

## HES-3106-PLUS Managed CPE Switch



5 x 10/100/1000Base-T RJ-45 + 1 x 100/1000Base-X  
Fiber Managed Ethernet CPE Switch

### Features

- **IPv4/IPv6 Dual Stack**  
Support IPv6 management, packet forwarding and MLD v1/v2 snooping
- **SFF-8472 Diagnostic Monitor Interface**  
Allow administrator to view SFP information and status including speed, distance, vendor ID, vendor S/N, temperature, voltage, TX bias, etc.
- **Rich in Functions to Facilitate Multimedia Streaming**  
Support IGMP snooping, IGMP fast leave, IGMP filtering to intelligently transmit multicast traffic and deliver IPTV service.
- **iProbe Monitoring Tool**  
IPTV monitoring, end user device emulation and cable test that makes troubleshooting easy through Web GUI, CLI SNMP and schedule.
- **Q-in-Q VLAN Tagging**  
Allow service providers to implement Metro Ethernet service while maintaining the layer-2 separating of different customers.
- **Unique Power Down Trap Technology**  
Built-in CTS unique SNMP power down trap function and detect network fault caused by power outage rapidly.
- **Optional Cable Tray**  
This is a flexible option for FTTH installation. Users can keep excessive fiber inside the cable tray to have extra protection for the sensitive fiber.
- **DHCP Auto-Provision with Text Based Config File**  
Fulfill the deployment requirement and reduce the OPEX of device maintenance for service providers or operators.

Connection Technology System (CTS) HES-3106-PLUS series is a CPE switch with 5-Port 10/100/1000Base-T RJ-45 with 1-Port 100/1000Base-X fiber, and is housed with an eye-catching pearl-white case. It supports conversion between 10/100/1000Base-T and 100/1000Base-X network. Also, it is fully compliant with IEEE 802.3, 802.3u, 802.3ab, and 802.3z standards. The operation status can be monitored through the comprehensive LED display.

HES-3106-PLUS series provides user-friendly but advanced IPv4/IPv6 management interface and abundant L2 switching functions. It is the best investment for businesses and SOHOs expanding or upgrading their network infrastructure with cost-effective and high-speed for FTTH solution.

RF model supports CATV RF receiver interface that provides the option of provisioning analog video service to create new subscriber base and revenue for service providers.

### Target Applications

- **SOHO & Residential CPE switch application which requires network management for FTTH service deployment.**

## Specification

### ■ Interface

- TP Port:
  - 5 x 10/100/1000Base-T RJ-45
- F/O Port:
  - 1 x 100/1000Base-X F/O
- CATV RF Receiver Port\*:
  - 1 x CATV fiber optic input
  - 1 x NTSC/PAL CATV coaxial output

### ■ CATV RF Receiver

- Input Optic Wavelength: 1260~1610nm
- Input Fiber Optic Power: -6~0dBm
- AGC controlled receiver with -6~0dBm dynamic range
- Fiber Optic Connector: SC/APC
- Forward Path Frequency Range: 45~1000MHz
- Output Power Level: 88dBuV
- CNR: Min 46dB@-6dBm; OMI=3.5%
- CSO: Min 55dB@0dBm; OMI=3.5%
- CTB: Min 55dB@0dBm; OMI=3.5%
- Output Return Loss: 16dB
- Flatness: +/-1dB

### ■ Standards

- IEEE 802.3 10Base-T
- IEEE 802.3u 100Base-TX/FX
- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-X
- IEEE 802.1p Priority
- IEEE 802.1q Tag VLAN
- IEEE 802.3x Flow Control
- IEEE 802.1ab LLDAP

### ■ H/W Specification

- MAC Address table: 2K
- Non-blocking Switching Fabric: 12Gbps
- Throughput @ 64Bytes: 8.9Mpps
- Memory Buffer: 1Mbit
- Jumbo Frame: 9K 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, LAN, WAN, Status

