SigGate Long Range IoT Gateway User Guide

Legal

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Mailing Address

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Support

Users of Signetik products may receive assistance through the following channels:

- Symmetry Electronics - 1-866-506-8829
- Escalated to Signetik Technical Support
- Email: support@signetik.com

Customers should contact their distributor for support.

Warranty

Warranty information is available at www.signetik.com/legal

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Label information

Physical Label

Model Number: GW - LRN8 - ODC
Serial Number: 21D0005C
IMEI: 352656106378246
EUI: 0016c001ff186a4c

FCC ID: 2AOSN - GWLRN1ODC1
Contains
FCC ID: 2ANPO00NRF9160

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Label examples

An example of physical label is provided in a separate file.

Product Summary

Product Brief

SigGate Long Range IoT Gateway is an industrial grade LoRa gateway supporting scalable private and public LoRa networks. Built-in cellular networking enables connecting LoRa sensors to the cloud even in remote locations.

Readily works with the LoRa ecosystem of devices and Application Servers, as well as Signetik's own suite of LoRa sensors and Network Server. Configuration is simple and hassle free. Robust construction ensures reliable operation even in harsh environments. Remote management tools and over the air updates ensure easy operation and maintenance.

Product Variants

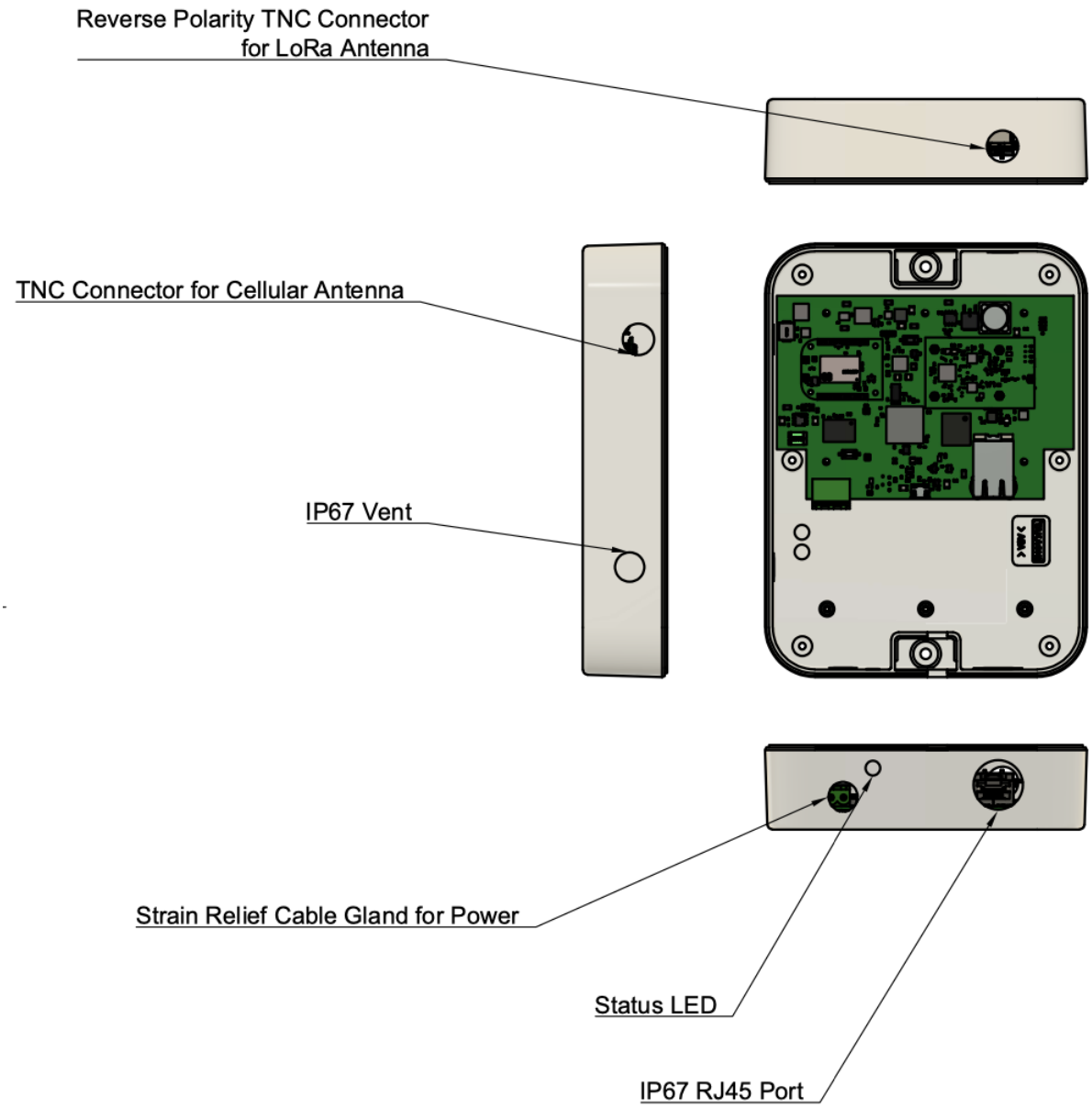
Product Name	Description	
GW-LRN8-ODC	8-Channel Outdoor Gateway	
GW-LRN4-ODC	4-Channel Outdoor Gateway	

