InHand Networks

Compact Industrial Router

4G LTE, Five Ethernet Ports, Dual SIM, Cloud Management

InRouter305

Industrial LTE Router

Facing the ever-increasing digitalization of the Internet of Things, both the application scenarios of the Internet of Things and the terminal equipment of the Internet of Things, there is an urgent need to realize the Internet to promote the digital transformation of enterprise business, and more economical and more efficient Internet solutions are needed. InHand launches IR305 series products combined with DeviceManager cloud management service. It is suitable for various industries of the IoT, making your digital IoT more convenient, more economical and more efficient!

The InRouter305 (IR305) is an IoT cellular router that integrates 4G LTE, Wi-Fi, and VPN technologies to provide an easy, reliable, and secure Internet connectivity. With technologies such as 4G wireless wide area network and Wi-Fi wireless local area network, it provides uninterrupted multiple network access capabilities, and with its comprehensive security and intelligent software services, efficient and secure network can be realized and it can also provide safe and reliable data links for enterprises to realize digital networking.

This product is suitable for the networking of unattended devices and sites. It is embedded with watchdog and multi-layer link detection mechanisms to ensure reliable and stable communications. Meanwhile, combined with the InHand Device Manager cloud platform, it is easy for enterprise users to conduct unified cloud management centrally, grasp status of devices effortlessly, save deployment costs and improve management efficiency, providing one-stop solutions for your large-scale IoT deployment.

Key industries:

- Smart Commerce
    - ATM, POS
    - Unattended kiosk
    - Digital signage
    - Retail stand
- Smart Energy
    - EV charging
    - Power distribution, Meter reading
- Smart City
    - Heat, Water & air supply
    - Gas supply security, Traffic management, E-police
    - Smart parking
- Smart Manufacturing
    - Networking machines from OEM discrete manufacturing
    - Networking industrial robots
    - Industrial automatic factories & production lines
- Smart medical care
   - Medical device networking and other applications

Application Case
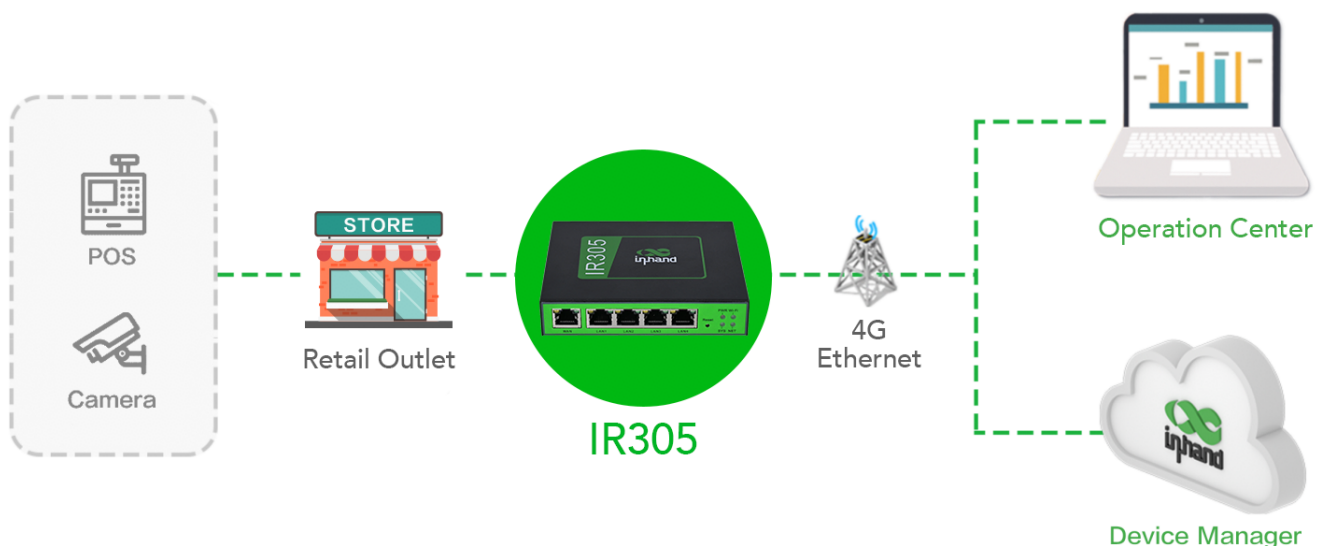
Features and Advantages

