H70 series

Industrial L2 Plus Managed PoE Switches

Ethernet Surge Protection | -40~75°C | 30/60W PoE | Full Ports Gigabit | ONVIF

Fiber-Optical | L3 Static Routing | 802.1Q VLAN | RING | DHCP Server | Network Topology

The H70 series of **Industrial L2 Plus Managed PoE Switches** are designed with 6KV Ethernet port surge protection and harden-graded standard to operate between -40°C and 75°C for harsh weather conditions. They enable outdoor connections of PoE PDs to the network such as outdoor IP cameras, wireless APs, and other outdoor industrial applications. The H70 series provides multi-port Gigabit PoE (10M/100M/1G) delivering data and power to PoE PDs over a single network cable and additional SFP transceiver slots for flexible uplink. The H70 series has three sub models classified as power source equipment (PSE) and provide PoE budget up to 30W or 60W per port.

Besides general functions of L2 plus & basic L3 switch such as static route, QoS, security, spanning tree, cable length measurement, and SNMP v1/v2c/v3, a dedicated web graphic user interface of IP surveillance is easy to configure and manage IP device. It automatically generates network topology maps enabling VLAN group, cable diagnostic, and PoE management.

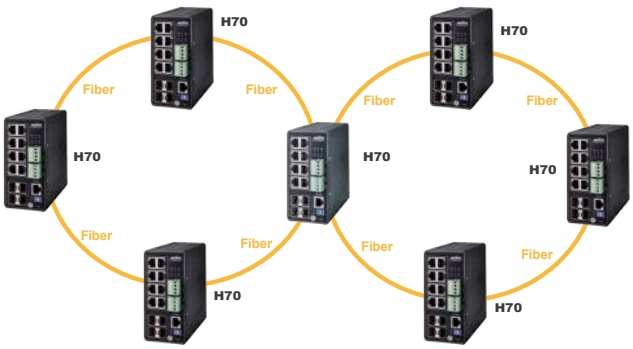
The C70 series of Master L2 plus managed switches must be installed indoor control centers as a root switch in order to optimize comprehensive H70 features.

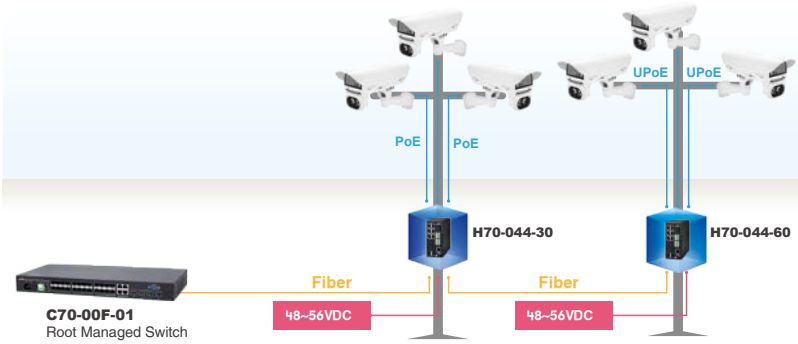
Features

- Layer 2 Switch
  - Fast recover <20ms of R-ring
  - IPV4 and IPV6 protocol
  - IPV4/IPV6 umicast static routing
  - 802.1d (STP), 802.1w (RSTP), 802.1s (MSTP)
  - SNMP v1/v2c/v3
  - Ethernet cable length measurement
  - DHCP Server
- IP Device Discovery Utility
  - Automatic discovery for ONVIF camera & IP devices
  - Generate camera topology automatically
  - Graphic grouping VLAN
  - Cable diagnostic & reboot camera remotely
  - PoE management
  - Topology view/Floor view/Google map
  - Monitor/Configure/Manage IP devices remotely
- Flexible SFP transceiver ports for uplink
- Operating temperature between -40°C and 75°C
- Compliant IEEE802.3at 30W per port (H70-044-30, H70-084-30, H70-084-31)
- 60W UPoE per port (H70-044-60)
- Supports 10/100/1000Mbps data rates
- 6KV PoE surge protection
- IEEE 802.3az Energy Efficient Ethernet standard for green power

