

Operating Manual

Alarm Device AC 108

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2 Safety

2.1 Application

The alarm device shall be used exclusively for the purpose and in the environment described in the user manual.

Lack of maintenance, improper use as well as any unauthorized alteration may result in the destruction or malfunctioning of the device. The manufacturer shall not be held liable for any damages resulting from the above mentioned activities. In case of such activities, it shall be noted that the warranty expires and the risk is born solely by the operator.

2.2 Installation/Maintenance/Repair

The alarm device can be worked on only by such qualified persons who have been entrusted with the tasks of the installation, maintenance or repair and are fully aware of the dangers resulting from these works.

Special care should be given to complying with general safety and accident prevention related regulations.

Connection to the electricity network can only be carried out by an electrician. When performing installation, repair and maintenance works, local safety requirements as well as the stipulations of the applicable VDE (Electric, Electronic and Information Technology Association) and EN standards have to be complied with.

The device can only be worked on in a voltage free state (disconnected from the mains).

2.3 Notifications

In order for the device to send notifications, it should be set so that it is able to initiate calls and send SMS messages. We propose the use of a number of recipients.

When entering recipients, please choose persons who are familiar with the alarm system. The type of recipients should be varied (e.g. family members, employees, neighbours).

2.4 Signaling

In addition to alarming through telephone calls and SMS messages, for the signaling of an alarm situation an alarm siren and a flash lamp need to be installed to the device.

These components should be arranged in such a manner so that they can be properly seen and heard.

2.5 Surge Protection

To prevent damages caused by surges (e.g. lightning), we propose the installation of a type 3 surge protector/supressor device.

The surge protector is a component of the GSM alarm system and shall be installed in the system parallel to the supply voltage.

2.6 Liability for Proper Functioning

The proper functioning of the alarm device depends on a number of factors, such as an operating mobile phone network, stable mobile signaling services or an active SIM card, which cannot be controlled by the manufacturer.

As a result, the producer cannot guarantee the continuous operation of the alarm device, and shall not be held liable for the consequences therefrom.

2.7 Safety Requirements

The GSM alarm device is in compliance with the following safety requirements:

- "Alarm Systems Supporting Intensive Animal Husbandry – Minimum Requirements" – Working Group for the Application of Electricity in Agriculture (Arbeitsgemeinschaft für Elektrizitätsanwendung in der Landwirtschaft e.V. – AEL)
- "Intensive Animal Husbandry – Alarm System Concepts for Buildings Used in Animal Husbandry" – Association of the German Insurance Sector (Gesamtverband der Deutschen Versicherungswirtschaft e.V. – GDV)

3 Design

3.1 General Description

The alarm device is designed to monitor its environment and send notifications in the case of an alarm situation.

The device monitors the state of its environment by means of outer switching contacts (contacts) and temperature sensors that can be connected to the system.

When a contact is triggered, or when the temperature falls below a given minimum temperature or exceeds a given maximum temperature, an alarm is launched in order to notify the persons who are located at a greater distance from the device.

The alarm is carried out through an acoustic horn (siren), a flash lamp, telephone calls and SMS messages.

The alarm system comprises a modem which transfers the calls and SMS messages via a mobile phone network (the device operates with a technology similar to that of a cellular phone). Consequently, for proper operation an active SIM card needs to be inserted into the modem.

The alarm device includes a display with buttons. Having a look at the display, the user can check the status of the environment and the alarming activity of the device. The user can also set the preferred alarming modes. The device can be configured for numerous parameters, e.g. adding telephone numbers or creating individual alarm texts.

Owing to a built-in back-up battery, the continuous operation of the alarm system is ensured even during power failure.

3.2 System Scheme

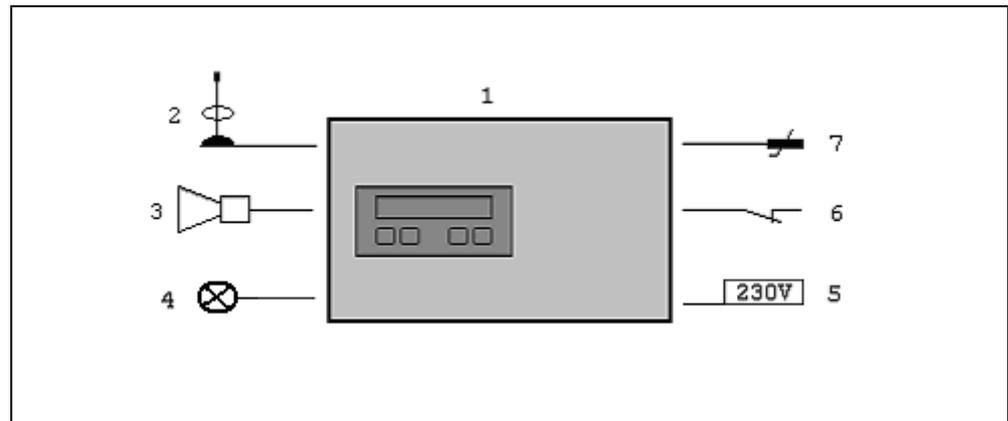


Chart 1: System Scheme

- | | |
|------------------------|--------------------------|
| 1 GSM alarm device | 5 Mains connection |
| 2 Mobile phone antenna | 6 Alarm contacts |
| 3 Alarm siren *) | 7 Temperature sensors *) |
| 4 Flash lamp *) | |

*) = The availability of certain functions depends on whether the marked components are part of the purchased alarm system.

