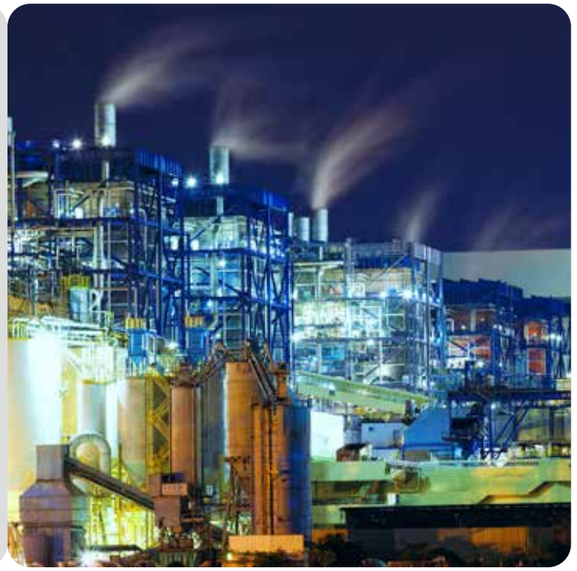
HUAWEI AR550 Series IoT Gateway Datasheet



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Product Overview

AR550 series industrial IoT gateway 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.

AR550C-4GE

- Fixed interfaces: 2 x 2.5G SFP(compatible with GE), 4 x GE RJ45, 1 x USB2.0, 1 x DI, 1 x DO
- Working temperature: –40°C to +70°C
- Dimensions (W x D x H): 44 mm x 133 mm x 150 mm
- Redundant power supplies: 9.6V to 60V DC

AR550C-2C6GE

- 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
- Working temperature: –40°C to +70°C
- Dimensions (W x D x H): 44 mm x 133 mm x 150 mm
- Redundant power supplies: 9.6V to 60V DC

AR550-8FE-D-H

- Fixed interfaces: 4 x GE combo, 8 x FE RJ45, 1 x USB2.0, and 1 x digital output (DO)
- Working temperature: –40°C to +70°C
- Dimensions (W x D x H): 97 mm x 133 mm x 150 mm
- Redundant power supplies: 9.6 V to 60 V DC

AR550-24FE-D-H

- Fixed interfaces: 4 x GE combo, 24 x FE RJ45, 1 x USB2.0, and 1 x DO
- Working temperature: –40°C to +70°C
- Dimensions (W x D x H): 133 mm x 133 mm x 150 mm
- Redundant power supplies: 9.6 V to 60 V DC

Key Features and Values

Industrial Design, Premium Quality

- Adopts a fan-free design and works in a wide temperature range of –40°C to +70°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.

Flexible Networking, Secure and Reliable Services

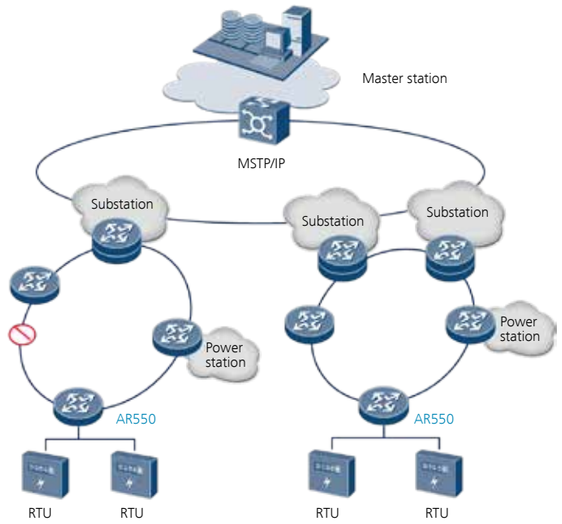
- Provides 28 interfaces to connect a variety of terminals.
- Provides RS485 to connect multiple serial terminals
- Supports various networking modes, such as closed ring, open ring, multi-ring, and dual-ring.
- Supports Smart Ethernet Protection (SEP), which can implement fast protection switching.
- Uses multiple technologies to guarantee data security, such as IPSec VPN data encryption, 802.1x, and port locking.

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
- High-Density industrial Power over Ethernet(POE) simplify field wiring

