



# ED-GWL2010

An indoor light gateway based on Raspberry Pi 4B

EDA Technology Co.,Ltd  
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# 1 Product Overview

ED-GWL2010 is an indoor light gateway designed based on Raspberry Pi 4B. This product uses the new generation of SX1302 and SX1303 baseband chip LoRa gateway modules, which have the characteristics of long transmission distance, large node capacity and high receiving sensitivity. In addition, this gateway has strong performance, light structure, and simple deployment, which can greatly simplify and shorten your development threshold and design time.

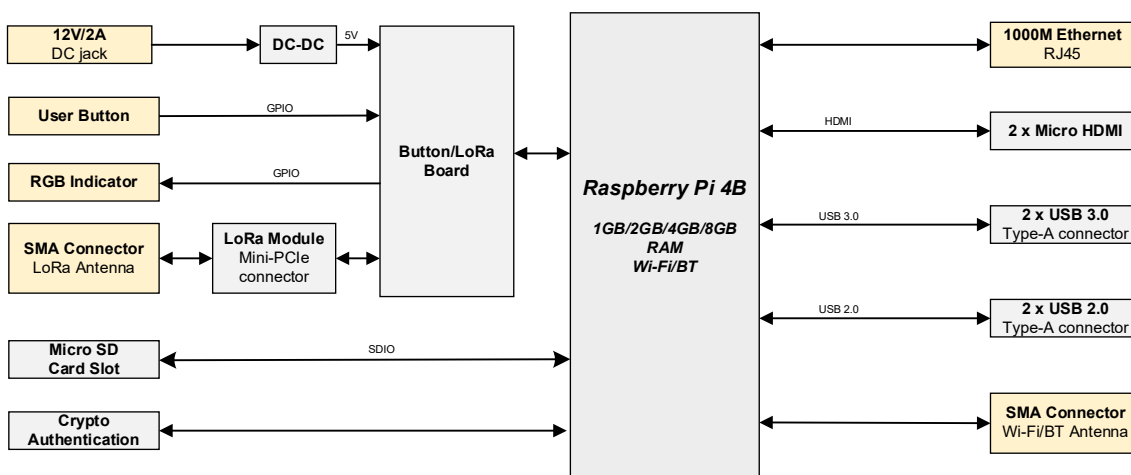
## 1.1 Target Application

- LoRa intelligent gateway
- Smart manufacturing
- Smart city
- Smart transportation

