IoT Gateway GR801

Product Specification

Version	Issue date	Changes	Remark
0.1	2016/4/1	Initial Version	
0.2	2017/3/15	Add LoRA feature	
0.3	2017/10/18	Add product picture	

IMPORTANT

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IoT Gateway GR801

1. Introduction

GR801 is an IoT gateway solution for converting data from one peripheral networkto internet. By adopting optional peripheral network module (could be Zigbee, BLE, LoRA or Sub1G) approach, G802 can achieve very high flexibility to meet the requirement of different applications.

Major Applications :

- IoT gateway
- Smart farm
- Smart meter
- Sensor network

Major Feature List :

- Wifi Router
    - W708 MT7688A Wifi module
    - OS : OpenWRT
    - Server connection : MQTT client
    - 2 RJ45 : LAN/WAN
    - USB host : a 3G or 4G USB modem can be adopted
    - Micro SD storage
    - Operation modes :
        - AP gateway
        - APclient
        - Repeater
        - Bridge
- Option 1 : BLE
    - Built in CC2640F128 Bluetooth Samrt (BLE 4.1) System-On-Chip(SOC)
    - 128 kB Flash / 20 kB SRAM
    - RF Output Power
        - Option 1 : 5 dBm (normal power)
        - Option 2 : 20 dBm (high power)
    - RF Receiver Sensitivity : -96 dBm
- Option 2 : Zigbee
    - Built in CC2630F128 Zigbee System-On-Chip(SOC)
    - 128 kB Flash / 20 kB SRAM
    - RF Output Power
        - Option 1 : 5 dBm (normal power)
        - Option 2 : 20 dBm (high power)
    - RF Receiver Sensitivity : -96 dBm
- Option 3 : LoRA
    - LoRA Modem with 863 ~ 928 MHz

- ◆ Support I2C, SPI interface (software configurable)
- ◆ Support 4 ADC in, 2 DAC out (software configurable)
- ◆ built-in shielding inside SIP chip
- ◆ Programmable bit rate up to 300 kbp
- ◆ High sensitivity: down to -148 dBm
- ◆ Built-in M0 microcontroller STM32L073
- ◆ 192KByte Flash
- ◆ 20KByte RAM
- ■ Common Features
  - ◆ DC 12V input, 1A
  - ◆ Power connector (5.5/2.1)
  - ◆ Two external antenna for Wifi and peripheral network
  - ◆ 2 RJ45 could be configured as
    - ● LAN and WAN
    - ● Two LANs
  - ◆ USB host * 1
  - ◆ SD storage * 1
  - ◆ 5 LED indicators :
    - ● Peripheral Network Activity
    - ● Power
    - ● Wifi
    - ● WPS
    - ● Alarm
  - ◆ Real Time Clock with backup battery
  - ◆ Alarm buzzer
  - ◆ Dimension : 65 * 96 * 30 mm

2. Product pictures

Front View

Back View

Bottom View

3. Optional Module Major Spec

(1) Z203 high power Zigbee module

- 2.4Ghz IEEE802.15.4 RF transceiver
- On board hip antenna or IPEX Connector for external RF cable
- Module Size : 28mm x 20.4mm x 2.2mm (non-shielding)
- Input power voltage range : DC2.0V ~ DC3.8V
- Programmable output gain, up to +21dBm
- Built-in ARM Cortex-M3 microcontroller
  - ◆ All Digital Peripheral Pins Can Be Routed to BLE Any GPIO
  - ◆ Four General-Purpose Timer Modules (Eight 16-Bit or Four 32-Bit Timers, PWM Each)
  - ◆ 12-Bit ADC, 200-ksamples/s, 8-Channel Analog MUX
  - ◆ Continuous Time Comparator
  - ◆ Programmable Current Source
  - ◆ I2C
  - ◆ I2S
  - ◆ AES-128 Security Module
  - ◆ True Random Number Generator (TRNG)
  - ◆ Integrated Temperature Sensor
- Two kinds board connection
  - ◆ SMD type 22pin
  - ◆ DIP type, 22pin