- + Multi-level link backup mechanism to ensure uninterrupted networks
- + Comprehensive firewall secure strategies, protecting networks
- + Multiple VPN protocols, rapid networking with multiple dynamic routes
- + Remote connection built by InConnect, realizing efficient maintenance management
- + Supports InHand Device Manager cloud platform for efficient central network management
- + Abundant industrial ports, covering IoT scenarios
- + Industrial-grade design

● **Uninterrupted network access**

IR305 has a variety of network access capabilities (cellular, Wi-Fi and wired), serving for different network environments. It provides network access at different rates for different business demands. Even for on-site IoT devices, convenient and efficient network access services are provided.
- Supports 4G cellular access, LTE CAT1/CAT4/CAT6 standard, compatible with 2G/3G network.
- Supports Wi-Fi, both AP & STA modes, for users to easily set up secure wireless networks. Supports 802.11b/g/n, transmission rate up to 300Mbps; WEP/WPA/WPA2 encryption. Failover between 4G and Wi-Fi, effectively ensuring uninterrupted data transmission.

● **"Always online", ensuring uninterrupted network**

Provides high quality network services that are always online, ensuring the stability of business network, reducing the risk of network malfunction, saving network investment cost.
- Link-backup: enabling wired, cellular and Wi-Fi to make backup mutually.
- Dual SIM failover, automatically switches to the more stable carrier networks.
- VRRP hot backup mechanism: redundant backups.
- Multi-layer link detection mechanism: detects link status, realizing automatic re-pull and fault self-recovery.

● **Strong security protection**

Security protection is critical in a complex network environment. Multi-level security policies protect sensitive data and key service networks from attacks and threats, providing a secure network to protect digital assets while business advances rapidly.
- Data transmission: IPsec VPN, L2TP, PPTP, OPEN VPN, DMVPN, GRE and CA certificate.
- Network protection: supports SPI (Stateful Packet Inspection), SSH (Secure Shell), intrusion protection (forbidden ping), DDoS defense, attack defense, IP-MAC binding, etc., protecting the network against external attacks.
- Device access: supports user hierarchical authorization (CLI only), implementing secure access management by providing different roles and different permissions.

● **Concise and convenient cloud management**

IR305 connects to the InHand DeviceManager remote device management cloud platform to manage tens of thousands of distributed site devices in real time and grasp device status anytime and anywhere, making management more economical and more efficient! Build remote connections for efficient operation and maintenance

● **Build remote connections for efficient operation and maintenance**

IR305 with InHand InConnect cloud connection service, users can quickly and conveniently realize remote maintenance and remote monitoring onsite devices. Diagnose, debug, program and respond to on-site faults and locate problems for distributed devices through remote connections to reduce loss.

● **Abundant industrial ports, covering IoT scenarios**

With rich industrial interfaces, the IR305 can be widely used in highly integrated and diversified IoT scenarios to provide cost-effective networking deployment solutions.
- 5* 100Mbit/s network port: WAN/LAN/VLAN
- Wireless Wi-FI: supports AP and STA modes with a maximum bandwidth of 300Mbps
- Industrial serial ports: RS232 & RS485
- Industrial IO: 4-channel digital IO (DI and DO can be configured).

● **Industrial-grade design**

Metal shell, IP30 protection. EMC level 3. Wide operating temperature: -20°C~70°C. IR305 is compact, which effectively reduces the space of installation and deployment. It supports DIN rail mounting, lug mounting and wall mounting, which is suitable for a variety of IoT deployment sites.

Dimensions (mm)

Serial port

I/O
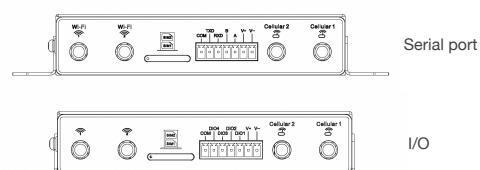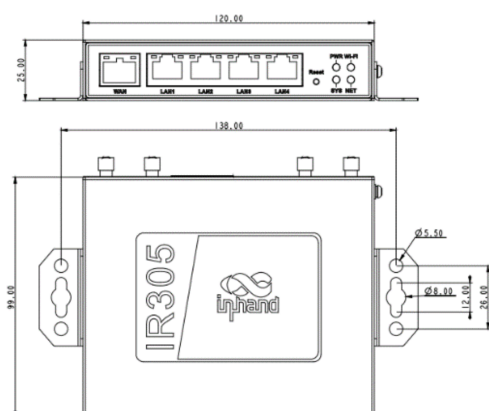
Industrial Terminal						
IR305						
COM	DIO4	DIO3	DIO2	DIO1	V+	V-
IO					Power supply	
IR305-S						
GND	TXD	RXD	B	A	V+	V-
RS232			RS485		Power supply	

