USR IOT

Communication Expert
of Industrial IOT

USR-G781 specification

Dual Ethernet with serial port 4G router



USR-G781 is an IoT cellular router that integrates 4G LTE, serial modem, and VPN technologies to provide an easy, reliable, secure Internet connectivity and high-speed data access for equipment networking.

G781 modems are designed to provide connectivity across a broad range of M2M and IoT applications. G781 delivers reliable, cost-effective connectivity via serial port to PLCs, Meters, Vending Machines. They help transporting data from any industrial device to data control servers, allowing businesses to benefit from real-time data collection, management and control.

G781 is suitable for large-scale distributed industrial applications, such as

- Smart terminal industry: smart express cabinets, charging piles, ATM machines, ticket vending machines, and automatic vending machines.
- Power industry: remote electric meter reading, substation monitoring
- Water conservancy industry: water quality monitoring, water conservancy remote control
- Municipal industry: street lamp remote monitoring system, urban energy consumption monitoring
- Environmental protection industry: pollution source monitoring, atmospheric environment monitoring, noise monitoring
- Agricultural applications: greenhouse remote monitoring system, aquaculture monitoring system, agricultural water pump monitoring system
- Other industries: warehouse monitoring, elevator remote monitoring, factory digitization, store networking system, logistics industry

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Key Features

■ Stable And Reliable

- Metal shell, IP30 protection.Ethernet ports support 1.5KV isolation transformer protection.
- Wide operating temperature.Wide voltage input,reverse polarity protection.
- ESD,Surge,EFT protection.
- Embedded hardware watchdog, self-recovers from malfunctions, maintaining high device availability.

■ Uninterrupted network access

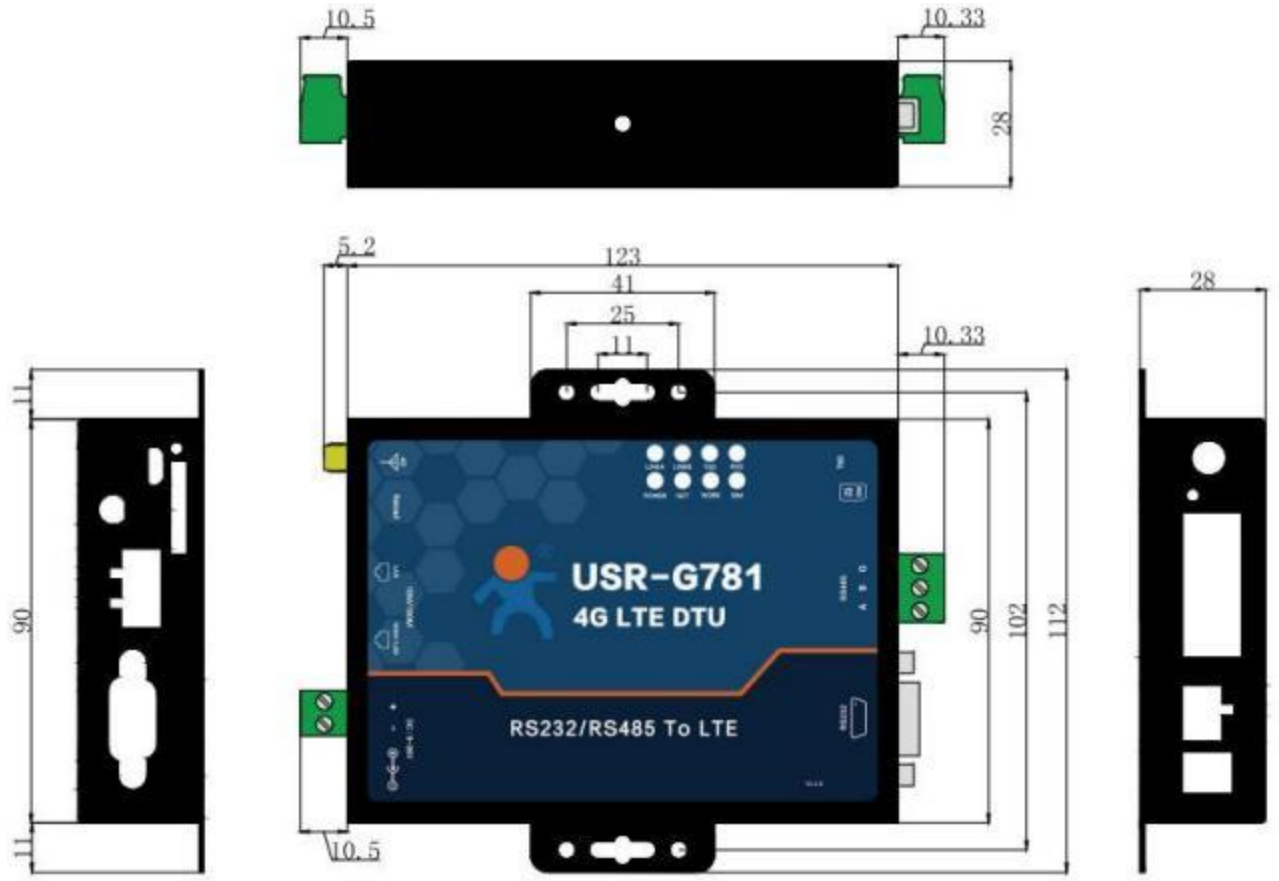
- Supports 2G/3G/4G network all over the world ,supports APN/VPDN sim card.
- Failover between 4G and WAN, ensures automatic switch to alternative backup connection,effectively ensuring uninterrupted data transmission.
- VPN tunnel detection: maintains stable connection of the VPN tunnel, ensuring continuous transmission.
- Multi-layer link detection mechanism, automatic redial and recovery.