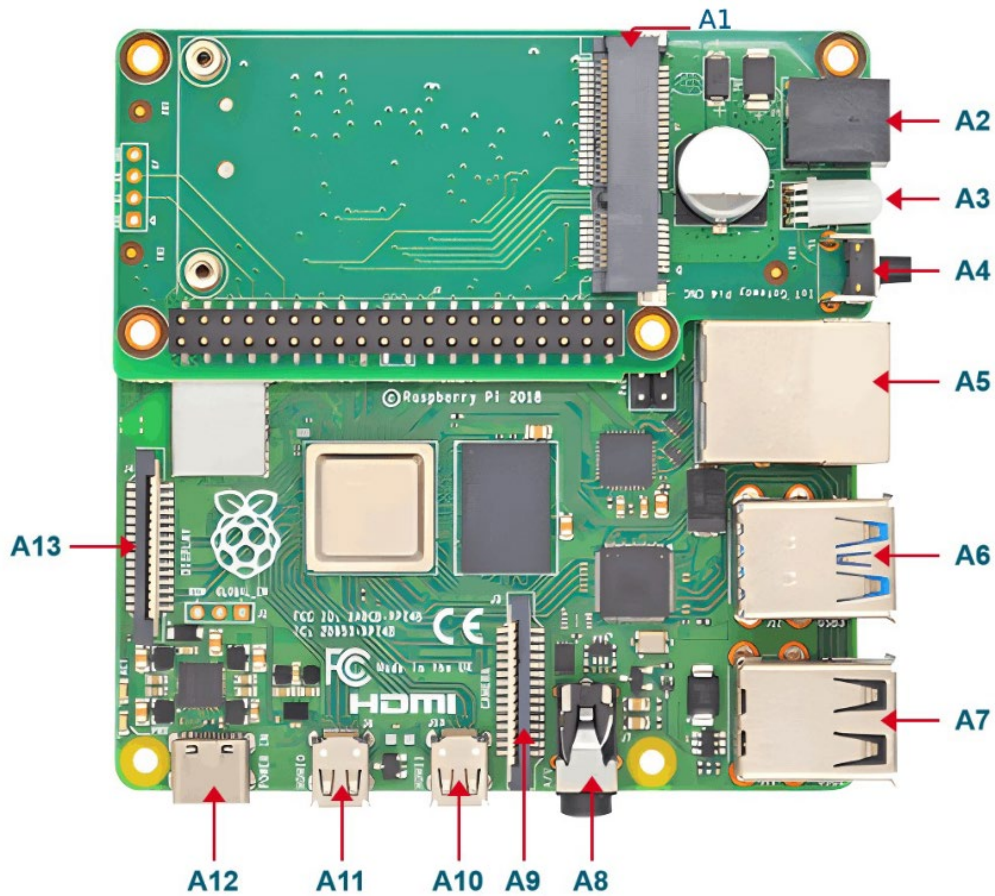
## 1.2 Specifications

Function	Parameters
CPU	Broadcom BCM2711, quad core Arm Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
Memory	Options for 1GB, 2GB, 4GB, 8GB LPDDR4-3200 SDRAM
OS	Compatible with official Raspberry Pi OS
SD card	Options for 32GB, 64GB
Ethernet	1x Gigabit Ethernet
Wi-Fi/Bluetooth	2.4GHz & 5GHz dual-band Wi-Fi and Bluetooth 5.0
LoRa Frequency	Support optional 868MHz(EU868)/915MHz(US915)/470MHz(CN470)
User Button	Support custom function
RGB LED	Support multiple custom displays
Power Supply	DC 12V/2A
Internal IO	2x Micro-HDMI 1x CSI, support extended connection to Camera 1x DSI, support extended connection to Raspberry Pi 7-inch LCD screen 2x USB 2.0, type A connector 2x USB 3.0, type A connector
Expansion Performance	Built-in Crypto Authentication
Case Material	Metal Case
Dimensions	95mm(W) x 95mm(D) x 24mm(H)
Antenna	Supports optional Wi-Fi/BT external antenna Standard LoRa external antenna
Working Temperature	-25 ~ 50 C