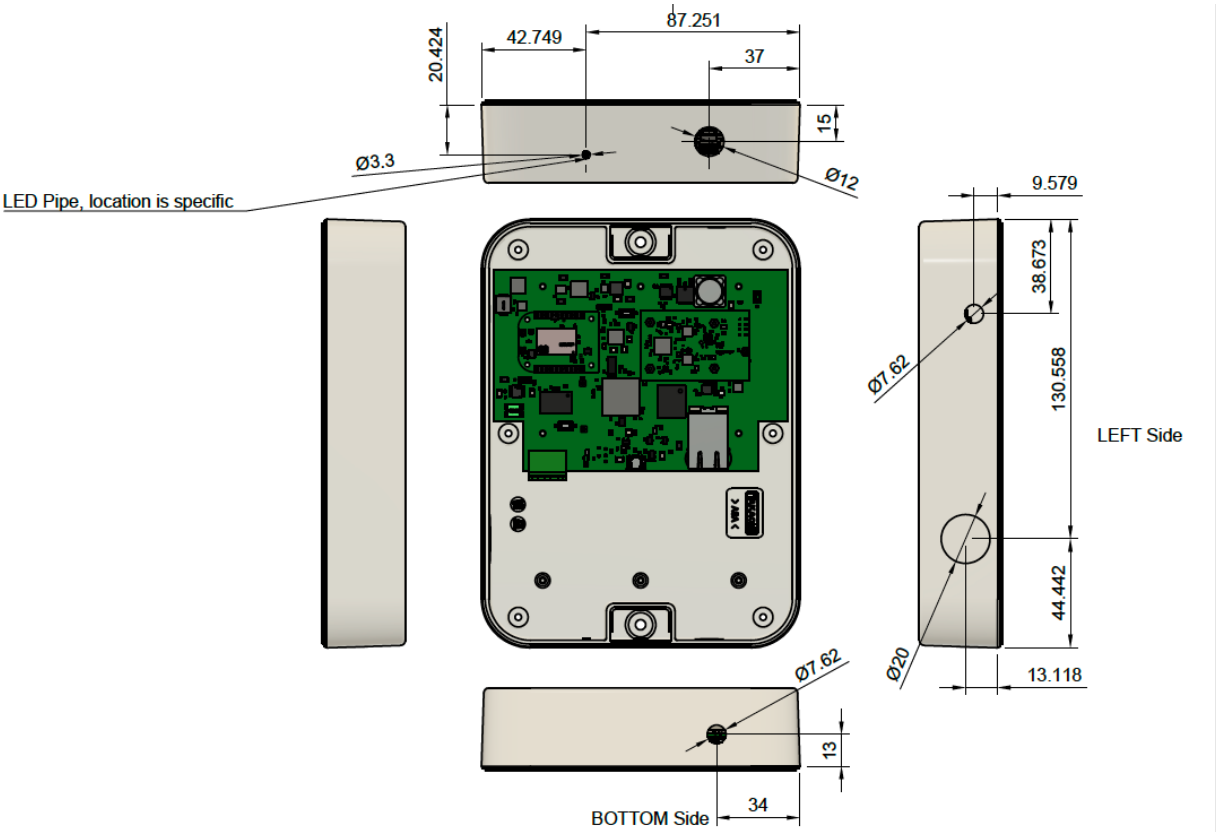
Package Contents

1 - GW-LRNx-yDC
1 – 12V/1.6A Power supply
1 – Quick start guide

Product Specifications

Mechanical




87.251
42.749
37
20.424
15
Ø3.3
LED Pipe, location is specific
Ø12
9.579
38.673
130.558
Ø7.62
LEFT Side
44.442
Ø20
13.118
Ø7.62
13
34
BOTTOM Side

Specifications

	GW-LRN8-ODC	GW-LRN4-ODC
CPU	AM3352 - Armv7 Cortex-A8 800 MHz	AM3352 - Armv7 Cortex-A8 800 MHz
OS	FreeBSD 12.1 or Ubuntu 18.04	
DRAM	512 MB DDR	512 MB DDR
Storage	8 GB eMMC	8 GB eMMC
Ethernet	Auto-sensing 10/100 Mbps port (IP67 RJ45 connector)	
Power	12VDC input (7-14VDC) 1.6A, screw terminal connector through cable gland, with included power cable and adapter (100-240 VAC 50/60 Hz - 2A)	
Lora Radio	IP67 RP-TNC connector	
Cellular Radio	IP67 TNC connector	
GPS Radio	Internal u.FL connector. Optional antenna required.	
LED	Tri-color (RGB) indication of power, connectivity, and traffic.	
Cellular		
Mobile Network	Verizon & AT&T[1]	
Cellular Standard	4G-LTE Category M (NB-IoT fallback)	
Frequency Band	**Verizon** B2 (1900) B4 (1700) B13(700) **AT&T** B2 (1900) B4 (1700) B12(700) B17(700)	
Cellular Bandwidth	Up to 375 kbps downlink Up to 300 kbps uplink	
Cellular Output Power	Up to 23 dBm	
RX Sensitivity	-108 dBm	
SIM Card	4FF – Verizon Included – Contact Signetik for Activation	
LoRa		
LoRa Frequencies	902-928 MHz (North America)	
LoRa Channel Plan	US915	
Channel Capacity	8 channels	4 channels
TX Power Output	27 dBm Max	
RX Sensitivity	-141 dBm at SF12 BW 125 kHz	
RX Noise Figure	2.5 dB	
Max RF Input Level	+10 dBm	
Physical Description		

