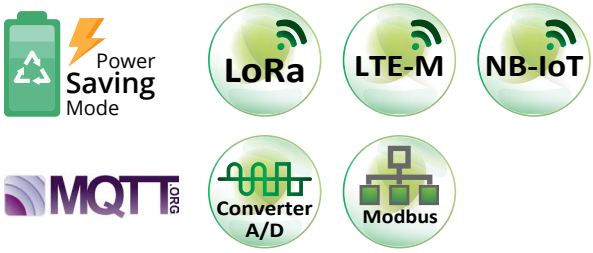
EDGE SERIES

IoT LPWA Solution

EDGE 1 Industrial LoRa Edge Node
EDGE 2 Industrial LTE-M/NB-IoT Edge Node



Overview

EDGE series products are Internet of Things devices which speed up IoT project deployment on field sites in an easy and scalable way. There are two major wireless LPWA solutions: LoRaWAN™ and LTE NB-IoT/Cat-M1 are deployed on the Edge nodes products respectively, fulfilling wireless monitoring and controlling needs under an IoT framework.

The EDGE 1 deploys LoRaWAN™ wireless technology to provide field asset connectivity to AiR PACE Smart LoRa IoT Edge Computing Gateway with 4G LTE Backhaul & Network Server in low data rates over long distances. The EDGE 2 conveniently and transparently connects the existing field site sensors/serial devices with only basic configuration to NB-IoT/Cat-M1 Internet network.

EtherWAN — "When Connectivity is Crucial."

Spotlight

- **Various Wireless LPWA Solutions – LoRa/LTE Cat. NB1 & M1 Dual Mode**
- **Multiple I/O to connect to a Wide Variety of Field Equipment**
- **16MB Log storage; scheduled Uplink**
- **Integrated 10 bit A/D Converter to convert Analog Signal to Digital Data**
- **Serial port supports Modbus (RTU) Interoperability**
- **Remote Control when VDC powered (DO output)**
- **Battery or DC Power Input**
- **-30 to 70°C Temperature Range**
- **IP65 Enclosure Design**
- **MQTT Protocol for Cloud Connectivity**

LoRa Communication Frequency Band

Models	Band Options
EDGE 1-EA	923-924MHz (APAC/AS923)* Japan Excluded
EDGE 1-EU	863-870MHz (Europe/EU868)

LTE Cat. NB1/M1 Frequency Band

	Band/Channel		Region
Model	FDD LTE	TDD LTE	
EDGE 2	B1/B2/B3/B4/B5/B8/B12(B17)/ B13/B18/B19/B20/B26/B28	B39 (*For Cat. M1 only)	**All Regions (*Worldwide)**

Bluetooth Connection Frequency Band

Models	Band Options	Operating Frequency	Max. Output Power
EDGE 1 & EDGE 2	2.4G	2.4-2.485GHz	4mW

Software Features

WAN & Uplink

- EDGE 1
  - Uplink: Support LoRa wireless data transmission capability, with standard LoRaWAN™ Protocol and Class A/C and self-organizing network capabilities
  - Data Security: Supports LoRaWAN™ standard Encryption
- EDGE 2
  - Protocol: TCP, UDP, MQTT
  - Data Security: Pre-shared Key Encryption
  - Connection: By schedule plan (per Day/Week/Month)
  - Data Upload: Multiple servers supported for redundancy, re-trial plan for interrupted connection

Field Communication

- Modbus
  - Master for accessing attached Modbus RTU Slaves (Up to 3 Modbus devices supported)
- Data Logging
  - By schedule plan (per Yearly/Monthly/Weekly/Daily or per designated Minutes)

Administration

- Configuration
  - Windows Utility, Console CLI, USB-to-Serial console cable, or via Bluetooth wireless pre-configuration by laptop
- System
  - Backup & Restore, Reboot & Reset, Syslog, Upgrade