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Product Specifications

InRouter305 Hardware Specifications

Hardware Platform

CPU Platform	580MHz	RAM	128MB DDR2
Flash	64MB SPI		

Interface

Ethernet Port	5*10/100Mbps fast Ethernet port, LAN/WAN/VLAN port 1.5KV network isolation transformer protection
Power Supply	DC9-36V, over-current protection, anti-reverse connection, 2 PIN industrial terminal block
Reset Button	Pinhole reset button
I/O (*Optional)	Support 4*IO (DO or DI can be configured)
Serial port (*Optional)	1*RS232+1*RS485

* Alternatives for I/O or Serial port

SIM Card	Drawer-type slot*1, support dual-NANO SIM
Wi-Fi (Optional)	IEEE 802.11b/g/n, 300Mbps
Antenna Connector	4G: SMA x 1; Wi-Fi: RP-SMA x 1 Note: North America models: 2 x SMA 4G antenna connectors.
Ground Terminal	Supports

Mechanical Specs

Dimensions	120 x 99 x 25mm	Weight	354g
Installation Method	Panel mounting, rail mounting	Protection Rating	IP30
Housing	Metal	Cooling	Fanless

Power Rate

Working Power	150-320mA@12V	Standby Power	120-200mA@12V
Peak Power	320mA@12.0V		

Wi-Fi Transmit Power

Transmit Power	802.11b:16dBm +/-2dBm(11Mbps) 802.11g:16dBm +/-2dBm(54Mbps) 802.11n@2.4GHz:16dBm +/-2dBm(HT20 MCS7) 802.11n@2.4GHz:16dBm +/-2dBm(HT40 MCS7)

Ambient Environment

Storage Temperature	-40 ~ 85°C	Operating Temperature	-20 ~ 70°C
Ambient Humidity	5 ~ 95% (non-condensing)		

Indicator

LED	Power, Status, Cellular, Wi-Fi

EMC

Static	EN61000-4-2, level 3	Radiation Electric Field	EN61000-4-3, level 3
Pulsed Electric Field	EN61000-4-4, level 3	Surge	EN61000-4-5, level 3
Conducted Disturbance Immunity	EN61000-4-6, level 3	Shock Wave Resistance	EN61000-4-12, level 3
Power Frequency Magnetic Field Resistance	EN61000-4-8, horizontal / vertical 400A/m (>level 2)		

Physical Specs

Shockproof	IEC60068-2-27	Vibration Resistance	IEC60068-2-6
Free Fall	IEC60068-2-32		

Certificate

CE, FCC, CB, E-MARK, PTCRB, IC, VZW, RCM, AT&T

InRouter305 Software Specifications

Network Connection

Network Access	APN, VPDN	Access Authentication	CHAP/PAP
LAN Protocol	ARP	WAN Protocol	PPP, PPPoE, DHCP
Network Type	GSM/GPRS/EDGE, UMTS/HSPA+/EVDO/TD-SCDMA, TDD LTE/FDD LTE (Please refer to the Ordering Guide for frequencies.)		

Network Protocol

IP Application	Ping, RouteTrace, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, Telnet
IP Routing	Static routing, OSPF dynamic routing
NAT	Supports network address translation

Security

Network Security	Stateful Packet Inspection (SPI), DoS attack defense; Multicast filter/Ping probe packet, Access Control List (ACL); Content URL filter, port mapping, virtual IP mapping, IP-MAC binding
Data Security	Supports PPTP, L2TP, GRE, IPSEC VPN, OPENVPN, DMVPN Supports CA digital certificate

Reliability

Hot Backup	VRRP hot backup
Link Detection	Sends heartbeat packets to detect, auto redials when disconnected
Dual SIM Failover	Supports dual SIM failover
Embedded Watchdog	Device runs self-detection, auto recovers from malfunctions

WLAN (Optional)

Protocol	IEEE 802.11b/g/n	Rate	Up to 300Mbps
Mode	AP, Client and WDS modes		
Security	Open system, shared key, WPA/WPA2 certification WEP/TKIP/AES encryption		
Transmission Distance	80 meters by line of sight (Actual transmission distance depends on environment of the site.)		

