User manual

Product Name: Smart Ceiling LTE Gateway
Model Name: DSGW-090

Revision History

Specification		Sect.	Update Description	By
Rev	Date			

Approvals

Organization	*Name*	*Title*	*Date*

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1 Introduction

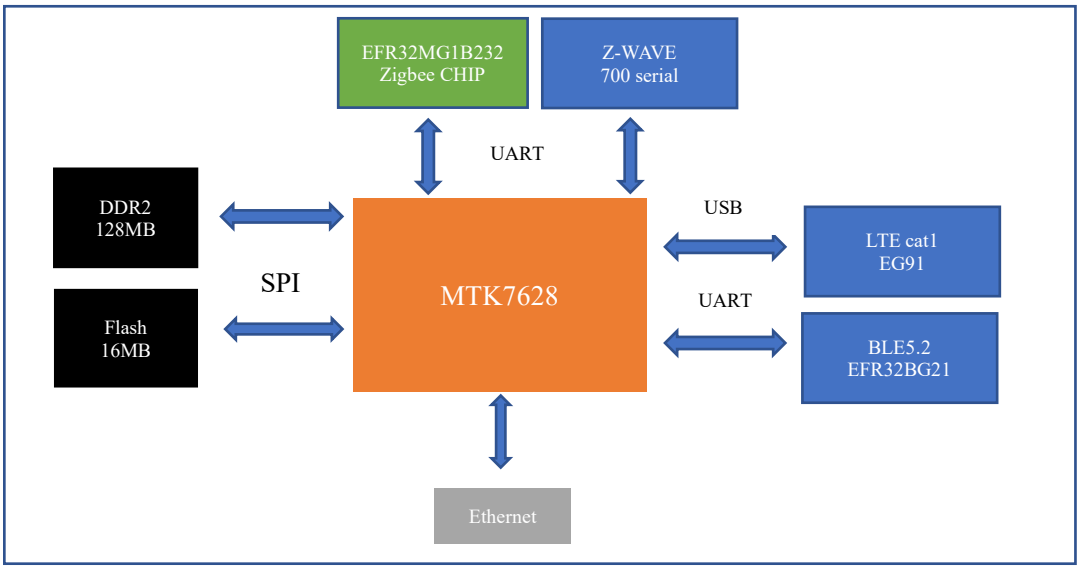
1.1 Purpose& Description

The DSGW-090 is a ceiling gateway used in the smart home, intelligent security industry, pension services. It a central device, support multiple wireless protocols including Wi-Fi and zigbee3.0, BLE, Z-WAVE. The user can connect the network through Wi-Fi, Ethernet and Cellular network. Besides, smart sensors can be connected through zigbee3.0, BLE, Z-WAVE.

1.2 Product Feature Summary

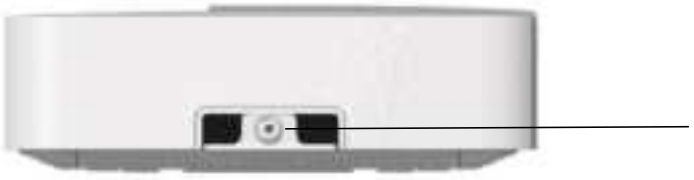
- OS: Linux@ OpenWrt
- USB 5V type C Power supply and PoE Ethernet Power supply
- Processor: MTK7628 (MIPS24KEc(580MHZ))
- RAM: 128MB
- Flash: 16MB
- Support IEEE802.11n,IEEE802.11g,IEEE 802.11b Protocol
- Support Z-WAVE
- Support zigbee3.0 and thread
- Support BLE5.2
- Support LTE cat1
- One WAN/LAN variable network port

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

Power Adapter	Input:100V~240V AC/50~60HZ Output:5V/2A, USB type-C
Ethernet	The network interface supports CAT-5/CAT-5E to transmit data and POE Power Supply (voltage range is 44~ 57V,power rating is 15W). It is WAN/LAN variable.
Indicator LEDs	Power LED normally on when powered on Zigbee/Z-WAVE LED is flash when the signal come Wi-Fi LED normally on after connecting to Wi-Fi for 1-2 sec
Reset Button	The reset button is hole button, After pressing the reset button for more than 5 seconds, the Gateway will be restored to the factory settings.
Operating Temperature	-10℃~40℃

3.2 Performance Requirement

Wi-Fi Performance	• IEEE wireless LAN standard: • 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 • Sensitivity: HT40 MCS7 : -70dBm@10% PER(MCS7) /2.4GHz band HT20 MCS7 : -71dBm@10% PER(MCS7) /2.4GHz band • Transmit Power: IEEE 802.11n: 16dBm @HT20/40 MCS7 /2.4GHz band 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
Zigbee3.0 Performance	• Range: 100 meters minimum, open field • Transmit Power:17.5dBm • Highest Transmission Rate: 300Mbps • Frequency offset: +/- 20KHZ • Receiving Sensibility:-94dBm • 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: TX power up to 13dBm • RX sensitivity: @100kbps -97.5dBm • Range: 100 meters minimum, open filed • Default Frequency: 916MHz(Different country with different frequency)
Bluetooth performance	• Bluetooth Protocol: Bluetooth 5.2 • TX Power: 19.5dBm • Range: 150 meters minimum, open filed • Receiving Sensibility: -93dBm@0.1%BER

	• Frequency offset: +/-20KHZ • BLE dual role (peripheral role and central role)
LTE cat1	• LTE FDD: B2/B4/B5/B12/B13 • WCDMA:B2/B4/B5 • LTE FDD Data rate:10(DL)/5(DL)
Ethernet	10/100Mbps

FCC Statement

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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. However, there is no guarantee that interference will not occur in a particular installation. 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:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

To comply with RF exposure requirements, a minimum separation distance of 20 cm must be maintained between the user’s body and the handset, including the antenna.