

Secure, Reliable, for Large Scale M2M/IoT Deployment

InRouter900 Series

Industrial LTE Router



Featuring industrial-grade design, 4G/3G connectivity and intelligent software functions, the InRouter900 is a full-featured and high-end LTE router designed for mission critical and industrial IoT applications.

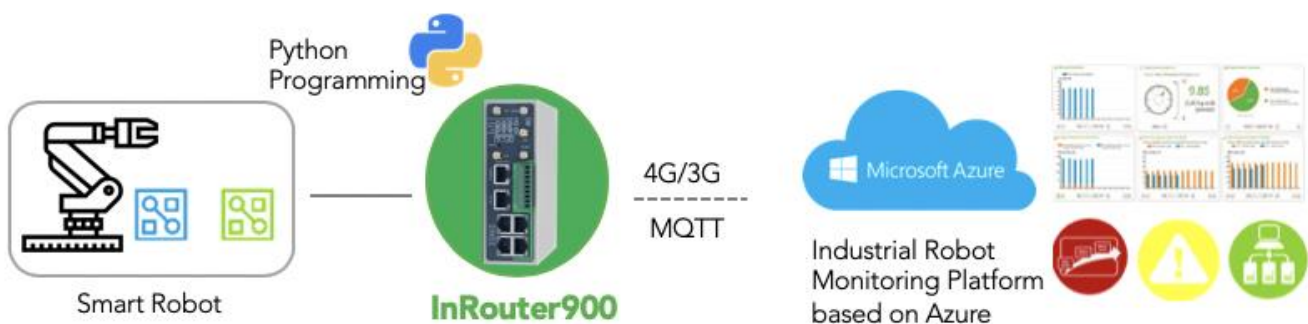
With dual SIM, VRRP and VPN, The InRouter900 provides best-in-class reliability and secure communications for remote devices, helping enterprise customers achieve efficient large-scale deployment and management.

The InRouter900 supports Python programming which can greatly facilitate custom IoT development with shorten time to market. It is a certified [Microsoft Azure IoT Device](#).

The InRouter 900 is ideal for large scale critical and industrial applications, such as:

- Manufacturing
- Industrial Automation
- Robots
- Smart Grid
- Oil & Gas
- Agriculture
- Water & Wastewater
- Smart Transportation
- Healthcare

