User Manual

GSM MULTI FUNCTION CONTROLLER AND MONITORING SYSTEM

Model: GSM-220

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About Product

This system incorporates 2 digital inputs, they can be set to give alarm when a short circuit or when they break, you have here the opportunity to make delay of alarms by up to 6553 seconds. The unit will also let you know when an alarm disappears. Alarms can be given in the form of text messages and or call for administrators. The relays can also be controlled by alarms on input, so you have the opportunity to use them for different control purposes.

2 relays Max. 24 Volt 1 Amp. with NC / NO function; the relays can be controlled via calls to the device, via text messages and alarms from temperature part as well as digital input.

The unit also includes AC Loss alarm, it will send alarm to the administrator if a power failure occurs, the alarm can be delayed with Max. 6553 seconds, the alarm can be given as SMS and or call, and by activating relays.

The device is equipped with 7.2 Volt Lion backup battery, it will keep the unit running in 6-10 hours when the battery drops below 20% it will notify administrators such via SMS.

The unit can have up to 5 administrators who want to get alarms, and will be able to make the programming of the unit, these administrators can be changed via SMS messages.

All administrator always has full access to the device.

For service personnel, they can use the device for the temporary Administrator rights by sending the SMS with the device's password so that you will obtain administrator rights for 10 minutes, very useful for installers, etc.

Power supply 12 Volt DC.

Product Specification

- Operation Voltage: 12VDC
- Operating Current: Max. 300mA, typically 35mA
- Number Of I/O: 2 Dry Contact Input, 2 Relay Output
- Relay Contacts Capacity: NC: 1A@24VDC, NO: 2A@120VAC/24VDC
- GSM Frequency: GSM900/1800Mhz (Optional GSM850/900/1800/1900Mhz)
- Humidity: Less Than 80% RH
- Operating Temperature: -20°C to 55°C
- Casing: DIN Rail Casing
- Physical Casing Dimension: 88mm X 72mm X 59mm

Package Contents

The package contains the following items;

- 1 unit GSM-220 GSM Remote Control And Monitoring System
- 1pcs CD Manual

Device Design

Installations Diagram
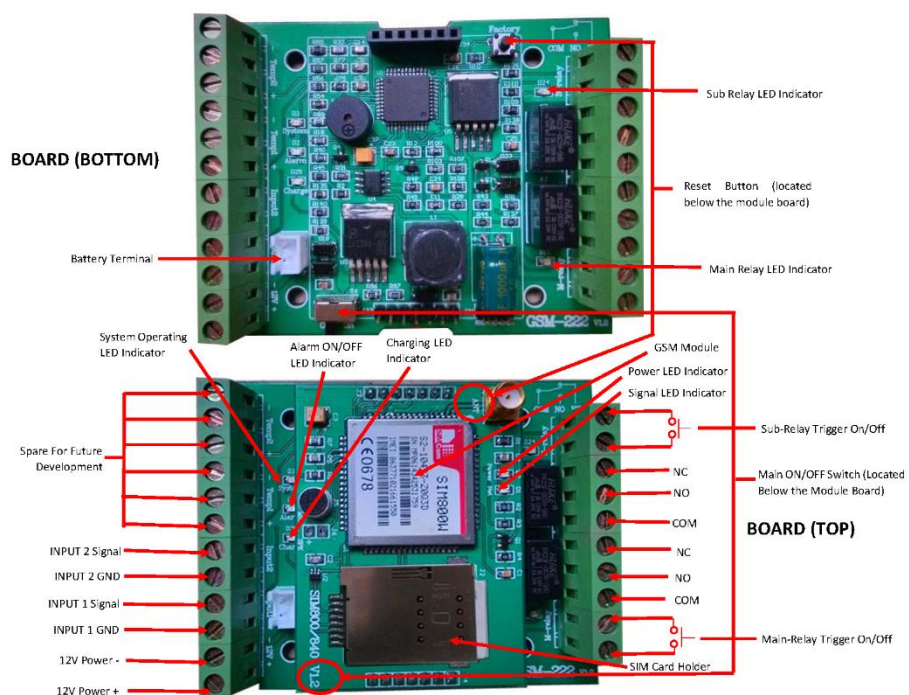
The two screw terminals on each side of the relay connection is to control Main relay, and Sub relay at a short circuit terminal, the relay will cut at the time which you have programmed it to under point 2.4

