



HES-5105SFP+

1 x 10G/5G/2.5G/1G/100MBase-T RJ-45 +
3 x 2.5G/1G/100MBase-T RJ-45 +
1 x 10G/1GBase-X SFP+
Managed Ethernet CPE Switch

Description

CTS's HES-5105SFP+ is a **5-Port Managed Ethernet CPE Switch** that offers advanced layer-2 and multi-speed features, making it perfect for businesses and SOHOs looking to expand or upgrade their network infrastructure with cost-effective FTTH/FTTR solutions.

Interface

This CPE switch features **one 10G/5G/2.5G/1G/100M Base-T RJ-45** port, **three 2.5G/1G/100M NBase-T RJ-45** ports, and **one 10G/1G Base-X SFP+** port, providing flexible, high-speed connectivity options for various network requirements.

Product Highlights

This model supports **IGMP** snooping v1/v2/v3 and IGMP fast leave, enabling intelligent multicast traffic management for efficient IPTV service delivery. The high-quality management is further embodied by **its iProbe advanced diagnostic suite**, which offers comprehensive tools for regular network diagnostics and troubleshooting.

Ideal Applications

As modern network speeds become increasingly demanding, the HES-5105SFP+ is perfect for **FTTH and FTTR** applications, especially designed for enterprises and SOHOs seeking to expand or upgrade their network infrastructure with cost-effective and adaptable network solutions in support of 10G and multi-gigabit ports.

In terms of installation for FTTH/FTTR application scenarios, the HES-5105SFP+ is **wall-mountable** and shares the same **cable tray** as CTS's HES series (available for separate purchase). This design provides cable protection, convenient storage, and enhances home aesthetics. Equipped with **advanced IP management** features and versatile connectivity options, the HES-5105SFP+ is ideal for delivering high-quality IPTV services and network adaptability, while enabling reliable and high-speed data transmission.

Key Features

■ 10G/1G Fiber Connectivity

This capability provides high-speed data transmission with low latency and longer reach, allowing businesses to handle bandwidth-intensive applications effortlessly. This ensures future-proofing of the network infrastructure, supports high-quality services like IPTV, and accommodates growing data demands.

■ Multi-Gigabit Ethernet Connectivity

Featuring a 5-speed RJ-45 port (10G/5G/2.5G/1G/100M) and three 3-speed RJ-45 ports (2.5G/1G/100M), this model offers seamless adaptability with a wide range of network devices and accommodates increasing bandwidth demands without the need for hardware upgrades.

■ IPv4/IPv6 Dual Stack

It is capable of running IPv4 and IPv6 protocols in parallel and interoperating with other IPv4, IPv6, and dual-stack devices, which enables IPv6 management, IPv6 packet forwarding, and MLD v1/v2 snooping.

■ IGMP: Intelligent Multicast Traffic Management for IPTV Service Delivery

It supports IGMP snooping and IGMP fast leave to intelligently transmit multicast traffic and enhance IPTV service delivery.

■ iProbe Advanced Diagnostic Suite

This function offers comprehensive network diagnostics, including cable test, client emulation, HTTP reachability diagnostic, DHCP client emulation, DNS connection measurement, throughput testing (iPerf3/Nuttcp), ping tests, and IPTV multicast diagnostics (measuring MPEG loss, PCR jitter, throughput, query intervals, response times, and zapping time).

■ Q-in-Q VLAN Tagging

This feature allows service providers to implement Metro Ethernet services while maintaining Layer 2 separation among different customers.

■ Full IP Management

This model features full IP management capabilities, including **SNMP (v1, v2c, and v3)**, **Web-based interfaces (HTTP/HTTPS)**, and **Command Line Interface (CLI)** access via **Telnet** and **SSHv2**, enabling remote monitoring, configuring and control over the device.

■ Targeted Applications

- Ideal for SOHO and residential network applications that require 10G FTTH/FTTR service deployment.

