GSM-TOG MANUAL

SHANGHAI WAFER MICROELECTRONICS CO.,LTD

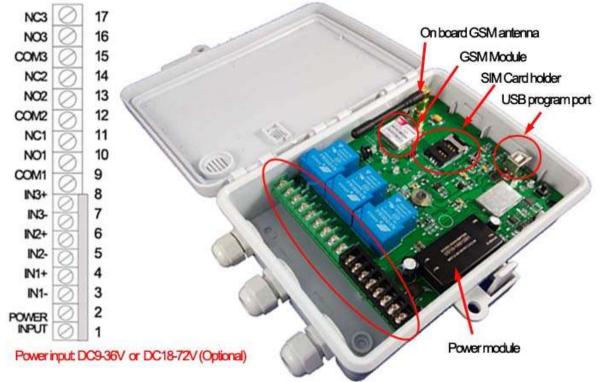http://www.waferstar.com

GSM-TOG OPERATING INSTRUCTIONS

PRODUCT DESCRIPTION

    HUOBEI GSM-TOG is an electronic board with an on-board GSM modem.The purpose of this device is to do the real time and interactive GSM remote control from authorized phone numbers.

    GSM-TOG has three big power relay output,maximum switching power up to 6000W,and also it has three alarm input port.

    On board rechargeable battery can monitor the power change for emergency alarm.

CONNECTOR DESCRIPTION

Three relay output from RELAY1 (NC1,NO1,COM1) , RELAY2 (NC2,NO2,COM2), RELAY3 (NC3,NO3,COM3)

Three alarm input port from IN1 to IN3 (only for Switch type alarm input)

Power input:DC9-36V or DC18-72V (Regardless of polarity)

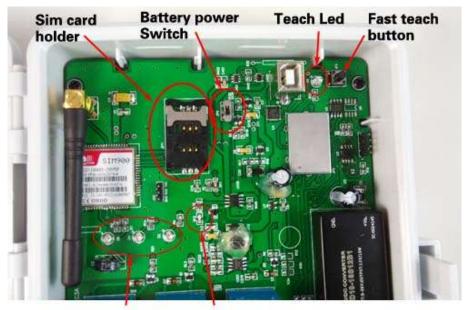## ADVANTAGES OF HUOBEI GSM-TOG

- ˇ 3 channels 230V 30A 50Hz relay contacts.
- ˇ 3 channels Alarm input port.
- ˇ Battery on board for power off alarm
- ˇ No call charges to operate from phone calling.
- ˇ Work with GSM phones calling and SMS or any other phone calling
- ˇ Relay operates almost every electric applicance.
- ˇ Remote password operation and also password change.
- ˇ Opetional relay working mode

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- Each relay can be selected for phone calling control or SMS control
- Caller ID confirmation for security
- Quick & easy number barring.
- Can be operated from anywhere.
- Easy programming in minutes with your phone or PC software
- Device operation record log is saved in the memory for checked

INSTALLATION

Before installation,the below picture show the on board description:

Status LEDs:
- D2: SMS LED,when receiving or sending the SMS,this LED should be flashing
- D4: MCU working status LED
- D6: GSM net LED,when connected to the GSM net,it would start to flash slowly around three second per tim
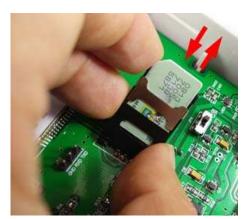
Battery LED: D12

Teach LED: D5

To install the GSM-TOG, you need to power on the board with DC 9V-36V(Optional is DC18-72V and AC100-240V). and also connect the relay output according to your project.

The relay contacts can stand **230V 30A maximum**, this is enough for its operation but **don't try to switch higher voltages or currents**. You should install the GSM-TOG in a place where there is GSM signal coming from the operator you want to use. Check it with a phone before proceeding with the installation. If you need to install the device in a place with little signal, you may consider using an external antenna that we may supply as an option to be purchased separately with 50cm cable.
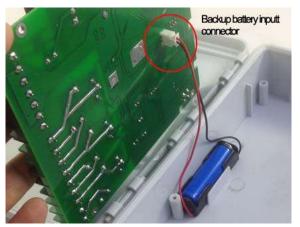
You should then insert the SIM Card of the operator you want to use with the right direction according to the following pictures.

