



AlarmBox-wireless, Type GSM
230V-Box with integrated GSM module and temperature sensor

Manual

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General

The **AlarmBox-wireless, Model GSM** allows monitoring of the temperature (via temperature sensor) and the 230V supply voltage. Exceeded or fallen below the pre-set temperature limits, or a power supply failure, the alarm can be sent over a voice-call ("normal" phone call from the box) or via a text message (SMS) from the box.

Also the **AlarmBox-wireless, Model GSM** allows to remotely switch ON and OFF a 230V electrical appliance over a voice-call ("normal" phone call call to the box) or via text message (SMS) to the the box.

Before first use please read this instruction manual carefully. It contains information for the correct use and contains important tips for the installation of the **AlarmBox-wireless, Type GSM** (hereafter called **AlarmBox-GSM**). The manufacturer does not accept any liability due to improper use of the unit. In this case all guarantee claims are invalid.

Using the AlarmBox-GSM

Die **AlarmBox-GSM** is designed for monitoring of

- temperature (-35°C to 75°C)
- and
- 230V power supply

and the switching of

- resistive loads i. e. electric bulbs or heating fans
- or
- inductive loads i. e. electric motors or transformers to a maximum consumption of 2000W (230V / 8,7A)

in dry, closed residential rooms and offices. Rules and Regulations governing the connection and use of electronic devices and their security regulations must be followed.



Safety Instructions

- Do not open the **AlarmBox-GSM**. It contains no parts to be serviced by you.
- Only use the **AlarmBox-GSM** indoors and do not subject the unit to moisture or humidity.
- Also use the temperature sensor without the influence of humidity.
- Only connect the **AlarmBox-GSM** to properly installed 230V AC outlets and power strips.
- Only clean the exterior of the **AlarmBox-GSM** with a dry cloth after unplugging it from the electrical outlet and removal of the interface cable.
- Do not overload the **AlarmBox-GSM** above its load specification level. An overload can lead to the **AlarmBox-GSM** being destroyed.
- Do not use the **AlarmBox-GSM** within the reach of children.
- Do not use the **AlarmBox-GSM** if one or several parts (case, cable, plug, temperature sensor) are damaged or damage may be caused by its location (e.g., falling down).
- Repairs to the **AlarmBox-GSM** can only be performed by authorized personnel.
- Only connect electrical appliances that have no limit to their switched-on time (i.e. all connected electrical appliances must be able to take continuous current without sustaining damage in the case of a default to the permanently "ON" position.).

Caution:

Safety Instruction for the wireless module:

The **AlarmBox-GSM** contains a mobile component, like the ones used in mobile phones. Thus in principle all safety instructions and precautions apply as with the use of mobile phones, in particular are the following:

- Do not use the **AlarmBox-GSM** in the vicinity of medical devices such as hearing aids or cardiac pacemakers. Functioning of these devices could be disturbed.
- The **AlarmBox-GSM** may be operated in the vicinity of for example TV sets, radios or PCs, however but could cause disturbances in operation.
- If an external mobile antenna is connected, the above mentioned information shall apply accordingly for this antenna.
- The **AlarmBox-GSM** is designed for stationary use, not for use in vehicles of all kinds.



Delivery

Hardware

Everything there? The delivery of a **AlarmBox-GSM** unit contains:

- the **AlarmBox-GSM** incl. temperature sensor (with approx. 2m connector cable)
- this manual

Software

- Software is not required for the control of the **AlarmBox-GSM**

System Requirements

General

- SIM card (pre-paid or contract)



Technical Features

General

- Operating voltage: 230/240V~ 50/60Hz
- Protection class: IP20, for dry rooms only
- Connector system: SCHUKO
- The current switching status is indicated by a green LED (labelled "ON")
- The current GSM status is indicated by a red/green LED (labelled "GSM")
- Load and control circuits have a safe electrical separation
- Ambient temperature: 0 ... +40°C
- Storage temperature: 10 ... +70°C

Temperature Sensor

- Cable length: approx. 2m
- Measuring temperature: -35 ... +75°C

Load Circuit

- Operating voltage: 230/240V~ 50/60Hz
- Single-pole load switch (Relay)
- Maximum switching capacity:
 - Resistance loads i.e. electric light bulbs or heating fans up to 2000 W (230 V / 8.7A) (8,7A at 230/240V)
 - Inductive loads i.e. electric motors and transformers up to 2000W (8,7A at 230/240V)

GSM

- Integrated GSM-Module: Telit GE865-QUAD
- Aerial connector: SMA
- Use with pre-paid or contract SIM cards of all providers, no SIM lock!

