



GSM Fixi SMS

SMS-operated Switch Control

for installation into metal-framed fuse boxes

User and installation manual

Informationen auf Deutsch / Informations en français : www.EcoStarter.com

Overview of GSM Fixi SMS:

- Up to 5 potential-free 230V 16A relays (of which 2 are built-in)
- Temperature sensor (8 m cable) for temperature measurement, surveillance, and thermostatic regulation
- Standard GSM network (dualband 900/1800 MHz)
- Remote control by SMS
- Protected by a personal access code
- Status messages by SMS
- Timer control

1. INSTALLATION.....	2
1.1 Preparation of the SIM card	2
1.2 Insertion of the SIM card	2
1.3 Connection of inputs.....	3
1.4 Connection of outputs	3
1.5 Securing the installation	4
2. FRONT PANEL AND LOCAL CONTROLS	5
2.1 Front panel of GSM Fixi SMS.....	5
2.2 Reset of personal access code	5
3. START-UP	6
3.1 Powering on.....	6
3.2 Possible errors	6
3.3 Signal strength.....	6
3.4 Change of personal access code.....	6
3.5 Storing the phone number for surveillance and error messages	7
4. SMS CONTROL AND CONFIGURATION COMMANDS	8
5. PRECONDITIONS AND ADVICE	11
6. TECHNICAL SPECIFICATIONS	12
7. WARRANTY	13
8. RECYCLING INFORMATION.....	13

1. Installation

The following must be done to get GSM Fixi SMS ready for use:

1.1 Preparation of the SIM card

To be able to send and receive SMS messages, GSM Fixi SMS needs a SIM card. SIM cards from any mobile phone operators will work, both pre-pay and subscription based. NB: for pre-pay cards, durability and usage are limited, and usually requires a follow-up. **GSM Fixi requires the SIM card PIN code to be deactivated.** This has to be done by temporarily inserting the SIM card into a normal GSM mobile phone in order to turn off the PIN code of the SIM card. The exact procedure will be described in the manual of your mobile phone.

1.2 Insertion of the SIM card

Ensure that GSM Fixi is **powered off**; always disconnect it from its power supply when handling the SIM card.

Insert the SIM card into the holder and slide it into position. **The card shall be placed upside down: the gold contact side facing down, and the notch in the lower right corner.** See fig. 1 below.

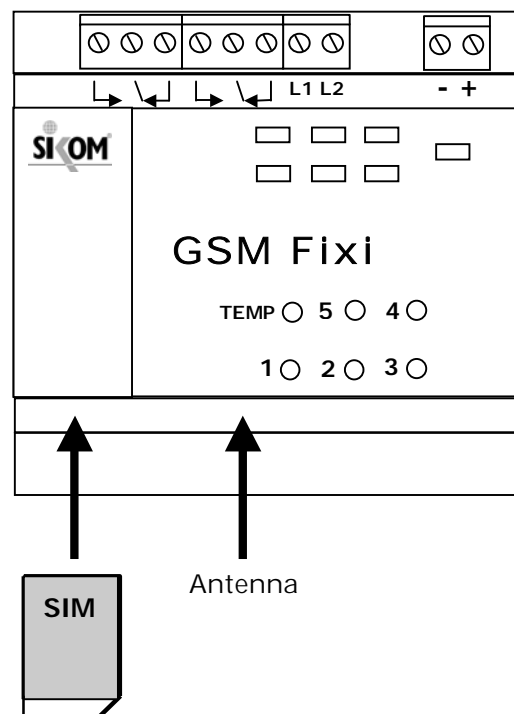


Fig. 1: GSM Fixi seen from above.

Once the SIM card has been inserted, wait until all connections are made (as described in Fig. 2) before powering on the unit.

1.3 Connection of inputs

GSM Fixi SMS should be mounted into a metal-framed fuse box.

