CM-GPRS User Manual

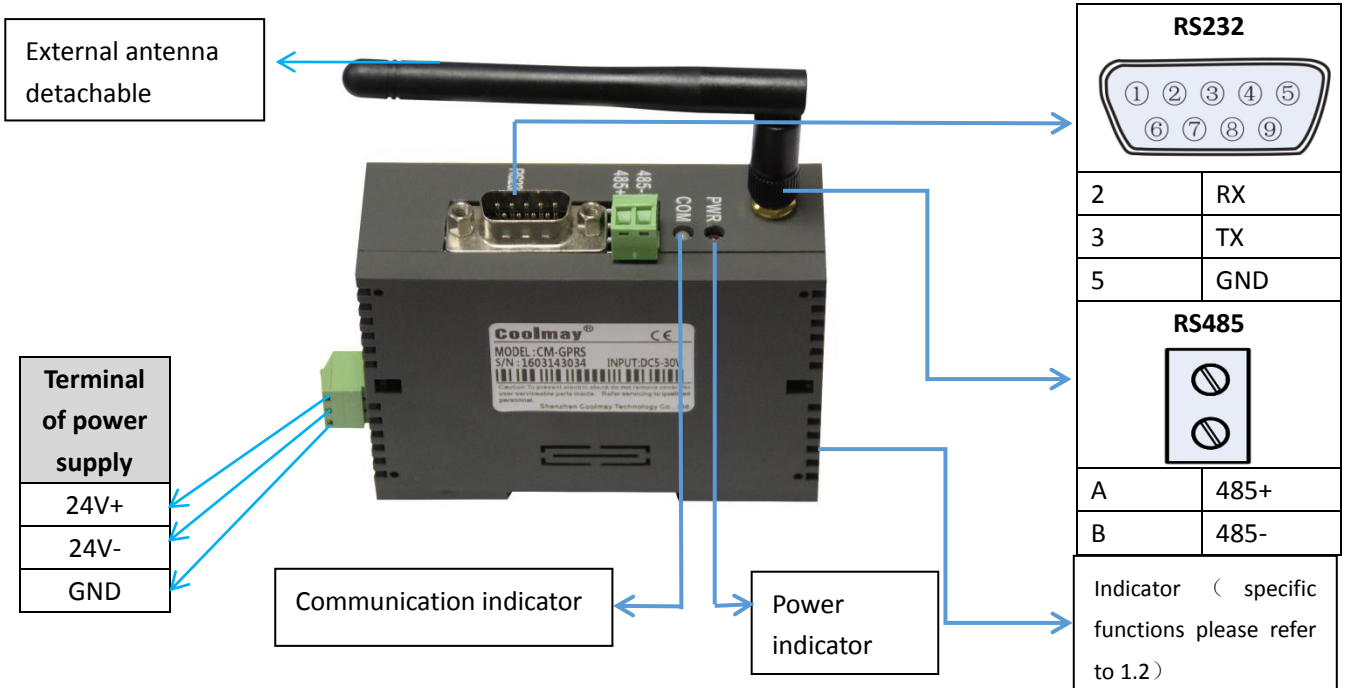**Shenzhen technology Co., ltd   V6.91**

CM-GPRS is a wireless communication module adopts transparent transmission combined with GPRS. It can realize the connection between automatic system and GPRS and GSM used together with Coolmay PLC. Programming、diagnosing、uploading and downloading in a remote distance can be achieved through programming software. Cellphone users can control PLC through SMS messages.   CM-GPRS can be particularly applied to distributed remote monitoring system.

Contents

1. Hardware introduction

1-1. Model and appearance

RS232	
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨	
2	RX
3	TX
5	GND

RS485	
A	485+
B	485-
Indicator （specific functions please refer to 1.2）	

External antenna detachable

Terminal of power supply	
24V+	
24V-	
GND	

MODEL:CM-GPRS
S/N:1603143034   INPUT:DC5-30V

Communication indicator

Power indicator

Direction of SIM Card：

Micro SIM card slot

Dimension：90*32*60mm

Installation：standard 35mm DIN-Rail

1.2. Indicator state

CM-GPRS has five indicator pins, they are RUN, GPRS, LINKA, LINKB and DATA.