Specification

■ Interface

RJ-45 Port

- 1 x 10G/5G/2.5G/1G/100MBase-T RJ-45
- 3 x 2.5G/1G/100MBase-T RJ-45

Fiber Port

- 1 x 10/1GBase-X SFP+

Standards

- IEEE 802.3an 10GBase-T
- IEEE 802.3ae 10GBase-R
- IEEE 802.3bz 2.5G/5GBase-T (NBase-T)
- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-X
- IEEE 802.3u 100Base-TX
- IEEE 802.1p Priority
- IEEE 802.1q Tag VLAN
- IEEE 802.3x Flow Control
- IEEE 802.1ab LLDP

■ H/W Specification

- MAC Address Table: 4K
- Non-Blocking Switching Fabric: 55Gbps
- Throughput @ 64Bytes: 40.92Mpps
- Packet Buffer: 8Mbit
- Jumbo Frame: 16K Bytes
- Store and Forward Switching Mechanism
- Auto-Cross Over for MDI/MDIX in TP Ports
- Auto-Negotiation in TP Ports
- Full/Half Duplex Mode Operation

■ LED

- Power, Status
- Link/ACT/Speed (LAN 1~4, WAN)

■ Forward/Filter Rate

- 10G: 14,880,000/14,880,000pps
- 5G: 7,440,000/7,440,000pps
- 2.5G: 3,720,000/3,720,000pps
- 1000M: 1,488,000/1,488,000pps
- 100M: 148,800/148,800pps

■ Layer 2 Switch Features

Port Management

- State, Description, Media Type, Port Type, Speed, Duplex and Flow Control

VLAN

- IEEE 802.1q VLAN
- VLAN ID: 4094 IDs
- VLAN Concurrent Groups: 128 VLAN Groups
- Port-Based VLAN
- Q-in-Q Double tag with Configurable Ether Type (ISP mode)

QoS

- QoS based on Port, 802.1p CoS and DSCP
- Scheduling Algorithm
- Weighted Round Robin (WRR)
- Strict Priority Queuing (SPQ)
- QoS Priority Queues: 8 Queues
- 802.1p P-bit & DSCP Remarking
- Port-Based Rate Limit (Ingress/Egress)

Multicast

- IGMP Snooping v1/v2/v3
- IGMP Fast Leave and Querier
- MLD Snooping v1/v2
- MLD Fast Leave and Querier
- IGMP/MLD Snooping Group: 64/32 Groups

IPv6 Feature

- IPv6 over Ethernet (RFC 2464)
- IPv6 Addressing Architecture (RFC 4291)
- IPv6 Dual Stack (RFC 4213)
- ICMPv6 (RFC 4884)
- Path MTU Discovery for IPv6 (RFC 1981)
- Neighbor Discovery (RFC 4861)
- DHCPv6 Client

■ Security

- 802.1x RADIUS/TACACS+ Authentication for Login Username/Password
- IP Source Binding
- DHCP Option 82/37 Relay Agent
- DHCP Option 82/37 with configurable circuit and Remote ID
- DHCP Snooping and DHCP Server Trust Port
- Port Isolation
- Storm Control (Unknown Unicast/Unknown Multicast/Broadcast)
- Loop Detection

■ Management

- SNMP v1, v2c & v3 (Support Traps)
- Web (HTTP/HTTPS)
- CLI (Telnet/SSHv2)
- SNTP with Daylight Saving Time
- LLDP
- Software LED Control

Upgrade/Restore

- Firmware Upgrade/Downgrade
- HTTP/HTTPS/FTP/TFTP
- DHCP Auto-provision via DHCP Option 60/43 & DHCPv6 Option 16/17
- Configuration Upload/Backup
- HTTP/HTTPS/FTP/TFTP
- DHCP Auto-provision via DHCP Option 60/43 & DHCPv6 Option 16/17
- Auto Configure Backup
- FTP/TFTP

■ Maintenance

Diagnostic

- Port Mirror
- ICMP Ping
- Event log
- Syslog
- SFP SFF-8472 DDMI Monitor
- Temp/Voltage/TX Bias/TX Power/RX Power
- CPU Utilization
- Memory Statistics

iProbe Advanced Diagnostic

- Cable Test
- HTTP Reachability Diagnostic *
- DHCP Client Emulation
- DNS Connection Measurement
- Throughput Test (iPerf3 / Nuttcp)
- Ping Test
- IPTV Multicast Diagnostic
- MPEG Loss / PCR Jitter / Throughput / General Query Interval / General Query Response / Zapping Time
- Diagnostics Schedule

