

# **HUAWEI AR550 Series Industrial Switching Router Datasheet**

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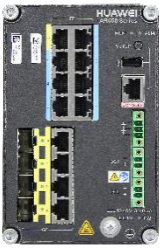

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## 1. Product Overview

AR550 series industrial switching routers are specially designed for network communication in challenging environments such as extreme temperature, high humidity, and electromagnetic interference. The AR550 series integrates routing, switching, IPsec VPN, and other functions, provides powerful application scalability, and widely applies to various industrial automation fields, such as electric power automation and transportation automation.

The AR550 series is available in four models: AR550C-4GE, AR550C-2C6GE, AR550-8FE-D-H and AR550-24FE-D-H.

 <p>AR550C-4GE</p>	<ul style="list-style-type: none"> <li>• Fixed interfaces: 2 x 2.5GE SFP, 4 x GE RJ45, 1 x USB2.0, 1 x DI, 1 x DO</li> <li>• Working temperature: -40 °C to +70 °C</li> <li>• Dimensions (W x D x H): 44 mm x 133 mm x 150 mm</li> <li>• Redundant power supplies: 9.6V to 60V DC</li> </ul>
 <p>AR550C-2C6GE</p>	<ul style="list-style-type: none"> <li>• Fixed interfaces: 2 x 2.5G SFP(compatible with GE), 2 x GE combo, 6 x GE RJ45, 1 x RS485, 1 x USB2.0, 1 x DI, 1 x DO</li> <li>• Working temperature: -40 °C to +70 °C</li> <li>• Dimensions (W x D x H): 44 mm x 133 mm x 150 mm</li> <li>• Redundant power supplies: 9.6V to 60V DC</li> </ul>
 <p>AR550-8FE-D-H</p>	<ul style="list-style-type: none"> <li>• Fixed interfaces: 4 x GE combo, 8 x FE RJ45, 1 x USB2.0, and 1 x digital output (DO)</li> <li>• Working temperature: -40 °C to +70 °C</li> <li>• Dimensions (W x D x H): 97 mm x 133 mm x 150 mm</li> <li>• Redundant power supplies: 9.6 V to 60 V DC</li> </ul>
	<ul style="list-style-type: none"> <li>• Fixed interfaces: 4 x GE combo, 24 x FE RJ45, 1 x USB2.0, and 1 x DO</li> <li>• Working temperature: -40 °C to +70 °C</li> <li>• Dimensions (W x D x H): 133 mm x 133 mm x 150 mm</li> <li>• Redundant power supplies: 9.6 V to 60 V DC</li> </ul>

AR550-24FE-D-H	
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## 2. Key Features and Values

### 1.1 Industrial Design, Premium Quality

- Adopts a fan-free design and works in a wide temperature range of  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .
- Works properly in environments with strong electromagnetic interference and complies with IEEE1613 standards.
- Complies with environment standards of substations: IEC61850-3/IEEE1613.
- Supports a Mean Time Between Failures (MTBF) of more than 50 years.
- Supports dual-input DC power supply, DO (Digit Output) alarm relays.

### 1.2 Flexible Networking, Secure and Reliable Services

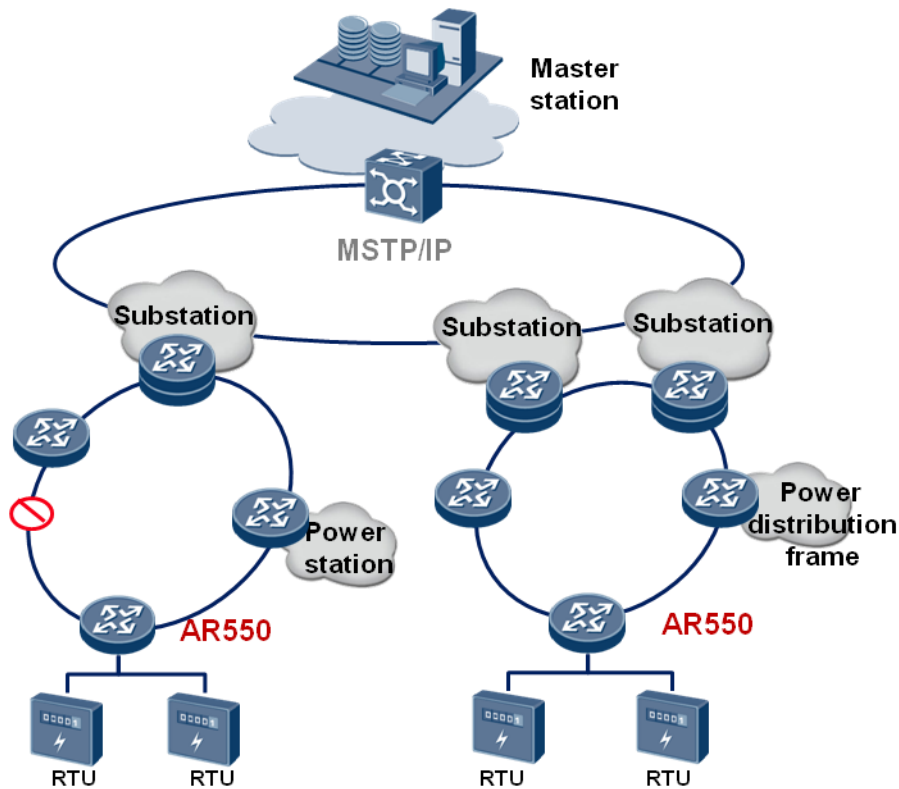
- Provides 28 interfaces to connect a variety of terminals.
- Supports various networking modes, such as closed ring, open ring, multi-ring, and dual-ring.
- Supports Smart Ethernet Protection (SEP), which can implement fast protection switching within 50 ms.
- Uses multiple technologies to guarantee data security, such as IPSec VPN data encryption, 802.1x, and port locking.