CE Marking

In accordance with the Low Current and EMV Guidelines.



Installation

Hardware

- Insert the 230V plug of the device to be monitored by the **AlarmBox-GSM** into the socket of the **AlarmBox-GSM**
- Insert the **AlarmBox-GSM** into a 230V outlet socket
- CAUTION: after inserting the **AlarmBox-GSM** socket the connected device is switched ON or OFF depending on the previous set state
- place the temperature sensor where the temperature shall be monitored
- the socket of the **AlarmBox-GSM** can be switched ("toggled") by pressing the push-button (at the bottom of the box) for 3 seconds at least

Operation

The **AlarmBox-GSM** is operated solely via SMS commands, a voice call or via the push-button (at the bottom of the box).

Blink codes of the ON-LED

The ON-LED signals the current state of the **AlarmBox-GSM**. It signals, whether an existing alarm has already been reported. In case of alarm and the deposited alarm phone number has not been reached yet, the ON-LED blinks (depending on the alarm type) as described below. If the alarm situation has been resolved successfully, the ON-LED signals the current state of the socket.

ON-LED	Meaning
Permanently OFF	Socket OFF
Permanent ON	Socket ON
1 x red	The set temperature limits have fallen below or have been exceeded
2 x red	Socket in reset mode
3 x red	The supply voltage has failed
4 x red	The temperature sensor is defect



Button

Keeping the button pressed for more than 3 seconds the state of the socket is being "toggled". The socket is either "ON" or "OFF" when the button is pressed. The ON-LED indicates the current state of the socket.



GSM

Getting Started

Parameter on the SIM card

The SIM card intended for the us with the **AlarmBox-GSM** can be prepared with any mobile phone or PC SIM card reader.

The prepared SIM card should be inserted into the small slot on the underside of the **AlarmBox-GSM**. The SIM card must be inserted using a small tool (screwdriver or similar) and be carefully pushed right up to the mechanical rear stop where it will lock in this position. To later extract the SIM card it must be pressed in again to the rear stop and then released. It will be ejected by the push-pull card reader mechanism.



ACHTUNG: Before inserting/removing the SIM card ensure the **AlarmBox-GSM** is not connected to the power supply (i.e. pull out of the wall outlet), otherwise the complete contents of the SIM card, not only the contents of the phone book could be destroyed. In this instance the SIM card user will need to exchange the card with the provider, which will incur further costs.

Standard-PIN:

As a general rule the use of a SIM card requires user to identify himself / herself with the PIN code. The "**AlarmBox-GSM**" tries (if no PIN changes have been made) to log itself on using the standard PIN code – please therefore use the standard PIN given below when first initialising SIM card.

The PIN is the access code for a SIM card. The **AlarmBox-GSM** expects the standard PIN code '1357' to be used initially. This PIN code can be pre-set on the SIM card with the help of a mobile phone or PC SIM card readers.

(Error code 2, see also Troubleshooting)



GSM

Blinc codes of the GSM-LED:

The **AlarmBox-GSM** uses different flashing codes of the "GSM" LED to indicate the current condition of the "GSM" module. If the "GSM" LED emits one of the flashing codes for an extended period of time, there may be an error as described below.

Basically the flashing codes are generated at each Power ON and during each GSM network login. Normally however, the individual error states are so short that the single Flashing Codes are not perceivable. (e.g. the Flashing Code 2 during PIN setting lasts only approx. 0.3 second)..

