InHand Networks

With 3G/4G, Wi-Fi and Link Backup

InRouter615-S Series

Industrial LTE Router

The InRouter615-S (also IR615-S) is a series of 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:

- Express parcel cabinet
- Branch networking
- Commercial networking
- Public utility: heating station, gas valve room, etc.
- Water treatment
- Security surveillance and criminal investigation
- Smart transportation
- Smart grid
- Smart manufacturing
- Photovoltaic energy
- Industrial automation, etc.

Application Case

Smart Lockers

IR615-S

3G/4G

Smart Locker Management Platform

DeviceManager Cloud
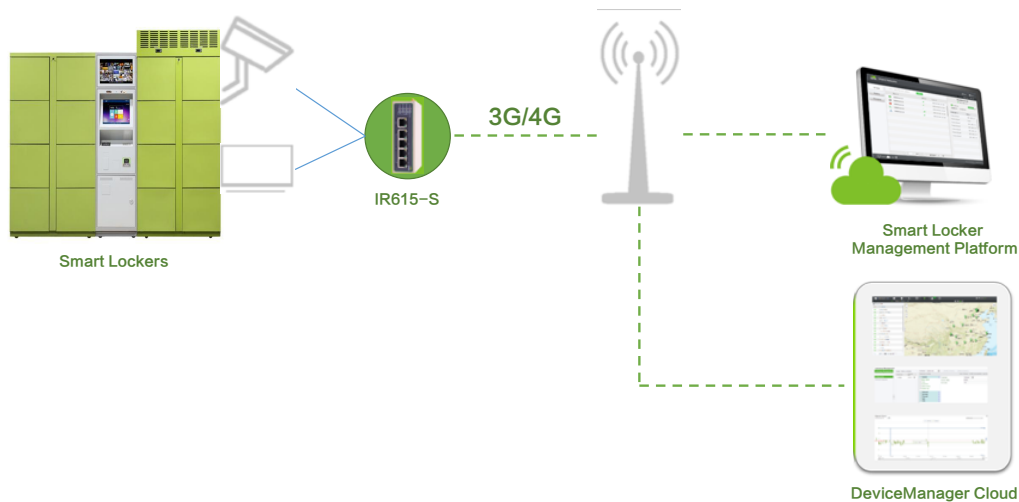
Features and Advantages

+ Support 4G LTE CAT4 high-speed network, as well LTE CAT1 and CAT-M low-rate networks
+ Support WLAN
+ 5 Ethernet ports
+ Multiple VPN functions
+ Multiple built-in link redundancies ensure uninterrupted communications
+ Support SNMP and InHand DeviceManager 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.

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 3 on EMC indexes. Ethernet port supports 1.5KV isolation protection. Wide operating temperature: -20°C~70°C. Wide voltage input: DC9-36V.

Dimensions (mm)
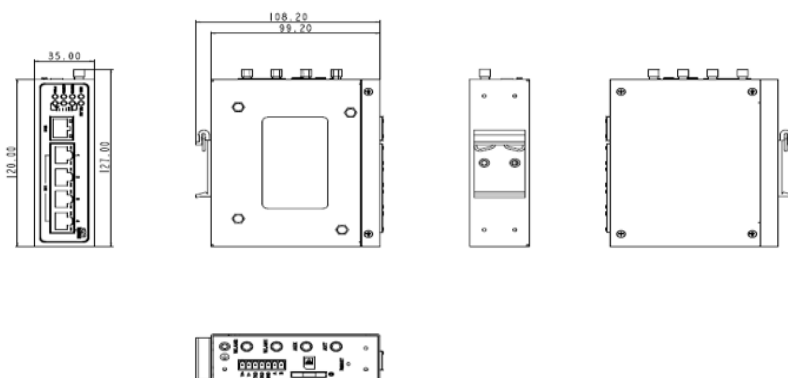
DIN-Rail mounting diagram. Please refer to "Quick Installation Guide" for wall/lug mounting diagram.

7-PIN Industrial Terminal Interface Definition

No.	Definition	Description
1	V+	Positive electrode
2	V-	Negative electrode
3	TXD	Serial RS232 sending
4	RXD	Serial RS232 receiving
5	GND	Serial RS232 signal ground
6	A	Serial RS485 +
7	B	Serial RS485-

InHand Networks

Product Specifications

InRouter615-S Hardware Specifications

Interface

Ethernet Port	1*10/100Mbps fast Ethernet WAN port 4*10/100Mbps fast Ethernet LAN ports 1.5KV network isolation protection
Power Supply	DC9-36V
Industrial Serial Port	RS-232/485 x 1 ESD protection: 15KV
SIM Card	Drawer-type card slot x 1 Part models: Drawer-type card slot x 2
Reset	Pinhole reset button
Antenna Connector	3G/4G: SMA x 2 WLAN: RP-SMA x 2
Ground Terminal	Has ground terminal

Mechanical Specs

Dimensions (mm)	127x108.2x35mm	Weight (g)	440g
Installation Method	DIN-Rail Optional: Lugs/wall mounting	Protection Rating	IP30
Housing	Metal housing	Cooling	Fanless