### ■ Forward / Filter Rate

- 10M: 14,880/14,880pps
- 100M: 148,800/148,800pps
- 1000M: 1,488,000/1,488,000pps

### ■ Layer 2 Switch Features

#### 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

#### QoS

- QoS 802.1p CoS / DSCP
- Scheduling Algorithm
  - Weighted Round Robin (WRR)
  - Strict Priority Queueing (SPQ)
- QoS Priority Queues: 4 Queues
- 802.1p P-bit & DSCP Remarking
- Port based rate limit (ingress/egress)

#### Multicast

- IGMP Snooping v1/v2
- IGMP Snooping Group: 64 Groups

#### IPv6 Feature

- IPv6 over Ethernet (RFC 2464)
- IPv6 Addressing Architecture (RFC 4291)
- IPv6 Dual Stack (RFC4213)
- ICMPv6 (RFC4884)
- Path MTU Discovery for IPv6 (RFC 1981)
- Neighbor Discovery (RFC4861)
- DHCPv6 Client

#### ■ Management

- SNMP v1 & v2c/Web/Telnet/SSHv2/CLI
- SNMP Trap
  - Cold Start, Warm Start, Authentication Failure,
  - Port Link Up/Down, Power Down
- Text Base CLI Configure file
- Port Configuration
  - Speed/duplex/flow control/Description
- NTP with Daylight Saving Time
- LLDP

### ■ Security

- DHCP Snooping and DHCP server trust port
- Port Isolation
- Broadcast Storm Control
- Loop Detection

### ■ Maintenance

#### Diagnostic

- Port Mirror
- ICMP Ping
- Event log
- Syslog
- SFP SFF-8472 DDMI monitor
- Cable Diagnosis
- Network Diagnosis
  - DHCP client, DNS server,
  - IPTV service, IGMP control packet
  - Ping, throughput

#### Upgrade/Restore

- Firmware Upgrade/Downgrade
- FTP/TFTP
- DHCP Auto-provision
- Configuration Upload/Backup
- FTP/TFTP
- DHCP Auto-provision

### ■ Power Requirement

- External Power adaptor
- Input AC: 100V~240V 50/60Hz
- Output DC Rating: 12V/1.5A
- Power Consumption
  - AC Side: 5.3W (MAX.)
  - DC Side: 4.2W (MAX.)

### ■ Environmental Condition

- Operation: 0°C ~ 50°C
- Storage Temperature: -20°C ~ 60°C
- Humidity: 5% ~ 90%, non-condensing

### ■ Dimension & Weight

- HES-3106-PLUS
- Size: 180 x 130 x 30mm (W x D x H)
- Weight: 0.6kg
- HES-3106-PLUS with Cable Tray\*\*
- Size: 180 x 180 x 42mm (W x D x H)