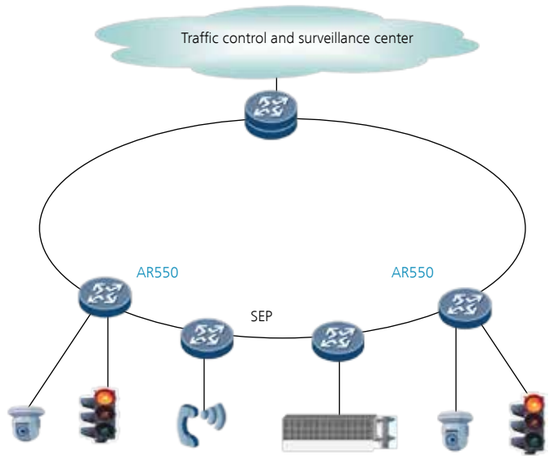
Typical Application

Electric Power



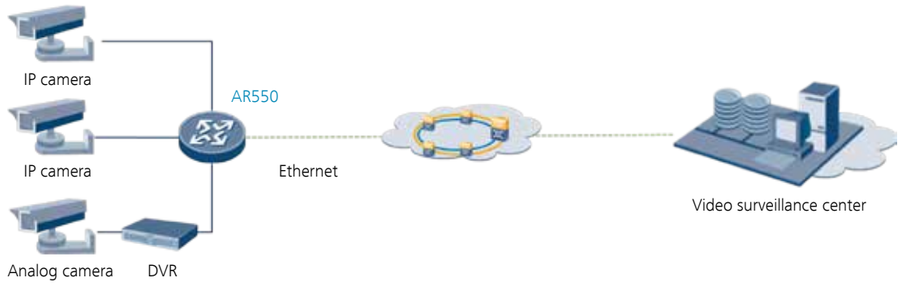
The AR550 supports the SEP protocol to ensure highly reliable network communication by implementing fast protection switching. With 28 Ethernet interfaces, the AR550 provides access to a large number of densely deployed electric terminals. It complies with IEEE1613 and IEC61850-3 substation environment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

Transportation



In addition to offering reliable, instant, and secure communication, the AR550 meets 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.

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.

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.

Product Specifications

The following table describes major specifications of the AR550.

Specification	AR550C -4GE	AR550C-2C6GE	AR550-8FE-D-H	AR550-24FE-D-H
Hardware Specifications				
Fixed Ethernet interfaces	2 x 2.5G SFP(Compatible with GE), 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
Fixed Serial	-	1 x RS485	-	-
Alarm Relay interface	1 DI 1 DO (terminal block, support Normal Open and Normal Closed)		1 DO (terminal block, support Normal Open and Normal Closed)	
USB2.0	1		1	
Serial auxiliary/ console interface	1		1	
Forwarding performance	13.5Mpps	19.5Mpps	7.2Mpps	9.6Mpps

AR550 Series Industrial IoT Gateway

Specification	AR550C -4GE	AR550C-2C6GE	AR550-8FE-D-H	AR550-24FE-D-H
Switching capacity	54Gbps		24.8Gbps	
DRAM memory	256 MB		512 MB	
Flash memory	512 MB		128 MB	
Power supply	Dual DC power: 9.6 V to 60 V (terminal block)		Dual DC power: 9.6 V to 60 V (terminal block)	
PoE	-	Yes GE0/GE1 support POE++, Other 6GEs support PoE+	-	-
Weight	1.1 kg	1.1 kg	1.6 kg	2.1 kg
Dimensions (W x D x H)	44 * 133 * 150 mm		97 * 133 * 150 mm	133 * 133 * 150 mm
Typical power consumption	13W	14W	21W	28W
Installation mode	Installation on a DIN rail			
Storage temperature	–40°C to +85°C			
Operating temperature	–40°C to +70°C The device is tested for 2 hours at temperatures in the range of +70°C to +85°C.		–40°C to +70°C	
Operating humidity	5% to 95% (non-condensing)			
IP protection Rating	IP40			
Certification standards compliance	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)			
Vibration and environment test	IEEE1613 IEC61850-3 CLASS Cm EN50155		IEC61850-3 CLASS Cm IEC61373，CLASS B body mounted EN50155	
EMC	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)			

Specification	AR550C -4GE	AR550C-2C6GE	AR550-8FE-D-H	AR550-24FE-D-H
Safety	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			
Warranty	5 years			

Specification	AR550C -4GE	AR550C-2C6GE	AR550-8FE-D-H	AR550-24FE-D-H
Software Specifications				
LAN functions	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 Port aggregation and LACP LLDP		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 LLDP	
IP Applications	ARP, DHCP, DNS IPv6 ND, NAT, NQA		ARP, DHCP, DNS, and DDNS IPv6 ND, NQA	
Ring network protocol	SEP STP, RSTP, and MSTP			
Unicast	Static routing RIP, BGP RIPng, BGP4+		Static routing RIP, BGP RIPng, BGP4+	
Multicast	IGMP Snooping MLD Snooping		PIM-DMPIM-SM, PIM-SSM MSDP IGMP, IGMP Snooping MLD, MLD Snooping	
VPN	IPSec VPN, IKEv1, and IKEv2 GRE VPN		IPSec VPN, IKEv1, and IKEv2 GRE VPN	
Quality of Service (QoS)	DiffServ mode, priority mapping, CAR, traffic shaping, congestion avoidance and congestion management, and HQoS Modular QoS (traffic class, traffic behavior, and traffic policy)			
Security	Access Control List (ACL) 802.1X authentication, MAC address authentication AAA and RADIUS authentication and HWTACACS authentication ARP security and ICMP attack defense URPF, CPCAR, blacklist, and attack source tracing PKI		Access Control List (ACL) 802.1X authentication, MAC address authentication AAA and RADIUS authentication Broadcast storm suppression ARP security and ICMP attack defense URPF, DHCP snooping, and DHCPv6 snooping CPCAR, blacklist, and attack source tracing PKI	
Reliability	BFD, Ethernet OAM		BFD	
Management and maintenance	CLI, web NMS, SNMP (v1/v2c/v3), NTP, and USB-based deployment		CLI, web NMS, SNMP (v1/v2c/v3), NTP, and USB-based deployment, One-button Setup	

