CENTSYS

G-SWITCH-22™

GSM MONITORING AND CONTROL

1. Introduction >>

The **G-SWITCH-22** GSM Module allows up to 1200 individual users to activate a maximum of two outputs on the Module using their mobile phones.

These outputs can be used to open a gate, activate an alarm system, turn on a borehole pump[1], etc. Activation can be either via a Missed Call (free), or a pre-specified text message (SMS).

In addition, users can also be notified by SMS, of the activation of either of the two Inputs on the Module, in the event of an alarm activation, a power failure, etc. The Input Module of the **G-SWITCH-22** can be configured to react to rising, falling or both edges, and different messages can be set for rising and falling edges. It also boasts adjustable Filter and Blanking Times and an event counter, all of which are discussed in detail in the 'Special functionality' section of the separate Programming Guide. The secure, online **G-WEB** portal provides another means of programming and administering your **G-SWITCH-22** and gives you access to several advanced features.

The Module is over-the-air bootloadable via the **G-WEB** interface, meaning that it is not necessary to waste precious time and fuel to go to site, and updates to the firmware etc, can be done from the comfort of your home or office.

1. May require additional external switchgear

2. Important Safety Instructions >>

1. All installation, repair, and service work to this product must be done by a suitably qualified person.
2. Do not in any way modify the components of the system.
3. Do not install this product near sensitive electrical components. (e.g. the DOSS sensor inside a CentSys motor housing)
4. Do not install the equipment in an explosive atmosphere: the presence of flammable gas or fumes is a serious danger to safety.
5. Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
6. Dispose of all waste products like packaging materials, according to local regulations.
7. Centurion Systems (Pty) Ltd does not accept any liability caused by improper use of the product, or for use other than that for which the automated system was intended.
8. This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the service life/operation of the product and/or be a source of danger.
9. Anything not expressly specified in these instructions is not permitted.

> This icon indicates tips and other information that could be useful during the installation.

> This icon denotes variations and other aspects that should be considered during installation.

3. Security Consideration >>

It is strongly advised that a pre-paid SIM card (with limited airtime) is used, and that it is also PIN-code protected. These measures will give you peace-of-mind as they will ensure that your SIM card will have little or no value should it ever get stolen. Record the IMEI of your **G-SWITCH-22** in the blocks provided in Section 6. In the event that the **G-SWITCH-22** is stolen, you can use the IMEI number to blacklist the **G-SWITCH-22**.

4. General Description >>

The **G-SWITCH-22** GSM Module uses the GSM mobile phone network to enable remote control and communication between itself and up to 1200 authorised users via their mobile phones.

A valid, activated SIM card is required in order to use the Module on the GSM network.

When programming the **G-SWITCH-22**, each user's phone number can be set to:

- Activate a specified output with a Missed Call (free)
- Activate either output via a unique, user-defined SMS or one of twenty pre-programmed default SMSs (more convenient)
- Be notified by a unique, user-defined SMS of either of the two Inputs being activated

  - Programming of the Module is password-protected
  - All users calling or sending an SMS to the Module need to ensure that their Caller Line Identification Presentation (CLIP) is activated on their phone to ensure that the Module recognises the user's learned-in phone number

> - Contract SIM cards used in the **G-SWITCH** Module also need to have CLIP enabled
> - The Module requires a power supply of 11V -30V DC, capable of delivering 500mA peak current
> - Both outputs are potential-free, and rated to 30V DC @ 1A
> - Both normally-open and normally-closed contacts are provided
> - Inputs can be set to react to falling or rising edges, or both

Physical Specifications:

|	
Supply voltage:	11V² - 30V DC only
Standby current:	100mA
Maximum current:	500mA
Operating temperature:	-20°C - +85°C
Output relay rating:	1A @ 30V DC (Output 1 and 2)
Degree of protection:	IP55

Functional Specifications:

Memory capacity:	1200 individual numbers plus 3000 logs
Memory retention:	>200 years
Output pulse time range:	1ms to 50 days (default 1 sec)
Network required:	GSM 900/1800MHz
SIM card required:	Yes (activated)
Outputs:	Two (potential-free)
Inputs:	Two (reacts to rising edge, falling edge, or both)

