CONNECTIVITY

4G Rugged Gateway Edge 915R

COMPATIBLE WITH LORA TREE NETWORKS AND K20 EDGE REPEATER

The 4G Rugged Gateway is a key component of Worldsensing's LoRa network and necessary for the deployment of LoRa Tree Networks with the K20 Edge Repeater. Support a continuous data flow for your geotechnical, structural and process monitoring instrumentation when you need to:

- Cover vast distances,
- Transmit signals through physical barriers,
- Minimize maintenance operations and site visits.
- All this, while allowing massive scale at low deployment and maintenance costs.

The 4G Rugged Gateway is an outdoor LoRa gateway equipped with an internal antenna and a 4G worldwide module with 3G/2G fallback. It can deploy reliable networks, connect high volumes of end-devices and manage millions of bidirectional messages every day.

Leverage the capabilities of the 4G Rugged Gateway Edge 915R in projects where you need to deploy a LoRa Tree network and single-gateway network architecture. Access the data server embedded in the gateway, one gateway at a time and manage all deployed devices through Worldsensing connectivity management tool, CMT Edge.

FEATURES

- Carrier grade casing (IP67) for industrial use.
- Supported unlicensed bands : 902-928MHz (North America)
- Integrated internal antenna for GPS, 4G and LoRa (peak gain=2,6dBi). Optional external LoRa antenna 3dBi or 6dBi available.
- 8ch RX (125 kHz, multi Spreading Factor).
- Powered by PoE (Injector, switch), both Mode A and Mode B (802.3af specifications), ±48VDC through RJ45 (isolated power), USB Type C.
- External waterproof connectors (RJ45, USB Type C) eliminating the need to open the casing during installation.
- Easy-to-install mounting kit.
- USB Type C connector for direct PC connection using USB cable.
- Compatible with all Worldsensing Edge Devices.

ADVANTAGES

- Cover vast distances. Up to 15 km range in open sight.
- Suitable for single-gateway projects using CMT Edge.
- LoRa Tree deployments for extended radio range.
- High scalability. One gateway can connect and manage hundreds of devices.
- Customer support from experts in IoT remote monitoring.
- Pioneering company in IoT, more than 10 years experience in geotechnical, structural and geospatial monitoring in the mining industry.

APPLICATIONS

LoRa Tree deployments for extended radio range in:

- Surface and underground mining and tailings dams
- Civil infrastructure monitoring
- Construction works and structural health of surrounding buildings monitoring
- Railtrack monitoring, structural health of tunnels and brigdes, and georisks monitoring

Image is just a representation of the actual device.

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Technical Specifications

RADIO AND NETWORK SPECIFICATIONS

Radio Band	ISM Sub GHz
Sensitivity	Down to -137 dBm (SF11)
Antenna[1]	Integrated internal antennas GPS, 4G, LoRa (peak gain=2,6dBi)
ISM Frequency	902-928 MHz (North America)
Rx	902-915 MHz
Tx	902-928 MHz

NETWORK INTERFACES

Ethernet	10/100 Ethernet WAN (RJ45 PoE).
WWAN	Integrated 4G modem & antenna with worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage.

WWAN CAPABILITIES

Technologies	Band	Data rate
LTE	Band 1 (2100) Band 2 (1900 PCS) Band 3 (1800+) Band 4 (1700/2100 AWS-1) Band 5 (850) Band 7 (2600) Band 8 (900) Band 12 (700 ac) Band 13 (700 c) Band 18 (800 lower) Band 19 (800 upper) Band 20 (800 DD) Band 25 (1900+) Band 26 (850+) Band 28 (700 APT) Band 38 (TD 2600) Band 39 (TD 1900+) Band 40 (TD 2300) Band 41 (TD 2600+	LTE FDD: - Max 150Mbps (DL) - Max 50Mbps (UL) LTE TDD: - Max 130Mbps (DL) - Max 35Mbps (UL)
WCDMA	Band 1 (2100) Band 2 (1900 PCS) Band 4 (1700/2100 AWS-1) Band 5 (850) Band 6 (850 Japan) Band 8 (900) Band 19 (800 upper)	DC-HSDPA: Max 42Mbps (DL) HSUPA: Max 5.7Mbps (UL) WCDMA: - Max 384Kbps (DL) - Max 384Kbps (UL)
GSM	B2 (1900 PCS) B3 (1800 dcs) B5 (850) B8 (900)	EDGE: - Max 296Kbps (DL) - Max 236.8Kbps (UL) GPRS: - Max 107Kbps (DL) - Max 85.6Kbps (UL)

