EDGE 3 Series

Industrial IoT Wi-Fi HaLow Data transmission device



Overview

Longer Range. Better Penetration. Lower Power Consumption.

The **EDGE 3 Series industrial Wi-Fi HaLow data transmitter** uses **IEEE 802.11ah sub-GHz technology** for kilometer-range coverage and better obstacle penetration than conventional Wi-Fi. Designed for **smart factories and Industrial IoT (IIoT)**, it connects sensors, smart meters, and existing equipment with less cabling. **RS-485, industrial I/O, and Modbus integration** support remote monitoring, energy management, and field data acquisition.

Wi-Fi HaLow vs. Conventional Wi-Fi: What's the Difference?

Feature	Conventional Wi-Fi (Wi-Fi 5/6/7)	Wi-Fi HaLow (IEEE 802.11ah)
Typical Applications	HD video, navigation, and autonomous vehicle connectivity	Equipment monitoring, sensors, smart meters, and status reporting
Operating Bands	2.4/5/6 GHz, depending on Wi-Fi generation	Sub-GHz
Coverage Range	Short to medium range	✓ **Long range** (hundreds of meters to kilometers)
Obstacle Penetration	More limited through walls and floors	✓ **Better** (through walls and across floors)
Data Throughput	✓ **High**, suited to large data transfers and video	Low to moderate, suited to field data transmission
Power Consumption	Generally higher	✓ **Low** (suited to IoT devices)

Spotlight

Long-Range Wi-Fi HaLow Coverage

IEEE 802.11ah Wi-Fi HaLow (sub-GHz) for longer range and better obstacle penetration

Kilometer-range coverage with up to 50 stations per base station

Rugged Design for Hazardous Locations

−30 to 75°C operating temperature range and dual power inputs

TS (ITRI), ATEX, Class I Division 2 (C1D2), and IECEx certified

Faster Deployment, Less Cabling

Over 50% cost savings compared with conventional cabling

80% shorter installation time

Less network cabling across floors and industrial sites

Flexible Dual-Wireless Connectivity

Wi-Fi HaLow for long-range device connectivity

2.4/5 GHz Wi-Fi for local connectivity, including Wi-Fi 5 on 5 GHz

Connect Wi-Fi sensors and smart meters; configure devices using a laptop or tablet

Secure Wireless Connectivity

WPA3-SAE security for Wi-Fi HaLow

WPA3/WPA2 security for conventional Wi-Fi

Industrial I/O and Modbus Integration

Integrated Ethernet, RS-485, analog inputs (AI), and digital inputs/outputs (DI/DO)

Converts analog and digital signals to Modbus data

Specifications

I/O & Expansion

Analog Input

2 x AI (Voltage: 0-10V ; Current: 4-20mA) 12 bit resolution ; precision 100mV, or 200uA

Digital Input

1 × DI ("Logic 0": 0–2 V; "Logic 1": 5–30 V)

Digital Output

1 × DO (Non-relay output, 30 V / 0.5 A)

Power

Input

DC 12–24 V × 2 (dual power inputs)

Power Consumption

(3W Max.)

Environmental Limits

Operating Temperature

-30 to 75 °C (-22 to 167 °F)

Storage Temperature

-40 to 85 °C (-40 to 185 °F)

Relative Humidity

5% to 95% (non-condensing)

Mechanical & Protection

Casing: Metal

IP Rating: IP30

Dimensions: 45 × 145 × 120 mm (W / H / D)

Weight: 750g (1.65lb)

Installation: DIN-rail

Communications

RF

IEEE 802.11ah Wi-Fi HaLow

US 902-928MHz; 32Mbps max bit rate; Bandwidth @ 8MHz : 15Mbps

Taiwan 920-925MHz ; Bandwidth@ 4MHz : 8Mbps

Antenna connector : 1 x SMA Female

Encryption Security: WPA3-SAE

IEEE 802.11ac Wi-Fi 5

Antenna connector : 1 x RPSMA

Encryption Security: WPA3 / WPA 2

Ethernet

IEEE 802.3 10BASE-T

IEEE 802.3u 100BASE-TX/100BASE-FX

2 x RJ45

10/100BASE-T physical layer

Serial

1 × RS-485 (supports up to 30 slave devices)

