



Edge-to-cloud Data Acquisition Configured in Minutes

InGateway502 Series

IoT Edge Gateway

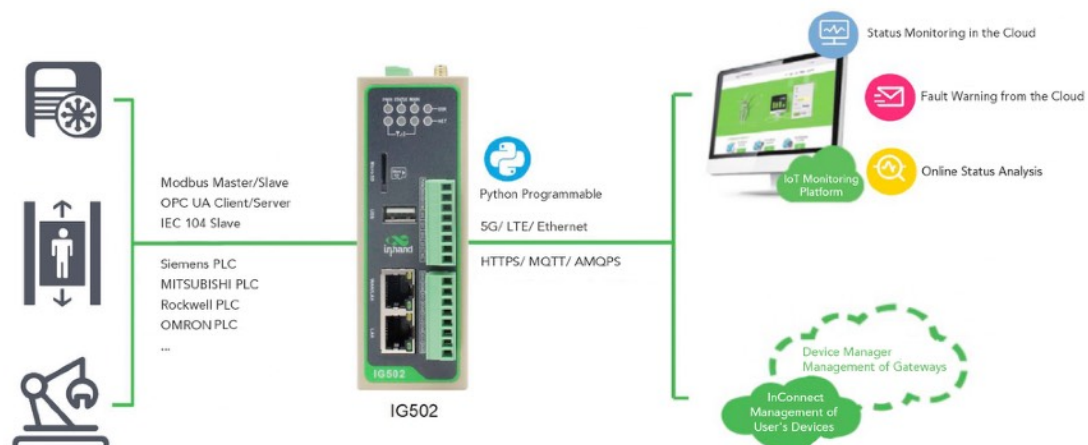
The InGateway502 (IG502) series IoT edge gateway is a small-sized IoT edge gateway developed for industrial IoT applications. It provides uninterrupted Internet access over globally ubiquitous 5G/LTE cellular network and multiple broadband services. With powerful edge computing capabilities, comprehensive security protection and wireless services, the IG502 can support networking of up to tens of thousands of devices, providing high-speed data channels for device informatization.

The IG502 supports mainstream industrial protocols such as Modbus TCP/RTU. With support for major IoT cloud platforms including AWS and Microsoft Azure, it enables onsite devices to be connected to the cloud with ease. Featuring open edge computing platforms, the IG502 is capable of data optimization, real-time response, agile connection and intelligent analysis on the IoT edge, thus significantly reducing data flow between field sites and data center, cutting users' operation costs and relieving pressure on the cloud. Excellent performance, ease for deployment and perfect functions for remote management make the IG502 stand out in the information construction of devices.

The IG502 series is ideal for data collection and monitoring of equipment on distributed unattended sites for a wide range of industries, e.g.:

- Industrial automation
- Smart grid
- Smart building
- Green energy
- Utilities: heating, water, natural gas
- Environment, etc.

Application Case



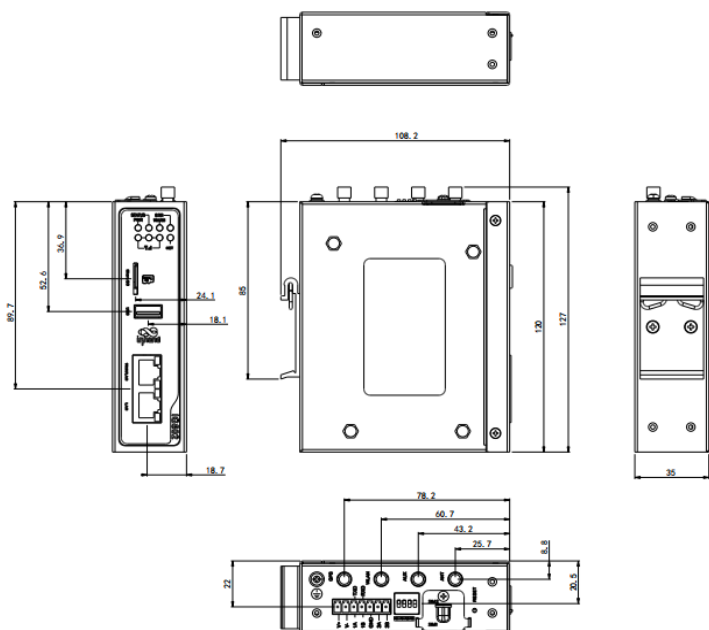
Features and Advantages

- + Supports 5G, LTE CAT4, CAT1 and Ethernet
 - + Supports multiple industrial protocols, compatible with various industrial devices
 - + Supports major IoT cloud platforms including Microsoft Azure and AWS
 - + Supports Python-based platform for secondary development, edge smart
 - + Multi-layer link detection mechanism, ensuring high device availability and reliability
 - + Fully industrial-grade, ready for challenging conditions
 - + Multiple management methods, fast, flexible and efficient deployment
- **Industrial-grade, ready for harsh industrial environments**