■ Power Requirement

- Power Input (Main Body): 12 VDC
- Power Adapter (Including in package):
Input: 100~240 VAC, 50/60Hz
Output: 12 VDC, 1.5A
- Max. Power Consumption: 9.1W (31 BTU/h)

■ Environmental Condition

- Operation: 0°C ~ 40°C
- Storage: -20°C ~ 60°C
- Humidity: 5% ~ 90%, Non-condensing

■ Dimension & Weight

- Size: 180 x 130 x 30mm (W x D x H)
- Weight: 380g

■ Standards and Certifications

CE/FCC Class B

- Safety: EN/IEC 62368-1
- EMC: EN 55032 / EN 55035
- ESD
- Air Discharge: +/-8kV
- Contact Discharge: +/-4kV
- EFT

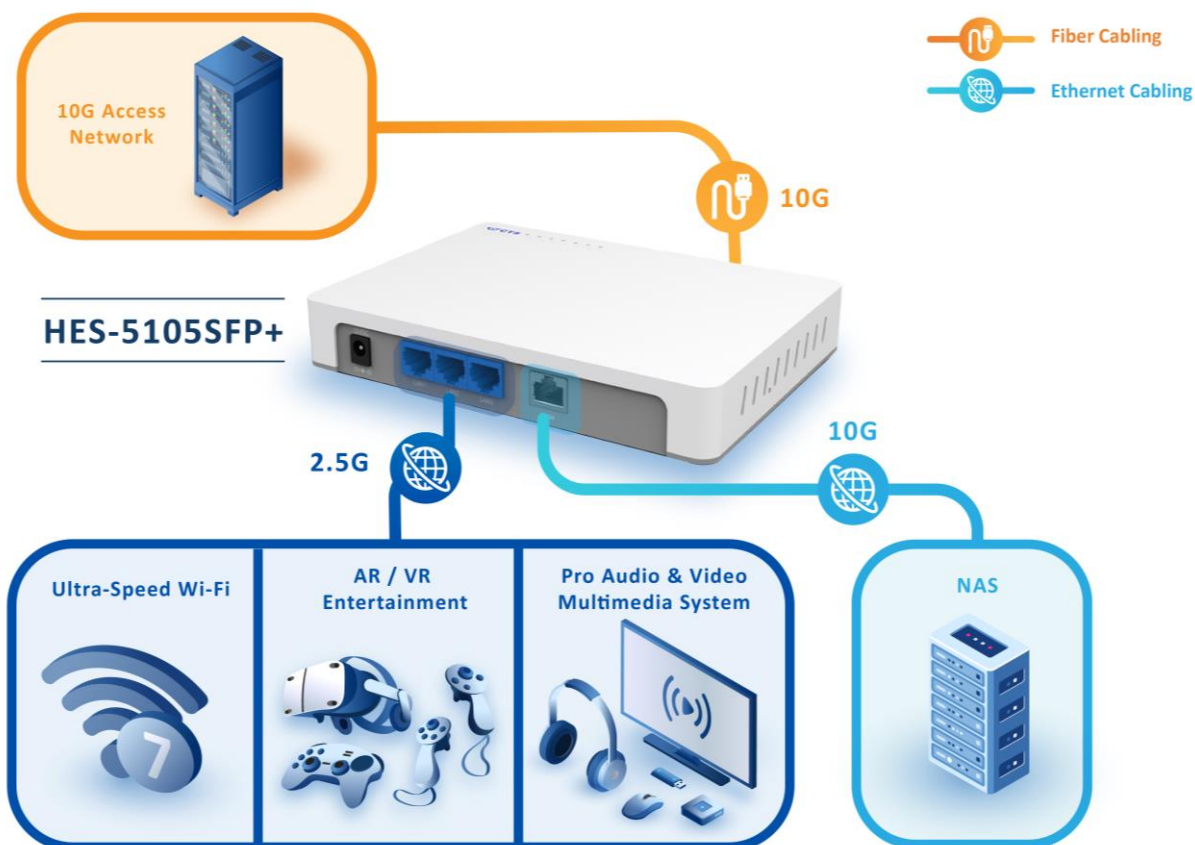
- AC input: +/-1kV
- Signal (RJ-45): +/-0.5kV
- Surge Protection
- AC input: +/-1kV
- Signal (RJ-45): +/-1kV