Regulatory Approvals

Safety

UL61010

Emissions/Immunity

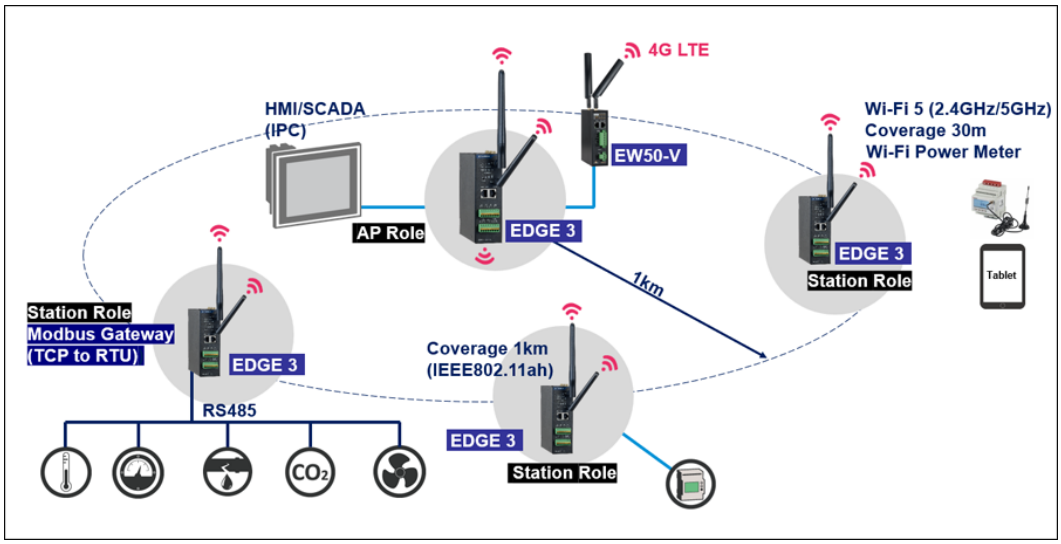
EDGE-3-A-US : FCC

EDGE 3-A-TA : NCC BSMI

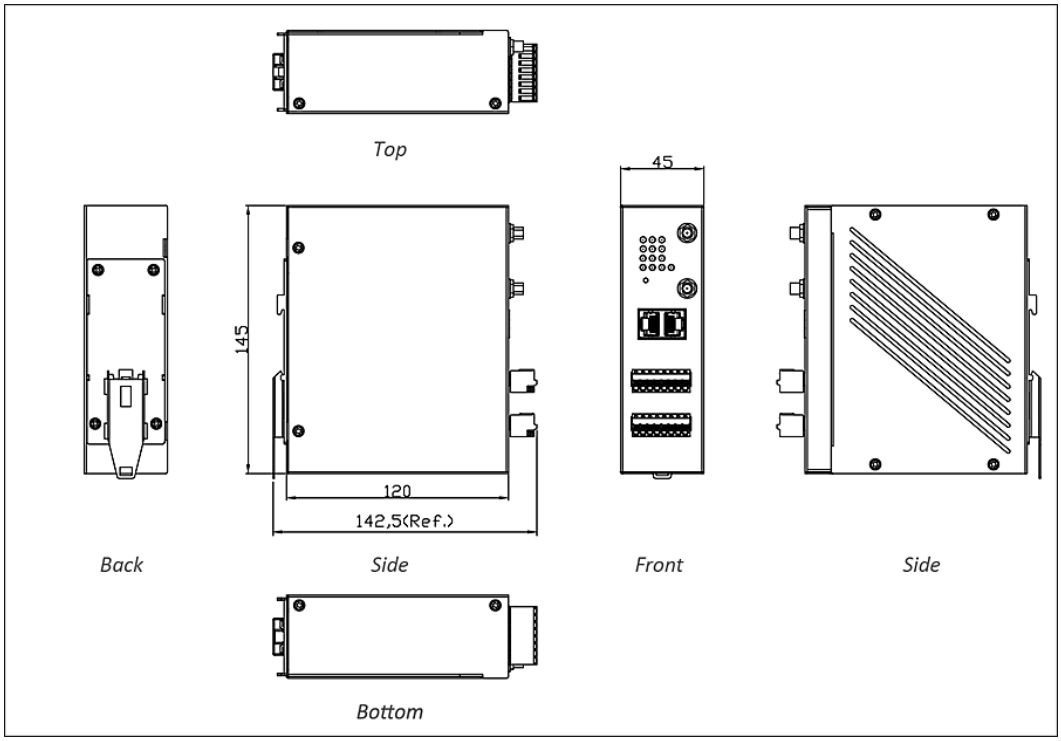
Industrial Explosion proof

ATEX / C1D2 / IECEx

Application



Dimensions



Frequency Bands

Frequency Bands

Sku Code	Band Mode	Frequency Range	Operating Channels	Region
EDGE 3-A-US	Sub-1 GHz frequency operation	902–928 MHz for USA	Sub1G: 1MHz 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51 (Channels) 2MHz 2,6,10,14,18,22,26,30,34,38,42,46,50 (Channels) 4MHz 8,16,24,32,40,48 (Channels) 8MHz 12,28,44 (Channels)	US
EDGE 3-A-TA	Sub-1 GHz frequency operation	920–925 MHz for Taiwan & APAC	1MHz 37,39,41,43,45 (Channels) 2MHz 38,42 (Channels) 4MHz 40 (Channel)	TW & APAC

Ordering Info

Model

EDGE 3-A-US	Industrial IoT Wi-Fi HaLow Data Transmission Device-US
EDGE 3-A-TA	Industrial IoT Wi-Fi HaLow Data Transmission Device- Taiwan & APAC

Optional Accessories

HDR-30-12	24W/ 2A DIN Rail 12VDC Industrial Power Supply

Image	P/N.	Item	Amount	Frequency	Description	Note
	W96G-T00B-A1A3	Magnetic Antenna Base	1	-	For IEEE 802.11ah, cable length is 2M	Not IP67

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