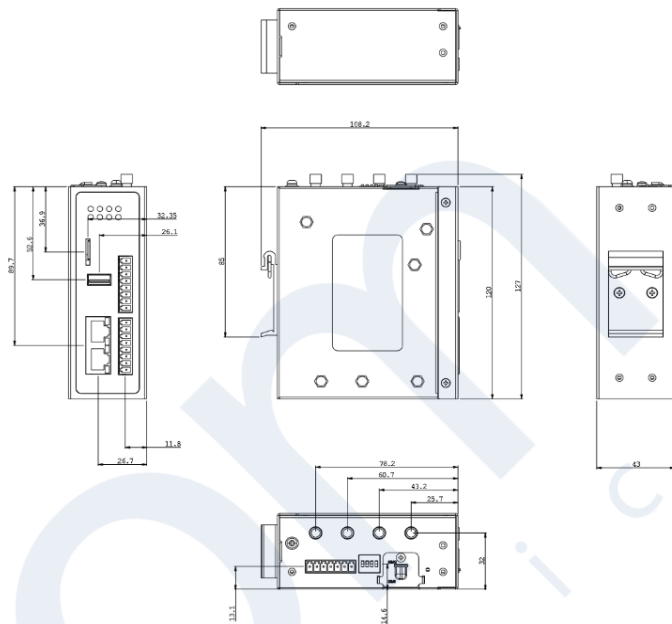
Industrial-grade design, with operating temperatures up to -20 °C~ 70 °C, supports +12 ~ 48VDC wide voltage power inputs, protection rating IP30, providing stable and secure network communications for demanding unattended industrial sites.
 - **Easily collects data from devices, uploads data to the cloud and conducts remote maintenance**
 - Supports major industrial protocols including Modbus TCP/RTU, EtherNet/IP, ISO on TCP, OPC UA Client, etc., eases industrial data collection
 - Supports major IoT cloud platforms such as AWS and Microsoft Azure
 - Embedded with secondary development platform, and Python programmable, helps you complete special business operation with ease, custom functions and services supported
 - Supports InConnect service, transparent channel for data transmission, easy for remote maintenance
 - **Powerful edge computing capabilities, intelligent data processing**

Equipped with ARM Cortex-A8 processor, 600MHz frequency, 512MB RAM and 8GB eMMC, the IG502 offers strong edge computing capabilities, providing computing resources for data optimization, real-time response, agile connection, and intelligent analysis on edge nodes.
 - **Highly reliable design, ensuring continuous data transmission**
 - Device auto recovery: embedded watchdog, self recovers from faults, ensuring high device availability
 - Link detection: application layer link detection, auto redials when disconnected, maintain continuous data transmission
 - PPP-layer detection: maintains connection to operator network, prevents forced hibernation, can detect stability of dial-up connections
 - Resume from breakpoint: automatically saves data that fail to be uploaded in case of an error in the transmission channel, and resumes uploading when transmission recovers, ensuring reliable data transmission and freeing you from data loss concerns
 - **Easy for use and management, support for mass deployment**
 - Supports configuration through Web interface, easy for use
 - In large-scale IIoT applications, tens of thousands of machines are to be networked. The InGateway supports Device Manager to enable efficient large-scale deployment and management

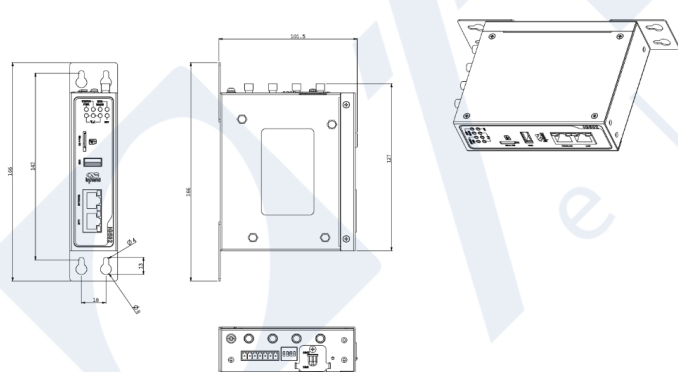
Dimensions (mm)