Power Rate

Working Power	150mA-320mA@12V	Standby Power	120mA-200mA@12V
Peak Power	320mA@12V		

Wi-Fi Transmit Power

Transmit Power	802.11b:16dBm+/-2dBm(11Mbps) 802.11g:16dBm+/-2dBm(54Mbps) 802.11n@2.4GHz: 16dBm+/-2dBm(HT20MCS7) 802.11n@2.4GHz:16dBm+/-2dBm(HT40MCS7)

Ambient Environment

Storage Temperature	-40 ~ 85°C	Operating Temperature	-20 ~ 70°C
Ambient Humidity	5 ~ 95% (non-condensing)		

Indicator

LED	POWER, STATUS, WARN, ERROR, WLAN, LINK, signal indicator

EMC Index

Static	EN61000-4-2, level 3	Radiation Electric Field	EN61000-4-3, level 3
Pulsed Electric Field	EN61000-4-4, level 3	Surge	EN61000-4-5, level 3
Conducted Disturbance Immunity	EN61000-4-6, level 3		
Power Frequency Magnetic Field Resistance	EN61000-4-8, horizontal / vertical 400A/m (>level 3)		
Shock Wave Resistance	EN61000-4-12, level 3		

Physical Specs

Shockproof	IEC60068-2-27	Vibration Resistance	IEC60068-2-6
Free Fall	IEC60068-2-32		

Certificate

CE, FCC, PTCRB, IC, IMDA, RCM, Verizon, AT&T, T-Mobile, Sprint

InRouter615-S Software Specifications

Network Connection

Network Access	APN, VPDN	Access Authentication	CHAP/PAP authentication
LAN Protocol	ARP, Ethernet	WAN Protocol	Static IP, DHCP, PPPoE, PPP
Network Type	GSM/GPRS/EDGE, UMTS/HSPA+/EVDO/TD-SCDMA, TDD LTE/FDD LTE		
IP Application	Ping, Trace, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, Telnet		
IP Routing	Static routing	NAT	Support network address translation

Network Security

Firewall	Stateful Packet Inspection (SPI), DoS attack defense; Multicast filter/Ping packet, Access Control List (ACL); Content URL filter, port mapping, virtual IP mapping, IP/MAC binding
Access Security	Multi-level user authorization
Data Security	IPsec VPN /L2TP/PPTP/GRE/OPEN VPN/CA digital certificate

Reliability

Backup	Dual-SIM mutual backup, VRRP hot backup, link backup
Link detection	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	AP, STA and WDS modes		
Security	Open system, shared key, WPA/WPA2 certification WEP/TKIP/AES encryption		
Transmission Distance	100m (actual transmission distance depends on 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		
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		

inhand | **InHand Networks**

Ordering Guide

Model	Model code: IR615-S-<WMNN>-<W/NA>-<DS/NS>		
	<WMNN>: Cellular Type & Module U-UMTS(HSPA), L-LTE single mode, L3-LTE triple-mode, L5-LTE 5-mode, L7-LTE 7-mode	**<W/NA>: WLAN**	**<DS/NA>: Dual SIM**
IR615-S-U/(PS08/30108) -<W/NA>-<DS/NA>	(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	<DS>: dual SIM <NA>: single SIM
IR615-S -U/(PH09/30207) -<W/NA>	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
IR615-S-L5/(TH09/60218) -<W/NA>-<DS/NA>	(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
IR615-S-L7/(TL01/60522) -<W/NA>-<DS/NA>	(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
IR615-S-L3/(FH20/60220)-<W/NA>--<DS/NA>	(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
IR615-S-FB78-<W/NA>-<DS/NA>	(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
IR615-S-FB53-<W/NA>-<DS/NA>	(Europe) LTE-FDD CAT1 Band 3/7/20 EDGE/GPRS/GSM 900/1800MHz	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR615-S-FB63-<W/NA>	(Asia Pacific) LTE-FDD CAT1 Band 3/8/28 UMTS(DC-HSPA+) 2100	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR615-S-FS18 -<W/NA>	(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
IR615-S-FB38-<W/NA>	(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
IR615-S-FB13-<W/NA>	(AT&T, North America) LTE-FDD CAT1 Band 2/4/12	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR615-S-FB23-<W/NA>	(Verizon Wireless, USA) LTE-FDD CAT1 Band 4/13	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR615-S-FT43-<W/NA>	(Sprint, USA) LTE-FDD CAT1 Band 2/4/5/12/25/26	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
IR615-S-FB02-<W/NA>	(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
IR615-S-EN00	No cellular module	W: Wi-Fi <NA>: no Wi-Fi	<NA>: RS232 485: RS485
Example:	IR615-S-L5-WLAN: five Ethernet ports IR615-S series cellular router, support IPSec/PPTP/L2TP/OPEN VPN, support 4G LTE (5-mode) network, support Wi-Fi AP&STA modes, RS232 or RS-485 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