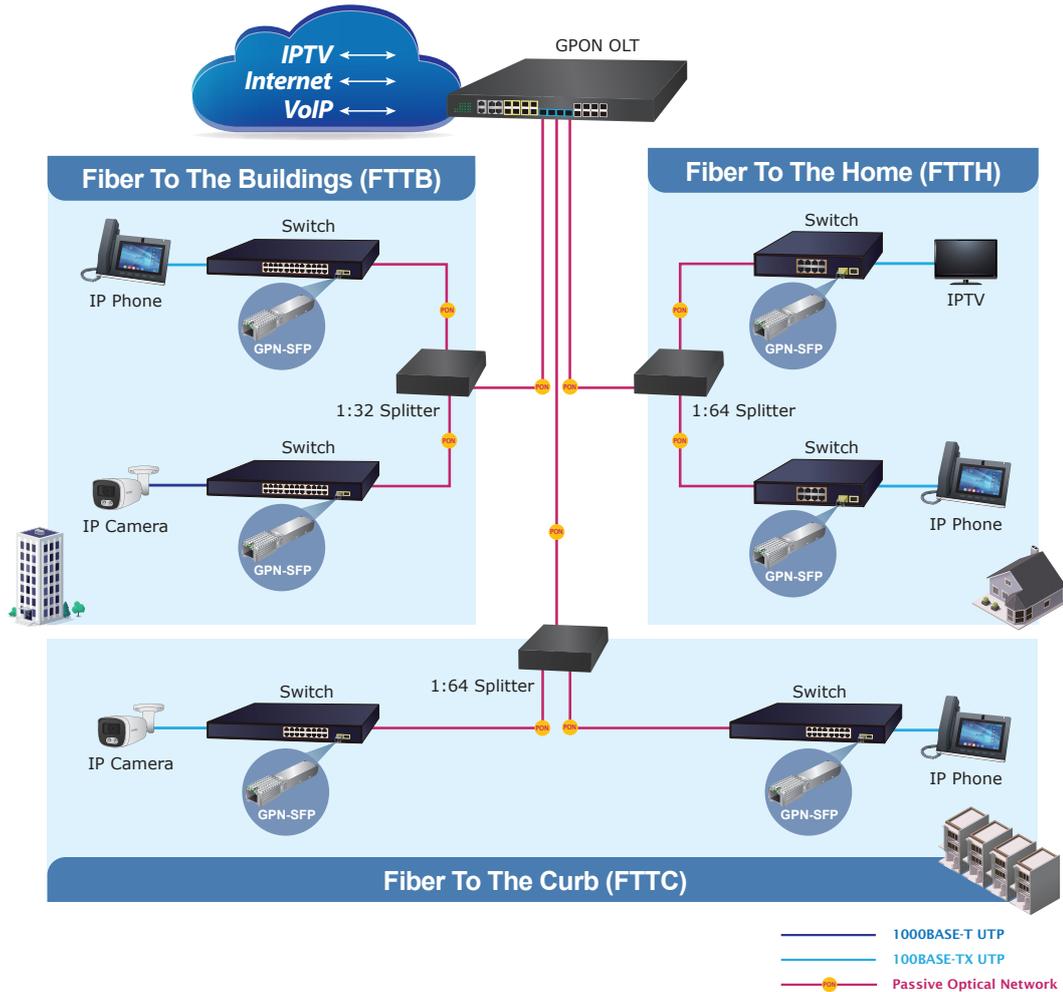


## Applications

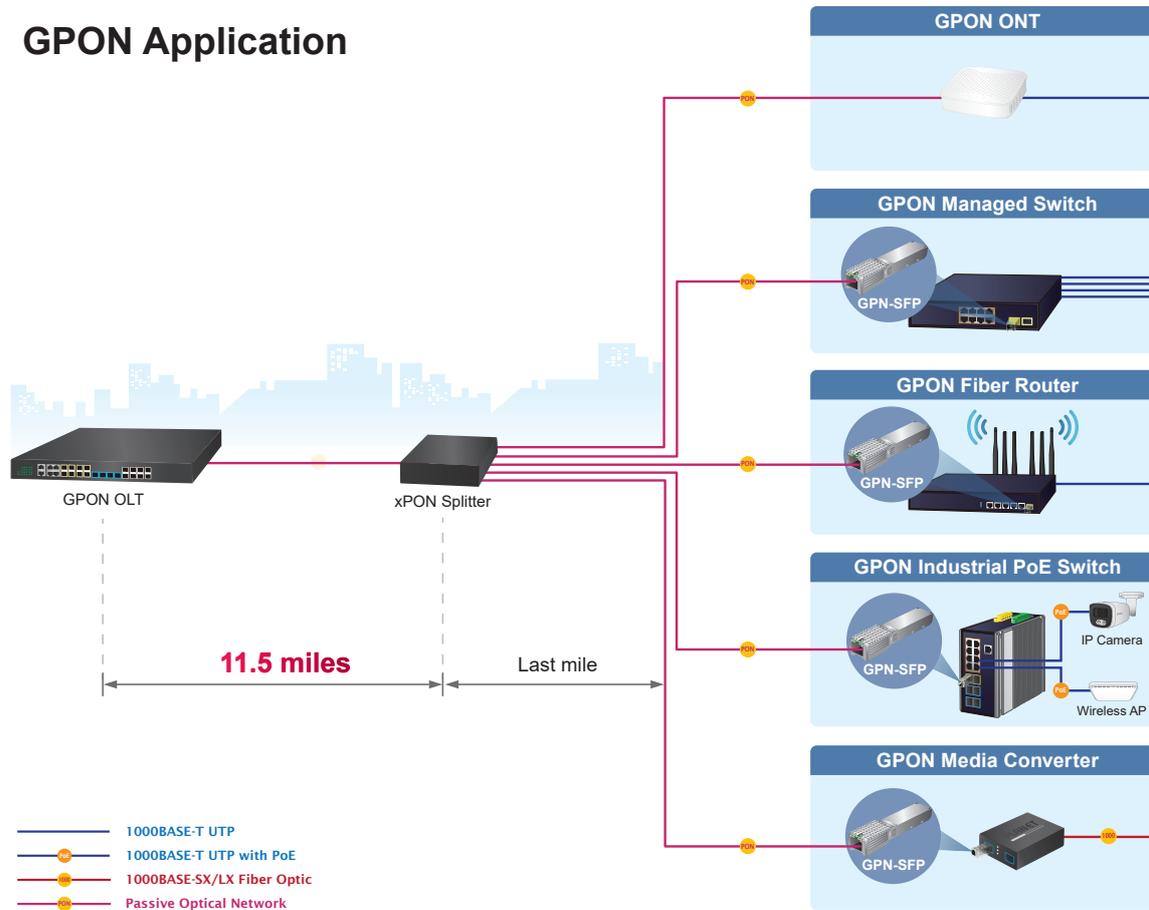
### High Scalability and Flexibility in Multiple Applications

PLANET GPN-SFP provides a high-speed Internet connection to PLANET OLT via GPON technology. It offers a downstream transmission speed of up to **2.5 Gbps** and an upstream transmission speed of up to **1.25 Gbps**, with a maximum transmission distance of **20 km**.

Leveraging PON technology, the GPN-SFP can receive and deliver high-speed voice, data, and video services. It provides long-term service, lower operating costs, an **SFP interface**, easy installation and maintenance, and a more stable bandwidth. The GPN-SFP is the perfect solution when deployed with PLANET OLT, offering cost-effectiveness, scalability, and flexibility for network deployments.