3.3 System Setup

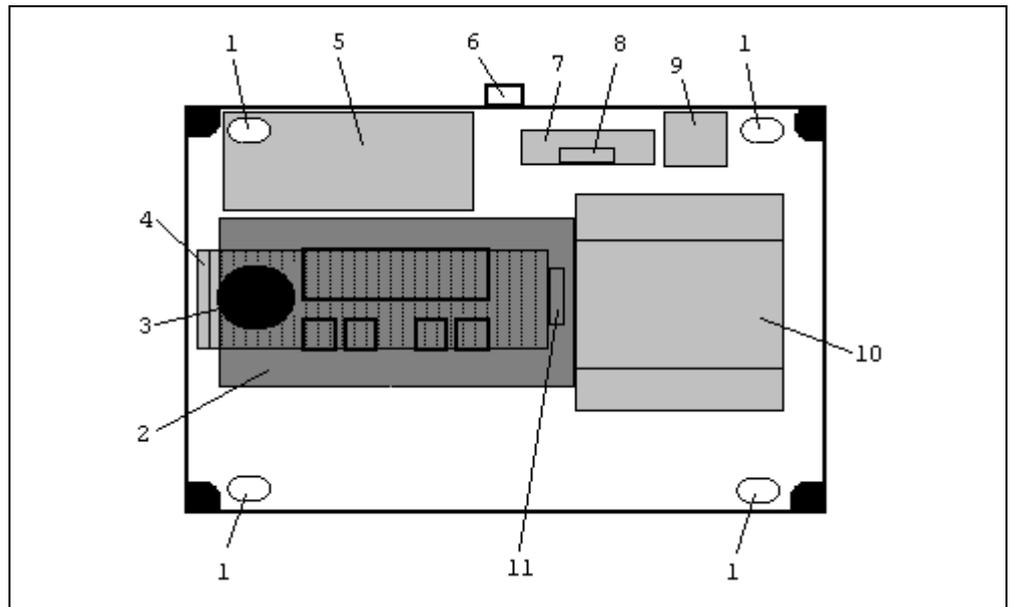


Chart 2: System Setup

- | | | | |
|---|---------------------------------|----|--------------|
| 1 | Mounting hole | 7 | GSM modem |
| 2 | Control unit | 8 | SIM card |
| 3 | CPU battery *) | 9 | Relay |
| 4 | Connecting terminal plate | 10 | power supply |
| 5 | Back-up battery/Mains adapter | 11 | cover switch |
| 6 | Connecting mobile phone antenna | | |

*) = The availability of certain functions depends on whether the marked components are part of the purchased alarm system.

3.4 SIM Card



Chart 3: SIM Card

In order to launch telephone calls and send SMS messages, an active SIM card needs to be inserted into the GSM modem.

The SIM card is not provided with the alarm device, it needs to be procured from a point of sale of a mobile phone service provider.

The Client should decide whether he/she procures mobile services based on a prepaid card or on a contractual basis.

In case of a prepaid card, the service provider may suspend the services (in and outbound calls, SMS messages) if they are not regularly used. In addition, a prepaid card would ensure the use of the mobile service only for limited amount of money and time frame. If the balance available on the prepaid card is insufficient or the time frame within which the service is available is exceeded, the service provider may suspend or cancel the service, thus calls and SMS messages are disabled.

Due to the above reasons, in order to ensure continuous operation of the alarm system, we propose the use of a contract based mobile service exclusively.