Applications

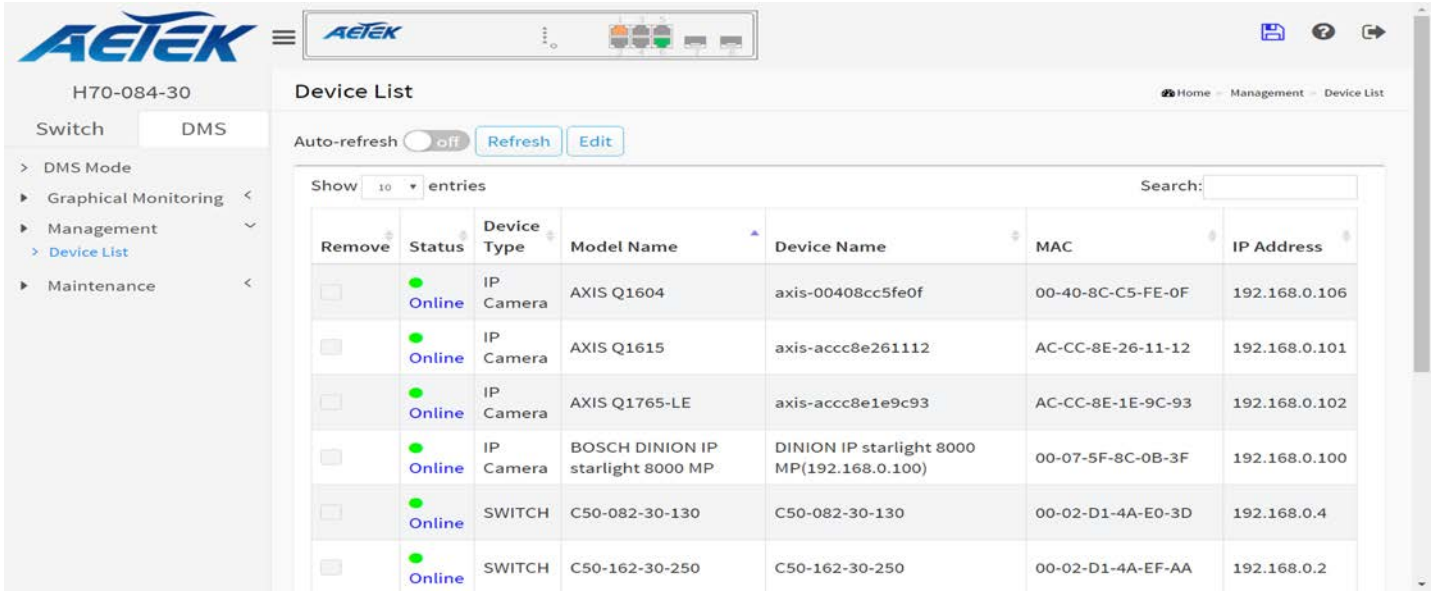
Dual Ring Recovery time < 20ms



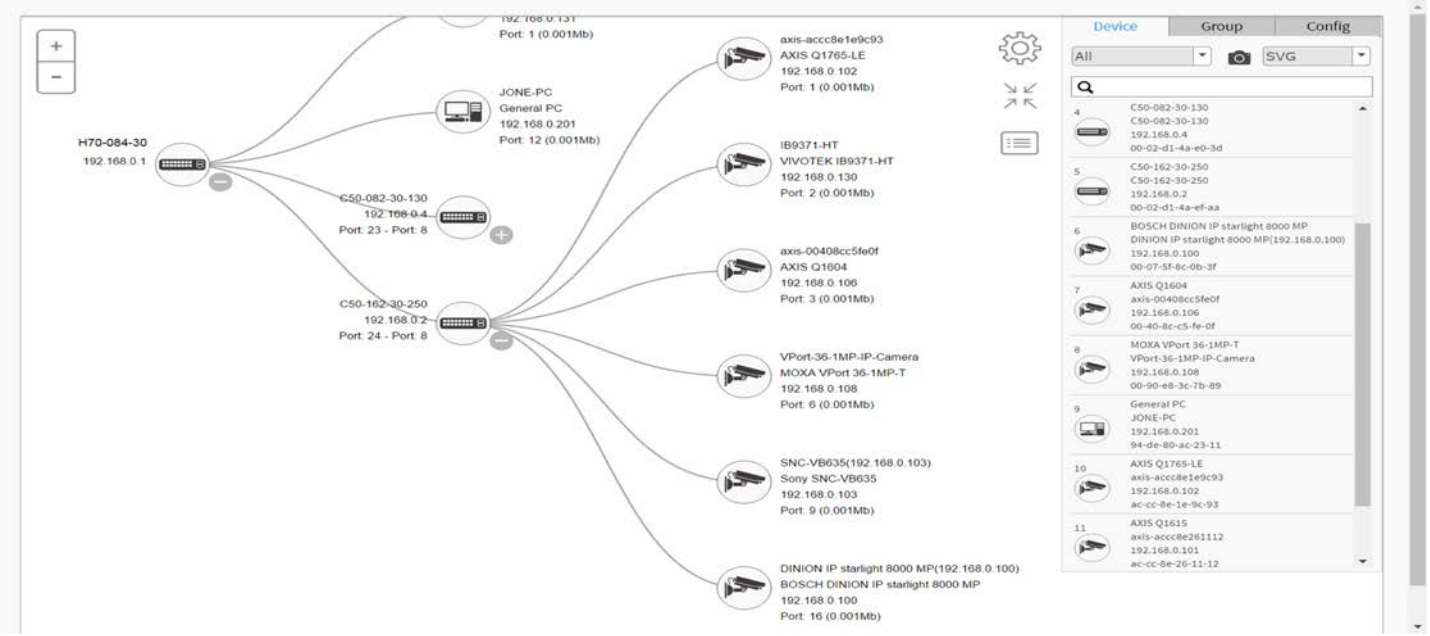


IP Device Controller Features

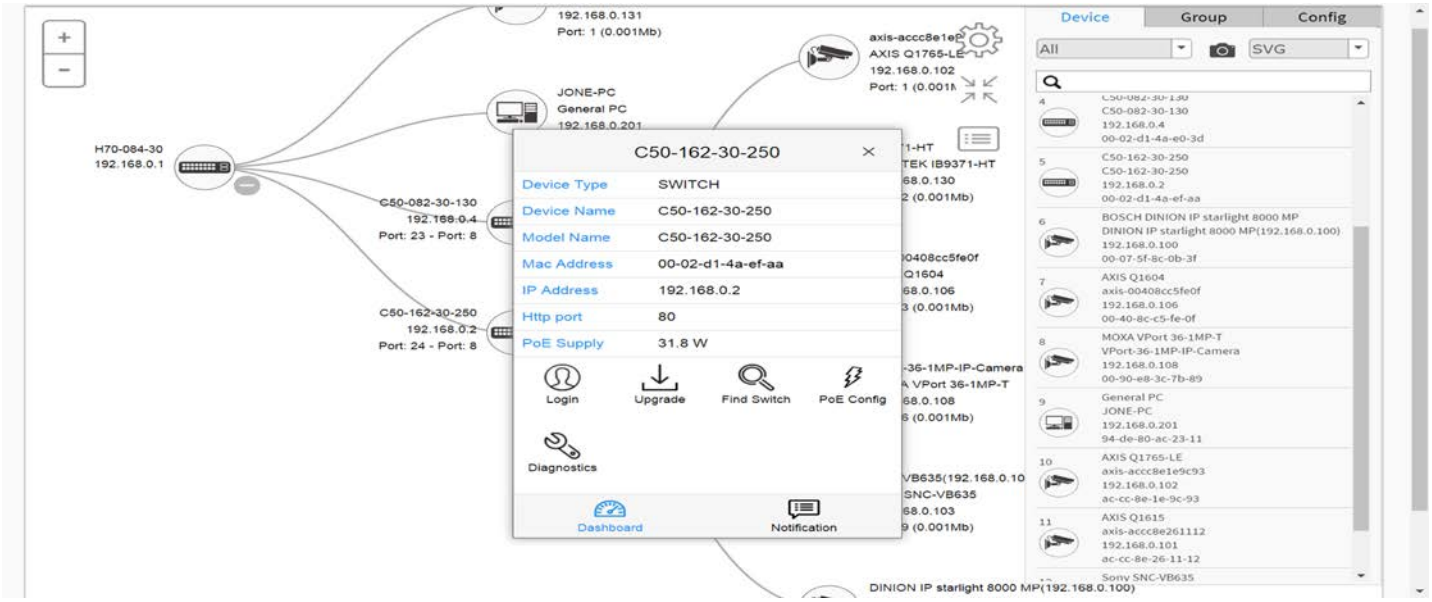
Device List



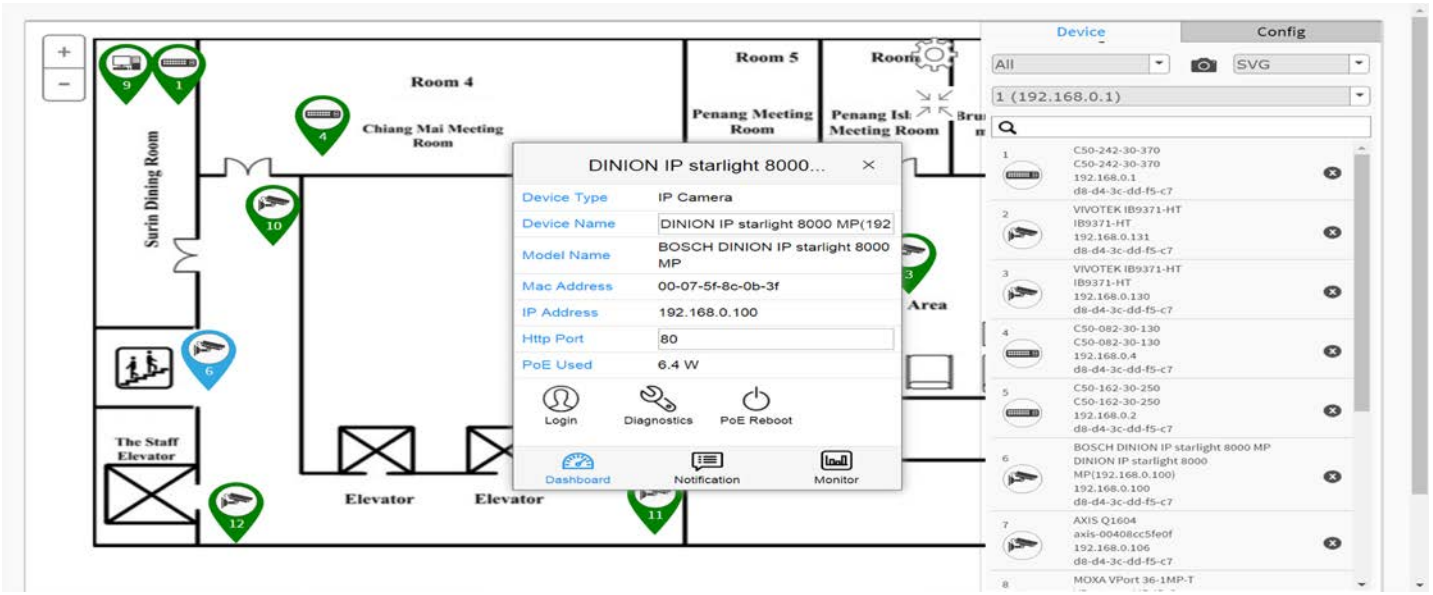
Topology View



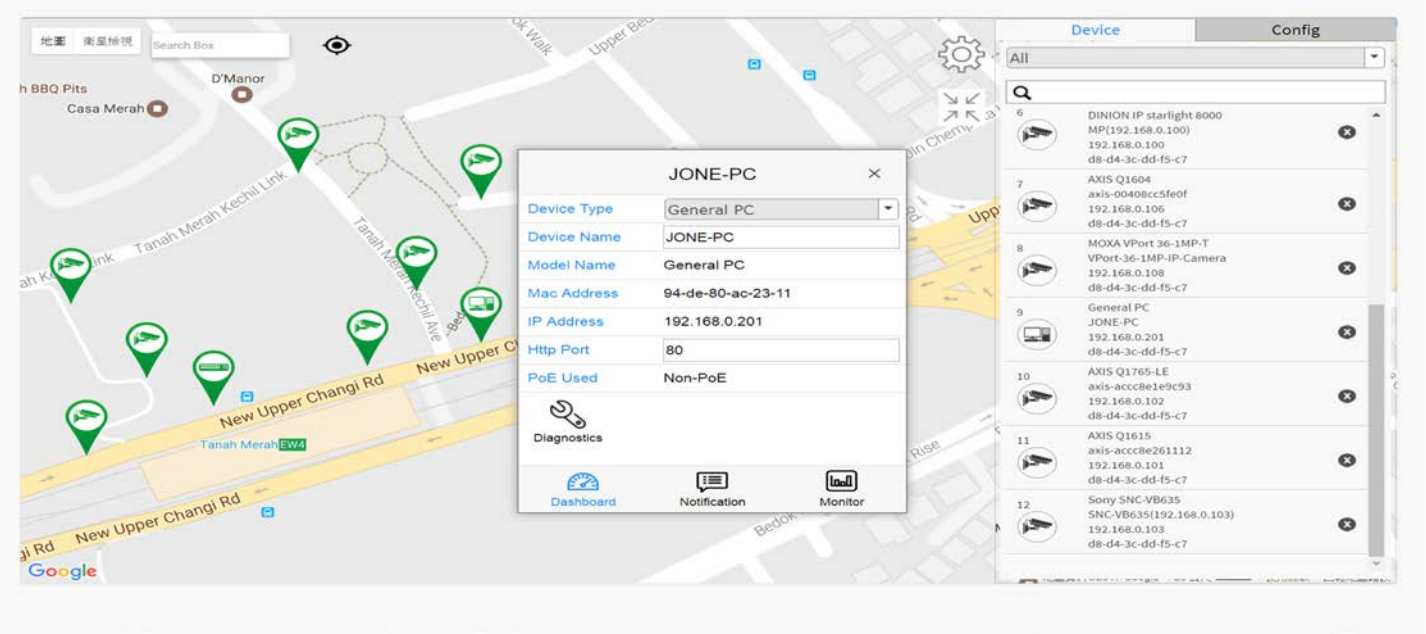
Device Dashboard



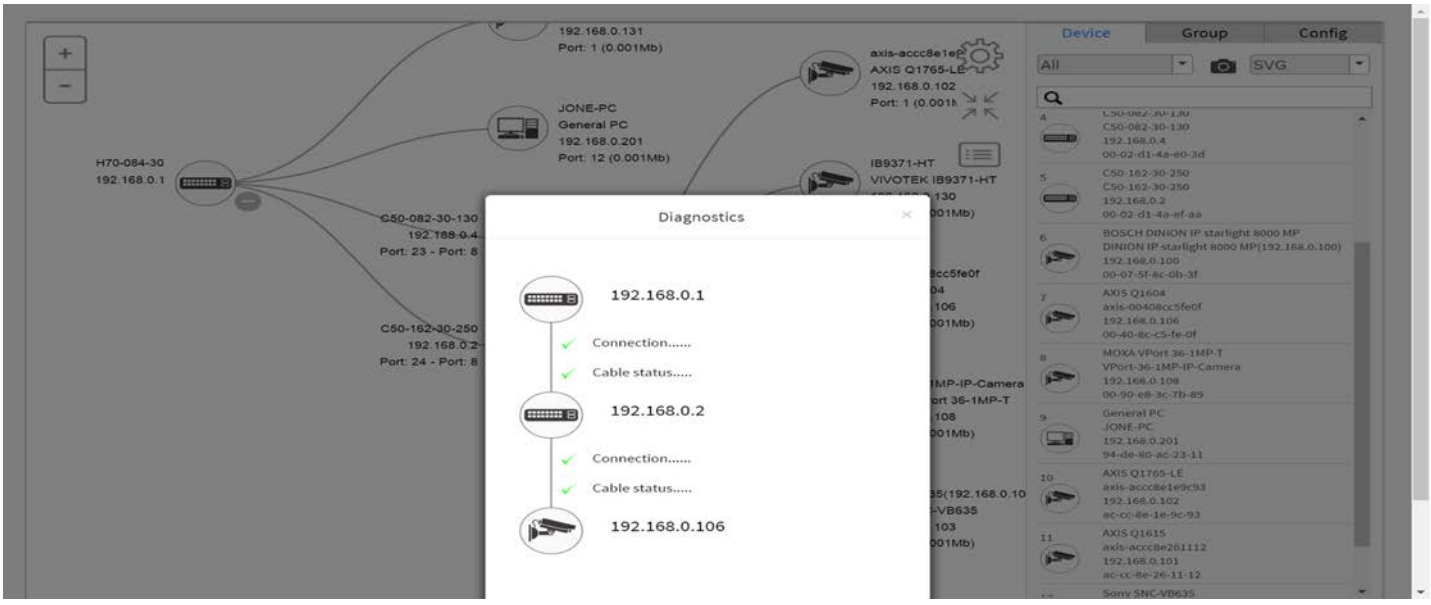
Floor Map View



Google Map View



Cable Diagnostics



PoE Features

- **IEEE802.3at (PoE+ 30W),UPoE 60W**
- **Max. allowed 30W / 60W per port**
- **Port status table**

Local Port	PD Class	Power Allocated	Power Used	Current Used	Priority	Port Status
1	3	30 [W]	4 [W]	76 [mA]	Low	PoE turned ON
2	-	0 [W]	0 [W]	0 [mA]	Low	No PD detected
3	3	30 [W]	3.2 [W]	58 [mA]	Low	PoE turned ON
4	-	0 [W]	0 [W]	0 [mA]	Low	No PD detected
5	-	0 [W]	0 [W]	0 [mA]	Low	No PD detected
6	-	0 [W]	0 [W]	0 [mA]	Low	No PD detected
7	-	0 [W]	0 [W]	0 [mA]	Low	No PD detected