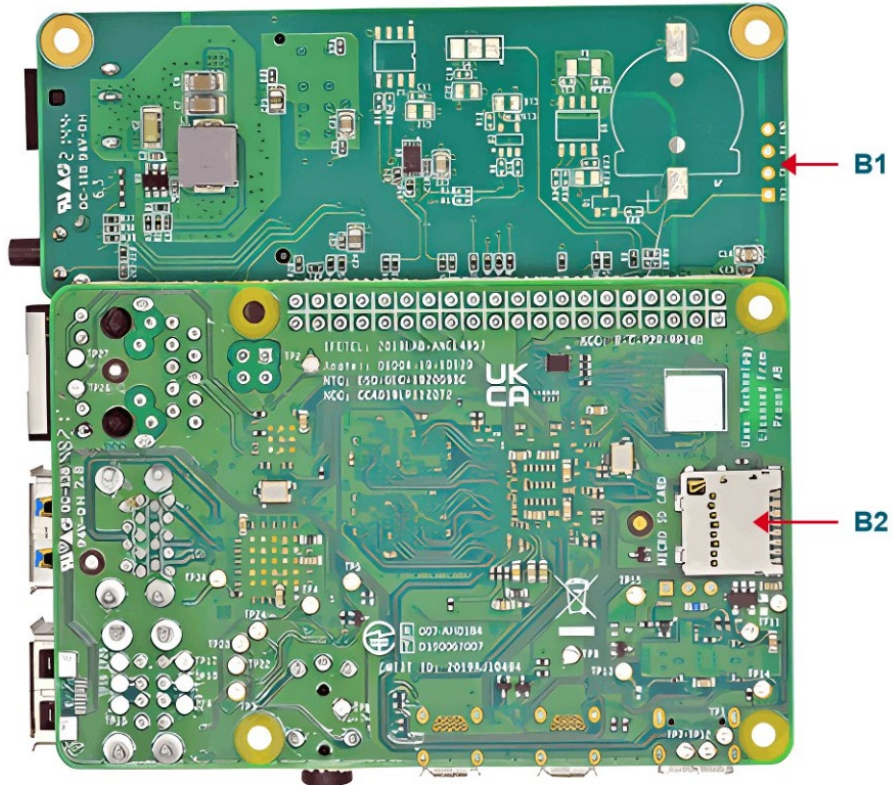
### 1.3 System Diagram



## 1.4 Function Layout



Item	Function Description	Item	Function Description
A1	Mini PCIe	A2	Power interface
A3	RGB LED	A4	User-defined Button
A5	Gigabit Ethernet	A6	USB 3.0
A7	USB 2.0	A8	3.5mm audio jack connector
A9	CSI	A10	Micro HDMI
A11	Micro HDMI	A12	Pi4 power interface(no need to use)
A13	DSI	/	/

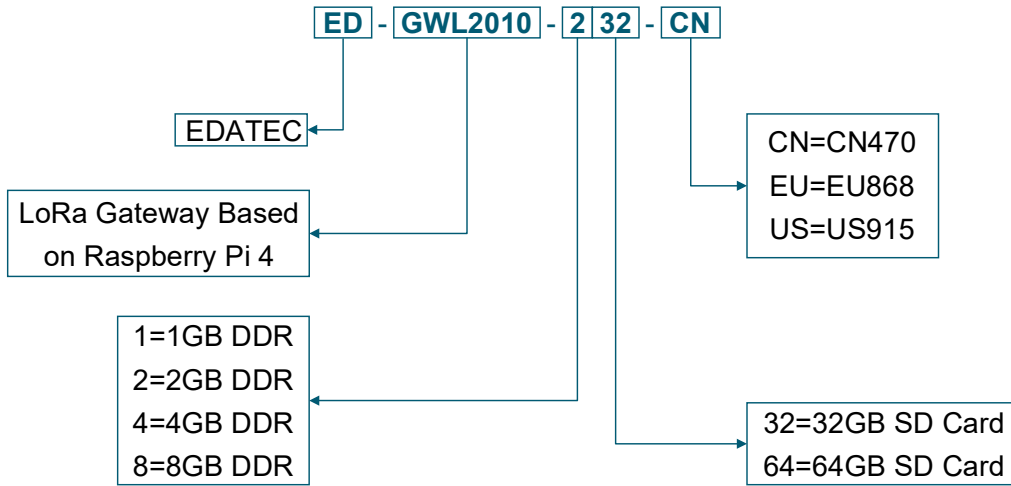


Item	Function Description	Item	Function Description
B1	Debug UART Port	B2	SD Card Slot

## 1.5 Packing List

- 1x ED-GWL2010 Unit
- 1x LoRa Antenna
- [optional]1x 2.4GHz&5GHz Wi-Fi/BT Antenna

## 1.6 Ordering Code



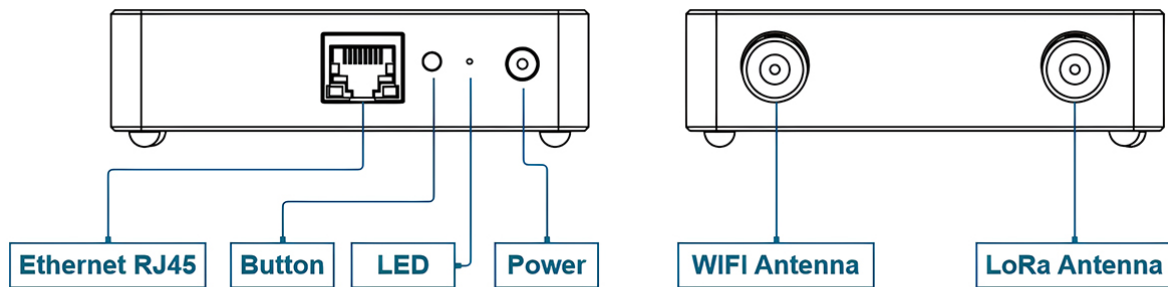
**Example**

P/N: **ED-GWL2010-232-CN**

Configuration: An indoor light gateway based on Raspberry Pi 4, with 2GB DDR, 32GB SD card and CN470 LoRa frequency.

