



eldes

ESIM022
GSM DIALLER

SAFETY INSTRUCTIONS

Please read and follow these safety guidelines to safeguard yourself and others:

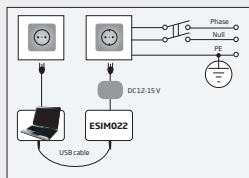
- GSM dialler ESIM022 (later referred to as “the system” or “the device”) contains a built-in radio transceiver operating in GSM 900/1800 MHz bands.
- DO NOT use the system where it can cause potential danger and interfere with other devices - such as medical devices.
- DO NOT use the system in hazardous environment.
- DO NOT expose the system to high humidity, chemical environment or mechanical impact.
- DO NOT attempt to repair the system yourself - any repairs must be carried out by fully qualified personnel only.



Please, use the 12-15 V $\overline{\text{---}}$ 300 mA DC power supply unit that meets the EN 60950-1 standard. Any additional device you connect to the system, such as a computer, must also be powered by an EN 60950-1 approved supply. When connecting the power supply to the system, mind the polarity terminals. DO NOT switch the polarity terminals places.



External power supply must be reachable and can be connected to AC mains only inside installation room with automatic 2-pole circuit breaker capable of disconnecting circuit in the event of short circuit or over-current condition. Open circuit breaker must have a gap between connections of more than 3 mm and the disconnection current 5 A.



Disconnect the mains power before installing. Never install or carry out maintenance during stormy weather. The electric socket that powers the system must be easily accessible. In case of power cut, the system is powered by a back-up battery (if any).



WARNING: Only use the approved 8.4V 250mAh rechargeable Ni-Mh 6HR61 (IEC)/7.2H5 (ANSI/NEDA) back-up battery with the system to avoid fire or explosion. Take care when connecting positive and negative battery terminals.



To switch the system off, unplug the external electric power supply, disconnect the back-up battery or any other linked device that the system is powered from. A blown fuse cannot be replaced by the user. The replacement fuse has to be of the kind indicated by the manufacturer (Fuse F1 model - miniSMDC 0,5A).



If you use a computer for the device configuration, it must earthed.



The WEEE (Waste Electrical and Electronic Equipment) marking on this product (see right) or its documentation indicates that the product must not be disposed of together with household waste. To prevent possible harm to human health and/or the environment, the product must be disposed of in an approved and environmentally safe recycling process. For further information on how to dispose of this product correctly, contact the system supplier, or the local authority responsible for waste disposal in your area.

Contents

1. GENERAL INFORMATION	7
2. TECHNICAL SPECIFICATIONS	8
2.1. Electrical & Mechanical Characteristics	8
2.2. Wiring Diagrams	10
3. INSTALLATION	11
4. GENERAL OPERATION DESCRIPTION	13
5. CONFIGURATION METHODS	14
5.1. SMS Text Messages	14
5.2. ELDES Configuration Tool	14
6. USER PHONE NUMBERS	14
7. DATE AND TIME	16
8. INPUTS	17
8.1. Input Z1	17
8.2. Input Z2	18
9. TAMPER	24
10. ALARM/RESTORE NOTIFICATIONS	25
11. OUTPUT	31
11.1. Output Name	31
11.2. Turning Output ON and OFF	32
12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING	33
13. SYSTEM INFORMATION. STATUS SMS	37
13.1. Periodic Status SMS	38
14. SYSTEM NOTIFICATIONS	39
15. ON-BOARD TEMPERATURE SENSOR	43
16. REMOTE LISTENING	44
17. TECHNICAL SUPPORT	46
17.1. Troubleshooting	46
17.2. Restoring Default Parameters	46
17.3. Updating the Firmware via USB Cable	47
18. RELATED PRODUCTS	48

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Limited Liability

The buyer agrees that the system will reduce the risk of fire, theft, burglary or other danger but that it does not guarantee against the occurrence of such events.

"ELDES UAB" will not take any responsibility for the loss of personal effects, property or revenue whilst using the system. The liability of "ELDES UAB" is limited to the value of the system purchased.

"ELDES UAB" is not affiliated with any mobile/wireless/cellular provider and is therefore not responsible for the quality of such services.

Manufacturer Warranty

The system carries a 24-month manufacturer warranty from "ELDES UAB".

The warranty begins the day the system is purchased by the user and the receipt must be retained as proof of purchase date. The warranty remains valid only if the system is used as intended, following all guidelines outlined in this manual and in accordance with the operating conditions specified.

The warranty is void if the system has been exposed to mechanical impact, chemicals, high humidity, fluids, corrosive and hazardous environments or force majeure factors.

Dear Customer,

Thank you for choosing to purchase the GSM dialler ESIM022. Your thoughtful decision will ensure reliable solution for many years as all ELDES products are manufactured to meet the highest standards.

We are confident that you will be completely satisfied with your product. However, in the unlikely event that you do experience a problem, please contact the dealer from whom you made your purchase.

UAB ELDES
www.eldes.lt

Contents of Pack

Item	Quantity
1. ESIM022	1
2. User manual.....	1

Not included:

- SIM card - we recommend you get a contract SIM, not Pay As You Go.
- Back-up battery - can be obtained from your local distributor.
- miniUSB cable - can be obtained from your local distributor.
- Temperature sensor - can be obtained from your local distributor.
- Microphone - can be obtained from your local distributor

1. GENERAL INFORMATION

ESIM022 is a micro-controller based device intended to receive alarm/restore events by SMS text message or phone call and control an electrical appliance via the GSM network.

