CE

GSM-START
LINKING MAN AND MACHINE

2 INPUTS, 2 OUTPUTS GSM-RELAY

850/900/1800/1900 MHz

GSMS-SW22 Manual

- **Made in Sweden** with Swedish and non-Swedish components *
- Low power consumption
- Control outputs via SMS and calls
- IOS and Android app available
- Up to 5 authorized users to phone call control and receive input alerts
- Unlimited users using SMS control

- Highly configurable inputs/outputs
- Configurable to remember relay state after power-loss
- Timer functions for the outputs
- Easy configuration via SMS or IOS/Android app
- High quality electronic components from reliable sources
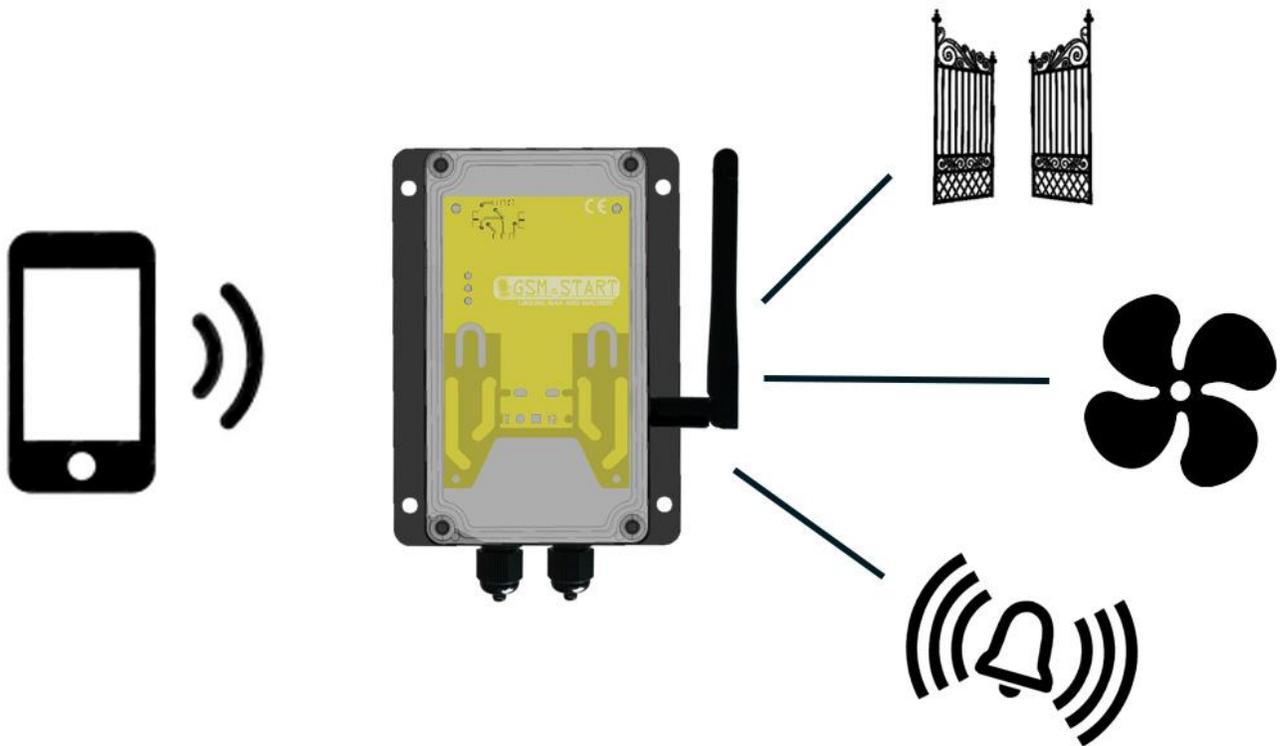
* PCB and enclosure made in China
Picked-and-placed, assembled and tested in **Sweden**

T hank you for purchasing the GSMS-SW22 GSM-relay. This manual shows how to install and operate this product easily and correctly. Make sure to read this manual carefully before use. Keep this manual handy for future reference until you are familiar with all its features.

This unit enables you to control your electrical appliances from anywhere in the world using a landline phone or mobile phone. It can be connected to almost any electrical device and lets you turn them on or off by using phone calls or SMS messages. It also has two inputs that can be connected to, for example a motion detector so if there is any movement detected you will receive a SMS and/or a call.

Use this product only as specified in this manual. The manufacturer is not liable for damages caused by improper use or misuse.

Warning, do not use this product if a malfunction can result in danger for you and others and/or property damage.

