



# H3C IE4320 Din-rail Industry Ethernet Switches

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## Product Overview

H3C Industrial Ethernet 4320 switch series is H3C's latest industrial Ethernet switches designed for rugged environment and wide operating temperature. IE4320 switch series adhere to industrial grade hardware design and adopts highly reliable industrial grade components, while using the highly developed and tested Comware platform to provide a trustworthy Ethernet solution in wide operating temperature scenarios. IE4320 industrial switch series offer extensive industrial environmental compliance and certifications, and can be widely used in public transport, traffic management, smart building and other extreme temperature scenarios.

H3C IE4320 Industrial switch series come in the following models:

- H3C IE4320-12P: 8\*10/100/1000BASE-T Ports and 4\*1000BASE-X SFP Ports;
- H3C IE4320-12P-UPWR: 8\*10/100/1000BASE-T PoE++ Ports and 4\*1000BASE-X SFP Ports;



IE4320-12P



IE4320-12P-UPWR

## Features and Benefits

### Exceptional Quality, Solid as a Rock

The IE4320 industrial switch series are the latest Ethernet switches developed with industrial compliance and wide operating temperature in mind. All models are built with industrial grade components, with reliability significantly higher than commercial counterparts running under the same conditions.

- Fanless natural cooling design. Multiple heat dissipation components such as embedded heatsink and thermal adhesive make it perform consistently under harsh environment. Operating temperature ranges from -40°C to 85°C.
- Shock and vibration resistant, dust proof, IP41 compliant.
- Support high level electromagnetic shielding, capable of withstanding electrostatic discharge, surge/burst/electrical fast transients, pulse magnetic field, radiated electrical field.

### Rich Software Features

IE 4320 industrial switch series integrated the switching, routing, ring network protection and security.

Support full layer-2 Ethernet feature sets, with 802.1Q VLAN, protocol based VLAN, Voice VLAN, Guest VLAN, Q-in-Q, flexible Q-in-Q encapsulation and multicast VLAN. STP/RSTP/MSTP, 802.3x Ethernet flow control protocol; support QoS congestion management through data classification and prioritization to ensure transmission of mission critical data; support Link Layer Discovery Protocol (LLDP), Link Aggregation Control Protocol (LACP), Device Link Detection Protocol (DLDP), Generic Attribute Registration Protocol (GARP), multicasting at layer 2 and layer 2 features such as VLAN registration protocol and broadcast storm suppression.

IE4320 switch series supports IPv4 and IPv6 dual stack protocols as well as IPv4 and IPv6 forwarding at full line speed on hardware. It supports IPv4/v6 static routing, routed port, RIP and OSPF (in small scale). In addition, it supports IGMP Snooping, DHCP Server, DHCP Client, DHCP Snooping, DHCP Relay (option 82) and Domain Name System (DNS).

IE4320 switch series supports Rapid Ring Protection Protocol (RRPP). The Rapid Ring Protection Protocol (RRPP) is a link layer protocol dedicated to Ethernet rings. It prevents broadcast storms caused by data loops when an Ethernet ring is healthy, and rapidly restores the communication paths between the nodes after a link is disconnected on the ring by bringing up the backup link. Compared with STP, RRPP has the following advantages: fast topology convergence (within 20 milliseconds); convergence time independent of Ethernet ring size. On intersecting rings, topology update of an RRPP ring does not ripple to other rings, data transmission thus becomes more stable. RRPP also supports load balancing in Ethernet rings, which improves physical link bandwidth utilization.

IE4320 industrial switch series implements full Ethernet security features. By enforcing multiple sets of security mechanisms, they effectively limit malware spread and traffic flow attack. The switches support layer 2 to 4 ACL control, block CPU, ARP and DoS attacks. IEEE 802.1x port-based authentication is a client-server-based access control and authentication protocol that restricts unauthorized clients from connecting to a LAN through publicly accessible ports. TACACS+ and RADIUS authentication can implement centralized management for switches, and prevent unauthorized change in user allocation. They also support rapid deployment of End-point Admission Domination (EAD), as well as SAVI-based IPv6 source address validation.