### 1.3 Easy Deployment, Convenient O&M

- Web-based visualized configuration and user-friendly UI
- Remote topology management and batch configuration or upgrade
- USB-based deployment and plug-and-play
- One-click configuration backup and simplified device replacement

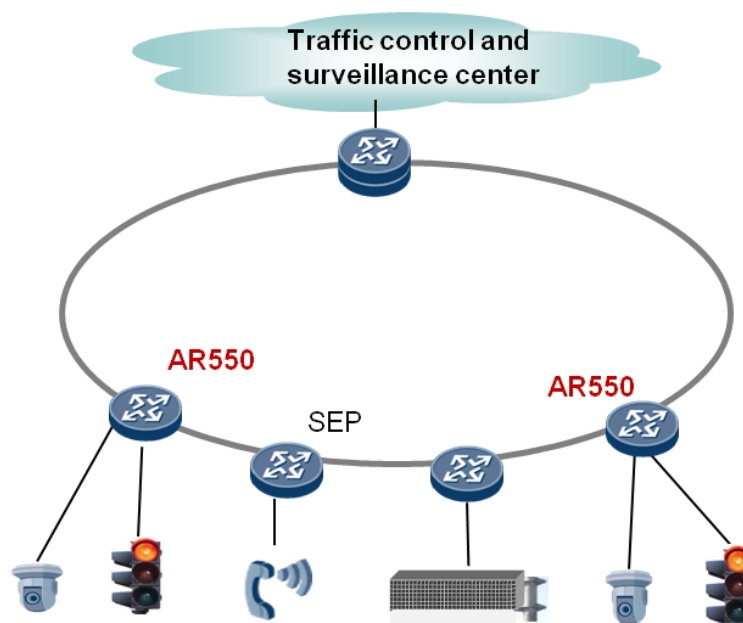
### 3. Typical Application

#### 2.1 Electric Power



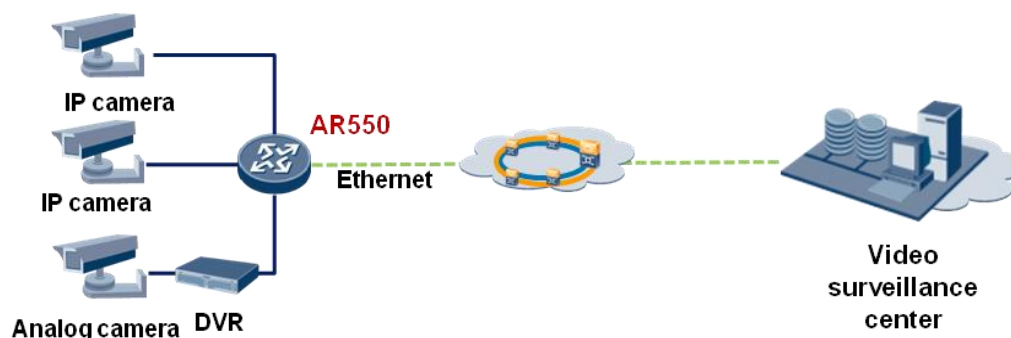
The AR550 supports the SEP protocol to ensure highly reliable network communication by implementing fast protection switching within 50 ms. With 28 Ethernet interfaces, the AR550 provides access to a large number of densely deployed electric terminals. It complies with IEEE1613 and IEC61850-3 substation environment standards and can be used in power distribution automation and automatic substation access scenarios, boosting digital and smart development of the electric power industry.

