** Only RF model supports CATV RF receiver port

HES-3106-SE

5 x 10/100/1000Base-T RJ-45 +

1 x 100/1000Base-X Fiber

Gigabit Fiber Managed Ethernet CPE Switch

Description

Connection Technology System (CTS) HES-3106-SE series includes gigabit fiber managed Ethernet CPE switches models equipped with 5 x 10/100/1000Base-T RJ-45 LAN ports, 1 x 100/1000Base-X fiber BoSA port or SFP slot, and 1 x CATV RF receiver port (on RF model only). With an eye-catching pearl-white housing, the CPE switch supports conversion between 10/100/1000Base-T and gigabit fiber network, and it is fully compliant with IEEE 802.3, 802.3u, 802.3ab, and 802.3z standards.

On the top panel is a set of LEDs ensuring easy local troubleshooting and straightforward installation, whereas, on the bottom onto which the optional cable tray is installed, the sensitive fiber-optic cable can be carefully organized and so be shielded against unfavorable physical shock or drop impact alike.

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

The built-in iProbe monitoring toolset, including end-user client emulation and IPTV monitoring, to name a few, fulfills advanced network diagnostics and makes precise fault-identifying required less effort to be achieved, which also brings you extra assistance on preventative maintenance.

HES-3106-SE series provides a user-friendly but advanced IPv4/IPv6 management interface and abundant L2 switching functions. It is the best investment for businesses and SOHOs to expand or upgrade their network infrastructure with a cost-effective FTTX high-speed solution.

Features

■ IPv4/IPv6 Dual Stack

Able to run IPv4 and IPv6 in parallel and interoperable with other IPv4, IPv6, and dual-stacked devices, which enables IPv6 management, packet forwarding and MLD v1/v2 Snooping, and so deliver coexistence of great flexibility.

■ Q-in-Q VLAN Tagging

Allow service providers to implement Ethernet service while maintaining the layer-2 separating of different customers.

■ iProbe Monitoring Tool

The advanced diagnostic functionality encompassing IPTV monitoring, end-user device emulation, DNS connection measurement, ping, throughput and cable test, altogether makes troubleshooting easier than ever through management interfaces such as Web GUI, CLI and SNMP.

■ SFF-8472 Diagnostic Monitor Interface

Network administrators can be capable of real-time fault-identifying and be informed about optical modules with SFF-8472 specification. It realizes measurement and threshold parameters of the monitored items such as vender S/N, voltage, and TX bias.

■ Unique Power Down Trap Technology

Built-in CTS unique SNMP power down trap function can rapidly detect network fault caused by power outage.

■ Functions Facilitating Multimedia Streaming

Support IGMP snooping, IGMP fast leave, and IGMP filtering to intelligently transmit multicast traffic, manage multicast groups, and deliver IPTV service. It overall improves bandwidth consumption and network security.

■ DHCP Auto-Provision with Text-Based Config File

Fulfill the deployment requirement with much efficiency and reduce the OPEX of the device maintenance for service providers or operators without the manual, labor-consuming IP address assignment and configuration file obtainment.

■ Optional Cable Tray Unit

The cable tray ensures uncompromising reliable data communication capacity over fiber-optic cable, minimizing network downtime as a result of improper bend radius and stress upon the cabling.

Target Applications

■ **SOHOs, and residential CPE switch application which requires network management for FTTX service deployment.**

Specification

■ Interface
-TP Port:
 5 x 10/100/1000Base-T RJ-45
-F/O Port:
 1 x 100/1000Base-X BoSA on Board / SFP
-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 LLDP

■ H/W Specification
MAC Address table: 4K
Non-blocking Switching Fabric: 12Gbps
Throughput @ 64Bytes: 8.9Mpps
Memory Buffer: 128K Bytes
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, WAN, LAN 1~5

■ 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
-Port Isolation
-Q-in-Q Double Tag with Configurable Ether
 Type

QoS
-QoS Port Based / 802.1p CoS / 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
 Group Entries: Max. 64
-MLD Snooping v1/v2
 Group Entries: Max. 32
-IGMP/MLD Fast Leave and Querier
-LLDP (Link Layer Discovery Protocol)

