InHand Networks

Compact Industrial Router
With 3G/4G, Wi-Fi and VPN

InRouter611-S Series

Industrial LTE Router

The InRouter611-S (also IR611-S) is a series of compact IoT router that supports 3G/4G, Wi-Fi and VPN. It provides easy network access for field devices with 3G/4G wireless WAN and Wi-Fi wireless LAN support, helps to build device networks scaling from tens up to tens of thousands.

With embedded hardware & software watchdogs and multi-layer link detection mechanism, the router safeguards stable and highly-reliable communications for field sites, especially unattended sites. It also supports InHand DeviceManager to facilitate remote network management.

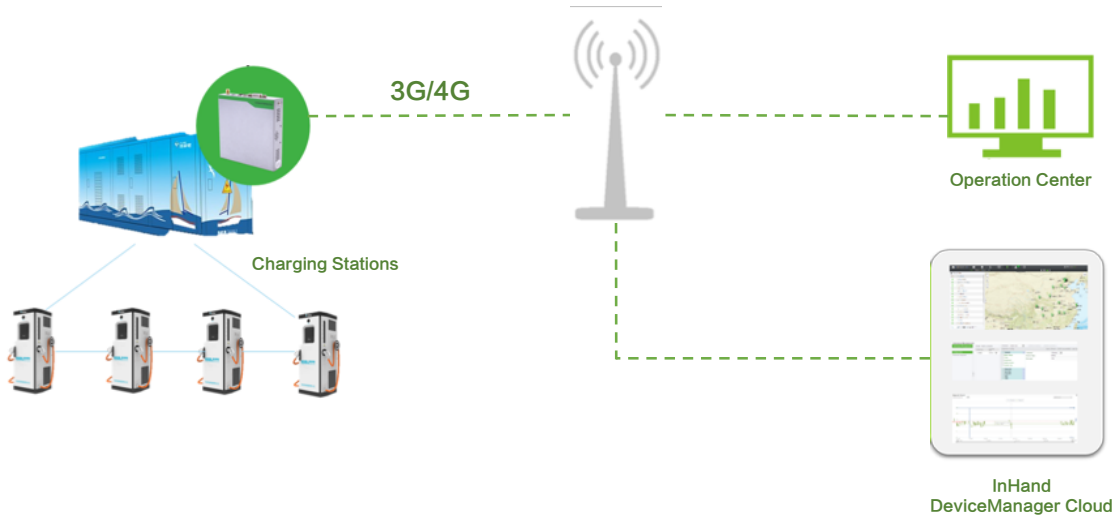
Multiple VPN encryption technologies can ensure secure data transmission, preventing malicious data access and tampering. The user-friendly WEB interface drastically reduces the difficulty of network configuration.

With easy network access, ease of use, and remote management functions, the router provides reliable high-speed data channel for things in the true sense of IoT.

Applicable to a wide range of applications, including large-scale networking:

- Vending machine
- ATM
- Self-service terminals
- Multimedia advertising device
- EV charging station
- Power distribution network
- Chain store POS machine
- Public utilities: heating station, gas valve room, etc.
- Smart medical device, etc.

Application Case



Features and Advantages

+ Support 4G LTE CAT4 high-speed network, as well LTE CAT1 and CAT-M low-rate networks
+ Support WLAN
+ Multiple VPN functions
+ Built-in link redundancies ensure uninterrupted communications
+ Support SNMP and InHand Device Manager cloud platform, for efficient central network management
+ Support high-efficiency deployment of large-scale device networks
+ Compact sized, easy to fit
+ Industrial-grade, ready for challenging conditions

- **Uninterrupted network access**

  Supports multiple fast LTE WAN networks. Get device connected through the global covering 3G/4G network regardless of where the device is located. Three LTE network types to choose: LTE CAT4 (150/50Mbps down/uplink), CAT1 (10/5Mbps down/uplink), and CAT-M (375/300Kbps down/uplink).

  Support Wi-Fi, both AP & STA modes, to set up secure wireless networks easily. Support 3G/4G and Wi-Fi mutual-backup, further ensuring uninterrupted transmission by providing redundant communication links.

- **Strong security protection**

  Transmission security: support IPsec VPN, L2TP, PPTP, OPEN VPN, GRE, and CA certificate.

  Network protection: support SPI stateful detection, Secure Shell (SSH), intrusion protection (forbidden ping), DDoS defense, attack defense, IP-MAC binding, etc. to protect against external attacks

  Access security: support user hierarchical authorization, implement secure access management by giving different roles different permissions.

- **High reliability and stability**

  Link layer detection: detect link conditions, auto redial when dropped off to maintain link connection.

  PPP layer detection: maintain connection to carrier network side, prevent forced hibernation, and keep network link smooth.

