![InHand Networks logo]

Powerful Computing, Multiple Industrial Protocols, Fast Python Customization

InGateway902 Series

Industrial IoT Edge Gateway

The InGateway902 (IG902) is a high-performance Industrial IoT (IIoT) edge computing gateway designed to bring robust connectivity, real-time intelligence, and enhanced security to industrial environments. It serves as a pivotal device for integrating distributed IIoT sites with centralized cloud applications.
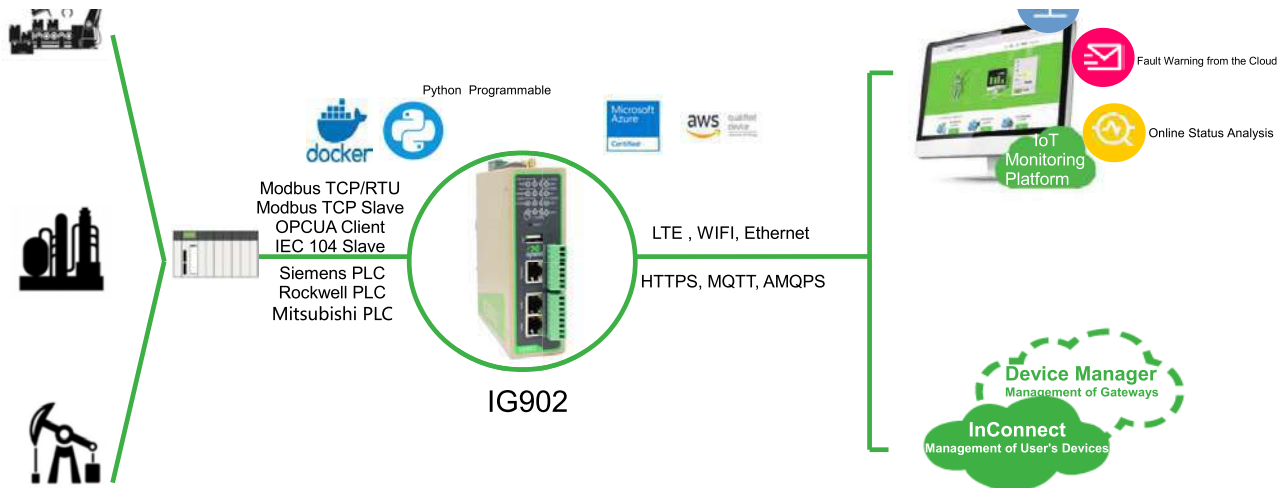
InGateway902 features powerful edge computing capabilities. It realizes data optimization, real-time response, agile connection and intelligent analysis on the IoT edge, significantly reduces the data flow between field sites and data center, and avoid bottlenecks of cloud-end computing.

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

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

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

Application Case

Python Programmable

Modbus TCP/RTU
Modbus TCP Slave
OPCUA Client
IEC 104 Slave

Siemens PLC
Rockwell PLC
Mitsubishi PLC

IG902

LTE , WIFI, Ethernet

HTTPS, MQTT, AMQPS

Fault Warning from the Cloud

Online Status Analysis

IoT Monitoring Platform

Device Manager
Management of Gateways

InConnect
Management of User's Devices

Features and Advantages

+ Supports 4G LTE CAT4 and CAT6

+ Built-in redundancies: dual SIM card, link backup, VRRP hot standby, ensuring uninterrupted network communications

+ Powerful computing performance, providing high-performance processing resources for edge computing

+ Supports a variety of industrial real-time Ethernet protocols and field bus protocols, compatible with a wide range of industrial equipment

+ Supports Python development, for developing user custom applications

+ Supports Docker container technology

+ Supports industrial cloud platforms: Microsoft Azure, Amazon AWS

+ Easy for management and large-scale deployment, supports SNMP protocol and InHand Device Manager cloud platform for efficient remote central management

+ Fully industrial-grade design, ready for challenging conditions

1. Uninterrupted Internet Access

• **Ubiquitous 3G/4G Connectivity:** Ensures machines stay connected, even in remote or distributed sites.
• **Multiple Broadband Services:** Provides versatile internet access options to suit various industrial setups.

2. Edge Computing Capabilities

• **Real-Time Processing:** Performs data optimization, real-time responses, and agile connections directly at the edge.
• **Intelligent Analysis:** Reduces the load on cloud services by performing computations locally, improving latency and reliability.
• **Data Flow Optimization:** Minimizes bandwidth usage and mitigates cloud-end bottlenecks by processing data closer to the source.

3. Industrial Protocol Support

Compatible with multiple industrial communication protocols to integrate seamlessly with diverse machinery and systems.

4. Customization and Integration

Fast Python Customization: Enables quick development and deployment of tailored applications to meet specific industrial requirements.

5. Comprehensive Security

Ensures data integrity and security with industry-grade encryption, secure access controls, and intrusion prevention mechanisms.

Applications

The IG902 is suited for a wide array of industrial and utility applications:
Manufacturing & Industrial Equipment

• Industrial Robots and CNC Machines for automated production lines.
• HVAC Systems for precise environmental controls.
• Packaging, Food, and Medicine Machinery requiring real-time monitoring and adjustment.

