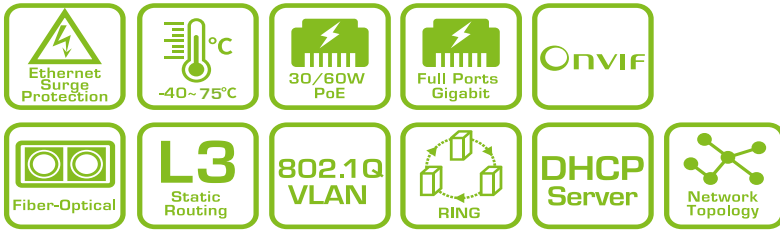


H70 series

Industrial L2 Plus Managed PoE Switches



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.

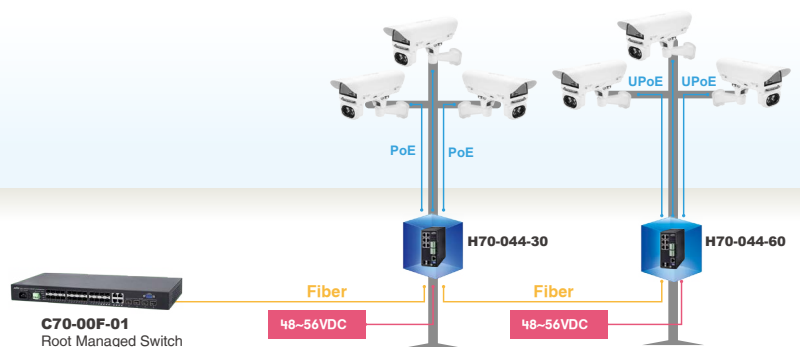
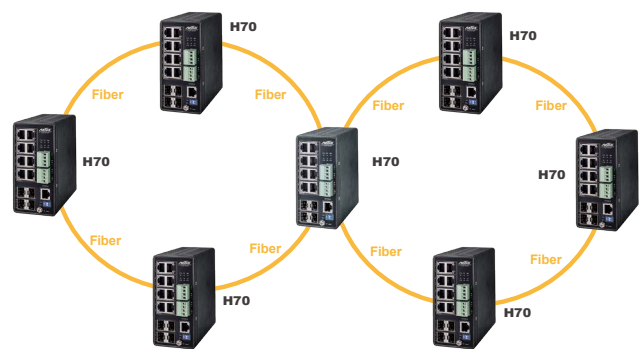
The C70 series of Master L2 plus managed switches must be installed indoor control centers as a root switch in order to optimize comprehensive H70 features.

Features

- Layer 2 Switch
 - Fast recover <20ms of R-ring
 - IPV4 and IPV6 protocol
 - IPV4/IPV6 unicast 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



Device List

Device List

Auto-refresh off [Refresh](#) [Edit](#)

Show 10 entries Search:

Remove	Status	Device Type	Model Name	Device Name	MAC	IP Address
<input type="checkbox"/>	Online	IP Camera	AXIS Q1604	axis-00408cc5fe0f	00-40-8C-C5-FE-0F	192.168.0.106
<input type="checkbox"/>	Online	IP Camera	AXIS Q1615	axis-acc8e261112	AC-CC-8E-26-11-12	192.168.0.101
<input type="checkbox"/>	Online	IP Camera	AXIS Q1765-LE	axis-acc8e1e9c93	AC-CC-8E-1E-9C-93	192.168.0.102
<input type="checkbox"/>	Online	IP Camera	BOSCH DINION IP starlight 8000 MP	DINION IP starlight 8000 MP(192.168.0.100)	00-07-5F-8C-0B-3F	192.168.0.100
<input type="checkbox"/>	Online	SWITCH	C50-082-30-130	C50-082-30-130	00-02-D1-4A-E0-3D	192.168.0.4
<input type="checkbox"/>	Online	SWITCH	C50-162-30-250	C50-162-30-250	00-02-D1-4A-EF-AA	192.168.0.2

