GLOBAL SECURITY SOLUTIONS

IMQ-SISTEMI DI SICUREZZA

CE 0681

GSM telephone dialer
model GSMessenger
TECHNICAL MANUAL

WARNING

FOR THE INSTALLER:

The installer must carry out the installation by strictly complying with the electric and security systems regulations currently in force and in compliance with the instructions specified in the instruction manuals supplied with the product by the manufacturer.

The installer must supply user with all information pertaining to the use and limitations of the system installed and advise that there are specific regulations and different safety performance levels that must be evaluated on the basis of user's requirements.

The installer must also ensure that the user is aware of the warnings listed in this document.

FOR THE USER:

The user must regularly and carefully check the system's functioning ensuring that enabling and disabling operations are appropriately carried out.

The user must also ensure that a regular maintenance is carried out on the system by entrusting it to specialized personnel who possess the qualifications required by current regulations.

The user must ask installer to verify the system's suitability should its operative conditions change (size of areas to be protected, different access methods, etc).

This device has been designed, built and tested with the greatest care and in compliance with the checking procedures foreseen by current regulation. Full compliance with operating specifications is met only when this device is used for its intended purpose, namely:

GSM telephone dialer

Any other use is not authorized and the product's appropriate operation cannot be assured when it is employed for other applications.

Although production processes are closely monitored to prevent flaws and failures. The technology adopted to manufacture these components is subject to a exceptionally low percentage of flaws as applicable for any electronic and mechanic product. Given the intended use of this product (protection of buildings and people), the user is invited to evaluate the system's performance levels in terms of the actual risk involved (also evaluating that the system could malfunction due to faults or other predicaments), bearing in mind that there are specific directives and laws regulating the design, production, maintenance and use of systems for this type of applications.

The user (owner) of this system is hereby advised that this system requires methodical maintenance to be carried out on regular basis or at least within the limits set by current regulations. The system's appropriate working condition and that of any connected device such as control units, sensors, sounders, dialers and any other connected device must also be checked on regular basis. The frequency of these operational tests will be evaluated bearing in mind the actual risk involved. Once maintenance tests have been executed, the user is hereby requested to promptly advise installer of tests results.

The designing, installation and maintenance of the systems employing these products must be performed only by technicians who possess the required skills and knowledge that will ensure safety and accident prevention. The system must be installed in compliance with current regulation. Since the components of some devices are connected to the mains supply, to avoid electric shock dangers the unit's primary power supplies must be disconnected before any maintenance is carried out. Some products carry back-up rechargeable or disposable batteries. Some products carry back-up rechargeable or disposable batteries. If not properly connected, batteries could damage the product, other objects and endanger the system's operator (explosion and fire).

Installer’s stamp:

1. OVERVIEW

The GSMessenger is an innovative multiuse telephone dialer specifically designed for security applications. Thought targeted for security applications, this device also meets the ever increasing need for reliable units that offer top level technical features while being easy to set up demanded for industrial applications.

The unit's plastic enclosure features a low-profile design and houses a built-in dual band GSM module, its antenna and a powerful microprocessor. The microprocessor controls the conditions of the 4 balanced inputs to manage the GSM module, dial-out and transmit SMS messages. The device is equipped with a programmable relay output enabling the unit to be controlled through a remote telephone. The user interface is simple and straightforward allowing for an efficient interaction for programming, maintenance and operation purposes from the main station.

2. CHARACTERISTICS

- This compact plastic housing features a sophisticated design and is supplied with a built-in dual band GSM antenna;
- Built-in dual band GSM module, fully compatible with 3V rechargeable SIM cards and subscription cards;
- The dialer is equipped with 4 balanced inputs. A group of 4 telephone numbers is linked to each input for voice communication and pertaining voice message. Input no. 2 may be programmed as delayed. An additional group of 4 telephone numbers that are reserved for SMS messages is also supplied.
- Remote control to disable telephone calls. Programming access or external command is executed with suitably programmed contact 4 wiring.
- Remote telephone control function with internal relay interaction (fault relay programming) controls an external system such as a heating or air conditioning system, an intrusion detection system, etc.
- Thanks to the 16-key programming keypad, 1 numeric display with seven segments, 3 LED indicators (GSM connection status, fault and power supply) and the built-in buzzer that supports programming operations, this devices offers a simple and intuitive user interface.
- The GSMessenger can store 4 voice messages (up to 13 sec. long) and each message can be linked to a specific input.
- The GSMessenger can send 12 SMS messages pertaining to: alarm/reset of inputs 1-2-3-4, external power supply failure/reset, low battery and credit balance check.
- The device can be powered by an intrusion detection control unit or an external power supply unit. A 12V-1.3Ah buffer battery must be installed into the housing for the appropriate operation of the dialer.

2.1 Technical specifications

Model: GSMessenger

IP rating: 3X

Performance level: II°

Power supply: 13.8Vdc from a regulated power supply unit located outside the housing, 12V from the buffer battery, operating at 9 ÷15V.

Consumption: 90 mA on stand-by,
60 mA during programming,
up to 250 mA during transmission
up to 3.15A with battery being recharged.

Flat battery voltage: 10.5V, reset at 10.9V.

The device must be powered solely with a short-circuit protected power supply unit.

Compatible with: the main GSM network providers

Fault relay contacts rating: 1A@24Vdc

User interface: 16-key rubber keypad.

Indicators: 3 status LED indicators, numeric display with seven segments.

Programming support: buzzer reporting key being pressed or error.

Message recording: electret microphone and ON/OFF speaker.

Message recorded: 4 messages, 13 sec. each.

SMS transmission: 12 programmable messages.

Radio transmitter: 50 Ohm 2W dual band GSM module operating at 900 MHz.

Antenna: dual band, housed inside the plastic enclosure.

SIM card reader tray: located inside dialer's PCB, for a 3V SIM card.

Inputs: four 1500 Ohm balanced interface inputs, input no. 2 is supplied with a programmable timer.

NOTE: none of the contacts is designed to be connected with dangerous voltage levels.

User interface: 16-key rubber keypad.

Envir.. conditions: +5 / +40°C - 93% RU

Compartment for: 12V 1.3Ah type battery

NOTE: the internal battery is required for the dialer's standard operation.

Outputs: relay with positive driven C - NO - NC contacts reporting the following conditions: FAULT , REC FAILURE, OPERATING FAILURE.
TAMPER proofed via the NC contacts of the protection circuit against attempts to open or remove the housing from the wall.

Supplied with: four 1500 Ohm resistors, threading screws and wedge, door label, technical manual, programming operations table.

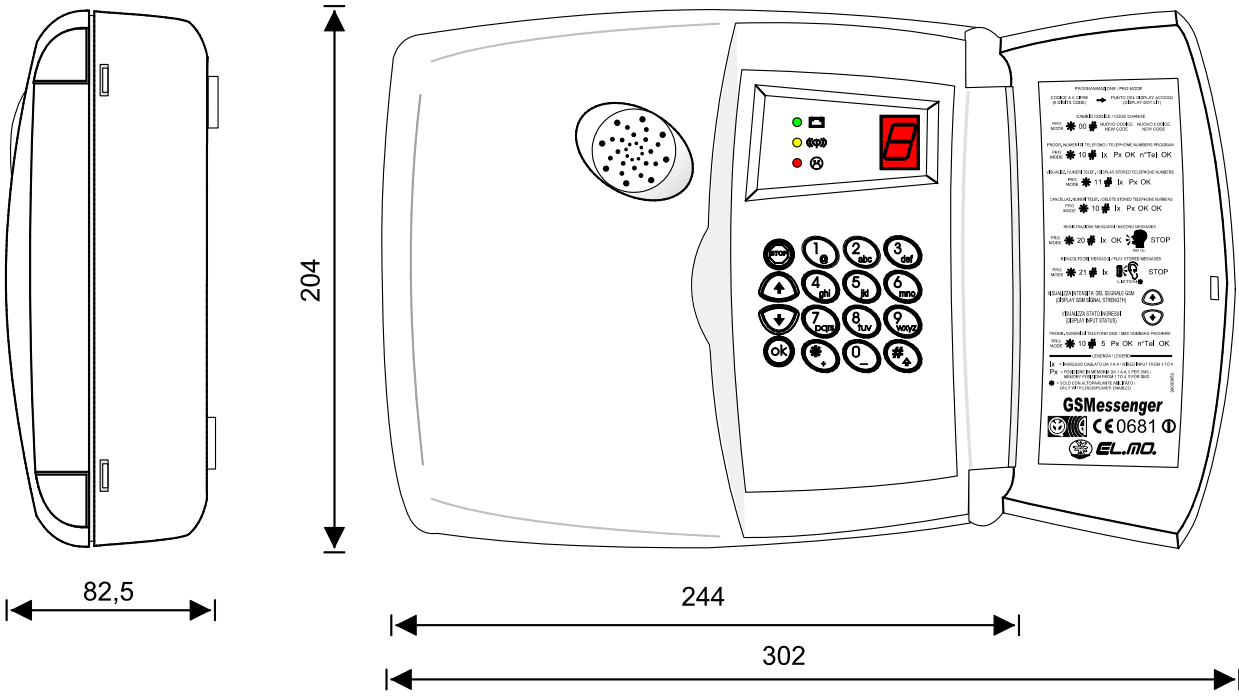
In compliance with the 89/336/EEC EMC directive, the GSMessenger dialer has been tested and found to comply with the EN 50130-4:1995 + A:1998 standards concerning electromagnetic immunity and the EN 50081-1:1992 standards concerning electromagnetic emission. The LVD73/23/EEC directive requirements concerning electrical safety have been complied with through tests performed in compliance with the EN 60950:2000-06 standard.