This product has been developed and manufactured according to the current state of the art and recognized safety standards. It cannot be sure that the GSMS-SW22 GSM-relay works as intended under all circumstances, at all times and under all conditions.

Due to the nature of how SMS and phone calls behaves, please allow up to 15 seconds between every sent SMS and/or phone call made to the unit to avoid flooding the network.

We recommend using a new fresh SIM-card in the unit to avoid unnecessary unauthorized users from occupying the unit.

When using a new fresh SIM-card it is a good idea to wait approximately 5 minutes before trying to communicate with the unit. This is because the network provider will often send SMS information messages and settings the first time a SIM-card is put in use.

Even if the unit typically only uses <0,3W it needs to be connected to a 10W (for example 2A@5VDC or 1A@12VDC) power supply because of short current bursts.

The enclosure is rated IP67 (up to 1m submersion in water for 30 minutes) i. e. it is suitable for outdoor/industry use. If possible try to install the unit in a place most protected from direct sunlight.

Overview
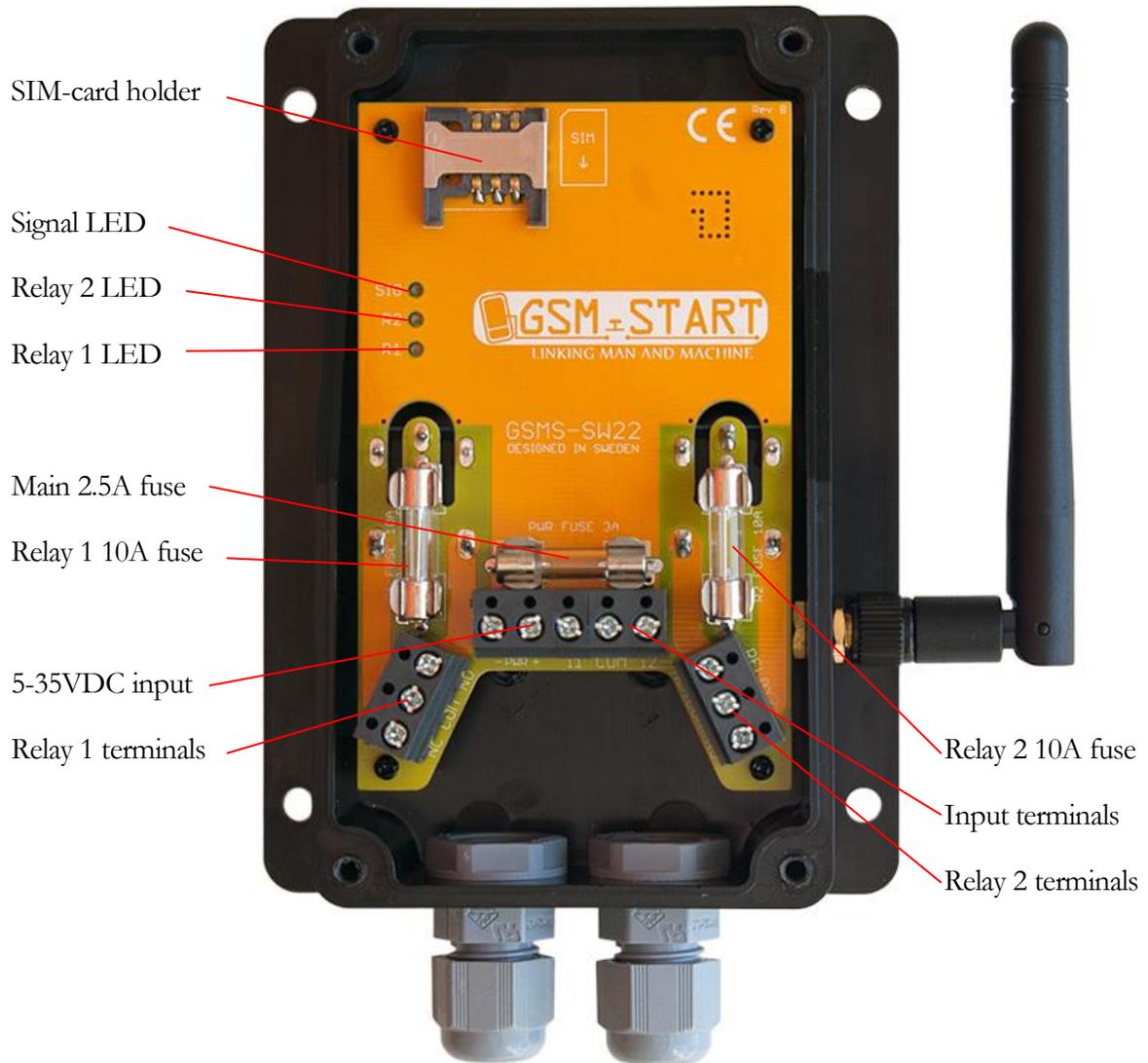
- Wide input voltage, 5-35VDC
- 10A 250VAC / 10A 30VDC output relays
- IP67 enclosure – up to 1m submersion in water for 30 minutes