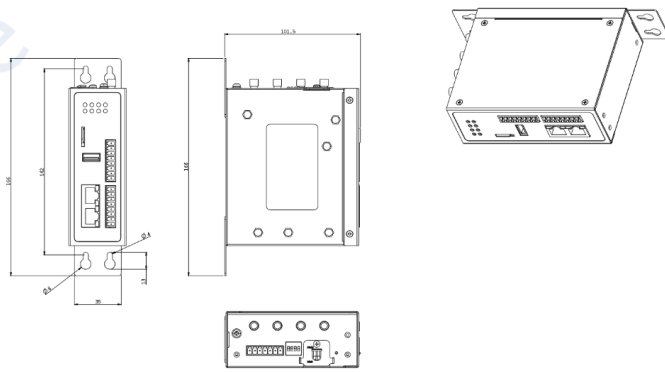
IG502



IG502-IO



IG502 Wall Mounting (A)



IG502-IO Wall Mounting (A)

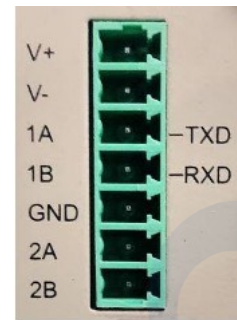
Product Specifications

IG502 Hardware Specifications			
Item	InGateway502		
Hardware Platform			
CPU	ARM Cortex-A8		
RAM	512MB		
FLASH	8GB eMMC		
Interfaces			
EtherNet Port	2*10/100Mbps fast Ethernet port, 1*WAN + 1*LAN or 2*LAN		
Serial Port	RS232 *1, RS485*1orRS485 *2, industrial terminal block, ordering guide for details	IO Interface (Optional)	4*DI, 4*DO
Wi-Fi (Optional)	2.4G (802.11 b/g/n)	Reset Button	Pinhole reset button
GPS (Optional)	Satellite location GPS, SMA*1	TF Card	Supports Micro SD
USB	USB 2.0, Type A*2, Type C*1	Bluetooth (Optional)	BLE 4.0
SIM Card	1.8V/3V, drawer-type slot*2	Antenna	SMA*1
Mechanical Feature			
Installation	DIN-rail, wall mounting	Housing	Metal housing
Dimensions (mm)	127*108.2*35	Weight (g)	420
Cooling	Fanless cooling	Protection Rating	IP30
Power Supply			
Power Input	DC 12-48V, polarity reverse protection	Power Interface	Industrial terminal block
Standby Power	200mA@12V	Working Power	250mA@12V
Peak Power	500mA@12V		
Ambient Temperature and Humidity			
Working Temperature	-20 ~ 70°C	Storage Temperature	-40 ~ 85°C
Ambient Humidity	5 ~ 95% (non-condensing)		
Indicator			
LED	PWR, STATUS, WARN, ERR, Signal Strength (3), LTE		
EMC Index			
Static	EN61000-4-2, level 3		
Radiation Electric Field	EN61000-4-3, level 3		
Pulse Electric Field	EN61000-4-4, level 3		
Surge	EN61000-4-5, level 3		
Conducted Disturbance	EN61000-4-6, level 3		
Power Frequency Magnetic Field	EN61000-4-8, horizontal/vertical 400A/m (>level 3)		
Shockwave 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, UL, C1D2(Class 1 Division 2), Verizon Wireless, AT&T, IC, RCM, NBTC, UKCA, ANATEL			

