UNIVERSAL GSM DIALER & CONTROLLER, GSM-30U

Introduction & Applications

- The GSM-30U is a universal GSM dialer and controller, compatible with most alarm panels.
- The GSM-30U can be used for alarm notification to send SMS alarm message, or report to CMS with Contact ID format.
- Relays and switches can be remotely controlled by SMS commands.
- Dial in to monitor the environmental sound around the GSM-30U.

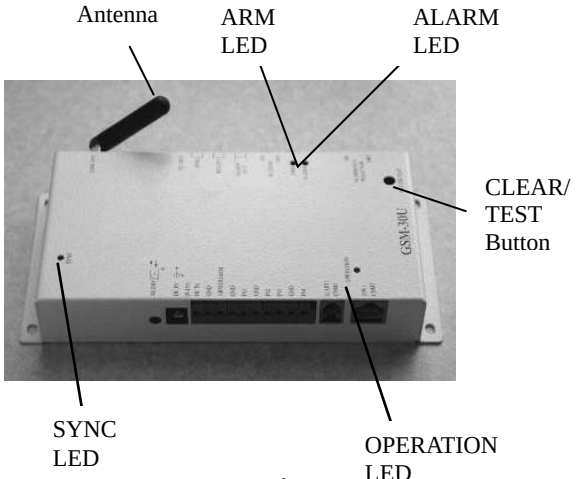

Fig. 1

Basic Description

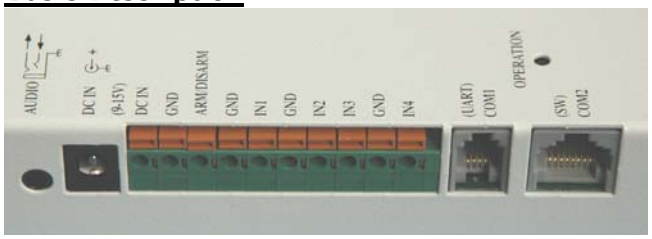

Fig. 2

Sockets

DC IN: For the connection of power adapter DC +9V~15 V
AUDIO: Reserved for future purpose.
COM1: Reserved for future purpose.
COM2: Interface port with Relay Module XRM-01 (refer to XRM-01 manual for the details), or X10 Power Line Controller.

Input Terminals

DC IN: DC +9V~15V, ignore this if an external power adapter is connected to DC IN socket already.
GND: Ground
IN1~IN4: Trigger inputs, refer to Table 2 for factory settings.

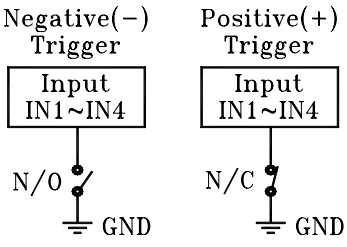

Fig. 3

ARM/DISARM: When this terminal is connected to GND, the GSM-30U would be armed. When this terminal keeps Open (disconnected), the GSM-30U would be disarmed. But if the GSM-30U is also controlled by SMS then the most recent command or the changing of this terminal would dominate arm/disarm status. Refer to 2-1 Arm/Disarm Control.
Note: The ARM LED indicates the real status.