Energy Sector
Distributed PV (Photovoltaic), wind turbines, and oil & gas equipment.

Public Utilities
Systems for water, heating, and natural gas distribution.

Smart Agriculture
Intelligent controls for distributed farming systems, including monitoring and optimizing resources.

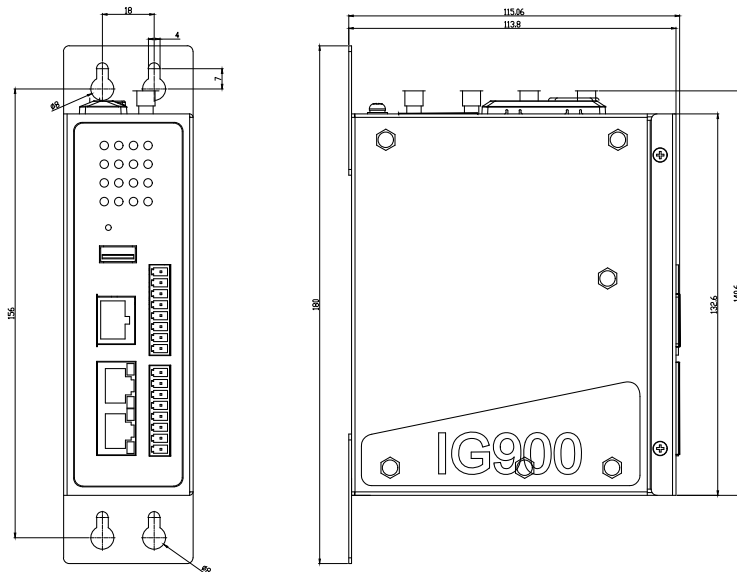## Why Choose IG902?

• **Optimized Network Architecture:** Reduces reliance on cloud computing by enabling edge intelligence.

• **Responsive and Secure:** Ensures real-time and secure operations for mission-critical applications.

• **Versatility:** Supports diverse industrial scenarios, from robotics to utilities.

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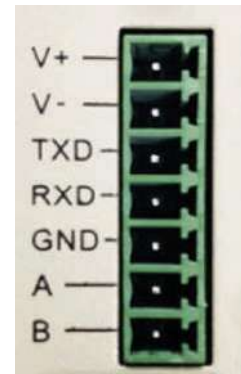
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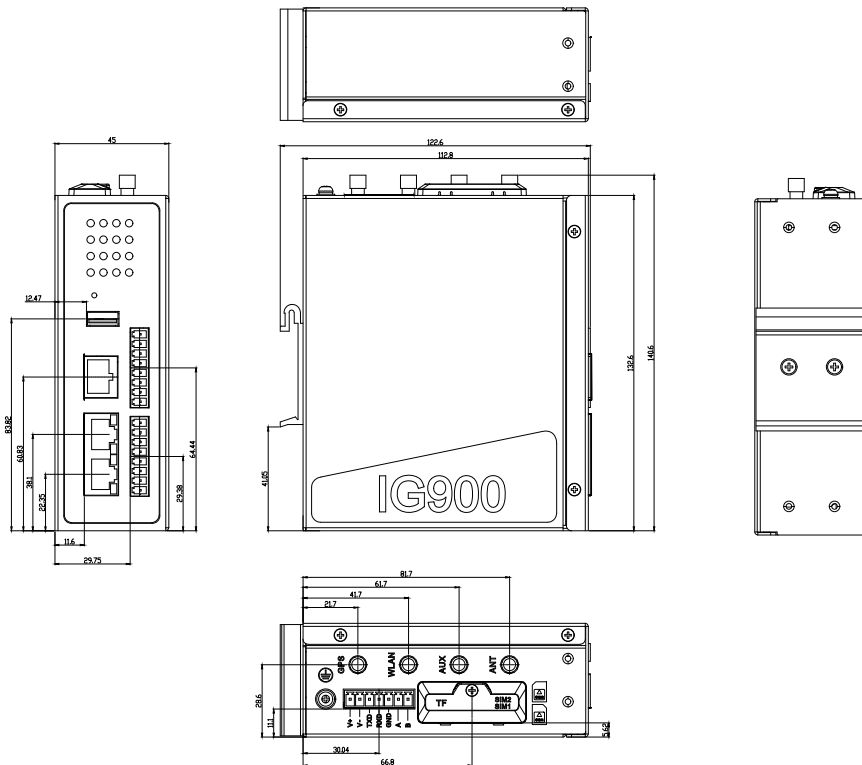
For DIN-rail Mounting

For Wall Mounting

Interface Definitions

7PIN Interface Definition		
Pin	**Definition**	**Description**
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-

Power/Serial Port Terminal

I/O Definition			
PIN	**Definition**	**Description**	
1	PCOM	Dry contact access point	4*Digital/pulse input DI, 2*Dry contact control port, 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 (32-bit counter + 1-bit overflow mark)
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	3*Digital/pulse output DO, 1*Digital output, 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 Terminal

