InHand Networks



Reliable, Secure, Large-scale M2M/IoT Deployment

InRouter900 Series

Industrial LTE Router

The IR900 series high industrial grade router is a new generation of 3G/4G wireless VPN router launched by InHand networks for the industrial field. With its comprehensive security and wireless services, it can realize up to 10,000-level equipment networking to provide highspeed data access for equipment information in the true sense..

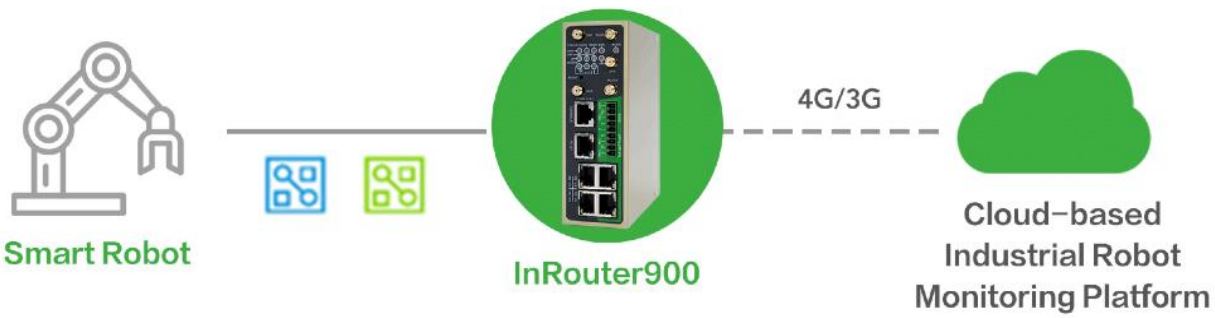
Featuring industrial-grade design, 4G/3G connectivity and intelligent software functions, the InRouter900 is a full-featured LTE router developed for mission critical IIoT applications. With dual SIM, VRRP and VPN, the InRouter900 provides best-in-class reliability and security protection for remote devices, helping enterprise customers to achieve efficient largescale deployment and management.

The IR900 series router is brilliant in the wave of equipment information construction because of their excellent hardware performance, easy deployment and perfect remote management function.

The InRouter900 is ideal for large scale mission-critical industrial applications, such as:

- Smart manufacturing
- Industrial automation
- Smart grid
- Smart Medical
- Smart transportation
- Security
- Oil & Gas
- Industrial Robots
- Field big data
- Agriculture
- Water & Wastewater
- Digital manufacture devices

Application Case



Features and Advantages

- Global 4G LTE
- Multi-carrier certified
- Large scale deployment
- Dual SIM redundancy
- Automatic link detection & recovery
- VRRP
- VLAN
- WLAN
- GPS
- Remote management via SNMP and InHand Device Manager
- User experience plan, enjoy efficient and convenient service
- Ruggedized for harsh environments

Uninterrupted Internet Access Anytime Anywhere

Provide fast LTE wide area network links to achieve business continuity and wide area network diversity. No matter where the equipment is located, you can choose 3G/4G network with wide global coverage to ensure the interconnection and intercommunication of the equipment. Available with LTE CAT4(downlink 150Mbps, uplink 50Mbps) and LTE CAT 1 (downlink 10Mbps, uplink 5Mbps), support Wi-Fi (AP/Client).

Support Large Scale Deployment

Easy remote management via Web, CLI and etc. It is convenient for enterprise network managers to quickly configure thousands of routers and efficiently manage the remote centralized network. Enjoy efficient and convenient services by joining the user experience program. Support RIP, OSPF, BGPv4 for improved efficiency. Dynamic Multipoint VPN (DMVPN) to greatly reduce the workload to configure thousands of remote devices.

Robust Security

VPN: L2TP, IPSec VPN, DMVPN, OpenVPN and CAA

Network security: Stateful Packet Inspection (SPI), Access Control List (ACL), anti-DoS attack, intrusion protection, attack protection, IP/MAC binding, etc..