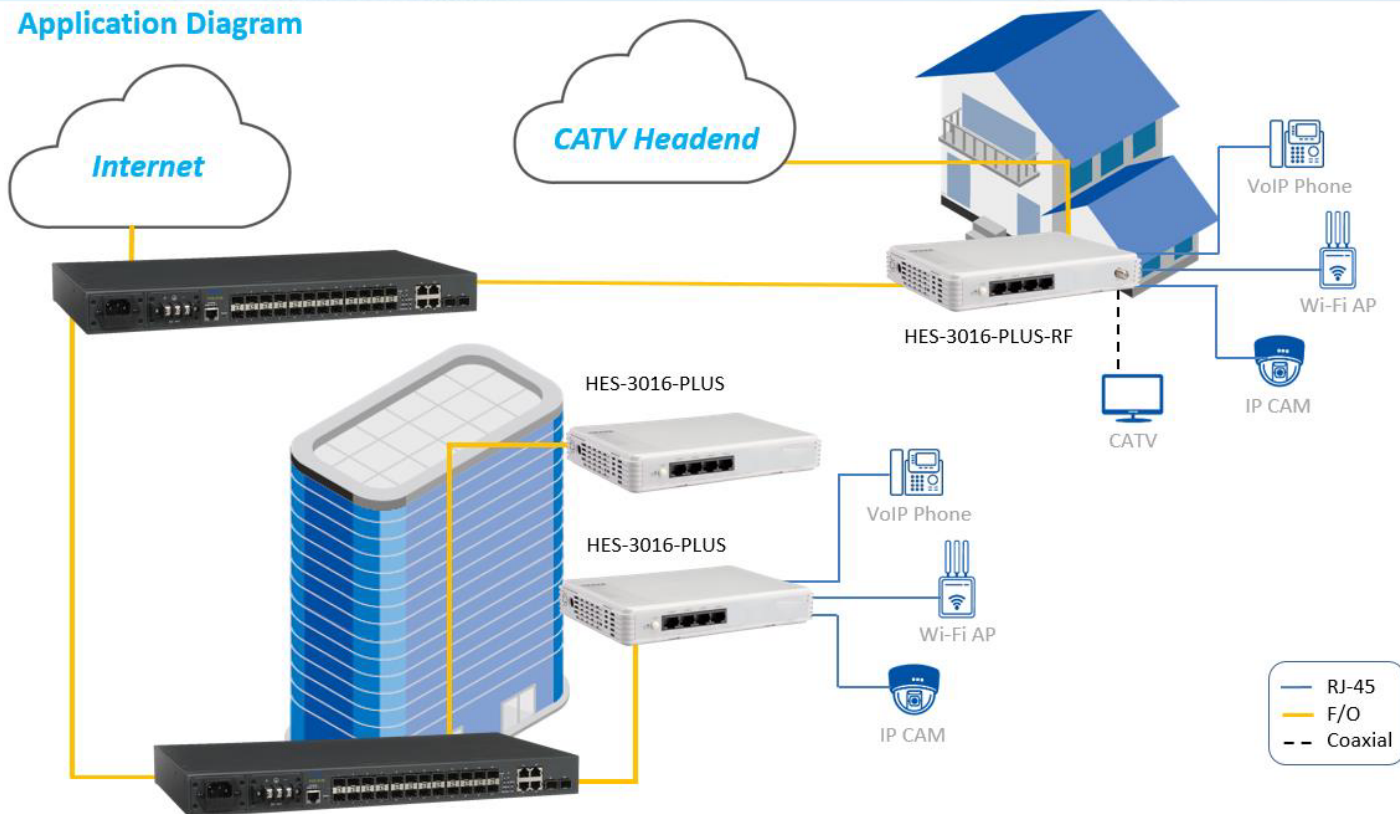
### ■ EMC/Safety

- FCC Class A, CE

\*Only RF model supports CATV RF receiver port

\*\*HES-FCT-S is Fiber Cable Tray Accessory for HES series

## Application Diagram



## Order Information

### HES-3106-PLUS-DR

Model	Fiber Port					TP Port		Power Type
	Speed	Type	Connector	Distance	Port	Speed	Port	
HES-3106W2A(SM-10)-PLUS-DR	100/1000M	WDM	SC	10Km	1	10/100/1000M	5	External power adapter
HES-3106W2B(SM-10)-PLUS-DR	100/1000M	WDM	SC	10Km	1	10/100/1000M	5	External power adapter
HES-3106SFP-PLUS-DR	100/1000M	SFP	-	-	1	10/100/1000M	5	External power adapter

### HES-3106-PLUS-DR-RF

Model	Fiber Port					TP Port		CATV RF		Power Type
	Speed	Type	Connector	Distance	Port	Speed	Port	Fiber	Coaxial	
HES-3106W2A(SM-10)-PLUS-DR-RF	100/1000M	WDM	SC	10Km	1	10/100/1000M	5	1	1	External power adapter
HES-3106W2B(SM-10)-PLUS-DR-RF	100/1000M	WDM	SC	10Km	1	10/100/1000M	5	1	1	External power adapter
HES-3106SFP-PLUS-DR-RF	100/1000M	SFP	-	-	1	10/100/1000M	5	1	1	External power adapter