4 Operation

4.1 Control Unit

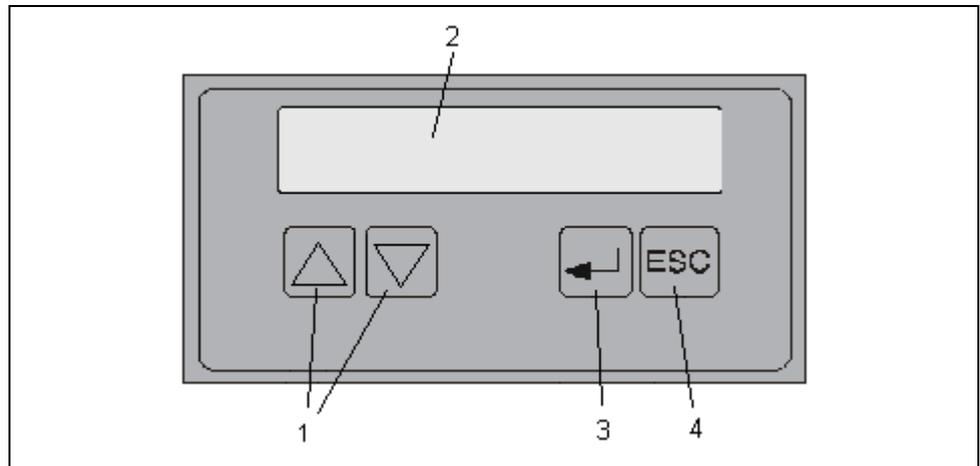


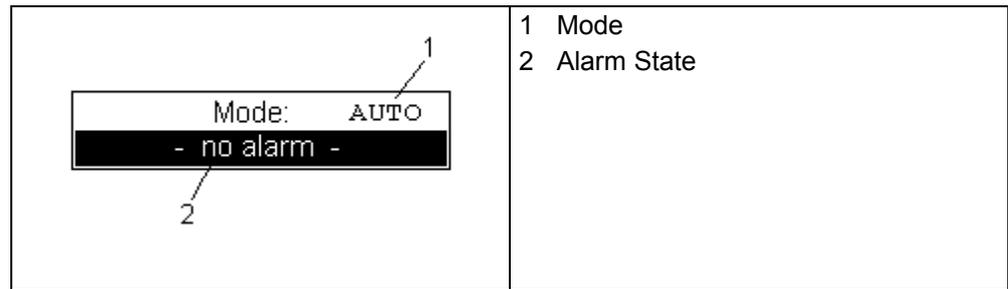
Chart 4: Control Unit Setup

- | | |
|---|------------------------------------|
| 1 Buttons enabling upward/downward movement (Up/Down buttons) | 3 ENTER button (Confirmation) |
| 2 Display | 4 ESC button (Cancel, change view) |

4.2 Views / Entering Parameters

The display is capable of indicating two views. Navigating between the views is possible via using the “ESC button”.

4.2.1 Main View



1. Changing Modes

The edit/change mode function can be activated by using the “ENTER button” (indicated by displaying the mode with a dark background).

When the system is set to edit mode, the “Up/Down buttons” can be used to alter the applied mode.

The edit mode function can be stopped if the changed mode is confirmed through pressing the “ENTER button”.

The edit mode function can be exited by pressing the “ESC button” as well (in this case the indicated mode will not be selected, nor confirmed).

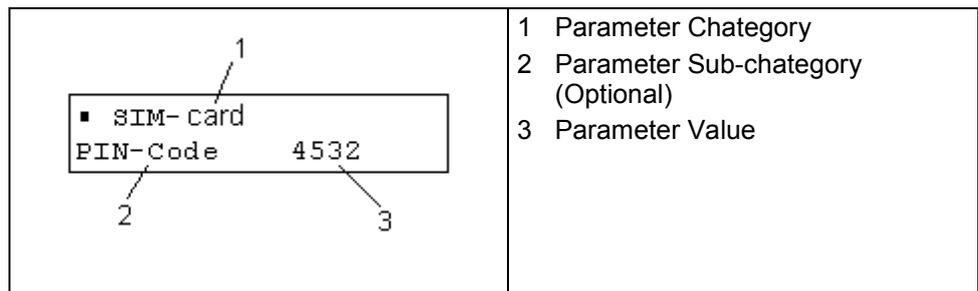
2. Alarm State Indication

The alarm state demonstrates the actual state of the alarm.

If the device detects an alarm situation, the alarm state part of the display will indicate the previously entered alarm text in a flashing manner.

If the alarm is accepted (for further details please see chapter “Alarms”), the alarm text will stop flashing, instead, it will be shown permanently.

4.2.2 Setting View



The Setting View enables the choice between parameters by using the “Up/Down buttons”.

Each parameter consists of a parameter category, a sub-category (not necessarily) and a parameter value.

Note: some parameters cannot be changed as they are purely indicating parameters.

4.2.3 Standard Parameters

In order to change the value of a parameter, please choose Edit Mode applying the “ENTER button”, (the value of the parameter appears with a dark background).

When the alarm system is set to Edit Mode, parameters can be changed using the “Up/Down buttons”.

Editing parameters can be quit if the changed parameter value is confirmed by the “ENTER button”.

The editing of parameters can also be stopped by pressing the “ESC button” (in this case, the changed value is not selected, neither confirmed).

4.2.4 Entering Messages / Telephone Numbers

To change a parameter value, please select the cursor mode by means of the “ENTER button” (the position of the cursor will be indicated with a dark background).

Once the system is set to cursor mode, the cursor can be navigated to the wished position (navigation can be followed through the movement of the cursor).

The setting of a parameter starts by pressing the “ENTER button” (to be recognised by the flashing cursor).

If the system is set to edit mode, parameter values can be changed by using the “Up/Down buttons”.

The editing mode can be quit if the value is confirmed with the “ENTER button” (the system is switched back to the cursor mode).

Cursor mode can be quit by pressing the “ESC button”.

Note: telephone numbers can be entered from left to right (using the rule of tending to the left). Any redundant characters (spaces) need to be deleted.

4.3 Modes

Mode	Description
OFF	No alarm function is activated. A possible alarm will not be reported by the system.
AUTO	All alarm functions are activated. In a new alarm situation, the alarm siren goes ON and the system launches the applicable phone calls and SMS messages.
TEST	Manual launch of a test alarm as a result of which the siren goes ON and the system launches the applicable phone calls and SMS messages.