Output Terminals & Indicator

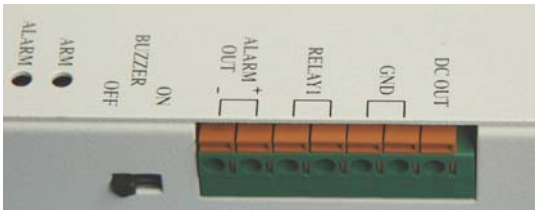

Fig. 4

DC OUT: Derives the power from DC IN terminal or power adapter, current rating depends on DC IN and no more than 1Amp.
GND: Ground
RELAY 1: Dry Contact output, refer to section 1-5 for action time.
ALARM OUT: Dry Contact output or power output (the same voltage as DC IN), depending on Alarm Out Selector. Refer to section 1-5 for action time
BUZZER SELECTOR: You can enable or disable buzzer sound by this selector. The buzzer would beep when 1) you arm the GSM-30U and there is delay time for Exit Delay, refer to section 1-5 Delay Time/Action Time Setting. 2) when any of IN1~IN4 is triggered in ARM state, and its delay time is not set to 0 seconds, refer to 1-5 Delay Time/Action Time Setting. 3). the buzzer would generate two beeps when the GSM-30U receives valid command, and generate one beep when sending SMS out.
ARM LED: ON for Arm state, OFF for Disarm state.
ALARM LED: It turns ON after alarm occurs. It can be reset by pressing CLEAR/TEST button.
ALARM OUT SELECTOR: Select Dry Contact or power output for Alarm Out terminals.
CLEAR/TEST: Refer to Fig 1. Pressing this button for 2 seconds would reset Alarm LED, and activate buzzer to sound a beep. Meanwhile, Alarm Out relay would activate for 1 second.
You also can stop calling out and turn Alarm Out off by pressing CLEAR/TEST button for 2 seconds if the GSM-30U is in Disarm state. For burglar alarm, you have to disarm the GSM-30 first.
Note: CLEAR/TEST button is valid only when the GSM-30U is in Disarm state.
SYNC LED: It blinks when the GSM-30U communicates with the GSM base station.

Installation & Operation

Important Notice: Before inserting the SIM card, you must put this SIM card in a cell phone and switch off its PIN code protection first. Also check the GSM signal strength at the place you will install the GSM-30U.

1. Loosen the screws, open the top cover.
2. Insert a SIM card to the card holder carefully, refer to Fig 5.
3. Connect antenna, DC power
4. Set jumper J6 to "-" position (refer to Fig. 6), red LED D7 would light up.
5. Refer to next section "1. Initial Programming", and use a cell phone to send SMS to program the telephone numbers and basic settings.
6. Put J6 back to "+" position

Important Notice: When the jumper J6 is set to "-" position (red LED D7 lights up). Any cell phone can program and control the GSM-30U, so this condition should be kept only for initial programming. After programming, you must put the J6 back to "+" position, so that only telephone number 3 & 4 are allowed to program and control the GSM-30U. This makes the system secured.

7. Disconnect antenna & DC power, put back the cover and tighten the screws.
8. Connect antenna and mount the GSM-30U at a proper location. In case you need to place the GSM-30U inside a metal case, you have to use an antenna with cable, so that the antenna is out side the metal case. Otherwise, the GSM communication would fail.
9. Connect needed input/ output terminals.
10. Connect DC power

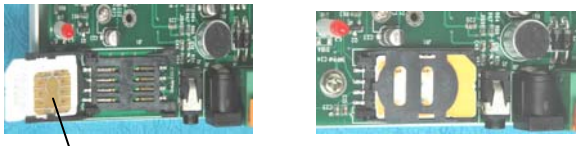

Fig. 5

1. Initial Programming:

You can send SMS from a cell phone to program or control the GSM-30U. Max. 160 bytes can be sent in one SMS, including ";" (the header and ending). Each new command would overwrite old setting.

Note: 1. The command is embraced by two ; symbols, both upper and lower case are valid.
Example: ;command 1;
2. You can send more than one command in a SMS message. But maximum 10 commands and 160 bytes in a SMS message are acceptable. There are two ways of sending SMS messages: by text mode and by PDU (Protocol Description Unit) mode. In text mode, one character is composed of one byte. In PDU mode, one character is composed of 4 bytes.
Example: ;command 1;command 2;command 3;
Please note if the total length of SMS commands is over 160 bytes, only the complete commands within 160 bytes are valid.
3. If you want to check the reaction of GSM-30U to the SMS command you are going to send, you can add check message (refer to the section 3. Status/Settings Check & Listen-in) after the command. But note this is only valid for telephone number 3 & 4.
Examples:
1). ;PH5=098765432;PH?5;
Set telephone number 5, and then check if telephone number 5 has been set OK.
Note: Checking telephone number 3 or 4 in the GSM-30 is valid only from the next SMS after programming.
2). ;SYS=1;SY?;
Arm the GSM-30U, and then check if it's armed.