Power Supply Modules

AC power adapter

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

Specification	Power Adapter
Power parameters	Power input (high-voltage AC/DC) • 88 V to 300 V DC (terminal block) • 90 V to 264 V AC (terminal block) Power output: • 12 V DC (terminal block)
Weight	0.9 kg
Dimensions (W x D x H)	40 x133 x 150 mm
Storage temperature	–40°C to +85°C
Installation mode	Installation on a DIN rail
Operating temperature	–40°C to +70°C
Operating humidity	5% to 95% (non-condensing)

240W PoE Power Supply

The PAC240S53-CN is used as AC PoE power adapter for AR550C-2C6GE.

Specification	PoE Power Adapter
Power parameters	One Power input • 77 V to 300 V DC (terminal block) • 90 V to 290 V AC (terminal block) Four Power outputs: • 56 V DC (terminal block)
Weight	1.47Kg
Dimensions (W x D x H)	65 x133 x 150 mm
Storage temperature	–40°C to +85°C
Installation mode	Installation on a DIN rail
Operating temperature	–40°C to +70°C
Operating humidity	5% to 95% (non-condensing)

POE midspan

The PAC-PSE08G-H is POE midspan and also can work as AC power adapter.

Specifications	Industrial PoE midspan
Interface	8-in 8-out PoE 10/100/1000M RJ45
PoE	IEEE 802.3af(8 ports, 15.4W), IEEE 802.3at (4 ports, 30W)
Mgmt. Interface	1* Console
Power Parameter	AC Input: 90V~264V; PoE Output: 48V DC Output: 12V
Max Output Power	PoE: 120W 12V DC output: 25W
Heat dissipation	Fan-less
Ingress Protection	IP40
Installation	DIN Rail
Operating Temperature	-40°C~60°C (-55°C ~75°C @ 24hours)
Operating humidity	5%-95% no condensation
Dimension(W*D*H)	111*133*180mm
EMC	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 IEC61000-4-3 (RS) : 80M-2700MHz , 20V/m [80%AM (1kHz)] IEC61000-4-4 (EFT) : Power cable: ± 4 kV; data cable: ± 4 kV IEC61000-4-5 (Surge) : Power cable: ± 6kV (CM)/ ± 6 kV (DM); PoE cable: 6KV IEC61000-4-6 (CS) : 0.15MHz-80MHz, 10V IEC61000-4-8 (Power Frequency Magnetic Field Immunity) : 30A/m (Long time) , 300A/m(short time) IEC61000-4-11 (AC DIP) IEC61000-4-10 (Damped Oscillatory Magnetic Field Immunity) : 30A/m IEC61000-4-18 (Damped Oscillatory Wave) : 2.5kV(CM)/1kV(DM) IEC6100-4-16 (Immunity to conducted, common mode)
Safety	UL60950-1, IEC60950-1, CE
Shock and Vibration test	IEC60870-2-2 Cm IEC61373 Class B
Certification/Standards compliance	CE USA FCC(47CFR Part 15) China CCC, GB 9254 CB (IEC 60950) NRTL (UL60950-1)
SNMP Support	No

Outdoor Distribution Cabinet

F01A109 is outdoor low-voltage distribution cabinet for AR550. Power distribution cabinet is equipped with one 60W open frame power supply, one-circuit 220VAC/10A/2P miniature circuit breaker for input, one power lightning arrester and two four-port anti-lightning boards, which provide safe and reliable protection for the entire distribution and communication system.

Specifications	F01A109
Dimension(W*D*H)	380*250*400mm
Internal DIN-rail width	150mm
Weight	30 kg
Operating temperature	-40℃~50℃
Operating humidity	5%-95% no condensation
Heat dissipation	Fan-less
IP protection Rating	IP55
Installation mode	Wall-Mount, Pole-Mount

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.

Ordering Information

Ordering Information
Device model
AR550C-4GE (2 x 2.5G SFP(Compatible with GE), 4 x GE, 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 RS485, 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)
Accessories-power supply, cables and Cabinet
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
Industrial 240 W PoE power supply, 56 V AC/DC to DC, DIN rail, 77 V to 300 V DC, and 90 V to 290 V AC
POE midspan, 8 x GE MIDSPAN PORT,8 x GE input ,1 x FE mgmt ,1 x CONSOLE,1 x AC 100-240V INPUT,1 x DC12V 2.1A OUTPUT
Power Distribution Cabinet,F01A109,220V,1PH,50Hz,2A
Accessories-storage device
USB flash drive (4 GB, USB 2.0)
Accessories-industrial optical module
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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