Intelligence

Integrated DTU Functions	TCP, UDP transparent transmission mode, TCP Server mode Supports conversion of Modbus RTU to Modbus TCP bridge; Supports DCUDP, DCTCP mode

Network Management

QoS Management	Bandwidth limit, IP speed limit
Configuration	Telnet, web, ssh and console
Upgrade	Web, DeviceManager
Log	Local system log, remote log, and serial export of log. Power down saving of important logs.
SMS Functions	Status query, restart
Dial-on-demand	Dial-on-demand, data / SMS activation
Network Management	Supports InHand DeviceManager, batch management Add the user experience plan to access The InHand Networks cloud platform to enjoy efficient and convenient services.
SNMP	SNMP v1/v2c/v3, supports SNMP TRAP
Traffic Management	Supports data traffic threshold, traffic statistics and traffic alarm
Alarm	System restart alarm, LAN port online/offline alarm, data traffic alarm, SIM card failure alarm, etc.
Maintenance Tools	Ping, route tracking, network speed test
Status Query	System status, modem status, network connection status, and routing status

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Ordering Guide

Model	Model code: IR305-<WMNN>-<WLAN/NA>-<S/NA>		
	<WMNN>: Cellular Type & Module	<WLAN/NA>: Wi-Fi	<S/NA>: Serial Port/IO
IR305-NRQ2-<WLAN/NA>-<S/NA>	China 5G 5G NR NSA: n41/n78/n79 5G NR SA: n1/n28*/n41/n77/n78/n79 FDD: B1/B3/B5/B8 TDD: B34/B38/B39/B40/B41 WCDMA: B1/B5/B8	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-LQ20-<WLAN/NA>-<S/NA>	(For China, LTE CAT 4) FDD: B1/B3/B5/B8 TDD: B34/B38/B39/B40/B41 WCDMA: B1/B5/B8 GSM: B3/B8MHz	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-FQ58-<WLAN/NA>-<S/NA>	(For Europe & APAC, CAT 4) FDD:B1/ B3/ B7/ B8/ B20/B28A TDD: B38/B40/B41 WCDMA:B1/B8 GSM:B3/ B8	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-FQ39-<WLAN/NA>-<S/NA>	(For North America, AT&T, VzW, T-Mobile, LTE CAT 6) FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29/B30/B66 WCDMA: B2/B4/B5	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-FF38-<WLAN/NA>-<S/NA>	(For North America, AT&T, VzW, LTE CAT 4) FDD: B2/B4/B5/B12/B13/B17/B66/B71 WCDMA: B2/B4/B5	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-FQ78-<WLAN/NA>-<S/NA>	(For Australia, Latin America) FDD: B1/B2/B3/B4/B5/B7/B8/B28 TDD: B40 WCDMA: B1/B2/B5/B8 GSM：B2/B3/B5/B8	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-FQ33-<WLAN/NA>-<S/NA>	(For North America, AT&T, VzW, LTE CAT 1) FDD: B2/B4/B5/B12/B13/B25/B26 WCDMA: B2/B4/B5	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-FQ53-<WLAN/NA>-<S/NA>	(For Europe & APAC, CAT 1) FDD:B1/ B3/ B7/ B8/ B20/B28A WCDMA:B1/B8	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
IR305-EN00-<WLAN/NA>-<S/NA>	NA	WLAN: Wi-Fi <NA>: no Wi-Fi	S:1*RS232+1*RS485 <NA>: 4*IO
Example:	IR305-LQ20-WLAN: Five Ethernet ports IR300 series cellular router, support IPSec / PPTP / L2TP / OPEN VPN, supports FDD, TDD, GSM and WCDMA networks, supports Wi-Fi AP & Client mode		

Note: Users are asked to join InHand User Experience Plan at fist time login. If user agreed to join, the router will connect to InHand DeviceManager portal. If users want to disable it, please go to Services->User Experience Plan to change the setting.

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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