

CONNECTIVITY

4G Rugged Gateway - Cloud

The 4G Rugged Gateway is a key component of Worldsensing's LoRa network. Support a continuous data flow for your geotechnical and structural 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.

Manage a multi-gateway network with CMT Cloud, Worldsensing's Connectivity Management Tool. The application runs in the cloud and allows you to provide a seamless data flow from the sensors to your operational systems.

FEATURES

Carrier grade casing (IP67) for industrial use.

Supported unlicensed bands : 863-874.4MHz (EMEA, India), 902-928MHz (North America), 915-928MHz (APAC, Latin 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), $\pm 48\text{VDC}$ 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 Cloud.

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

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 bridges, and georisks monitoring



Image is just a representation of the actual device.



Technical Specifications

RADIO AND NETWORK SPECIFICATIONS			
Radio Band	ISM Sub GHz		
Sensitivity	Down to -137 dBm (SF11)		
Antenna¹	Integrated internal antennas GPS, 4G, LoRa (peak gain=2,6dBi)		
SUPPORTED UNLICENSED RADIO BANDS			
ISM frequencies	Region	Rx	Tx
863-874.4 MHz	EMEA, India	863- 873MHz	863-873MHz
902-928 MHz	North America	902-915MHz	922-928MHz
915-928MHz	APAC, Latin America	915-928 MHz	915-928MHz
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 Cloud Gateway firmware
Data and network management	CMT Cloud
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 Cloud Level	<ul style="list-style-type: none"> Real-time availability status (on/off) Uptime Power input Health parameters

POWER REQUIREMENTS

Power source	<ul style="list-style-type: none"> PoE¹ 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 $f(\text{source, load})$		
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

Accessories

EXTERNAL ANTENNAS (RECOMMENDED)

LS-ACC-SUPGW-01	Optional vertical omni-directional outdoor antenna kit, 3 dBi, 868 MHz, 30 cm length
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-01	Vertical omni-directional outdoor antenna, 3 dBi, 868 MHz, 30 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	<p>Converter kit to power the K20 GW through USB C directly from a photovoltaic system (12 V IN -> 5 V OUT).</p> <p>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)</p>
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FILTERS

LS-ACC-CFIN	Band pass cavity filter 865-867 MHz for India.
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Product References

4G RUGGED GATEWAY CLOUD REFERENCES

LS-G6-KIO GW-868 LS-CMT-EDGE-868	<ul style="list-style-type: none"> 4G Rugged Gateway Edge 863-874.4MHz (according to device capabilities) for EMEA, India. 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
LS-G6-KIO GW-915 LS-CMT-EDGE-915	<ul style="list-style-type: none"> 4G Rugged Gateway Cloud 902-928MHz (according to device capabilities) for North America CMT Cloud 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
LS-G6-KIO GW-923 LS-CMT-EDGE-923	<ul style="list-style-type: none"> 4G Rugged Gateway Edge 915-928MHz (according to device capabilities) for APAC, Latin America CMT Cloud 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

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.

³Power 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.



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