Topology View

Topology View

Device Group Config

- 4 C50-082-30-130 192.168.0.4
- 5 C50-162-30-250 192.168.0.2
- 6 BOSCH DINION IP starlight 8000 MP 192.168.0.100
- 7 AXIS Q1604 192.168.0.106
- 8 MOXA VPort 36-1MP-T 192.168.0.108
- 9 General PC 192.168.0.201
- 10 AXIS Q1765-LE 192.168.0.102
- 11 AXIS Q1615 192.168.0.101

Device Dashboard

Device Dashboard

Device Type SWITCH

Device Name C50-162-30-250

Model Name C50-162-30-250

Mac Address 00-02-d1-4a-ef-aa

IP Address 192.168.0.2

Http port 80

PoE Supply 31.8 W

Login Upgrade Find Switch PoE Config

Diagnostics Dashboard Notification

Floor Map View

The floor map view displays a network layout of several rooms: Room 4 (Chiang Mai Meeting Room), Room 5 (Penang Meeting Room), Penang Ist Meeting Room, Surin Dining Room, and The Staff Elevator. A popup window for 'DINION IP starlight 8000 MP' provides the following details:

- Device Type: IP Camera
- Device Name: DINION IP starlight 8000 MP(192.168.0.100)
- Model Name: BOSCH DINION IP starlight 8000 MP
- Mac Address: 00-07-5f-8c-0b-3f
- IP Address: 192.168.0.100
- Http Port: 80
- PoE Used: 6.4 W

Navigation options include Login, Diagnostics, PoE Reboot, Dashboard, Notification, and Monitor.

Device ID	Device Name	IP Address	Mac Address	PoE Used
1	C50-242-30-370	192.168.0.1	d8-d4-3c-dd-f5-c7	
2	VIVOTEK IB9371-HT	192.168.0.131	d8-d4-3c-dd-f5-c7	
3	VIVOTEK IB9371-HT	192.168.0.130	d8-d4-3c-dd-f5-c7	
4	C50-082-30-130	192.168.0.4	d8-d4-3c-dd-f5-c7	
5	C50-162-30-250	192.168.0.2	d8-d4-3c-dd-f5-c7	
6	BOSCH DINION IP starlight 8000 MP	192.168.0.100	d8-d4-3c-dd-f5-c7	6.4 W
7	AXIS Q1604	192.168.0.106	d8-d4-3c-dd-f5-c7	
8	MOXA VPort 36-1MP-T	192.168.0.108	d8-d4-3c-dd-f5-c7	

Google Map View

The Google Map view shows the physical location of devices on a map. A popup window for 'JONE-PC' provides the following details:

- Device Type: General PC
- Device Name: JONE-PC
- Model Name: General PC
- Mac Address: 94-de-80-ac-23-11
- IP Address: 192.168.0.201
- Http Port: 80
- PoE Used: Non-PoE

Navigation options include Diagnostics, Dashboard, Notification, and Monitor.

Device ID	Device Name	IP Address	Mac Address	PoE Used
6	DINION IP starlight 8000 MP	192.168.0.100	d8-d4-3c-dd-f5-c7	6.4 W
7	AXIS Q1604	192.168.0.106	d8-d4-3c-dd-f5-c7	
8	MOXA VPort 36-1MP-T	192.168.0.108	d8-d4-3c-dd-f5-c7	
9	General PC	192.168.0.201	d8-d4-3c-dd-f5-c7	Non-PoE
10	AXIS Q1765-LE	192.168.0.102	d8-d4-3c-dd-f5-c7	
11	AXIS Q1615	192.168.0.101	d8-d4-3c-dd-f5-c7	
12	Sony SNC-VB635	192.168.0.103	d8-d4-3c-dd-f5-c7	

Cable Diagnostics

The Cable Diagnostics view shows a network topology diagram with a central switch (H70-084-30) connected to various devices. A diagnostics popup window shows the following results:

- 192.168.0.1: Connection....., Cable status.....
- 192.168.0.2: Connection....., Cable status.....
- 192.168.0.106: Connection....., Cable status.....