Ethernet Ring Protection Switching (ERPS) is a ring network protection protocol defined by ITU, G.8032. It is a link layer protocol specially applied to the Ethernet ring network. When the Ethernet ring network is complete, it can prevent broadcast storms caused by the data loop, and when a link on the Ethernet ring network is disconnected, it can quickly restore the communication between various nodes on the ring network (within 20 milliseconds).

### Intelligent Resilient Framework 2 (IRF2)

H3C IE4320 series industrial switches support IRF2 (Second Generation Intelligent Resilient Architecture) technology, which connects multiple physical devices to each other, making it virtual as a logical device, that is, users can regard these multiple devices as a single device manage and use. IE4320 series switches can not only perform virtualization through 10G optical interfaces, but also it can be virtualized through the gigabit optical port and the gigabit electrical port, and the IRF2 function can be realized through the network cable. IRF2 provides the following benefit:

- **Simplify management:** After the IRF architecture is formed, it can be connected to any port of any device to log in to a unified logical device. By configuring a single device, the entire intelligent elastic system and all member devices in the system can be managed without physical connection. Configure and manage them separately on each member device.

- **Simplify business:** The various control protocols running in the logical device formed by IRF are also run as a single device. For example, the routing protocol will be calculated as a single device. With the application of the cross-device link aggregation technology, it can replace the original spanning tree protocol, which saves the interaction of a large number of protocol packets between devices, simplifies network operation, and shortens the convergence time when the network is turbulent.
- **High performance:** For Ethernet switches, the improvement in performance and port density is limited by the hardware structure. The performance and port density of an IRF system is the sum of the performance and port numbers of all devices inside the IRF. Therefore, IRF technology can easily expand the switching capability of the device and the density of user ports several times, thereby greatly improving the performance of the device.
- **High reliability:** The high reliability of IRF is reflected in three aspects: link, equipment and protocol. The physical ports between the member devices support the aggregation function, and the physical connections between the IRF system and the upper- and lower-layer devices also support the aggregation function, which improves the reliability of the link through multi-link backup; the IRF system consists of multiple member devices. Once the master device fails, the system will quickly and automatically elect a new master to ensure uninterrupted services through the system, thus achieving device-level 1:N backup; the IRF system will have a real-time protocol hot backup function responsible for the configuration information of the protocol. Backup to all other member devices to achieve 1:N protocol reliability.

## Visualization

H3C IE4320 series industrial switches support Telemetry technology. The real-time resource information and alarm information of the switch can be sent to the operation and maintenance platform through the GRPC protocol. The operation and maintenance platform analyzes real-time data, which can realize network quality backtracking, troubleshooting, risk warning, structure optimization and other functions to accurately guarantee user experience.

## Green Features

IE4320 switch series implements a variety of green energy saving features, including auto-power-down (port automatic energy saving). If the interface status is always down for a period of time, the system automatically stops the interface power and the system enters power-saving mode. They also support EEE energy feature, by which if a port stays idle for a period of time, the system will set the port to energy-saving mode. The switches are also compliant with material environmental protection and the EU RoHS safety standard.

## Comprehensive Authentication Strategies

IE4320 industrial switch series supports AAA, RADIUS authentication, user-based account, IP, MAC, VLAN and port based dynamic or static user identification and binding. The switches also support H3C iMC to implement real-time user management, diagnose and remove illicit network attack.

## Outstanding Management

IE4320 industrial switch series management interface supports SNMPv1/V2/v3, Intelligent Management Center (iMC), Command Line Interface (CLI), Web based management, TELNET and FTP configuration. They also support SSH2.0 and SSL encryption to make management safer.

## Power Failure Alarms

IE4320 industrial switch series provides redundant power supply and support alarms based on power failure.

IE4320 industrial Switch Series support IEEE Dying Gasp for alarms when a power outage occurs.

## Enhanced POE power

IE4320 industrial switch series support POE++ power supply, and support 30W and 60W power supply. The electric power reaches 360W, which can ensure the stable operation of various terminal equipments that need POE power supply.