GSMessenger is CE0681 compliant and has also complied with the tests required by the R&TTE 1999/5/EC directive, specifically with articles 3.1 a, 3.1 b, 3.2.

Elmo SpA hereby certifies that this GSMessenger complies with the essential requirements and the other relevant regulations established by the 1999-5-EC directive.

2.2 Mechanical features

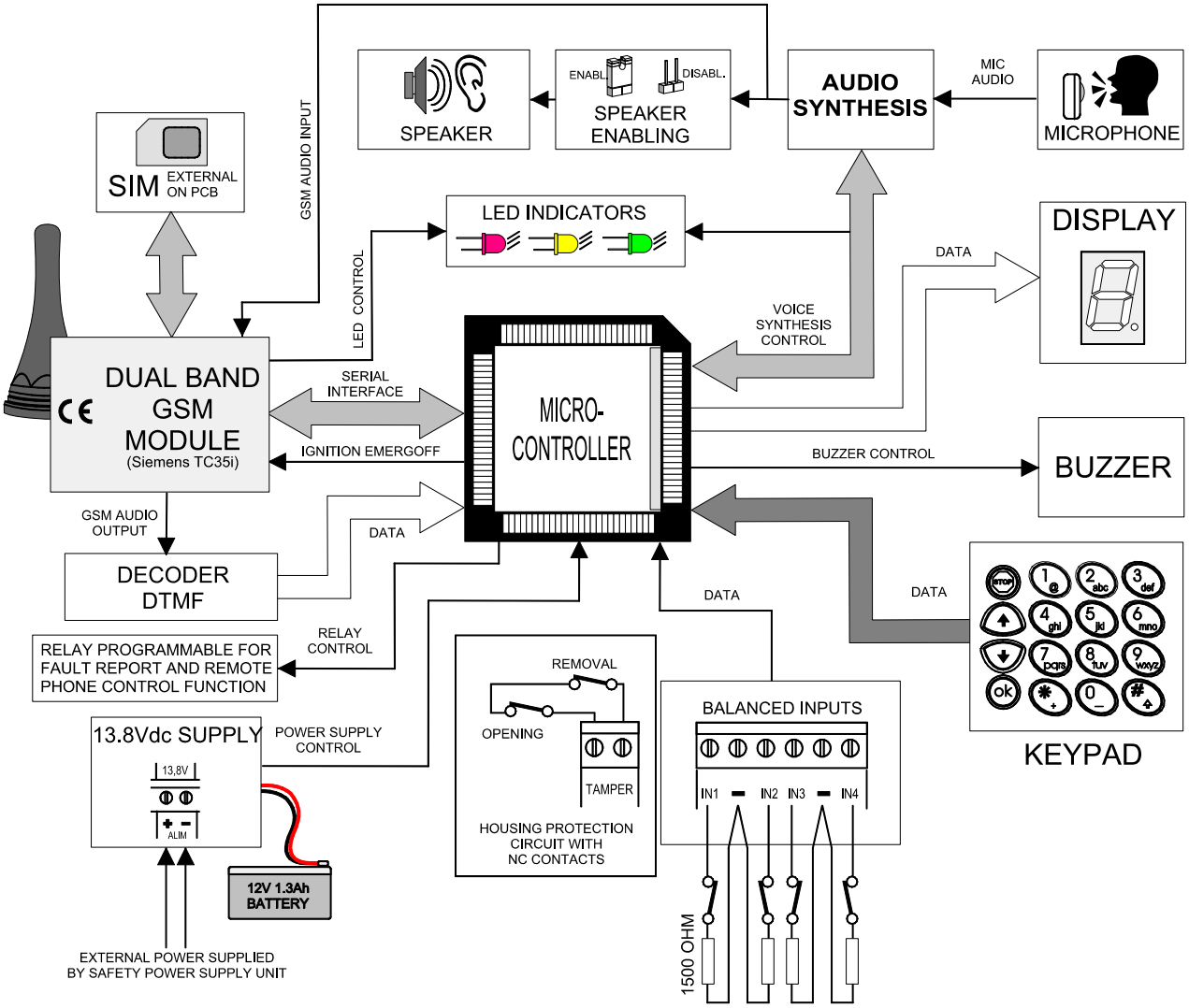
View of the housing.



MEASUREMENTS IN MILLIMETERS

3. BLOCK DIAGRAM

Dialer's function block diagram.



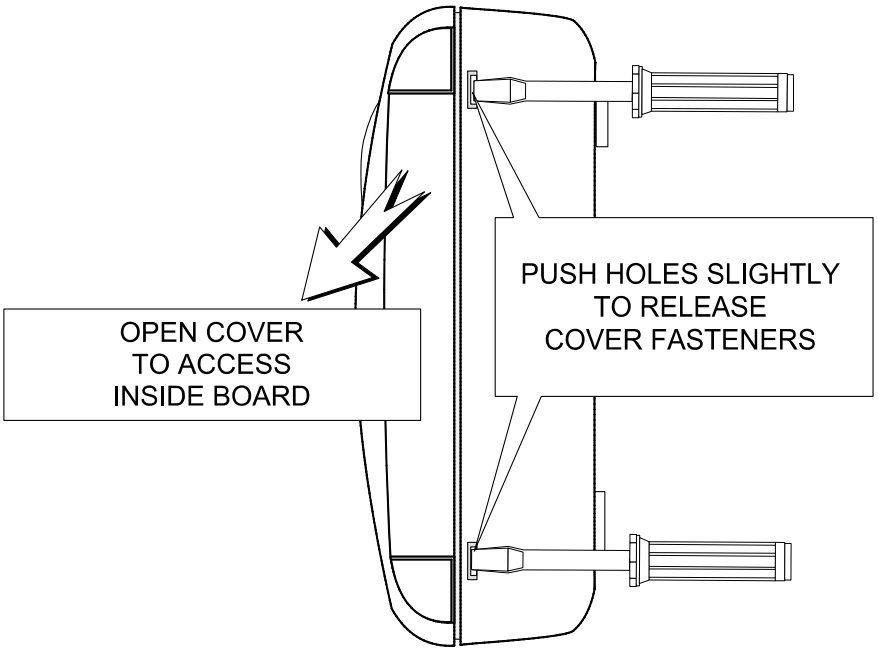
4. INSTALLATION

4.1 Installation tips

- Install the GSMessenger in an environment that can assure the specified humidity and temperature operating conditions. The device may be installed only indoors and is not designed for outdoor use.
- Open the dialer's housing following the instructions supplied in this manual.
- Insert the SIM card to be used with the GSMessenger into a cellular phone to check that it is not programmed to request a PIN code when it is switched on. Remove any optional services.
- Insert the SIM card into the GSM module following the procedure illustrated by the diagram on page. 9, Chapter "ELECTRIC CONNECTIONS".
- Temporarily power the dialer using a 12V 1.3Ah battery.
- To reset the entire system, read paragraph "System reset operations" on page. 14.
- Press key ↑ to display the strength of the GSM radio signal. Refer to paragraph "Display GSM signal strength" on page. 30.

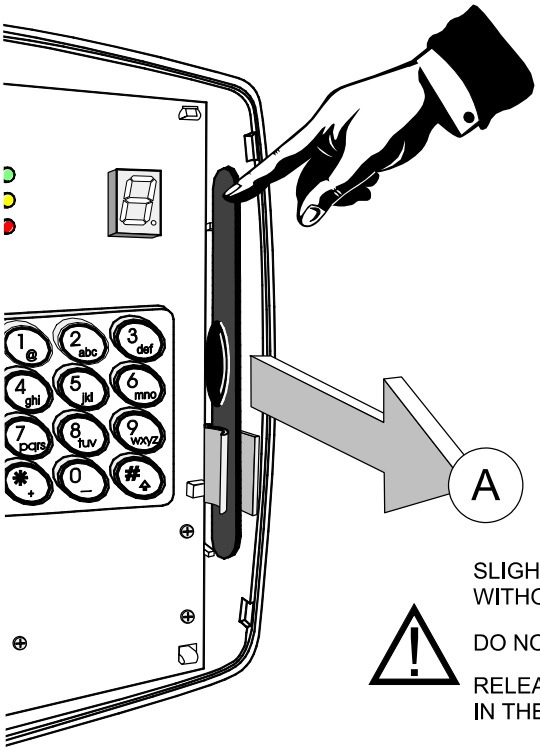
- Take advantage of the indications on the display to locate the best position for the installation. Make sure that the antenna of the GSMessenger (located on the right, inside the housing) is not positioned too close to other electronic devices susceptible to interference; the antenna should also not be positioned too close to metallic surfaces that could seriously alter the impedance of the antenna and affect the device's proper functioning.
- Disconnect the faston cable connectors from the battery and set battery aside. Release the electronic card with special care and following the indications supplied in this charter.
- Ensure that the front opening of the GSMessenger may be easily opened from the selected location of installation.
- Mount the back of the GSMessenger on the selected support making sure that it is sturdy and that it is not subject to vibrations. Make sure that the wall behind the unit does not yield under the pressure of the tamper-proof spring.
- Use the four holes located on the bottom of the housing as a drilling template.
- Secure the GSMessenger using screws and rivets able to sustain the weight of the device plus the battery.
- Use the holes illustrated in the diagrams to feed the system's connecting cables making sure that they are not live wires.
- Insert the card referring to the procedure illustrated in this chapter. Be very careful to properly insert the spring extension of the housing's tamperproof micro switch.
- As an accessory to an intrusion detection control unit or to another device to which it is connected, the telephone dialer must be powered by such a unit and must be supplied with its own 12V 1.3Ah battery (not standard supply).
- Remove the two fuses from the board and set them aside.
- Refer to the diagrams in this manual to make all the necessary connections.
- Check the accuracy of the connections, connect the 12V 1.3Ah battery and supply power from the control unit or power supply unit.