§ 1-1 Telephone Number Setting

To set telephone numbers to receive reports from the GSM-30U. Maximum 24 digits for each number.

Phone No.	Function Description
0	4-digit account for CMS(Contact ID format)
1, 2	CMS number
3, 4	Program, Control, Receive alarm message, Dial-in, Listen and Check Status
5~9	Receive alarm message, and control when J6 at "-" position.

Table 1

Important Notice: The caller ID of telephone number 3 & 4 must be ON; otherwise the GSM-30U can't identify them.

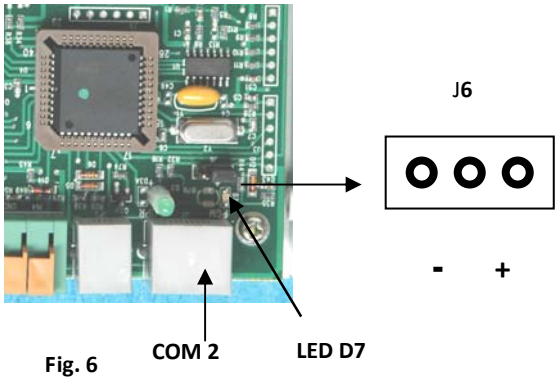

Fig. 6

SMS command: ;PHn=x----x;
- **n** is the telephone sequence number, ranges 0~9.
  0 is dedicated for Contact ID 4-digit account when the GSM-30U links to a CMS (Central Monitoring Station).
- **x---x** is the digits of telephone number, max. 24 digits.

Examples:
1) **;PH3=0928123456;**
Set 0928123456 to telephone number 3.
2) **;PH0=2612**;
Set 2612 to the User Account of Contact ID

§ 1-2 Delete Telephone Number

SMS command: ;PHDn;
- **n** is the sequence of telephone number.

Example: **;PHD6;**
Delete telephone number 6 from the memory of the GSM-30U.

§ 1-3 Set Clock

SMS command: ;CLK=yy/mm/dd,hh:mm:ss;
Example: **;CLK=08/03/23,08:30:00;**
Set the clock of GSM-30U to 2008/3/23, 08:30:00
Note: The backup power for the clock of GSM-30U can last for 10 hours after DC IN fails. In case you receive SMS about "Power ON Reset" with incorrect clock, the power break could be over 10 hours, then you have to set the clock again.

§ 1-4 Input Type & Text Programming

You can program Trigger type of the IN1~IN4 independently to meet your requirements. You also can program the SMS text for the alarm report sent from the GSM-30U.

SMS command: ;INn=T+ (-) ---- ----;
- **n** is the number of Trigger Input, IN1~IN4,
- **+** is for positive trigger, from GND voltage to higher voltage (+5~15VDC) or N/C type external contact (refer to Fig. 3).
  - is for negative trigger, from higher voltage (+5~15VDC) to GND or N/O type external contact (refer to Fig. 3).
- **T** is alarm type:
  1 for Burglar alarm,
  2 for Fire alarm, (24Hours)
  3 for Panic alarm, (24Hours)
  4 for Medical alarm, (24Hours)
  5 for Environmental alarm like Temperature/Humidity. (24Hours)
- **--- ---** is the user programmable text, max. 15characters including space. Accented characters are not recommended. Default text would be sent to telephone number 3~9 if you didn't change it.

Examples:
1) **;IN1=1+Front Door;**
Set IN1 for Burglar Sensor, Positive trigger, assign IN1 for the name of Front Door.
2) **;IN4=2-Kitchen Alarm;**
Set IN4 for Fire Sensor, Negative trigger, assign IN4 for the name of Kitchen Alarm.

