Dusun DSGW-081 Industry Edge Computer Gateway User Manual

A DUSUN company

Contents

DSGW-081 Industry Edge Computer Gateway

Product Specification

Product Name: Industry Edge Computer Gateway
Model Name: DSGW-081

Revision History

Specification		Sect.	Update Description	By
Rev	**Date**			
1.0	2021-06-04		New version release	
2.0	2021-10-10		Add the TPM	
3.0	2021-10-23		Add KNX protocol	
4.0	2022-8-3		Adjust LTE area type	Li

Approvals

Organization	Name	Title	Date

Model List

Feature Model	Ethernet	RS485	CAN	I/O Interface	Bluetooth 5.0	Zigbee 3. 0	4G LTE Cat1	Wi-Fi	KNX
DSGW-081	●	●	●	●	●	●	●	●	●

Introduction

1.1 Purpose& Description

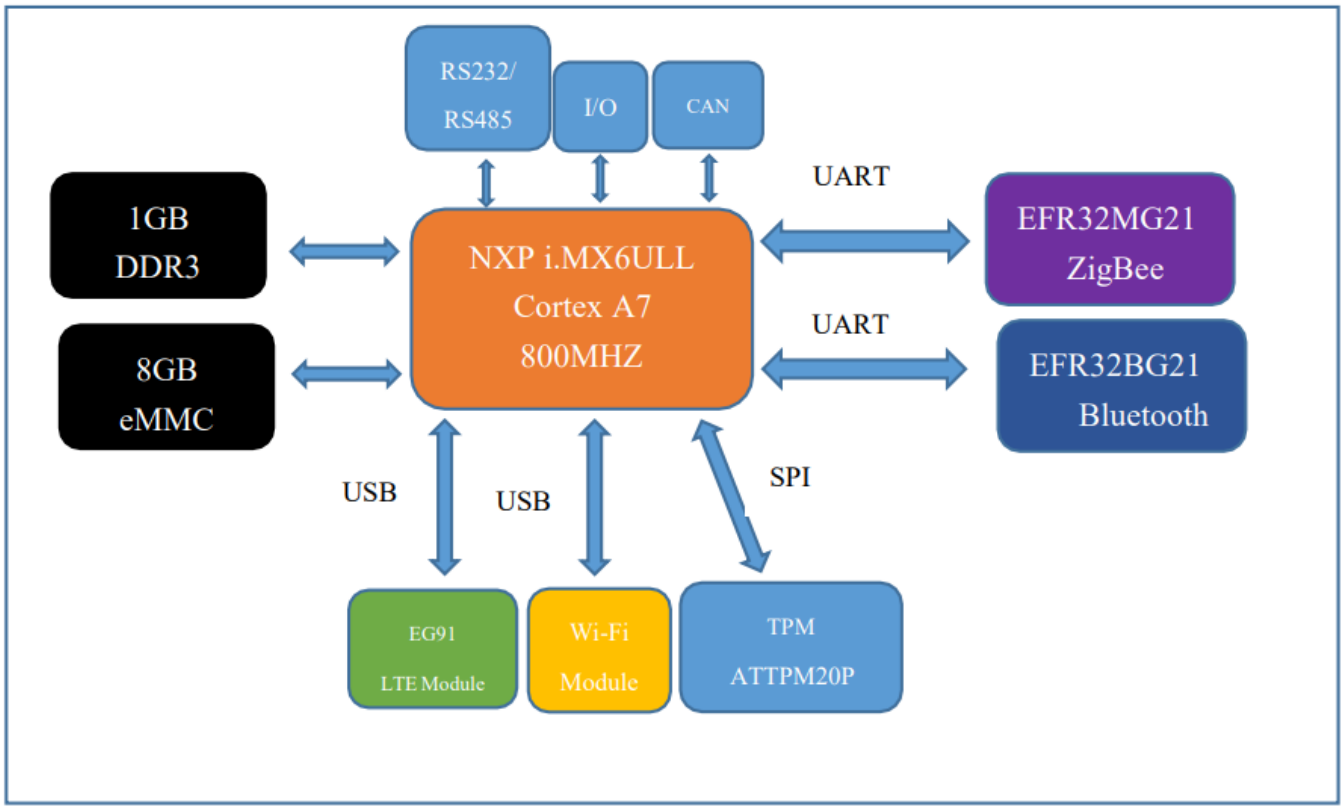
The DSGW-081 Industry Edge Computing Gateway provides uninterrupted Internet access for machines over ubiquitous 3G/4G wireless networks and multiple broadband services. With powerful edge computing capabilities, comprehensive security protection and wireless services.

DSGW-081 features powerful edge computing capabilities. It realizes data optimization, real-time response, agile connection and intelligent analysis on the IoT edge, significantly reduces the data flow between field sites and data center, and avoid bottlenecks of cloud-end computing.

1.2 Product Feature Summary

- Supports 4G LTE CAT1
- Support KNX protocol,
- Built-in redundancies: dual SIM card, link backup, VRRP hot standby, ensuring uninterrupted -network communications
- Powerful computing performance, providing high-performance processing resources for edgecomputing
- Supports a variety of industrial real-time Ethernet protocols and field bus protocols, compatible with a wide range of industrial equipment
- Supports Python development, for developing user custom applications
- Supports industrial cloud platforms: Microsoft Azure, Amazon AWS
- Easy for management and large-scale deployment, support SNMP protocol and Device Manager cloud platform for efficient remote central management
- Fully industrial-grade design, ready for challenging conditions
- Support multiple wires protocol: ZigBee3.0, Bluetooth5.2, Wi-Fi.