Connection Details

Connector		
12		Spare For Future Development
11		
10		
9		
8		
7		
6		INPUT 2 Signal
5		INPUT 2 GND
4		INPUT 1 Signal
3		INPUT 1 GND
2		12V POWER -
1		12V POWER +

		Connector
Sub Relay Trigger On/Off	13	
	14	
Sub Relay NC	15	
Sub Relay NO	16	
Sub Relay COM	17	
Main Relay NC	18	
Main Relay NO	19	
Main Relay COM	20	
Main Relay Trigger On/Off	21	
	22	

Setup Instructions

Setup Administrator by phone call

The GSM-220 is easy to setup by just insert the SIM card, switch on the power, and using your mobile phone to call to the unit. The first called mobile phone number to the unit will automatically become a registered first Administrators

This can be done each time the device has been "factory reset"

Example you are using the phone number: 12345678901 to call to the GSM-220.

Replied SMS message from the unit as per below;
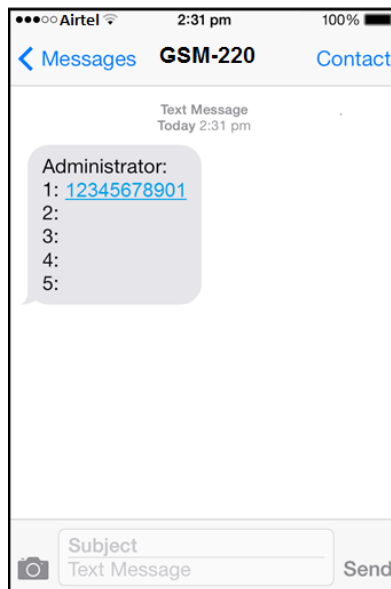
Setup via SMS Command

1. Administrator

1.1   Temporary Administrator Privilege:

*100*AAAAAA#

Setting up a Temporary Administrator Privilege for Programming Mode:

AAAAAA = 6 Digits Password

Default Password = 123456

By using this commando, you will obtain administrator privilege for 10 Minutes.

That means you can do all programming within those 10 Minutes.

If you add your tel. no. in the administrator list, you do not need this function anymore.

If another uses same commando within the 10 Minutes, then you will lose your Administrator privilege.

All tel. no. on the Administrator list have full control over the unit at all time.

1.2   Changing a Password:

*100*AAAAAA*BBBBBB#

Change the password.

100 = commando

AAAAAA = old password

BBBBBB = new password.

1.3   Add an Administrator Number:

*101*A*BBBBBB#

Add administrators to the Administrator List

101 commando

A = Administrator no- (1 – 5)

BBBBBBBB = Tel. no. of new administrator.

You can add a Minimum of 3 digits and a maximum of 20 digits.

1.4   Enquiry to the Administrator Numbers in the list:

*102#

Check administrator list

It will reply with a full list of all administrators on the list.

1.5   Delete Administrator Number in the list:

*103*A#

Deleting administrator tel. no. on the list

103 = commando

A = administrator no. (1 – 5)

1.6   Enquiry Signal Strength:

*104#

Check signal strength on the GSM connection

Enquiry for Signal Strength

CSQ = 0 – 10 (Weak Signal)

CSQ = 11- 20 (Average Signal)

CSQ = 21 – 30 (Good Signal)

CSQ = Above 30 (Excellent Signal)

1.7   Enquiry Time for the System:

*105#

Check time already stored in the unit.

1.8   Set Time for the System:

*106#

By sending *106# the unit will be updated with the same time as in the SMS text.