Notice: The factory default settings of Type, Text and Delay Time for IN1~IN4 are as below:

Input	Trigger	SMS Text	Dealy Time
IN1	Positive +	FrontDoorAlarm	20 s
IN2	Positive +	BackDoorAlarm	0 s
IN3	Positive +	WindowAlarm	0 s
IN4	Positive +	MasterRoomAlarm	0 s

Table 2

§ 1-5 Delay Time/Action Time Setting

You can program Delay Time for each Trigger Input and the Action Time for Alarm Output individually by sending SMS command.
SMS command: ;DTn=xxx;
- **n**= 1~6,
  1~4 are for IN1~IN4. If you disarm the GSM-30U within input delay time, the trigger won't cause alarm.

5 is for Exit Delay Time. When you arm the GSM-30U, it will be enabled after Exit Delay Time. Factory default : 0 seconds.

6 is for Alarm Out Action Time (refer to Fig.3 ALARM OUT terminal). Factory default: 60 seconds.

- **xxx** is for Delay/Action time for 0~250 seconds, default 0 seconds (no delay).

n	Description	Default
n=1~4	Delay Time for IN1~IN4	See Table 2
n=5	Exit Delay Time	0 seconds
n=6	Alarm Action Time	60 seconds

Table 3

Example:
;DT1=0;DT5=20;DT6=30;
Set no delay for Trigger Input IN1.
Set Exit Delay Time to 20 second.
Set Alarm Out Action (ON) Time to 30 seconds.

§ 1-6 System Reset
If necessary, you can erase all telephone numbers and reset the all settings of the GSM-30U to factory default by following steps:

1. **Turn off the power of the GSM-30U, and then open the GSM-30U case**
2. **Put the J6 at "-" position, refer to Fig. 6**
3. **Keep pressing Reset/Test button and then connect the power of the GSM-30U, release the Reset/Test button after the Operation LED starts blinking (it's about 20 seconds after first pressing the button). Meanwhile, the buzzer would generate one beep if Buzzer Switch is ON, and Relay 1 would turn ON for1 second.**

2. Control:

For the ease of control, you may save frequently used SMS commands in the SMS Outbox of your cell phone, and resend them when you want to control the GSM-30U.

§ 2-1 Arm/Disarm Control
You can arm (enable) or disarm (disable) the GSM-30U by sending SMS command to the GSM-30U, or from ARM/DISARM terminal, refer to Fig 2.
SMS command: ;SYS=0, or 1, or 2;
0 =Disarm, **1**=Arm, **2**=Clear Alarm status and LED.
Example: **;SYS=1;**
To Arm (enable) the GSM-30U.
Note: If the GSM-30U is also controlled by ARM/DISARM terminal then the most recent command or the changing of this terminal would dominate arm/disarm status.
- You also can clear the Alarm status and LED by pressing CLEAR/TEST button, refer to Fig 1.

§ 2-2 Relay Control
You can control the RELAY 1 by sending SMS command to the GSM-30U.
SMS command: ;RL1=0, or 1, or xxx;
- **RL1** is Relay 1,
- **0** for relay OFF, **1** for relay ON until next OFF command, **xxx** is relay ON time from 2 to 250 seconds.

Example:
1) **;RL1=1;**
Turn Relay 1 ON until next OFF command.
2) **;RL1=30;**
Turn Relay 1 ON for 30 seconds
Note: SMS should be ;RL1=5;, or ;RL1=30 ; NOT ;RL1=005;, or ;RL1=030;
3) **;RL1=0;**
Turn Relay 1 OFF

§ 2-3 XRM-01 Relay Module (or X10 Switch) Control
You can control additional relays (refer to XRM-01 manual) or X10 power switches by sending SMS to the GSM-30U.
SMS command: ;XTn=xxx;
- **n** is XRM-01 Relay (or X10 switch) number, 1~12.
- **xxx** : **0** turns relay OFF,
1 turns relay ON, until next OFF command.
2~250 for relay ON time in seconds.
A~P for X10 House Code setting (only needed when X10 switch is used, the default House Code is "A").

Example: **;XT1=0;XT2=30;**
Turn XRM-01 Relay number 1 (or X10 Switch 1) OFF, and turn XRM-01 Relay number 2 (or X10 Switch 2) ON for 30 seconds.

