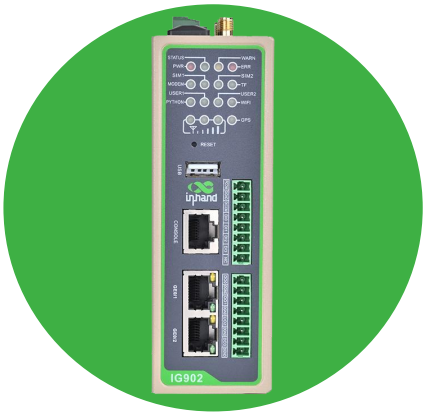
InHand Networks



High performance, multi-protocol parsing, secondary development, industrial level edge gateway

InGateway902 Series

Making industrial digitization more convenient and efficient

The new IIoT edge gateway provides uninterrupted Internet access for machines over ubiquitous 3G/4G wireless networks and multiple broadband services. With powerful edge computing capabilities, comprehensive security protection and wireless services, InGateway902 (IG902) can support device networking of up to 10, 000 units, providing high-speed data channels for TRUE device informatization.

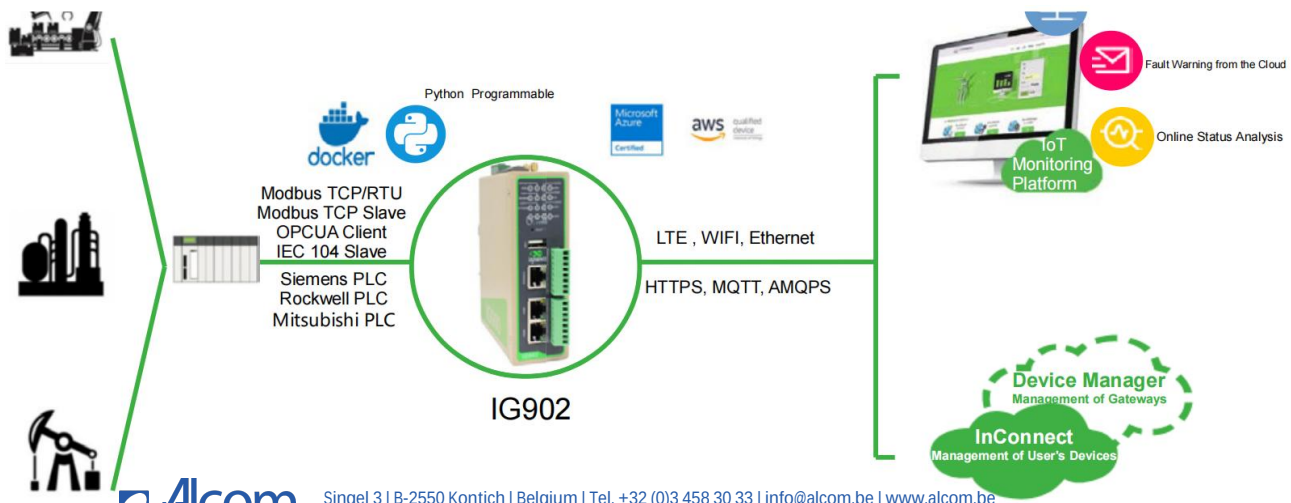
IG902 features powerful edge computing capabilities. It realizes data optimization, real-time response, agile connection and intelligent analysis on the IoT edge, significantly reduces the data flow between field sites and data center, and avoids bottlenecks of cloud-end computing.

The edge gateway IG902 will help customers to optimize network architecture, enable more secure, swift responsive, and intelligent services on manufacturing sites.

IG902 is ideal for networking machines on distributed IIoT sites and aggregating data to cloud-end applications, e.g.:

- Industrial equipment digitalization: Industrial robot, CNC machine, Air compressor, HVAC system etc
- Automated production line
- Energy: Oil & Gas, distributed PV, wind turbine
- Public utilities: heating, water, natural gas
- Smart agriculture
- etc..