Device security: AAA (TACACS, Radius local authentication); multi-level user authority

High Reliability

Redundancy with link backup, VRRP and Dual SIM

Automatic Link Detection & Recovery:

- PPP layer: keep connection to operator network, prevent forced hibernation, able to detect stability of dial-up connections

- Network connection: automatic redial when link broken, keep Long Connection

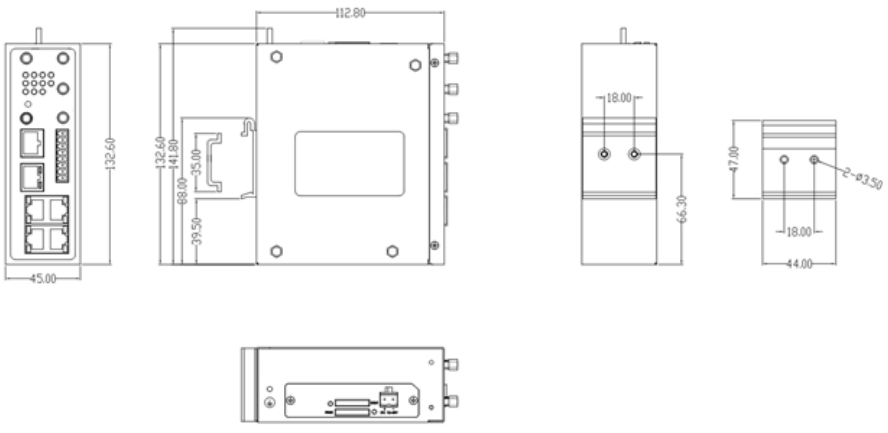
- VPN tunnel: sustain VPN tunnel, to ensure availability of business

InRouter Auto-recovery: InRouter embeds hardware watchdog, able to automatically recover from various failures, ensure highest level of availability

InHand Network Operation System: INOS 2.0

InHand Network Operation System (INOS) has been built as the highly reliable & real-time basis for all network functions, as well as easy-to-use configuration interface via Web, CLI or SNMP. INOS is in modular design, expandable, and adaptable to various M2M/IoT applications.

Dimensions(mm)



9-pin Industrial Terminal Definition

Pin	Definition	Description
1	RXD	Serial port RS232 data receiving
2	TXD	Serial port RS232 data transmitting
3	GND	Serial port RS232 signal ground
4	A	Serial port RS485+
5	B	Serial port RS485-
6	IN	Digital input signal
7	COM	Digital input ground
8	NC	Digital output signal
9	COM	Digital output ground

Production Specifications

InRouter 900 Hardware Specifications			
Item	IR912	IR915	
Hardware			
CPU	ARM Cortex-A8 600MHz	ARM Cortex-A8 600MHz	
Memory	128MB	128MB	
FLASH	128MB	128MB	
Interface			
Ethernet Ports	2*10/100Mbps, WAN/LAN	5*10/100Mbps, WAN/LAN	
Serial Port	N/A	2 Serial: RS232 x1, RS485 x1 RS-232 signal: TXD, RXD, GND RS-485 signal: A, B, GND ESD Protection: 15KV	
Console	RS-232 x 1, RJ45 Serial Port	SIM Holder	2 Push-type SIM Card Holders
Reset	Pinhole Reset Button	Ground Terminal	Support
Wi-Fi	N/A	Optional 802.11b/g/n	
Antenna	3G/4G: SMA Female Connector x 2	3G/4G: SMA Female Connector x 2, WLAN: RP-SMA x 2	
DI/DO(IR915 only)	N/A	1*DI, galvanic isolation, Status "1":+10~+30VV Status "0":-30~+3V"" 1 relay output, 2A@30VDC	
GPS(optional)	N/A	GPS: SMA x 1	
Mechanical			
Installation	Din-rail, wall mount	IP Level	IP30
Cooling	Fanless	Housing	Metal
Dimensions	132.6 x 112.8 x 45mm	Clock	Embedded RTC
Weight	IR912: 565g	IR915: 590g	
Power			
Power Supply	DC 12-48V	Interface	2-pin 5.08mm Industrial terminal
Standby	100mA@24V(HSPA+)	IR915:160mA@24V(HSPA+)	
Working	150mA@24V(HSPA+)	IR915:220mA@24V(HSPA+)	
Peak	180mA@24V(HSPA+)	IR915:230mA@24V(HSPA+)	
Wi-Fi Transmit Power			
Transmit Power	802.11b:13dBm +/-2dBm(11Mbps)) 802.11g:13dBm +/-2dBm(54Mbps)) 802.11n@2.4GHz:13dBm +/-2dBm(HT20 MCS7)) 802.11n@2.4GHz:13dBm +/-2dBm(HT40 MCS7)		
Environment			
Storage	-40~85℃	Working	-25~70℃
Humidity	5~95%(non-condensing)		
Indicators			
LED	POWER, STATUS, WARN, ERROR, MODEM, SIM, VPN, Signal		
EMC			
ESD	EN61000-4-2, level 4	RFI	EN61000-4-3, level 4
EFT	EN61000-4-4, level 4	Surge	EN61000-4-5, level 3
Conducted Disturbances	EN61000-4-6,level 4	Oscillatory	EN61000-4-12,level 4
Frequency Magnetic Field	EN61000-4-8, horizontal/vertical 400A/m (>level 4)		
Mechanical			
Shock	IEC60068-2-27	Vibration	IEC60068-2-6
Free Fall	IEC60068-2-32		
Approvals and Compliance			
CE, E-MARK, FCC, IC, PTCRB, AT&T, Verizon, RCM, CCC, IMDA, EAC&FAC			