The following connections are required:

- A breaker is needed before the power supply input of GSM Fixi. See the paragraph on securing the installation to determine if a 2-pole breaker is needed.
- Use either 230V 50Hz (orange terminals) or 12V DC (black terminals) as power supply, not both at the same time. Use 12V DC when 230V AC is not available, such as in cabins, boats, caravans, etc.
- Temperature sensor with 8 m cable. To preserve its precision, it should be laid out so as to avoid electrical interference, e.g. from 230V cables or floor heating. Also, protect the sensor from excessive humidity.
- Antenna (be careful if antenna is to be taken out again).

1.4 Connection of outputs

GSM Fixi SMS has two built-in potential-free relays, each one supporting a load of 16 A. They are controlled by SMS messages and with the push-buttons on top of the unit.

NB: Thermostatic control, if desired, is only available on Relay 1.

The relay connectors may be used for remote control of electric appliances like stoves, hot water systems, floor heating systems, or yet other equipment.

Connection of lead wires takes place according to Fig. 2.

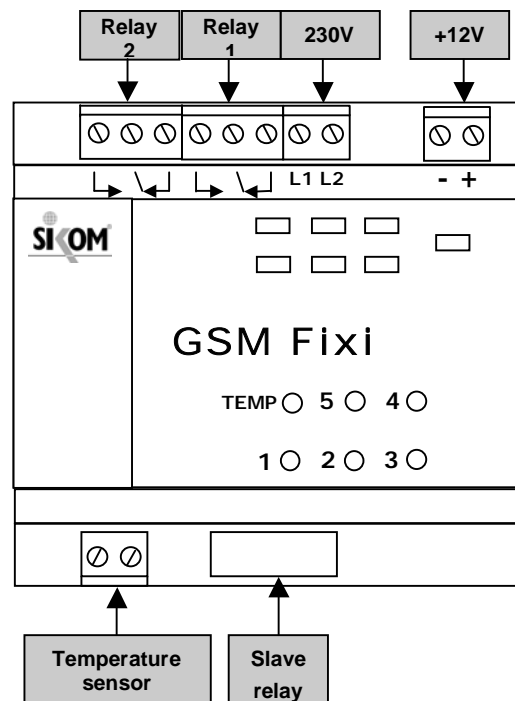


Fig. 2: Connection terminals of GSM Fixi

Relays 1 and 2 have change-over contacts, i.e., their central (*common*) contact moves from right (*normally closed*) to left (*normally open*) when the relay is activated.

If you need more than the two built-in relays, you may purchase an additional *slave relay* (Sikom GS-33), which provides three more potential-free 230V 16A relays. Connect it to the *slave relay* output of GSM Fixi SMS through a dedicated cable, which comes with the slave relay. A total of five relays are then controlled by GSM Fixi SMS.

NB! When using a 230 V AC power supply, the voltage applied at any relay must also be 230 V AC. Conversely, a power supply of 12 V DC limits the use of the relays to extra-low voltages (12 V DC or less). Add auxiliary relays or contactors when necessary. Slave relay GS-33 may also be used to correctly distribute the simultaneous control of both 230 V AC and extra low voltages.

Adjust the protection lid over the 230 V terminals once all connections are made.

1.5 Securing the installation

For safety reasons, ensure that all phase (live) conductors connected to GSM Fixi have breakers (or at least fuses). Be especially cautious in environments without a neutral conductor, such as in IT earthing systems (relatively rare in European homes), where all conductors are live and must therefore have breakers.

Fuses must be rated 16 A or less, depending on the installation and local regulations.