## 2.2 Transportation



In addition to offering reliable, instant, and secure communication, the AR550 meets electromagnetic interference and anti-vibration requirements defined by EN50155 standards of the transportation industry. The AR550 therefore can be used to construct the smart transportation system for traffic and vehicle control, such as express way monitoring, vehicle-mounted Passenger Information System (PIS), and vehicle-ground communication. After the AR550 is installed, services can be deployed using the USB drive, which is suitable for scenarios where there are many sparsely distributed stations.

## 2.3 Video Backhaul



Video surveillance is popular in various industries. Different access conditions pose higher requirements on the installation space and mode, operating temperature and humidity of video backhaul devices. The AR550 uses a compact design and has a small size. It can be



installed on guide rails and supports a wide operating temperature, meeting outdoor video backhauling requirements in harsh environments.

## 2.4 Ethernet Access in Other Industries or Harsh Environments

The industrial Ethernet is one major component of the industrial control field. Huawei AR550 adopts an industrial design and integrates abundant features, such as routing and IPSec VPN. It can be widely used for industrial Ethernet access in harsh environments, such as high temperature, low temperature, and strong electromagnetic interference. Additional, it provides end-to-end security guarantee for production data transmission.

## 4. Product Specifications

The following table describes major specifications of the AR550.

Specification	AR550C-4GE	AR550C-2C6GE	AR550-8FE-D-H	AR550-24FE-D-H
<b>Hardware Specifications</b>				
<b>Fixed Ethernet interfaces</b>	2 x 2.5GE SFP, 4 x GE RJ45	2 x 2.5G SFP(Compatible with GE), 2 x GE combo, 6 x GE RJ45	8 x FE RJ45 + 4 x GE combo	24 x FE RJ45 + 4 x GE combo
<b>Fixed Serial</b>	-	1 x RS485	-	
<b>Alarm Relay interface</b>	1 DI 1 DO (terminal block, support Normal Open and Normal Closed)		1 DO (terminal block, support Normal Open and Normal Closed)	
<b>USB2.0</b>	1		1	
<b>Serial auxiliary/console interface</b>	1		1	
<b>Layer 2 forwarding performance</b>	13.5Mpps	19.5Mpps	7.2 Mpps	9.6 Mpps
<b>Switching attributes</b>	Switching performance: line-speed forwarding on interfaces			
<b>DRAM memory</b>	256 MB	256 MB	512 MB	512 MB
<b>Flash memory</b>	512 MB	512 MB	128 MB	128 MB
<b>Power supply</b>	Dual DC power: 9.6 V to 60 V (terminal block)	Dual DC power: 9.6 V to 60 V (terminal block)	Dual DC power: 9.6 V to 60 V (terminal block)	Dual DC power: 9.6 V to 60 V (terminal block)
<b>PoE</b>	-	Yes GE0/GE1 support POE++, Other 6GEs support PoE+	-	
<b>Weight</b>	1.1 kg	1.1 kg	1.6 kg	2.1 kg
<b>Dimensions (W x D x H)</b>	44 mm x 133 mm x 150 mm	44 mm x 133 mm x 150 mm	97 mm x 133 mm x 150 mm	133 mm x 133 mm x 150 mm
<b>Typical power consumption</b>	13W	13W	21W	28W
<b>Storage temperature</b>	-40 °C to +85 °C			