1.3 Hardware block diagram



Mechanical Requirement

2.1 Drawings

Specifications

Technical Specification	
CPU	ARM Cortex-A7,800Mhz
System	Linux
Docker	Support
RAM	512MB

Flash	8GB eMMC
Power	Input: DC 12V
Indicator LEDs	• Power LED normally on when powered on • Zigbee/BLE/Z-WAVE LED is flash when the signal come • Network LED is flash, When the gateway can access the Internet • Ethernet LED is flash, When the network port is plugged into the Internet cable • LTE Signal LED, It indicates the signal strength of LTE
Reset Button	The reset button is hole button, After pressing the reset button for more tha n 5 seconds, the Gateway will be restored to the factory settings.
I/O Port	4 digital input channels DI State “1”: +10~+30V State “0”: 0~+3V 2 digital o utput channels DO Maximum load 5A@30VDC or 250VAC 2 analog input c hannels AI Current signal: 0-20mA, 4-20mA Voltage signal: 0-5VDC, 0-10V DC Choose one of the above 4 ranges
Ethernet	1*10/100Mbps WAN/LAN port
SIM card Slot	2*Drawer card slot
Antenna	3*SMA,1*LTE, 2*2.4GHZ
RS232	Support
RS485	Support
CAN	Support
	Chip ATTPM20P
	Cryptographic Support for:

TPM Trusted Platform	– HMAC
Module	– AES-128
	– SHA-1
	– SHA-256
	– ECC BN_P256, ECCNIST_P256

	– RSA 1024-2048 bit keys
Industry Protocol	BACnet; Profinet; Ethernet/IP; Modbus; OPC/UA
Installation	DIN-rail, wall mounting
Housing	Aluminum alloy
Storage Temperature	-40℃~85℃
Operating Temperature	-40℃~85℃
Ambient Humidity	5~95%

Performance Requirement	
Wi-Fi Performance	• 2.4GHz WLAN Standard • IEEE 802.11b/g/n, CSMA/CA • Frequency Range • 2.4~2.4835GHz(2.4GHz ISM Band) • Modulation • 802.11b (DSSS): DBPSK, DQPSK, CCK; • 802.11a/g (OFDM): BPSK, QPSK, QAM16, QAM64; • 802.11n (OFDM): BPSK, QPSK, QAM16, QAM64; • Date Rate • 802.11b: 1, 2, 5.5, 11Mbps; • 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps; • 802.11n (HT20): MCS0~MCS7 6.5~72.2Mbps; • 802.11n (HT40): MCS0~MCS7 13.5~150Mbps; • Frequency Tolerance ≦±10ppm • 5GHzWLAN Standard • IEEE 802.11a/n/ac, CSMA/CA • Frequency Range • 5.15~5.25GHz; 5.735~5.835GHz(5GHz ISM Band) • Modulation • 802.11a (OFDM): BPSK, QPSK, QAM16, QAM64; • 802.11n (OFDM): BPSK, QPSK, QAM16, QAM64; • 802.11ac (OFDM): BPSK, QPSK, QAM16, QAM64, QAM256; • Date Rate • 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps; • 802.11n (HT20): MCS0~MCS7 6.5~72.2Mbps; • 802.11n (HT40): MCS0~MCS7) 13.5~150Mbps; • 802.11ac (VHT20): MCS0~MCS8 6.5~86.7Mbps; • 802.11ac (VHT40): MCS0~MCS9 13.5~200Mbps; • 802.11ac (VHT80): MCS0~MCS9 29.3~433.3Mbps; • Frequency Tolerance ≦ ±10ppm

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
Bluetooth Performance	• Bluetooth Protocol: Bluetooth 5.0 • TX Power: 19.5dBm • Range: 150 meters minimum, open filed • Receiving Sensibility:-80dBm@0.1%BER • Frequency offset: +/-20KHZ
LTE Cat1	• LTE FDD: FDD: • B2/B4/B5/B12/B13/B25/B26 • WCDMA: B2/B4/B5
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) Pl s check the z-wave frequency band table

RF Factory Test Mode	• Setting the Board into the test mode, using the Iqexl-ws that can test the Wi-Fi, Zigbee. • Please refer to the DUSUN Test Specification for details.
Bluetooth2 Performance	• Bluetooth 4.0/4.2 • Frequency Range 2.4~2.4835GHz(2.4GHz ISM Band) • Bluetooth Low Energy: Ch0~Ch39 (For 2MHz Channels); • Power Classes • Bluetooth Low Energy: Class1.5; • Date Rate & Modulation LE_1Mbps: GFSK;

QA Requirements

4.1 Quality Information

Quality &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 certification, zigbee certification, PTCRB

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.

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The distance between user and products should be no less than 20cm

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Documents / Resources

	Dusun DSGW-081 Industry Edge Computer Gateway [pdf] User Manual DSGW-081, DSGW081, 2AUXBDSGW-081, 2AUXBDSGW081, DSGW-081 Industry Edge Computer Gateway, DSGW-081, Industry Edge Computer Gateway, Edge Computer Gateway, Computer Gateway, Gateway

References

- Dusun IoT: IoT Gateway Hardware Suppplier & Solutions Vendor- DusunIoT
- Dusunremotes | Custom Intelligent Remote Control Manufacturer