1.Slide back the SIM door and lift it up

2.Slide the SIM Card into the SIM door making sure that the clipped corner of the SIM card lines up with the clipped corner of the SIM holder

3.Close the SIM door

4.Slide the SIM door to lock the SIM card in place

!Note! : You must remove the PIN request from the SIM before inserting it in the unit, otherwise the device will not work. In order to do so, insert the SIM in a phone and disable the PIN request (usually there is a security menu that enables you to do so).

Backup rechargeable battery power input

For GSM-TOG controller,we use the Rechargeable lithium ion battery (the same type battery that is mostly used in the mobile phone)

Normally HUOBEI will provide the battery inside the box,but later If customer make the battery connector at the site,please take care of the polarity

HUOBEI GSM-TOG PROGRAMMING

You can program the GSM-TOG with SMS commands using your phone. It is safe to do so because in addition to the fact that other people may not know the number of the SIM inserted in it, we also use a Password that makes it impossible for anybody who doesn't know it to access the system by chance.**(of course if you select the ACM=OFF free control mode,then any number can control the device with phone calling)**

There are three LED: D2 D4 D6 on the board. That is used to show the working status of the device. D6 is used to show the GSM Module working status , D4 is used to show the MCU controller working status, D2 is used to show SMS receiving and sending status, D2 will flash quicly to show the incoming message and also following three slow flash to show the sending out reply SMS.

Normally D6 is flashing quickly when power up and after about some minutes,it will go to flash slowly about 3 seconds per time when the SIM card connected to the GSM net.

Remember that commands must be CAPITAL LETTERS. It is PWD not pwd, CAP not Cap etc. Don't add spaces or any other character.

Some complicated Instructions,that cann't be programmed by the phone SMS. That would

need to use the PC software to program and inquiry the status of the terminal.

Simply use the USB cable connect the device to the computer and installing the USB driver (you can get the driver from HUOBEI company or our distributor)

The following compand is used in the GSM-TOG :

#PWD:	Password
#CAP:	Change password
#WHL:	White List (add or remove numbers)
#QUERY:	Use the command to check the exact positon in the WHL numbers list
#ACM:	Free control mode or safety control mode selection
#REPORT:	Device Status change report
#REPLY:	When get the SMS relay control command,if need to reply the SMS
#CHOOSE:	Select which relay is under control with phone calling
#GOT:	Relay working output delay time
#ALARM:	Alarm information setting
#MODE:	Relay mode
#CSQ:	Check Signal Quality
#SCA:	Set service center address
#STATUS:	Check status
#RERN:	Alarm number enabled and each alarm switch is ON or OFF
#OUT:	Switch ON or OFF the relay
#RLY:	Temporarily timing control the relay ON or OFF
#UDI:	Alarm SMS Text defined

Once you issue a command with an SMS, you will receive a confirmation SMS with OK if everything is correct or Command Error if there is an Error command.

GSM-TOG SMS COMMAND LIST:

#PWD *Password.*
This command must always come first 6 digits as a password.
The standard default one, when the device comes from the factory, is 123456.
We suggest that you change it, using the #CAP command.
In all the following examples we will use 123456 as an example of password.

#CAP *Change Password.*
Use this command to change the password with a new one that you will chose for your device
(don't forget it or you will have to send the unit back to us to reset it, and this has a cost)
The #CAP command must be issued 2 times to be sure you don't digit a wrong one.
OF course it must be preceded by the old password.
For example, to change the password 123456 into the new password 333444 you need to send the following SMS:

#PWD123456#CAP333444#CAP333444

Acknowledge SMS: PWD SETUP OK

If you wrote correctly, or an Error message if you made a mistake.

If the old password is error,then conformation would be : Error Old Password

If you input two different new password,then reply would be : Error New Password,Please Check the input again

#ACM *Safety control or free control mode setting.* **(PC$PHONE)**
#PWD123456#ACM=ON
#PWD123456#ACM=OFF

ACM=OFF, Then any number can free control the device through the phone calling

ACM=ON, Then only the authorized number can control the device through the phone calling

#WHL *White List*.

This is the command that you will use most. it is used to add or remove numbers that are enabled to control the relay sets into the White List. You can add up to 200 numbers in the list. Every position must be indicated in the command and we advise you to keep a list written somewhere to know which numbers are in and in which position.you also can use the QUERY to know the exact position of one phone number.