■ Rich Functions

- Supports dual Ethernet ports, 1 X RS232 and 1 X RS485.
- Supports bidirectional transparent transmission between field serial devices and the central control system
- Supports IPsec VPN, PPTP,L2TP, OPENVPN,GRE etc., ensuring secure data transmission.
- Supports firewall functions including NAT, access control, DDoS defense，DMZ, IP-MAC binding, etc., protecting the network against external attacks.
- Supports APN automatic inspection ,mode switch ,SIM information display, supports private sim card.
- Supports DDNS,PPPOE,DHCP,Static IP.
- Allows multiple network management methods including SSH, WEB, TELNET and a network management platform.
- Supports user-defined register & heartbeat packets, transparent TCP/UDP protocol, multi-center.
- Supports serial AT command set, you can query/set router configuration through AT command
- Supports multiple modes: network transparent transmission mode, Modbus RTU to Modbus TCP, HTTPD mode, etc.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Dimensions



USR-G781 Dimensions

- Unit: mm.
- Dimensions: 123*112*28mm(L*W*H).Terminal, antenna connector are not included.
- Installation Method: Panel mounting.

Specifications

Hardware Specifications		
Cellular Interface	Antenna	1 x SMA-K
	SIM card	1 x (3 V & 1.8 V) Standard 2FF SIM, drawer-type sim card slots
Ethernet	1 x WAN port (can be configured to LAN) 10/100 Mbps, compliance with IEEE 802.3, supports auto MDI/MDIX, 1.5KV network isolation transformer protection	
	1 x LAN port, 10/100 Mbps, compliance with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX, 1.5KV network isolation transformer protection	

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Indicators	LED	POWER indicator: always on when the device is powered on WORK indicator: flashes when the system is running normally after startup NET network status indicator: Red represents 2G Blue represents 3G Purple represents 4G SIM indicator: When a valid SIM card is detected, it lights up, and is off when a SIM card is not detected. LINKA indicator: always on after SOCKET A connection established LINKB indicator : always on after SOCKET B connection established TXD indicator: flashes when the serial port has data to send, and goes off when there is no data RXD indicator: flashes when there is data reception on the serial port, and goes off when there is no data
Power Supply	Adaptor	DC 12V/1A
	Connector	DC Power Jack Barrel Type Female 5.5*2.1mm Round socket or 2 PIN 5.08mm industrial terminal block,reverse polarity protection
	Input voltage	DC 9~36V
	Working power	Average 180mA/12V
Physical Characteristics	Housing	Metal shell,IP30
	Dimensions	123mm*112mm*28mm(L*W*H）
	Installation method	Panel mounting
	EMC	Static IEC61000-4-2, level 2 Pulsed Electric Field IEC61000-4-4, level 2 Surge IEC61000-4-5, level 2
	Operating temperature	-35℃~+75℃
	Storage temperature	-40℃~+125℃
	Operating humidity	5%～95%RH（non-condensing））
Serial Interface	RS232	Standard DB9 connector
	RS485	3 PIN 3.81mm industrial terminal block
	Baud rate(bps)	1200、2400、4800、9600、19200、380400、57600、115200、230400、460800
	Data bits	8
	Stop bits	1、2
	Parity	NONE、ODD、EVEN
Others	Reload	Pinhole reset button
	TBD	Debug interface (TTL Level)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