2. Front panel and local controls

2.1 Front panel of GSM Fixi SMS

The front panel consists of 6 switches and 7 LEDs, explained in the following:

- 5 switches (push-buttons) numbered 1 to 5, for turning the relay outputs on or off (switches 3-5 are only usable when slave relay GS-33 is connected).
- 1 switch (push-button) labelled "TEMP", for activating thermostatic regulation on relay 1. When relay 1 is connected to a heating system, GSM Fixi SMS may switch that output *on* when the temperature reaches 4°C, and *off* again when reaching 6°C. When lit, the green TEMP LED indicates that thermostatic regulation is *on*. If relay 1 is switched on forcibly, either by using the button on the front panel, or by sending the "R11" command by SMS, thermostatic regulation will be temporarily overruled until relay 1 is switched off again.
- 5 LEDs for relay statuses (relays 1-2 for GSM Fixi SMS, and 3-5 for slave relay GS-33).
A *green*, resp. *red* light indicates that the corresponding relay/output is *on*, resp. *off*.
- 1 LED for thermostatic regulation ("TEMP") status.
A *green*, resp. *red* light indicates that thermostatic regulation is *on*, resp. *off*.
- 1 LED for GSM signal strength (see Section 3.3).

2.2 Reset of personal access code

GSM Fixi SMS comes with the factory-set access code "1234".

Should you lose or forget your code, the following procedure will reset it to "1234":

1. Press and hold push-button 1 (for relay 1).
2. Power off GSM Fixi SMS, and power off again after 5 seconds.
3. Continue to hold push-button 1 for another 5-10 seconds.

When completed, LEDs 5 and 6 will flash three times to confirm the reset.

NB: after a reset, all relay outputs will be shortly turned off, and the revert to the same state as before.

3. Start-up

When all connections have been made, and a SIM card has been inserted, do the following:

3.1 Powering on

Once GSM Fixi SMS is powered on, it will initiate its start-up procedure. Thereafter the LEDs will show the status of the relay outputs. The unit will then be ready.

3.2 Possible errors

If no SIM card has been inserted, or if it is faulty, or its PIN code still active, the LED for Relay 1 will start flashing green. If so, please check the SIM card and follow the instructions of point 1.1 again. In case of doubt, insert the SIM card into a mobile phone and verify that you are able to send an SMS message with it.

If the LED for Relay 1 starts flashing red, an internal fault has been discovered during the self-test of GSM Fixi SMS: contact your dealer.

3.3 Signal strength

The Signal LED shows the strength of the GSM signal, as follows:

1.	Green	Good signal	
2.	Red	Medium quality signal	(-93->dB)
3.	Off (no light)	Bad or no signal	(-103-> dB)

In case situation (2) or (3) occurs, try re-orienting the antenna to obtain a better coverage. Failing that, a better antenna may be purchased from Sikom.

3.4 Change of personal access code

GSM Fixi SMS is configured and controlled using regular SMS messages sent from mobile phones. A personal access code protects your unit from unauthorized. It is factory-set to "1234". You should set a new access code as soon as possible – and remember it !

Send the following SMS message to GSM Fixi SMS (without the quotes):

"1234 Cxxxx S"

where xxxx is your new personal access code, which must be a 4-digit sequence. You will shortly receive a reply by SMS which shows the current settings of GSM Fixi SMS; this confirms that your initial SMS has been received and processed by the unit.

It is always possible to revert to the factory-set code by following the instructions of point 4.2.

3.5 Storing the phone number for surveillance and error messages

GSM Fixi SMS needs to know to which mobile phone number it is to send its surveillance and error messages. This is how that phone number is given to the unit:

Send the following SMS to your unit:

"1234 Nxxxxxxxx# S"

where xxxxxxxx is the chosen number to which the unit shall send its messages, and S is a command which requests a status message for verification.

Do not forget the international dialling code if your unit is to send messages to phones with a foreign SIM card (e.g. prefix +47 for Norway, +41 for Switzerland, etc.).

E.g.: **"1234 N+41123456789# S"** stores a Swiss number and verifies the result.

GSM Fixi SMS is now ready for use. SMS control is performed as explained in Chapter 3.

4. SMS control and configuration commands

GSM Fixi SMS is configured and controlled using regular SMS messages sent from GSM mobile phones. Address your SMS messages to GSM Fixi SMS by using the phone number of the SIM card inside it. The factory-set "1234" personal access code will be used in the following examples. You should set a new access code as soon as possible – and remember it !