Examples of using the system:

- Notification of system events, such as arming/disarming, alarm/restore from non-GSM alarm system.
- Non-GSM alarm system arming/disarming by SMS text message.
- Any electrical appliance control: lighting, watering, heating etc.
- Remote reboot of the “frozen” systems, such as computer network or a server.
- Notification of failure or restoration of an electronic device by SMS text message or phone call.

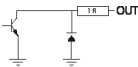
Main features:

- Configuration by SMS text message and PC.
- Up to 2 users for system configuration, control and acceptance of system event notifications by SMS text messages or phone calls.
- 2 inputs customizable as NC or NO.
- Input Z1 mode: digital.
- Input Z2 modes: digital or temperature sensor for 1 external temperature sensor connection.
- 1 open-collector output for electrical appliance control or non-GSM alarm system arming/disarming (keyswitch).
- Tamper switch for system sabotage detection.
- Optional back-up battery to maintain the power for up to 12 hours and notify the user regarding mains power loss and restore.
- Periodic self-test notification by SMS text message to user phone number.
- Customizable notification texts.

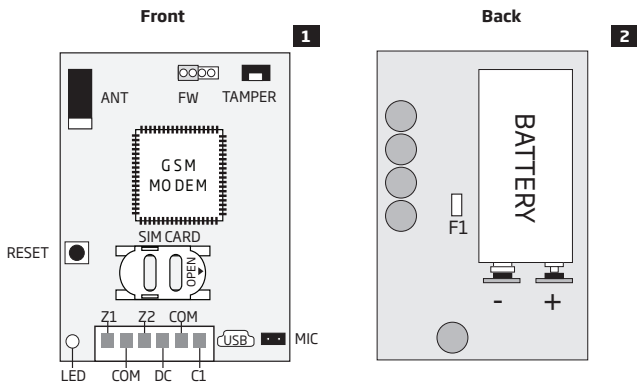
2. TECHNICAL SPECIFICATIONS

2.1. Electrical & Mechanical Characteristics

Supply voltage.....	12-15 V $\bar{\square}$ 300 mA max
Average current used in idle state	16 mA
Supported back-up battery (optional)	8.4V 250mAh rechargeable Ni-Mh 6HR61 (IEC)/7.2H5 (ANSI/NEDA)
GSM modem frequency.....	900/1800 MHz
Number of outputs	1
Output circuit.....	Open collector output. Output is pulled to COM when turned ON.
Maximum commuting output values	30 V $\bar{\square}$ 200 mA
Number of inputs.....	2
Supported temperature sensor model.....	Maxim®/Dallas® DS18S20, DS18B20
PCB dimensions	71x50x27 mm
Enclosure dimensions	96x59x34 mm
Operating temperature range.....	-30...+55 °C (-35...+55 °C with limitations)
Humidity	0-90% RH @ 0... +40 °C (non-condensing)



2.2. Main Unit, LED Indicator & Connector Functionality



Main Unit Functionality

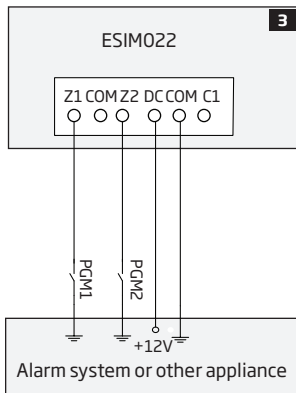
ANT	GSM antenna
FW	Pins for firmware update
TAMPER	Tamper switch
GSM MODEM	GSM network 900/1800 MHz modem
RESET	Button for restoring default settings
SIM CARD	SIM card slot / holder
LED	Light-emitting diode indicating system status
USB	Mini USB port
MIC	Microphone connector
-/+	Backup battery slots
F1	0.5A fuse

LED indication	Description
OFF	No power supply
Flashing every 30 ms	SIM card is not present / PIN code enabled
Flashing every 0,5 sec.	Searching for GSM network
Flashing every 1 sec.	Connected to GSM network/system operating successfully

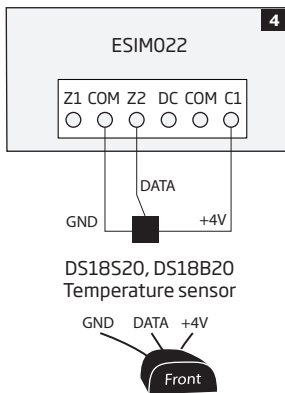
Connerctors	Description
Z1	Digital input terminal
COM	Common terminal
Z2	Digital input terminal/temperature sensor data terminal (DATA)
DC	Positive power supply terminal
C1	Open-collector output terminal/temperature sensor power supply terminal (+4V)

2.2. Wiring Diagrams

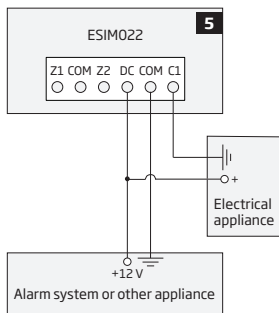
General wiring



Temperature sensor wiring



Output wiring

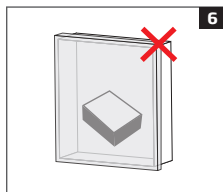


3. INSTALLATION

- The system should be installed indoors, in stationary environment **ONLY**.
- For the connection of input/output terminals, use 0.50 mm² thread unshielded cable of up to 100 meters length.