## GPON Application



## Product Specifications

Product	<b>GPN-SFP</b>
<b>Hardware Specifications</b>	
UNI	2.5G or 1G Ethernet UNI modes
Transmission Speed	GPON: Downstream: 2.5 Gbps/Upstream: 1.25 Gbps
Port Type	SC/APC connector
Fiber Maximum Distance	20km
Dimensions (W x D x H)	75 x 13.55 x 14 mm
Weight	31g
Power Input	SFP feed 3.3V
Power Consumption	Less than 2.5W
Optical Receive Sensitivity	-28 dBm
Optical TX Power	0~5 dBm
<b>Functions</b>	
Multicast	Internet Group Management Protocol (IGMP) IGMP snooping CTC defined dynamic multicast MLD snooping
QoS	Back pressure flow control (half duplex) IEEE 802.3x flow control (full duplex) Head of Line (HoL) mechanism IEEE 802.1p, CoS 4 priority queues per port WR, SP and FIFO Rate limit
Reliability	Loop detect Dying-Gasp
Security	Limitation to the MAC addresses on the port (1K)

Heat Dissipation	Supports 24/7 continuous operation; the device can operate continuously without performance degradation due to heat.
Management	Received Signal Strength Indication (RSSI) Multiple Source Agreement (MSA) Full Service Access Network (FSAN) Dying gasp notification ONU Management and Control Interface (OMCI) specification
<b>Standards Conformance</b>	
Laser Classification	IEC60825 Class 1 Laser Product
Standards Compliance	GPON network Class B+ IEEE 802.3x flow control and back pressure IEEE 802.1Q, VLAN IEEE 802.1p Class of Service ITU-T G.984/G.988 GBT33845-2017, YD/T 1475-2006
<b>Environment</b>	
Operating	Temperature: -40 ~ 85 degrees C Relative Humidity: 5 ~ 80% (non-condensing)
Storage	Temperature: -40 ~ 85 degrees C Relative Humidity: 0 ~ 95% (non-condensing)

## Ordering Information

GPN-SFP	GPON ONU SFP Transceiver
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## Related Product

GPL-8000	8 PON GPON OLT with 4-Port Gigabit TP/SFP Combo + 4-Port 1000X SFP + 4-Port 10G SFP+
GPN-400ACV	GPON HGU with 4-Port GbE, 1200Mbps 802.11ac Wireless and 2-Port FXS (1 x USB)
GPL-GSFP-C+	GPON OLT SFP Transceiver (Class C+, Optical Power: 3dBm~7dBm, Download 2.5G/Upload 1.25G, TX: 1490nm, RX: 1310nm) - 20km
GPL-GSFP-C++	GPON OLT SFP Transceiver (Class C++, Optical Power: 6dBm~10dBm, Download 2.5G/Upload 1.25G, TX: 1490nm, RX: 1310nm) - 20km
XT-815A	2-Port 10G/2.5G/1G/100BASE-X SFP+ Media Converter
XT-715A	10GBASE-T to 10GBASE-X SFP+ Media Converter
GT-915A	10/100/1000BASE-T to 100/1000BASE-X SFP Managed Media Converter
IGT-900-2T2S	Industrial 2-port 10/100/1000T + 2-port 100/1000/2500X SFP Managed Media Converter
IGS-4215-8T2S	Industrial L2/L4 8-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C)
IGS-4215-24T4X	Industrial L2+ 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
IGS-4215-8UP2T2S	Industrial 8-Port 10/100/1000T 802.3bt PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C)
WGS-4215-8P2XV	Industrial L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 10G SFP+ Wall-mount Managed Ethernet Switch with LCD Touch Screen (-40~75 degrees C)
IGS-5225-4T2S	Industrial L2+ 4-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C)
IGS-5225-4UP1T2S-12V	Industrial L2+ 4-Port 10/100/1000T 802.3bt PoE + 1-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch w/ 12V Booster (-40~75 degrees C)
IGS-5225-4UP1T2S	Industrial L2+ 4-Port 10/100/1000T 802.3bt PoE + 1-Port 10/100/1000T + 2-Port 1G/2.5G SFP Managed Ethernet Switch (-40~75 degrees C)
IGS-5225-8T2S2X	Industrial L3 8-Port 10/100/1000T + 2-Port 100/1000X SFP + 2-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
IGS-5225-8P2S2X	Industrial L3 8-Port 10/100/1000T 802.3at PoE + 2-Port 1G/2.5G SFP + 2-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
WGS-5225-8P2S	Industrial L2+ 8-Port 10/100/1000T 802.3at PoE + 2-Port 1G/2.5G SFP Wall-mount Managed Switch (-40~75 degrees C)
IGS-6325-8T8S4X	Industrial L3 8-Port 10/100/1000T + 8-Port 100/1000X SFP + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)