The background shows a network diagram with the following devices and their connections:

- H70-084-30 (192.168.0.1) connected to:
 - 192.168.0.131 (Port: 1 (0.001Mb))
 - JONE-PC (192.168.0.201) (Port: 12 (0.001Mb))
 - C50-082-30-130 (192.168.0.4) (Port: 23 - Port: 8)
 - C50-162-30-250 (192.168.0.2) (Port: 24 - Port: 8)
- axis-acc8e1e933 (192.168.0.102) (AXIS Q1765-LE) (Port: 1 (0.001Mb))
- IB9371-HT (192.168.0.130) (VIVOTEK IB9371-HT) (Port: 130)
- acc5fe0f (192.168.0.106) (AXIS Q1604) (Port: 106)
- acc5fe0f (192.168.0.103) (Sony SNC-VB635) (Port: 103)
- acc5fe0f (192.168.0.108) (MOXA VPort 36-1MP-T) (Port: 108)
- acc5fe0f (192.168.0.101) (AXIS Q1615) (Port: 101)
- acc5fe0f (192.168.0.100) (DINION IP starlight 8000 MP) (Port: 100)

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

IP Surveillance Graphical User Interface Specifications

Automatic Discovery	Discover IP cameras complying ONVIF automatically
Topology View	Generate Topology maps to manage IP cameras
Traffic Monitor	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

Layer 2 Switching Specifications

Spanning Tree Protocol (STP)	Standard Spanning Tree 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
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 <ul style="list-style-type: none"> • 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
Network Time Protocol (NTP)	A networking protocol for clock synchronization between computer systems over packet-switched
Others	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	54 VDC PoE IEEE 802.3af (Max. 15.4W) output PoE+ IEEE802.3at (Max. 30W) output	54 VDC PoE IEEE 802.3af (Max. 15.4W) output PoE+ IEEE802.3at (Max. 30W) output UPoE (Max. 60W) output	54 VDC 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 (WxHxD)	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
Environmental Specifications			
Operating Temperature	-40°C~-75°C (-40°F~-140°F)	-40°C~-75°C (-40°F~-140°F)	-40°C~-75°C (-40°F~-140°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

	<p>H70-044-30</p> <ul style="list-style-type: none"> • 4xGbE PoE (30W) + 2xGbESFP + 2xGbE RJ45 		<p>H70-044-60</p> <ul style="list-style-type: none"> • 4xGbE UPoE (60W) + 2xGbE SFP + 2xGbE RJ45
	<p>H70-084-30</p> <ul style="list-style-type: none"> • 8xGbE PoE (30W) + 4xGbESFP 		

Optional Accessories



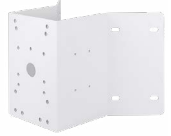

SFP Modules

 <p>SFP-ISX-X5 Industrial Gigabit SFP Transceiver</p> <ul style="list-style-type: none"> • MMF • 0.5 km • -40°C ~85°C 	 <p>SFP-ISX-02 Industrial Gigabit SFP Transceiver</p> <ul style="list-style-type: none"> • MMF • 2 km • -40°C ~85°C 	 <p>SFP-ILX-10 Industrial Gigabit SFP Transceiver</p> <ul style="list-style-type: none"> • SMF • 10 km • -40°C ~85°C 	 <p>SFP-ILX-40 Industrial Gigabit SFP Transceiver</p> <ul style="list-style-type: none"> • SMF • 40 km • -40°C ~85°C
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Pole Mount

Corner Mount

Junction Box

 <p>AT-100 Pole Mount Adapter</p>	 <p>AT-101 Pole Mount Adapter</p>	 <p>AT-200 Corner Mount Adapter</p>	 <p>JB-200 Junction Box</p>
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Industrial Power Supply

 <p>NDR-120-48 Indoor Industrial Din Rail Power Supply, 48~55VDC/120W, -20°C ~ 70°C</p>	 <p>NDR-240-48 Indoor Industrial Din Rail Power Supply, 48~55VDC/240W, -20°C ~ 70°C</p>	 <p>ELG-150-54 Outdoor Industrial Power Supply, 54VDC/150W, -40°C ~ 70°C, IP67</p>	 <p>ELG-240-54 Outdoor Industrial Power Supply, 54VDC/240W, -40°C ~ 70°C, IP67</p>
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