If the alarm device is not set to “AUTO” mode when the device is started, the system will automatically change the mode to “AUTO” (depending on what value was previously given for the “Reactivation” parameter).

4.4 Alarm Status

If a new alarm situation is detected, an alarm text appears flashing in the Main View. Depending on the alarm situation, a previously entered alarm text will be displayed. This alarm text will also be included in the SMS message sent by the device.

Alarm Function	Description
no alarm	Having been set to "AUTO" mode, the system does not detect any alarm situations.
alarm: test	Within the "TEST" mode, a test alarm can be initiated.
alarm: SIM card	<p>In case the device is set to "AUTO" or "TEST" mode, the system is capable of recognising if the SIM card does not properly operate.</p> <p>(e.g. missing SIM card or faulty PIN code)</p> <p>Note: This alarm does not set off the alarm siren, nor does it launch any phone calls or SMS messages!</p> <p>Note: When this alarm is displayed, no alarm function enables the notification through telephone calls and SMS messages.</p>
alarm: prepaid	<p>Having been set to "AUTO" or "TEST" mode, the system will recognise if the cash balance of a prepaid card is insufficient.</p> <p>Note: This alarm can be activated only if the mobile phone service is accessed via a prepaid card.</p> <p>Note: This alarm does not set off the alarm siren, nor does it launch any phone calls or SMS messages!</p> <p>Note: The initiation of telephone calls or SMS messages is not ensured in all of the alarm functions as the cash balance available on the prepaid card is not sufficient for all mobile services.</p>
alarm: GSM network	<p>In case the alarm system is set to "AUTO" or "TEST" mode, an inadequate mobile service signal will be detected.</p> <p>Note: This alarm does not set off the alarm siren, nor does it launch any phone calls or SMS messages!</p> <p>Note: The initiation of telephone calls or SMS messages is not ensured in all of the alarm functions if the signal of the mobile service is insufficient.</p>
alarm: CPU battery	<p>If the alarm system is set to "AUTO" mode, the device recognises if the battery of the control unit (button cell) is improperly charged and displays the indicated alarm.</p> <p>Note: This alarm does not set off the alarm siren, nor does it launch any phone calls or SMS messages!</p> <p>*)</p>

Alarm Function	Description
alarm: battery interval	<p>The alarm device demonstrates if the battery needs to be replaced.</p> <p>If the alarm system is set to "AUTO" or "TEST" mode, this alarm is displayed after 3 years of operation.</p> <p>Note: This alarm does not set off the alarm siren, nor does it launch any phone calls or SMS messages!</p> <p>Note: In order to ensure the continuous operation of all alarm functions, the battery needs to be replaced as soon as possible!</p>
alarm: battery failure	<p>The alarm system checks if battery charge is adequately functioning.</p> <p>Having been set to "AUTO" or "TEST" mode, the device recognises if the battery is improperly charged and displays the indicated alarm.</p> <p>Note: This alarm does not set off the alarm siren, nor does it launch any phone calls or SMS messages!</p> <p>Note: In order to ensure the continuous operation of all alarm functions, the battery needs to be replaced as soon as possible!</p>
alarm: power failure	In case the device is set to "AUTO" mode, any 230V power failure is detected.
alarm: Contact 1	<p>If the alarm system is set to "AUTO" mode, the alarm indicates that the applicable alarm contact is activated.</p> <p>Note: The alarm text to be displayed can be entered by the operator in the Setting View!</p> <p>*)</p>
alarm: Contact 2	
alarm: Contact 3	
alarm: Contact 4	
alarm: Contact 5	
alarm: Contact 6	
alarm: Contact 7	
alarm: Temperature 1	<p>If "AUTO" mode is selected, the applicable temperature sensor is activated.</p> <p>Note: The alarm text to be displayed can be entered by the operator in the Setting View!</p> <p>*)</p>
alarm: Temperature 2	
sensor: Temperature 1	<p>Having been set to "AUTO" mode, the alarm system detects if the temperature sensor is out of order.</p> <p>Note: The alarm text to be displayed can be entered by the operator in the Setting View!</p> <p>*)</p>
sensor: Temperature 2	
Voice buffering active	Upon creating a verbal alarm text, the device needs up to 40 sec to save the recorded message. Other alarm functions of the system are not available during this time.

*) = Marked alarms are available depending on the number of components belonging to the alarm system.

4.5 Parameter Setting

Parameters can be set or modified within the Setting View.

Parameter	Description
<ul style="list-style-type: none"> ▪ alarm power failure activation ON 	<p>An alarm is created in case the 230V power supply encounters a failure.</p> <p>If the parameter is set to "OFF", no alarm signal will be produced.</p>
<ul style="list-style-type: none"> ▪ alarm Contact 1 activation ON 	<p>The possibility to activate an alarm.</p> <p>If the parameter is set to "OFF", no alarm signal will be produced.</p> <p>Note: The alarm text to be displayed can be set within a different parameter!</p> <p>Note: To record a verbal message, please select an alarm and press the "ENTER button".</p> <p>*)</p>
<ul style="list-style-type: none"> ▪ alarm Contact 2 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Contact 3 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Contact 4 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Contact 5 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Contact 6 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Contact 7 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Temperature 1 activation ON 	
<ul style="list-style-type: none"> ▪ alarm Temperature 2 activation ON 	
<ul style="list-style-type: none"> ▪ reactivation automatic 24 hou 	