Opening of the housing.



Dismantling of the card.

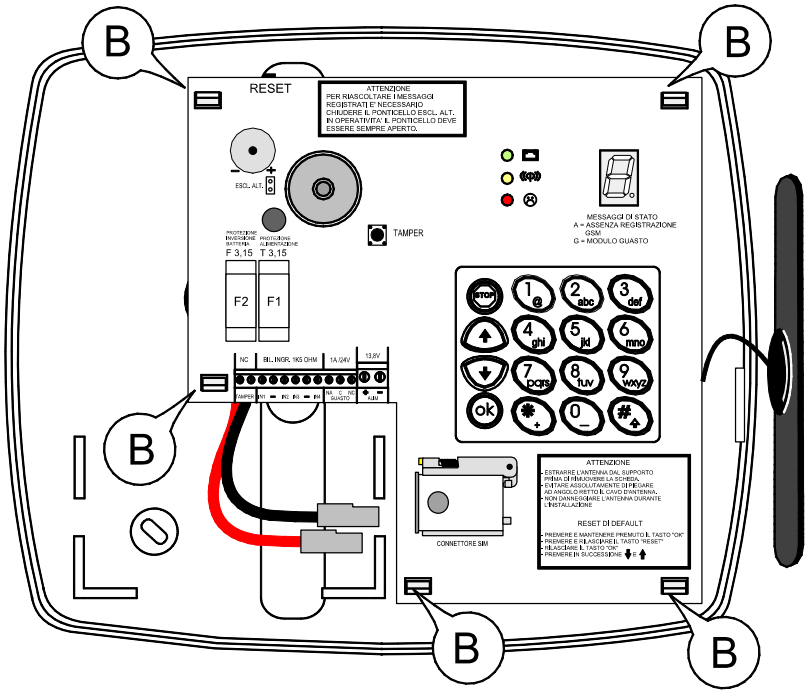
CAREFULLY RELEASE THE ANTENNA
FROM THE SUPPORTING ADHESIVE CLIP



SLIGHTLY MOVE THE ANTENNA AWAY FROM THE SUPPORT
WITHOUT PULLING THE CABLE ABRUPTLY.

DO NOT DAMAGE THE CABLE BY BENDING IT.

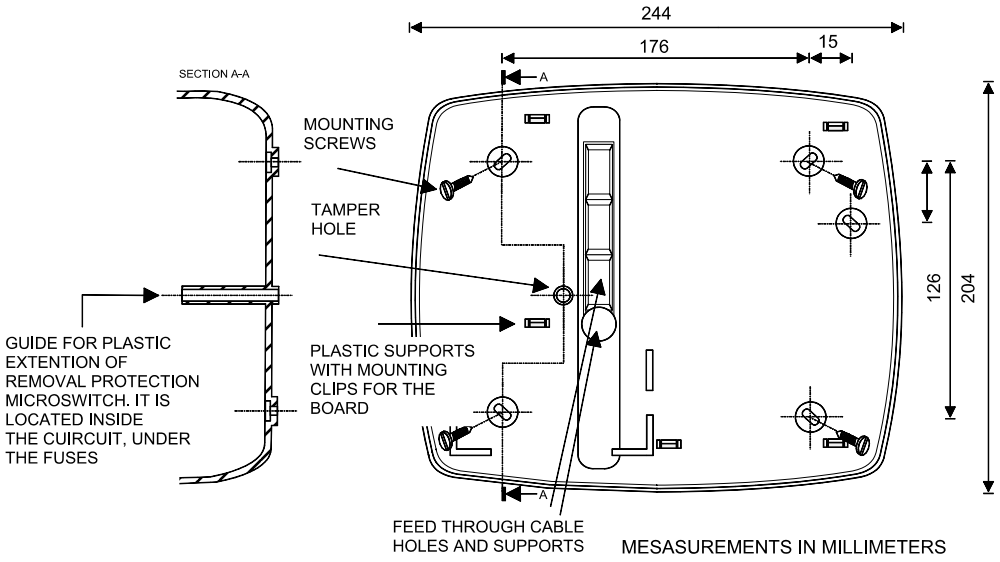
RELEASE THE BOARD FOLLOWING THE STEPS SUPPLIED
IN THE FIGURE BELOW.



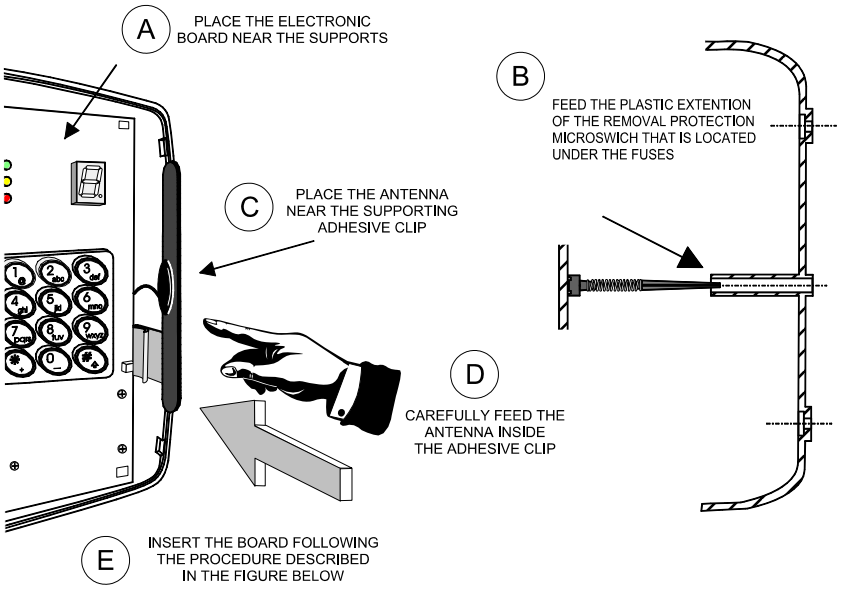
RELEASE THE BOARD BY SLIGHTLY PUSHING THE SUPPLIED HOOKS MARKED AS "B" .
AND CAREFULLY EXTRACT THE BOARD FROM THE BASE.

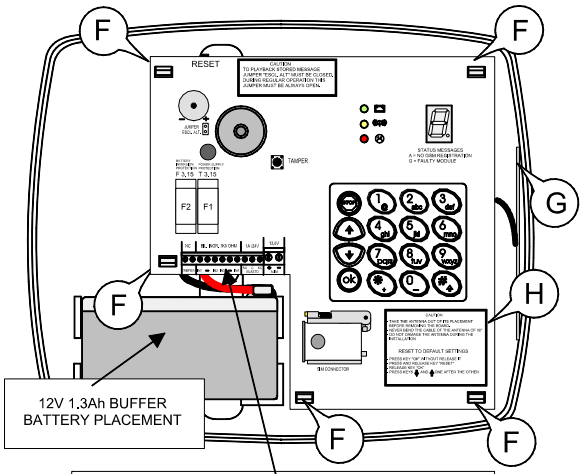
SET ASIDE THE BOARD AND THE ANTENNA TO FASTEN THE BASE TO THE SUPPORT
CHOOSEN FOR THE INSTALLATION OF THE DEVICE.

Drill holes marking for mounting.



Mounting of the card





FASTEN THE BOARD OF THE CONTROL UNIT TO THE BASE OF THE HOUSING BY INSERTING HOOKS INTO THE "F" MARKED HOLES OF THE PCB

CAUTION

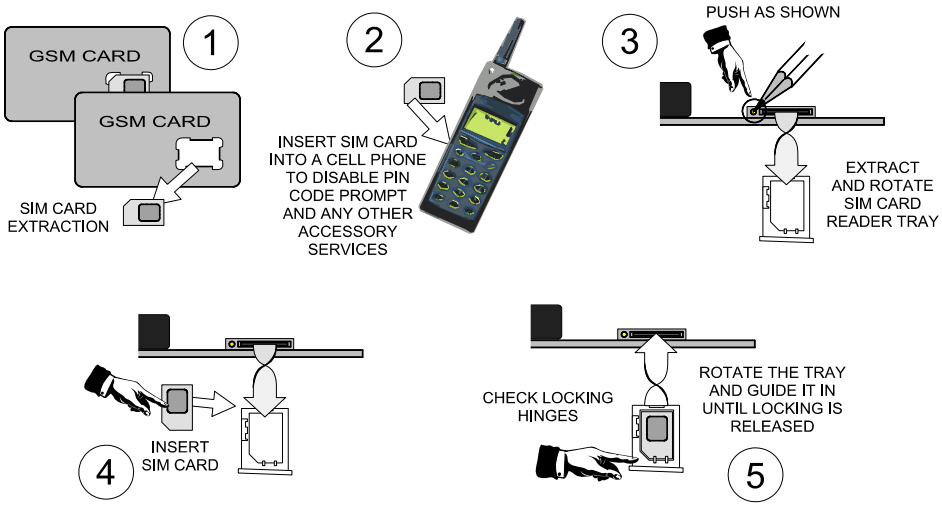
DO NOT REMOVE THE ANTENNA'S CABLE RIB. THE CABLE OF THE ANTENNA MUST BE INSTALLED UNDER THE PCB.