1. Wire up the system in accordance with the wiring diagrams (see **2.3 Wiring Diagrams** for more details).

2. When placing the system, follow the recommendations:



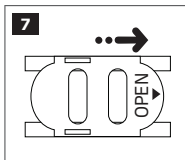
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Never install in the following locations:

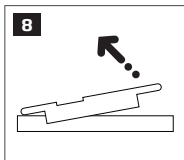
- inside the metal cabinet
- closer than 20 cm to the metal surface and/or power lines

3. Disable the PIN code request of the SIM card by inserting it into a mobile phone and following the proper menu steps.

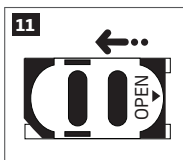
4. Once the PIN code is disabled, insert the SIM card into the SIM card slot / holder of ESIM022 system.



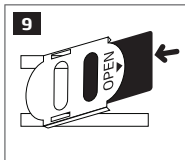
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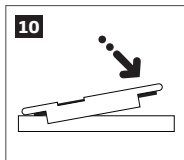
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5. If you have obtained a back-up battery with your system, insert it into the battery slots. Take care when connecting positive and negative battery terminals.

6. Power up the system and wait until the LED indicator lights up indicating system status. Wait until the LED indicator starts flashing every 1 second indicating successful connection to GSM

network and system operation (see **2.2. Main Unit, LED Indicator & Connector Functionality** for more details).

7. Set the phone number for User 1.
8. Set system date and time.
9. Once the system is fully configured, it is ready for use.

ATTENTION: The system is NOT compatible with pure 3G SIM cards. Only 2G/GSM SIM cards and 3G SIM cards with 2G/GSM profile enabled are supported. For more details, please contact your GSM operator.

ATTENTION: We also recommend you to disable **call forwarding, voice mail/text message reports on missed/busy calls** and similar services that might cause incorrect system operation. Please contact your GSM operator for more details on these services and how to disable them.

NOTE: For maximum system reliability we recommend you do NOT use a Pay As You Go SIM card. Otherwise, in the event of insufficient credit balance on the SIM card, the system would fail to make a phone call or send SMS text messages.

NOTE: We advise you to choose the same GSM SIM provider for your system as for your mobile phone. This will ensure the fastest, most reliable SMS text message delivery service and phone call connection.

NOTE: Even though the installation process of ESIM022 is not too complicated, we still recommend to perform it by a person with basic knowledge in electrical engineering and electronics to avoid any system damage.

4. GENERAL OPERATION DESCRIPTION

GSM dialler ESIM022 uses the GSM network for event transmission by SMS text message. When one of the two available preset numbers dials the system, it answers the call and the user can listen for up to 60 seconds to what is going on in the premises. This function operates only when a microphone is connected. The system will ignore SMS requests and phone calls coming from unknown phone numbers.

The system has 2 digital inputs (normally closed or normally open) for alarm system's PGM output or detection device connection, such as magnetic door contact. By connecting the input to the non-GSM alarm system's PGM output, you will be able to receive an SMS text message or phone call regarding system alarm/restore, arming/disarming and other events depending on alarm system configuration. In addition to being informed by SMS text message or phone call regarding alarm and restore events of the inputs, the users can control one electrical appliance by connecting it to the open-collector output. For example, users can turn ON or OFF the heating, lighting, lift the gates, blinds etc. The output can also be used for arming/disarming by connecting it to one of the alarm system zones configured as a keyswitch.

The system is protected from sabotage by built-in tamper switch resulting in user notification by SMS text message if the enclosure is tampered.

ESIM022 can be equipped with an external temperature sensor for temperature monitoring.

The system may be equipped with a back-up battery allowing to maintain the power and notify the user by SMS text message regarding mains power loss and restore events.

5. CONFIGURATION METHODS

!!! In this user manual the underscore character “_” represents one space character. Every underscore character must be replaced by a single space character. There must be no spaces or other unnecessary characters at the beginning and at the end of the SMS text message.

5.1. SMS Text Messages

SMS

In order to configure the system by SMS text message, send the text command to the ESIM022 system phone number from any of the preset user phone numbers. The structure of SMS text message consists of the parameter and value. For some parameters the value does not apply e. g. STATUS. The variables are indicated in lower-case letters, while a valid parameter value range is indicated in brackets.

5.2. ELDES Configuration Tool

Config Tool

Software *ELDES Configuration Tool* is intended for ESIM022 GSM dialler configuration via USB port locally. This software simplifies system configuration process by allowing to use a personal computer in the process. Before starting to use *ELDES Configuration Tool* software, please read the user guide provided in the software's HELP section.

ELDES Configuration Tool is freeware and can be downloaded at: www.eldes.it/en/download

NOTE: Configuration by USB cable and ELDES Configuration Tool software does not require the external power supply to be connected and/or back-up battery to be inserted in the device.

6. USER PHONE NUMBERS

The system supports up to 2 user phone numbers identified as User 1 through 2. When the phone number is set, the user will be able to configure the system by SMS text messages as well as to receive the alarm phone calls and alarm/restore SMS text messages from the system (see **10. ALARM/RESTORE NOTIFICATIONS**).

The system ignores any incoming calls and SMS text messages from a non-preset phone number.

To set User 1 phone number is mandatory, while User 2 is optional. The supported phone number formats are the following:

- **International (with plus)** - The phone numbers must be entered starting with plus and an international country code in the following format: +[international code][area code][local number], example for UK: +441709111111.

- **International (with 00)** - The phone numbers must be entered starting with 00 and an international country code in the following format: 00[international code][area code][local number], example for UK: 004417091111111.
- **Local** - The phone numbers must be entered starting with an area code in the following format: [area code][local number], example for UK: 01709111111.