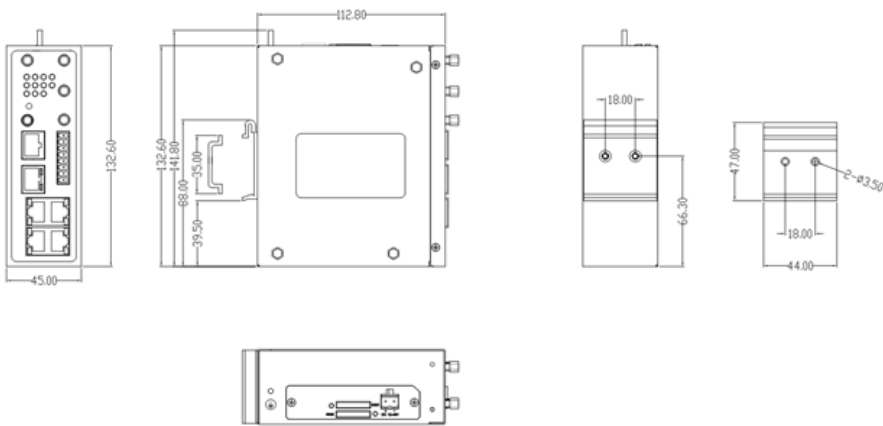
Application



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*
 - + Python Programming
 - + Azure IoT Certified
 - + Ruggedized for Harsh Environments
- **Uninterrupted Internet Access Anytime Anywhere**
Redundant WAN connection, 2 Ethernet ports, 3G/4G, various DSL, available with LTE CAT 4 (downlink 150Mbps, uplink 50Mbps) and LTE CAT 1 (downlink 10Mbps, uplink 5Mbps), support Wi-Fi (AP/Client)
 - **Support Python Programming**
Users can use pre-installed Python SDK to access APIs and resources and run their Python (2.7) programs for customized development.
 - **Support Large Scale Deployment**
Easy remote management via Web, CLI and etc.
Support RIP, OSPF, BGPv4 for improved efficiency
Dynamic Multipoint VPN (DMVPN) to greatly reduce the workload of configuring thousands of remote devices.
 - **Robust Security**
Secured VPNs: L2TP, IPSec VPN, DMVPN, OpenVPN and CA
Network Security: Stateful Packet Inspection (SPI), Access Control List (ACL), resist DoS attack, intrusion protection, attack protection, IP/MAC Binding and etc.
Device Security: AAA (TACACS, Radius, local authentication) and multi-level user authority
 - **High Reliability**
Redundancy with link backup, VRRP and Dual SIM
Automatic Link Detection & Recovery:
PPP Layer Detection: keep the connection with mobile network, prevent forced hibernation, able to detect dial link stability.
Network connection Detection: automatic redial when link broken, keep Long Connection.
VPN Tunnel Detection: sustain VPN tunnel, to ensure availability of business.
InRouter Auto-recovery: InRouter embeds hardware watchdog, able to automatically recover from various failure, 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)



Interface Definition

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

Specifications

IR900 Hardware Specifications			
Item	IR912	IR915	
Hardware			
CPU	ARM Cortex-A8	ARM Cortex-A8 600MHz	
Memory	128MB	128MB	
FLASH	128MB	128MB	
Interface			
Ethernet Ports	2* 10/100Mbps, WAN/LAN	5*10/100Mbps, WAN/LAN; support VLAN	
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 x1, RJ45 Serial	SIM Holder	2 Push-type SIM Card
Reset	Pinhole Reset Button	Ground Terminal	Spport
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 1	
DI/DO (IR915 only)	N/A	1*DI, galvanic isolation, Status "1" :+10~+30V Status "0" :-30~+3V" 1 relay output, 2A@30VDC	
GPS (optional)	N/A	GPS:SMA x 1	
Mechanical			
Installation	Din Rail, Wall Mounted	IP Level	IP30
Cooling	Fanless	Housing	Metal
Dimension (mm)	132.6 x 112.8 x 45	Clock	Embedded RTC
Weight	565	590	
Power			
Power Supply	DC12-48V,	Interface	2-pin 5.08mm industrial
Standby	100mA@24V(HSPA+)	160mA@24V(HSPA+)	
Working	150mA@24V(HSPA+)	220mA@24V(HSPA+)	
Peak	180mA@24V(HSPA+)	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°C	Working	-25 ~ 70°C
Humidity	5 ~ 95% (noncondensing)		
Indicators			
LED	POWER, STATUS, WARN, ERROR, MODEM, SIM, VPN, Signal		
EMC Specifications			
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 Wave	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, FCC, UL, PTCRB, CCC, Verizon, AT&T, E-MARK, IC, IMDA, RCM			

IR900 Software Specifications	
Item	IR900
Network Interface	
Operator Access	APN, VPDN
Access Authentication	CHAP/PAP/MS-CHAP/MS-CHAP V2
Cellular	LTE, WCDMA(HSPA+), EDGE, GPRS
LAN	ARP, Ethernet
WAN	Static IP, DHCP, PPPoE
Protocol	
IP	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
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, PPTP, 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
Watchdog	Self-diagnostic, Automatic Recover from Failure
Port	
Support VLAN and Port Mirroring	
GPS	
GPS	Spport
QoS	
Bandwidth	Limiting maximum bandwidth
Data Priority	Support Protocol-based data control
WLAN	
Standard	IEEE 802.11b/g/n
Security	WPA/WPA2, WPA-PSK, Support Open System, Shared KeyWEP/TKIP/AES Encryption
Mode	Support both AP and Client Mode
Intelligence	
DTU	TCP, UDP transparent transmission, TCP Server, DC
Bridge	101-104, Modbus RTU -Modbus TCP
Net Management	
Configuration	Configure via HTTP, HTTPS, Serial Port, Telnet, SSH
Firmware Upgrade	WEB, Serial Port, TFTP, FTP, SFTP server, and InHand Device Manager
Log	Local sys log, remote log, export log via Serial Port Important Log Backup in Flash Memory
SMS	SMS to Inquiry Status, Reboot
On-Demand Dial Up	Activate by data, Activate by SMS, Scheduled Online/Offline
SNMP	SNMP v1/v2c/v3, InHand MIBs
DM	Remote management via InHand Device Manager (DM)
AAA	Local/Radius/TACACS+/LDAP
Multilevel Authority	Multiple Levels of User Authority
Diagnostic	Ping, Traceroute, Sniffer

