



Compact Industrial Router

4G LTE, Dual SIM and Single Ethernet Ports\*

## InRouter301

# Industrial LTE Router

The InRouter301 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 wireless services, it realizes up to 10,000-level equipment networking and provides high-speed data access for equipment 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. The router can be deployed easily to build large scale networks scaling up to tens of thousands of devices. Using our InHand Device Manager cloud platform, users can manage their network efficiently.

The IR301 can be used in a wide range of industrial and commercial IoT applications, providing an option of good balance between cost and performance.

Key industries:

- Smart Commerce
  - ATM, POS
  - Unattended kiosk
  - Digital signage
  - Retail stand
- Smart Energy
  - EV charging
  - Power distribution, Meter reading
- Smart City
  - Heat & Water supply
  - Gas supply security, Traffic management
- Smart Manufacturing
  - Medical device networking and other applications

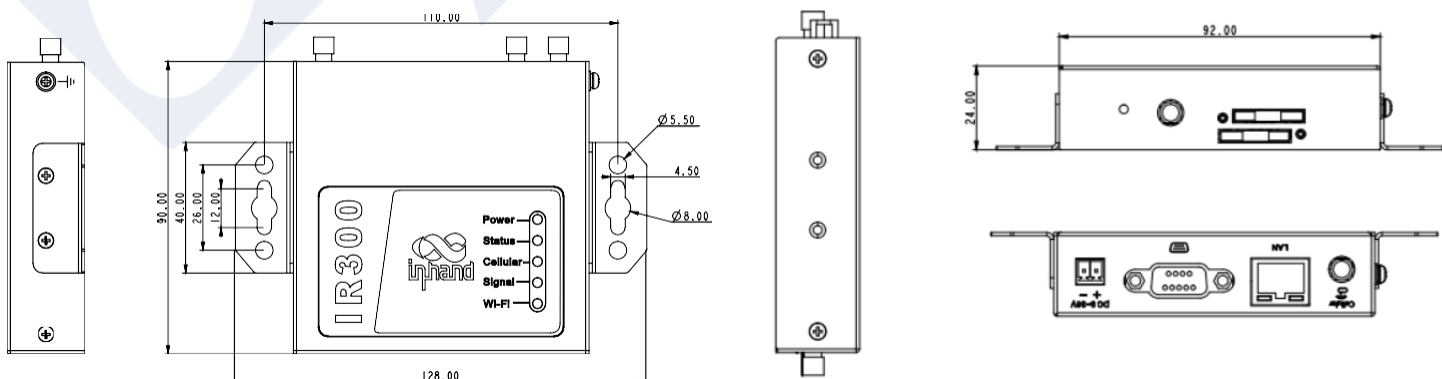
## Application Case



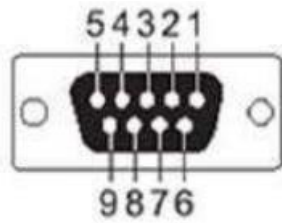
## Features and Advantages

- + Supports both high-speed LTE CAT 4 and low-speed LTE CAT 1 CAT M1/NB IoT networks
  - + 1\*LAN/WAN port, 10/100 Mbps fast Ethernet ports, 1\*RS232+1\*RS485 ports
  - + Multiple VPN protocols
  - + Built-in link redundancy, dual-SIM failover, ensure uninterrupted communications
  - + Supports InHand Device Manager cloud platform for efficient central network management
  - + Compact in size, easy to install
- **Uninterrupted network access**  
Supports fast LTE WAN networks for business continuity and WAN diversity. Get device connected easily with the widely available 4G cellular network. Three optional network types: LTE CAT 4 (150/50Mbps DL/UL), LTE CAT 1 (10/5Mbps DL/UL), and LTE CAT M1 (1119/588kbps, DL/UL) and NB-IoT(127/158.5kbps DL/UL).  
  