1.9   Switch On/Off for SMS Text Message:

*107*X#

Set To Switch On/Off for SMS Text Message for System

X = 1 = ON, X = 0 = OFF

Default is set as ON

If this Command is set to OFF, all SMS will not be sent out.

Example: (Send) *107*1#   this will Switch ON the SMS Text Message for the System.

Example: (Send) *107*0#   this will Switch OFF the SMS Text Message for the System.

1.10   Switch On/Off for Call:

*108*X#

X = 1 = ON, X = 0 = OFF

Default is set as ON

If this Command is set to OFF, the unit will not be able to call out, as set in Point 2.10

Example: (Send) *108*1#   to Switch ON Call by System.

Example: (Send) *108*0#   to Switch OFF Call by System.

1.11   Time Schedule to send SMS Reminder to the Administrator:

*109*XXX#

SMS check message to say the unit is still up and running.

XXX = Days (Value = 000 - 255, must be in 3 digits, every week = 007)

Default as 000 (Not Sending SMS reminder)

Example: (send) *109*002#   the system will start to calculate from the moment it receives the SMS. After 2 days, it will send out a SMS reminder.

If the system had been restarted, it will clear the time to ZERO and recalculate again for 2 days from the moment the system restarted, then send out the SMS reminder after 2 days.

Default Text reads as   "Hi! I'm OK" (Can edit the text using *111* Command) Point. 1.13

1.12   SMS Text Message / Call when system Start:

*110*X#

*110*X# = commando

X = 1 ON, X= 0 OFF

Default set as ON

Notes: With this Command, every time when the system enters startup, it will sent out the start and relay status message report (Edit the text using *111* Command)

Example: (Send) *110*1#   when the system starts, it will send a message report.

Example: (Send) *110*0# when the system starts, it will not send a message report.

1.13 Input Message for the System Start / Time Schedule SMS Reminder:

*111*AAAAAAAA#

111 = commando

AAAAAAAAA = the text that will be send when unit startup, and/if was send a remind message, saying unit is still up and running.

Example: (Send) *111*I'm alive# once the system starts, "I'm alive" message will be sent to the Administrator. When using the Time Schedule Function, it will send "Hi! I'm alive" to the Administrator.

*Notes: the Message without "Hi" Will be the message for System Start. Message with "Hi" Will be the message for Time Schedule SMS Reminder under *109**

1.14 Input Message for Command Control:

*112*XX*"AAA""BBB"

Change commandos to user specified commands.

So *112* = commando

XX is command no, there is 32 available 01-32

"AAAAA" is existing commando

"BBBBB" is new commando.

For an example: change Check signal strength. (Send) *104# to just signal!

Then you have to send the following message. (Send) *112*01*"*104#""signal"

01 = commando no. 1

"*104#" = existing commando for check signal strength.

"signal" = new commando for check signal strength.

To delete this simple wording replacement command, you can (send) *112*01*"*104#""" or *112*01*""" or *112*01*"""signal" the group 01 will now become blank.

1.15 Enquiry Input Message for command Control:

*113*XX#

Check the commandos there have been changed.

Enquiry Input Message for Controller

XX = Group (Value 01 – 32, must be in 2 digits)

Example: 03 is group 03.

1.16   Restart System

***114#**

This is for restarting the system,

Remember: "Hi I´m OK" this system message will be RESET and start counting days again beginning with 1.

2.   RELAY programming

2.1   Relay 1 control (Main relay)

***200*X#**

X = 0 or 1 (0 = OFF, 1 = ON)

Example: (Send) *200*1#   the relay will be set to ON, and Recover text for Inputs:

Example: (Send) *200*0#   the relay will be set to Off and a report message will be sent.

*Notes: Relay working mode for 01, 02, 03, 06, 07, 08 which work together with Command *205**

2.1.1   Main control of the relay for a pre-determined time

***2001*XXXX#**

XXXX = time in seconds (0001 – 6553 seconds, always 4 digits, 10 seconds = 0010 etc.)

For example, You want Main relay to activate for 5 minutes, then sends *2001*0300#, the Main relay activate for 5 minutes and then automatically off again.