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Product Specifications

IG902 Hardware Specifications

Item	IG902-B (Basic Version)	IG902-H (High-config Version)	
Hardware Platform			
CPU	ARM Cortex-A8 1GHz		
RAM	512MB DDR3	1GB DDR3	
FLASH	8GB eMMC		
Interfaces			
Ethernet Port	2*10/100/1000Mbps fast Ethernet ports, WAN/LAN or 2*LAN		
Industrial Serial Port	1*RS-232, 1*RS-485 RS-232 signal: TXD, RXD, GND; RS-485 signal: A, B, GND ESD protection: 15KV		
I/O	No	4*digital input DI 2*dry contact control port 3*digital/pulse output DO 1*digital output DO	
Console Port	1*RS-232, RJ-45 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			
Storage Temp.	-40 ~ 85°C	Working Temp.	-25 ~ 70°C
Ambient Humidity	5 ~ 95% (non-condensing)		
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			
Static	EN61000-4-2, level 3	Surge	EN61000-4-5, level 3
Radiation Electric Field	EN61000-4-3, level 3	Conducted Disturbance	EN61000-4-6, level 3
Pulse Electric Field	EN61000-4-4, level 3	Power Frequency Magnetic Field	EN61000-4-8, horizontal / vertical 400A/m (>level 3)
Physical Features			
Shock	IEC60068-2-27	Vibration	IEC60068-2-6
Free Fall	IEC60068-2-32		
Certification			
CE, FCC, PTCRB, RoHS, RCM, IC, IMDA, AT&T, MIC&JATE, MSIP,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, 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
SMS	Status enquiry, configuration, and reboot
Dial On-demand	Activated by data, activated by SMS, scheduled online/offline
Network Management	SNMP v1/v2c/v3, InHand MIBs
InHand DM	Centralized management, batch configuration
Network Disgnostics	Ping, Traceroute, Sniffer (network packet capture tool)
Development Platform	
Development Platforms	Python customization development; Microsoft Azure, Amazon AWS, Schneider EcoStruxure, InHand DN cloud platform
Industrial Protocols	
Protocols	Modbus RTU, Modbus TCP, OPC UA Client, EtherNET/IP, ISO on TCP, Mitsubishi MC 3C, Mitsubishi programming port (serial port), Modbus TCP Slave, IEC 104 Slave

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Ordering Guide

Model	Model code: IG902-<B/H>-<WMNN>-<IO/NA>(H version only)-<W/NA>-<G/NA>						
	Version	Region (Operator)	Cellular Type & Module		I/O Interface: (H version only)	WLAN	GPS
			Network Type	Band & Frequency			
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 900/1800MHz	No I/O	No Wi-Fi	No GPS
IG902-B-LQA8-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-LQA8-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-LQA8-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
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 I/O	No Wi-Fi	No GPS
IG902-B-FQ58-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-FQ58-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-FQ58-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
IG902-B-FS39	Basic	North America (Verizon, AT&T)	LTE CAT6	LTE-FDD Band 2/4/5/13/17 UMTS(DC-HSPA+) Band 2/5 EDGE/GPRS/GSM 850/900/1800/1900MHz	No I/O	No Wi-Fi	No GPS
IG902-B-FS39-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-FS39-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-FS39-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
IG902-B-FQ78	Basic	Australia, New Zealand and Latin America	LTE 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 I/O	No Wi-Fi	No GPS
IG902-B-FQ78-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-FQ78-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-FQ78-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
IG902-B-FQ88	Basic	Japan	LTE CAT4	LTE FDD Band 1/3/8/18/19/26 LTE TDD Band 41 WCDMA Band 1/6/8/19	No I/O	No Wi-Fi	No GPS
IG902-B-FQ88-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-FQ88-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-FQ88-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
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 I/O	No Wi-Fi	No GPS
IG902-B-FQ98-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-FQ98-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-FQ98-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
IG902-B-EN00	Basic	Global	-	No 3G/4G communication module	No I/O	No Wi-Fi	No GPS
IG902-B-EN00-WLAN-G	Basic				No I/O	Wi-Fi	GPS
IG902-H-EN00-IO	High-config				I/O	No Wi-Fi	No GPS
IG902-H-EN00-IO-WLAN-G	High-config				I/O	Wi-Fi	GPS
Example:	IG902-H-FQ58-IO-WLAN-G: IG902 high-config. version, supports Europe and Asia-Pacific LTE CAT4 networks, supports I/O interface, supports Wi-Fi and GPS						

About Us

InHand Networks is a global leader of Industrial IoT, with a record of tremendous success following groundbreaking innovation since our inception in 2001.

InHand serves world-class partners and customers with industrial M2M routers, gateways, industrial Ethernet switches, rugged computers and IoT management platforms. We provide IoT solutions for various vertical markets including Smart Grid, Industrial Automation, Remote Machine Monitoring, Smart Vending, Smart City, Retail and more.

Proudly bearing the marks of both Rockwell Automation Technology Partner in Asia-Pacific and Schneider Electric Technology Partner, InHand Networks defines industrial innovation and reliability.

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