Installation

⚠️ **All electrical work should be done by a licensed electrician and in accordance with local, national and/or international codes.**

ℹ️ *This unit only works with GSM SIM-cards, not 3G/4G/LTE or CDMA!*
*The SIM-card must be installed **prior to turning on the power**.*

ℹ️ *To reduce SMS delay it can be a good idea to have the same network operator in the unit as in the mobile phone controlling it.*

1. Remove the red rubber cap over the antenna mount and install the antenna. Next mount the unit securely using the four screw holes in a place with regard for as good signal strength as possible. To obtain best signal reception do not enclose the unit more than necessary.

2. Unscrew the four screws that hold the enclosures transparent cover in place and remove the cover.

3. Gently install the SIM-card into the SIM-card slot taking notice of the SIM-card direction. Please make sure that the SIM-card **does not have a PIN-lock**. To disable the SIM-card PIN-lock insert the SIM-card into a mobile phone and go to settings and disable the PIN-lock. Refer to your mobile phones user manual. Also note that the SIM-CARD must show incoming numbers and that the SIM-card needs to be activated. If possible, install the SIM-card in a regular mobile phone and call it to verify that the SIM-card is working correctly.

4. Route your cables through the cable glands and into the enclosure. Tighten the cable glands so the cables are secured.

5. Connect all your wires inside the unit to the corresponding terminal blocks on the circuit board. Strip the wires to an appropriate length so that no copper core wires go outside the terminal blocks.

6. Install the transparent cover and secure it with the four screws. **Last, turn on power.**

7. After you turn on the power the "SIG" LED will start to flash approx. every second. When the unit has connected to the GSM network the "SIG" LED will start to flash every 4 seconds instead (this usually takes about 1 minute). Wait 1 more minute before calling or sending SMS to the unit.

8. Done! Try and send an SMS containing "SW0000CHECK" to the SIM-card installed in the unit and wait for a reply.

Download the app "GSMS Remote Control" or look at page 9 for all commands.
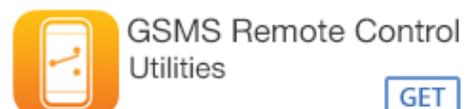
Usage

⚠️ **Controlling the unit with SMS will charge you for the SMS that you send to the unit and for the SMS received from the unit. Please refer to your telephone operator for pricing.**

The GSMS-SW22 can be controlled using both SMS and phone calls. We also have a mobile app available for IOS and Android. When controlling the unit with phone calls you will first need to add the phone numbers you choose to the unit's memory (up to 5 phone numbers) so that only these authorized phone numbers can call and control the unit. After this is done, all you need to do is to call the phone number to the installed SIM-card and roughly 2 tones will be heard and then the call will hang up and the **relay 1** will switch state. Since the call is not answered by the unit, there will be no costs using this method. Please note that controlling the unit with phone calls will only change the **relay 1** state, relay 2 cannot be controlled via phone calls.

ℹ️ *Depending on the telephone network operator you will hear either a busy signal or a recorded announcement when the call hangs up.*

If you want to, you can setup the unit so it will send back a confirmation-SMS to let you now that the command has been successfully executed when you called the unit (this is by default off).

ℹ️ *Make sure the SIM-card placed in the unit is charged with money or else you will not be able to get a confirmation-SMS back.*

Another way to control the unit is by SMS messages. When using SMS to control the unit you do not have to add the users phone number to the unit's memory, instead for security a 4-digit password is used. This way an unlimited number of users can control the unit with SMS. With SMS you can turn on and off the relay and also check the state of the relay. As with the phone call method you can set the unit to send back confirmation-SMS (this is by default off). Using SMS is also the way you configure the unit's settings as explained further down.

By default the relays will be turned on in latch mode (turned on until it is turned off), but it is also possible to set up the unit to turn on the relays for a preset time using the built in timer.

ℹ️ *Note that even if there is no money on the SIM-card, the commands will be executed anyway, only difference is that you will not get a confirmation-SMS back.*

SMS commands

ℹ️ *When controlling the unit using SMS it will require a 4 digit password (default "0000"). Every command will begin like this "SW0000".*

Please do not use any spaces or characters other than specified. The commands are not case-sensitive but for clarification all examples are uppercase.