Application



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Features and Advantages

Powerful edge computing

With the ARM Cortex-A8 processor, 1GHz CPU, up to 1GB DDR3 RAM and 8GB eMMC FLASH, IG902 owns powerful computing capabilities for data optimization, real-time response, agile connection, intelligent analysis and other data processing on the IoT edge.

Multiple industrial cloud ecosystems

InHand is one of the partners of Microsoft and Amazon. Our edge gateway products can seamlessly interface with various industrial IoT cloud platforms, including Microsoft Azure, Amazon AWS, and Alibaba Cloud. At the same time, the edge gateway supports customized interaction logic with cloud platforms, making it easy to connect with differentiated IoT cloud platforms.

Support large-scale deployment

In large-scale IIoT applications, tens of thousands of gateways are to be deployed for the networking of machines. The IG902 supports Device Manager network management to help with effective device management and deployment.

Uninterrupted Internet access from anywhere

Multiple WAN links: Gigabit Ethernet, 3G/4G, WiFi. Wherever the device is, it can be connected easily. Customers can choose LTE CAT4 (downlink/uplink: 150Mbps/50Mbps) or CAT6 (downlink/uplink: 300Mbps/50Mbps) standard network services.

Secondary development platform

The IG902 is embedded with the Python & Docker development platform, customers can develop their own applications to meet their own service requirements. While with the integrated SDK and APPs provided by InHand, customers can access the system APIs and other resources easily, completing custom development in shorter time to market.

High reliability design

- Link redundancy: dual-SIM, link backup, VRRP, for continuous transmission during network failure
- Link detection: multiple detection mechanisms, auto redial to maintain persistent connection
- Fault recovery: Soft & hardware watchdog, self recovers from faults for high availability of device.

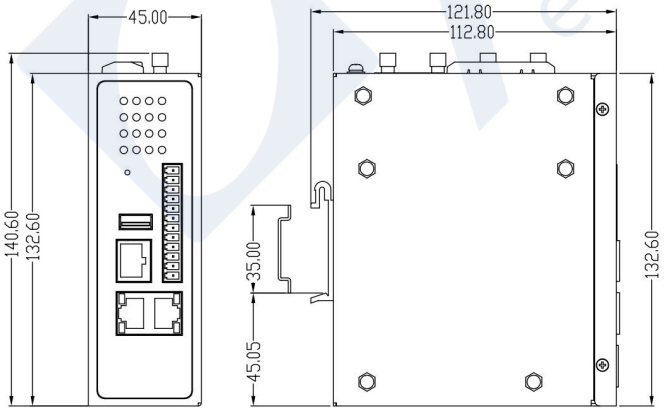
Multiple industrial protocols supported

Compatible with the diversified industrial controllers in the market, the IG902 supports these protocols: Modbus, ISO on TCP, OPC UA, EtherNet/IP, Mitsubishi MC, IEC 61850, DNP3, IEC 101/103/104, Fanuc etc. At the same time, the IG902 also supports converting various industrial protocols into Modbus, OPC UA, IEC 101/104, MQTT, and other protocols.

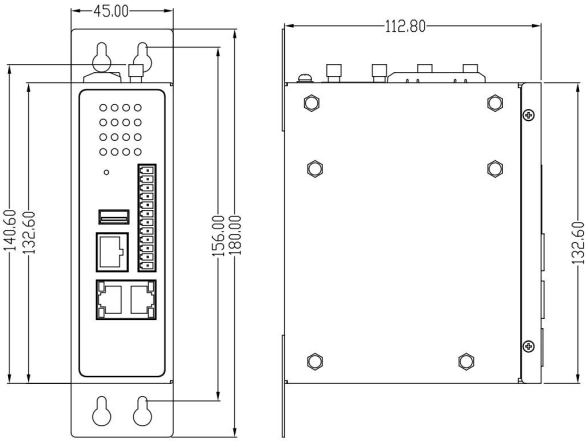
Fully industrial-grade design

Meeting industrial grade on indexes like EMC level 3, IP30, and wide operating temperatures. High quality IoT product, fit for the challenging conditions of industrial sites.