UKCA/RCM

RoHS 2.0

*Coming Soon

Application Diagram



Order Information

| Model | Fiber Port | | | TP Port | | Support Power Source |
|--------------|------------|------|-------|------------------------|-------|-------------------------------------|
| | Speed | Type | Slots | Speed | Ports | |
| HES-5105SFP+ | 10G/1Gbps | SFP+ | 1 | 10G/5G/2.5G/1G/100Mbps | 1 | By 12V DC External Power Adapter |
| | | | | 2.5G/1G/100Mbps | 3 | |

Accessory

SFP-51

| Model | Specification | | | | | |
|--------------------------|---------------|------|-----------|--------------|--|-----------------------|
| | Speed | Type | Connector | Distance | Wavelength | Operating Temperature |
| SFP-51FC | 10Gbps | MM | LC | 300M | 850nm | 0°C~70°C |
| SFP-51FC(SM-02/10/20/40) | 10Gbps | SM | LC | 2/10/20/40KM | 1310/1310/1310/1550nm | 0°C~70°C |
| SFP-51W2A(SM-10/20/40) | 10Gbps | WDM | LC | 10/20/40KM | TX: 1270/1270/1270nm RX: 1330/1330/1330nm | 0°C~70°C |
| SFP-51W2B(SM-10/20/40) | 10Gbps | WDM | LC | 10/20KM | TX: 1330/1330/1330nm RX: 1270/1270/1270nm | 0°C~70°C |

Accessory

SFP-31

| Model | Specification | | | | | |
|------------------------|---------------|------|-----------|------------|--|-----------------------|
| | Speed | Type | Connector | Distance | Wavelength | Operating Temperature |
| SFP-31FC-DR | 100/1000Mbps | MM | LC | 550M/2KM | 1310nm | 0°C~70°C |
| SFP-31FC(SM-10)-DR | 100/1000Mbps | SM | LC | 10KM | 1310nm | 0°C~70°C |
| SFP-31W2A(SM-10/20)-DR | 100/1000Mbps | WDM | LC | 10/20KM | TX: 1310/1310nm RX: 1550/1550nm | 0°C~70°C |
| SFP-31W2B(SM-10/20)-DR | 100/1000Mbps | WDM | LC | 10/20KM | TX: 1550/1550nm RX: 1310/1310nm | 0°C~70°C |
| SFP-31FC | 1000Mbps | MM | LC | 550M | 850nm | 0°C~70°C |
| SFP-31FC(SM-10/20/40) | 1000Mbps | SM | LC | 10/20/40KM | 1310/1310/1310nm | 0°C~70°C |
| SFP-31W2A(SM-10/20/40) | 1000Mbps | WDM | LC | 10/20/40KM | TX: 1310/1310/1310nm RX: 1550/1550/1550nm | 0°C~70°C |
| SFP-31W2B(SM-10/20/40) | 1000Mbps | WDM | LC | 10/20/40KM | TX: 1550/1550/1550nm RX: 1310/1310/1310nm | 0°C~70°C |

* SFP-31xxx-DR modules only support 1000Mbps on HES-5105SFP+.

Copper SFP

| Model | Specification | | | |
|------------------|---------------|-----------|---------------|-----------------------|
| | Speed | Connector | Distance | Operating Temperature |
| SFP-50TP-MG(30M) | 10Gbps | RJ-45 | 30M @ Cat 6A | 0°C~65°C |
| | 2.5/5Gbps | | 50M @ Cat 5E | |
| | 1000Mbps | | 100M @ Cat 5E | |
| SFP-30TP | 1000Mbps | RJ-45 | 100M | 0°C~70°C |

Fiber Cable Tray

| Model | Support Mounting method | Support Model |
|-----------|-------------------------|-----------------------|
| HES-FCT-S | Wall-mounting | HES Series CPE Switch |

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