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

■ Security
-DHCP server trust port
-DHCP Option 82/37 Relay Agent
-DHCP Option 82/37 with configurable circuit
and Remote ID
-Storm Control
 Unknown Unicast / Unknown Multicast
 / Broadcast
-Loop Detection
-802.1x RADIUS Authentication on User Login

■ Management
-SNMP v1/v2c/3, Web(HTTP),
CLI(Telnet/SSHv2)
-Text Base CLI Configure file
-MIB
-SNMP Trap
 Cold Start, Warm Start, Authentication Failure,
 Port Link Up/Down, Power Down, Transceiver
 Threshold
-Port Configuration
 Speed/Duplex/Flow Control/Description
-NTP with Daylight Saving Time
-AES Password Encryption on Backup
Configure File
-Dual Image

■ Maintenance
Diagnostic
-Port Mirror
-ICMP Ping
-Event Log (With Save Record Function on
 Max. 500 Entries)
-Syslog
-SFP SFF-8472 DDMI Monitor
-CPU and Memory Statistics
-Port Counters
-Cable Diagnosis
-Software LED control (Power LED Not
 Included)

iProbe Advanced Diagnostic
-End-User Client Emulation
-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

Upgrade/Restore
-Firmware Upgrade/Downgrade
 HTTP/FTP/TFTP
 DHCP Auto-provision via DHCP Option 60/43
-Configuration Restore/Backup
 HTTP/FTP/TFTP
 DHCP Auto-provision via DHCP Option 60/43

■ Power Requirement
Power Input (Main Body): DC 5V
Power Adaptor (Including in package):
 -Input: AC 100V~240V, 50/60Hz
 -Output: DC 12V
Max. Power Consumption:
-3.6W (12.2BTU/h), Copper & F/O (BOSA)
 Traffic Present
-4.2W (14.3BTU/h), Copper & F/O (SFP)
 Traffic Present
-4.8W (16.3BTU/h), Copper & F/O (BOSA)
 Traffic Present and with RF

■ Environmental Condition
Operation Temperature: 0˚C ~ 50˚C
Storage Temperature: -20˚C ~ 60˚C
Humidity: 5% ~ 90%, Non-condensing