*Notes: Relay working mode for 04, 05, 09, 10 which work together with Command *205**

2.2   Enquiry Relay Status (Main relay, Sub relay)

***201#**

Get an SMS with the status of Main Relay and Sub Relay

2.3   Received SMS Report when activated. Not receive SMS report when Control Relay is off.

***202*X#**

X = 0 or 1 (0 = OFF, 1 = ON)

Default is 1

1 = receive SMS when call unit for activate relay 1

0 = not receive SMS when call unit for activate relay 1

2.4   Time Delay for Main relay:

*203*XXXX#

XXXX = time in seconds (0001 – 6553 seconds, always 4 digits)

Default is 0001 (1 second)

Notes: Relay working mode for 04,05,09, 10 work together with Command *205*

Notes: When the relay as not yet returned back to actual status, there is another trigger. The time delay will be: previous actual delay time + current delay time

Example: When working on 04 or 05 status, the delay is for 25 seconds. The system will calculate up to 24 seconds, it then receives another call, total delay time will be (24 + 25 = 49 seconds), and the relay will then go back to its actual status.

2.5   Time Delay for Sub Relay

*204*1*XXXX#

*204*1* = (is the commando)

XXXX = time in seconds (0001 – 6553 seconds, is always 4 digits)

Default is 0001 (1 second)

Notes: Relay working mode for 09, 10 work together with Command *205*

Example*:* (Send) *204*1*0005# which means relay 2 delays for 5 seconds and then returns back to normal status. One phone call, the system will answer, press 1 key, the relay will delay for 5 seconds and then return back to normal status.

2.6   Relay Working Method

*205*XX#

XX = Working Condition (Value 01 - 12)

Default is 03

Explanation for Working Condition

01 = After System Start, Relay Condition as ON Status. When receive Call, System will terminal the Call, and Relay will trigger

02 = After System Start, Relay Condition as OFF Status. When receive Call, System will terminal the Call, and Relay will trigger

03 = After System Start, Relay Condition as LAST Action before the system OFF. When receive Call, System will terminal the Call, and Relay will trigger

04 = After System Start, Relay Condition as OFF Status. When receive Call, System will terminal the Call, and Relay will ON, After Delay Time (N will depend on *203* command), then relay will OFF

05 = After System Start, Relay Condition as ON Status. When receive Call, System will terminal the Call, and Relay will OFF, After Delay Time (N will depend on *203* command), then relay will ON

06 = After System Start, Relay Condition as ON Status. When receive Call, System will answer the Call, Press 0-N, the corresponding number of Relay will trigger

07 = After System Start, Relay Condition as OFF Status. When receive Call, System will answer the Call, Press 0-N, the corresponding number of Relay will trigger

08 = After System Start, Relay Condition as LAST Action before the system OFF. When receive Call, System will answer the Call, Press 0-N, the corresponding number of Relay will trigger

09 = After System Start, Relay Condition as OFF Status. When receive Call, System will answer the Call, Press 0-N, the corresponding number of Relay will ON, After Delay Time (N will depend on *203* command), then relay will OFF

10 = After System Start, Relay Condition as ON Status. When receive Call, System will answer the Call, Press 0-N, the corresponding number of Relay will OFF, After Delay Time (N will depend on *203* command), then relay will ON

11 = After System Start, Relay Condition as OFF Status. Relay will be Control by the Sensor (Depend on the Setting of Command of *304*). Cannot Manually Control the Relay

12 = After System Start, Relay Condition as ON Status. Relay will be Control by the Sensor (Depend on the Setting of Command of *304*). Cannot Manually Control the Relay"

NOTEs: activating by calling subject to Main Relay only except under Mode 9 and Mode 10

2.7   **Sub Relay Control:**

*207*A#

207 = (is the Commando)

A = 0 or 1 (0 = OFF, 1 = ON)

Example: (send)   *207*1#   which means the Sub relay is ON

Example: (send)   *207*0#   which means the Sub relay is OFF

*Notes: Work together with Command *205* of 01, 02, 03, 06, 07, 08*

2.7.1   Control of the sub relay for a predetermined time

*2002*1*XXXX#

1 = Sub relay

XXXX = time in seconds (0001 – 6553 seconds, always 4 digits, 10 seconds = 0010 etc.)