DO NOT MOVE THE ANTENNA FROM THE LOCATION MARKED AS "G"

DO NOT USE EXTENTION CORDS WITH THE CABLE OF THE ANTENNA THAT IS CONNECTED TO THE GSM MODULE AND FASTENED UNDER THE BOARD IN THE AREA MARKED AS "H".

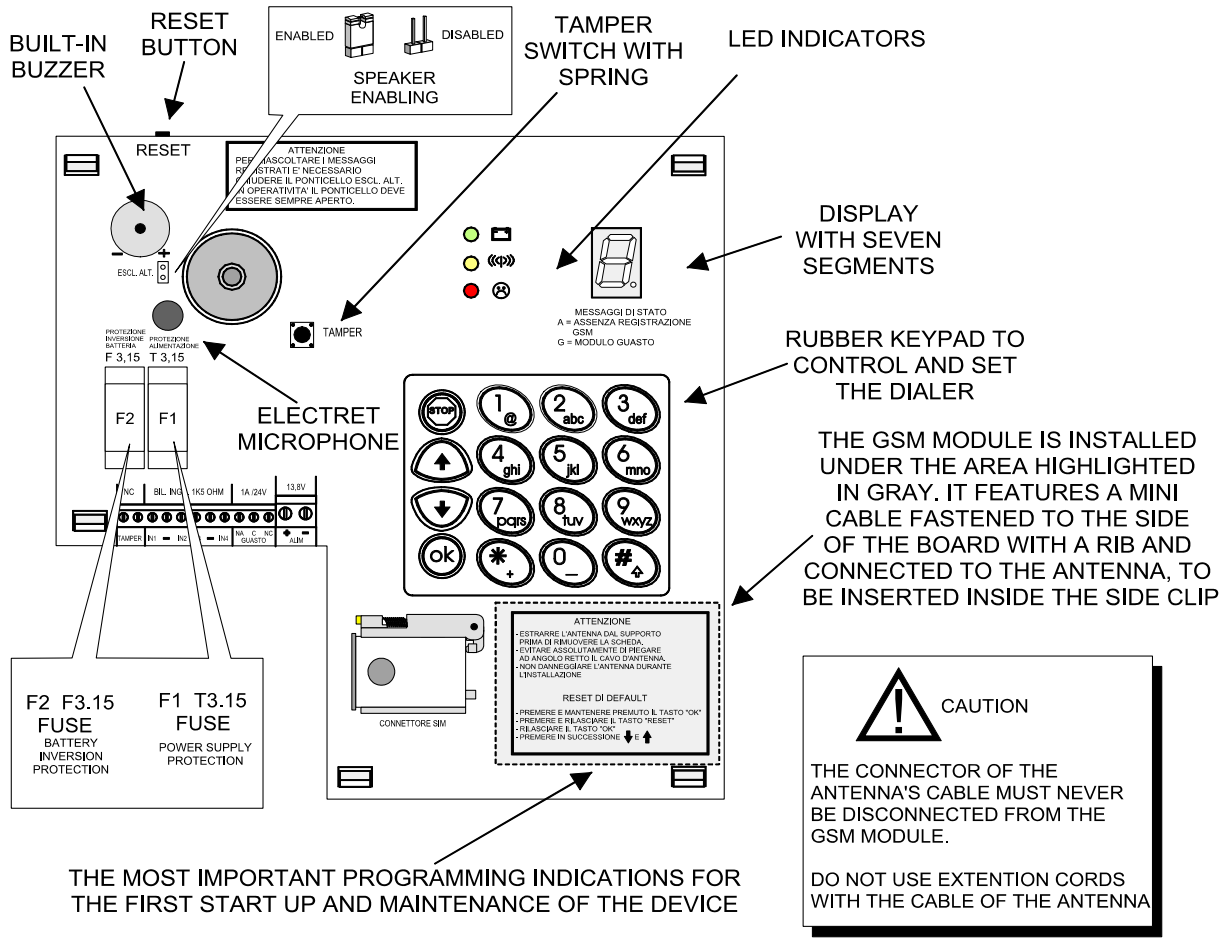
5. ELECTRIC CONNECTIONS

SIM card insertion procedures.

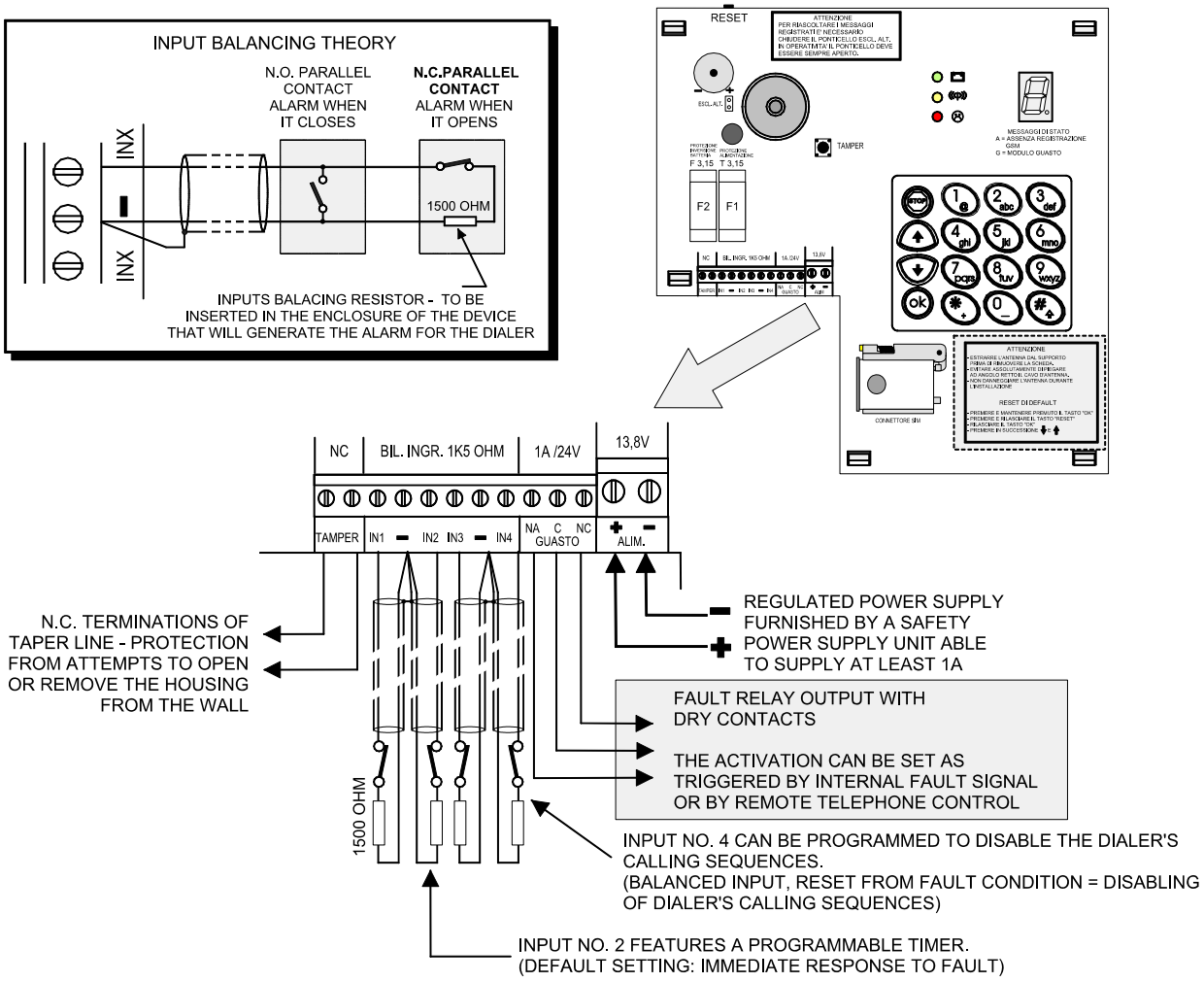


CAUTION: the security PIN code and any other possible active services must be removed before inserting the card into the SIM slot located under the keypad.The SIM card must not be removed or inserted into the device while it is on. Should this happen, the GSMessenger could become inoperate for up to 3 minutes, until it is reset or turned off and on again.

View of board.