2. Should the supply voltage fall to below 10.6V, the **G-SWITCH-22** will SMS the Admin Number (first number in the system) that there is a problem with the power supply

6. G-SWITCH-22 GSM Module Identification
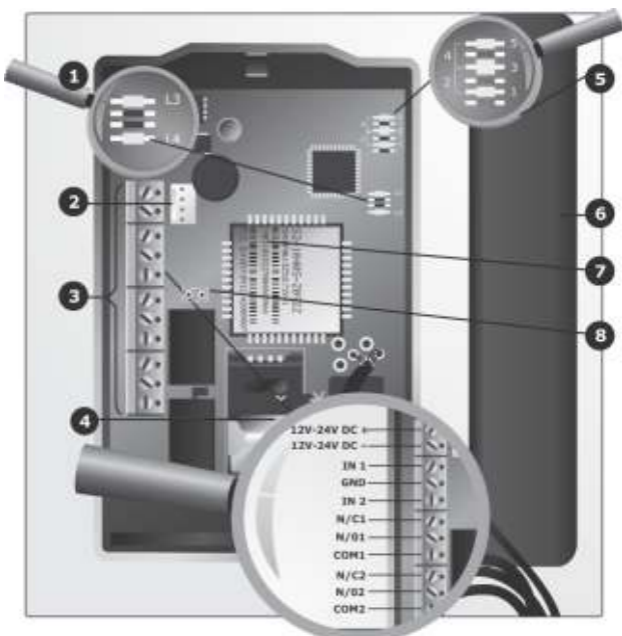
1. L4 LED 'Connected to network' indicator
2. Backup Module port
3. Terminals
4. SIM card inside SIM card holder
5. LED Signal strength indicators
6. Antenna
7. IMEI number
   (Record your IMEI number here)
8. Defaulting pads

7. Required Tools and Equipment »

- Screwdriver - 3.5mm flat
- Side cutter
- Drill
- Drill bits - 5mm masonry
             6mm drill bit
- Silicone sealant
- Fasteners and rawl plugs

8. Mounting Instructions »

The housing of the **G-SWITCH-22** is weatherproof, allowing it to be mounted externally in order to receive the maximum GSM network signal. However, the unit can be mounted inside the housing of the device that it is operating, such as the gate motor if the GSM network signal is adequate (refer to Section 11 – GSM Network Signal Detection).
The following section describes the procedure for mounting the unit to either an internal or external wall. If mounting the **G-SWITCH-22** externally, give consideration to its location as it should not be within reach of unauthorised persons.
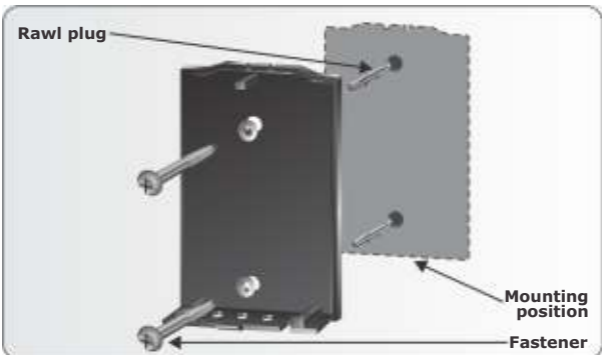
8A. Remove Cover

8.1. Insert screwdriver into slot and twist.

8B. Mount Unit

8.2. Remove the cover and unclip the circuit board from the retaining clips.

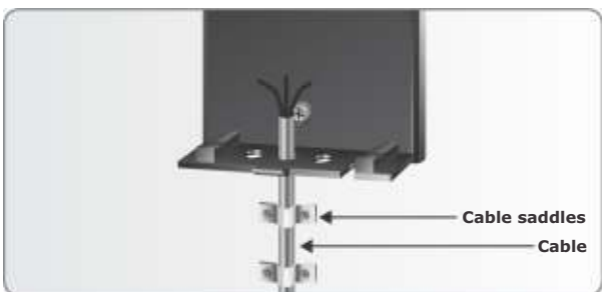8.3. Mark position of the unit against the mounting surface.