Set user phone number

SMS

SMS text message content:

NRUp:ttteeellnnumm

Value: *up* - user phone number slot, range - [1... 2];
ttteeellnnumm - up to 15 digits user phone number.

Example: *NR1:+441709111111*



By dialling the phone number of the system for the first time, the system will reject the phone call and automatically set up the phone number as User 1 phone number that the phone call has been made from. This feature DOES NOT apply to User 2 phone number.

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View user phone number

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Delete user phone number

SMS

SMS text message content:

NR2:

Example: *NR2:*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: NEVER add a phone number of the device's SIM card as a user phone number!

ATTENTION: Once User 1 phone number is set, it will be restricted to modify it only.

7. DATE AND TIME

The system comes equipped with internal real-time clock (RTC) that keeps track of the current date and time. Once the system is up and running, the user must set the correct date and time, otherwise the system will not operate properly. After shutting down and starting up the system, the date and time must be set again.

Set date and time

SMS

SMS text message content:

`CLK:yyyy.mm.dd_hr:mn`

Value: *yyyy* - year; *mm* - month, range - [01... 12]; *dd* - day, range - [01... 31]; *hr* - hours, range - [00... 23]; *mn* - minutes, range - [00... 59].

Example: `CLK:2013.03.16_14:33`

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View date and time

SMS

SMS text message content:

`STATUS`

Example: `STATUS`

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

For more details on how to view system's information that may include date and time, please refer to **13. SYSTEM INFORMATION. STATUS SMS**.

8.INPUTS

The system comes equipped with 2 inputs identified as Z1 and Z2. Depending on the input and selected mode, the inputs are designed for different detection device connection, such as motion detectors, door contacts, temperature sensors etc. (see **8.1. Input Z1** and **8.2. Input Z2**). Once the detection device is triggered, the system will send a notification to the user phone number (see **10. ALARM/RESTORE NOTIFICATIONS**).

8.1. Input Z1

Input Z1 operates in Digital mode. The system monitors the input voltage resulting in the input state change. Normally, this input is used for for PGM output connection of non-GSM alarm system, motion detectors, door contacts and other passive or active digital level sensors.

The system follows this pattern for input Z1:

- Monitors input voltage ranging from 0 mV through 3000 mV every 100 millisecond.
- Verifies if the set up threshold (by default - 1500 mV) is not exceeded.
- By default, the input is set as NO (normally open), therefore if the voltage drops below the threshold, it will result in input state change to alarm followed by notifying the user by SMS text message and/or phone call.
- When the voltage rises above the threshold, it will result in input state change to restore followed by notifying the user by SMS text message or phone call (only for alarm state).

Set threshold

SMS

SMS text message content:

Z1VLEV:vthr

Value: *vthr* - threshold, range - [0... 3000] mV

Example: Z1VLEV:2350

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input as NC (normally closed)

SMS

SMS text message content:

ZONE1:NC

Example: ZONE1:NC

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input as NO
(normally open)

SMS

SMS text message content:

`ZONE1:NO`

Example: `ZONE1:NO`

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View input state

SMS

SMS text message content:

`STATUS`

Example: `STATUS`

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View real-time
input voltage

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View input
parameters

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

For more details on how to manage the alarm/restore notifications, please refer to **10 ALARM/RESTORE NOTIFICATIONS**.

For more details on how to view system's information that may include input state, please refer to **13. SYSTEM INFORMATION. STATUS SMS**.

8.2. Input Z2

Input Z2 can operate in one of the following modes at a time:

- **Digital** - The system monitors the input voltage resulting in the input state change. Normally, this mode is used for PGM output connection of non-GSM alarm system, motion detectors, door contacts and other active or passive digital level sensors. This mode is set by default. For more details on how to manage the Digital mode, please refer to **8.2.1. Digital Mode**.
- **Temperature Sensor** - The input converts to 1-Wire interface for temperature sensor connection. For more details on how to manage the Temperature Sensor mode, please refer to **8.2.2. Temperature Sensor Mode**.

Set input mode as Temperature Sensor

SMS

SMS text message content:

ZONE2:TEMP

Example: Z2:TEMP

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input mode as Digital

SMS

SMS text message content:

ZONE2:DIG

Example: Z2:DIG

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View input mode parameters

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

8.2.1 Digital Mode

When Digital mode is set, the system follows this pattern:

- Monitors input voltage ranging from 0 mV through 3000 mV every 100 millisecond.
- Verifies if the set up threshold (by default - 1500 mV) is not exceeded.
- By default, the input is set as NO (normally open), therefore if the voltage drops below the threshold, it will result in input state change to alarm followed by notifying the user by SMS text message and/or phone call.
- When the voltage rises above the threshold, it will result in input state change to restore followed by notifying the user by SMS text message and/or phone call (only for alarm state).

Set threshold

SMS

SMS text message content:

Z2VLEV:vthr

Value: *vthr* - threshold, range - [0... 3000] mV

Example: *Z2VLEV:1390*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input as NC (normally closed)

SMS

SMS text message content:

ZONE2:NC

Example: *ZONE2:NC*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input as NO (normally open)

SMS

SMS text message content:

ZONE2:NO

Example: *ZONE2:NO*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View input state

SMS

SMS text message content:

STATUS

Example: *STATUS*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View real-time input voltage

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View input parameters

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

For more details on how to manage the alarm/restore notifications, please refer to **10. ALARM/RESTORE NOTIFICATIONS**.

For more details on how to view system's information that may include input state, please refer to **13. SYSTEM INFORMATION. STATUS SMS**.