Dimensions (mm)



DIN Rail Mounting

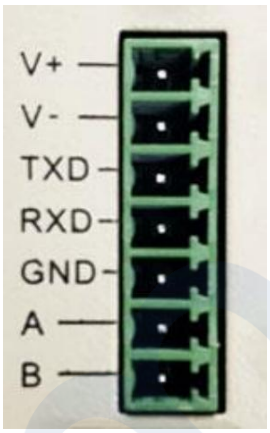


Wall Mounting

Interface Definitions

Pin	Name	Definition
1	V+	Positive electrode
2	V−	Negative electrode
3	TXD	Serial RS232 send
4	RXD	Serial RS232 receive
5	GND	Serial RS232 signal ground
6	A	Serial RS485 +
7	B	Serial RS485 −

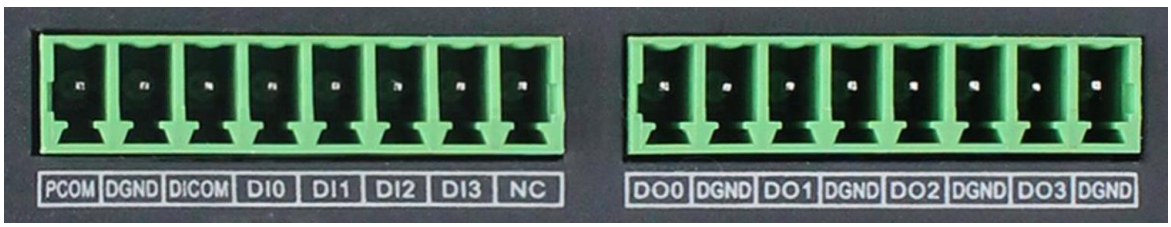
7 PIN Power/Serial Port Terminal



Power/Serial Port Terminal

Pin	Name	Definition	Description
1	PCOM	Dry contact access point	Dry contact status “1”: closed Dry contact status “0”: disconnected Wet contact status “1”: +10~+30V/−30~−10VDC Wet contact status “0”: 0~+3V/−3~0V Isolation 3000VDC Pulse signal counter supported, supports up to 100Hz pulse signal
2	DGND	Dry contact ground point	
3	DICOM	Input common port	
4	DI0	Digital/pulse input port 0	
5	DI1	Digital/pulse input port 1	
6	DI2	Digital/pulse input port 2	
7	DI3	Digital/pulse input port 3	
8	NC	None	
9	DO0	Digital/pulse output port 0	Isolation 3000VDC
10	DGND	Ground	
11	DO1	Digital/pulse output port 1	
12	DGND	Ground	
13	DO2	Digital/pulse output port 2	
14	DGND	Ground	
15	DO3	Digital/pulse output port 3	
16	DGND	Ground	