## 2 Product Appearance and Structure

### 2.1 Product Appearance



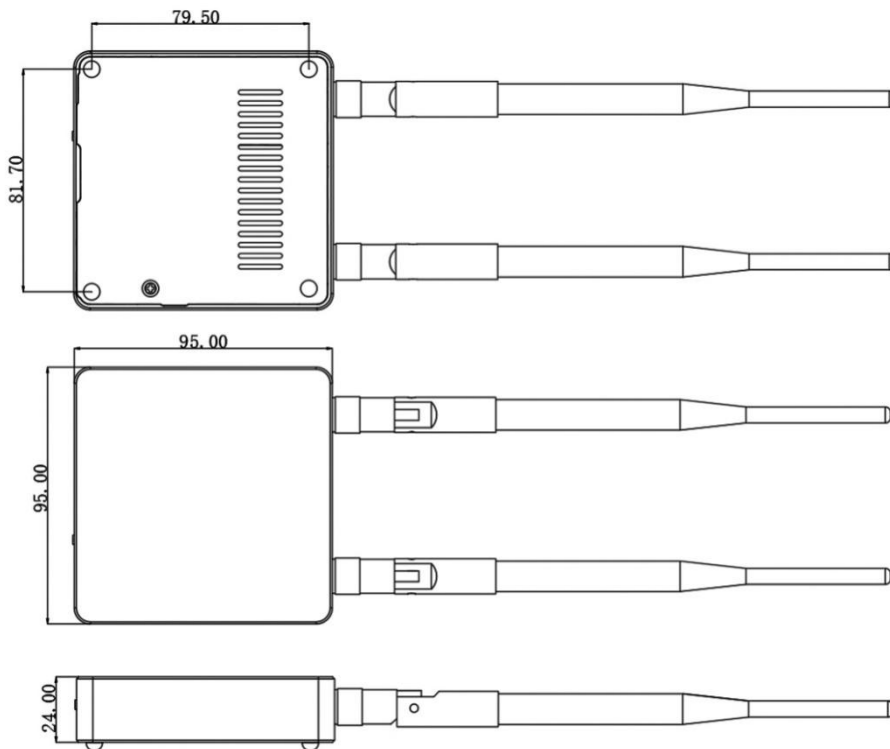
### 2.2 Product Photo





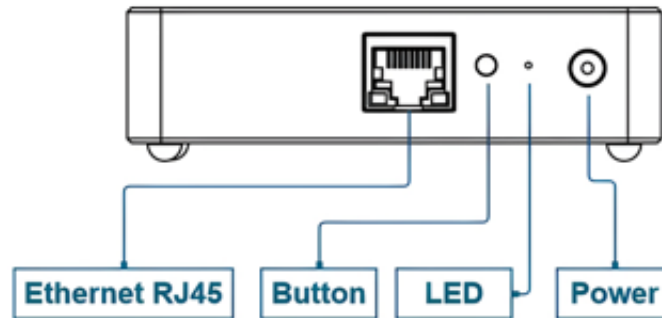
## 2.3 Dimensions

unit: mm, tolerance:  $\pm 0.1\text{mm}$



## 3 Interfaces and Connectors

### 3.1 Front Panel



#### 3.1.1 Power Input

The standard input power supply of ED-GWL2010 is 12V@2A.

#### 3.1.2 RGB LED

ED-GWL2010 includes an RGB 3-color LED indicator and supports custom settings of RGB values.

RGB LED Pin	GPIO
Blue	GPIO16
Green	GPIO20
Red	GPIO21

#### 3.1.3 User Button

ED-GWL2010 contains a user button, the pin is connected to GPIO23 of the CPU, and the low level is effective; the customer can define the button function.

#### 3.1.4 Ethernet

ED-GWL2010 includes one adaptive 10/100/1000M Ethernet interface.

	Pin ID	Pin Name
	1	TRD0+
	2	TRD0-
	3	TRD1+
	4	TRD2+
	5	TRD2-
	6	TRD1-
	7	TRD3+
	8	TRD3-

## 4 Internal Interface

### 4.1 Micro-SD

ED-GWL2010 includes a Micro-SD card slot and supports an optional SD card for booting the operating system.