For WHL number programming,you can use the **Fast teaching button** to do if you don'twant to send the SMS one by one. Of course,fast teaching button only can be used to program the number from WHL01 to WHL10.

1. *Use the fast Teach Button (JP3) to program*

    Press the Teach button and hold the button for around 2 second, the LED D7 would be lit,and then use your phone to call the device number. when coming the call, the device would reject the calling and D5 would flash one or two times, then the number is saved into the device memory, if you need to program more, then just continue to use other phones to call the device. After program, press the button again to quit the teaching. then the LED D5 would be extinguished.

    (Fast button only program WHL position from WHL01 to WHL10)

2. *Use the SMS to program*

• To add a number, the syntax of the command is the following:

#PWD123456#WHL02=61143815

Acknowledge **would be : WHL02 SET TO 61143815 OK**

Where 02 is the position in the list and 61143815 is the number enabled.

Please note that it is possible to program up to a maximum of 10 digits for a number. If it has more digits you should use the rightmost ones. For example, if your number is 33446665555 you should program 3446665555. If your number appears as +85261143815 you should not program the country code (+852). If your number has only 9 digits or less, it is not a problem. The important thing is that you don't exceed 10 digits.

Important Note:

From WHL01 to WHL08,that is Special numbers for Control and Alarm SMS receiving

Especially for WHL01, that is also a System data change REPORT number

So that would be better to setup your normal Control number from WHL09 to WHL200

• To check which is the number in a place of the list:

#PWD123456#WHL05?

Acknowledge **: WHL05 IS 61143815 OK**

• To erase a number:

#PWD123456#WHL05=0000

(or you can write over it another number you wish to add)

Acknowledge : **WHL05 SET TO 00000000**

List All numbers in the List

#PWD123456#WHL=ALL?   (PC)

Acknowledge **:**

WHL02 IS XXX

WHL03 IS XXX

WHL08 IS XXX

......

#QUERY *White List*.

#PWD123456#QUERY=xxxxxx

This is used to check if a number is inside the WHL or not and the WHL positon

#REPORT *Report the system status change*   **(PC$PHONE)**

When setup to:

#PWD123456#REPORT=ON

Then any device status change would send the alarm SMS to Alarm01 number

#PWD123456#REPORT=OFF

No report for the device status change

#PWD123456#REPORT?

Check the REPORT setting status

------------------------- FOR PHONE CALLING OUTPUT CONTROL ------------------------

#GOT *Relay working output delay time.*

When setup the GOT Timer,first you need to setup the timer multiplier at millisecond or second or minutes.

#PWD123456#TIMER-DELAY-AT-MILLISECOND

#PWD123456#TIMER-DELAY-AT-SECOND

#PWD123456#TIMER-DELAY-AT-MINUTE

Then you need to setup the GOT timer number:

This command is useful in case you need to keep the Relay output working longer. The standard time is 0,3 seconds (300 ms). You can change it with the GOT command.

• The syntax of the command is the following:

#PWD123456#GOTX=xxx   (PC$PHONE)   (for Relay1,relay2 and relay3)

#PWD123456#GOT1=900 (#PWD123456#GOT2=900, **#PWD123456#GOT3=900   )**

Acknowledge**: GOT1 DELAY TIME SET TO 0900S**

With the above command the delay time has been set to 900 s

You also can setup to GOT2,GOT3 for Relay2 and Relay3

• You can check what the current relay output delay time is with the command

#PWD123456#GOT?   (PC$PHONE) Timer is for second

Acknowledge**: GOT1=02,GOT2=05,GOT3=05**

#MODE Relay Operation Mode SETUP   (PC$PHONE) (for Relay1,Relay2,Relay3)
#PWD123456#RELAY1=MODE0   (for Relay1,Relay2,Relay3)
Acknowledge**:   RELAY SET TO MODE0**
#PWD123456#RELAY1=MODE1   (for Relay1,Relay2,Relay3)
Acknowledge**:   RELAY SET TO MODE1**
If set to MODE0,that is Momentary pulse and If Config to MODE1,that is Ratchet relay
When you want to phone call to trigger different relay,then would need to use the SMS to switch
to this relay
#PWD123456#CHOOSE=100
Use the above command to select the Relay that can be controlled with the phone calling
From the left to right is for RELAY1 to RELAY3,and "1" is under control and "0" is free of
control
For example setup to
#PWD123456#CHOOSE=110   ,**Then only relay1 and relay2 is under control**
Acknowledge**: CHOOSE=110**
#PWD123456#CHOOSE?
Acknowledge**: CHOOSE=110**