Parameter	Description
<ul style="list-style-type: none"> ▪ temp. Temperature 1 current value 22 °C 	<p>Temperature measured by the first temperature sensor.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ temp. Temperature 1 offset -2 °C 	<p>Manipulation of the displayed temperature value.</p> <p>Any measurement inaccuracies of the temperature sensor or wiring (length of the wiring) can be corrected.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ temp. Temperature 1 MIN alarm 15 °C 	<p>If the actual temperature falls below a given minimum value, an alarm is triggered.</p> <p style="text-align: center;">alarm: Temperature 1</p> <p>Setting the parameter to "OFF", the alarm regarding a temperature falling below the given minimum value will result in no alarm signal.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ temp. Temperature 1 MAX alarm 35 °C 	<p>If the actual temperature rises above a given maximum value, an alarm is triggered.</p> <p style="text-align: center;">alarm: Temperature 1</p> <p>Setting the parameter to "OFF", the alarm regarding a temperature rising above the given maximum value will result in no alarm signal.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ temp. Temperature 2 current value 15 °C 	<p>Temperature measured by the second temperature sensor.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ temp. Temperature 2 offset 0 °C 	<p>Manipulation of the displayed temperature value.</p> <p>Any measurement inaccuracies of the temperature sensor or wiring (length of the wiring) can be corrected.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>

Parameter	Description
<ul style="list-style-type: none"> ▪ temp. Temperature 2 MIN alarm 15 °C 	<p>If the actual temperature falls below a given minimum value, an alarm is triggered.</p> <p style="text-align: center;">alarm: Temperature 2</p> <p>Setting the parameter to "OFF", the alarm regarding a temperature falling below the given minimum value will result in no alarm signal.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ temp. Temperature 2 MAX alarm 35 °C 	<p>If the actual temperature rises above a given maximum value, an alarm is triggered.</p> <p style="text-align: center;">alarm: Temperature 2</p> <p>Setting the parameter to "OFF", the alarm regarding a temperature rising above the given maximum value will result in no alarm signal.</p> <p>Note: The alarm text to be displayed can be set within a different parameter! *)</p>
<ul style="list-style-type: none"> ▪ alarmtext contact 1 alarm: Contact 1 	<p>Entering an alarm text to be displayed upon the occurrence of an alarm situation at a particular contact.</p> <p>This alarm text will also be included in SMS messages to be sent by the system. *)</p>
<ul style="list-style-type: none"> ▪ alarmtext contact 2 alarm: Contact 2 	
<ul style="list-style-type: none"> ▪ alarmtext contact 3 alarm: Contact 3 	
<ul style="list-style-type: none"> ▪ alarmtext contact 4 alarm: Contact 4 	
<ul style="list-style-type: none"> ▪ alarmtext contact 5 alarm: Contact 5 	
<ul style="list-style-type: none"> ▪ alarmtext contact 6 alarm: Contact 6 	
<ul style="list-style-type: none"> ▪ alarmtext contact 7 alarm: Contact 7 	
<ul style="list-style-type: none"> ▪ alarmtext temperature 1 alarm: Temperature 1 	<p>Entering an alarm text to be displayed upon the occurrence of temperature change at a particular temperature sensor.</p> <p>This alarm text will also be included in SMS messages to be sent by the system. *)</p>
<ul style="list-style-type: none"> ▪ alarmtext temperature 2 alarm: Temperature 2 	
<ul style="list-style-type: none"> ▪ alarm delay 0 sec 	Time elapsed between the occurrence of an alarm situation and an alarm.
<ul style="list-style-type: none"> ▪ horn delay 0 min 	Setting the time to elapse between the occurrence of a new alarm situation and an alarm notification by the horn (alarm siren).

Parameter	Description
▪ 1.call / 1.SMS delay 0 min	Setting the time to elapse between the occurrence of a new alarm situation and an alarm notification (telephone call and SMS message). Setting the parameter to "OFF" results in no telephone calls and SMS messages. Note: Simultaneous initiation of a number of phone calls and SMS messages is not possible. Consequently, the time to elapse between an alarm situation and an alarm notification sent to various recipients should be set to different values.
▪ 2.call / 2.SMS delay 2 min	
▪ 3.call / 3.SMS delay 4 min	
▪ 4.call / 4.SMS delay 6 min	
▪ call / SMS repetition 10 min	Repetition of a telephone call and SMS message. The first alarm notification is initiated at the occurrence of the alarm situation. The time to elapse until the repetition of an alarm notification is to be set higher than the values given for the alarm notification delays in order to enable the initiation of all telephone calls and SMS messages. Setting the parameter to "OFF" results in no telephone calls and SMS messages. Note: An alarm notification is repeated maximum 5 times.
▪ phone nb. 1.call 02521950234	Entering telephone numbers for the initiation of telephone calls and SMS messages.
▪ phone nb. 1.SMS 01609030404	The telephone number should be entered from left to right. Unused characters (spaces) should be deleted.
▪ phone nb. 2.call +4325821415	Entering 000... will not result in the initiation of any SMS messages and telephone calls.
▪ phone nb. 2.SMS 0000000000000000	Note: In case of entering foreign telephone numbers, the country code should be indicated using the "+" sign (e.g. "+49" for Germany). The telephone numbers on the left were given for illustration purposes.
▪ phone nb. 3.call 0000000000000000	
▪ phone nb. 3.SMS 0000000000000000	
▪ phone nb. 4.call 0000000000000000	
▪ phone nb. 4.SMS 0000000000000000	