Name	Function	State
RUN	Working normally indicator	Flicker when the module is working well

GPRS	GPRS network connection indicator	Keep on when connect with GPRS
LINKA namely LA	Socket A connection indicator	Keep on when connection built
LINKB namely LB	Socket B connection indicator	Keep on when connection built
DATA namely DT	Data transmission indicator	Flicker when serial port network has data

1-3. Features

1. GSM module can be globally used, support Unicom, GPRS of mobile, SIM card (MICRO type)

2. Industrial module adopted, stable performance, quality assured

3. Support automatically start when without data transmission for a long time
    (Set less than 600s to disable automatic restart function)

4. Transparent data transmission

5. Standard industrial port (RS-232/ RS-485)

6. Support long time on-line mode, with bolt redial and heart beat function

7. Support local configuration

8. Support transmit-receive of message, support setting parameters remotely through messages (Setting parameters by message support password verification, which can prevent illegal users to set parameters or the bother of junk short message), support set parameters from a remote server (this function can be opened and closed).

1.4. Application area

◎Industrial controlling, remote sensing, telemetering

◎Unattended machine room and warehouse monitoring

◎Pipeline network monitoring

◎Oil field, coal mine data acquisition and monitoring

◎Fault diagnosis of large scale equipment

◎Other occasions needs wireless data transmission

1.5. Parameters

	Item	Index
Wireless parameter	Wireless standard	GSM/GPRS/EDGE
	Standard frequency range	850/900/1800/1900MHz Quad Band
	Transmitted power	GSM900 class4(2W)
		DCS1800 class1(1W)
	GPRS Terminal Device	Class Class B
	GPRS Multi-slot Class GPRS	Class 10
	GPRS Coding Schemes	CS1～CS4
	Antenna options	I-PEX port
Hardware parameters	Data interface	UART：2400bps～921600bps
	Working voltage	DC 5～30V
	Working current	Average：55mA～90mA Max.：750mA
	Working temperature	-25℃～85℃
	Store temperature	-40℃～125℃
	Dimension	90×60×32mm
Software parameters	Wireless networking type	GSM/GPRS/EDGE
	Working mode	transparent transmission，message，HTTPD mode
	Setting command	AT+ command structure
	Networking protocol	TCP/UDP/DNS/HTTP
	Max. TCP linking number	2
	User Configuration	Serial port AT command，message AT command

2、Working mode

CM-GPRS has three working mode: Network transmission, HTTPD (not support by CM-GPRS currently), SMS transmission

2.1. Network transmission

In this mode, users' serial device can send data to the assigned server through CM-GPRS. CM-GPRS can receive data from the server and then transmit the message to serial port.

Users only need to set simple parameters that transparent communication can be achieved instead of keeping an eye on the process of data conversion between serial port and network.

CM-GPRS supports two socket connections, socket A and socket B, they are mutually independent. CM-GPRS module can only be TCP Client and UDP Client.
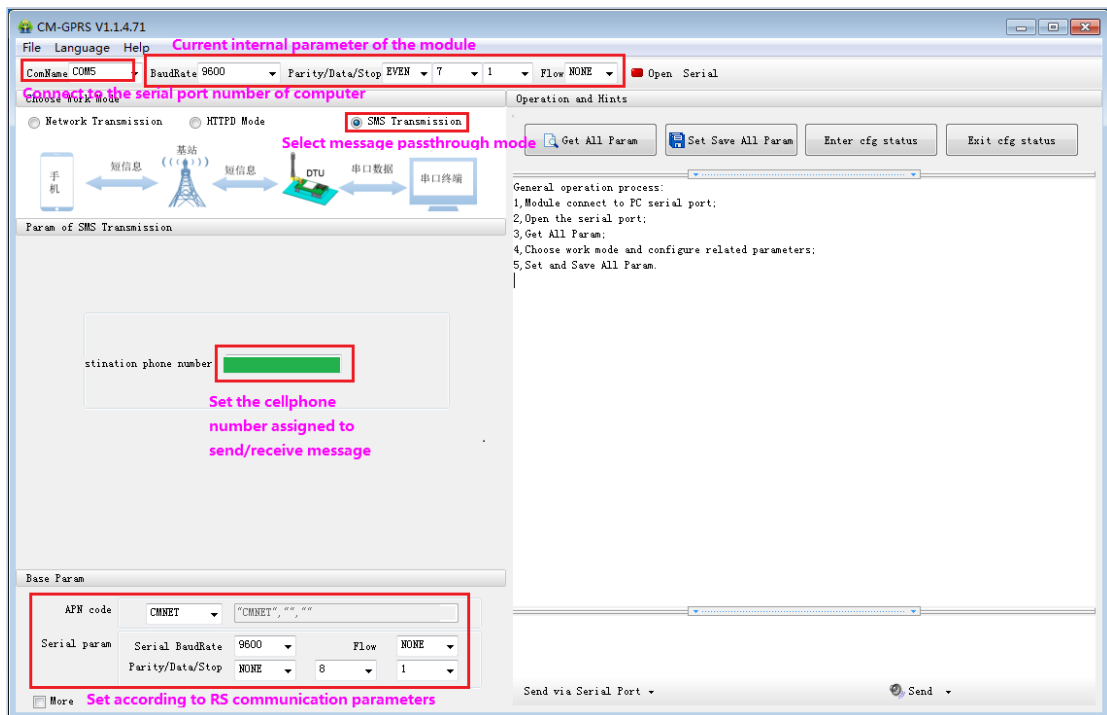
2.2. SMS transmission

