



# Huawei AR502 Series Agile Gateway



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# Product Overview

The AR502 series agile gateway is designed for industrial environments and supports communication in harsh environments such as extreme temperature, high humidity, and electromagnetic interference. The built-in industrial-grade LTE module supports high bandwidth, low-latency wireless access, and various local interfaces (RS485/RS422, RS232, Gigabit Ethernet and radio-frequency) for connecting serial interface devices, Ethernet devices. The AR502 applies to multiple IoT fields, such as smart grid and smart transportation.

The AR502 Series comes in four models: AR502EG-L, AR502EGW-L and AR502CG-L



AR502EG-L

- Fixed interfaces: 2 x GE RJ45, 1 x RS485/422, 1 x RS232, and 6 x digital input/output (DI/DO), 1 x USB2.0
- LTE: LTE FDD
- Operating temperature: -25°C to +70°C
- Dimensions (W x D x H): 150 mm x 100 mm x 44 mm
- Power supplies: DC: 8 V to 36 V



AR502EGW-L

- Fixed interfaces: 2 x GE RJ45, 1 x RS485/422, 1 x RS232, and 6 x digital input/output (DI/DO), 1 x USB2.0
- LTE: LTE FDD
- WLAN: 802.11b/g/n
- Operating temperature: -25°C to +70°C
- Dimensions (W x D x H): 150 mm x 100 mm x 44 mm
- Power supplies: DC: 8 V to 36 V



AR502CG-L

- Fixed interfaces: 2 x GE RJ45, 1 x RS232, 1 x DI, 1 x DO, 1 x USB2.0
- LTE: LTE FDD
- Operating temperature: -25°C to +60°C
- Dimensions (W x D x H): 150 mm x 100 mm x 44 mm
- Power supplies: DC: 8 V to 36 V

\* 868MHz RF is hardware-ready. Software supported in a future release.

## Product Highlighting

### High Speed and Flexibility

- Supports LTE FDD and is compatible with WCDMA/GPRS/GSM.
- Integrates GE, RS232, RS485/RS422 and Wi-Fi interfaces.
- Integrates up to six DI/DO interfaces and allows flexible configurations.

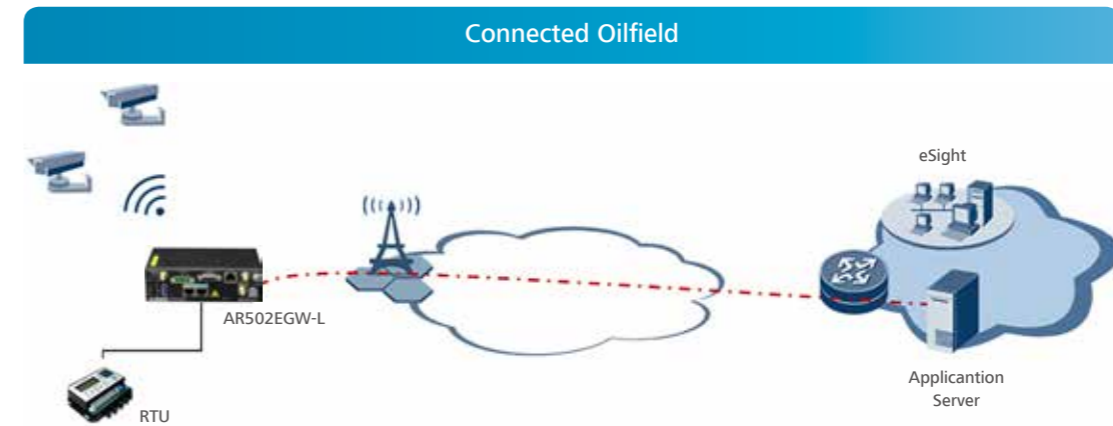
### High Security and Reliability

- Dual SIM cards allow services to be rapidly switched.
- Double antennas strengthen wireless signals.
- Integrated IPSec VPN ensures the security of critical data.

### Intelligent Service Deployment and Convenient O&M

- Supports USB-based deployment and plug-and-play, greatly improving the service deployment efficiency.
- Compact ruggedized form factor, easy to deploy
- Supports unified management of remote devices and uses NQA to monitor links in real time, improving O&M.