For example, You want the Sub relay to activate for 5 minutes, then sends *2002*1*0300#, then Sub relay activate for 5 minutes and then automatically off again

Notes: Relay working mode for 04, 05, 09, 10 which work together with Command *205*

2.8   Control Master Alarm Alert for System:

*300*X#

Set Control Master Alarm Alert for System ON/OFF

X = 1 is ON, X = 0 is OFF

Default as ON

Notes: This command controls the whole systems alarm alert.

If you put *107*0# and *300*1# then you will only receive calls of alarm.

Example: (send)   *300*1#   Alarm Alert will be ON

Example: (send)   *300*0#   Alarm Alert will be OFF

2.9   Enquiry for Master Alarm Alert Status:

*301#

Enquiry for Master Alarm Alert Status, as programmed under*300*

2.10   Call Alert for Trigger Type Alarm:

*302*A*B#

Set Call Alert when x Type Alarm

A = Trigger Types (1-8)

B = 0 or 1 (0 = OFF, 1 = ON)

(1): System Restart

(2): Power Outage

(3): Power Recover

(4): High Temperature

(5): Temperature Recover

(6): Low Temperature

(7): Input triggered

(8): Input Recover

Example: (Send) *302*2*1# when there is a power failure, the System will make a phone call to Administrator 1 and send a corresponding SMS to all Administrators. If the call is not answered the system will continue to call the 5 Administrator Number simultaneously. When the administrator answers the call, the system will send an alert message. (If *107*as 1)

Note: you can choose as many of them you want, so for example get a Call when Power Outage, and by alarm on input, and then you shall be sent 2 messages.

*302*2*1#

*302*7*1#

The system will now call when power outage and alarm when input trigger.

2.11 Trigger Type Alarm Link with Relay:

*304*A*B*C#

A = 0 or 1 (Main relay is 0, Sub relay is 1)

B = 1 or 2, Control Type (B = 1 as Temperature Control, B = 2 as Input)

C = 1 or 2, Category of Types (sensor 1 or 2, and Input 1 or 2)

Example: (Send) *304*0*1*1*#   which means the main relay control by the temperature sensor 1

The High Temperature relay pull or Low Temperature relay pull will depend on the command *205*XX#.

Value for *205*11# and *205*12# is the opposite command

Example: (Send) *304*0*2*1*#   which means the main relay is controlled by Input 1

Main relay activate or deactivate will depend on the command *205*XX#.

Value for *205*11# and *205*12# is the opposite command.

3. Power Outage Alert Programming

3.1 Power Outage Delay Time:

*400*xxxx#

400 = command

xxxx = delay time in seconds

Default = 0001

When a Power Outage happens, the system will look at the delay time and send an alarm according to that.

Example: (Send) *400*0025#   then it will not send an alarm before there has been a Power Outage for 25 seconds.

3.2   Input Message for the Power Outage Alert:

*401*AAAAAAAAAAAA#

401 = command

AAAAAAAAAAAAAAA = text for power outage alarm (max 100 characters)

The alarm text Administrators will receive when there is a Power Outage alarm

Example: (Send)   *401*Power cut# when power outage, "Power cut" message will be sent to the administrators.

3.3   Reset to Default Message for the Power Outage Alert:

401#

The commandos to Reset Power Outage alarm will text back to Default.

Default text is "AC power down"

3.4   Input Message for the Recovery from Power Outage:

*402*AAAAAAAAAAAA#

402 = commando

AAAAAAAAAAAAAAA = text for power recover

Example: (Send)   *402*Power recover#   when power supply recover happens, "Power recover" message will be sent to the administrators.