In this mode, user's serial device can send short messages to assigned cellphones, and can also receive short messages from any cellphone and then transmit them to serial devices.

Users only need to set simple parameters that communication between cellphones and serial devices can be achieved instead of keeping an eye on the process of data conversion between serial port and message.

Setting steps:

1. Connect Rs232 or Rs485 of CM-GPRS to computer, select the relevant port of USB to Rs232 or USB to Rs485. Baud rate、Check/data/stop、flow control is the corresponding parameters inside CM-GPRS.

2. Select SMS transmission as working mode.

3. In parameters of SMS transmission, set assigned cellphone number which is used to receive messages as the target cellphone number.

4. In global parameters, set operator as Mobile or Unicom corresponding to the SIM card.

5. In serial parameters, set [Baud rate、Parity /Data/Stop] as parameters in RS communication(EVEN/7/1). Set [Flow control] as NONE.

6. Click and access to [Enter configuration status], and then click [Set Save All Parameters].

7. Take coolmay PLC as an example: Data needs to be converted to ASCII while sending them to CM-GPRS RS instructions.

3. Data transmission test

3-1. Initial parameters

Serial parameter is default as: serial port is COM5 in this example, please set port number which is connected with CM-GPRS. Baud rate 9600; Parity EVEN; Data 7; Stop 1.

Defaulted working mode: network transmission

Defaulted sever for connection: Address: 120.76.116.193 or coolmay.wicp.net (standby), port: 25565 connection type: TCP long link.

Default to start registration packet: Transmit mode: send 1 to server when connect with server; registered data type: registered ID 3(Specific registered ID please refer to initial parameter settings, every registered number is marked on product label. If it not be saved, please ask Coolmay to provide it again)

3-2. Data transmission testing steps

1. Take connecting with Coolmay PLC as an example. Insert SIM card to the slot inside CM-GPRS, a computer is needed to connect serial port with CM-GPRS in order to test data transmission between serial port and network. Since some computer hasn't a RS232, thus a USB to RS232 (male) is needed to connect RS232 programming cable (both side is female), or a USB TO RS485 is needed to connect with RS485.

2. Open the setting software, after CM-GPRS is charged and started, if SIM card is inspected, it will automatically connect with GPRS and the server and then access to the working mode which had been set, the serial port will open as set. RUN light ON, then access to the next step after GPRS indicator and LA indicator ON.