InRouter 900 Software Specifications	
Network Connection	
Network Access	APN, VPDN
Access Authentication	CHAP/PAP/MS-CHAP/MS-CHAP V2
Network Type	LTE, WCDMA(HSPA+), EDGE, GPRS
LAN protocol	ARP, Ethernet
WAN protocol	Static IP, DHCP, PPPoE
Network Protocol	
IP Application	Ping, Traceroute, DHCP Server/Relay/Client, DNS Relay, Dynamic DNS, Telnet, SSH, HTTP, HTTPS, TFTP, FTP, SFTP
IP Routing	Static Routing, RIP, OSPF, IGMP Proxy, BGP V4
Network Security	
Firewall	Stateful Packet Inspection (SPI), Anti-DoS Attack Filtering Multicast/Ping package, Access Control List (ACL) NAT, PAT, DMZ, Port Mapping, Virtual Server
Multi Level Authority	Two level authority: Full Authority and Read-Only User
AAA	Local Authentication, Radius, TACACS+, LDAP
CA Certificate	PEM, PKCS12, SCEP
Data Security	IPsec VPN, L2TP, GRE, OPENVPN, DMVPN, CA
Others	Anti-ARP, DMZ, MAC Filtering
Reliability	
Link Backup	Floating Route, WAN Link Backup
Auto-Recover	Various Heartbeat Package, Automatic Recover from Failure
Embedded Watchdog	Self-diagnostic, Automatic Recover from Failure
GPS	
Support GPS	Support VLAN and Port Mirroring
QoS	
Bandwidth	Limiting maximum bandwidth
Data Priority	Support Protocol-based data control
WLAN	
Protocol	IEEE 802.11b/g/n
Rate	Up to 300Mbps
Working Mode	Support both AP and Client Mode
Security	WPA/WPA2, WPA-PSK, Support Open System, Shared Key WEP/TKIP/AES Encryption
Intelligence	
DTU	TCP, UDP transparent transmission, TCP Server, DC
Bridge	101-104, Modbus RTU-Modbus TCP
Network Management	
Configuration	Configure via HTPP, HTTPS, Serial Port, Telnet, SSH
Update	WEB, Serial Port, TFTP, FTP, SFTP server, Device Manager
Log	Local sys log, remote lot, export log via Serial Port Important Log Backup in Flash Memory
SMS	Status query, Configuration, restart
Dial-on-demand	Activate by data, Activate by SMS, Scheduled Online/Offline
SNMP	SNMP v1/v2c/v3，supports SNMP TRAP
DM	Remote management via InHand Device Manager (DM)
AAA	Local/Radius/TACACS+/LDAP
Diagnostic	Ping, Traceroute, Sniffer

Ordering Guide

Model code: IR91X-<N1>-<WMNN>-<W/NA>-S-<GPS>				
Part Number	<N1>: Module	Region (Operator)	<WMNN>: Cellular Networks	S: Serial Port (IR915 only)
IR912L-FQ58 IR915L-FQ58-S	L: 4G LTE	EMEA & APAC	LTE-FDD Band 1/3/7/8/20/28A LTE-TDD Band 38/B40/B41 WCDMA Band 1/8 GSM Band 3/8	S: RS232 & RS485
IR912L-FQ78 IR915L-FQ78-S	L: 4G LTE	Australia & South America	LTE-FDD Band 1/2/3/4/5/7/8/28 LTE-TDD Band 40 WCDMA Band 1/2/5/8 GSM Band 2/3/5/8	S: RS232 & RS485
IR915P-EN00-S	P: No 3G/4G	Global	No 3G/4G	S: RS232 & RS485
Note	Only models without Wi-Fi and GPS can be ordered after October 2024			

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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