Parameter	Description
<ul style="list-style-type: none"> ▪ SIM card PIN code 1234 	<p>Setting the 4 character PIN code of the SIM card.</p> <p>Note: The used PIN number must be between 1..9999. If the PIN code request of the SIM card disabled, you have entry 0 as PIN number.</p> <p>Note: In case of entering a faulty PIN code three times, the SIM card will be locked.</p>
<ul style="list-style-type: none"> ▪ GSM network signal strength 72 % 	<p>Signal strength of the available mobile phone service (0-100%).</p> <p>A displayed value of 1% indicates that the modem encountered a failure.</p> <p>Note: In order to ensure proper operation, signal strength must reach at least 28%.</p>
<ul style="list-style-type: none"> ▪ prepaid credit 5,20 EUR 	<p>Having been set to "AUTO" or "TEST" mode, the parameter shows the credit available on the prepaid card.</p> <p>Note: This parameter is indicated only if the alarm system operates with a prepaid mobile phone card.</p>
<ul style="list-style-type: none"> ▪ date / time 12.05.2012 16:43:57 	<p>Display and setting the date and time.</p> <p>Note: After a power failure of the control unit the date and time has to review and readjust if necessary.</p>
<ul style="list-style-type: none"> ▪ battery age months 21 	<p>Parameter showing battery age.</p> <p>After 36 months (i.e. 3 years), the following alarm appears</p> <p style="text-align: center;"><i>alarm: battery interval</i></p> <p>and the parameter will be set back by itself.</p> <p>Note: The alarm will be automatically deleted after replacing the battery.</p>
<ul style="list-style-type: none"> ▪ diagnosis AT+CSQ:14,0**OK* 	<p>Error message of the internal control unit.</p> <p>The displayed value facilitates the identification of the error which can be eliminated by the manufacturer only.</p>

*) = Marked parameters can be set depending on the number of components belonging to the alarm system.

4.6 Recording Verbal Messages

The device is capable of sending verbal messages when initiating phone calls. A separate message can be set to each alarm.

Therefore, a verbal message recording unit is available for each of the below listed alarms:

1. alarm: power failure
2. alarm: Contact 1
3. alarm: Contact 2
4. alarm: Contact 3
5. alarm: Contact 4 *)
6. alarm: Contact 5 *)
7. alarm: Contact 6 *)
8. alarm: Contact 7 *)
9. alarm: Temperature 1 *)
10. alarm: Temperature 2 *)

*) = Marked alarms are available based on the number of components belonging to the alarm system.

Verbal message recording can be activated as follows:

Using the “Up/Down buttons“ to navigate within the Setting View, please choose the alarm to which a verbal message should be recorded, e.g. the following parameter:

▪ alarm **Contact 1**
activation ON

- Call the modem from a telephone.
- As soon as you hear the tone mode, you can start recording a verbal message by pressing the “ENTER button“.
- Please tell your verbal message into the telephone. This message will be recorded by the alarm device.

Note: The verbal message can be no longer than 7 sec per alarm.

- Recording of the verbal message stops automatically after 7 sec or when the telephone call is ended.

Note: When the verbal message is being recorded, the display is not available for other settings.

Note: In case the device is successfully recording the verbal message a “Voice buffering active” signal will be displayed for approximately 40 sec. The device is saving the recorded message during this time interval and thus no other functions are available.

5 Alarms

Automatic alarms can be activated exclusively in the “AUTO” mode.

If the device is set to “TEST” mode, alarms can be initiated manually only.

5.1 New Alarm

- If the time interval previously set for the alarm to be launched following an alarm situation has elapsed, the alarm situation appears flashing in the Main View
 - *alarm*
delay *X sec*
- The alarm siren goes ON
 - Subsequent to an alarm, the siren produces a continuous signal for 15 minutes while afterwards it makes a sound once a minute.
- Delay time
 - *X. call / X. SMS*
delay *X min*
- The alarm system initiates telephone calls
 - *phone no. X.call*

If the recipient picks the telephone up, the verbal message belonging to the alarm is played.

- The device sends the alarm text in an SMS
 - *phone no. X.SMS*

The alarm system can notify up to 4 persons (recipients) about the alarm situation. The device prepares the alarm notifications for these persons simultaneously.

Due to the above reasons is it necessary to set delay times, telephone numbers for the calls and SMS messages separately for each recipient.

Setting a value for the “Call/SMS repetition” parameter, the repeated initiation of telephone calls and SMS messages is activated.

Note: Automatic repetition stops after a maximum of 5 notifications.

Note: Telephone calls and SMS messages are initiated only if the entered telephone numbers are valid and delay times are properly set!