SMS messages must always contain the following:

- First, the 4-digit access code.
- Then, any configuration/control commands (possibly several of them per SMS, separated by a space character).

"" (quotation marks) in the examples are not part of the SMS.

Overview of SMS commands:

R = Switch Relay on or off

S = Request a Status message

T = Timer control

C = Change the personal access Code

L = Set the Limits for temperature surveillance

N = Mobile Number to which the unit will send surveillance and error messages

F = Frost protection (thermostatic regulation between 4 to 6°C, on relay/output 1)

R Switch Relay (output) on or off

R is followed by relay number (between 1 and 5) and 1 for *on* or 0 for *off*.

E.g.: "1234 R11" switches relay 1 **on**.

E.g.: "1234 R10" switches relay 1 **off**.

E.g.: "1234 R30" switches relay 3 **off**.

S Request a Status message

When GSM Fixi receives command **S**, it will reply to the requesting phone number (not to the phone number stored with command **N**) with an SMS containing a status message, which will look like this:

"Relay 1:On 2:15 3:Off 4:Off 5:Off Temperature: +20 Limits: Off Hi:+49 Lo:-29
TempCont: Off Number: (48054555) Sikom AS"

This shows:

1. For each relay, if it is *On* or *Off*, or the number of remaining hours when in timer "T" control.
2. The current *temperature* at the sensor, or *X* if no sensor is connected.
3. The temperature surveillance status: if it's turned *On* or *Off*, and the upper (*Hi*) and lower (*Lo*) *limits*.
4. *TempCont* shows if frost protection "F" is *On* or *Off*.
5. Finally, the phone Number that is memorized for sending surveillance and error messages.

E.g.: "1234 S"

T Timer control

All relays can be independently switched **on** for a duration of 1 to 99 hours. T is followed by relay number (between 1 and 5) and the number of hours (always a 2-digit value: "01" = 1 hour, "05" = 5 hours, etc.)

E.g.: "1234 T501" Switches relay 5 on for 1 hour.

E.g.: "1234 T135 T203" Switches relay 1 on for 35 hours and relay 2 on for 3 hours.

C Change the personal access Code

C is followed by a new 4-digit personal access code. The factory-set "1234" code should be replaced as soon as possible.

E.g.: "1234 C9898" changes code from 1234 to 9898

NB: remember the new code!

L Limit the Limits for temperature surveillance

GSM Fixi SMS is able to perform temperature surveillance and send an SMS message when a chosen lower or upper limit is exceeded. The chosen limits must be in the range of -29°C to +49°C. First, remember to set with command "N" the phone number to which these messages shall be sent. A temperature sensor must be connected for this function to work.

Once any of the limits is exceeded, GSM Fixi SMS will send off a message, and **deactivate** the surveillance. If you wish to continue the surveillance, re-activate it by sending a complete "L" command again.

L is followed by 1 for *on*, then the **upper** and the **lower** limits. Temperatures are 2-digit values preceded by "+" or "-", as in "+22", "+05", "-09", "-20".

L is followed by 0 to turn *off* temperature surveillance.

E.g.: "1234 L1+20-10" stores +20°C and -10°C as upper and lower limits.

E.g.: "1234 L1-02-08" stores -2°C and -8°C as upper and lower limits.

E.g.: "1234 L0" turns off temperature surveillance.

Should you want surveillance of only one limit, then set the other limit low or high enough to ensure that it will never be exceeded.

E.g.: "1234 L1+50+08" stores +50°C and +08°C as upper and lower limits. Temperatures below 8°C will be signalled, but not those above 50°C since the unit only measures up to +49°C.

N Mobile phone Number for surveillance and error messages

GSM Fixi SMS needs to know to which mobile phone number it is to send its surveillance and error (in case of an overload) messages. In contrast, normal status messages are returned as replies directly to the phone, which sent the request (command "S").

The phone number is always terminated by a "#" character.