3. Status/Settings Check & Listen-in

After the GSM-30U receives the check status command from telephone number 3 or 4, it would report the corresponding status to that telephone number by SMS. Maximum of each SMS is 64 characters.
Note: 1. When GSM-30U receives a voice call (NOT SMS) from telephone number 3 or 4, the GSM-30U would activate the built-in microphone automatically after ringing for 15 seconds. This enables the caller to monitor the sound in the environment.
2. If this voice call is disconnected before 15 seconds (averagely about 5~15 seconds after dialing, depending on the real situation of the communication between the cell phone and the base station), the GSM-30U would report system status to the calling phone by SMS. This feature can save the caller's (Telephone number 3 & 4) phone fee on checking system status and the Received Signal Strength Indication (RSSI) of the GSM-30U. An example of status report as below:
ARM;OK;RL1=Off; RSSI=-50
Remark: -50 is better than -60 for RSSI.

§ 3-1 Check System Status.
SMS command: ;SY?;
Response:
ARM (DISARM);Alarm IN x;Alarm Time;RL1=On(Off);V1.3
or ARM (DISARM);OK;RL1=On(Off);V1.3
Example: **ARM;OK;RL1=Off**
GSM-30U status= Arm
No alarm event
Relay1=OFF
V1.3 is firmware version of the GSM-30
Note: Relay 1 status is included in the report of system status each time.

§ 3-2 Check Input Type and Text
SMS command: ;IN?n;
Response example:
IN1=1+FrontDoor;IN2=1+BackDoor;IN3=1+Window;IN4=2-Storage Room
IN1 is set for positive trigger, Burglar Alarm and name of Front Door.
IN2 is set for positive trigger, Burglar Alarm and name of Back Door.
IN3 is set for positive trigger, Burglar Alarm and name of Window.
IN4 is set for negative trigger, Fire Alarm and name of Storage Room.

§ 3-3 Check Telephone Number
SMS command: ;PH?n;
Response examples:
1) PH3=0933444555
Telephone number 3 is 0933444555
2) PH8=
No data was programmed for telephone number 8.

§ 3-4 Check Delay Time
SMS command: ;DT?;
Response example:
DT1=15;DT2=0;DT3=30;DT4=0;DT5=20;DT=60
IN1 Delay Time is set to 15 seconds

IN2 Delay Time is set to 0 seconds (no delay)
IN3 Delay Time is set to 30 seconds
IN4 Delay Time is set to 0 seconds (no delay)
Exit Delay Time is set to 20 seconds
Alarm Out Time is set to 60 seconds

§ 3-5 Check Clock
SMS command: ;CL?;

§ 3-6 Check XRM-01 Relay (or X10 switch) N status
SMS command: ;XT?n;
n is XRM-01 Relay (or X10 switch) number, 1~12.

Command Summary

SMS Command	Function
1. Programming	
;PHn=x----x; (n=0~9)	**Telephone Number Setting**
;PHDn; (n=0~9)	**Delete Telephone Number**
;CLK=yy/mm/dd,hh:mm:ss;	**Set Clock**
;INn=T+ (-) ---- ----;(n=1~4)	**InputType&Text Programming**
;DTn=xxx; (n=1~6)	**Delay Time/Action Time Setting**
2. Control	
;SYS=0, or 1, or 2;	**Disarm/Arm/Clear Control**
;RL1=0, or 1, or xxx;	**Relay Control**
;XTn=xxx; (n=1~12)	**XRM-01 Relay Module (or X10 Switch) Control**
3. Check	
;SY?;	**Check System Status**
;IN?n; (n=1~4)	**Check Input Type and Text**
;PH?n; (n=0~9)	**Check Telephone Number**
;DT?;	**Check Delay Time**
;CL?;	**Check Date/Time**
;XT?n; (n=1~12)	**Check XRM-01 Relay (or X10 switch) status**