  VPN tunnel detection: maintain stable connection of VPN tunnels and continuous data transmission.

  Device fault self-recovery: embedded hardware watchdog, self-recovers from malfunctions, maintaining high device availability.

- **Easy to use for operation and maintenance**

  Provide a wide range of network management methods, including CLI, WEB, and network management platform, that facilitate fast deployment and are easy to use. Functions of the WEB interface are classified according to the habits of IT personnel, with logic clear at a glance, which will greatly improve the configuration efficiency.

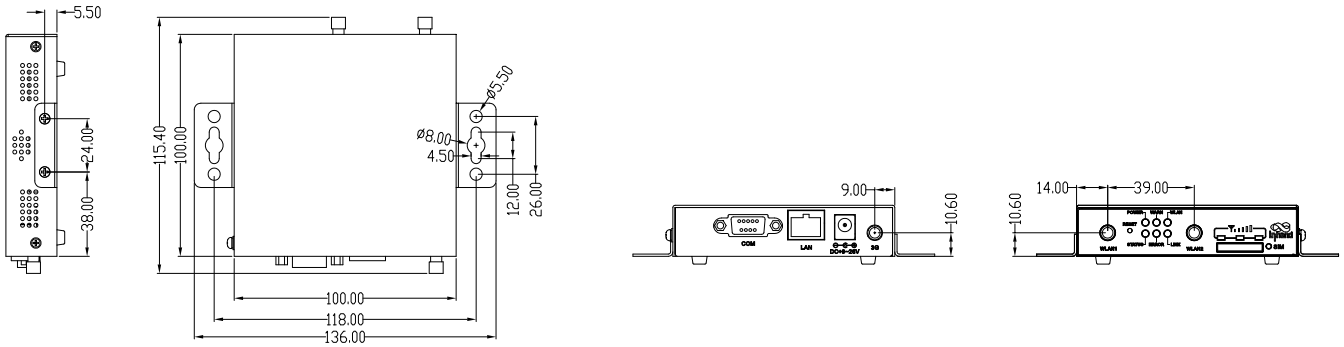
- **Network management cloud platform for central management and deployment**

  Support InHand DeviceManager (DM) cloud platform to facilitate remote monitoring and central management of large-scale device networks. Batch configure large numbers of devices, improve network deployment and maintenance efficiency.

- **Industrial-grade design**

  Metal housing, IP30 protection rating. Reach level 2 on EMC indexes. Ethernet port supports 1.5KV isolation protection. Wide operating temperature: -20℃~70℃. Wide voltage input: DC9-26V.

Dimensions (mm)



Product Specifications

InRouter611-S Hardware Specifications			
Interface			
Ethernet Port	1*10/100Mbps fast Ethernet port, LAN/WAN 1.5KV network isolation protection		
Power Supply	DC9-26V, over-current protection		
Industrial Serial Port	RS-232/485 x 1 (DB9) ESD protection: 15KV		
SIM Card	Drawer-type card slot x 1		
Reset	Pinhole reset button		
Antenna Connector	3G/4G: SMA x 1 WLAN: RP-SMA x 2 Note: FS18/FS38/FB13/FB23/FT43 models have 2 x SMA 4G antennas.		
Ground Terminal	Has ground terminal		
Mechanical Specs			
Dimensions (mm)	100x98.5x23.5mm	Weight (g)	280g
Installation Method	Panel mounting	Protection Rating	IP30
Housing	Metal housing	Cooling	Fanless
Power Rate			
Working Power	200-220mA@12V	Standby Power	89mA-120mA@12V
Peak Power	240mA@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℃	Operating Temperature	-20 ~ 70℃
Ambient Humidity	5 ~ 95% (non-condensing)		
Indicator			
LED	POWER, STATUS, WARN, ERROR, WLAN, LINK, signal indicator		
EMC Index			
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		
Power Frequency Magnetic Field Resistance	EN61000-4-8, horizontal / vertical 400A/m (>level 2)		
Shock Wave Resistance	EN61000-4-12, level 2		
Physical Specs			
Shockproof	IEC60068-2-27	Vibration Resistance	IEC60068-2-6
Free Fall	IEC60068-2-32		
Certificate			
CE, FCC, PTCRB, RCM, IC, Verizon, AT&T, T-Mobile, Sprint			