Ordering Information

Part Number	Part Number Code : IR91X-<N1>-<WMNN>-<W>-<S>-<GPS>				
	<N1>: Module	<WMNN> : cellular networks & module	<W/NA> : WLAN	<S> : Serial Port	<G/NA> : GPS
IR912P-PS08 IR915P-PS08-<W>-<S>-<GPS>	P:3G or No 3G/4G	UMTS(HSPA+)Band1/2/5/8 (850/900/1900/2100MHz) EDGE/GPRS/GSM 850/900/1800/1900	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912P-PH09 IR915P-PH09-<W>-<S>-<GPS>	P:3G or No 3G/4G	UMTS(HSPA) Band1/8 (900/2100MHz) EDGE/GPRS/GSM 850/900/1800/1900MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912P-VZ16 IR915P-VZ16-<W>-<S>-<GPS>	P:3G or No 3G/4G	For China: EVDO 800/1900MHz CDMA 1x 800/1900MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-TL00 IR915L-TL00-<W>-<S>-<GPS>	L : 4G LTE	For China: LTE-FDD Band 1/3/8 LTE-TDD Band 38/39/40/41 UMTS (DC-HSPA+) 1/5/8/9 TD-SCDMA Band 34/39 EDGE/GPRS/GSM 900/1800MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-TL01 IR915L-TL01-<W>-<S>-<GPS>	L : 4G LTE	For China: LTE-FDD Band 1/3/5/8 LTE-TDD Band 38/39/40/41 TD-SCDMA Band 34/39 UMTS (DC-HSPA+) Band 1/8 EVDO 800MHz CDMA-1x 800MHz EDGE/GPRS/GSM 850/900/1800/1900MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FH20 IR915L-FH20-<W>-<S>-<GPS>	L : 4G LTE	For Europe & APAC: LTE-FDD Band 1/2/3/4/5/7/8/20 UMTS(DC-HSPA+) Band1/2/5/8 EDGE/GPRS/GSM 850/900/1800/1900MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FS08 IR915L-FS08-<W>-<S>-<GPS>	L : 4G LTE	For Europe: LTE-FDD Band 1/3/7/8/20 UMTS(HSPA+) Band 1/3/8 EDGE/GPRS/GSM 900/1800MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FS78 IR915L-FS78-<W>-<S>-<GPS>	L : 4G LTE	For Australia & South America: LTE-FDD CAT4 Band 1/3/5/7/8/28 UMTS(DC-HSPA+) 850/900/1900/2100	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FB53 IR915L-FB53-<W>-<S>-<GPS>	L : 4G LTE	For Europe: LTE-FDD CAT1 Band 3/7/20 EDGE/GPRS/GSM 900/1800MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FS18 IR915L-FS18-<W>-<S>-<GPS>	L : 4G LTE	For Northern America, AT&T: LTE-FDD Band 2/4/5/17 UMTS(HSPA+) Band 2/4/5 EDGE/GPRS/GSM 850/900/1800/1900MHz	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FS28 IR915L-FS28-<W>-<S>-<GPS>	L : 4G LTE	For Northern America, Verizon Wireless: LTE-FDD Band 4/13	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912L-FS38 IR915L-FS38-<W>-<S>-<GPS>	L : 4G LTE	For Northern America, Verizon Wireless: LTE-FDD CAT4 Band2/4/5/13/17 UMTS(DC-HSPA+) Band 2/5	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
IR912P-EN00 IR915P-EN00-<W>-<S>-<GPS>	P:3G or No 3G/4G	No 3G/4G	W: Wi-Fi <NA>: No Wi-Fi	<NA> : RS232 ; 485 : RS485	G: GPS <NA>: No GPS
Example :	IR915P-PS08-W-S-GPS: 5x ETH, VPN, HSPA+, WLAN, RS-232&RS-485, I/O IR912L-FS08: 2x ETH , FDD, HSPA+/WCDMA/GPRS				