8.2.2 Temperature Sensor Mode

The system may be equipped with 1 temperature sensor intended for temperature measurement in the surrounding area. The temperature value is automatically updated in accordance with the set up period (by default - every 60 minutes). To set a different temperature update period, please refer to the following configuration methods.

Set temperature update period

SMS

SMS text message content:

`PTEMP:temp-per`

Value: *temp-per* - temperature update period, range - [3... 71000000] minutes.

Example: *PTEMP:45*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Adding, Removing and Replacing Temperature Sensor

To add a temperature sensor to the system, proceed as follows:

1. Shutdown the system.
2. Wire up the temperature sensor to the terminals (see **2.3. Wiring Diagrams**).
3. Power up the system.
4. Enable the temperature sensor.

To enable the temperature sensor, please refer to the following configuration method.

Enable temperature sensor

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

To view the temperature value of the temperature sensor, please refer to the following configuration methods.

**View
temperature
value and
temperature
sensor name**

SMS

SMS text message content:

`STATUS`

Example: *STATUS*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

If a temperature sensor becomes faulty, it is recommended to remove it or replace it by a functional sensor.

**Remove/
replace faulty
temperature
sensor**

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Temperature Info SMS

The system supports an SMS text message identified as the Temperature Info SMS, which is automatically delivered to the preset user phone number if the minimum (MIN) (by default - 20 °C) or maximum (MAX) (by default - 30 °C) temperature threshold of the external temperature sensor is exceeded.

Optionally, a name for a temperature can be set that will be included in the Temperature Info SMS when delivered to the preset phone number. This feature allows easier identification of the temperature sensor.

To set and view the MIN, MAX temperature thresholds and name of the temperature sensor, please refer to the following configuration methods.

Enable temperature sensor and set MIN and MAX temperature thresholds and name

SMS

SMS text message content:

`TEMPt1mnn:mxx:temp-name`

Value: *mnn* - MIN temperature threshold, range - [-55... 125] C; *mxx* - MAX temperature threshold, range - [-55... 125] C; *temp-name* - up to 8 characters temperature sensor name.

Example: *TEMP1:-14:32:House*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View MIN and MAX thresholds

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View temperature sensor name and temperature value

SMS

SMS text message content:

`STATUS`

Example: *STATUS*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

To stop Temperature Info SMS sending, please disable the temperature sensor. To disable it, please refer to the following configuration methods.

Disable temperature sensor

SMS

SMS text message content:

`TEMP1:OFF`

Example: *TEMP1:OFF*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Colon, dash, comma characters are NOT allowed in temperature sensor name.

NOTE: If the MIN or MAX temperature threshold is exceeded, the system will NOT send the Temperature Info SMS text message to the preset user phone number before the current temperature value has been updated.

For more details on how to view system's information that may include temperature sensor name and temperature value please refer to **13. SYSTEM INFORMATION. STATUS SMS.**

For more details on the system events and the algorithm of how the system sends the notifications, please refer to **14. SYSTEM NOTIFICATIONS.**

9. TAMPER

The system comes equipped with on-board tamper switch designed for sabotage detection. In the event of enclosure tampering, the system can notify the user by SMS text message or phone call. For more details on tamper alarm/restore notification management, please refer to **10. ALARM/RESTORE NOTIFICATIONS.**

To set a tamper name that is included in the tamper alarm and restore SMS text message content, please refer to the following configuration methods.

Set tamper name

SMS

SMS text message content:

`TTMP:tamp-name`

Value: *tamp-name* - up to 23 characters tamper name.

Example: *TTMP:Tamper*

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Colon, dash, comma characters are NOT allowed in the tamper name.

10. ALARM/RESTORE NOTIFICATIONS

The system can notify the preset user phone number by the following methods that can be used only individually:

- **SMS text message** - in the event of input Z1, input Z2 or tamper alarm or restore. This method is selected by default.
- **Phone call** - in the event of input Z1, input Z2 or tamper alarm only.

Set notification method as phone call

SMS

SMS text message content:

CALL

Example: CALL

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set notification method as SMS text message

SMS

SMS text message content:

SMS

Example: SMS

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

SMS

By default, in the event of tamper or input alarm or restore, the system will follow this pattern:

- a) The system attempts to send an SMS text message containing input alarm/restore text to the first preset user phone number only.
- b) If the user phone number is unavailable and the system fails to receive the SMS delivery report within 20 seconds, it will attempt to send the SMS text message to the next preset user phone number. The system may fail to deliver the SMS text message to the preset user phone number due to the following reasons:
 - user's mobile phone has been switched off.
 - user's mobile phone has been out of GSM signal coverage.
- c) The system will continue sending the SMS text message to the next preset user phone number. The system sends the SMS text message only once and will not return to the first user phone number if the second one was unavailable.

To manage input and/or tamper alarm and restore notifications by SMS text message, please refer to the following configuration methods.

Disable input alarm notification

SMS

SMS text message content:

SAZi:OFF

Value: i - input number, range - [1... 2].

Example: SAZ1:OFF

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Enable input alarm notification

SMS

SMS text message content:

SAZi:ON

Value: i - input number, range - [1... 2].

Example: SAZ2:ON

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input alarm text

SMS

SMS text message content:

TAZi:in-alarm-text

Value: i - input number, range - [1... 2]; *in-alarm-text* - up to 23 characters input alarm text.

Example: TAZ2:Alarm Z2

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable input restore notification

SMS

SMS text message content:

SRZi:OFF

Value: i - input number, range - [1... 2]

Example: SRZ2:OFF

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Enable
input restore
notification

SMS

SMS text message content:

SRZi:ON

Value: *i* - input number, range - [1... 2]

Example: *SRZ1:ON*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set input restore
text

SMS

SMS text message content:

TRZi:in-restore-text

Value: *i* - input number, range - [1... 2]; *in-restore-text* - up to 23 characters input restore text.