Note: Verbal messages are sent only if they have been previously recorded.

Note: When a mobile phone receives an SMS message, the phone is unable to accept incoming calls. Therefore, if the alarm device is set to initiate both a telephone call and SMS message to the same recipient, the system will make the call first and send the SMS message afterwards (in order to avoid the possibility of non-receipted calls). The alarm system will automatically follow this order when the delay time of a call and an SMS message is set to the same value for the same recipient as well as when the delay time of the call is set to a lower value than in the case of the SMS.

Note: The alarms listed below do not require the prompt action of the recipients. Consequently, these alarms do not result in telephone calls and SMS messages. Instead of the siren, the flash lamp starts to operate.

1. alarm: SIM card
2. alarm: prepaid
3. alarm: GSM network
4. alarm: battery interval
5. alarm: battery failure

5.2 Alarm Confirmation

There are three options to confirm/stop an alarm:

- pressing the “ENTER button” in the Main View
- sending an (empty) SMS to the alarm system
- calling the alarm device through a telephone.

If the alarm is confirmed/stopped, the system produces the following signals:

- the alarm text appears continuously in the Main View
- the alarm siren is switched off
- the flash lamp gives a continuous light
- telephone calls and SMS messages that have not yet been initiated will not be made or sent.

Note: Alarm confirmation via a call or SMS message is possible only if the alarm device can recognise the initiator (i.e. the telephone number of the caller or SMS sender has been previously set as a parameter). In addition, the incoming call should not be suspended or ended.

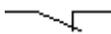
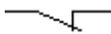
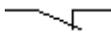
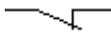
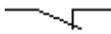
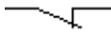
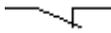
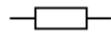
Note: An alarm can be confirmed via a phone call only if the modem included in the alarm device can receive the call (i.e. there is a free tone signal). If the modem is unable to receive the call (i.e. there is a busy line signal or the voice mail begins to record), the call is not accepted and the alarm is not confirmed.

5.3 Ended Alarm

As soon as an alarm situation becomes inactive, the alarm is ended/deleted as follows:

- the alarm text displayed in the Main View is deleted
- the alarm siren stops giving a signal
- the flash lamp stops operation
- outstanding calls and SMS messages are not initiated by the system.

6 Connections

Component	Connection	Number
		PE
Supply 230 V, 50 Hz built-in protection: max. 16 A	L1	1
	N	2
	PE	PE
Alarm siren 12V-DC, max. 1A	+	3
	-	4
Flash lamp 12V-DC, max. 1A	+	5
	-	6
		PE
Alarm contact 1 	+	11
		12
Alarm contact 2 	+	13
		14
Alarm contact 3 	+	15
	Signal	16
Alarm contact 4 *) 	+	17
	Signal	18
Alarm contact 5 *) 	+	19
	Signal	20
Alarm contact 6 *) 	+	21
	Signal	22
Alarm contact 7 *) 	+	23
	Signal	24
Temperature sensor 1 *) 	Signal	31
	Signal	32
Temperature sensor 2 *) 	Signal	33
	Signal	34
		PE

*) = Marked alarm contacts are available depending on the number of components belonging to the alarm device.

Note: All alarm contacts are equipped with insulated electrical connections.

Note: Unused alarm contacts and temperature sensors are to be kept in an electric bridge.

7 Starting Operation

Check the proper operation of the SIM card in a mobile phone before inserting it into the alarm device. Upon entering the 4 digit PIN code (setting a PIN code is optional), please check if the SIM card is active. Also check if phone call and SMS message functions are adequately operating.

Note: When using a prepaid card, you might be requested to activate a balance account which can be carried out by using the mobile phone. To create an account you might need a secret number. Only after successfully activating the account will you be able to check your credit. Upon asking your credit, make sure you have received the answer.

- Make sure the alarm system is installed and the electric connections are made in accordance with the instructions included in the user manual.
- Insert the prepared SIM card into the modem.

Note: The SIM card is not an accessory/component of the alarm device. You can procure it at a point of sale of a mobile phone service provider.

- Connect the mobile network antenna to the modem.
- Close the cover of the alarm device.
- Connect the device to the mains.
- Now the display screen starts to light.
- Set the mode to "OFF" in the Main View or if it is already set to "OFF" leave it that way.
- Set the parameters regarding PIN code, telephone numbers and other parameters in the Setting View.

Note: if the PIN code is incorrectly entered for three times, the SIM card will be locked.

- Based on the value of the available mobile signal strength indicated in the Main View, set the mobile network antenna to the proper position.

▪ *GSM network*
signal strength X %

Note: For an adequate operation, signal strength must reach at least 28%.

- Check the values indicated by the temperature sensors. Compare the indicated values to the values measured by a thermometer and by means of the below parameters

▪ *temp. Temperature 1 / 2*
offset X °C

set the actual temperature values. *)

- Set the mode to “AUTO“ in the Main View.
Now the alarm system is being activated. After activation (circa 80 sec), the device starts to operate.
At this moment, the display screen should not indicate any errors.
- Create a verbal message to every possible alarm situation (including power failure).
- Check the proper operation of the alarm device by starting each connected alarm contact and temperature sensor one after the other.
- Check if the alarms are created in the manner described in the User Manual.