I/O Port Terminal Definition



I/O Port Terminal

Product Specifications

IG902 Hardware Specifications			
Item	IG902-B (Basic Version)	IG902-H (High-config Version)	
Hardware Platform			
CPU	ARM Cortex-A8 1GHz	ARM Cortex-A8 1GHz	
RAM	512MB DDR3	1GB DDR3	
FLASH	8GB eMMC	8GB eMMC	
Interfaces			
Ethernet Port	2*10/100/1000Mbps Ethernet ports, WAN/LAN or 2*LAN		
Industrial Serial Port	1*RS232, 1*RS485		
IO	None	4*digital input DI 3*digital/pulse output DO, 1*digital output DO	
Console Port	1*RS232, RJ45 interface	Wi-Fi (Optional)	Support 2.4G&5G (802.11 ac/a/b/g/n)
USB	1*USB 2.0 port	Reset Button	Pinhole button
SIM Card Slot	1.8V/3V, 2*drawer-type slot	MircoSD Expansion	Up to 32GB
GPS (Optional)	Support GPS and BeiDou		
Mechanical Features			
Installation	DIN-rail, wall mounting	Protection Rating	IP30
Housing	Metallic structure	Cooling	Fan-less cooling
Power Supply			
Power Input	DC12-48V	Polarity Reverse & Overcurrent Protection	Supported
Power Terminal	Unpluggable industrial terminal connection		
Ambient Temperature and Humidity			
Working Temp.	-25~ 70℃	Ambient Humidity	5~ 95% (non-condensing)
Storage Temp.	-40 ~ 85℃		
Others			
Real-time Clock (Optional)	Embedded real time clock (RTC), powered by super capacitor		
Indicators			
LED	POWER, STATUS, WARN, ERROR, MODEM, SIM1, SIM2, TF (card), PYTHON, USER1, USER2, WIFI, GPS, SIGNAL		
EMC Index			
Electrostatic Discharge	EN61000-4-2, level 3		
Radiated RFI Immunit	EN61000-4-3, level 3		
Electrical Fast Transients/Burst	EN61000-4-4, level 3		
Surge	EN61000-4-5, level 3		
Conducted RFI	EN61000-4-6, level 3		
Power Frequency Magnetic Field	EN61000-4-8, horizontal / vertical 400A/m (>level 3)		
Ring Wave Immunity	EN61000-4-12, level 3		
Physical Features			
Shock	IEC60068-2-27	Vibration	IEC60068-2-6
Free Fall	IEC60068-2-32		
Certification			
CE, FCC, PTCRB, RCM, IC, IMDA, AT&T, MIC&JATE, MSIP, EAC, ANATEL, UKCA			

IG902 Software Specifications	
Item	IG902
Network Interconnection	
Network Access	APN, VPDN
Access Authentication	CHAP/PAP/MS-CHAP/MS-CHAPV2
Network Type	LTE, WCDMA(HSPA+) EDGE, GPRS, CDMA
LAN Protocol	ARP, EtherNet
Network Protocols	
IP Application	Ping, Traceroute, DHCP Server/Relay/Client, DNS Relay, DDNS, Telnet, SSH, HTTP, HTTPS, TFTP, FTP, SFTP
IP Routing	Static Routing
Network Security	
Firewalls	Stateful packet inspection (SPI), anti-DoS attack Multicast/Ping filter, Access Control List (ACL) NAT, PAT, DMZ, port mapping, virtual server
User Levels	Multi-level user authorization
AAA	Local authentication, Radius, Tacacs+, LDAP
Data Security	IPSec VPN, GRE, L2TP, OPENVPN, CA (may auto apply)
Reliability	
Backup	VRRP, interface backup, dual-SIM backup
Link Detection	Heartbeat packet detection, auto-recovery of disconnection
Embedded Watchdog	Device self-diagnosis, auto-recovery from operation faults
WLAN(Optional)	
Standard	IEEE 802.11 ac/a/b/g/n
Security	Open System, Shared Key, WPA/WPA2 certification, WEP/TKIP/AES encryption
Mode	AP, Client modes
Network Management	
Configuration Method	Local or remote HTTP, HTTPS, Telnet, SSH
Upgrade Method	Local or remote WEB, DM, TFTP, FTP, SFTP server
Log	Local or remote log export, power-down log saving
Device Management	InHand Device Manager network management platform, batch management gateway InConnect cloud connection platform for remote access to on-site PLC and other devices
Network Disgnostics	Ping, Traceroute, Sniffer(network packet capture tool)
Secondary Development Platform	
Open Platform	Secondary development environment: Multi-programming language development platform. (Python, Docker)
Industrial Protocols	
Data Acquisition	Modbus, OPC UA, ISO on TCP, PPI, EtherNet/ IP, Mitsubishi MC, FINS UDP, HostLink, Ads net, DLT645, DNP3, IEC 101/103/104, IEC 61850 MMS, BACnet, Fanuc etc.
Data Forwarding	Modbus, OPC UA, IEC 101/104, MQTT etc.
IoT Platform	
IoT Platform	Microsoft Azure, Amazon AWS, and Alibaba Cloud etc.

