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GSM Relay Rev D + Temp

SOFTWARE VERSION 1.40

1. General System description
2. Inputs and outputs
3. Setup of unit
4. Temperature probe and settings
5. SMS Commands and functions
6. Physicall dimensions and other specifications

1.General System description

The GSM Relay Rev D is a GSM based controllable module from your cell phone via SMS with Two (2) inputs and one (1) Relay output. The main idea for the unit was to reset Router boards on a wireless network which became inaccessible through the wireless Network, inform the user about Mains power failures, Alarms and about low battery conditions.

The GSM RevD + Temp also have a temperature sensor with high and low configurable temperature alarm settings

However it can be used for lots of different applications at home or at the office to control other electrical equipment, monitor the voltage of your battery backup system, send alarm system SMS and mains failure SMS and generate missed calls.

The module reacts on specified commands received by SMS's, then returns SMS's to the user and can also alert the user if anyone of the 2 inputs changes state or the battery input voltage runs low if powered by a battery system of 12Vdc to 24Vdc.

The GSM Relay Rev D accepts a DC power input from 10Vdc up to 30Vdc.

The SIM card holder is for a standard size SIM card.

The unit is supplied with a magnetic base GSM antenna.

2. Inputs and outputs

Input 1 and Input 2 is **potential free inputs** – only make a **dry relay or switch** contact between the 2 terminals of each input to trigger the system – injecting power here will damage the unit permanently.

The unit will default to the following names for inputs after a master reset via the reset button.

Default: Input 1 = MAINS / The input name for Input 1 **can be changed** by the user via a SMS-refer to SMS table

Default: Input 2 = ALARM / The input name for Input 2 **can be changed** by the user via a SMS-refer to SMS table

The GSM REV D will send a SMS every time any of the inputs changes state.

The SMS will indicate if the Input is open or closed circuit for each input.

Missed call can be activated for input status changes – see **Mc=1 command in commands table

(Mi-GSM-**220VAC-**interface is an **optional extra)**

The Relay interface will be connected to the 220Vac outlet and the contact output to the GSM module

Mi GSM-220VAC interface relay (optional)

(Mi-GSM-**DC12-**interface is an **optional extra)**

Mi GSM-12VDC interface relay (optional)

OUTPUT:

1 x On board Relay – 10Amp – dry relay contact – Normally open, Normally closed and common terminal available

User can switch any voltage (DC or AC via the Relay output contacts) to reboot equipment or trigger automated gate / door motors, the on board relay will save its status in non-volatile memory – relay will return to last known status even after complete power failure or after the unit reboot itself (self reboot happens when cell connection is lost) .

The relay output can be configured (activated or de-activated) by the user via an SMS command to toggle the output relay for 2 seconds to **trigger automated gate motors** when a missed call is received – see commands below

The relay on / off status is saved in memory – if the relay is in the on position and power is disconnected or the unit reboot , the relay will turn back on until switched of by the user.

3. Setup of unit

GSM REV D Quick start guide

Attach Antenna, insert sim card with NO pin code request

Keep Reset button pressed on side of unit, apply 12VDC or 24VDC to unit, wait until LED near Reset switch flash fast and continuous. Release Reset switch, notice the NET led will flash fast, wait at least 20 sec for unit to connect to service provider, notice NET LED is flashing slower when connected.

Send a SMS with the word **Save** to the GSM and wait for the **number saved** reply, the system will now action commands from the 1st saved cell number. Send the word **Save** from other cell numbers to save more contacts to the system – max 5 - numbers can be added/deleted at any time.

The GSM **will not respond** on commands from unsaved numbers – unsaved numbers can only request a **status** SMS from the system

Dial the number of the GSM will ring and cut the call off , this way it can be tested if the unit is on the air and connected or not , the on board relay can also toggle to reset equipment if the number is called only if the function have been activated with the **Dr=y** command - activate for 10sec(default time) and return to normal off position – **only saved numbers** can dial the unit to action a reset

System will send a **Auto Status SMS** every 2 weeks to prevent pre-paid SIM cards fro being kicked from the cell service provider – Will be send to only the 1st cell number in the numbers list

** System **auto re-connects** cellular connection once connection to tower is lost , valid connection tested every 2 minutes

If connected to 12V Battery system unit will send a Battery low SMS @ 11.5V input – by default/ user can change this

If connected to 24V Battery system send a Battery low SMS @ 23.0V input – by/default/ user can change this

User can **change the name of input 1 and input 2** via SMS – max 5 characters per name

By default the unit will name (Input 1 = Mains) and (Input 2 = Alarm)

The user can change the input names to any name with max 5 characters by sending the following

In1=Eskom	wait for name set reply sms from unit
In2=pump	wait for name set reply sms from unit

When the user do a master reset to the GSM , The names for input 1 and input 2 will revert back to Mains for input 1 and Alarm for input 2

The user can change the time the relay will stay energised for a "Reset" command by sending

Rt05	wait for time reply sms from unit – for 5 sec
Rt25	wait for time reply sms from unit – for 25 sec

Valid range is 01 to 99 sec

Flash	Wait for reply from GSM to flash memory – all setup values and cell numbers will be deleted

4. Temperature settings

Sealed waterproof temperature sensor with 0.5 degree Celsius accuracy.
Range from -55 degree Celsius to a maximum of 125 degree Celsius.