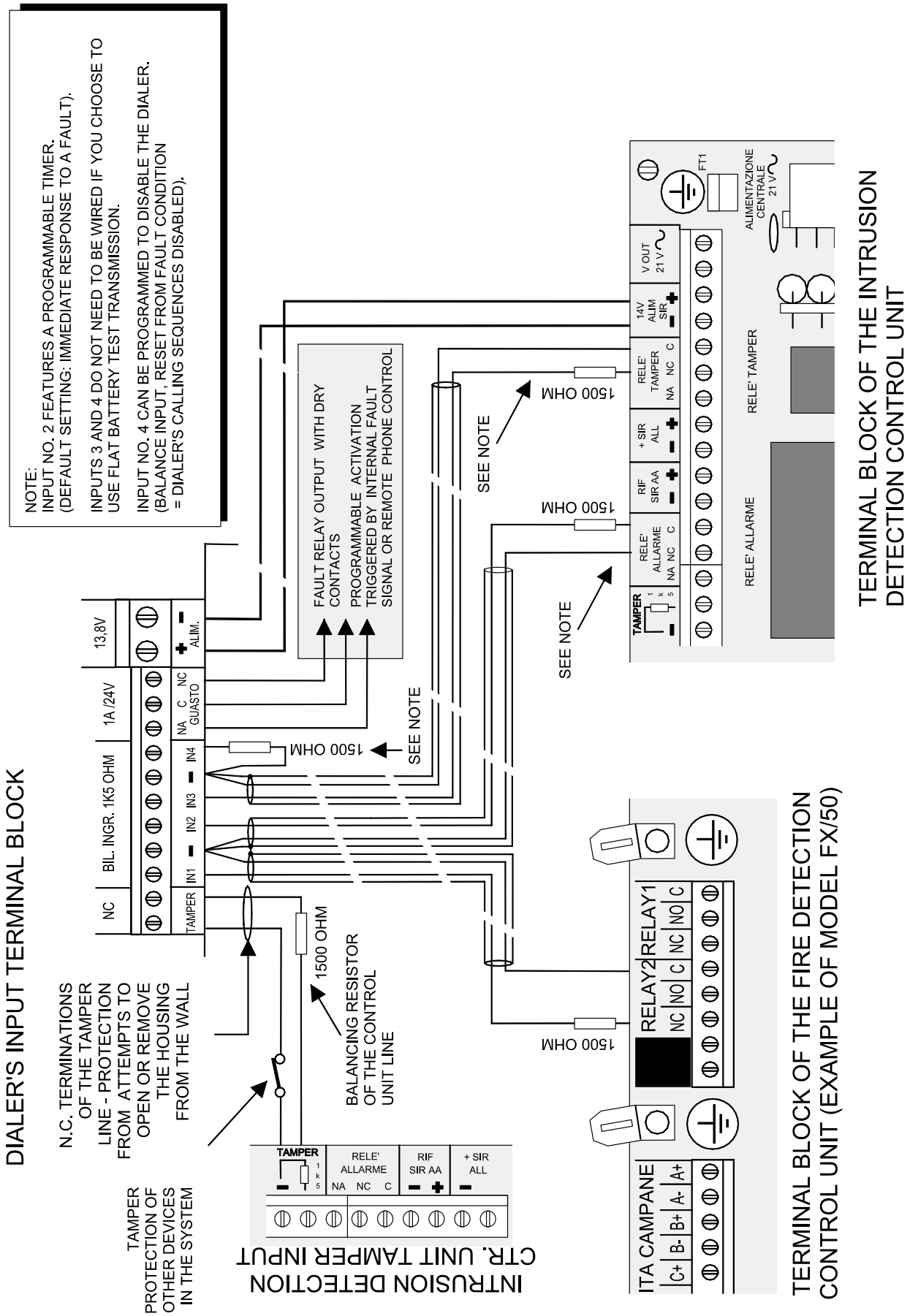
View of board connections.



CAUTION: the GSMessenger dialer can be programmed to monitor its appropriate operation by sending messages triggered by a low battery condition and for TEST purposes. Such settings, although useful for the regular management of the system, will employ two of the wired inputs of the dialer.

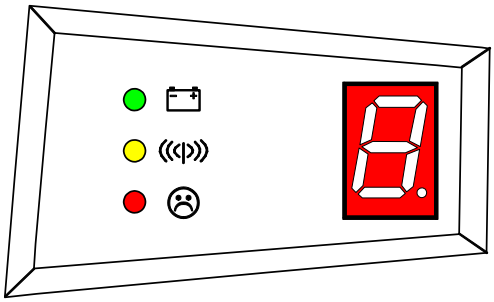
These two inputs will therefore not be available to connect external devices. Specifically, if the low battery call is required, input no. 3 cannot be wired. Input no. 4 will no longer be controlled once the TEST call is programmed. By programming input no. 4 to externally disable telephone calls you will not disable the dial out TEST function. Special care must be taken while programming the GSMessenger in order not to disable the previously executed connections.

Example of a mixed connections involving an intrusion and a fire detection system.



6. DISPLAY

Front panel view, status indicators.



The front panel features several LED status indicators.

● = Power supply status LED indicator reporting power supply condition.
LED ON: external power supply connected, no information on battery status.
Flashing LED: external power supply failure, battery within operating limits.
LED OFF: external power supply failure, low battery.

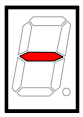
● = GSM module operating status LED reporting GSM module condition.
LED ON: telephone call in progress.
Slow flashing LED: module properly registered on GSM network.
Fast flashing LED: module searching for GSM service, lack of SIM card for SIM card protected by PIN code.
LED OFF: faulty GSM module for power supply voltage < 9V.

= Fault LED indicator reporting fault condition.
LED ON: module not registered over GSM network or module not responding to microprocessor controls
Slow flashing LED: low intensity GSM radio signal.
LED OFF: normal operation, GSM module within operating limits.

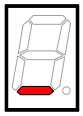
= Numeric display with seven segments, please refer to following page for details on the range of information displayed.

Label summing up main keypad functions. The installer must attach this adhesive label that is supplied with the device to the door of the dialer.

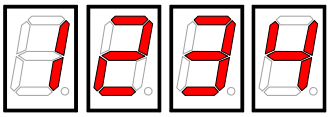
6.1 Data shown on the numeric display



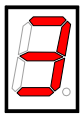
DIALER ON
STAND-BY.



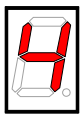
DIALER ON STAND-BY
BUT WITHOUT SUFFICIENT POWER SUPPLY
VOLTAGE TO MAKE THE CALLS.



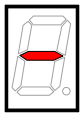
FLASHING NUMBERS, CALLING
SEQUENCE OF INPUTS.



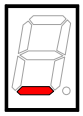
FLASHING NO. 3 REPORTING CALL
DUE TO FLAT BATTERY.



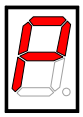
FLASHING NO. 4 REPORTING TEST
CALL IN PROGRESS.



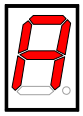
FLASHING LINE REPORTING TRANSMISSION
OF POWER SUPPLY SMS IN PROGRESS.



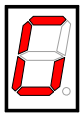
FLASHING LINE REPORTING UNAVAILABILITY
OF SUFFICIENT POWER SUPPLY VOLTAGE TO
CARRY OUT CALLS, EVENT SAVING, THE CALLS
WILL BE DIALED ONLY WHEN THE MINIMUM
OPERATING VALUE IS RESTORED (> 9V).



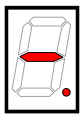
ACTIVE CALLING SEQUENCES - THE DIALER
IS PAUSING BETWEEN ONE CALL AND THE
FOLLOWING ONE.



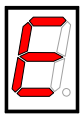
FLASHING LETTER REPORTING LACK OF
GSM REGISTRATION.



FLASHING LETTER REPORTING GSM MODULE
FAULT.



CENTER LINE AND DECIMAL POINT ARE LIT
TO REPORT PROGRAMMING ACCESS. THE
DECIMAL POINT FLASHES WHILE A COMMAND
IS ENTERED.

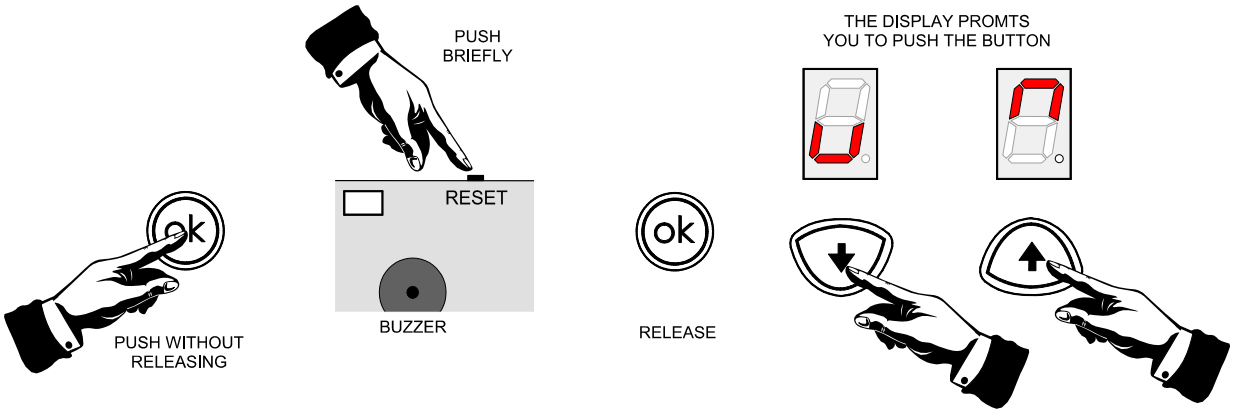


PROGRAMMING ERROR REPORT.

7. SYSTEM RESET

7.1 System reset operations

To reset the GSMessenger to the factory default settings, please carry out the following procedure:



CAUTION: during the reset to factory default settings procedure, the inputs will not be checked, transmission procedures are not enabled and any transmission in progress will be aborted.

At the end of the default resetting procedure the programmed settings of the GSMessenger will be as follows:

- Voice calls repetitions: 1
- SMS transmission repetitions: 1
- Voice call duration: 30 sec.
- Pause between two cycles of a sequence: 30 sec.

- Programming code: **888888**
- Credit balance check SMS interval: 1 month
- Flat battery transmission: disabled
- Enable SMS to reset inputs: disabled
- Periodic TEST call: disabled
- Power supply failure report delay: 5 min.
- Input No. 2 response delay: 0 sec.
- Disable telephone calls via input no. 4: disabled

The system reset procedure, reset to factory default settings, does not delete voice messages.

Should there be a problem in bringing the dialer back to the normal operating conditions, the display will show a symbol that refers to the verified condition. For the meaning of the symbols, please refer to chapter "Data shown on the numeric display" on page 13.

8. PROGRAMMING

Through the keypad of the GSMessenger the dialer can be fully and effortlessly programmed with the support of audio prompts and displayed indications.