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 150Mbps, WEP/WPA/WPA2 encryption. Failover between 4G and Wi-Fi or 4G and WAN, effectively ensuring uninterrupted data transmission.
  - **Strong security protection**
    - Data transmission: IPsec VPN (IKEv1, IKEv2), L2TP, PPTP, OPEN VPN, 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.
  - **High reliability and stability**
    - Link layer detection: continuously detecting and auto redials when dropped off to maintain link connection.
    - Dual SIM failover: automatically switches to the more stable carrier network.
    - PPP layer detection: maintains connection to the carrier network, preventing forced hibernation, keeping network communications smooth.
    - VPN tunnel detection: maintains stable connection of the VPN tunnel, ensuring continuous transmission.
    - Device self-recovery: embedded hardware watchdog, self-recovers from malfunctions, maintaining high device availability.
  - **Easy to use**  
Allows multiple network management methods including CLI, WEB, and a network management platform. Functions of the WEB interface are grouped according to the habits of IT personnel, which logic is clear immediately.
  - **Central management and deployment**  
Supports InHand Device Manager cloud platform to facilitate remote monitoring and central management of large-scale device networks. Batch configure large numbers of devices, efficiently deploying and managing device networks. Add the user experience plan to access The InHand Networks cloud platform to enjoy efficient and convenient services
  - **Industrial-grade design**  
Metal shell, IP30 protection. Level 2 on EMC. Ethernet ports support 1.5KV isolation transformer protection. Wide operating temperature: -20°C~70°C.

## Dimensions (mm)



## Interfaces Introduction

**Notes :**

RS232 serial ports: PIN2=TXD,

PIN3=RXD, PIN5=GND

RS485 serial ports: PIN1=A+,

PIN9=B-

# Product Specifications

InRouter301 Hardware Specifications			
Hardware Platform			
CPU Platform	580MHz	RAM	128MB DDR2
Flash	32MB SPI		
Interface			
Ethernet Port	IR301: 1*10/100Mbps fast Ethernet port, LAN/WAN port 1.5KV network isolation transformer protection		
Serial Port	1*RS-232, 1*RS485*1(DB9); ESD protection: 15KV		
Power Supply	DC9-36V, over-current protection, anti-reverse connection, 2 PIN industrial terminal block		
Reset Button	Pinhole reset button		
SIM Card	Dual drawer-type SIM card slots. 2FF SIM		
Wi-Fi (Optional)	IEEE 802.11b/g/n, 150Mbps		
Antenna Connector	4G: SMA x 1;	Wi-Fi: RP-SMA x 1	
Ground Terminal	Supports		
Mechanical Specs			
Dimensions	90 x 90 x 25mm	Weight	259g
Installation Method	Panel mounting, rail mounting	Protection Rating	IP30
Housing	Metal	Cooling	Fanless
Power Rate			
Working Power	100-120mA@12V	Standby Power	80-90mA@12V
Peak Power	190mA@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, cellular Signal		
EMC			
Static	EN61000-4-2, level 2	Radiation Electric Field	EN61000-4-3, level 2
Pulsed Electric Field	EN61000-4-4, level 2	Surge	EN61000-4-5, level 2
Conducted Disturbance Immunity	EN61000-4-6, level 2	Shock Wave Resistance	EN61000-4-12, level 2
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 (in progress)			
CE, FCC, PTCRB, IC, Verizon, AT&T			

InRouter301 Software Specifications			
Network Connection			
Network Access	APN, VPDN, PrivateNetwork	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		
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 (IKEv1, IKEv2), OPENVPN protocols 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 150Mbps
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.)		
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, configuration, 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		

## Ordering Guide

Model	Model code: IR301-<WMNN>-<WLAN/NA>	
	<WMNN>: Cellular Type & Module	<WLAN/NA>: Wi-Fi
IR301-FQ02-<WLAN/NA>	(Global, LTE CAT M/NB) CAT M1: B1/2/3/4/5/8/12/13/14/18/19/20/25/26/27/28/66/85 CAT NB2: B1/2/3/4/5/8/12/13/18/19/20/25/26/28/66/71/85 GSM/EDGE: 850/900/1800/1900	WLAN: Wi-Fi <NA>: no Wi-Fi
<b>Example</b>	IR301-FQ02-WLAN: single Ethernet port IR301 series cellular router, support IPSec / PPTP / L2TP / OPEN VPN, supports CATM1, NB, and 2G networks, supports Wi-Fi AP & Client mode, 1*DB9 industrial port: RS232 and RS485	



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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 Encompass Product Partner in Asia-Pacific and Schneider Electric CAPP Technology Partner, InHand Networks defines industrial innovation and reliability.



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