



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

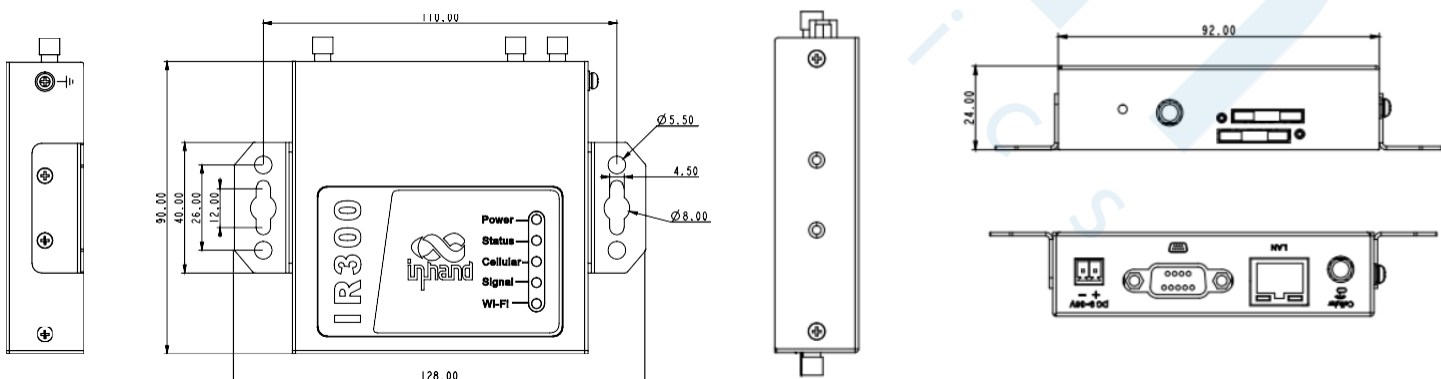
## Application Case



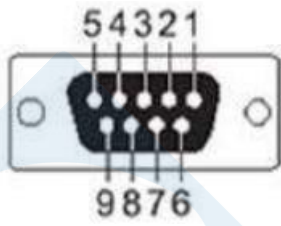
## Features and Advantages

- + 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<br>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)<br>802.11g:16dBm +/-2dBm(54Mbps)<br>802.11n@2.4GHz:16dBm +/-2dBm(HT20 MCS7)<br>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<br>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<br>WEP/TKIP/AES encryption  |                       |                  |
| Transmission Distance               | 80 meters by line of sight<br>(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.<br>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<br>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)<br>CAT M1: B1/2/3/4/5/8/12/13/14/18/19/20/25/26/27/28/66/85<br>CAT NB2: B1/2/3/4/5/8/12/13/18/19/20/25/26/28/66/71/85<br>GSM/EDGE: 850/900/1800/1900  | WLAN: Wi-Fi<br><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 |                               |

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