E.g.: "1234 N12345678#" stores 12345678 as number for receiving surveillance and error SMS messages.

F Frost protection (thermostatic regulation between 4 to 6°C, on relay 1)

When relay 1 is connected to e.g. an electric heating system, GSM Fixi SMS may switch that output *on* when the temperature reaches 4°C, and *off* again when reaching 6°C. This function requires a temperature sensor to be connected and to reside in the room that is being regulated.

This command works in the same way as the TEMP switch on the GSM Fixi SMS faceplate. When lit, the green TEMP LED indicates that thermostatic regulation is on. NB: if relay 1 is switched on forcibly, either by using the button on the front panel, or by sending the "R11" command by SMS, thermostatic regulation will be temporarily overruled until relay 1 is switched off again.

E.g.: "1234 F1" turns thermostatic regulation **ON**.

E.g.: "1234 F0" turns thermostatic regulation **OFF**.

NB: please read the section on frost protection in chapter "Preconditions and Advice".

General remarks on sending SMS commands:

- In an SMS, 1 always means *ON* and 0 (zero) is always *OFF*.
- Uppercase and lowercase letters can be used equally in commands.
E.g., "S" is the same as "s".
- The 4-digit personal access code always comes as the first 4 characters of a message.
- Space characters (blanks) may be used between commands, but not inside a command: "1234 R11 S" is valid, but "1234 R 11 S" will not be understood.
- Temperatures can only be read if a sensor is connected. Temperatures can be measured in the range of -29°C to +49°C.
- Measured temperatures depend on the location of the sensor. There may be a difference of 2-3 degrees, depending on whether the sensor is placed high or low in a room. The precision of the sensor is +/- 2 degrees.
- Always wait 1 minute or more between each SMS message sent to GSM Fixi SMS.

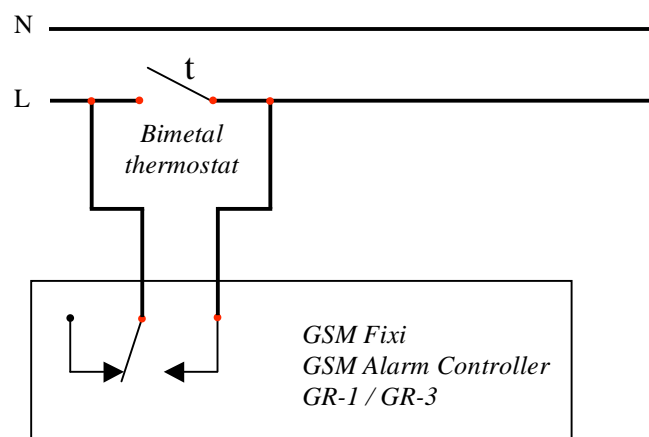
5. Preconditions and Advice

For GSM Fixi SMS to work satisfactorily, a good coverage of the relevant GSM network is needed. No contact can be established if the coverage is too weak. This also is a requirement for sending SMS messages. Once a message has been sent off by the unit, it is under the control of the current network operator. The SMS will not be delivered in case of errors on the GSM network, or similar issues under the responsibility of the operator. When the GSM network is heavily loaded, it may take several minutes (or even hours) for an SMS message to be delivered. These are conditions that Sikom AS cannot do anything about. The dispatch date and time of the message are nevertheless visible at delivery. In conformance with legal regulations, network operators are free to cease certain GSM services. Sikom AS is not a provider of GSM services and can therefore not be held liable for any changes of such services. Notifications should nevertheless be published long before such events take place (2 years or so). If you opt for a **prepay solution**, remember that the credit must be recharged before use. Information on this procedure comes with the SIM card. If the credit gets exhausted, no information on this will be given by GSM Fixi SMS, since it will then not be able to send out any SMS message. To check the remaining credit, it is sometimes necessary to pull out the SIM card and insert it into a usual mobile phone; instructions on how to do this follow your mobile phone and/or SIM card.