Example
We need to set a low alarm for -5 deg and a high alarm for +35 deg

Send an SMS with text **Tl=-05** wait for reply from unit

Send an SMS with text **Th=+35** wait for reply from unit

The GSM will send a sms to the number or numbers saved in memory when any of these thresholds is reached.

Both the low and high alarm values can be in the minus temperature range or in the positive temperature range or low alarm can be minus and high alarm can be positive

5. SMS commands

SMS word to send	Reply	Action
Save	Number saved	Save the cell number to memory – max 5 numbers
List	Returns a list of cell numbers stored in memory to user	
Delete2	Delete cell number 2 in memory in this case	**Delete1** through to **Delete5** delete numbers in memory
Help	Returns a list of SMS commands the unit will respond to	
Stat or **Status**	Returns the Status of battery voltage inputs and outputs	
Sig	Returns the current GSM signal strength in %	
Balance	Returns the available airtime available on the SIM card	Will **fail** if no airtime on SIM available
In1=eskom	Name saved	Changed input 1 name to eskom Default = MAINS/max 5 characters
In2=pump1	Name saved	Changed input 2 name to pump1 Default = ALARM/max 5 characters
On	Relay 0 = ON	Switch the on board relay ON **Status will be saved in memory
Off	Relay 0 = OFF	Switch the on board relay OFF**Status will be save in memory
Reset	Reset complete	Toggle the on board relay to the on position for 10(**default**) seconds then return to off position –if command **Rt**xx below is used – the relay reset time will equal the time as set with **Rt** command
Rt example: **Rt08**	Reset time set OK 8sec	Set the time in seconds the relay should stay energised for a reset command
Blxx.x example: **Bl12.1**	Battery low voltage set 12.1	Set the voltage level where the unit should send a low battery SMS.
Flash	**Flash message received – delete all memory –wait 20sec**	**Factory reset unit via sms , all numbers and setup data will be deleted – user will have to send "Save" after this command to re-register on the device before commands will be accepted again**
TO OPEN GATE / DOOR MOTORS OR -	**TO TOGGLE RELAY WITH A CALL**	Relay time will equal time as set with RT command above
Open	**No reply SMS to user**	The relay will toggle for 2 seconds to trigger the motor
Dr=y	Command received	Dr=y command means - Dial reset = yes The relay will toggle on a missed call
Dr=n	Command received	Dr=n command means – Dial reset = no The relay will not activate on missed calls
ACTIVATE MISSED CALL	**IN 1 or IN2 can miss call – not both**	
Mc=1	Command received	In1 will miss call and sms when contact is opened
Mc=2	Command received	In2 will miss call and sms when contact is opened
Mc=n	Command received	NO missed calls , only SMS for In1 and IN2
If relay expander board connected		
SetRD1	Relay 1 ON	Switch Relay 1 to the **ON** position expander board
ClearRD1	Relay 1 OFF	Switch Relay 1 to the **OFF** position expander board
SetRD1 up to RD5	Relay x ON	Replace x with 1 to 5 to switch ON the specific relay / expander board
ClearRD1 up to RD5	Relay x OFF	Replace x with 1 to 5 to switch OFF the specific relay / expander board
SetRD7	All Relays ON	Switch all relays on
ClearRD7	All Relays OFF	Switch all relays off

To change the battery low SMS threshold to eg 11.3V send "**BI11.3**" Capital B and lower case L for **B**attery **l**ow with the desired voltage threshold level - the unit will return a SMS indicating the new level. The same procedure is valid for 24V systems - eg sending a SMS "BI22.1 will change the low battery voltage threshold to 22.1V

In order to prevent false and continuous SMS messages for Batter low , after a low battery sms have been send the battery voltage should first increase with 1.0V above the low setting before the low battery SMS can be send out again

12V system : Default Blow level= 11.5v / default reset level = 12.5V

24V system : Default Blow level = 23.0v / default reset level = 24.0V

User programmed Blow level : Blow level(user specified) / reset level = user specified level + 1.0V

5. Optional extras

The GSM Relay Rev C can accommodate an optional extra 5 way relay board.

Optional 5 Relay module

Optional 220Vac Interface module – connect to 220Vac outlet and to GSM to send

Mains 220Vac power status on/off

Optional 12 VDC Interface module – connect to siren of alarm system and to GSM to send

Alarm SMS as soon as Siren is activated by alarm system

Physical size of GSM module: 175mm x 75mmx 40mm / weight 0.23Kg