-------------------------------- **FOR SMS OUTPUT CONTROL** ------------------------------------
#REPLY SMS reply OFF or ON
#PWD123456#REPLY=ON
When setup to ON,then Device will reply the OUT and RLY command after Relay is toggled
#PWD123456#REPLY=OFF
When setup to OFF,then Device will not reply the OUT and RLY command after Relay is toggled
        (This command is used to save the cost for user)
#OUT Relay output control
(1)ON the relay output contact
#PWD123456#OUTX=ON   (PC$PHONE)
Where X is the number of the relay in the list (X is from 1 to 7)
Acknowledge**: OUTX ON OK**
(2)OFF the relay output contact
#PWD123456#OUTX=OFF   (PC$PHONE)
Where X is the number of the relay in the list (X is from 1 to 7)
Acknowledge**: OUTX OFF OK**
(3)ALL the relay control at the same time
#PWD123456#OUT=111   (PC$PHONE)
Where the number is 1 or 0 to ON or OFF the relay.
Acknowledge**: #PWD123456#OUT=111 OK**
(4)Trigger the output relay for some seconds
#PWD123456#RLY1=XXX
#PWD123456#RLY2=XXX
#PWD123456#RLY3=XXX

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Acknowledge**:**
#RLY1-ON: xxxx
#RLY2-ON: xxxx
#RLY3-ON: xxxx

(5)Check the relay status
#PWD123456#OUT?   (**PC$PHONE)**
Acknowledge**:   OUT 111**   (the Number "1" means RELAY ON and "0" means RELAY OFF)

#PWD123456#RELAY?
Acknowledge**:**
**RLY1=RLY,RLY2=OFF-RLY,RLY3=OFF-RLY,RELAY1=MODE0:02,RELAY2=MODE0:0
5,RELAY3=MODE1:05**

#CSQ *Check GSM signal quality.*   (**PC$PHONE)**
This command is useful to see what is the GSM network signal level your GSM-TOG is receiving.
It ranges from 0 to 32 (if it is 0 we doubt it will ever answer...). You should have a signal above
12 to be sure of being able to control the relay sets in any condition. Better if above 16. You
should add an external antenna if this is not the case, or eventually even change operator with
another that serves your area better.
#PWD123456#CSQ?
Acknowledge: **CSQ IS 26**

--ALARM SETUP---
(5) Config the Customized Alarm SMS TEXT for input Alarm: **(PC)**
#PWD123456#UDI1:ABC1,UDI2:ABC2,UDI3:ABC3
Acknowledge**: UDI1:ABC1,UDI2:ABC2,UDI3:ABC3 OKAY**
(When the Alarm input is triggered,will send this customized SMS)
Check the text set
#PWD123456#UDI?
Acknowledge: **UDI1:ABC1, UDI2:ABC2**

(5) Enable the alarm phone number
#RERN Enables the administrator to receive the alert SMS
This is the command that allows you to enable, disable and check the status of the
administrator list, these are the number that will receive system alerts SMS. In the first 8
numbers of the WHL numbers list ,from WHL01 to WHL08, that is administrator numbers,
To allow the first 4 administrators in the Administrator List to receive system alerts SMS
only ,you would send the follow SMS text command to the unit.
#PWD123456#RERN=11110000:PWA=ON,REYA=ON,OUTA=ON,CSQA=ON
Where 1 is a number enabled for the first 4 positions in the administrator list ,and 0 is a
number disabled for the last 4 positions in the list.
You will receive the following confirmation from the unit
RERN IS SETUP TO 11110000:PWA=ON, REYA=ON,OUTA=ON,CSQA=ON

and the first four administrator numbers in the list the receive SMS text alerts

PWA=ON : When power is changed, will send the alert message

REYA=ON : When use the RLY to change the relay status,would send the alert message

OUTA=ON: When the out1 or out2 status is changed,then would send the alert message

CSQA=ON:When the CSQ is lower than a configured data,then would send the alert message

To check the status of the RERN list you would send the following S.M.S message to the unit

#PWD123456#RERN?