[1] AT&T certification expected to be complete in 2Q 2021

	GW-LRN8-ODC	GW-LRN4-ODC
Dimensions (L x W x H)	175 x 130 x 45 mm	
Weight	1.85 lb	
Chassis Type	ASA UL94HB	
Ingress Protection	IP67	
Interfaces		
Power	Phoenix Contact 3-POS Screw Terminal Plug M12x1.5 Cable Gland 2-Wire 18 AWG Wire Included with #6 Ring Terminals	
LED	IP67 Light Pipe	
Cellular	TNC Female	
LoRa	RP-TNC Female	
Ethernet	IP67 RJ45 Ethernet Jack	
Venting	IP67 Gas/air/moisture vent	
Environmental		
Operating Temperature	-30C to 70C	
Storage Temperature	-40C to 85C	
Humidity	20% to 90%	
Certifications		
EMC Compliance	FCC Part 15 Class B	
Radio Compliance	FCC Part 22, 24, 27, 15C	
Safety	**Power Input** UL60065 / UL 60950 EN 61000 **Chassis** ASA UL94HB	
MNO	Verizon / AT&T[2]	
LED Indication		
System Booting	Red	
Radio Startup	Blue	
Connected to Network	Orange/Yellow/Green/Purple	
Cellular Signal Strength	Orange - Bad Yellow - Low Green - Good Purple - Strong	
LoRa Traffic	Blink Blue/Off	
Ethernet Traffic	Blink Green/Off	
Cellular Traffic	Blink Purple/Off	
Connection Lost	Orange	
Other		
Warranty	1-year / www.signetik.com/legal	

[2] AT&T certification expected Q2 2021

Accessories (not included)

	GW-LRN8-ODC	GW-LRN4-ODC
Essential		
LoRa Antenna	WMO86916-TNM-5M attached via Reverse polarity TNC connector	
Cellular Antenna	LCO7270-TNM-RA	
Recommended		
Pole Mounting Bracket	Contact Signetik	
Extra Power Cable	Contact Signetik	
Power Cable Splicing	Contact Signetik	
Battery Connectors	Contact Signetik	

Safety Information

This device can be used in fixed and mobile installations. Fixed installations are when devices is mounted on a physically immobile structure such as a pole or building wall/ceiling. Mobile installations refer to mounting on objects that move, such as on a vehicle.

In order to comply with FCC RF Exposure requirements, this device must be installed such that a minimum separation distance of 20 cm is maintained between the antennas and all persons during normal operation.

Recommended from other RF device manufactures should be followed when this product is installed in the vicinity of other RF devices.

Handling Precautions

Although the device is designed to protect against anti-static discharge from handling, users should follow general anti-static precautions when handling the device.

Hardware Setup

1. Connect ETH Cable between your network and gateway device
2. Connect LoRa Antenna
3. Connect Cellular CAT-M antenna
4. [Optional] connect GPS antenna
5. Connect Power supply

Refer to mechanical drawing for location of connection ports.

Cellular SIM card

A SIM card is built into the device. Activation of SIM card should be coordinated with Signetik.

Contact Signetik to use a different SIM card than included with the device.

Software Configuration

LoRa configuration

Once the gateway is connected to the user's network, a web browser can be used to access gateway configuration page. The current configuration can be viewed. Changes to configuration can be made from the webpage.

Note that a device reboot is required before some configuration changes can take effect. A reboot can be initiated from the webpage after the configuration details are setup.

The details of the private LoRa network server or LoRaWAN network server are setup via this configuration page.

Cellular configuration

Cellular connections details are automatically handled in the software preloaded on the gateway device. Cellular connection is established and maintained by the gateway software as long as the SIM is active and has data access to the cellular network.

Regulatory and Environmental Information

Information to the user

This equipment has been tested and found to comply with the rules for white space devices, pursuant to part 15 of the FCC rules. These rules are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

(1) Reorient or relocate the receiving antenna.
(2) Increase the separation between the equipment and receiver.
(3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
(4) Consult the manufacturer, dealer, or an experienced radio technician for help.

FCC Declaration of Conformity

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The user is advised that any equipment changes or modifications not expressly approved by the party responsible for compliance could void compliance with the FCC regulations and, therefore, the user's authorization to operate the equipment.