Each time a key is pressed, the built-in buzzer will beep. Two beeps will be heard to confirm a command that has been completely entered, while four beeps will be heard when the programming has been successfully stored. Should you make a mistake while entering the data, the GSMessenger will sound and unmistakable beep and the letter "E" will be shown on the display.

Should you realize that you are making a mistake while entering a command, you can press the STOP key to cancel the procedure.

NOTE: during programming, the dialer will not control the inputs or send the related calls. When the programming mode is accessed, all calls in progress will be aborted.

8.1 Programming code

The programming code must be entered in order to program the dialer. The code is formed by six digits that can be changed at any time.

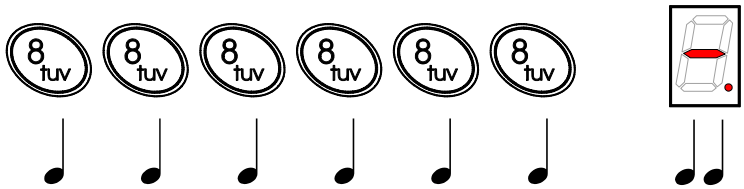
As shown in the previous chapter, the default programming code is: **888888**.

8.2 Programming mode

In order to access the dialer's programming mode, you must therefore enter the access code and assure yourself that the device is ready to accept the commands.

Such operating condition will be displayed by the indication "Programming mode". By convention the programming mode will be identified throughout this manual with the term "PRG MODE".

The syntax is as follows:



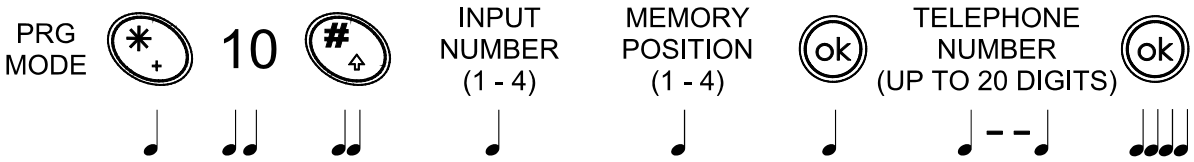
NOTE: the decimal point will flash. while the command is entered.

8.3 To change the programming code

Use the following procedure to change the programming code during the default condition:

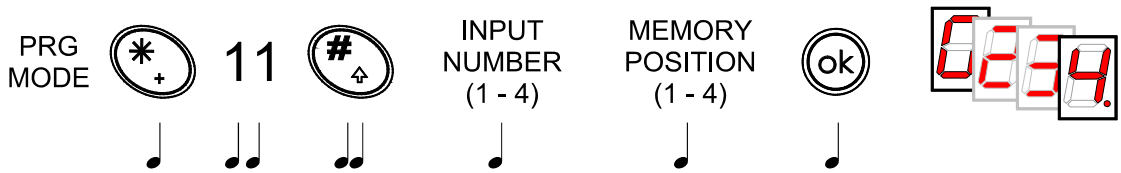
8.4 To program telephone numbers

The syntax of the command is as follows:



8.5 To display stored telephone numbers

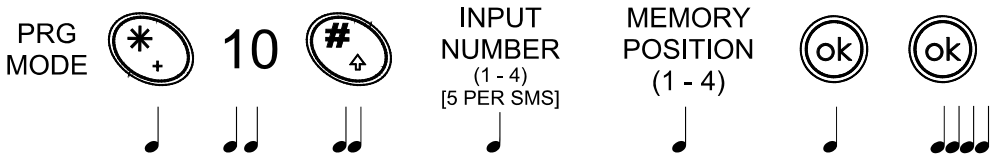
The syntax of the command is as follows:



NOTE: when the letter "C" is displayed, it means that no number has been stored in a memory position or that the previously stored telephone number has been deleted.

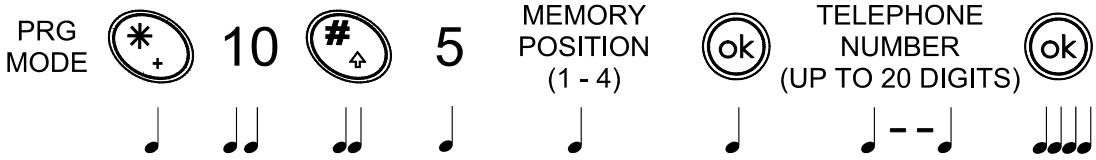
8.6 To delete stored telephone numbers and SMS messages

The syntax of the command is as follows:



8.7 To program telephone numbers for SMS messages

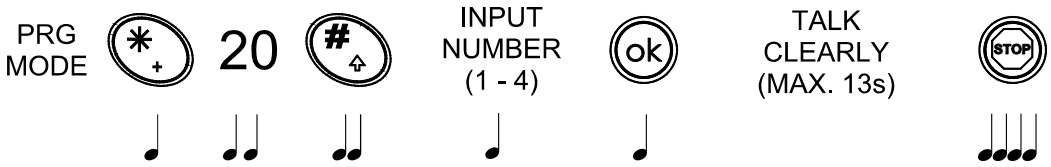
As described in the dialer's features and later in Chapter "Operations", the GSMessenger is able to send SMS messages. The syntax of the command is as follows:



8.8 To record voice messages

The GSMessenger dialer has a built-in microphone and speaker that allows you to record and playback messages. The recorded messages will remain stored even if there is no power supply available without the need of backup batteries.

The syntax of the command is as follows:

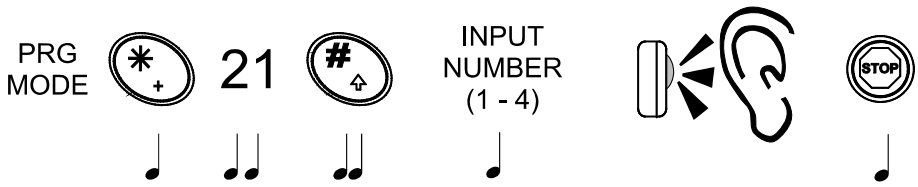


NOTE: the messages must be recorded in a quiet environment, preferably without any echo. During the recording, the display will act as a counter. It will display a flashing center line during the first 3 seconds of recording while it will start to count backwards for the remaining seconds.
Message3 may be linked to a low battery event of the dialer. Message4 may be linked to the test call.
The voice message is sent five seconds after the beginning of the dialing sequence of the telephone number and the transmission will last for the programmed period or until the subscriber hangs up the phone.

8.9 To playback recorded messages

In order to playback recorded messages, the speaker must be enabled by closing the jumper S1. Such operation must be executed during the installation and/or maintenance procedure. Since the jumper must remain open (speaker disabled) during the dialer's normal operation, the command cannot be used.

The syntax of the command is as follows:



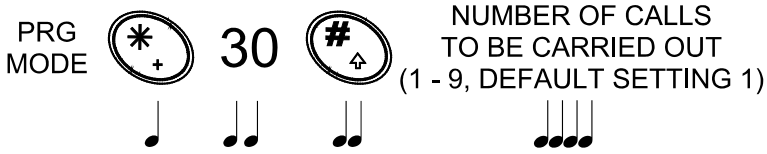
8.10 To delete recorded messages, message maintenance

A recorded message may be deleted, for example for maintenance purposes, by repeating the recording procedure described in the chapter "recording voice messages" on page. 16.

8.11 To program the number of voice calls

The number of calls that the dialer will have to make for each subscriber's phone number that has been stored into the device's memory positions can be programmed.

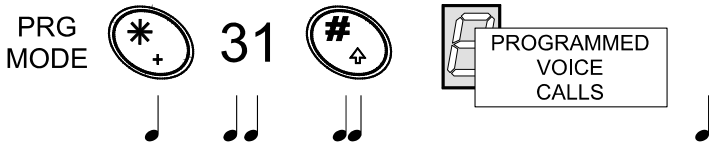
The syntax of the command is as follows:



NOTE: we recommend not to program to many call repetitions in order to avoid keeping the line busy without need. We do not recommend the setting of a number of calls close to 1 in order to ensure that at least one or more calls ends successfully even if a temporary loss of communication should occur.

8.12 To display the number of programmed voice calls

To check the number of call repetitions that have been set, the appropriate command must be entered using the following syntax:



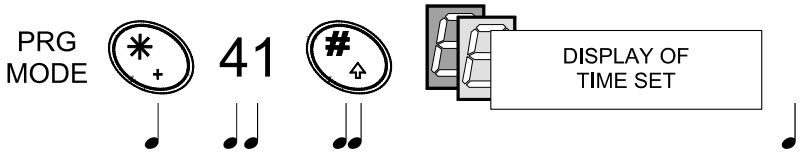
8.13 To program the duration of the pause between two dialing sequences

The dialer can be programmed to pause for a reasonable time before making a call during the progress of a sequence triggered by one or more events.

The syntax of the command is as follows:

8.14 To display the programmed duration of the pause between two dialing sequences

To check which delay time has been set, the appropriate command must be entered using the following syntax:

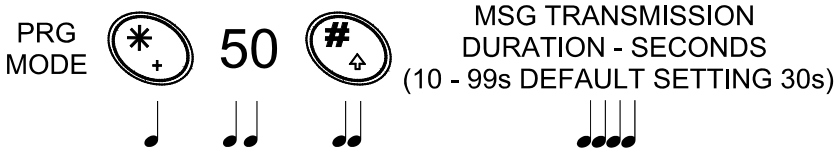


8.15 To program voice message transmission duration

The voice message, previously recorded using the appropriate command as previously described, will be transmitted for the time that can be programmed for a single call.