Hardware Specifications

Wireless Interfaces

EDGE 1
- 1 x LoRa Module

Frequency Band
- 863-870MHz (EU/EU868), 923-924MHz (APAC/AS923)* Japan Excluded

Specification
- Max. Output Power: 14dBm (EU868), 20dBm (AS923)
- Sensitivity: -132dBm@980bps

EDGE 2
- 1 x LTE Cat. M1/NB1 Module
- 3GPP, Cat. M1/NB1 with PSM (*Power save mode) supported

Data Transmission
- Cat. M1: Max. 375Kbps (DL); Max. 375Kbps (UL)
  Cat. NB1: Max. 32Kbps (DL); Max. 70Kbps (UL)

Specification
- Max. Output Power: 23dBm
- Sensitivity:
  -107dBm@Cat M1, 1.4MHz Bandwidth, CE Mode A
  -113dBm@Cat NB1, CE Level 0

I/O Interfaces

Analog Input
- 3 x AI ports (supports 0-10V/4-20mA)
- Conversion: 10bit ADC
- Input Range: 0-10V, or 4-20mA (Dual mode)
- Resolution: 10mV, or 20uA (with 2-bit hard-wired divider involved)
- Dynamic Range: 60dB
- Sample Rate: Up to 1 samp./min

Digital Input
- 2 x DI ports (Isolated, supports Pulse Counter, Dry Contact)

Digital Output
- 1 x DO port (Isolated, Non-Relayed Output, Maximum 24V/300mA)

Wake-up Port
- 1 x Internal Reed Switch and dedicated DI wake-up port reserved for device wake-up triggering

I/O Connectors

- 2 x M16 waterproof connectors with 2-hole cable gland for wiring the required ports to external sensors/meters

Embedded Antennas

EDGE 1 Series
- 1 x Internal LoRa Antenna

EDGE 2 Series
- 1 x Internal 2dBi Antenna

Log Storage

Data logging
- 16MB Internal Storage

Power

- 4000mAh 3.6V Li-SOCL2 battery, or external 5-12VDC Power Input predefined by Jumper

Mechanical

Casing
- Plastic (PC, UL-94V2)
- IP65

Dimension
- 105 x 55 x 76.47mm (W x D x H); Enclosure only
- 131.97 x 81 x 76.47mm (W x D x H); Including Cable Gland, Brackets

Weight
- 0.3Kg (0.66lbs)

Installation
- Bracket mounting

Environment Limits

Operating Temperature
- -30 to 70°C (-22 to 158°F)

Storage Temperature
- -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity
- 5% to 95% (non-condensing)

