

GC-ATC-863

Mini Power Wireless Module

User's Manual



About GC-ATC-863

GC-ATC-863, the mini power wireless module, is used for the wireless data transmission at short distance. With small size, weight and power consumption and good stability and reliability, it is well suited for bi-directional data transmission. It is used for wireless meter reading such as water meters, electric meters, gas meters and parking meters. It is currently being used to read identification cards, electronic weighing apparatus, time clocks, building control, alarm system, intelligent equipment, and automatic data collecting system. It can be used in Industrial remote control and remote test building automation, safety and security, entrance control system, etc.

GC-ATC-863 Features:

1. Ultra low power transmission

Transmission power less than of 100mW, high receiving sensitivity: -110dbm ,

2. ISM frequency band

Carrier frequency of 433MHz.

3. High anti-interference and low BER (Bit error Rate)

Based on the GFSK modulation mode, it adopts an efficient communication protocol. The actual bit error rate of 10-5 ~ 10-6 can be achieved when channel bit error rate is 10-2.

4. Long transmission distance

Within the range of visibility, the reliable transmission distance is (BER=10-3/1200bps) 300m.

5. Transparent data transmission

Transparent data interface to suit most user protocol. Any false data generated in the air can be filtrated automatically (What has been received is exactly what has been transmitted). The change time for receiving and sending <10ms.

6. Multi-channel and speed

The standard GC-ATC-863 configuration provides 8 channels to meet the multiple communication combination modes of the user. Available baud rates are 1200bps, 2400bps, 4800bps, 9600bps, and 19200bps. The wireless transmission rate is direct ratio with baud rate of interface to meet user's equipment requirement.

7. High speed wireless communication and large data buffer

When the speed rate in the air is quicker than interface's, it will transmit unlimited length data at one time. When the speed rate is slower or equal to the interface's, it will transmit 255 Byte long data frames at one time for more flexible programming by users.

8. Intelligent data control and the user doesn't need to prepare excessive programs

GC-ATC-863 will automatically complete radio operations, such as transmission, receiving conversion in the air, control, etc.

9. Low power consumption

Receiving current<20mA, transmission current<40mA, sleeping current <1uA.

10. High reliability, small and light

Single chip radio- frequency integrated circuit and single chip MCU are used for smaller peripheral circuits, high reliability, and low failure rate.

RS-232/RS-485 User's interface

GC-ATC-863 comes with an RS-232 DB9 Female connector and an RS-485 connector, but ONLY one is active. The ATC-863-S1 is an RS232 interface, the ATC-863-S2 is an RS485 interface. Definitions as well as connection method for terminals are shown in the table.

RS-232/485 Pinout at DB9-F

DB9 Pin	RS-232	RS-485	Description
2	RXD	485-	I/O
3	TXD	485+	I/O
4	SLE	SLE	High level to sleep, Low level awake
5	GND	GND	Ground

RS-232/485 Pinout at six terminal

Pin (From left)	RS-232	RS-485	Description
1	TXD	485+	I/O
2	RXD	485-	I/O
3	SLE	SLE	High level to sleep, Low level awake
4	NC	NC	
5	VIN	VIN	
6	GND	GND	Ground

Power supply

GC-ATC-863 can use a DC power supply with voltage of +9 to 12V. A high quality power supply with desirable ripple factor should be selected.

Sleeping function

The GC-ATC-863 in the sleeping state will use 1uA.

Users can enable and disable the sleeping function.

GC-ATC-863 has two wakeup methods, one is hardware and the other is interface. Hardware sleep is achieved by setting SLE input to the high level. Hardware awake is achieved by setting SLE input to low level. Sending data to the GC-ATC-863 will achieve interface wakeup.

Factory default is awake.

GC-ATC-863 parameters setting

You must set the COM baud rate and parity (verify), RF baud rate, Channel and frequency. You can change these parameters by our RF Module software.

When RF baud rate is faster than COM baud rate, one frame can transmit limitless data. When RF baud rate is not faster than COM baud rate, one frame can transmit 255 bytes max. You can set the rate according to your need.

Two GC-ATC-863 radios must have the following conditions:

1. Their channels (i.e. frequency) are the same.
2. Their RF rates are the same.
3. RF Module Com baud rate and parity(verify) is the same as the equipment or PC that it connects with.

Parameter default values:

Channel : 1

Interface speed rate : 9600BPS

Interface verify : None

Speed rate in air : 9600BPS

Channel and frequency list

Channel	Frequency	Channel	Frequency
1	428.0028MHz	5	433.1176MHz
2	429.0012MHz	6	433.6706MHz
3	433.3020MHz	7	433.8286MHz
4	433.9164MHz	8	433.5308MHz

Technical specification of GC-ATC-863

Modulation mode: FSK/GFSK

Working frequency: 433MHz

Transmission power: 100mW

Receiving sensitivity: -121dBm

Transmitting current: <40mA ,

Receiving current : <20mA

Sleeping current: <1uA

Channel speed rate: 1200, 2400, 4800, 9600, 19200Bit/s,

Interface speed rate: 1200, 2400, 4800, 9600, 19200Bit/s,

Change time for receiving and sending: <10ms

Interface data format: 8E1/8N1/8O1

Power supply: 9-12VDC

Working temperature: -20°C ~ 65°C

Working humidity: 10% ~ 90% relative humidity without condensation

Dimension: 44mmX27mmX8mm

Model and name

ATC-863-S1 = RS232 Interface

ATC-863-S2 = RS485 Interface

How to Setup RF Module Software

Please check the CD for GC-ATC-863 RF-module software User's Manual. You can change operating parameters with the RF Module software.