## Hardware Specifications

Feature	IE4320-12P	IE4320-12P-UPWR
Switching capacity	24Gbps	24Gbps
Forwarding capacity	17.86Mpps	17.86Mpps
Dimensions (W × D × H)	149*129.8*44mm	149*129.8*44mm
Weight	≤ 1kg	≤1kg
10/100/1000 Base-T port	8	8
SFP port	4	4
Input voltage	Rated DC voltage: 24-48V	Rated DC voltage: 54-57V (48V- Only support IEEE802.3af)
Power consumption	MIN: 8W MAX: 17W	MIN: Single DC: 13W Dual DC: 15W MAX: Single DC: 205W Dual DC: 420W
POE	/	Single DC: 160W Dual DC: 360W
MTBF(Year)	76.48	67.35

Feature	IE4320-12P	IE4320-12P-UPWR
MTTR(Hour)	1	1
Operating temperature	-40°C ~ 85°C	
Storage temperature	-40°C ~ 85°C	
Operating relative humidity(noncondensing)	5 ~ 95%RH	
Operating Environment	<ul style="list-style-type: none"> <li>· International Protection Marking IP41</li> <li>· Lightning-proof Ethernet Port</li> <li>· Electro Static Discharge</li> <li>· Air Discharge: <math>\geq \pm 8.0\text{kV}</math></li> <li>· Contact Discharge: <math>\geq \pm 6.0\text{kV}</math></li> </ul>	<ul style="list-style-type: none"> <li>· International Protection Marking IP41</li> <li>· Lightning-proof Ethernet Port</li> <li>· Electro Static Discharge</li> <li>· Air Discharge: <math>\geq \pm 8.0\text{kV}</math></li> <li>· Contact Discharge: <math>\geq \pm 6.0\text{kV}</math></li> </ul>

Note: This content is applicable only to regions outside mainland China. H3C reserves the right to interpret the content.

## Software Specifications

Feature	IE4320 switch series
Cluster Management	Support
Port Aggregation	Support
Ethernet Switching	Store-and-Forward
Jumbo Frame	Support
MAC Address Table	16K MAC Address Static MAC Address Black hole MAC Address MAC Address Learning Limit
VLAN	Port-based VLAN MAC-based VLAN

	<ul style="list-style-type: none"> <li>Protocol-based VLAN</li> <li>Voice VLAN</li> <li>Guest VLAN</li> <li>QinQ and Selective QinQ</li> <li>VLAN Mapping</li> </ul>
ACL	<ul style="list-style-type: none"> <li>Time Range-based ACL</li> <li>Layers 2-4 ACL</li> <li>IPv4/IPv6 ACL</li> <li>Ingress ACL</li> <li>Rate-limited ACL</li> </ul>
QoS	<ul style="list-style-type: none"> <li>Diff-Serv QoS</li> <li>Flexible queue scheduling algorithms based on ports and queues, including SP, WRR and SP+WRR</li> <li>802.1p DSCP remarking</li> </ul>
DHCP	<ul style="list-style-type: none"> <li>DHCP Client</li> <li>DHCP Snooping</li> <li>DHCP Snooping Trust</li> <li>DHCP Snooping option 82 / DHCP Relay option 82</li> </ul>
ARP	<ul style="list-style-type: none"> <li>Static ARP</li> <li>Gratuitous ARP</li> <li>ARP anti-attack</li> <li>ARP Rate Limiting</li> </ul>
IP Routing	<ul style="list-style-type: none"> <li>Routed Port</li> <li>IPv4 Routing: Static Route, RIP</li> <li>IPv6 Routing: Static Route, Unicast Route</li> </ul>
Multicast	<ul style="list-style-type: none"> <li>IGMP v1/v2/v3 Snooping</li> <li>IGMP Snooping Fast-leave</li> <li>IGMP Snooping Group-policy</li> <li>IGMP Snooping Proxy</li> <li>IPv4/IPv6 Multicast VLAN</li> </ul>