GSM-LED	Description	If permanently displayed
1 x red	Test of the GSM module	Serious Basic Error. The GSM module is probably defective
2 x red	Initial Settings	SIM card is not inserted or is defective, the PIN code is wrong or entry of the PUK is necessary (see also Troubleshooting) (CAUTION: Please check the PIN code on the SIM card. If it is wrong, further login attempts can lead to the SIM card being blocked. (only 3 attempts are possible!)
3 x red	Waiting to login to the GSM network	No GSM network available (see also Troubleshooting)
4 x red	Enter GSM-Module parameters	The entry "Own Phone Number" on the SIM card is missing or the GSM module is damaged
6 x red		No credit on the SIM Card (pre-paid SIM Card)
static green	AlarmBox-GSM is registered (logged in) and ready to use	
flashing yellow	AlarmBox-GSM is receiving a voice call, marks the ringing time and the whole time of the connection(= during the complete call)	



Voice-Call → **AlarmBox-GSM**

Controlling the **AlarmBox-GSM** via Voice-Call

The **AlarmBox-GSM** can be controlled by authorized callers with the help of a voice call. A caller is authorized, if

- He can identify himself with a correct access code (i.e. after the **AlarmBox-GSM** answers incoming call, the caller must enter the correct 4-figure access code (figures only!) via the phone keyboard

Operation

The **AlarmBox-GSM** can be controlled from any telephone / mobile phone that is able to transmit DTMF (Dual Tone Multi Frequency) tones. The **AlarmBox-GSM** answers the call after the 3rd ring. A friendly female voice then asks the caller to enter the password. If this does not occur within two minutes, or an incorrect password is entered the connection is terminated. If the correct password is entered, the **AlarmBox-GSM** responds with an announcement that it is ready to receive commands.

Every command input from the telephone keypad (in future referred to as "DTMF") always starts with the character "*" (start of a command input) and ends with the character "#" (end of a command input), comparable with "Return" or <CR> on a computer. The only exception to this is the password login which is made without the characters "*" and "#".

DTMF-Befehle:

Keystrokes	Description
1357	Access Code Input (in this example "1357")
*0#	Socket permanently OFF
*1#	Socket permanently ON
*2#	PC-Reset Command, i.e. switch outlet OFF, waits 10 seconds, switch ON again
*9#	Ask for the SIM card credit (only for pre-paid SIM cards) otherwise an Error Code will be transmitted
*20#	Sends the status of the AlarmBox-GSM as an SMS to the subscribers telephone number



Voice-Call → **AlarmBox-GSM**

Responses from the **AlarmBox-GSM** when using Voice-Call

The **AlarmBox-GSM** contains an integrated audio response unit. After the acceptance of an incoming call the **AlarmBox-GSM** transmits a greeting message and requests the input of the password. If the correct password is recognised, the **AlarmBox-GSM** responds with "Password OK". If the password is incorrect it requests renewed input of the password.

Please do not press the telephone keys until the **AlarmBox-GSM** has finished its initial announcement - only then the keystrokes will be registered.

Whilst entering the password the **AlarmBox-GSM** audibly responds with the recognised keystrokes.

Normal response (correct password entered, command mode active):

- In stand-by mode (i. e. No key input), the current temperature is announced every 12 seconds.
- After the recognition of an activation command (depressing the "*" key) the announcement is muted until the "end" command (depressing the "#" key) is recognised. With a valid command an appropriate message is transmitted and the desired action is executed. An invalid command is acknowledged with "*command was not recognised*". If after 5 seconds after pressing any key no further key or the command end (= key #) is not recognised, again it will be acknowledged with "*command was not recognised*".



Voice-Call → **AlarmBox-GSM**

Access code vs. PIN

The pre-set access code for the **AlarmBox-GSM** via Voice-Call is "1357". This means that as long as this access code is not changed (using the telephone book entry "PWD" on the SIM card) the pre-set access code will remain valid.

A new access code is stored in the phone book on the SIM card; this means that the access code is resident on the SIM card - not in the **AlarmBox-GSM**!