The message will technically be sent 5 seconds after dialing the subscriber's phone number. The dialer will abort the communication once the programmed time has expired and at the end of the message.

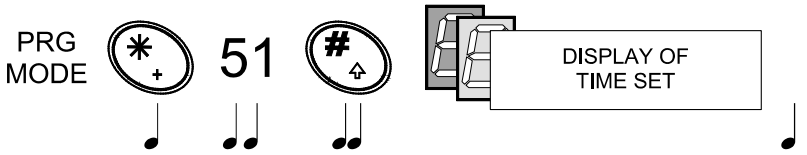
The syntax of the command is as follows:



NOTE: it is strongly recommended to program a transmission time that is adequate with the average habits of the subscriber to be called in order to avoid that the subscriber picks up the phone when the transmission time has expired.

8.16 To display the programmed voice message transmission duration

To check which transmission time has been set, the appropriate command and must be entered using the following syntax:



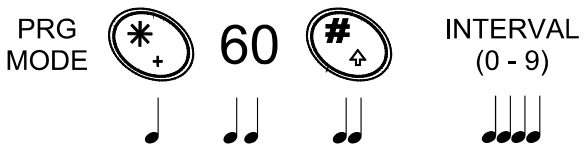
8.17 To program the periodic TEST transmission duration

The GSMessenger can be programmed to make a voice call at regular intervals in order to check the credit balance of a SIM card.

The call is made using the phone number of the first subscriber that is stored in the memory position No. 4 while the message being sent is the message No. 4.

The periodic TEST call procedure generates only one call that is dialed at the end of the programmed time regardless of any other programming.

The syntax of the command and the time table is as follows:

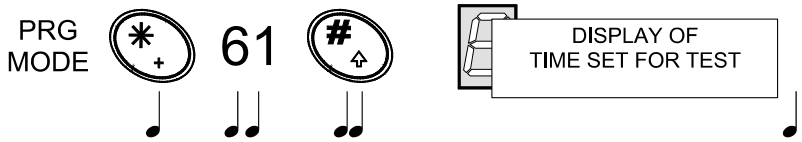


0 = DISABLED (DEFAULT)	
1 = 4 HOURS	6 = 4 DAYS
2 = 12 HOURS	7 = 5 DAYS
3 = 24 HOURS	8 = 6 DAYS
4 = 2 DAYS	9 = 1 WEEK
5 = 3 DAYS	

NOTE: you will not longer be able to use input no. 4 if the periodic TEST call procedure is employed. The periodic TEST call timer is reset each time the device is turned on/reset and when the test duration is set.

8.18 To display the programmed periodic TEST transmission duration

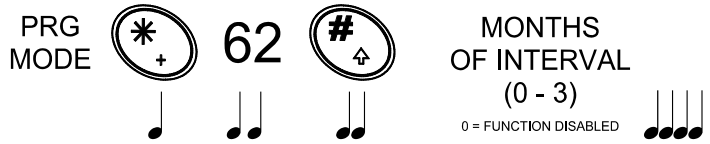
To check that the voice transmission TEST time has been set, the appropriate command and must be entered using the following syntax:



8.19 To program the credit balance SMS message

Checking the prepaid SIM card credit status is not longer possible since the different providers do not supply this service in an automatic fashion that can be used by the GSMessenger. The only way to obtain this information is to set the periodic transmission of the SMS message "CHECK SIM EXPITY DATE AND CREDIT BALANCE".

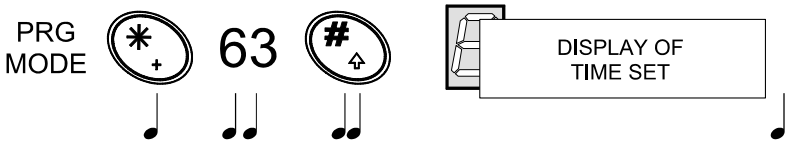
The syntax of the command is as follows:



The SMS is sent to all the phone numbers stored only once. The timer is reset each time the device is turned on/reset or after each new time setting.

8.20 To display the programmed credit balance SMS message

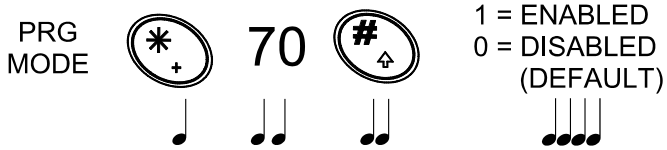
To check if the transmission of the credit balance SMS message has been set, the appropriate command and must be entered using the following syntax:



8.21 To program low battery voice transmission

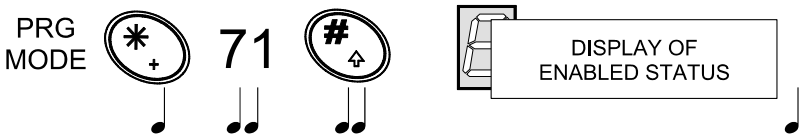
The dialer can be programmed to send a voice call that is triggered by a lowlow battery condition. The call is made using the phone number of all the subscribers that are stored in the memory positions linked to input No. 3. The message being sent is the message no. 3.

You will not longer be able to use input no. 3 if the low battery voice call report is employed. The syntax of the command is as follows:



8.22 To display low battery voice transmission enabling

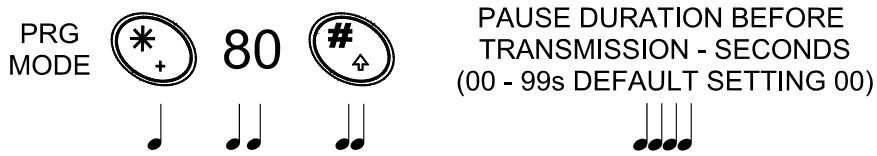
To check if the low battery voice transmission has been enabled, the appropriate command must be entered using the following syntax:



8.23 To program the response delay of input no. 2

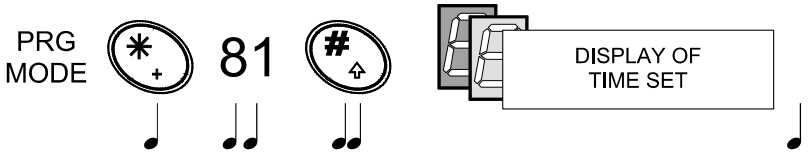
The delayed response of input no. 2 has been designed to allow the connection of the GSMessenger to control units that may not have been produced recently and whose alarm relay could be momentarily triggered. The delay function can also be useful when the user makes a mistake in disarming the control unit since it will prevent unnecessary intrusion alarm transmissions.

The syntax of the command is as follows:



8.24 To display the programmed response delay of input no. 2

To check the delay time set for input no. 2, the appropriate command and must be entered using the following syntax:



8.25 To program the delay for the power supply failure transmission

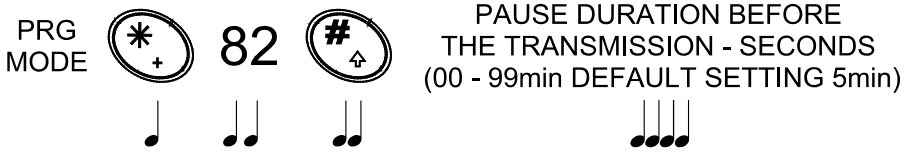
The dialer can be programmed to report a power supply failure from an external power supply unit, an intrusion detection control unit or another power supply set.

Since in this instance the dialer will be powered by the built-in buffer battery which has limited self-sufficiency, this operating condition must be as brief as possible. If the pertaining programming steps have been properly configured, a low battery report call will be made by the dialer when the 10,5V threshold is reached.

The delay time must be carefully programmed in order to avoid that temporary absences of power supply trigger unnecessary reports. The timer will be reset when the recharging voltage is restored within the programmed time.

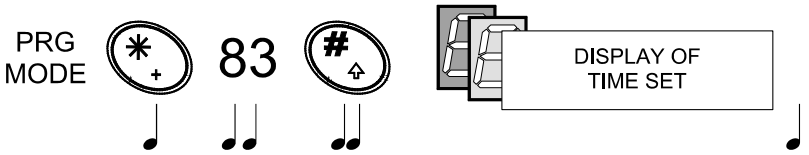
The event triggered can be used to send the appropriate SMS messages, please refer to the chapter on this subject. An appropriate SMS message will be sent when the recharging voltage is restored.

The syntax of the command is as follows:



8.26 To display the delay programmed for the power supply failure transmission

To check that the power supply failure report delay that has been set, the appropriate command must be entered using the following syntax:



8.27 Protracted power supply failure condition

The device checks the power supply level through the methods and modes previously illustrated and is able to supply an appropriate report.

The built-in controller of the GSMessenger will generate a warming message and send it as an SMS message to all the stored phone numbers should there be a continuous and abnormal external power supply failure.

The transmission is carried out after 4 hours of continuous power supply failure. This is a cyclic transmission that cannot be disabled or programmed.

8.28 To program the external command to disable calls, input no. 4

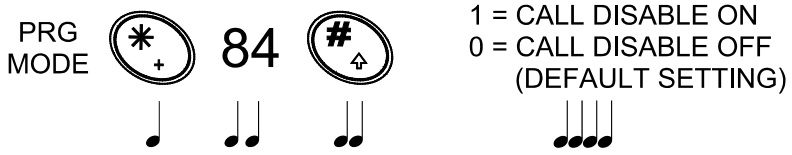
As previously shown, the device's transmitting functions can be disabled by accessing the keyboard in the programming mode. The dialing sequence can also be disabled by an individual user while listening to the message when the disabling code * # is entered using the telephone dials of any phone being used.

