Product Specification

Product Name: IoT Ceiling Edge Computer Gateway
Model Name: DSGW-230

Revision History

Specification		Sect.	Update Description	By
Rev	**Date**			
1.0	2021-07-01		New version release	
2.0	2022-05-12		Delete battery module，add optional Tuya zigbee module	
2.1	2022-8-24		Add Gigabit net type	

Approvals

Organization	*Name*	*Title*	*Date*

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Model List

Feature / Mode	Bluetoth 5.2	Wi-Fi 2.4G/5G	LTE CAT-M1	Zigbee 3.0	Tuya zigbee	Z-WAVE	Lora	1000M WAN/LAN	POE supply	TF card
DSGW-230-1	●	●	●	●		●	●		●	●
DSGW-230-2		●			●				●	●
DSGW-230-11	●	●	●	●		●	●	●	●	
DSGW-230-12		●			●			●	●	

1. Introduction

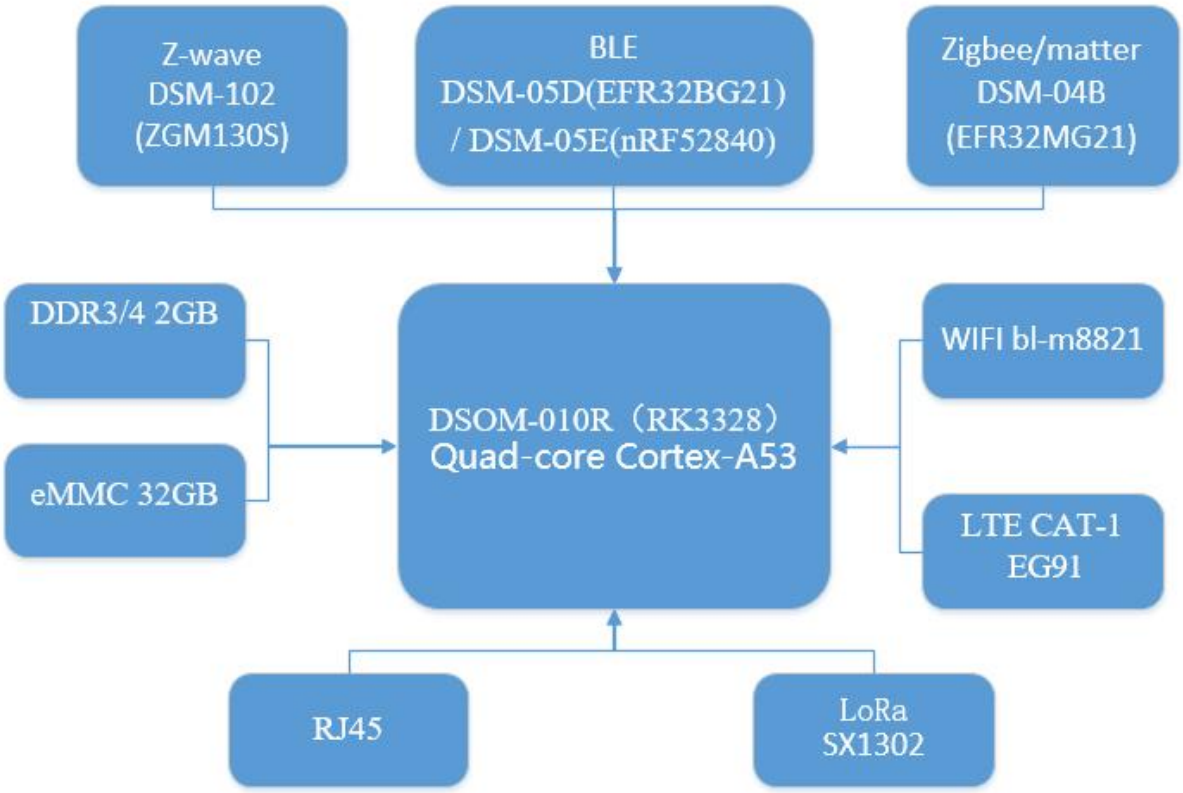
1.1 Purpose& Description

DSGW-230 is IoT gateway with multiple protocol and edge computing function. It's a smart Gateway with POE or USB type-c power supply. It provides reliable connectivity for a wide range of wireless IoT devices. The gateway's modular architecture provides the ability to customize many gateway features providing an off-the-shelf solution that meets your exact needs. Options include Cellular, Bluetooth, Wi-Fi, Ethernet, ZigBee, Z-wave.