The Access Code should not be confused with the PIN. The Access Code and the PIN are completely independent of each other and can accept different values if the operator wishes. Apart from the Default Value these two Codes have nothing in common:

PIN	Login for use of the SIM card: This login is required, so that the AlarmBox-GSM can identify the SIM card as a valid user (corresponds to the input of the PIN after turning on a mobile by the user). Default value:1357.
Zugangscod	Access code for controllingt the AlarmBox-GSM -assembly from outside: Access code for the control of the AlarmBox-GSM : The purpose of the access code is required in order to prevent unauthorised callers from changing the configuration of the AlarmBox-GSM . May be changed using the phone book (MENU) entry "PWD" on the SIM card. A new access code is stored on the SIM card <u>and</u> in the configuration memory of the AlarmBox-GSM Default Value: 1357

Pre-paid – SIM cards

When using pre-paid SIM cards the **AlarmBox-GSM** regularly determines the credit remaining on the SIM card. With a remaining credit of less than EUR 1,00 an alarm tone is switched on for the first 5 seconds after the start of the voice call and the input of the valid access code by the operator.

In this case the SIM card should be recharged. It is recommended that the SIM Card be recharged remotely through the Service Provider, so that the SIM card itself does not have to be removed or physically taken out of the unit.



SMS → **AlarmBox-GSM**

Controlling the **AlarmBox-GSM** via SMS

CAUTION: When controlling the **AlarmBox-GSM** via SMS please note that it can take up to 24 hours until an SMS reaches the **AlarmBox-GSM**. The delivery times vary greatly from provider to provider. Inter-Network SMS often require much longer delivery times than network-internal SMS'. (e.g., from T-Mobile to Vodafone).

Control of the **AlarmBox-GSM** by SMS is therefore only recommended for switching processes in which the time of operation is not of over-riding importance.

The **AlarmBox-GSM** can only be operated with "a valid SMS". An SMS is valid when the sms text begins with the correct access code "1357".

Operation

The following SMS types are differentiated:

- **Command-SMS** – A command SMS is used to change parameters of the **AlarmBox-GSM**. With the command SMS you can for example, set the lower and upper alarm temperatures or the alarming number. The SMS text should contain the character "=" after the command and then the requested value, for example:
1357
voiceno=05221123456
- **Confirmation SMS**
An confirmation-SMS can be sent by the **AlarmBox-GSM** as confirmation after the execution of a command. The confirmation SMS is requested by the character "*" within the SMS text, e.g.:
1357
voiceno=05221123456 *

General rules for writing / mailing an SMS:

- Blanks are ignored.
- Case sensitivity is ignored.
- With mutually excluding commands within an SMS only the latest command is executed.
- When SMS are received "en-block", only the last command will be executed.
- After command execution all SMS stored in the device are deleted.
- See also [Troubleshooting](#)



Command-SMS → AlarmBox-GSM

Text in the SMS	Value	Meaning
VoNo= or VoiceNo= ----- SMSNon= (Command is for n = 1-5)	Phone number	Set voice-call or SMS number to be called in case of an alarm. Maximum one number for a voice call and five numbers for a SMS notification can be set.
VoNo= or VoiceNo= ----- SMSNon= (Command is for n = 1-5)	OFF	Set voice-call or SMS number is deleted
VoNo= or VoiceNo= ----- SMSNon= (Command is for n = 1-5)	self	Set phone number as voice-call or SMS number, from which the alarm is sent. For this purpose call number transmission shall not be suppressed.!
ltemp=	(+/-) temperature	Lower temperature limit. If this temperature falls below, an alarm is triggered.
htemp=	(+/-) temperature	Higher alarm temperature limit. If this temperature shall exceed, an alarm is triggered.
ltemp=	OFF	Turn OFF lower temperature limit
htemp=	OFF	Turn OFF higher temperature limit
On!		Switch ON socket permanently
Off!		Switch OFF socket permanently
Reset!		Trigger PC reset, this means: Turn OFF socket, wait 10 seconds, switch ON socket (OFF → wait 10 sec. → ON)
Status? or *		AlarmBox-GSM – send status to the caller.