<b>Installation mode</b>	Installation on a DIN rail	
<b>Operating temperature</b>	-40 °C to +70 °C	
<b>Operating humidity</b>	5% to 95% (non-condensing)	
<b>IP protection Rating</b>	IP40	
<b>Certification standards compliance</b>	CB (IEC 60950) NRTL(UL60950-1) EU CE (EN 55022, EN 55024, and EN 300386) USA FCC (47CFR Part 15) Canada IC (ICES-003) Australia C-Tick (AS/NZS CIPSR22) Electric power IEC61850-3/IEEE1613 (substation) EN50155 (railway)	
<b>Vibration and environment test</b>	IEEE1613 IEC61850-3 CLASS Cm EN50155	IEC61850-3 CLASS Cm IEC61373, CLASS B body mounted EN50155
<b>EMC</b>	FCC 47 CFR PART15, CLASS A EN55022, CLASS A VCCI, CLASS A AS/NZS CISPAR 22 CLASS A, AN/NZS CISPR 24 ICES 003 CLASS A CE C-TICK (Australia) ETSI EN 300386 IEC61000-4-2 (ESD): ±8 kV contact discharge, ±15 kV air discharge IEC61000-4-3 (RS): 20 V/m, 80 MHz-2700 MHz IEC61000-4-4 (EFT): Power cable: ±4 kV; data cable: ±4 kV IEC61000-4-5 (Surge): Power cable: ±4 kV (CM)/±2 kV (DM); data cable: ±4 kV IEC61000-4-6 (Conducted Disturbances Immunity) IEC61000-4-8 (Power Frequency Magnetic Field Immunity) IEC61000-4-9 (Pulse Magnetic Field Immunity) IEC61000-4-10 (Damped Oscillatory Magnetic Field Immunity)	
<b>Safety</b>	UL 60950-1 EN 60950-1 IEC 60950-1 BS EN 60950-1 CSA C22.2 No 60950-1	

	AS/NZS 60950.1 IS 13252	
<b>Warranty</b>	5 years	
<b>Software Specifications</b>		
<b>LAN functions</b>	IEEE 802.1P, IEEE 802.1Q, and IEEE 802.3 VLAN Static MAC address, dynamic MAC address, MAC address learning restriction Port aggregation and LACP	IEEE 802.1P, IEEE 802.1Q, and IEEE 802.3 VLAN Static MAC address, dynamic MAC address, MAC address learning restriction, MAC address flapping prevention, and alarm for invalid MAC addresses Port aggregation and LACP
<b>IP Applications</b>	ARP, DHCP, DNS, and DDNS IPv6 ND, DHCPv6, and DNS6 NAT, NQA	ARP, DHCP, DNS, and DDNS IPv6 ND, DHCPv6, and DNS6
<b>Ring network protocol</b>	SEP STP, RSTP, and MSTP	
<b>Unicast</b>	Static routing RIP RIPng	Static routing RIP RIPng
<b>Multicast</b>	-	PIM-DM、PIM-SM、PIM-SSM MSDP IGMP、IGMP Snooping MLD、MLD Snooping
<b>VPN</b>	IPSec VPN, IKEv1, and IKEv2 GRE VPN	
<b>Quality of Service (QoS)</b>	DiffServ mode, priority mapping, CAR, traffic shaping, congestion avoidance and congestion management, and HQoS Modular QoS (traffic class, traffic behavior, and traffic policy)	
<b>Security</b>	Access Control List (ACL) 802.1X authentication, AAA and RADIUS authentication and HWTACACS authentication ARP security and ICMP attack defense URPF, CPCAR, PKI and KPM	Access Control List (ACL) 802.1X authentication, MAC address authentication AAA and RADIUS authentication and HWTACACS authentication Broadcast storm suppression ARP security and ICMP attack defense URPF, DHCP snooping, and DHCPv6 snooping CPCAR, blacklist, and attack source

		tracing PKI and KPM
<b>Reliability</b>	BFD, Ethernet OAM	-
<b>Management and maintenance</b>	CLI, web NMS, SNMP (v1/v2c/v3), RMON, NTP, and USB-based deployment	CLI, web NMS, SNMP (v1/v2c/v3), RMON, NTP, and USB-based deployment, One-button Setup

## 5. Power Supply Modules

### 5.1 AC power adapter



The PAC-60WB is used as AC power adapter for AR550.

Specification	Power Adapter
<b>Power parameters</b>	Power input (high-voltage AC/DC) <ul style="list-style-type: none"> <li>• 88 V to 300 V DC (terminal block)</li> <li>• 90 V to 264 V AC (terminal block)</li> </ul> Power output: <ul style="list-style-type: none"> <li>• 12 V DC (terminal block)</li> </ul>
<b>Weight</b>	0.9 kg
<b>Dimensions (W x D x H)</b>	40 x 133 x 150 mm
<b>Storage temperature</b>	-40 °C to +85 °C
<b>Installation mode</b>	Installation on a DIN rail
<b>Operating temperature</b>	-40 °C to +70 °C
<b>Operating humidity</b>	5% to 95% (non-condensing)