3. After LA indicator ON, connect CM-GPRS with Rs232, click to acquire current parameters after serial port opened, check whether it is successfully connected, access to [Enter configuration status], set serial parameters and then click [Set Save All Parameters]. Finally, click and access to communication state, it is OK when OK prompts.
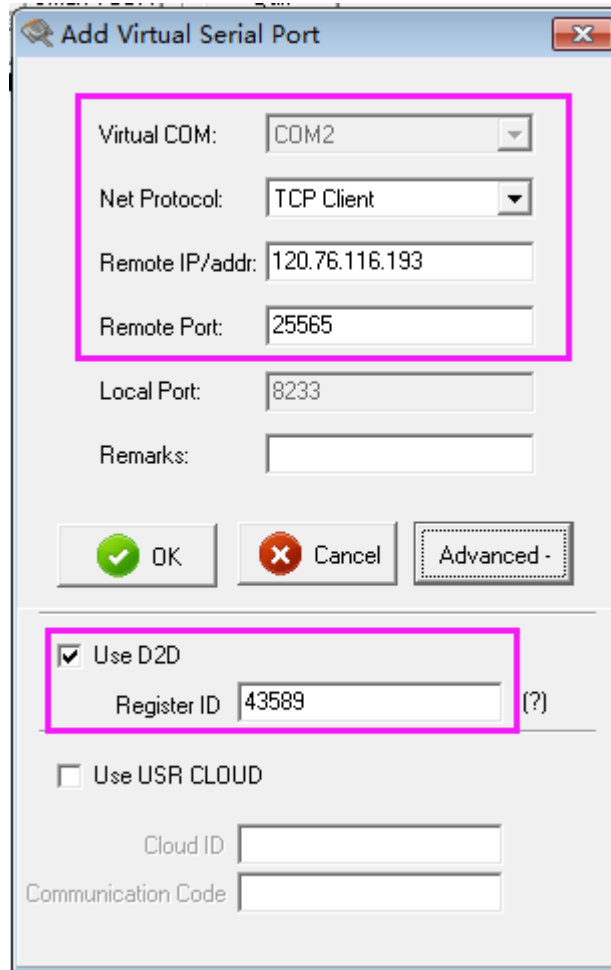
Note:

The above three steps have been set before shipment, this settings can connect with coolmay PLC, parameters should be modified if need to connect with PLC with other brands. Each CM-GPRS has a unique register ID, specific register ID please refer to initial parameter settings, register ID is marked in the product label, users also need to fill the corresponding register ID. If forget it, please ask Coolmay to provide it again.
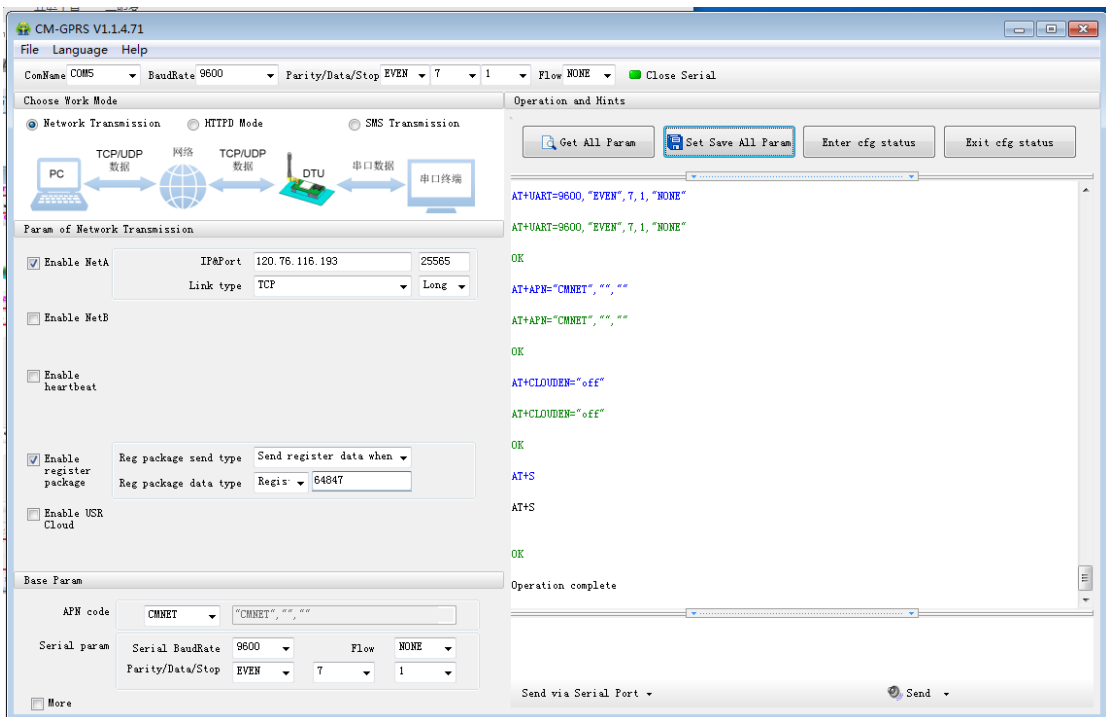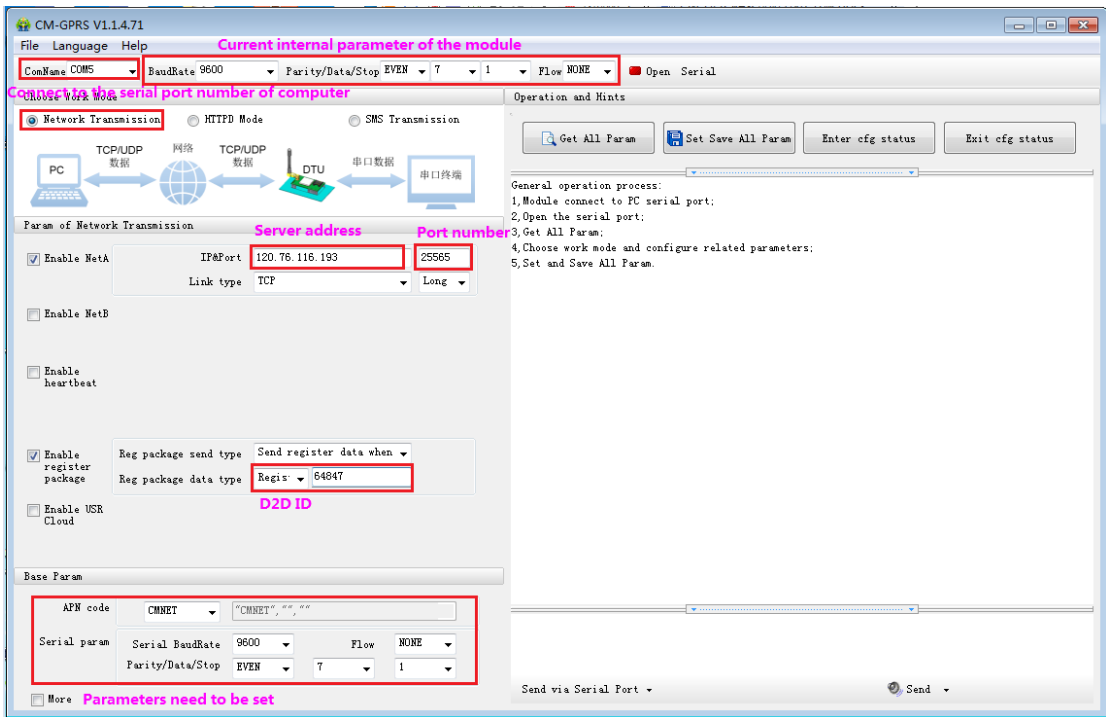
4. Install virtual serial port software, add virtual serial port.
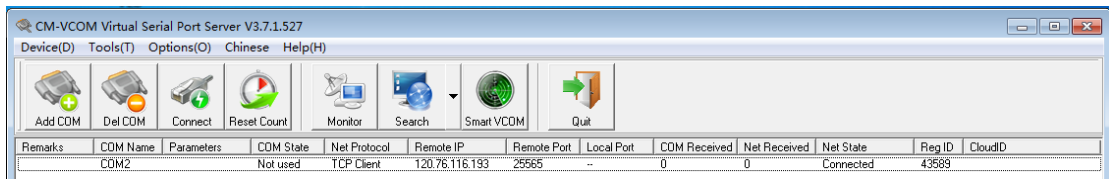