DEVICE INTERFACES

Leds	GREEN - power RED - system status
Connector	UBS Type C Port
SIM Card	Mini-SIM card slot
Buttons	Multifunction button for On/Off/Reset

MECHANICAL SPECIFICATIONS

Weight	265 x 165 x 100 mm (without external LoRa antenna)
Size	1.4 kg (including mounting kit)
Weather protection	IP67
Material	Aluminum (back), polycarbonate (front), Stainless steel (mounting kit)
Operating range	-40° to 60°C

SOFTWARE AND FIRMWARE

Firmware	CMT Edge
Data and network management	CMT Edge
Configuration/firmware updates	Through web user interface remotely or via local access
Mobile App	Node configuration Online and offline coverage test feature

NETWORK MONITORING

Local Access	Data collection about network performance for troubleshooting
CMT Edge Level	• Real-time availability status (on/off) • Uptime • Power input • Health parameters

POWER REQUIREMENTS	
Power source	• PoE[1] both mode A and mode B (802.3af specifications) • 5V through USB C
Mean power consumption[2]	4.5 W[3]

POWER REQUIREMENTS FOR AUTONOMOUS POWER SOURCES		
Recommended input	5.1 V DC, 1.2A max	
Power consumption *f*(source, load)		
Power Source[4]	Low Load (2 radio messages/min)	High Load (30 radio messages/min)
USB C[5]	3.9 W	4.3 W
PoE[6]	5 W	5.5 W

[1] PoE injector for indoor use included in the Kit

[2] Considering good cellular reception levels. Bad cellular reception , data access and adverse environmental conditions can increase the power consumption. Consumption varies depending on the data access used and environmental conditions.

[3] Power consumption measured directly in the GW.

[4] Power consumption includes DC/DC converters.

[5] Using Worldsensing USB Kit accessory LS-ACC-USBCGW

[6] Using Worldsensing PoE converter accessory LS-ACC-SC1248

FOR MORE INFORMATION
Scan to access the user guide for this device.

Accessories

EXTERNAL ANTENNAS (RECOMMENDED)	
LS-ACC-SUPGW-03	Optional vertical omni-directional outdoor antenna kit, 3 dBi, 915/923 MHz, 30 cm length
LS-ACC-SUPGW-02	Optional vertical omni-directional outdoor antenna kit, 6dBi, 915/923 MHz, 110 cm length
LS-ACC-ANTGW-03	Vertical omni-directional outdoor antenna, 3 dBi, 915/923 MHz, 30 cm length
SURGE PROTECTION	
LS-ACC-LPANT-2	Loadsensing gateway lightning antenna protection Coaxial surge protector
LS-ACC-LPETH	Loadsensing gateway lightning Ethernet protection PoE surge protector
POWER SUPPLIES	
LS-ACC-USBCGW	Converter kit to power the K20 GW through USB C directly from a photovoltaic system (12 V IN -> 5 V OUT). Includes a USB cable A male to C male, length: 3 m, a cable gland and an indoor DC/DC converter (IN:9-36 VDC, OUT:5.1 VDC)
FILTERS	
WS-ACC-CFIL-915	Band pass cavity filter 902-928 MHz for North America

Product References

4G RUGGED GATEWAY EDGE REFERENCES	
LS-G6-KIO GW-915R **LS-CMT-EDGE-915**	• 4G Rugged Gateway Edge 902-928MHz (according to device capabilities) for North America • CMT Edge • Includes 2x dust cover, 1 cable gland, 1 ground cable and 1 mounting bracket • Includes 1 PoE indoor injector • Includes 1 adaptor USB to Ethernet

[7] In case you are interested in the PoE input, please note that passive PoE is required. The PoE injector supplied with the gateway is not compatible with this second input.

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Need more support?

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