InRouter611-S Software Specifications			
Network Connection			
Network Access	APN, VPDN	Access Authentication	CHAP/PAP authentication
LAN Protocol	ARP	WAN Protocol	PPP
Network Type	GSM/GPRS/EDGE, UMTS/HSPA+/EVDO/TD-SCDMA, TDD LTE/ FDD LTE (Please refer to Ordering Guide for specific frequency.)		
Network Protocol			
IP Application	Ping, Trace, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, Telnet		
IP Routing	Static routing		
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	VPN functions: PPTP, L2TP, GRE, IPSEC VPN, OPENVPN, etc. CA digital certificate		
Reliability			
Hot Backup	Support VRRP hot backup mechanism		
Link detection	Detect by send heartbeat packets, auto redial when disconnected		
Embedded Watchdog	Device operation self-detection, auto recover from malfunctions		
WLAN (Optional)			
Protocol & Standard	IEEE 802.11b/g/n	Transmission Rate	Up to 300Mbps
Working Mode	Support AP, STA, and WDS modes		
Security	Open system, shared key, WPA/WPA2 certification WEP/TKIP/AES encryption		
Transmission Distance	Line of sight 100 meters (actual transmission distance depends on the site environment)		
Intelligence			
Integrated DTU Functions	TCP, UDP transparent transmission mode, TCP Server mode; Support conversion of Modbus RTU to Modbus TCP bridge; Support DCUDP, DCTCP mode; Support for up to 15 data centers		
Network Management			
QoS Management	Support bandwidth limit, IP speed limit		
Configuration Method	Telnet, web, ssh, and console	Upgrade Method	Web, Device Manager
Logs	Local system logs, remote logs, and serial export of logs. Power down saving of important logs.		
SMS Functions	Status query, configuration, restart	Dial-on-demand	Dial-on-demand, data / SMS activation
Network Management	Support InHand DeviceManager, batch management		
Simple Network Management	SNMP v1/v2c/v3，support SNMP TRAP function		
Traffic Management	Support data traffic threshold setting, support traffic statistics and traffic alarm		
Alarms	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: IR611-S-<WMNN><W/NA>-<S>		
	<WMNN>: Cellular Type & Module	<W/NA>: WLAN	<S>: Serial Port
IR611-S-PS08-<W/NA>-<S>	(Global) UMTS(HSPA+) Band 1/2/5/8 (850/900/1900/2100MHz) EDGE/GPRS/GSM 850/900/1800/1900	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-PH09-<W/NA>-<S>	(China) UMTS(HSPA+) Band 1/8 (900/2100MHz) EDGE/GPRS/GSM 850/900/1800/1900	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-TL00-<W/NA>-<S>	(China) LTE-FDD Band 1/3/8 LTE-TDD Band 38/39/40/41 TD-SCDMA Band 34/39 UMTS (DC-HSPA+) Band 1/5/8/9 EDGE/GPRS/GSM 900/1800MHz	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-TL01-<W/NA>-<S>	(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
IR611-S-FH20-<W/NA>-<S>	(Europe，Asia & Pacific) LTE-FDD Band 1/2/3/4/5/7/8/20 UMTS(DC-HSPA+) Band 1/2/5/8 EDGE/GPRS/GSM 850/900/1800/1900MHz	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FB78-<W/NA>-<S>	(Australia & S.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
IR611-S-FB53-<W/NA>-<S>	(Europe) LTE-FDD CAT1 Band 3/7/20 EDGE/GPRS/GSM 900/1800MHz	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FB63-<W/NA>-<S>	(Asia & Pacific) LTE-FDD CAT1 Band 3/8/28 UMTS(DC-HSPA+) 2100	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FS18-<W/NA>-<S>	(AT&T, North America) 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
IR611-S-FB38-<W/NA>-<S>	(Verizon Wireless, North America) LTE-FDD CAT4 Band 2/4/5/13/17 UMTS(DC-HSPA+) Band 2/5	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FB13-<W/NA>-<S>	(AT&T, North America) LTE-FDD CAT1 Band 2/4/12	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FB23-<W/NA>-<S>	(Verizon Wireless, USA) LTE-FDD CAT1 Band 4/13	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FT43-<W/NA>-<S>	(Sprint, USA) LTE-FDD CAT1 Band 2/4/5/12/25/26	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-FB02-<W/NA>-<S>	(Global) (Band 39 in M1-only) LTE CATM/NB Band 1/2/3/4/5/8/12/13/17/18/19/20/25/26/28	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR611-S-EN00-<W/NA>-<S>	No cellular module	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
Example:	IR611-S-PS08-WLAN: one Ethernet port IR611-S series cellular router, support IPSec/PPTP/L2TP/OPEN VPN, support HSPA+ network, support Wi-Fi AP&STA modes, RS232 serial port		

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, while listed on NEEQ 430642 as of February 18, 2014, InHand Networks defines industrial innovation and reliability.

InHand Networks

3900 Jermantown Rd., Suite 150, Fairfax, VA 22030 USA
T: +1 (703) 348-2988
E: info@inhandnetworks.com
www.inhandnetworks.com