## Typical Application



For oil companies, ensuring efficient communications across large open spaces is vital. LTE is an ideal technology for effective communications across oilfields, offering long-distance, low-latency wireless coverage and high bandwidth for data transmission.

The AR502E integrates serial interface to collect data from oil wells and auxiliary facilities, and Wi-Fi or Ethernet interface to connect the surveillance cameras. And then the data and video are sent to monitor center through LTE network.

# Product Specifications

Table 1: AR502E Technical Specifications

Specifications	AR502EG-L	AR502EGW-L	
Hardware Specifications			
Box	Metal		
Processor	Powerful 700Mhz ARM Dual-Core Cortex A9		
DRAM (DDR3)	256 MB		
Flash memory	512 MB		
Operating System	Wind River LINUX 6.0		
4G/LTE	FDD LTE: Band 1, Band 2, Band 3, Band 4, Band 5, Band 7, Band 8, Band 20, all bands with diversity UL 50 Mbit/s; DL 150 Mbit/s		
3G	WCDMA/HSDPA/HSUPA/HSPA+: Band 1, Band 2, Band 5, Band 8, all bands with diversity UL 5.76 Mbit/s; DL 42 Mbit/s		
GSM	GSM/GPRS/EDGE: 850/900/1,800/1,900 MHz EDGE throughput up to 236 kbps		
SIM card	Dual SIM card support Lockable SIM card holder Supports micro-SIM format(3FF)		
Serial	1 x RS232 (DB9 female connector, isolated) 1 x RS485/422 (5-pin terminal block connector, isolated)		
Configure button	Switch function between service and management for RS232 port when press button for no longer than 5s Restore to default configuration when press button for no less than 5s		
Ethernet	2 10/100/1000M base-T		
WLAN	-	802.11b/g/n	
RF	-	-	
DI/DO	6 x DI/DO (RJ45 Connector) LVTTTL voltage level, the mode of DI/DO is configurable		
USB	1 x USB 2.0		
Antenna	2 external antennas for Main and Div		
LED indicators	PWR x 1		
	RUN x 1		
	ALM x 1		
	RSSI x 3		
	2G x 1		
3G x 1			
	2G LED	3G LED	
	2G mode	✓	-
	3G mode	-	✓
	4G/LTE mode	✓	✓
	SIM x 2		
Power supply	DC: 8 V to 36 V		

Specifications	AR502EG-L	AR502EGW-L	
Maximum power consumption	10 W		
Dimensions (W x D x H)	150mm x 100mm x 44 mm		
Weight	0.653 kg	0.676 kg	
Operating temperature	-25°C to +70°C		
Storage temperature	-40°C to +85°C		
Relative humidity	5% RH to 95% RH (non-condensing)		
IP protection Rating	IP30		
Installation mode	Wall mounted (Mounting brackets is included by default) DIN-Rail mounted (DIN mounting kit is optional)		
EMC	ETSI EN 300 386 V1.6.1(2012-09)		
	EN 55022:2010 CLASS A		
	EN 55024:2010		
	CISPR22:2010		
	CISPR24:2010		
	EN 301 489-1 V1.9.2(2011-09)		
	EN 301 489-17 V2.2.1(2012-09)		
	IEC61850-3 (2013)		
	IEEE1613 (2009)		
	EN61000-4-2:2009		
	EN61000-4-3:2006 + A1:2008 + A2:2010		
	EN61000-4-4:2012		
	EN61000-4-5:2014		
	EN61000-4-6:2014		
	EN61000-4-8:2010		
Safety	EN61000-4-10:1993 + A1:2001		
	EN61000-4-11:2004		
	EN61000-4-16:1998 + A1:2004 + A2:2011		
	EN61000-4-17:2002		
	EN61000-4-18:2007 + A1:2010		
	EN61000-4-29:2000		
	IEC60950-1:2005(Second Edition) + A 1:2009 + A 2 :2013		
	Certifications	CE(Europe)	CE(Europe)
		RoHS(Europe)	RoHS(Europe)
		WEEE(Europe)	WEEE(Europe)
REACH(Europe)		REACH(Europe)	
		RCM(Australia)	
Software Specifications			
Basic features	TCP, UDP, ICMP, IPv4, IPv6 PPP protocols: PPP, PAP, IPCP, CHAP, and BCP DHCP server/client/relay, DNS client/proxy/relay, Dynamic DNS NAT		