8	3	30 [W]	6.7 [W]	145 [mA]	Low	PoE turned ON

Specifications - Software

Ring Management	
ITU-T G.8031	Supports ITU-T G.8031 Ethernet Linear Protection Switching
ITU-T G.8032	Supports ITU-T G.8032 Ethernet Ring Protection Switching
Rapid Ring	Enable self-recover time in less than 20ms
IP Surveillance Graphical User Interface Specifications	
Automatic Discovery	Discover IP cameras complying ONVIF automatically
Topology View	Generate Topology maps to manage IP cameras
Floor view	It's easy to drag and drop PoE devices and help you to build smart workforces
Map view	Enhance efficiency to drag and drop devices and monitor surroundings on google map
Traffic Monitoring	Comprehensive chart to show traffic status
Cable Diagnostic	Real time to verify the cable status
VLAN Grouping	Easy grouping IP cameras thru topology map
PoE Management	Reboot IP camera, Scheduling PoE on/off, alive checking, Power delay as PoE switch boots up, PoE configuration
Trouble Shooting	• Network diagnostic between master switch and devices • Support protection mechanism, such as rate-limiting to protect your devices from brute-force downloading • Support performance management and link management through IEEE 802.3ah and IEEE 802.1ag (Y.1731)
Ethernet OAM	
IEEE 802.3ah OAM	Supports Operations, Administration & Management
IEEE 802.1ag & ITU-T Y.1731 Flow OAM	• Supports IEEE 802.1ag Ethernet CFM (Connectivity Fault Management) • Supports ITU-T Y.1731 Performance Monitoring
Layer 2 Switching Specifications	
Spanning Tree Protocol	Standard Spanning Tree(STP) 802.1d, Rapid Spanning Tree (RSTP) 802.1w, Multiple Spanning Tree (MSTP) 802.1s
Trunking	Link Aggregation Control Protocol (LACP) IEEE 802.3ad up to 6 groups and up to 4 ports per group
VLAN	Port-based VLAN, 802.1Q tag-based VLAN, MAC-based VLAN, Management VLAN, Private VLAN Edge (PVE), Q-in-Q (double tag) VLAN, Voice VLAN, GARP VLAN Registration, Protocol (GVRP)