Ordering Guide

Model code: IG902-<B/H>-<WMNN>-<IO/NA>-<W/NA>-<G/NA>					
Model	Version	<WMNN>: Cellular Type &Frequency Band	IO	WLAN	GPS
IG902-B-LQA8	Basic	China LTE CAT4 LTE-FDD Band 1/3/5/8 LTE-TDD Band 34/38/39/40/41 TD-SCDMA Band 34/39 WCDMA Band 1/8 CDMA BC0 GSM 900/1800 MHz	NO	NO	NO
IG902-B-LQA8-WLAN-G	Basic		NO	YES	YES
IG902-H-LQA8-IO	High-config		YES	NO	NO
IG902-H-LQA8-IO-WLAN-G	High-config		YES	YES	YES
IG902-B-FQ58	Basic	Europe & APAC LTE CAT4 LTE-FDD Band 1/2/3/5/7/8/20 LTE-TDD Band 38/40/41 UMTS(DC-HSPA+) Band1/5/8 GSM Band 3/8	NO	NO	NO
IG902-B-FQ58-WLAN-G	Basic		NO	YES	YES
IG902-H-FQ58-IO	High-config		YES	NO	NO
IG902-H-FQ58-IO-WLAN-G	High-config		YES	YES	YES
IG902-B-FS39	Basic	North America LTE CAT 6 LTE-FDD Band 2/4/5/13/17 UMTS(DC-HSPA+) Band2/5	NO	NO	NO
IG902-B-FS39-WLAN-G	Basic		NO	YES	YES
IG902-H-FS39-IO	High-config		YES	NO	NO
IG902-H-FS39-IO-WLAN-G	High-config		YES	YES	YES
IG902-B-FQ78	Basic	Australia & South America LET CAT4 LTE-FDD Band 1/2/3/4/5/7/8/28 LTE-TDD B40 UMTS(DC-HSPA+) Band1/2/5/8 EDGE/GPRS/GSM 850/900/1800/1900MHz	NO	NO	NO
IG902-B-FQ78-WLAN-G	Basic		NO	YES	YES
IG902-H-FQ78-IO	High-config		YES	NO	NO
IG902-H-FQ78-IO-WLAN-G	High-config		YES	YES	YES
IG902-B-FQ88	Basic	Japan LTE CAT4 LTE FDD: Band 1/3/8/18/19/26 LTE TDD: Band41 WCDMA: Band 1/6/8/19	NO	NO	NO
IG902-B-FQ88-WLAN-G	Basic		NO	YES	YES
IG902-H-FQ88-IO	High-config		YES	NO	NO
IG902-H-FQ88-IO-WLAN-G	High-config		YES	YES	YES
IG902-B-FQ98	Basic	South Korea LTE CAT4 LTE FDD Band 1/3/5/7/8/20 LTE TDD Band 38/40/41 WCDMA Band 1/5/8 EDGE/GSM Band 3/8	NO	NO	NO
IG902-B-FQ98-WLAN-G	Basic		NO	YES	YES
IG902-H-FQ98-IO	High-config		YES	NO	NO
IG902-H-FQ98-IO-WLAN-G	High-config		YES	YES	YES
IG902-B-EN00	Basic	Global No 3G/4G communication module	NO	NO	NO
IG902-B-EN00-WLAN-G	Basic		NO	YES	YES
IG902-H-EN00-IO	High-config		YES	NO	NO
IG902-H-EN00-IO-WLAN-G	High-config		YES	YES	YES

About Us

InHand Networks is a leading IoT solutions provider founded in 2001, dedicated to driving digital transformation across industries and empowering customers to unlock their full potential and achieve accelerated growth.

We specialize in delivering industrial-grade connectivity solutions for diverse sectors, such as enterprise networks, industrial and building IoT, digital energy, smart commerce, and mobility. Our comprehensive product portfolio and services cater to various applications worldwide, including smart manufacturing, smart grid, intelligent transportation, smart retail, etc. With a global footprint spanning over 60 countries, we serve customers in China, the United States, France, Germany, the United Kingdom, Italy, and beyond.

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