AlarmBox-GSM – SMS → Alarm Number

Text in the SMS	Meaning
AlarmBox-Wireless:	Sender logo
20140327	Firmware version
Output:	Current switching state of the socket
230V:	State of the supply voltage
current temp.:	Current determined temperature Should the temperature sensor be defect and thus no temperature can be detected, the following text is sent: "Temp.-Sensor: defect"
temp sensor: defect	This text is only sent in case the temperature sensor is defect instead of "Akt. Temp.:"
lower/higher temperature limit:	The minimum and maximum set alarm temperature limit of the AlarmBox-GSM
Voice-No.:	The set phone number, that will be contacted in case of an alarm
SMS-Non: (gilt für n = 1-5)	Set SMS numbers in the AlarmBox-GSM that will be contacted in case of an alarm.
Credit:	Current credit on the SIM card. If the inserted card is not a pre-paid card or if otherwise the credit can not be requested, the value "NA" is displayed. This information may not be supported by all (international) providers.
GSM:	Signal strength



Example of a **AlarmBox-GSM** - Status - SMS:

```
AlarmBox-GSM
20140327
Output: ON
230V: OK
Current temp.: 25 Grad
Lower temperature limit: -10 degrees
Higher temperature limit: 30 degrees
Voice-No.: 0522123456
SMS-No1: 0171123456
SMS-No2: 0172123456
SMS-No3: 0173123456
SMS-No4: 0174123456
SMS-No5: 0175123456
Credit: 13,59 EUR
GSM: -62dBm
```

The SMS is sent by the **AlarmBox-GSM** if it was requested

- via SMS with "status?"
- or within an command with "*"
- or via DTMF with *20#



Alarming

CAUTION: The alarming function is only active, if a valid alarm phone number was stored to the **AlarmBox-GSM**. **Otherwise no alarming will occur!** (see also: [Operating the AlarmBox-GSM via SMS](#))

An alarm is triggered in case of

- falling down or exceeding the set lower or higher alarm temperature limit
- outage of the 230V supply voltage
- a defect temperature sensor

Procedure in case of an alarm:

Two different alarm modes are involved.

- Alarming via Voice Call
 - In case of alarm, a voice call is initiated to the stored voice number. This call must be confirmed by entering *5# on the telephone keypad during the call to ensure that the alarm call has not been taken by an answering machine or mailbox. If no answer or acknowledgement is received, the **AlarmBox-GSM** will repeat the process up to 10 times.

If no voice call number is stored, no alarming via voice call is processed.
A maximum of **one** phone number can be stored.

- Alarming via SMS
 - the **AlarmBox-GSM** sends one Alarm-SMS in case of alarm to all stored SMS alarm numbers.
A maximum of **five** SMS alarm numbers can be stored.

In general:

- An alarm via voice call only occurs when the voice call has been set via the SMS command. Only **one** alarm number for voice calls can be stored.
- An alarm via SMS only occurs when the SMS number(s) has been set via the SMS command. A maximum of **five** alarm numbers can be stored for SMS notification.
- The alarm number for voice call and SMS can be identical, this means in case of an alarm, both alarms are triggered, via SMS and via voice call.
In this event the SMS alarm notification always comes first and then the voice call alarm is started.
- Upon acceptance of the voice call in case of an alarm triggered by the **AlarmBox-GSM** the respective alarm reason is announced via voice message. This would be, in the event of a supply voltage failure „AlarmBox-GSM, power supply outage!“. The alarm message is repeated permanently.



In order to avoid a permanent alarm "loop", no other alarming because of the same alarm event is triggered. Only after reset to "normal state" the alarming function is again active. For example, after an outage of the power supply and the corresponding alarming, any additional alarming is stopped until the power supply is available again.

The same applies for the minimum and maximum temperature limit. If the limit has fallen below or has been exceeded once and an alarm was triggered, the temperature has to clearly be back within "normal value" before a new alarming can be triggered.