DHCP Relay	Relay of DHCP traffic to DHCP server in different VLAN, Works with DHCP Option 82
IGMP v1/v2/v3 Snooping	IGMP limits bandwidth-intensive multicast traffic to only the requesters, Supports 1024 multicast groups
IGMP Querier	Support a Layer 2 multicast domain of snooping, switches in the absence of a multicast router
IGMP Proxy	IGMP snooping with proxy reporting or report suppression actively filters IGMP packets in order to reduce load on the multicast router
MLD v1/v2 Snooping	Delivers IPv6 multicast packets only to the required receivers
Multicast VLAN Registration	manually configured VLAN, called the multicast VLAN, to forward multicast traffic over Layer 2 network in conjunction with IGMP snooping
Layer 3 Switching Specifications	
IPv4 Static Routing	IPv4 Unicast: Static routing
IPv6 Static Routing	IPv6 Unicast: Static routing
DHCP Server	Assign IP to DHCP clients
Security	
Secure Shell (SSH)	secures Telnet traffic in or out of the switch, SSH v1 and v2 are supported
Secure Sockets Layer (SSL)	SSL encrypts the http traffic, allowing advanced secure access to the browser-based management GUI in the switch
IEEE 802.1X	IEEE802.1X: RADIUS authentication, authorization and accounting, MD5 hash, guest VLAN, single/multiple host mode and single/multiple sessions Supports IGMP-RADIUS based 802.1X, Dynamic VLAN assignment
Layer 2 Isolation Private VLAN Edge	PVE (also known as protected ports) provides L2 isolation between clients in the same VLAN. Supports multiple uplinks
Port Security	Locks MAC addresses to ports, and limits the number of learned MAC address
IP Source Guard	Prevents illegal IP address from accessing to specific port in the switch
RADIUS/ TACACS+	Supports RADIUS and TACACS+ authentication. Switch as a client