In the event of an **overheating** condition, GSM Fixi SMS will send an SMS message with the text "Warning". Both built-in relays will then be switched off, until an SMS is received to turn them on again. Slave relay GS-33 will similarly be reset once its internal temperature has fallen back to an acceptable level.

The thermostatic regulation offered by Sikom devices may be used to maintain a base "eco" temperature in your premises, but **must not be taken as an infallible frost protection**. Indeed, any electronic equipment is vulnerable to power surges and other perturbations that may come from the electricity network, e.g. due to lightning. In such an event, if the electronics is damaged, it may no longer ensure the thermostatic regulation, and hence the frost protection. Therefore, if frost protection is a critical requirement, it is recommended to add a security mechanism. These are some alternatives:

1. Use an additional heating system, with its own thermostat, to ensure frost protection in critical premises.
2. Install a protection against power surges and other perturbations from the electricity network.
3. Set up a bimetal thermostat in parallel with your Sikom unit, as shown in the following figure:



Sikom and its representatives will not assume liability for any damage due to frost!

6. Technical Specifications

Manufacturer:	Sikom AS, Norway
Model:	GSM Fixi SMS
Power source:	230V 50Hz AC or 12-15 V DC
Consumption:	60 mA (in standby with no relays active) Each active relay consumes 30 mA
Relays:	2 built-in potential-free relays 230V 16A (extensible to 5)
Temperature sensing:	-29°C to +49°C ±2°C
Operating temperature:	-20°C to +50°C
Non-operating temperature:	-40°C til 70°C
Dimensions:	70 x 90 x 58 mm
Weight:	375 g
GSM standard:	Dualband 900/1800 MHz

GSM Fixi SMS is designed for indoor (fuse box) installation only.

This equipment complies with the European R&TTE directive.

Further information may be obtained by contacting either the Swiss importer through www.EcoStarter.com or the manufacturer:

Sikom AS
Jernbanegata 16/18
P.O. Box 223
7601 Levanger
Norway

Internet address: www.sikom.no

7. Warranty

Sikom A.S. products are covered by a two years warranty against any faults due to material flaws or manufacturing errors, which limit or render useless certain functions described for the product. The warranty requires the customer to present the original bill, with date of purchase and type of equipment clearly readable.

What is covered by the warranty?

During the warranty period, Sikom A.S. reserves the right to repair the product or to replace defective parts with functionally equivalent parts. If, after several attempts, Sikom A.S. is unable to correct the problem, and the product does not work as described in the manual, Sikom may elect to refund the purchase price or to replace the product with a functionally equivalent one. All replaced parts and products become the property of Sikom A.S.

What is not covered by the warranty?

- Indirect damage to life, health, property, revenue and environment caused by circuits and appliances connected to the unit (install and use this product responsibly).
- Costs related to (re)installing, transporting and dismantling units; recycling may be governed by special rules (see the relevant chapter).
- Damages caused by use outside of the operating conditions specified in the manual.
- Malfunctions caused by transport damages.
- Any unauthorized repair, modification or disassembly.
- Use of non-original parts.
- External factors, such as lightning, power supply issues, mobile network issues, flood damage or fire.
- Units with modified, removed or unreadable serial number.

Sikom assumes no responsibility for any errors that may appear in this manual.

Information contained herein is subject to change without notice.

8. Recycling information

Waste Electrical and Electronic Equipment (WEEE) Symbol



The WEEE (Waste Electrical and Electronic Equipment) symbol indicates that this product must not be disposed of along with other household waste. It is the customer's responsibility to dispose of the product properly by taking it to a designated site for recycling. To locate a recycling/disposal site near you, contact your local city recycling program, your regular waste disposal service or the agent from whom you purchased this product.

For Switzerland, this product includes in its purchase price a contribution (the advanced recycling fee) to the SWICO Recycling Warranty, which means that used equipment can be handed in free of charge for recycling. Collection sites are listed at www.swicorecycling.ch.