SW0000CP1234	*Changes the password from "0000" (default) to for example "1234"; this new password "1234" will be used in the following examples.*
SW1234CHECK	*Returns an SMS about the state of the relays and inputs (on or off). Also contains information about the units signal strength.*
SW1234SETTINGS	*Returns an SMS with an overview of how the unit is set up. Contains information about the timer-setting for each relay (R1TIMER / R2TIMER), how/if the unit should answer with a confirmation-SMS (VER. SMS), if the unit should remember the relay states after a power-loss (REM. STATE), how many authorized phone numbers (counted from the first phone number) that should be contacted when an input is triggered (INPUTAUTHS) and what each input should do when triggered (INPUT1FUNC / INPUT2FUNC).*
SW1234R1ON **... R1OFF**	*Commands used to control the state of relay 1.*
SW1234R2ON **... R2OFF**	*Commands used to control the state of relay 2.*
SW1234RAON **... RAOFF**	*Turns on or off both relays at the same time.*
SW1234R1ONF00H01M **... R1ONF99H99M** **... R2ONF00H01M** **... R2ONF99H99M**	*Turns on a relay in the future. You need to specify the total hours and minutes until you want the relay to turn on. Please note that you always need to specify both hours and minutes as the format to the left. Can be used to control relay 1 and 2.*

SW1234R1TIMER001S ... **R1TIMER123M** ... **R1TIMER999H** ... **R2TIMER001S** ... **R2TIMER123M** ... **R2TIMER999H**	*Set up how long each relay should be turned on. This setting has effect every time a relay is turned on using both SMS and phone calls except when using the two commands below that ignores this timer-setting. Can be used to change settings for relay 1 and 2 independently.*
SW1234R1TIMER0 ... **R2TIMER0**	*Command to disable the timer (disabled by default). Please note that the last character is a digit (zero).*
SW1234R1ON001S ... **R1ON123M** ... **R1ON999H** ... **R2ON001S** ... **R2ON123M** ... **R2ON999H**	*Turns on a relay and **ignores the timer-setting**. For instance if the timer is set up at 60 minutes but you want to Turn on the relay 20 minutes one time only. Can be used control relay 1 and relay 2.*
SW1234R1ON0 ... **R2ON0**	***Ignores the timer-setting** and turns on a relay in latch-mode (no timer). Can be used control relay 1 and 2. Please note last character (zero).*
SW1234REMSTATE0 ... **REMSTATE1**	*Set up if the unit should remember the state of the relays after a power loss. Please note that this will only have affect if the relays were turned on without a time limit due to the unit not knowing how long the power was lost.*
SW1234U1A11111 ... **U2A22222** ... **U3A33333** ... **U4A44444** ... **U5A55555**	*Adds a phone number that should be authorized to control **relay 1** on the unit with phone calls. When the unit is controlled with SMS this have no effect, with SMS a password is used instead. **These phone numbers will also be contacted if one of the inputs gets triggered**, if the input has been set up to send SMS/phone call. The unit can be configured to contact all or selected phone numbers.*
SW1234U1A0 ... **U2A0** ... **U3A0** ... **U4A0** ... **U5A0**	*Erases phone number in memory slot "U1", "U2" ... "U5".* *Note last digit (0) = zero.*
SW1234AUTHLIST	*Returns a SMS with a list of all authorized phone numbers.*
SW1234INPUTAUTHS1 ... **INPUTAUTHS2** ... **INPUTAUTHS3** ... **INPUTAUTHS4** ... **INPUTAUTHS5**	*Set up how many authorized phone numbers that should be contacted if one of the inputs gets triggered and is setup to send SMS or call. The number of users to contact is counted from the first authorized user i. e. if "3" is selected, authorized users 1-3 will be contacted.*