Security	
Storm Control	Prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on a port
DHCP Snooping	A firewall between untrusted hosts and trusted DHCP servers
ACLs	Supports up to 256 entries. Drop or rate limitation based on • Supports up to 256 entries. Drop or rate limitation based on • Source and destination MAC, VLAN ID or IP address, protocol, port • Differentiated services code point (DSCP) / IP precedence • TCP/ UDP source and destination ports • 802.1p priority • Ethernet type • Internet Control Message Protocol (ICMP) packets • TCP flag
Loop Protection	Prevent unknown unicast, broadcast and multicast loops in Layer 2 switching configurations
QoS	
Hardware Queue	8 hardware queues
Scheduling	Strict priority and weighted round-robin (WRR), Queue assignment based on DSCP and class of service
Classification	Port based, 802.1p VLAN priority based, IPv4/IPv6 precedence / DSCP based, Differentiated Services (DiffServ), Classification and re-marking ACLs
Rate Limiting	Ingress policer, Egress shaping and rate control, Per port
Management software	
Dying Gasp	Support Dying Gasp notification on loss of Power
HW Monitoring	Temperature Detection and Alarm
HW Watchdog	resume operation from CPU hang up
IEEE 1588v2 PTP	Precision Time Protocol
Remote Monitoring (RMON)	RMON groups 1,2,3,9 (history, statistics, alarms, and events) for enhanced traffic management, monitoring and analysis
Port Mirroring	Traffic on a port can be mirrored to another port for analysis with a network analyzer or RMON probe. Up to N-1 (N is Switch's Ports) ports can be mirrored to single destination port. A single session is supported.
UPnP	The Universal Plug and Play Forum, an industry group of companies working to enable device-to-device interoperability by promoting Universal Plug and Play
s-Flow	The industry standard for monitoring high speed switched networks. It gives complete visibility into the use of networks enabling performance optimization, accounting/billing for usage, and defense against security threats
IEEE 802.1ab (LLDP)	Used by network devices for advertising their identities, capabilities, and neighbors on an IEEE 802ab local area network Support LLDP-MED extensions
Web GUI Interface	Built-in switch configuration utility for browser-based device configuration
CLI	configure/manage switches in command line modes
Dual Image	Independent primary and secondary images for backup while upgrading
SNMP	SNMP v1, v2c and v3 supporting traps, and SNMP v3 user-based security model (USM)
Firmware Upgrade	• Web browser upgrade (HTTP/ HTTPs) and TFTP • Upgrade through console port as well
Network Time Protocol (NTP)	A networking protocol for clock synchronization between computer systems over packet-switched
Other Management	HTTP/HTTPs, SSH, DHCP Client/ DHCPv6 Client, Cable Diagnostic, Ping, Syslog, IPv6 Management