Note:

Net protocol select TCP Client;

Remote IP/ address set 120.76.116.193 or coolmay.wicp.net（standby）(Note: Remote IP/ address is Coolmay domain name, must link with Coolmay server.

Remote port set 25565;

Set [Register ID] in [Advance] 43589 . (Specific register ID please refer to initial parameter settings, every register number is marked on product label. If it not be saved, please ask Coolmay to provide it again)

Successfully created as below image, and then modify [Synchronous baud rate] as [not chosen].
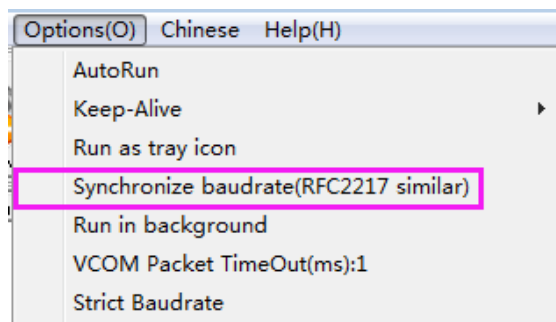
5. In this demo program, virtual serial port is COM2, PLC program software needs to connect with COM2, thus program downloading and monitoring remotely can be achieved. Note: PLC software must be GX8.52 or WORKS 2, meanwhile communication time inspection must above 20s and retry time above twice that it can be successfully linked.