Example: *TRZ1:Restore Z1*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable tamper
alarm/restore
notification

SMS

SMS text message content:

TMP:OFF

Example: *TMP:OFF*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Enable tamper
alarm/restore
notification

SMS

SMS text message content:

TMP:ON

Example: *TMP:ON*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Colon, dash, comma characters are NOT allowed in the input alarm/restore notification texts.

For more details on how to set the tamper name that is included in the tamper alarm/restore notifications by SMS text message, please refer to **9. TAMPER**.



The system comes equipped with ringing the preset user phone number (by default - disabled) in the event of input or tamper alarm. If enabled, the system will follow this pattern:

- a) The system attempts to ring the first preset user phone number.
- b) When the call is answered, the user will be able to listen on the mobile phone for 60 seconds to what is happening in the area, surrounding the system (see **16. REMOTE LISTENING**).
- c) The system will dial the next preset user phone number if the previous user was unavailable due to the following reasons:
 - mobile phone has been switched off.
 - mobile phone has been out of GSM signal coverage.
 - has provided "busy" signal.
 - user did not answer the call after several rings, predetermined by the GSM operator.
- d) The system will continue dialing the next preset user phone number.
- e) The system dials only once and will not return to the first user phone number if the second one was unavailable. The system will not dial the next preset user phone number if the previous one was available, but rejected the phone call.

To manage calls in the event of input or tamper alarm, please refer to the following configuration methods.

Enable call in the event of input alarm

SMS

SMS text message content:

CAZi:ON

Value: i - input number, range - [1... 2].

Example: CAZ1:ON

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable call in the event of input alarm

SMS

SMS text message content:

CAZi:OFF

Value: i - input number, range - [1... 2].

Example: CAZ2:OFF

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Enable call in the event of tamper alarm

SMS

SMS text message content:

TMP:ON

Example: TMP:ON

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable call in the event of tamper alarm

SMS

SMS text message content:

TMP:OFF

Example: TMP:OFF

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View alarm
notificaiton
parameters

Config
Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Input alarm/restore notifications do NOT apply when input Z2 is set up to operate in Temperature Sensor mode. For more details, please refer to **8.2.2. Temperature Sensor Mode**.

11. OUTPUT

The system comes equipped with 1 open collector output C1 designed for electrical appliance connection. Normally, the output can be used to arm/disarm a non-GSM alarm panel that has a zone configured as key-switch. The output can also be used to open/close garage doors, activate lights, heating, watering and much more. When output turns ON, the system triggers any device or relay connected to it.

When input Z2 is operating in Temperature Sensor mode, C1 converts to +4V power supply output terminal for temperature sensor connection. In such case C1 terminal can not be used as open-collector output. For more details, please refer to **8.2.2. Temperature Sensor Mode**.

For more details on how to wire the output, please refer to **2.3. Wiring Diagrams**.

11.1. Output Name

The output has a name that can be customized by the user. Typically, the name specifies a device type connected to the output, for example: *Lights*.

By default, output C1 name is Output. To rename the output, please refer to the following configuration methods.

Rename output

SMS

SMS text message content:

`TOUT:out-name`

Value: *out-name* - up to 23 characters output name

Example: *TOUT:Lamp*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View output name

SMS

SMS text message content:

`STATUS`

Example: *STATUS*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Colon, dash, comma characters are NOT allowed in the output name.

For more details on how to view system's information that may include output name, please refer to **13. SYSTEM INFORMATION. STATUS SMS**.

11.2. Turning Output ON and OFF

By default, the output is turned OFF. To instantly turn ON/OFF the output, please refer to the following configuration methods.

Turn ON output

SMS

SMS text message content:

OUT:ON

Example: *OUT:ON*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Turn OFF output

SMS

SMS text message content:

OUT:OFF

Example: *OUT:OFF*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View output status

SMS

SMS text message content:

STATUS

Example: *STATUS*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

NOTE: The output status on system start-up is always set to OFF.

For more details on how to view system's information that may include output status, please refer to **13. SYSTEM INFORMATION. STATUS SMS**.

12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING

The system may come equipped with a back-up battery maintaining the power supply of the system for up to 12 hours when the mains power supply is temporarily lost. The implemented feature allows to perform a self-test on the backup battery every 6 seconds and notify the user by SMS text message under the following conditions:

- **Battery connected** - battery is present.
- **Battery disconnected** - battery is dead or missing.
- **Low battery** - battery voltage is 8V or lower.

By default, the notifications regarding the back-up battery status are disabled. To enable/disable a certain notification, please refer to the following configuration methods.

Enable Battery Connected notification

SMS

SMS text message content:

BATCON:ON

Example: *BATCON:ON*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set Battery Connected notification text

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable Battery Connected notification

SMS

SMS text message content:

BATCON:OFF

Example: *BATCON:OFF*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**Enable Battery
Disconnected
notification**

SMS

SMS text message content:

`BATDIS:ON`

Example: *BATDIS:ON*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**Set Battery
Disconnected
notification text**

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**Disable Battery
Disconnected
notification**

SMS

SMS text message content:

`BATDIS:OFF`

Example: *BATDIS:OFF*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**Enable Low
Battery
notification**

SMS

SMS text message content:

`BLOW:ON`

Example: *BLOW:ON*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**Set Low Battery
notification text**

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable Low Battery notification

SMS

SMS text message content:

BLOW:OFF

Example: *BLOW:OFF*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

If the household electricity is unstable in the system installation area, the system may temporarily lose its power supply and continue operating on the back-up battery power. The system supervises the mains power supply every 6 seconds and notifies the user by SMS text message when the mains power is lost or restored.