IG502 Software Specifications	
Item	InGateway502
Operation System	
Operation System	Custom Linux
Network Interconnection	
Network Type	5G, LTE CAT4, LTE CAT1
Network Access	APN, VPDN
Access Authentication	CHAP/PAP/MS-CHAP/MS-CHAP V2
LAN Protocol	ARP, Ethernet
WAN Protocol	Static IP, DHCP
Network Protocols	
IP Application	ICMP, DNS, TCP/UDP, TCP server, DHCP
IP Routing	Static routing
Network Security	
User Level	Multi-level user authorization
Data Security	OpenVPN, IPsec VPN
Reliability	
Backup	Dual SIM
Link Detection	Heartbeat packet detection, auto-redials once disconnected
Embedded Watchdog	Device self-diagnosing, auto-recovers from operation faults
Open Platform	
Open Platform	Python development platform
Accessible Cloud Platform	Microsoft Azure, Amazon AWS, etc.
Protocol Type	
Protocol Type	Modbus RTU Master/Slave, Modbus TCP Master/Slave, EtherNet/IP, ISO on TCP, OPC UA Client/Server, Mitsubishi MC 3C/3E/3C Over TCP, Mitsubishi CPU Port, FINS UDP, HostLink, PPI, DLT645-2007, IEC 104 Server, etc.
Maintenance and Management	
Configuration Method	Web
Configuration Backup	Supports import & export of configuration files
Upgrade Method	Supports patent upgrade mechanism, local or remote firmware upgrade
Log	Local system logs, remote logs, serial port log output, power-down saving of important logs
Remote Management	InHand Device Manager Platform; InHand Connet Service; InHand iSCADA Cloud; HTTP, HTTPS, Telnet, SSH, etc.

Definition of Interfaces

7 PIN Definition		
PIN	Definition	Description
1	V+	Positive electrode
2	V-	Negative electrode
3	TXD or 1A	Serial RS232 send or RS485+
4	RXD or 1B	Serial RS232 receive or RS485-
5	GND	Serial RS232 signal ground
6	A or 2A	Serial RS485+
7	B or 2B	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, 1*Common port, 1*Idle, 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	Digital 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	
10	DGND	Digital ground	
11	DO1	Digital/pulse output port 1	
12	DGND	Digital ground	
13	DO2	Digital/pulse output port 2	
14	DGND	Digital ground	
15	DO3	Digital/pulse output port 3	
16	DGND	Digital ground	



I/O Terminal

Ordering Guide

Model code: IG502-<WMNN>-<D485/NA>-<IO/NA>-<W/NA>-<G/NA>									
Model	Region (Operator)	Network Type	Cellular Type & Frequency Band: <WMNN>		Ethernet Port	Serial Port	<IO/NA>: I/O	<W/NA>: WLAN&BLE	<G/NA>: GPS
IG502-LQA3	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-LQA3-IO	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-LQA3-W-G	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-LQA3-IO-W-G	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-LQA3-D485	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	2*RS485	No	No	No
IG502-LQA3-D485-IO	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	2*RS485	4*DI, 4*DO	No	No
IG502-LQA3-D485-W-G	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	2*RS485	No	Supported	Supported
IG502-LQA3-D485-IO-W-G	China	LTE CAT1	LTE-FDD LTE-TDD GSM	Band 1/3/5/8 Band 34/38/39/40/41 900/1800/MHz	2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported
IG502-NRQ1	China	5G	5G NR NSA 5G NR SA LTE-FDD LTE-TDD WCDMA MIMO: NR downlink 4 x 4 Downlink 2x2 Uplink 2x2 LTE downlink: 2x2	n41/n78/n79 n1/n28/n41/n77/n78/n79 Band 1/3/5/8 Band 34/38/39/40/41 Band 1/5/8	2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-NRQ1-D485	China	5G	5G NR NSA 5G NR SA LTE-FDD LTE-TDD WCDMA MIMO: NR downlink 4 x 4 Downlink 2x2 Uplink 2x2 LTE downlink: 2x2	n41/n78/n79 n1/n28/n41/n77/n78/n79 Band 1/3/5/8 Band 34/38/39/40/41 Band 1/5/8	2*10/100Mbps	2*RS485	No	No	No
IG502-FQ33	North America	LTE CAT1	LTE-FDD WCDMA	Band 2/4/5/12/13/25/26 Band 2/4/5	2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-FQ33-IO	North America	LTE CAT1	LTE-FDD WCDMA	Band 2/4/5/12/13/25/26 Band 2/4/5	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-FQ33-W-G	North America	LTE CAT1	LTE-FDD WCDMA	Band 2/4/5/12/13/25/26 Band 2/4/5	2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-FQ33-IO-W-G	North America	LTE CAT1	LTE-FDD WCDMA	Band 2/4/5/12/13/25/26 Band 2/4/5	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ33-D485-IO-W-G	North America	LTE CAT1	LTE-FDD WCDMA	Band 2/4/5/12/13/25/26 Band 2/4/5	2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported
IG502-FF53	Europe & APAC	LTE CAT1	LTE-FDD GSM/GPRS/EDGE	Band 1/3/7/8/20/28 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-FF53-IO	Europe & APAC	LTE CAT1	LTE-FDD GSM/GPRS/EDGE	Band 1/3/7/8/20/28 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-FF53-W-G	Europe & APAC	LTE CAT1	LTE-FDD GSM/GPRS/EDGE	Band 1/3/7/8/20/28 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-FF53-IO-W-G	Europe & APAC	LTE CAT1	LTE-FDD GSM/GPRS/EDGE	Band 1/3/7/8/20/28 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-FF53-D485-IO-W-G	Europe & APAC	LTE CAT1	LTE-FDD GSM/GPRS/EDGE	Band 1/3/7/8/20/28 Band 3/8	2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ58	Europe & APAC	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20/28A Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	No	No	No