IGS-6325-4UP2X	Industrial L3 4-Port 2.5GBASE-T 802.3bt PoE + 2-Port 10GBASE-X SFP+ Managed Ethernet Switch (-40~75 degrees C)
IGS-6325-16T4X	Industrial L3 16-Port 10/100/1000BASE-T + 4-Port 10GBASE-X SFP+ Managed Switch (-40~75 degrees C)
IGS-6325-16T4S	Industrial L3 16-Port 10/100/1000T + 4-Port 100/1000X SFP Managed Ethernet Switch (-40~75 degrees C)
TSN-6325-8T4S4X	Industrial L3 8-Port 10/100/1000T + 4-Port 1G/2.5G SFP + 4-Port 10G SFP+ Managed TSN Ethernet Switch (-40~75 degrees C)
IGS-6329-8UP2S4X	Industrial L3 8-Port 10/100/1000T 802.3bt PoE + 2-Port 1G/2.5G SFP + 4-Port 10G SFP+ Managed Ethernet Switch (-40~75 degrees C)
IGS-10020PT	Industrial 8-port 10/100/1000T 802.3at PoE + 2-port 1G/2.5G SFP Managed Switch
IGS-10020MT	Industrial 8-Port 10/100/1000T + 2 100/1000X SFP Managed Switch (-40~75 DegreeC)
IGS-12040MT	Industrial 8-Port 10/100/1000T + 4-Port 100/1000X SFP Managed Switch (-40~75 Degrees C)
IGS-20160HPT	Industrial 16-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C)
IGS-20040MT	Industrial 16-Port 10/100/1000T + 4 100/1000X SFP Managed Switch (-40~75 Degrees C)
GS-2210-24P2S	24-Port 10/100/1000T 802.3at PoE + 2-Port 1000X SFP Web Smart Ethernet Switch
GS-4210-16UP8T4X	16-Port 10/100/1000T 802.3bt PoE + 8-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch
GS-5220-16S8CR	L2+ 24-Port 100/1000X SFP + 8-Port Shared TP + 4-Port 10G SFP+ Managed Switch
XGS-6311-12X	Layer 3 12-Port 10GBASE-X SFP+ Managed Ethernet Switch
SGS-6341-24P4X	Layer 3 24-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Stackable Managed Switch (370W)
SGS-6310-48P6XR	L3 48-Port 10/100/1000T 802.3at PoE + 6-Port 10G SFP+ Stackable Managed Switch with 55V DC Redundant Power
MGS-6311-8P2X	L3 8-Port 2.5GBASE-T 802.3at PoE + 2-Port 10GBASE-X SFP+ Managed Ethernet Switch(150W)
GS-6311-16S8C4XR	L3 16-Port 100/1000X SFP + 8-Port Gigabit TP/SFP + 4-Port 10G SFP+ Managed Ethernet Switch with 36-72V DC Redundant Power
XGS-6350-24X4C	Layer 3 24-Port 10G SFP+ + 4-Port 100G QSFP28 Managed Switch
XGS-6350-12X8TR	Layer 3 12-Port 10G SFP+ + 8-Port 10/100/1000T Managed Switch with Dual 100~240V AC Redundant Power
AVS-4210-24HP4X	8-Port 10/100/1000T 802.3bt PoE + 16-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Managed AV Switch