By default, system notification by SMS text message regarding mains power supply status is disabled. To enable/disable a certain notification, please refer to the following configuration methods.

Enable Mains Power Supply Lost notification

SMS

SMS text message content:

PWRLOST:ON

Example: *PWRLOST:ON*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set Mains Power Supply Lost notification text

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable Mains Power Supply Lost notification

SMS

SMS text message content:

PWRLOST:OFF

Example: *PWRLOST:OFF*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Enable Mains
Power Supply
Restore
notification

SMS

SMS text message content:

`PWRREST:ON`

Example: *PWRREST:ON*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set Mains Power
Supply Restore
notification text

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable
Mains Power
Supply Restore
notification

SMS

SMS text message content:

`PWRREST:OFF`

Example: *PWRREST:OFF*

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View Back-
up Battery
and Mains
Power Supply
notification
parameters

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

13. SYSTEM INFORMATION. STATUS SMS

The system supports an informational SMS text message identified as the Status SMS, which can be delivered upon request. Once requested, the system will reply with Status SMS that may provide the following:

- System name.
- System date & time.
- GSM signal strength.
- System's internal temperature
- Name and status (ON/OFF) of the output.
- Input Z1 state / value.
- Input Z2 state / value.

Request for system information

SMS

SMS text message content:

STATUS

Example: STATUS

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

By default, the aforementioned items, except System name, are excluded from the Status SMS. To include them, please refer to the following configuration method.

Manage Status SMS content

SMS

SMS text message content:

TESTM:1;2;4;5;6;7;8

Value: 1 - system name; 2 - system date and time; 4 - GSM signal strength; 5 - system's internal temperature; 6 - name and status of the output; 7 - input Z1 state/value; 8 - input Z2 state/value.

Example: TESTM:7;6;8;1;2

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View Status SMS content parameters

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

13.1. Periodic Status SMS

Once enabled, the system sends Status SMS to preset user phone number periodically every 1 hour. Typically, this feature is used to verify the online status of the system.

By default, periodic Status SMS is disabled. To enable/disable periodic Status SMS and/or set a different frequency, please refer to the following configuration methods.

Enable periodic Status SMS and set frequency

SMS

SMS text message content:

TEST: `frequen`

Value: *frequen* - frequency, range - [1... 1193046] hours.

Example: *TEST:15550*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable periodic Status SMS

SMS

SMS text message content:

TEST: `OFF`

Example: *TEST:OFF*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Before using periodic Status SMS, please set the correct system date and time (see **7. DATE AND TIME**). Otherwise, the system will send this SMS text message at the wrong time.

14. SYSTEM NOTIFICATIONS

SMS

When an event occurs, the system will follow this pattern:

- a) The system attempts to send an SMS text message to the first preset user phone number only.
- b) If the user phone number is unavailable and the system fails to receive the SMS delivery report within 20 seconds, it will attempt to send the SMS text message to the next preset user phone number. The user phone number may be unavailable due to the following reasons:
 - mobile phone has been switched off.
 - mobile phone has been out of GSM signal coverage.
- c) The system will continue sending the SMS text message to the next preset user phone number. The system sends the SMS text message only once and will not return to the first user phone number if the second one was unavailable.

The following table provides the description of available system notifications sent to the user phone number by SMS text message.

Seq. No.	Event	Description
1	Device Started	SMS text message sent to the user on system startup. For more details on how to manage this notification, please refer to the configuration methods below.
2	Input Alarm	SMS text message sent to the user in case input Z1 or Z2 is violated. For more details on how to manage this notification, please refer to 10. ALARM/RESTORE NOTIFICATIONS .
3	Input Restore	SMS text message sent to the user in case input Z1 or Z2 is restored. For more details on how to manage this notification, please refer to 10. ALARM/RESTORE NOTIFICATIONS .
4	Tamper Alarm	SMS text message sent to the user in case the tamper is violated. For more details on how to manage this notification, please refer to 10. ALARM/RESTORE NOTIFICATIONS .
5	Tamper Restore	SMS text message sent to the user in case the tamper is restored. For more details on how to manage this notification, please refer to 10. ALARM/RESTORE NOTIFICATIONS .
6	Periodic Status	Status SMS text message sent to the user periodically by the set up hours. For more details on how to manage this notification, please refer to 13. SYSTEM INFORMATION. STATUS SMS .
7	Mains Power Loss	SMS text message sent to the user in case the mains power supply is lost. For more details on how to manage this notification, please refer to 12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING .

Seq. No.	Event	Description
8	Mains Power Restore	SMS text message sent to the user in case the mains power supply is restored. For more details on how to manage this notification, please refer to 12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING.
9	Battery Connected	SMS text message sent to the user in case the battery level reaches the back-up battery is connected. For more details on how to manage this notification, please refer to 12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING.
10	Battery Disconnected	SMS text message sent to the user in case the battery level reaches the back-up battery is disconnected. For more details on how to manage this notification, please refer to 12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING.
11	Low Battery	SMS text message sent to the user in case the battery level reaches the set up minimum value. For more details on how to manage this notification, please refer to 12. BACK-UP BATTERY AND MAINS POWER SUPPLY STATUS MONITORING.
12	Device Shutdown	When the system is running on backup battery power, it sends the SMS text message when backup battery voltage reaches 7.8V - before it is fully depleted. For more details on how to manage this notification, please refer to the configuration methods below.
13	Temperature Info	SMS text message sent to the user in case the temperature measured by external temperature sensor drops below the MIN or rises above the MAX value. For more details on how to manage this notification, please refer to 8.2.2. Temperature Sensor Mode.
14	Internal Temperature	SMS text message sent to the user in case the temperature measured by built-in temperature sensor drops below the MIN or rises above the MAX value. For more details on how to manage this notification, please refer to 15. ON-BOARD TEMPERATURE SENSOR.