Ordering Guide (Continued)

Model code: IG502-<WMNN>-<D485/NA>-<IO/NA>-<W/NA>-<G/NA>									
Model	Region (Operator)	Network Type	Cellular Type & Frequency Band: <WMNN>		Ethernet Port	Serial Port	<IO/NA>: I/O	<W/NA>: WLAN&BLE	<G/NA>: GPS
IG502-FQ58-IO	Europe & APAC	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20/28A Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-FQ58-W-G	Europe & APAC	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20/28A Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-FQ58-IO-W-G	Europe & APAC	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20/28A Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ58-D485-IO-W-G	Europe & APAC	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20/28A Band 1/8 Band 3/8	2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ58-TH	Thailand	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20 Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-FQ58-TH-IO	Thailand	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20 Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-FQ58-W-G-TH	Thailand	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20 Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-FQ58-IO-W-G-TH	Thailand	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20 Band 1/8 Band 3/8	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ58-D485-IO-W-G-TH	Thailand	LTE CAT4	LTE-FDD WCDMA GSM	Band 1/3/7/8/20 Band 1/8 Band 3/8	2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ78	Australia & Latin America	LTE CAT4	LTE-FDD LTE-TDD UMTS(DC-HSPA+) EDGE/GPRS/GSM	Band 1/2/3/4/5/7/8/28 Band 40 Band1/2/5/8 850/900/1800/1900MHz	2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-FQ78-IO	Australia & Latin America	LTE CAT4	LTE-FDD LTE-TDD UMTS(DC-HSPA+) EDGE/GPRS/GSM	Band 1/2/3/4/5/7/8/28 Band 40 Band1/2/5/8 850/900/1800/1900MHz	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-FQ78-W-G	Australia & Latin America	LTE CAT4	LTE-FDD LTE-TDD UMTS(DC-HSPA+) EDGE/GPRS/GSM	Band 1/2/3/4/5/7/8/28 Band 40 Band1/2/5/8 850/900/1800/1900MHz	2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-FQ78-IO-W-G	Australia & Latin America	LTE CAT4	LTE-FDD LTE-TDD UMTS(DC-HSPA+) EDGE/GPRS/GSM	Band 1/2/3/4/5/7/8/28 Band 40 Band1/2/5/8 850/900/1800/1900MHz	2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-FQ78-D485-IO-W-G	Australia & Latin America	LTE CAT4	LTE-FDD LTE-TDD UMTS(DC-HSPA+) EDGE/GPRS/GSM	Band 1/2/3/4/5/7/8/28 Band 40 Band1/2/5/8 850/900/1800/1900MHz	2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported
IG502-EN00	Global		No module		2*10/100Mbps	1*RS232, 1*RS485	No	No	No
IG502-EN00-IO	Global		No module		2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	No	No
IG502-EN00-W-G	Global		No module		2*10/100Mbps	1*RS232, 1*RS485	No	Supported	Supported
IG502-EN00-IO-W-G	Global		No module		2*10/100Mbps	1*RS232, 1*RS485	4*DI, 4*DO	Supported	Supported
IG502-EN00-D485-IO-W-G	Global		No module		2*10/100Mbps	2*RS485	4*DI, 4*DO	Supported	Supported

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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