(2) Z204 Zigbee module

- Built in CC2630 SimpleLink™ 6LoWPAN, ZigBee® Wireless MCU
- 128 kB Flash / 20 kB SRAM
- RF Output Power: +5 dBm
- RF Receive Sensitivity: -100 dBm
- Size: 14.2mm x 17.2mm x 2.4mm
- Operating Voltage: 1.8V to 3.8V
- Operating Temperature: -40 to +85C
- 9.1 mA Transmit Mode (+5 dBm)
- 5.9 mA Receive Mode
- 1µA Standby (SRAM/CPU retention and RTC running) with quick 100 µs start up
- 100nA Shutdown
- 61µA/MHz Active CPU Current
- Drivers, IEEE 802.15.4 MAC, and Bootloader in ROM
- Flexible peripheral set
- On board 32 kHZ and 24 MHz Crystals
- Worldwide Acceptance:
  - ◆ FCC (USA), IC (Canada),
  - ◆ ETSI (Europe), Giteki (Japan), and
  - ◆ C-Tick (AU/NZ)
- REACH and RoHS compliant
- Two kinds board connection
  - ◆ SMD type 24pin
  - ◆ DIP type, 24pin

(3) B203 high power BLE module

- Built in CC2640F128 Bluetooth Smart (BLE 4.1) System-On-Chip (SOC)
- 128 kB Flash / 20 kB SRAM
- RF Output Power: +14 dBm
- RF Receive Sensitivity: -96 dBm
- Size: mm x mm x 2.4mm
- Operating Voltage: 3.0V to 3.6V
- Operating Temperature: -40 to +85C
- TBD mA   Transmit Mode (+15 dBm)
- 7.4 mA Receive Mode
- 1µA Standby (SRAM/CPU retention and RTC running) with quick 100 µs start up
- 200nA Shutdown
- 61µA/MHz Active CPU Current
- Drivers, Bluetooth Low Energy Controller, and bootloader in ROM
- Flexible peripheral set
- On board 32 kHZ and 24 MHz Crystals
- Worldwide Acceptance:
  - ◆ FCC (USA), IC (Canada),
  - ◆ ETSI (Europe), Giteki (Japan), and
  - ◆ C-Tick (AU/NZ)
- REACH and RoHS compliant

- Two kinds board connection
  - ◆ SMD type 22pin
  - ◆ DIP type, 22pin

(4) B204 BLE module

- Built in CC2640F128 Bluetooth Smart (BLE 4.1) System-On-Chip (SOC)
- 128 kB Flash / 20 kB SRAM
- RF Output Power: +5 dBm
- RF Receive Sensitivity: -96 dBm
- Size: 14.2mm x 17.2mm x 2.4mm
- Operating Voltage: 1.8V to 3.8V
- Operating Temperature: -40 to +85C
- 8.4 mA Transmit Mode (+5 dBm)
- 7.4 mA Receive Mode
- 1µA Standby (SRAM/CPU retention and RTC running) with quick 100 µs start up
- 200nA Shutdown
- 61µA/MHz Active CPU Current
- Drivers, Bluetooth Low Energy Controller, and bootloader in ROM
- Flexible peripheral set
- On board 32 kHZ and 24 MHz Crystals
- Worldwide Acceptance:
  - ◆ FCC (USA), IC (Canada),
  - ◆ ETSI (Europe), Giteki (Japan), and
  - ◆ C-Tick (AU/NZ)
- REACH and RoHS compliant
- Two kinds board connection
  - ◆ SMD type 24pin
  - ◆ DIP type, 24pin

(5) L201 LoRA module (LoRA Proprietary)

- Based on AcSIP S76S SIP module
- LoRA Modem
- Payload up to 128 bytes with CRC
- Input power voltage range : DC2.0V ~ DC3.6V
- Built-in M0 microcontroller
  - ◆ 192KByte Flash
  - ◆ 20KByte RAM
- Two kinds board connection
  - ◆ SMD type 20pin
  - ◆ DIP type, 20pin