By default, Device Started notification is disabled. To enable/disable it and set the text for this notification, please refer to the following configuration methods.

Enable Device Started notification and set the text

SMS

SMS text message content:

`SSMS:start-text`

Value: *start-text* - up to 23 characters System Started notification text.

Example: *SSMS:ESIM022 started*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable Device Started notification

SMS

SMS text message content:

`SSMS:OFF`

Example: *SSMS:OFF*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

By default, System Shutdown notification is disabled. To enable/disable it and set the text for this notification, please refer to the following configuration methods.

Enable Device Shutdown notification

SMS

SMS text message content:

`ALLOFF:ON`

Example: *ALLOFF:ON*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set Device Shutdown notification text

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Disable Device Shutdown notification

SMS

SMS text message content:

`ALLOFF:OFF`

Example: `ALLOFF:OFF`

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View system notification parameters

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

ATTENTION: Colon, dash, comma characters are NOT allowed in Device Started and Device Shutdown notification text.

For more details on how the system notifies the user in the event of input or tamper alarm/restore, please refer to **10. ALARM/RESTORE NOTIFICATIONS**.

15. ON-BOARD TEMPERATURE SENSOR

The system features an on-board temperature sensor (by default - enabled) allowing to be notified when the device temperature exceeds the set up minimum (MIN) (by default - -10 °C) or maximum (MAX) (by default - 25 °C) temperature threshold values. If one of the thresholds is exceeded, the system will automatically deliver an SMS text message identified as the Internal Temperature SMS, to the preset user phone number.

To enable/disable the on-board temperature sensor as well as to set and view the MIN, MAX temperature thresholds, please refer to the following configuration methods.

**Disable/
enable on-board
temperature
sensor**

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**Set MIN and MAX
thresholds**

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

**View on-board
temperature
sensor
parameters**

**Config
Tool**

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

16. REMOTE LISTENING

ESIM022 may be equipped with a microphone that allows the user to listen on his mobile phone to what is happening in the area surrounding the microphone. Remote listening feature can operate under the following conditions:

- The system makes a phone call to a preset user phone number in case of input alarm/restore and the user answers the call (see also **10. ALARM/RESTORE NOTIFICATIONS**).
- The user dials the system phone number and the system answers the call.

In both cases, the "conversation" will last for up to 60 seconds until the system automatically hangs up.

By default, when the preset user dials the system phone number, the system automatically answers the call. This feature is identified as Answer Call. To disable, enable the Answer Call feature and set a different microphone gain (by default - 12), please refer to the following configuration methods.

Disable Answer Call feature

SMS

SMS text message content:

ANSWER:OFF

Example: ANSWER:OFF

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Enable Answer Call feature

SMS

SMS text message content:

ANSWER:ON

Example: ANSWER:ON

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

Set microphone gain

SMS

SMS text message content:

`MIC:mg`

Value: *mg* - microphone gain, range - [1... 15].

Example: *MIC:10*

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

View remote listening parameters

Config Tool

This operation may be carried out from the PC using the *ELDES Configuration Tool* software.

17. TECHNICAL SUPPORT

17.1. Troubleshooting

Indication	Possible reason
LED indicator is OFF	<ul style="list-style-type: none">· Power supply fault (if back-up not in use)· No mains power (if back-up not in use)· Micro-controller fault
The device does not continue running when mains power supply is lost	<ul style="list-style-type: none">· Back-up battery not connected· Back-up battery is faulty and has to be replaced· Back-up battery not charged yet· Battery charger unit fault
Unable to receive any SMS text message reply to the user phone number and control the device	<ul style="list-style-type: none">· Insufficient SIM card credit balance· No GSM network signal· Wrong user phone number· User phone number is not set
Received SMS text message "Wrong syntax"	<ul style="list-style-type: none">· Incorrect SMS text message structure· Unnecessary space character might have been typed in SMS text message

If your problem could not be fixed by the self-guide above, please contact your local distributor. More up to date information about your device and other products can be found at the manufacturer's website www.eldes.it

17.2. Restoring Default Parameters

1. Disconnect the power supply, USB cable and rback-up battery (if any).
2. Press and hold the RESET button.
3. Plug in the USB cable or connect the power supply.
4. Wait until the LED indicator flashes 4 times.
5. Release the RESET button.
6. Parameters restored to default.

17.3. Updating the Firmware via USB Cable

1. Disconnect the power supply, and back-up battery (if any).
2. Short circuit (connect) FW pins.
3. Connect the device via USB cable to the PC.
4. The new window must pop-up where you will find the .bin file. Otherwise open *My Computer* and look for CRP DISABLED drive.
5. Delete the .bin file found in the drive.
6. Copy the new firmware .bin file to the very same window.
7. Unplug USB cable.
8. Remove short circuit from FW pins.
9. Firmware updated.

NOTE: It is strongly recommended to restore default parameters after the firmware update.

18. RELATED PRODUCTS



DC power supply



DS18S20 - temperature sensor



Microphone

Made in the European Union
www.eldes.it