## 5.2 POE midspan



Specifications	Industrial PoE midspan
<b>Interface</b>	8-in 8-out PoE 10/100/1000M RJ45
<b>PoE</b>	IEEE 802.3af(8 ports, 15.4W), IEEE 802.3at (4 ports, 30W)
<b>Mgmt. Interface</b>	1* Console
<b>Power Parameter</b>	AC Input: 90V~264V; PoE Output: 48V DC Output: 12V
<b>Max Output Power</b>	PoE: 120W 12V DC output: 25W
<b>Heat dissipation</b>	Fan-less
<b>Ingress Protection</b>	IP40
<b>Installation</b>	DIN Rail
<b>Working Temperature</b>	-40 ℃~60 ℃ (-55 ℃ ~75 ℃ @ 24hours)
<b>Working humidity</b>	5%-95% no condensation
<b>Dimension(W*D*H)</b>	111*133*180mm
<b>EMC</b>	FCC 47 CFR PART15, Class A EN55022, CLASS A VCCI, CLASS A AS/NZS CISPAR 22 CLASS A, AN/NZS CISPR 24 CISPR11 CLASS A, CISPR22 CLASS A ICES 003 CLASS A IEC61000-4-2 (ESD) : ±8kV contact discharge, ±15kV air discharge

	<p>IEC61000-4-3 (RS) : 80M-2700MHz , 20V/m [ 80%AM (1kHz) ]</p> <p>IEC61000-4-4 (EFT) : Power cable: <math>\pm 4</math> kV; data cable: <math>\pm 4</math> kV</p> <p>IEC61000-4-5 (Surge) : Power cable: <math>\pm 6</math>kV (CM)/<math>\pm 6</math> kV (DM); PoE cable: 6KV</p> <p>IEC61000-4-6 (CS) : 0.15MHz-80MHz, 10V</p> <p>IEC61000-4-8 (Power Frequency Magnetic Field Immunity) : 30A/m (Long time) , 300A/m( short time)</p> <p>IEC61000-4-11 (AC DIP)</p> <p>IEC61000-4-10 (Damped Oscillatory Magnetic Field Immunity) : 30A/m</p> <p>IEC61000-4-18 (Damped Oscillatory Wave) : 2.5kV(CM)/1kV(DM)</p> <p>IEC6100-4-16 (Immunity to conducted, common mode)</p>
<b>Safety</b>	UL60950-1, IEC60950-1, CE
<b>Shock and Vibration test</b>	IEC60870-2-2 Cm IEC61373 Class B
<b>Certification/Standards compliance</b>	CE USA FCC(47CFR Part 15) China CCC, GB 9254 CB ( IEC 60950) NRTL (UL60950-1)
<b>SNMP Support</b>	No



## 6. Configuration

Before selecting the AR550, determine the device model, software configuration, and accessories.

- **Device model**  
Select the device model according to the interface type and service requirements.
- **Software**  
AR550 software is classified into basic software and the advanced routing value-added service package. The basic software contains basic features, including Layer 2 switching, device management, and static routes. The value-added service package contains Layer 3 dynamic routing, VPN, and other advanced features.
- **Accessories**  
Configure the types and quantity of the industrial 60 W power adapters, optical modules, and cables according to site environments.

## 7. Ordering Information

Ordering Information
<b>Device model</b>
AR550C-4GE(2 x 2.5GE SFP, 4 x GE RJ45, 1 x USB2.0, 1 x DI and 1 x DO)
AR550C-2C6GE (2 x 2.5G SFP(Compatible with GE), 2 x GE combo(POE+), 2 x GE RJ45(POE++), 4 x GE(POE+), 1 x USB2.0, 1 x DI and 1 x DO)
AR550-8FE-D-H (8 x 100M RJ45, 4 x GE combo, 1 x DO, DC power supply)
AR550-24FE-D-H (24 x 100M RJ45, 4 x GE combo, 1 x DO, DC power supply)
<b>Accessories-power supply, cables</b>
Industrial 60 W power supply, 12 V AC/DC to DC, DIN rail, 88 V to 300 V DC, and 90 V to 264 V AC
POE midspan, 8 GE MIDSPAN PORT,8GE input ,1 FE mang ,1 CONSOLE,1 AC 100-240V INPUT,1 DC12V 2.1A OUTPUT
<b>Accessories-storage device</b>
USB flash drive (4 GB, USB 2.0)
<b>Accessories-industrial optical module</b>
eSFP optical module (FE, single-mode, 1310 nm, 15 km, LC)
eSFP optical module (GE, single-mode, 1310 nm, 10 km, LC)

eSFP optical module (GE, single-mode, 1310 nm, 40 km, LC)

eSFP optical module (GE, multimode, 850 nm, 0.55 km, LC)

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