Specifications	AR502EG-L	AR502EGW-L
WLAN	-	WLAN radio management, WLAN VAP management WLAN user management WLAN anti-attack WLAN QoS WLAN Security
LAN	IEEE 802.1P, IEEE 802.1Q, IEEE 802.3 VLAN management, MAC address management STP, etc.	
Unicast routing	Routing policy, static route RIP, BGP RIPng, BGP4+	
VPN	GRE tunnel IPSec tunnel L2TP Client VPN Smart VPN (SVPN)	
QoS	Traffic classification based on the Layer-2 header, Layer-3 information, Layer-4 information, and 802.1p priority Traffic policing (CAR) Traffic shaping Queue scheduling of PQ, WRR, DRR, PQ+WRR, and PQ+DRR Congestion avoidance, such as WRED and tail drop	
Security	AAA authentication, RADIUS authentication, HWTACACS authentication 802.1X/MAC/MAC bypass authentication Certificate authentication and PKI management Firewall, Packet filtering, and firewall log Anti-DoS attack, TCP SYN Flood attack defense, UDP Flood attack defense, broadcast storm suppression, heavy traffic attack defense Provides CPU protection Ping and Tracert functions	
WAN failover/fail back	Interface Backup : Business continuity guarantee for wired networks via instantaneous failover/ failback to/from 4G/3G/2G networks Intelligent delay mechanism for controlling failover/failback procedure	
Configuration and maintenance	Web-GUI (HTTPS) CLI, Telnet, and SSH terminals SNMPv1/v2c/v3 including cellular specific MIB, config and firmware download FTP and TFTP Boot ROM upgrades and remote upgrades User operation logs NQA monitor System status monitor NTP client support for network time sync of device's system clock	
Firmware management	Firmware upgrade locally via LAN or remotely over-the-air (HTTPS, SNMP) Multiple firmware image storage on device and dynamic install	
Event Alert	SYSLOG Trap and Alarm by SNMP	

\* 868MHz RF is hardware-ready. Software supported in a future release.

Table 2: AR502C Technical Specifications

Specifications	AR502CG-L												
Hardware Specifications													
Box	Plastics												
Processor	Powerful 700Mhz ARM Dual-Core Cortex A9												
DRAM (DDR3)	256 MB												
Flash memory	512 MB												
Operating System	Wind River LINUX 6.0												
4G/LTE	FDD LTE: Band 1, Band 2, Band 3, Band 4, Band 5, Band 7, Band 8, Band 20, all bands with diversity UL 50 Mbit/s; DL 150 Mbit/s												
3G	WCDMA/HSDPA/HSUPA/HSPA+: Band 1, Band 2, Band 5, Band 8, all bands with diversity UL 5.76 Mbit/s; DL 42 Mbit/s												
GSM	GSM/GPRS/EDGE: 850/900/1,800/1,900 MHz EDGE throughput up to 236 kbps												
SIM card	One SIM card support Lockable tray reader with push-button-to-release Supports mini-SIM format (2FF)												
Serial	1 x RS232 (RJ45 connector, non-isolated)												
Configure button	Switch function between service and management for RS232 port when press button for no longer than 5s Restore to default configuration when press button for no less than 5s												
Ethernet	2 x 10/100/1000M base-T												
WLAN	-												
DI/DO	1 alarm inputs to detect dry contact open or close, 9.6 to 60V input, State "0"/ "1" can be configured 1 relay output with current carrying capacity of 1 A @ 60 VDC, normally open/closed												
USB	1 x USB 2.0												
Antenna	2 internal antennas <ul style="list-style-type: none"> <li>• 2 x Internal antennas for Main and Div</li> </ul> 1 external antenna(Optional) <ul style="list-style-type: none"> <li>• 1 x SMA connector for 3G/4G (1x Main)</li> <li>• Replace internal main Antenna when external antenna is installed</li> </ul>												
LED indicators	PWR x 1 RUN/ALM x 1 RSSI x 3 2G x 1 3G x 1 <table border="1"> <thead> <tr> <th></th> <th>2G LED</th> <th>3G LED</th> </tr> </thead> <tbody> <tr> <td>2G mode</td> <td>✓</td> <td>-</td> </tr> <tr> <td>3G mode</td> <td>-</td> <td>✓</td> </tr> <tr> <td>4G/LTE mode</td> <td>✓</td> <td>✓</td> </tr> </tbody> </table> SIM x 1		2G LED	3G LED	2G mode	✓	-	3G mode	-	✓	4G/LTE mode	✓	✓
	2G LED	3G LED											
2G mode	✓	-											
3G mode	-	✓											
4G/LTE mode	✓	✓											
Power supply	DC: 8 V to 36 V												