However, alarming for other reasons is still possible.

If the socket is back to normal state, this event is also reported to the alarm phone number.

Example for an *AlarmBox-GSM* - Alarm-SMS:


AlarmBox-Wireless
Power supply outage!



Quick introduction


We recommend the following actions for a quick introduction to service:

1.) Controlling the *SwitchBox-GSM* via a landline or mobile phone:

- The SIM card intended for use in the **AlarmBox-GSM** can be prepared in every mobile phone or PC SIM card reader.
 - The PIN on the SIM card has to be "1357"
 - Carefully insert the SIM card (use a small tool i.e. screwdriver or similar if necessary) up to the physical rear stop.
- 
- Insert in the **AlarmBox-GSM** into wall electrical socket outlet
 - The **AlarmBox-GSM** searches for a GSM network and tries to login (→ [Blinkcodes](#))
 - If OK → GSM-LED illuminates green
 - After that the **AlarmBox-GSM** can be reached via landline or mobile phone.
 - The **AlarmBox-GSM** "answers" after 2 rings and informs about the current temperature via voice message.
 - Now the **AlarmBox-GSM** can be operated as described under "[Operating the AlarmBox-GSM via SMS](#)".



Troubleshooting

<p>Current PIN (Error code or flashing coe 2)</p>	<p>After turning the power on the AlarmBox-GSM tries to activate the SIM card using the PIN stored in the configuration memory. After three consecutive attempts with the wrong PIN, due for instance to the fact that the PIN on the SIM Card has not been correctly entered, the SIM card is as a rule then blocked. The error code 2 shows that the PIN is possibly wrong - in this case it is absolutely paramount to check the PIN before a new start is attempted.</p> <p>The PIN of the SIM card must be set to 1357.</p> <p>The SIM card can only be unblocked using the so-called PUK code after three entries of a wrong PIN (i.e. three times Power-ON). The unlocking of the SIM card can only be carried out on a mobile phone and not in the AlarmBox-GSM.</p>
<p>Bad receipt position (Error code or flashing code 3)</p>	<p>In contrast to the mobile phone that can be moved to an area of good reception the AlarmBox-GSM is fixed to the current location.</p> <p>The user therefore should ensure that the SwitchBox-GSM is located in an area of good mobile telephone network reception. If necessary an external GSM antenna should be used, especially when the SwitchBox-GSM in used in "screened" server rooms, in 19" Racks or cellars.</p> <p>The AlarmBox-GSM is equipped with an SMA (threaded) aerial connector. When using an external antenna please ensure that it is GSM dual band capable. Suitable GSM antennae can be found at: www.antrax.de</p> 
<p>Multiple users</p>	<p>The AlarmBox-GSM does no differences with the order of the authorized users.</p> <p>Please avoid SMS access by several users over a very short period of time.</p>



<p>SMS not received</p>	<p>The AlarmBox-GSM sends a SMS similar to a 'normal' Mobile Phone..</p> <p>If an SMS does not arrive immediately with the addressee, it is normally due to long transmission times by the Service Provider. In particular it should be remembered that it is within normal specification if an SMS transmission between different Service Providers (D1, Vodafone, E plus, O2) arrives with the addressee within 24 hours of despatch – this highlights two very important points:</p> <ol style="list-style-type: none">1.) Important switching processes and status messages should use the "Voice Call" option and not the slow and indeterminate "SMS" method.2.) The AlarmBox-GSM and user's Mobile Phone should use the same Service Provider
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Terminology

<u>AlarmBox-GSM-Button</u>	Designation of the only button on the AlarmBox-GSM
<u>ON-LED</u>	Designation of the LED marked "ON" on the AlarmBox-GSM
<u>GSM-LED</u>	Designation of the LED marked "GSM" on the AlarmBox-GSM
<u>AlarmBox-GSM-Steckdose</u>	Designation of the 230 Volt Socket found on the AlarmBox-GSMx . This is where a computer or external device is connected to the AlarmBox-GSM
<u>Voice-Call</u>	Telephone connection. Charges are time based.