1.2 Product Feature Summary

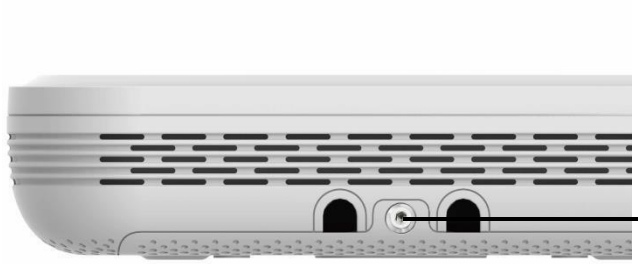
- Support the POE switch power supply and DC 12V power supply
- Support IEEE802.11ac, IEEE802.11a,IEEE802.11n,IEEE802.11g,IEEE 802.11b Protocol
- Support 4G LTE cat M1
- Support Bluetooth 5.2
- Support ZigBee3.0
- Support Z-WAVE
- Support LoRaWAN
- One WAN/LAN variable network port
- Support USB 2.0

1.3 Hardware block diagram

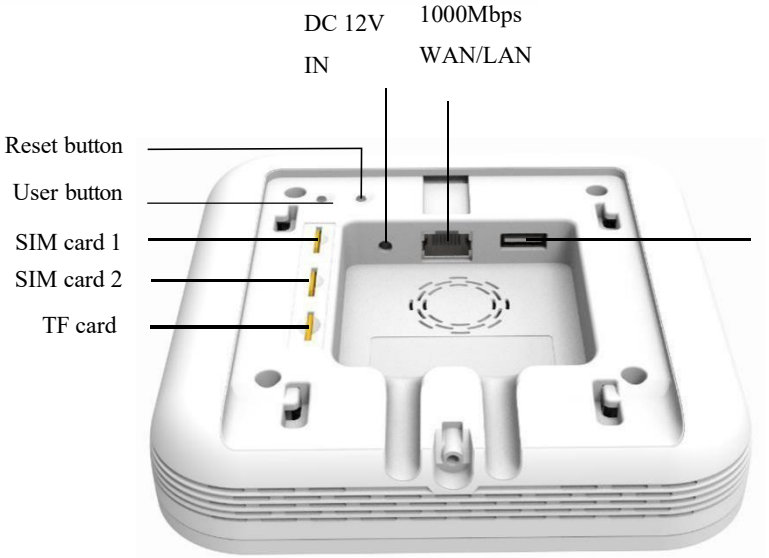


2. Mechanical Requirement

2.1 Drawings



Anti-theft screw to lock the gateway and mounting bracket



3. Specifications

3.1 Technical Specification

Category	Specifications
Power Supply	POE and DC 12V power supply
Reset button	The reset button is hole button, After pressing the reset button for more than 5 seconds, the Locator will be restored to the factory settings.
User button	User-defined button
Switch	On/Off power
Network Interface	The network interface supports CAT-5/CAT-5E to transmit data and POE Power Supply (voltage range is 44~ 57V). It is WAN/LAN variable.
SIM card	Dual Micro SIM card， link backup, Dual card single standby, 12mm*15mm
USB	USB 2.0
Indicator LEDs(RGB)	1). Power &battery LED 2). Wireless LED 3） LTE indicator
Wireless protocol	Zigbee, Z-WAVE, BLE, Wi-Fi
Antenna	Zigbee/BLE PCB Antenna； Z-WAVE/Wi-Fi FPC Antenna
Installation method	Flat, Ceiling, DIN
RTC	Real Time Clock operated from on board battery
Operating Temperature	-10℃~60℃
Storage Temperature	-40℃~85℃
Operating humidity	10%~90%
IP rating	IP22
Cooling	Heat dissipation silicone/aluminum
Current	1.5A@12V