	<p>MLD v1/v2 Snooping</p> <p>MVR</p>
Spanning Tree	<p>STP / RSTP / MSTP</p> <p>STP Root Guard</p> <p>BPDU Guard</p> <p>Loop Guard</p>
Mirroring	<p>Port Mirroring</p> <p>Remote SPAN (RSPAN)</p>
Security	<p>Hierarchical User Management and Password Protection</p> <p>802.1X Authentication</p> <p>AAA Authentication</p> <p>Public Key Infrastructure (PKI)</p> <p>HWTACACS</p> <p>SSH 2.0</p> <p>IP/MAC/Port/VLAN Binding</p> <p>IP Source Guard</p> <p>HTTPs</p> <p>SSL</p> <p>Dynamic ARP Inspection, Preventing Man-in-the-Middle Attacks and ARP DoS Attacks</p> <p>SAVI</p>
IEEE	<p>IEEE 802.3x</p> <p>IEEE 802.3ad</p> <p>IEEE 802.3af</p> <p>IEEE 802.3at</p> <p>IEEE 802.1p</p> <p>IEEE 802.1x</p> <p>IEEE 802.1q</p> <p>IEEE 802.1d</p> <p>IEEE 802.1w</p> <p>IEEE 802.1s</p>
Management and	<p>Loading and Upgrading through Xmodem / FTP / TFTP</p>

<p>maintenance</p>	<p>Configuration through CLI, Telnet and Console Port</p> <p>TR069</p> <p>802.1ag and 802.3ah</p> <p>SNMPv1/v2c/v3</p> <p>iMC NMS</p> <p>Web-based NMS</p> <p>System Log, Alarms based on Severities, and Output of Debugging Information</p> <p>Alarms based on Power Failure</p> <p>NTP</p> <p>SNTP</p> <p>Temperature Alarm</p> <p>Ping, Tracert, Telent</p>
<p>Alarm Contact Channels</p>	<p>Uses a relay for output, with a current carrying capacity of 1A @ 24 VDC</p> <p>The relay outputs alarms by opening or closing the contact.</p>
<p>Reliability</p>	<p>Alarms based on Power Failure (only for IE4320 switch series)</p> <p>RRPP</p> <p>ERPS( G.8032)</p> <p>MRP</p>
<p>Standards and Certifications</p>	<p>Safety: EN 62368-1, UL61010</p> <p>EMC: CE/FCC/VCCI</p> <p>EMI: EN55035/EN55032/EN55024,CISPR 32, FCC Part 15B ,VCCI-CIPER32,Class A</p> <p>EMS: IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV</p> <p>IEC 61000-4-3 RS: 80 MHz to 6 GHz: 10 V/m</p> <p>IEC 61000-4-4 EFT: Power: 4kV; Signal: 2 kV</p> <p>IEC 61000-4-5 Surge: Power: 4 Kv/2kv; Signal: 6 kV</p> <p>IEC 61000-4-6 CS: 10 V</p> <p>IEC 61000-4-8 PFMF 30A</p> <p>Railway: EN 50121-4</p> <p>Freefall: IEC 60068-2-31</p> <p>Shock: IEC 60068-2-27</p> <p>Vibration: IEC 60068-2-6</p>

## Ordering Information

Product ID	Product Description
H3C IE4320-12P	8*10/100/1000BASE-T Ports and 4*1000BASE-X SFP Ports;
H3C IE4320-12P-UPWR	8*10/100/1000BASE-T PoE++ Ports and 4*1000BASE-X SFP Ports;
SFP-GE-LX10-SM1310	1000BASE-LX10 SFP Transceiver, Single Mode (1310nm, 10km, LC, -40~80°C)
SFP-GE-LH20-SM1310-I	SFP 1000BASE Optical Transceiver Module(-40°C to 85°C,1310nm,20km,LC)
SFP-GE-LH40-SM1310-I	SFP 1000BASE Optical Transceiver Module(-40°C to 85°C,1310nm,40km,LC)
DG-240-5501	H3C DIN-Rail-Mount 150W PoE AC Power Supply Module for Industrial Ethernet Switches



The Leader in Digital Solutions

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