Specifications

	H70-044-30	H70-044-60	H70-084-30
Networking Specifications			
Total Gigabit Ports	8	8	12
Gigabit PoE Ports (10M/100M/1G)	4 x 30W PoE	4 x 60W UPoE	8 x 30W PoE
SFP Slots (100M/1G)	2	2	4
Gigabit Ports (RJ45)	2	2	-
Forwarding Capacity	11.904Mpps	11.904Mpps	17.856Mpps
Mac Table	8 k	8 k	8k
Jumbo Frames	9,216 Bytes	9,216 Bytes	9,216 Bytes
Switching Capacity	16 Gbps	16 Gbps	24 Gbps
Power Specifications			
Input Voltage	48VDC ~ 56VDC x2	48VDC ~ 56VDC x2	48VDC ~ 56VDC x2
Output Voltage Range /per PoE Port	PoE IEEE 802.3af (Max. 15.4W) output PoE+ IEEE802.3at (Max. 30W) output	PoE IEEE 802.3af (Max. 15.4W) output PoE+ IEEE802.3at (Max. 30W) output UPoE (Max. 60W) output	PoE IEEE 802.3af (Max. 15.4W) output PoE+ IEEE802.3at (Max. 30W) output
Power Budget	120W	240W	240W
Surge Protection /each PoE Port	6KV	6KV	6kV
Mechanical Specifications			
Dimensions (L x W x H)	62x 135x 130mm	62x 135x 130mm	62x 135x 130mm
Weight	1KG	1KG	1KG
DI/DO	1/1	1/1	1/1
Console	RJ45	RJ45	RJ45
Reset Button	Yes	Yes	Yes

	H70-044-30	H70-044-60	H70-084-30
Environmental Specifications			
Operating Temperature	-40°C~75°C (-40°F~167°F)	-40°C~75°C (-40°F~167°F)	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)	-40°C~85°C (-40°F~185°F)	-40°C~85°C (-40°F~185°F)
Operating Humidity	5%~95% non-condensing	5%~95% non-condensing	5%~95% non-condensing
Certifications			
EMC	CE,FCC,C-Tick	CE,FCC,C-Tick	CE,FCC,C-Tick
Safety	EN60950-1,IEC60950-1	EN60950-1,IEC60950-1	EN60950-1,IEC60950-1
Surge	EN61000-4-5	EN61000-4-5	EN61000-4-5

Ordering Information

PoE Switches

H70-044-30

• 4xGbE PoE (30W) + 2xGbESFP + 2xGbE RJ45

H70-044-60

• 4xGbE UPoE (60W) + 2xGbE SFP + 2xGbE RJ45

H70-084-30

• 8xGbE PoE (30W) + 4xGbESFP

Optional Accessories

SFP Modules

SFP-ISX-X5
Industrial Gigabit SFP Transceiver
- MMF
- 0.5 km
- -40°C ~85°C

SFP-ISX-02
Industrial Gigabit SFP Transceiver
- MMF
- 2 km
- -40°C ~85°C

SFP-ILX-10
Industrial Gigabit SFP Transceiver
- SMF
- 10 km
- -40°C ~85°C

SFP-ILX-40
Industrial Gigabit SFP Transceiver
- SMF
- 40 km
- -40°C ~85°C

Pole Mount

AT-100
Pole Mount Adapter

AT-101
Pole Mount Adapter

Corner Mount

AT-200
Corner Mount Adapter

Jounction Box

JB-200
Junction Box

Industrial Power Supply

NDR-120-48
Indoor Industrial Din Rail Power Supply, 48~55VDC/120W, -20°C ~ 70°C

NDR-240-48
Indoor Industrial Din Rail Power Supply, 48~55VDC/240W, -20°C ~ 70°C

HLG-120H-54
Outdoor Industrial Power Supply 54VDC/120W, -40°C ~ 70°C, IP67

HLG-240H-54
Outdoor Industrial Power Supply 54VDC/240W, -40°C ~ 70°C, IP67

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