Regulatory Approvals

Safety

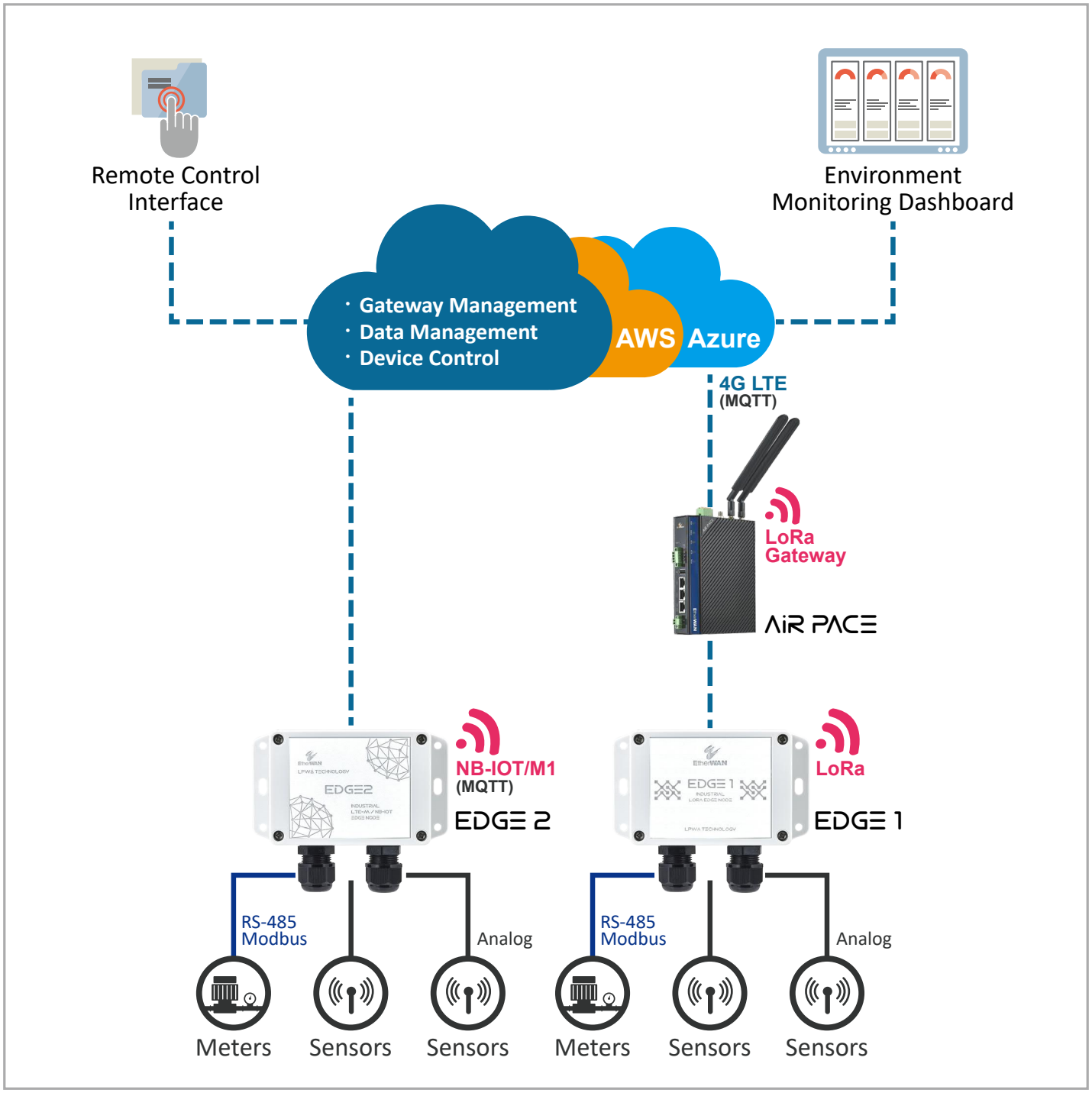
EN 60950-1

Emissions/Immunity

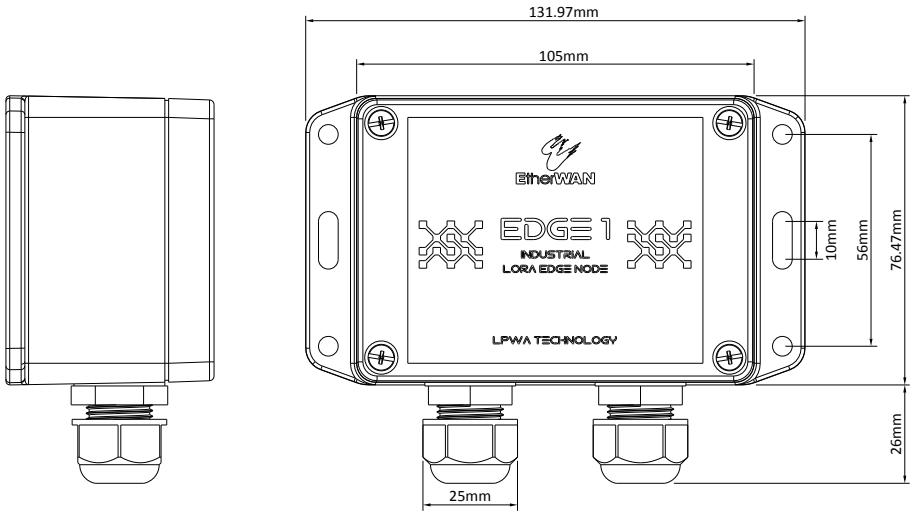
EDGE 1 CE

EDGE 2 CE/NCC/iDA

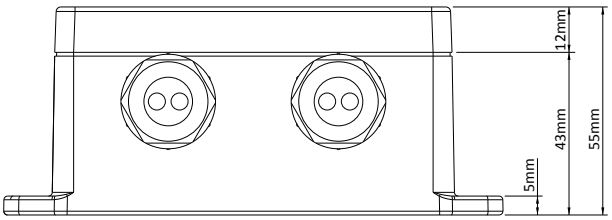
Application Diagram



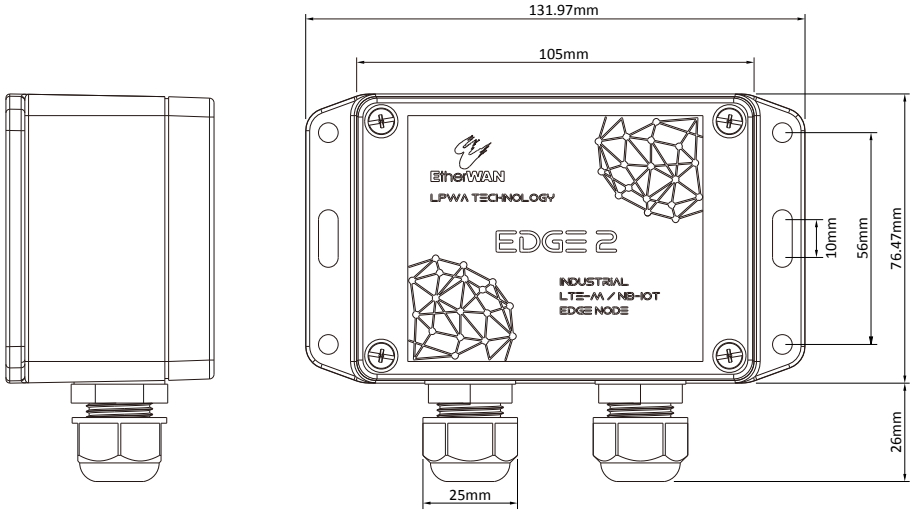
Dimensions



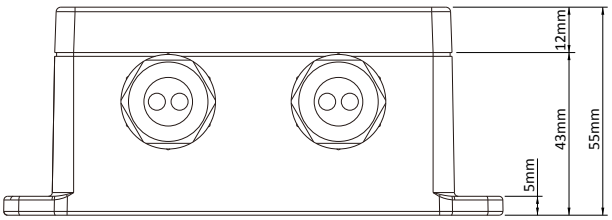
Side *Front*



Side



Side *Front*



Side

Ordering Information

Model	Band/Channel	Regions
EDGE 1-EA	923-924MHz (AS923)	APAC (*Japan Excluded)
EDGE 1-EU	863-870MHz (EU868)	Europe
EDGE 2	**LTE Cat. NB1/M1** FDD LTE: B1/B2/B3/B4/B5/B8/B12(B17)/B13/B18/B19/B20/B26/B28 TDD LTE: B39 (*For Cat. M1 only)	All Regions (*Worldwide)

Included Accessories

- Device x 1
- 4000mAh 3.6V Li-SOCL2 Battery x 1
- Cable Tie for fixing battery x 2
- Jumper for AI current mode setting x 3
- Water & Dust-proof stopper x 3

Optional Accessory

USB-to-Serial Console Cable	Note
	Bluetooth module is embedded for EDGE Series configuration. USB-to-Serial console cable (W96G-1140Y1126) is an optional accessory purchased separately for utility configuration.