4. Alarm Report

Whenever there is an alarm, the GSM-30U would report to CMS 1 & 2 (telephone number 1& 2) with Contact ID protocol automatically. Meanwhile, it would report to telephone number 3~9 by SMS too.
Example: **Alarm1=FrontDoorAlarm '08/12/26, 02:30:15**
Explanation: Input 1 alarm. The sensor of Front Door is triggered on 2008/12/26 02:30:15
Note: 1. Maximum call attempt to each CMS is 5 times. If GSM-30U has failed to call CMS for 3 times, it would jump to send SMS to other telephone numbers, and then re-try the call to CMS.
2. Maximum of each SMS report is 64 characters, refer to section 1-4 Input Type & Text Programming. If the report SMS is over 64 characters, only the status within 64 characters would be sent out.
3. The GSM-30U would report "Power On Reset" to telephone number 1~4 about 60 seconds after power restores from break each time. And the Alarm LED would light up too.

5. System Expansion

If you need to control more relays or AC power switches, you can connect XRM-01 Relay Module or X10 Power Line interface to the GSM-30U. For the details, please refer to their manuals respectively.

§ 5-1 Connection of XRM-01

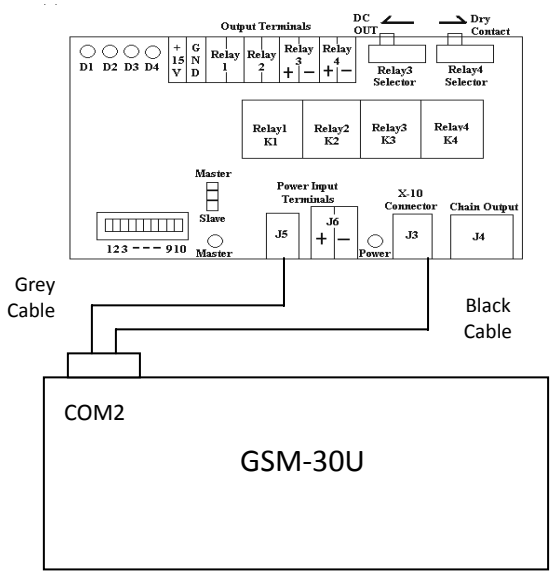

Fig. 7

§ 5-2 Connection of X10 Power Line Interface

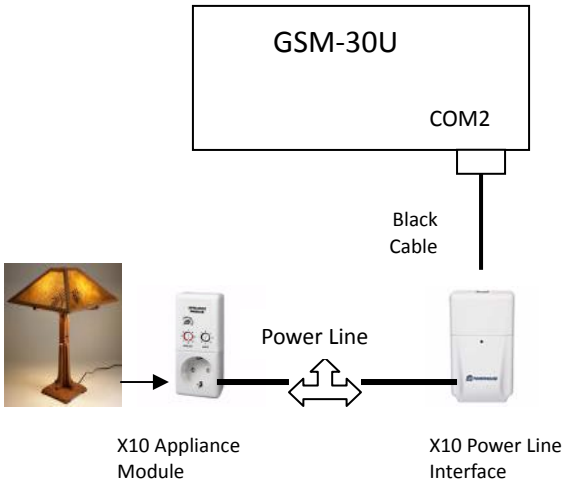

Fig. 8

Specifications

Dual-band GSM Engine: SIEMENS/ TC35i, 900/1800MHz
4-band GSM Engine: SIEMENS/ MC55i, 850/900/1800/1900MHz
Power Supply: +9~15V DC
Power Consumption: about 25 mA @ Standby
about 350mA during transmission
Relay Rating: 10A@250VAC, unfused
CMS Data Format: Contact ID
Programmable Telephone Numbers: 9 numbers. Number 1 and number 2 are CMS.
Input terminals: 4 inputs
X10 Switch Control: Max. 12 switches, Optional
Indication LEDs: Alarm, Arm, Operation, Sync.
Working Temp: -10~40 ℃.
Dimensions (excluding antenna): 90 x 188 x 30 mm
Weight: about 515g

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