

R3000 LG robustos

Industrial LoRaWAN Gateway

Low Power Consumption & Long Range Communication



INTRODUCTION

Robustel R3000 LG is an industrial-grade LoRaWAN gateway, integrated with LoRaWAN wireless communication technology and cellular network technology, to provide users with wireless long-distance data transmission services. R3000 LG allows access to various types of LoRa application nodes, and supports wired Ethernet and wireless 4G/3G/2G access to the cloud platform, mainly for LoRaWAN data transmission between LoRa node and cloud platform.

LPWAN technology is a type of RF Technology designed for low cost and mostly battery operated end devices and sensors. **LoRaWAN** is a MAC level protocol that uses LoRa Radio Technology as its physical layer. One can create both public and private networks with LoRaWAN. The LoRa Alliance has created a fully open LoRaWAN standard allowing the creation of star based LPWAN networks where end devices and sensors communicate with gateways connected to a cloud based (or on premise) LoRaWAN Network server. All communications are fully 128-bit AES encrypted, bidirectional and end devices can register onto the network over the air.

Waterproof TPH6700 IP67 Housing (Optional)

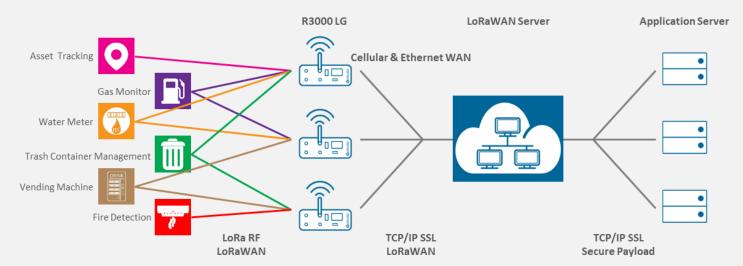
Protecting your LoRaWAN Gateway from extreme outdoor environments and harsh industrial conditions



KEY FEATURES

- Supports global LoRaWAN frequency bands
- Compatible with LoRaWAN and private protocols
- Compatible with any LoRaWAN cloud server
- Up to 8 channels supports receive data simultaneously
- Supports Packet Forwarder Version
 2.2.1 and Packet Forwarder Protocol
 Version 1
- > RobustOS + SDK
- > TPH6700 Housing optional
- Backhaul option supports 3G, 4G and Ethernet
- Supports dual SIM
- > Robust industrial design (9 to 60V DC, -40 to +75 °C)

APPLICATION EXAMPLE



SPECIFICATIONS

LoRa Interface

Number of antennas 1

Connector SMA-K with 50 ohms impedance

Standards 433-434 MHz (Europe) 863-870 MHz (Europe) 470-510 MHz (China) 915-927 MHz (Australia)

> 902-928 MHz (North America) 920-928 MHz (Japan)

Max transmitted power +24.5 dBm Max sensitivity -142 dBm

Reception capacity Supports 8 channels, and each channel can

receive data simultaneously

Supports 1 MHz bandwidth demodulation

Communication range 15 km

Cellular Interface

 Number of antennas
 2 (MAIN + AUX)

 Connector
 SMA-K

 SIM
 2 (3 V & 1.8 V)

 Standards
 2G/3G/4G

Ethernet Interface

Number of ports 2 x 10/100 Mbps, 2 x LAN or 1 x LAN + 1 x WAN

Magnet isolation 1.5 KV

GPS/GLONASS Interface (Optional)

Number of antennas

Connector SMA-K with 50 ohms impedance Acquisition sensitivity GPS: greater than -148 dBm

GLONASS: greater than -145 dBm

Horizontal position GPS: 2.5 m accuracy GLONASS: 2.6 m Protocol NMEA-0183 v4.10

Serial Interface

Number of ports $1 \times RS-232 \text{ or } 1 \times RS-485$

Connector 7-pin 3.5 mm female socket with lock

Baud rate 300 bps to 230400 bps

Parametric form 8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1

RS-232 TxD, RxD, RTS, CTS, GND RS-485 Data+ (A), Data- (B)

Digital Input

Number of ports 2 x DI (dry contact)
Connector 4-pin 3.5 mm female socket

Isolation 3KVDC or 2KVrms
Absolute maximum VDC "V+" +5V DC (DI)
Absolute maximum ADC 300 mA

Others

Reset button 1 x RST

SD 1 x Micro SD interface

Expansion 1 x USB 2.0 host up to 480 Mbps

CLI 1 x CLI interface

LED indicators 1 x RUN, 1 x MODEM, 1 x USR, 1 x RSSI, 1 x NET,

1 x SIM

Built-in RTC, Watchdog, Timer

Software (Basic features of RobustOS)

LoRaWAN protocols V1.0 Class A/Class C and V1.0.2 Class A/Class C
Network protocols PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP,

HTTPs, DNS, ARP, BGP, RIP, OSPF, NTP, SMTP,

Telnet, VLAN, SSH2, DDNS, etc.

VPN tunnel IPsec, OpenVPN, GRE

Firewall DMZ, anti-DoS, Filtering (IP/Domain name/ MAC address), Port Mapping, Access Control

Management Web, CLI, SMS

Serial port Transparent, TCP Client/Server, UDP,

Modbus RTU Gateway

App Center (Available Apps for RobustOS)

Apps* Im_csq, Preferred PLMN, RCMS, LoRiot, L2TP,

PPTP, DMVPN, RobustVPN, VRRP, QoS, SNMP,

Language

*Request on demand. For more Apps please visit www.robustel.com.

Power Supply and Consumption

Connector 3-pin 5 mm female socket with lock

Input voltage 9 to 60V DC
Power consumption Idle: 100 mA@12 V

Data link: 400 mA (peak) @12 V

Physical Characteristics

Ingress protection IP30
Housing & Weight Metal, 570 g
Dimensions 125 x 104 x 43.5 mm

Installations Desktop, wall mounting and 35 mm DIN rail

Approvals

Regulatory CE , RCM,FCC, ICASA Environmental RoHS2.0, WEEE

EMI EN 55032: 2012/AC: 2013 (CE&RE) Class B
EMS IEC 61000-4-2 (ESD) Contact Level 2; Air Level 3

IEC 61000-4-3 (RS) Level 2 IEC 61000-4-4 (EFT) Level 2 IEC 61000-4-5 (Surge) Level 3 IEC 61000-4-6 (CS) Level 2

ORDERING INFORMATION

Model	R3000-LG4LA	R3000-LG4LB	R3000-LGNUA	R3000-LGNUB
Gateway Type	LTE Gateway	LTE Gateway		
Serial Port Type	RS-232	RS-485	RS-232	RS-485
Air Interface	GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/HSPA+/DC-HSPA+/ TD-SCDMA/CDMA (CDMA 1X/EVDO)/FDD LTE/TDD LTE			
Frequency Bands 4G*	Global:B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28; B38/B39/B40/B41 NA: B2/B4/B12			
3G	Global: B1/B2/B4/B5/B6/B8/B19 NA: B2/B4/B5			
2G	Global: B2/B3/B5/B8			
Operating Temperature	-40 to +75 °C		-40 to +75 °C	
Storage Temperature	-40 to +85 °C		-40 to +85 °C	
Relative Humidity	5 to 95% RH		5 to 95% RH	

^{*}For more information about 4G frequency bands in different countries, please contact your Robustel sales representative.