■ Dimension & Weight
-Dimension w/ CATV RF Module:
 180 x 147 x 30mm (W x D x H)
-Dimension w/o CATV RF Module:
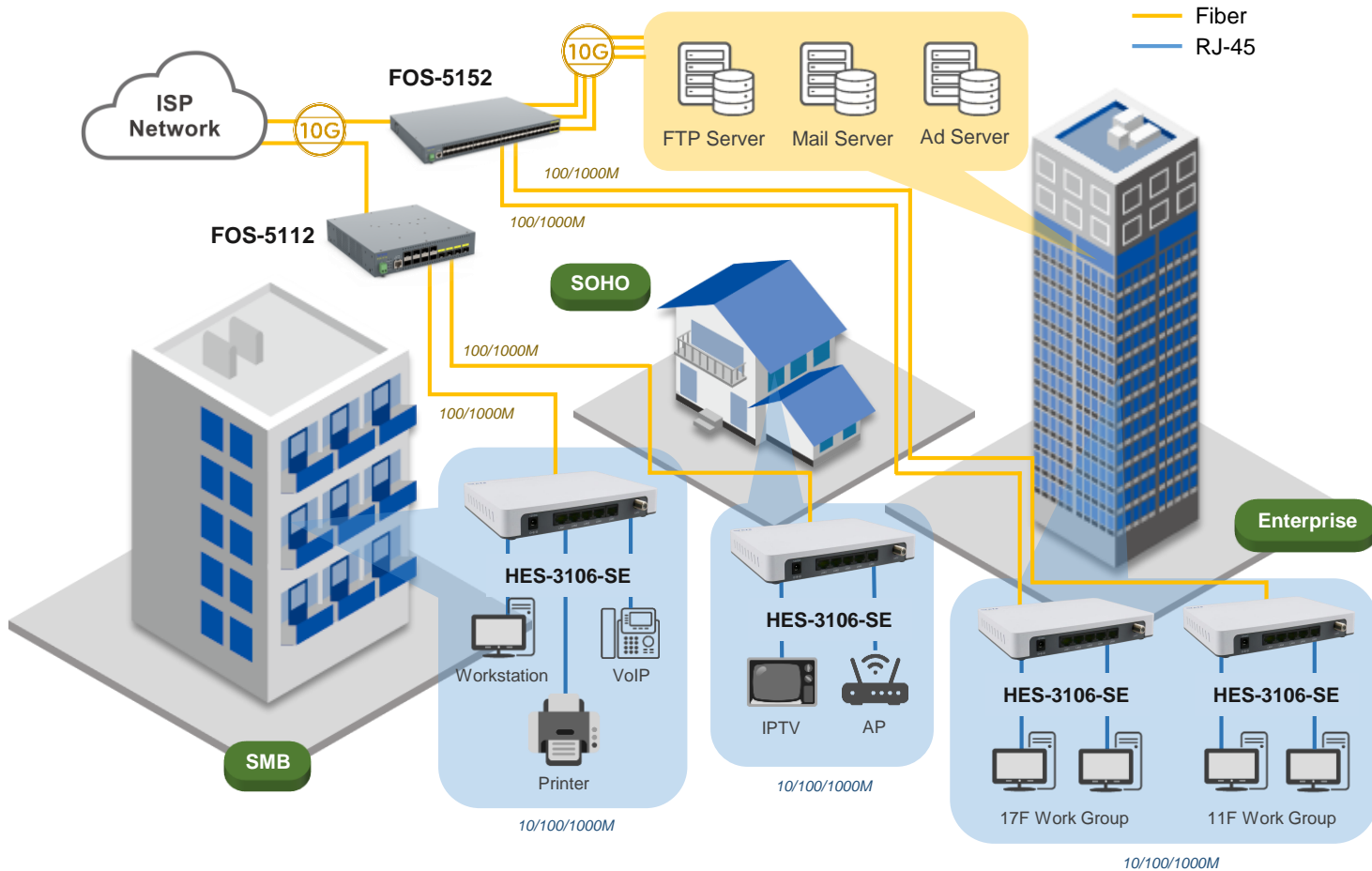 180 x 136 x 30mm (W x D x H)
-Max. Weight: 0.37kg

■ EMC/Safety
FCC Class A, CE

* Under development function or future feature
** Only RF model supports CATV RF receiver port

Application Diagram

Fiber
RJ-45

ISP Network

FOS-5152

10G
10G
10G

FTP Server   Mail Server   Ad Server

100/1000M

FOS-5112

100/1000M

SOHO

100/1000M

100/1000M

Enterprise

HES-3106-SE

Workstation   VoIP

Printer

SMB

10/100/1000M

HES-3106-SE

IPTV   AP

10/100/1000M

HES-3106-SE   **HES-3106-SE**

17F Work Group   11F Work Group

10/100/1000M

Order Information

| Model | Fiber Slot | | | | | TP Port | | CATV RF | | Support Power Source |
	Speed (Mbps)	Type	Connector	Dist. (km)	Port	Speed (Mbps)	Port	Fiber	Coaxial	
HES-3106BW2A(SM-10)-SE-DR	100/1000	WDM	SC	10	1	10/100/1000	5	-	-	External power adapter
HES-3106BW2A(SM-10)-SE-DR-RF	100/1000	WDM	SC	10	1	10/100/1000	5	1	1	External power adapter
HES-3106SFP-SE-DR	100/1000	SFP	-	-	1	10/100/1000	5	-	-	External power adapter

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)	1000Mbps	SM	LC	10/20KM	1310/1310nm	0°C~70°C
SFP-31W2A(SM-10/20)	1000Mbps	WDM	LC	10/20KM	TX: 1310/1310nm RX: 1550/1550nm	0°C~70°C
SFP-31W2B(SM-10/20)	1000Mbps	WDM	LC	10/20KM	TX: 1550/1550nm RX: 1310/1310nm	0°C~70°C

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