*) Marked settings can be performed depending on the number of components belonging to the alarm device.

8 Maintenance

8.1 Daily

- Checking the alarm texts appearing on the display screen of the alarm device.
- Checking the proper operation (alarm confirmation, sending notifications, signaling) of the alarm system by starting the test function.

Please check if the alarms operate in the manner described in the User Manual.

Note: Outstanding alarms should be deleted immediately.

Note: A faulty device should be repaired without any delay.

8.2 Every Three Years

- The battery should be replaced once in three years.

Note: After four years the alarm device will automatically indicate that the battery needs to be replaced by displaying "alarm: battery interval".

Note: For replacement purposes, please use only original batteries!

9 Technical Data

Sizes		
Width	mm	255
Height	mm	180
Depth	mm	110
Weight	kg	2,6

Environmental Conditions		
Storage temperature	°C	-10 ... 50
Operating temperature	°C	0 ... 35

Electric Connections		
Voltage	V, Hz	100 ... 240, 50 ... 60
Current	A	0,2
Maximum built-in protection	A	16
Control unit voltage	V DC	12
Insulation	-	IP54

Battery		
Type		Lead-acid battery
Lifetime		3 years

GSM Modem		
Type		Four-lane
Frequency	MHz	850, 900, 1.800, 1.900
Transmission capacity		
- 850 / 900 MHz	W	2
- 1.800 / 1.900 MHz	W	1

Electric Connections		
Number of alarm contacts (insulated) *)	pc	Max. 7
Temperature sensors *)		
Number	pc	Max. 2
Measurement range	°C	-40 ... +140
output alarm siren		12V DC, ± 20 % max. 1 A
output flash lamp		12V DC, ± 20 % max. 1 A

*) = The number of marked connections depends on the number of components belonging to the alarm device.

10 Spare parts



Chart 5: Lead accumulator 12V/1.2Ah (backup battery)

Lead accumulator 12V/1.2Ah (backup battery)	Type	60-43-4971
character		lead accumulator
dimensions (WxHxD)	mm	97 x 48 x 54
weight	g	600
voltage	V DC	12
capacity	Ah	1,2

CPU-battery *)	Type	60-43-4972
character		litium coin cell
dimensions	mm	24,5 x 7,7
weight	g	10
voltage	V DC	3
capacity	mAh	950

Relay	Type	60-43-4973
character		changeover relay
dimensions (WxHxD)	mm	28 x 28 x 25
weight	g	35
voltage	V DC	12
switch current	A	30

Recifier	Type	60-43-4974
character		semiconductor diode
housing		P600
weight	g	3
voltage	V DC	100
current	A	6

*) = The availability of certain functions depends on whether the marked components are part of the purchased alarm system.

Cover switch	Type	60-43-4975
character		micro swich
dimensions (WxHxD)	mm	20 x 10 x 6,5
weight	g	3
switch current	A	10

Power supply	Type	60-43-4976
character		switching power supply
dimensions (WxHxD)	mm	78 x 93 x 56
weight	g	265
voltage	V DC	15
current	A	2

Control unit	Type	60-43-4977
character		microprocessor controller
dimensions (WxHxD)	mm	135 x 65 x 32
weight	g	135
voltage	V DC	12

clock/battery board *)	Type	60-43-4978
character		semiconductor board
dimensions (WxHxD)	mm	135 x 65 x 18
weight	g	55

GSM modem	Type	60-43-4979
character		mobile telephony modem
dimensions (WxHxD)	mm	52 x 23 x 68
weight	g	
frequency		850, 900, 1.800, 1.900
transmission capacity		65
- 850 / 900 MHz	W	2
- 1.800 / 1.900 MHz	W	1

keypad *)	Type	60-43-4980
character		keyboard
dimensions (WxHxD)	mm	250 x 180 x 0,9
colour		grey/black
weight	g	55
keys		4

*) = The availability of certain functions depends on whether the marked components are part of the purchased alarm system.



Chart 6: Antenna

GSM-antenna for alarm unit AC108	Type	60-43-4981
Cord length	m	5
Insulation	-	IP54
Connection	-	FME connection

Warning horn with warning light 12V/100mA	Type	60-48-3852
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11 EC-Declaration of Conformity



We herewith confirm that the listed product is in compliance with the council directives of the European Community and is marked with the CE marking.

The safety and installation requirements of the product documentation must be observed.

Manufacturer: enacon, Everkekamp 11, D-59269 Beckum, Germany

Device: GSM-Alarmgerät

Type: AC 108 (gsm-al-1)

Directive: EMC directive 2004/108/EG

Low voltage directive 2006/95/EG

European Standard: RF spectr. efficiency EN 301 511: v9.0.2

EMV EN 301 489-1: v1.8.1

EMV EN 301 489-7: v1.3.1

Safety & Health EN 60950-1: 2006 + A11: 2009

Safety & Health EN 62311: 2008

Beckum, 12. Dezember 2011

A handwritten signature in blue ink, appearing to be 'AK' or similar initials, written in a cursive style.

Andreas Kulke, enacon