8.4. Using a 5mm masonry bit, drill a hole into mounting surface.

8.5. Mount the unit using suitable fasteners.

8.6. Use a 6mm drill bit to open the required cable entry hole.

8.7. Re-insert the circuit board and ensure that the retaining clips are holding it in place.

8.8. Fix the cable to the wall using cable saddles.

8.9. Seal all the holes with silicone sealant.
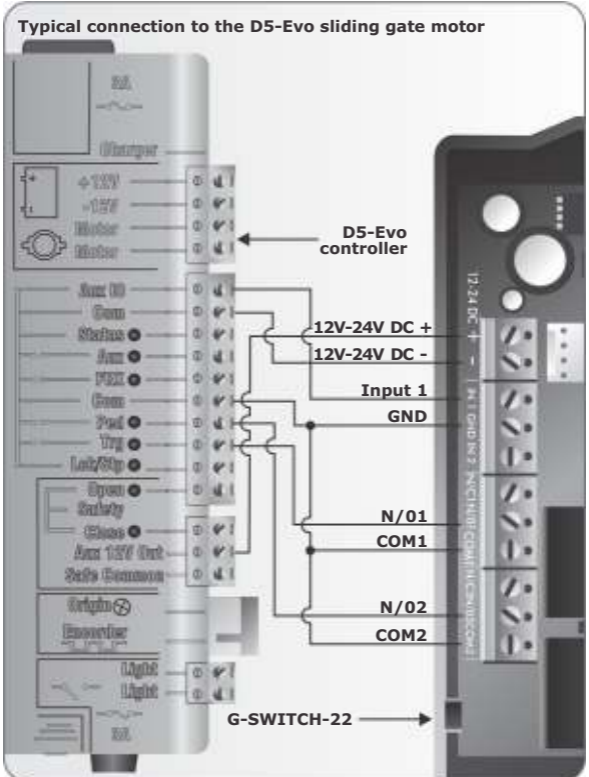
9A. Connections
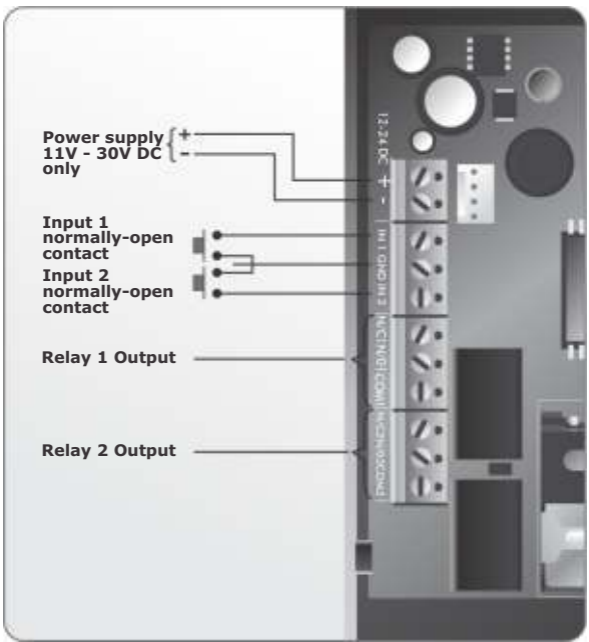
9.1. Supply the unit with 11V-30V DC only.