### 4.2 USB 3.0

ED-GWL2010 includes 2 USB 3.0 ports.

	Pin ID	Pin Name
	1	5V
	2	D-
	3	D+
	4	GND
	5	StdA_SSRX-
	6	StdA_SSRX+
	7	GND_DRAIN
	8	StdA_SSTX-
9	StdA_SSTX+	

### 4.3 USB 2.0

ED-GWL2010 includes 2 USB 2.0 ports.

	Pin ID	Pin Name
	1	5V
	2	D-
	3	D+
4	GND	

### 4.4 Micro HDMI

ED-GWL2010 includes 2 Micro-HDMI ports.

### 4.5 CSI

ED-GWL2010 includes a CSI interface that can be expanded to connect to the Raspberry Pi Camera.

### 4.6 DSI

ED-GWL2010 includes 1 DSI interface, which can be expanded to connect to a 7-inch LCD screen.

	Pin	Definition	Pin	Definition
	1	GND	9	DSI1_D0_P
	2	DSI1_D1_N	10	GND
	3	DSI1_D1_P	11	SCL0
	4	GND	12	SDA0
	5	DSI1_CLK_N	13	GND
	6	DSI1_CLK_P	14	3V3
	7	GND	15	3V3
8	DSI1_D0_N			

### 4.7 LoRa Reset

The LoRa reset pin is GPIO18, and the user can reset the LoRa module by pulling this pin low.

## 5 Wireless Communication

### 5.1 Wi-Fi

ED-GWL2010 supports 2.4GHz&5.0GHz IEEE 802.11 b/g/n/ac dual-band WiFi.

#### 2.4G Frequency Band

Parameter	Feature
Frequency Range	802.11b/g/n(HT20): 2412MHz ~ 2472MHz 802.11n(HT40): 2422MHz ~ 2462MHz
Modulation System	802.11b: DSSS 802.11g/n: OFDM
Frequency Interval	5M

#### 5G Frequency Band

Parameter	Feature
Frequency Range	802.11a/n/ac 5150MHz ~ 5350MHz 5470MHz ~ 5725MHz 5725MHz ~ 5850MHz
Modulation System	BPSK
Frequency Interval	5M

### 5.2 Bluetooth

ED-GWL2010 supports Bluetooth 5.0.

Parameter	Feature
Frequency Range	2402MHz ~ 2480MHz
Modulation System	GFSK, DPSK
Frequency Interval	2M

### 5.3 Antenna

#### 5.3.1 Wi-Fi/BT Antenna

Parameter	Feature
Antenna Type	External Antenna
Frequency Band	2400MHz ~ 2500MHz, 5150MHz ~ 5850 MHz
Antenna Gain	2 dBi

Parameter	Feature
Impedance	50 OHM

### 5.3.2 LoRa Antenna

#### 470MHz Antenna

Parameter	Feature
Antenna Type	External Antenna
Frequency Band	470MHz ~ 510MHz
Antenna Gain	2 dBi
Impedance	50 OHM

#### 868MHz Antenna

Parameter	Feature
Antenna Type	External antenna
Frequency Band	863MHz ~ 870MHz
Antenna Gain	2 dBi
Impedance	50 OHM

#### 915MHz Antenna

Parameter	Feature
Antenna Type	External antenna
Frequency Band	902MHz ~ 928MHz
Antenna Gain	2 dBi
Impedance	50 OHM

## 6 Electrical Characteristics

### 6.1 Electrical Parameters

Parameters	Minimum	Typical	Max	Unit
System power input	7.5	12	18	V
Working temperature	-25	/	50	°C
Storage temperature	-25	/	50	°C
Working environment humidity	0	/	90	%

## 7 About Us

### 7.1 About EDATEC

EDATEC, located in Shanghai, is one of Raspberry Pi's global design partners. Our vision is to provide hardware solutions for Internet of Things, industrial control, automation, green energy and artificial intelligence based on Raspberry Pi technology platform.

We provide standard hardware solutions, customized design and manufacturing services to speed up the development and time to market of electronic products.

### 7.2 Contact Us

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