You will receive the following similar confirmation from the unit

RERN: 11110000:PWA=ON, REYA=ON, OUTA=ON,CSQA=ON

Enable or disable the input alarm:

#PWD123456#ALARM-IN1=ON:2,ALARM-IN2=OFF,ALARM-IN3=ON:2

Acknowledge: **ALARM-IN1=ON:2,ALARM-IN2=OFF,ALARM-IN3=ON:2 OKAY**

Then the ALARM-IN1 and ALARM-IN3 is enabled and ALARM-IN2 is disabled

CSQ alert data setup:

#PWD123456#CSQA=19

When the CSQ is lower than the Configed data,then would send the alert SMS:

" **GSM SIGNAL LOWER THAN 19,PLEASE CHECK IT** "

#PWD123456#CSQA?

Acknowledge: CSQA IS 22

Battery working and alarm

System Alert SMS:

BATTERY WORKING STATUS,PLEASE CHECK

When battery working,any SMS command coming,device would reply this

-------------------------------------STATUS and RESET---

#STATUS?   Check system status

This command is useful to check the system parameters and the inside clock.

#PWD123456#STATUS?

You will receive the following similar confirmation from the unit

ACM=ON,RELAY1=MODE0:05,RLY1=OFF-RLY,RLY2=OFF-POWER,RLY3=OFF-RLY,RERN:11110000,PWA=ON,REYA=ON,OUTA=OFF,CSQA=ON

System RESET command (Send from the PC software)

GSM-TOG-RESET

GSM-TOG-RESET OKAY

After Reset:

All numbers would be cleared

TIMER-DELAY-AT-SECOND

ACM=ON,REPORT=OFF,REPLY=ON,RELAY1=MODE0:0005, RELAY2=MODE0:0005,

RELAY3=MODE0:0005, PWA=ON,REYA=OFF,OUTA=OFF,CSQA=OFF

System on board reset button

Press the Teach button and hold the button or more than 10 seconds,then the LED D5 would start to flash to RESET the device.and then release the button.

Troubleshooting

No LED is on after power up
 • Check the power supply.
 • Check the wires is connected well.

GSM LED D6 is not flash slowly
(GSM LED normally flash quickly when power off and when it connected to GSM net ,then would flash around two seconds per time).
 • Check your ordered device if that is the proper GSM BAND to your country.don't use the 3G card to test (including CDMA2000 or WCDMA is not suitable)
 • Check the SIM card is properly inserted.
 • Check the PIN.(Normally don't need to check, if SIM card can work with your mobile phone.)
 • Check the antenna connection is fitted well.
 • GSM Signal is not good and cann't register to GSM,try to move to another place to test.
 • If still cann't registered to the GSM net, try to contact HUOBEI to get the technical support
 • When LED D6 is flashing slowly,try to call the SIM card,the calling status would be in busy.

MCU LED D4 is not flash slowly
 • MCU is not working properly,Check the system power

No Relay working tone can be heard when phone calling the device
 • Check if your Control number is already setup into the device.
 • GSM-TOG is not initialized properly upon start (approx. 10s after power up).
 • If the GOT timer is setup to a very short timer (normally should be more than 500ms)
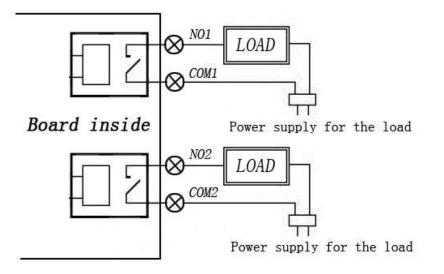
GSM-TOG does not communicate with PC
 • Check the serial cable connection.
 • Check the COM number setting on PC.
 • Check if you select the " New Line " selection box
 • Check if you input the right instruction line and that should be all use the Capital word,
 • Check the COM parameters (9600 bps, 8N1).

- An incoming call is ringing on GSM-TOG
- An incoming SMS message is on processing by GSM-TOG

Relay connection example to Output Driver

The relay control outputs are suitable to control different household and other devices as are air-conditioning and heating,connected directly or through external relay modules.
The relay has NO and NC contacts,normally,we only need to use the NO and COM contacts.

Note:

Power supply for the each load mustn't exceed 30VDC/30A or 230VAC/30A

Warning:

GSM-TOG device is only working as a high power switch, don't power the LOAD directly.

This brochure provides an overview of the products and services of HUOBEI GSM Modules, For further information and queries kindly contact:

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