9.2. The Inputs are potential-free and must be pulled to GND/common for the Module to react.

9.3. Both outputs are potential-free. Some applications might require an external link between NEG and COM.

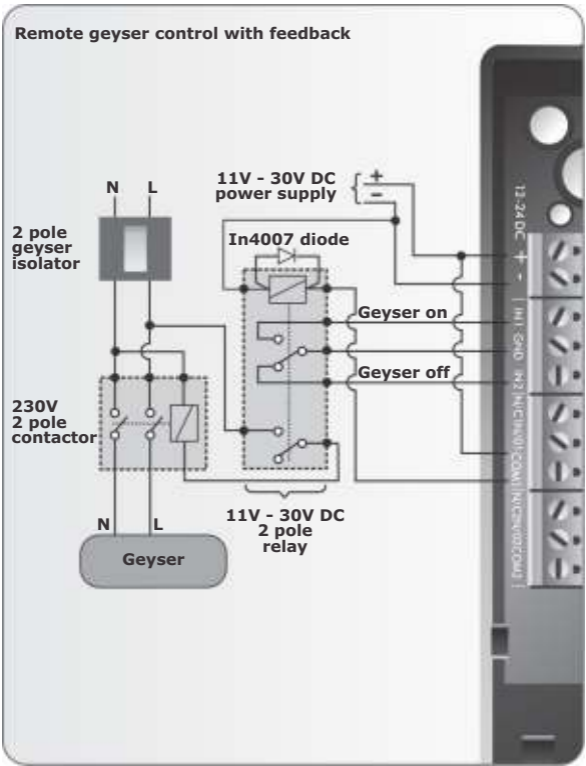9.4. Mount the antenna in a suitable place.

9B. Example 1

Typical connection to the D5-Evo sliding gate motor

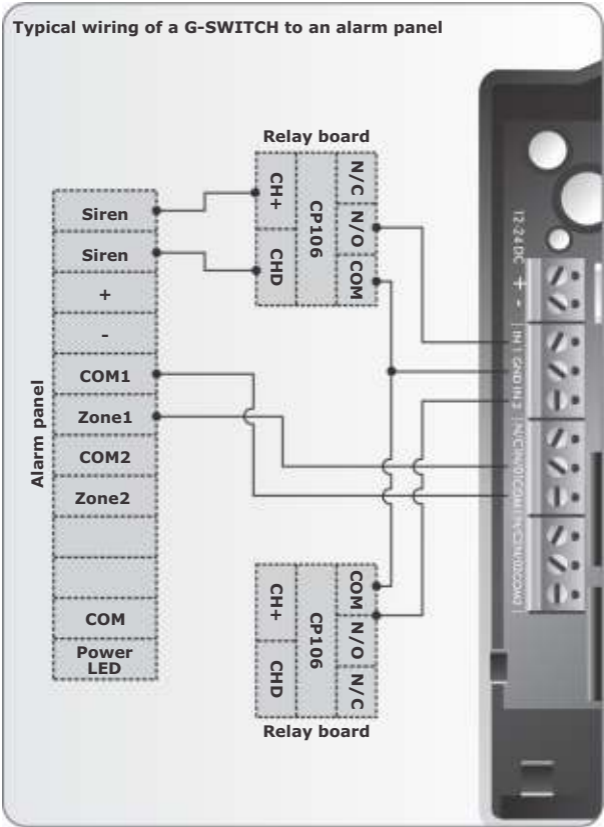9.5. Output 1 is connected to Trg and will open gate fully.

9.6. Output 2 is connected to Ped and will open the gate to pedestrian opening.

9.7. Input 1 will send an SMS to subscribed numbers when the Beam Alarm is triggered (gate Photocells must be activated and mapped to Aux IO).

9C. Example 2

Remote geyser control with feedback

9D. Example 3

Typical wiring of a G-SWITCH to an alarm panel

Operation:

1. Activation of Input 1 sends an SMS to a registered mobile phone with the text 'ALARM ARMED'

2. Activation of Input 2 sends an SMS to registered phones with the text 'SYSTEM ARMED'

3. A Missed Call from a registered phone will activate Output 1 which in turn will arm or disarm the alarm panel.
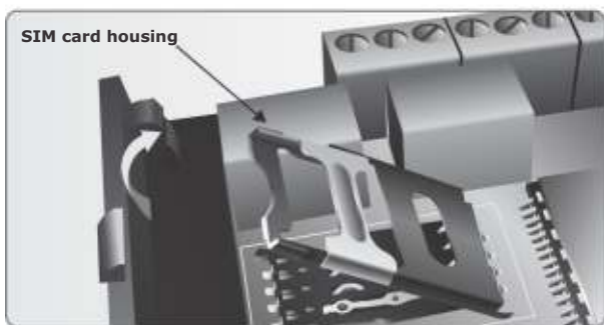
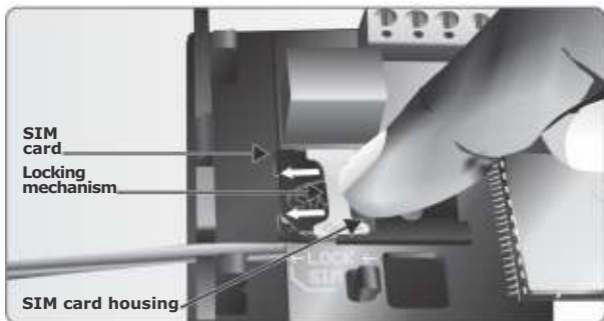10.1. Slide the SIM card housing's locking mechanism up to release the housing.

Ensure that a SIM card that goes into the Module for the first time is not PIN-protected. After the initial setup, please insert the SIM into your mobile phone, activate the PIN code protection and then re-insert the PIN-protected SIM card back into the **G-SWITCH-22**.

10.2. Raise the SIM card housing.

10.3. Insert the activated SIM card and ensure that the SIM card is correctly oriented. Align the cropped corner to be in the correct position as per the diagram on the circuit board.

10.4. Once the SIM card is inserted correctly in the SIM card housing, lower the housing onto the circuit board. Then slide the SIM card housing locking mechanism down to ensure that the SIM card housing is securely locked in place.

10A. Replace Cover

10.5. Hook the top of the edge of the cover onto the top of the unit.

10.6. Lower the cover and press securely into position.

When powered up, the **G-SWITCH-22** signal strength indicator LEDs will light up indicating the GSM network signal strength.
The GSM signal strength can be determined based on the combination of the three LEDs that illuminate:

LED	Signal strength
1	1/5
1+2	2/5
2	3/5
2+3	4/5
3	5/5

The signal strength can be queried by sending the 'Request signal strength' command (**p.xxxx.CO.SS**) to the Module. The querying phone will receive a reply SMS with a value of 5 (strongest) to 1 (weakest) indicating the signal strength.

The GSM signal strength may be enhanced by repositioning the antenna. Ideally the antenna should be mounted externally, and away from any sensitive electrical components.
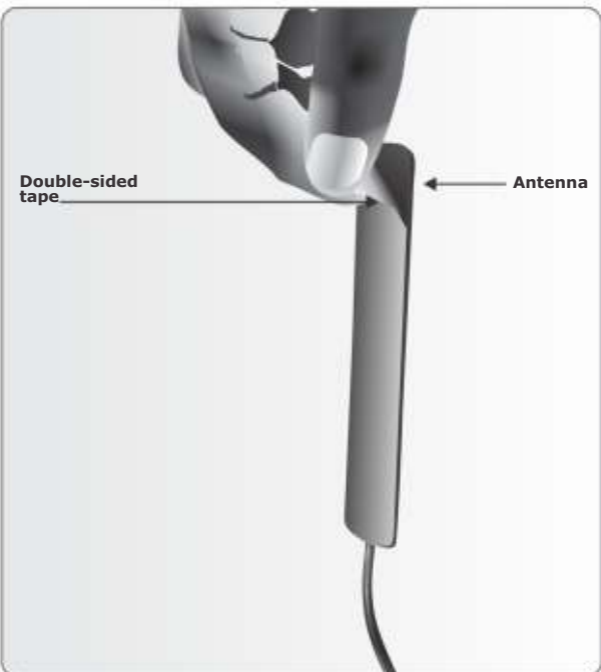
The rear side of the antenna has a double-sided tape backing, which may be used to affix the antenna to a desirable location. Please ensure that the surface to which you affix the antenna is smooth, clean and dry, to ensure reliable adhesion.

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