3.5   Reset to Default Message for the Recovery from Power Outage:

402#

Reset Power recovery alarm will be text to Default

Default text (AC power up)

4.   Input Programming

4.1   Input Trigger Mode:

*700*XX#

XX = working mode 0 or 1

0 = terminals when connected, will send an alarm.

1 = terminals when disconnected, will send an alarm.

Example: (Send)   *700*10#   this means that when both terminals in Input 1 are connected, then suddenly they are disconnected, it will send out an Alarm. When both terminals in Input 2 are disconnected, then suddenly they are connected, it will send out an Alarm.

4.2   Input Alarm Delay Time:

*702*A*BBBB#

A = Input 1 or 2

BBBB = time in seconds, Max. 6553 seconds. (Always in 4 figures, 1 second = 0001)

This function will delay the alarm, from when an input is triggered, and until it sends the Alarm.

Example: (Send)   *702*1*0025#   when Input 1 is triggered, it will not send an alarm, until 25 seconds after.

4.3   Alarm Text for Inputs:

*703*A*BBBBBBBBBBBBB#

A = Input 1 or 2

BBBBBBBBBB = the text there will be sent when an input is triggered.

Example: (send)   *703*1*Tank full#   when input 1 is triggered a message will be sent saying "tank full".

4.4   Recover Text for Inputs:

*704*A*BBBBBBBBBB#

A = Input 1 or 2

BBBBBBBBBB = a text will be sent when an input recovery happens.

Example: (send)   *704*1*Tank not full#   when input 1 is not triggered a message will be sent saying   "tank not full".

5.   Programming And Maintenance Of The Guest List

5.1   Create a Group Under The Guest List

*800*XXXXXXX*YYYYYYYY#

XXXXXXX = Name of the group(Max: 7 char)

YYYYYYYY = telephone NO. (Min: 3 digits, Max: 15 digits)

For example, Send *800*001*12345678# then there will be a new group called 001.

And first number in the Group 001 is 12345678

5.2   To Add Phone Number To a Group

Then you use the same command

*800*001*YYYYYYYY#

So, this is the second (2) number in the Group 001

5.3   Check Numrer In a Group

*801*XXXXXXX#

XXXXXXX = the Group Name

For example, To check number In the Group 001, you send *801*001#

Then the system will send an SMS with all No. programmed in Group 001

5.4   Delete Phone Number In a group

*802*XXXXXXX*Z#

XXXXXXX = the group name

Z = Number On the list (1-8)

For example, Send *802*001*1# then the system will delete telephone number for the list number 1 in the group 001.

When all numbers in a group is deleted, the system will automatically delete the group.

5.5   Delete a group

*803*XXXXXXX#

XXXXXXX = Group Name

For example, Send *803*001# then the whole group 001 with any telephone number will be delete.

5.6   Delete Complete Guest List

*804#

For example, Send *804# then the entire guest list will be deleted in the system, including all groups.

5.7   Change Group Name

*805*XXXXXXX*YYYYYYY#

XXXXXXX = Old Name

YYYYYYY = new name (Max: 7 char)

For example, Send *805*001*Club# will Group 001 now called Club

**5.8   Checking guest access**

*208*X#

X = 1 or 0

0 = "open mode" all callers to the unit will activate the Main relay.

1 = "safe mode" only the call from administrators and phone number on the guest list can activate the main relay.

NOTEs

- Phone number on the guest list can call the system and activate the Main relay programmed in section 2.4 of section 2.6
- The guest list can contain up to 125 groups.
- Each group can contain up to 8 telephone no. (Min. 3 digits, Max. 15 digits)
- If you try to send more than 8 phone numrer to a group, the system will announce full.

NOTE's:

1. External antenna mounted with wire goes out beside the terminals for the relays.
2. SIM cards, remember to deactivate PIN code before use. Make sure the GSM provider not had blocked for any services concerning SMS.
3. If using prepaid SIM cards (which we do not recommend, since they can be closed by inactivity), please active "Hi I'm alive" function with *109* as the unit can regularly send text messages.