SW1234INPUT1FUNC0 **... INPUT2FUNC0**	*Disables any of the inputs. Note last digit (0) = zero.*
SW1234INPUT1FUNC1 **... INPUT2FUNC1**	*Sets any of the inputs to **send an SMS** to the specified authorized phone numbers when the input it triggered.*
SW1234INPUT1FUNC2 **... INPUT2FUNC2**	*Sets any of the inputs to send an **SMS and call** the specified authorized phone numbers when the input it triggered.*
SW1234INPUT1FUNC3 **... INPUT2FUNC3**	*Sets any of the inputs to **turn on** the relay when triggered. If relay is already on, nothing will happen. No SMS/call communication!* *Input 1 control relay 1 and input 2 controls relay 2.*
SW1234INPUT1FUNC4 **... INPUT2FUNC4**	*Sets any of the inputs to **turn off** the relay when triggered. If relay is already off, nothing will happen. No SMS/call communication!* *Input 1 control relay 1 and input 2 controls relay 2.*
SW1234INPUT1FUNC5 **... INPUT2FUNC5**	*Sets any of the inputs to **switch the relay state** when triggered. If relay is off it turns on and vice versa. No SMS/call communication!* *Input 1 control relay 1 and input 2 controls relay 2.*
SW1234INPUT1RESET **... INPUT2RESET**	*Every time an input has been triggered and the unit has sent an SMS/phone call telling you, the input needs to be reset before the unit can send a new SMS/phone call that the input has been triggered.*
SW1234SMS0	*Disables the unit from sending any confirmation-SMS.*
SW1234SMS1	*Confirmation-SMS only when controlled by phone calls and **not** SMS.*
SW1234SMS2	*Confirmation-SMS when controlled by phone calls **and** SMS.*
SW1234SMS3	*Like above (SMS2) and when the timer (if active) has ended.*
SW1234AUTHCTRL0	*Set up how/if the unit should check incoming phone calls with the list of authorized phone numbers. This command will ignore all incoming calls, fully disabling control with phone calls.*
SW1234AUTHCTRL1	*This is the default setting that checks every incoming call to the list of authorized phone numbers.*
SW1234AUTHCTRL2	*This will enable **all** incoming phone calls to be able to control relay 1.*
SW1234RESETDATA	*Erases all data and returns the unit to factory default.*

Input

The GSMS-SW22 has two inputs that can be set up to send a SMS/call selected authorized phone numbers or to control the relays. For the input to be triggered any of the inputs (i1/i2) needs to be grounded to COM on the input terminal blocks.

> *Please note that if you want the unit to send the SMS to an international number use the following format in the memory slots "0046123456789" (0046 = Swedish land code).*

Troubleshooting

📖 I have forgotten my 4 digit password

If you have lost or forgot the 4 digit password used to control the GSMS-SW22 via SMS you will need to have physical access to the unit to do a hardware reset as described below.

> *The default password is "0000".*

> ⚠️ **Please note that this will erase all authorized phone numbers and change all settings to default!**

1. Turn off the power to the unit and remove the transparent enclosure cover.
2. Next turn on the power to the unit again and roughly 5 seconds after the power is turned on, short/connect input 1 (i1) to the input GND (COM) and leave connected roughly 10 seconds. Finished!

📖 After changing SIM-card in the unit, it stops responding

Every time you take in and out a SIM-card you need to restart the unit by first turning off the power and then turning it back on again.

📖 The unit does not connect to the GSM network

1. Please make sure that the installed SIM-card does not have a PIN-lock.
2. Confirm that the SIM-card have support for the GSM/2G network.
3. Bad reception, try moving the GSMS-SW22 to another location known for good reception.
4. Make sure that you have the proper voltage range connected.
5. Confirm that the antenna is installed properly.

📖 When calling the unit, I hear tones, but the relay does not change state

Make sure you have added your phone number to the unit's memory as described in the "SMS commands" section.

📖 Input is triggered (circuit closed), but I get no SMS telling me

1. Make sure you have added your phone numbers into the unit's memory; please refer to the "SMS command" section.

2. If the input have been triggered before you must reset the unit with the SMS commands "SW0000INPUT1RESET" and/or "SW0000INPUT2RESET".

📖 The signal LED (green) does not light up at all after power on

1. Check the glass fuse on the circuit board, replace if broken.

2. Make sure you have connected the proper voltage range.

3. Please make sure you have connected the positive and negative poles correctly.

📖 How do I check how much money I have on the installed pre-paid SIM-card

Please talk to your SIM-card provider. Generally you can add money online and with most providers you can also register the SIM-card and monitor it online.

Technical specifications

Operating voltage	5-35Vdc
Operating temperature	-30 °C to +70 °C
Power consumption	Nominal < 0,3W
Inputs/outputs	2 inputs / 2 relays
Output relays	10A 250VAC / 10A 30VDC
SIM-card type	mini-SIM
Timer	1 sec - 999 hours
Timer accuracy	Max 3% off
Memory	5 authorized phone numbers
IP-rating	IP67 (outdoor use)
Dimensions	Approx. 90 x 40 x 122 mm
GSM-bands	850/900/1800/1900 MHz