3.2 Performance Requirement

CPU	• Quad-core Cortex A53
RAM	• 2GB
eMMC	• 32GB
SD card	• Up to 128GB
	• IEEE wireless LAN standard: IEEE802.11ac; IEEE 802.11a; IEEE802.11n; IEEE802.11g; IEEE 802.11b • Data Rate: IEEE 802.11b Standard Mode:1,2,5.5,11Mbps IEEE 802.11g Standard Mode:6,9,12,18,24,36,48,54 Mbps IEEE 802.11n: MCS0~MCS7 @ HT20/ 2.4GHz band MCS0~MCS7 @ HT40/ 2.4GHz band MCS0~MCS9 @ HT40/ 5GHz band IEEE 802.11ac: MCS0~MCS9 @ VHT80/ 5GHz band

Wi-Fi Performance	• Sensitivity: VHT80 MCS9: -60dBm@10% PER(MCS9) /5GHz band HT40 MCS9: -63dBm@10% PER(MCS9) /5GHz band HT40 MCS7: -70dBm@10% PER(MCS7) /2.4GHz band HT20 MCS7: -71dBm@10% PER(MCS7) /2.4GHz band • Transmit Power: IEEE 802.11ac: 13dBm @HT80 MCS9 /5GHz band IEEE 802.11ac: 16dBm @HT80 MCS0 /5GHz band IEEE 802.11n: 14dBm @HT20/40 MCS7 /5GHz band IEEE 802.11n: 16dBm @HT20/40 MCS0 /5GHz band IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHzband IEEE 802.11g: 16dBm @54MHz IEEE 802.11b: 18dBm @11MHz • Wireless Security: WPA/WPA2, WEP, TKIP, and AES • Working mode : Bridge、Gateway、AP Client • Range: 50 meters minimum, open field • Transmit Power:17dBm • Highest Transmission Rate: 300Mbps • Frequency offset: +/- 50KHZ • Frequency Range (MHz): 2412.0~2483.5 • Low Frequency (MHz):2400 • High Frequency (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW • Bandwidth (MHz):20MHz/40MHz • Modulation: BPSK/QPSK, FHSSCCK/DSSS, 64QAM/OFDM
Bluetooth-Performance	• TX Power: 19.5dBm • Range: 150 meters minimum, open filed • Receiving Sensibility:-80dBm@0.1%BER • Frequency offset: +/-20KHZ • Frequency Range (MHz):2401.0~2483.5 • Low Frequency (MHz):2400 • High Frequency (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<10mW • Bandwidth (MHz):2MHz • Modulation: GFSK
Zigbee Performance	• TX Power: 17.5dBm • Range: 100 meters minimum, open filed • Receiving Sensibility: -94dBm • Frequency offset: +/-20KHZ • Frequency Range (MHz):2401.0~2483.5

	• Low Frequency (MHz):2400 • High Frequency (MHz):2483.5 • E.i.r.p (Equivalent Isotopically Radiated power) (mW)<100mW • Bandwidth (MHz):5MHz • Modulation: OQPSK
Z-wave Performance	• TX power up to13dBm (20mW) • RX sensitivity: @100kbps-97.5dBm • Range: 100 meters minimum, open filed • Default Frequency: 916MHz(Different country with different frequency)
LoraWAN	• Frequency band support: RU864, IN865, EU868, US915, AU915, KR920, AS923 • TX power up to 27dBm, RX sensitivity down to -139dBm @SF12, BW125kHz
LTE Cat M1	Operation Frequency Band: 850/900/1800/1900MHZ
	• Global: LTE: FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 • North America: LTE TDD: B2/B4/B12/B13 • LTE TDD:B39(for cat.M1 only)
WAN/LAN	1000M bps/ 100M bps

4. QA Requirements

4.1 Quality and Testing Information

Information Description	Standard(Yes) custom(No)
ESD Testing	Yes
RF Antenna Analysis	Yes
Environmental Testing	Yes
Reliability Testing	Yes
Certification	FCC, CE, Bluetooth(BQB), PTCRB, RoHs

5. Software

	System/Driver	Support	
System	Linux	●	
	Debian	●	
	Andriod	●	
Driver	Uboot	●	
	UART	●	

	SPI	●	
	I2C	●	
	USB	●	
	eMMC	●	
	PCIe	●	
	Ethernet	●	
	SDIO	●	
	OTA	●	
Protocol Stack	Zigbee3.0	●	
	BLE5.1	●	
	Z-Wave	●	
	Wi-Fi	●	
Application	Wi-Fi sniffer	Demo source code	
	zigbee3.0 APP	Demo source code	
	beacon scanner	Demo source code	
	MQTT client	Demo source code	
	Z-Wave APP	Demo source code	