Specifications	AR502CG-L
Maximum power consumption	8W
Dimensions (W x D x H)	150 mm x 100 mm x 44 mm
Weight	0.38 kg
Operating temperature	-25°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5% RH to 95% RH (non-condensing)
IP protection Rating	IP30
Installation mode	Wall mounted (Mounting brackets is included by default) DIN-Rail mounted (Supported by default) horizontally
EMC	ETSI EN 300 386 V1.6.1(2012-09) EN 55022:2010 CLASS A EN 55024:2010 CISPR22:2010 CISPR24:2010 EN 301 489-1 V1.9.2(2011-09) EN 301 489-17 V2.2.1(2012-09) EN61000-4-2:2009 EN61000-4-3:2006 + A1:2008 + A2:2010 EN61000-4-4:2012 EN61000-4-5:2014 EN61000-4-6:2014 EN61000-4-8:2010 EN61000-4-10:1993 + A1:2001 EN61000-4-11:2004 EN61000-4-16:1998 + A1:2004 + A2:2011 EN61000-4-17:2002 EN61000-4-18:2007 + A1:2010 EN61000-4-29:2000
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Specifications	AR502CG-L
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Firmware management	Firmware upgrade locally via LAN or remotely over-the-air (HTTPS, SNMP) Multiple firmware image storage on device and dynamic install
Event Alert	SYSLOG Trap and Alarm by SNMP

# AR502 Configuration

Before choosing an AR502, determine the device model and auxiliary materials.

### Device

Select the device model according to the port type and service requirements.

### Power Supply

Select the power supply according to environment requirements.

### Antenna

Determine the type and quantity of the antennas according to the communication type and environments requirement.

### Installation Materials

Select the DIN mounting base according to installation mode.

# Ordering Information

Model	Ordering Information
<b>Device</b>	
AR502EG-L	AR502EG-L 1*RS485/RS422, 1*RS232 ,6*DI/DO, 2*GE (10/100/1000M RJ45) , LTE (dual SIM), 1*USB2.0,8-36VDC
AR502EGW-L	AR502EGW-L 1*RS485/RS422, 1*RS232 ,6*DI/DO,802.11bgn, 2*GE (10/100/1000M RJ45) , LTE (dual SIM), 1*USB2.0,8-36VDC
AR502CG-L	AR502CG-L ,1*RS232 ,1*DI/1*DO, 2*GE (10/100/1000M RJ45) , LTE 1*USB2.0,8-36VDC
<b>Power Supply</b>	
PAC-60WB	60W AC Power Module(No Fan)
PAC-24W	24W Power Adapter
<b>Antennas</b>	
ASMAM0008	Isotropic Antenna, 698MHz~960MHz/1420MHz~2690MHz,2.1dBi(max)(698-960/2110-2170MHz)/4.6dBi(max) (1710-1990/2500-2690MHz),vertical,Omni,5W,SMA-J
ASMAM0002	Isotropic Antenna,3m,698MHz-960MHz/1710MHz-2690MHz,SMA-J
ASMAM0007	Omni-directional Antenna,698MHz-960MHz/1710MHz-2700MHz,1.5dBi/2.5dBi,Isotropic,20W,N50SF
ASMAM0003	Isotropic Antenna,2400-2500/5150-5850MHz,>2.15dBi/3dBi,Vertical,Omni,5W-0r-RP-SMA-J
TQJ-2400-11-T2	Omnidirectional Antenna,2400-2500MHz,11dBi,vertical,100W,2r,N Female
<b>Installation Materials</b>	
DINRAIL002	mounting base

For more information, visit <http://e.huawei.com/en> or contact your local Huawei sales office.