	Ground protection	Screw
Certificate	CE,CCC,ROHS,IC	

Software Specifications		
Network Connection	WAN protocol	PPP, PPPoE, DHCP client
	LAN protocol	ARP, DHCP server, NAT
	4G network access	Auto APN/VPDN, private network Access authentication: CHAP/PAP Support detection keep-alive mechanism to ensure the stability of data communication Support SIM card information display Support lock network mode configuration
	IP routing	Static routing table
	Network diagnosis	Ping,route trace,DNS
	IP-MAC banding	Support the binding of the IP address and MAC address of the subnet device to each other, and assign a fixed IP to the specified device.
Device management	Configuration	Web
	Remote management	Telnet, SSH, AT command
	Remote management platform	Remote monitoring,remote upgrade
Security	Failover backup	Failover between 4G and WAN, ensures automatic switch to alternative backup connection
	Firewall	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
	VPN	Supports PPTP, L2TP, GRE, IPSEC VPN (IKEv1), OPENVPN protocols
Serial modem	Work mode	NET,HTTPD
	Sockets	4 sockets,4 centers ,TCPS(SOCKA)/TCPC/UDPS/UDPC
	Modbus RTU to TCP	Support
	Others	Support the setting of packing time and packing length; Support heartbeat package registration package function; Support AT commands, and can configure the network AT command prefix; Support RFC2217-like functions; Support no data reconnection and restart function;
	DDNS	Remote access the device through domain name
		Support local upgrade and remote upgrade; Support configuration backup, import and export configuration files;

Service	Others	Support NTP client function, real-time synchronization of network time; Support login password modification to ensure login security; With regular restart, one-key factory reset, improve the stability of equipment operation.

Ordering Guide

USR-G781 Ordering Guide		
Model	**USR-G781-E**	
Region	EMEA & APAC	
Frequency	TDD-LTE	B38/B40/B41
	FDD-LTE	B1/B3/B5/B7/B8/B20
	WCDMA	B1/B5/B8
	GSM/GPRS/EDGE	B3/B8
Model	**USR-G782-A**	
Region	North America	
Frequency	FDD-LTE	B2/B4/B12
	WCDMA	B2/B4/B5
Model	**USR-G781-AU**	
Region	Australia & Latin America & New Zealand & Taiwan	
Frequency	TDD-LTE	B40
	FDD-LTE	B1/B2/B3/B4/B5/B7/B8/B28
	WCDMA	B1/B2/B5/B8
	GSM/EDGE	B2/B3/B5/B8
Model	**USR-G781-43**	
Region	Part of APAC， please confirm the frequencies	
Frequency	TDD-LTE	B38/39/40/41
	FDD-LTE	B1/B3/B5/B8
	WCDMA	B1/B8
	TD-SCDMA	B34/B39
	EVDO/CDMA1X	BC0
	GSM/CPRS/EDGE	900/1800MHz

Transmission Power

Technology	**Nominal Power Máx.**	**Power Range**
GSM850/EGSM900 (Máx. 33dBm±2dB)	2.00 W	1.26 W - 3.16 W
WCDMA (Máx. 24dBm±3dB)	0.251 W	0.125 W – 0.316 W
LTE-FDD (Máx. 23dBm±2dB)	0.200 W	0.125 W – 0.316 W
LTE-TDD (Máx. 33dBm±2dB)	0.200 W	0.125 W – 0.316 W

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Contact Us

Company: Jinan USR IOT Technology Limited
Address: Floor F1 & Part of Floor F2, Building No. 9, Diya Shuangchuang Industrial Zone, No.2566, Century Main Road, Gaoxin District,Jinan, Shandong, 250101 - China
Web: www.pusr.com
Support: h.usriot.com
Email: sales@usr.cn
Tel: 86-531-88826739/86-531-55507297

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000