This remote command will only effect the dialing sequence triggered by the event and will not disable all dialing sequences. The GSMessenger will carry out two dialing sequence when two alarms from two separate inputs are received. The subscriber being called will have to enter first the disabling code for call no. 1 and then the disabling code for call no. 2.

Another option is to employ one of the inputs for the function of the GSMessenger to disabling transmissions by programming input no. 4 for a subsequent connection to an external safety actuator or a hypothetic intrusion detection control unit output device connected to the unit. Employing input no. 4 for this function will disable all calls.

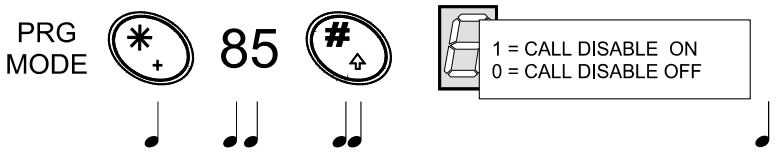
The external command must be issued via an impulse to unbalance input no. 4. The disabling effect will take place at the subsequent rest of the relevant input. The setting of this function is comparable with the periodic TEST call function.

The syntax of the command to program input no. 4 is as follows:



8.29 To display the programmed external command to disable calls

To check the settings, the appropriate command must be entered using the following syntax:

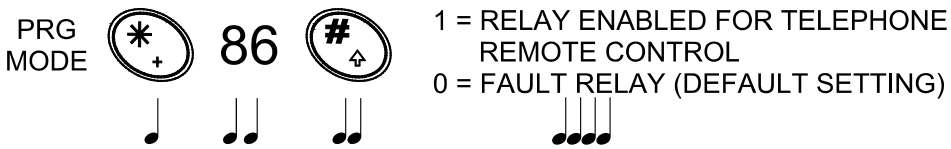


8.30 To program the telephone remote control function

Il GSMessenger can be programmed for the telephone remote control function by activating the built-in relay output of a remote telephone or a mobile phone.

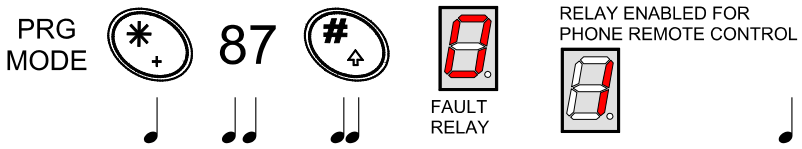
The telephone remote control is useful to activate a device such as a heating or an air conditioning system, an intrusion detection control unit , etc.

The syntax of the command is as follows:



8.31 To display the programmed telephone remote control function

The syntax of the command is as follows:

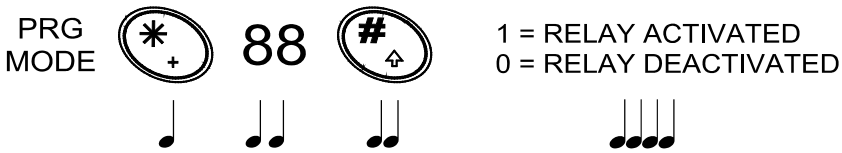


NOTE: if the fault relay is set for the telephone remote control function, the GSMessenger will no longer report its operating condition.

8.32 To set the relay condition (for remote controllable relay only)

Relay condition can be set from the keyboard only if the relay is set as remote controllable (*86# keys).

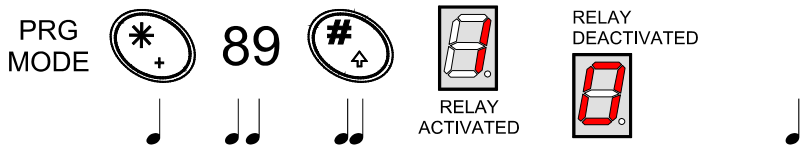
The syntax of the command is as follows:



1 = Relay activated: C-contact will be closed on NC and opened on NO
2 = Relay deactivated: C-contact will be opened on NC and closed on NO

8.33 To display the relay condition settings (for remote controllable relay only)

The syntax of the command is as follows:

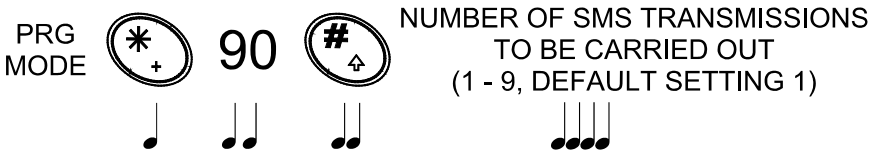


The GSMessenger display will show the programming status for 2 seconds.

8.34 To program the number of SMS transmissions triggered by an event

The meaning of the command is the same of the equivalent command for the voice transmission. You can program how many times the SMS messages triggered by a programmed event must be sent.

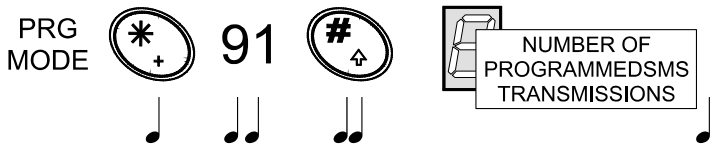
The syntax of the command is as follows:



NOTE: thanks to the reliability of the device, we recommend to limit the number of times that SMS messages should be sent even when the subscriber's cell phone is off at the time of the transmission. The various GSM network providers offer different scheduling for the supply of the SMS service.

8.35 To display the programmed number of SMS transmissions triggered by and event

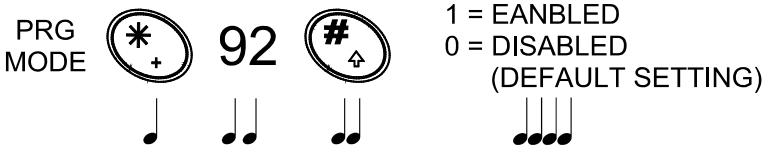
To check the settings, the appropriate command must be entered using the following syntax:



8.36 To program the SMS transmission to reset the inputs

The dialer can be programmed to send SMS messages once the normal condition of the inputs is reset.

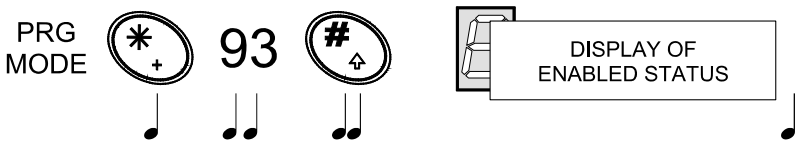
The syntax of the command is as follows:



NOTE: when the power supply is restored it will trigger the transmission of an appropriate SMS messages whether the inputs reset SMS have been enabled or not.

8.37 To display the enabled SMS transmission to reset the inputs

To check the settings, the appropriate command must be entered using the following syntax:



9. STORED SMS MESSAGES

The GSMessenger dialer is supplied with a set of 12 SMS messages which enable its standard operation on the field. This set of messages cannot be changed by the installer.

The SMS messages sent as are follows:

"El.Mo. GSMessenger: INPUT 1 ALARM!"

"El.Mo. GSMessenger: INPUT 2 ALARM!"

"El.Mo. GSMessenger: INPUT 3 ALARM!"

"El.Mo. GSMessenger: INPUT 4 ALARM!"

"El.Mo. GSMessenger: INPUT 1 RESTORED!"

"El.Mo. GSMessenger: INPUT 2 RESTORED!"

"El.Mo. GSMessenger: INPUT 3 RESTORED!"

"El.Mo. GSMessenger: INPUT 3 RESTORED!"

"El.Mo. GSMessenger: LOW BATTERY!"

"El.Mo. GSMessenger: EXTERNAL POWER SUPPLY FAILURE!"

"El.Mo. GSMessenger: EXTERNAL POWER SUPPLY RESTORED!"

"El.Mo. GSMessenger: CHECK SERVICE EXPIRY DATE AND RESIDUAL CREDIT!".

(See detailed description in paragraph "SMS Messages" on page. 27)

10. OPERATIONS

If appropriately programmed, the GSMessenger dialer sends telephones calls using the GSM service registration supplied by one of the main network providers.

10.1 SIM card

The device's capability to send messages is also supplied by the SIM card that is inserted into the module. In order to operate the device correctly, the following items must be carefully evaluated:

- The GSMessenger has been designed and developed to be used for security applications. The use of prepaid SIM cards is to be avoided as much as possible when employing the device for security applications. **The "CREDIT BALANCE" must otherwise be appropriately and individually managed.**
- The periodic TEST call function must be employed in order to have a depleted credit report.
- The EURO "charge" of the prepaid SIM card expires after 11 months of operation without transmission. By programming the TEST transmissions, the EURO charge will not be depleted without warning thereby avoiding that the device should becomes unable to carry out its tasks.
- Using a SIM card tied to a service agreement will assure its continuity with low monthly expenses. The agreement can be made by individuals as well as by companies.
- Before inserting the SIM card in the SIM card reader tray, please refer to chapter "Installation Tips" on page 5. The PIN code and any other service features must be disabled before usage by inserting the SIM into another cellular phone.

10.2 Alarm inputs

The dialer features 4 balanced inputs. Any change to the resistor will trigger an alarm event to which the GSMessenger will appropriately respond based on its programming.

As previously illustrated in the chapter "To program the delay of input no. 2" on page. 21, input no. 2 can be schedule in order to avoid undesirable alarm transmissions. The factory default setting for this input is: immediate response.

The status of the inputs is constantly monitored. The inputs feature a level of importance which is commonly defined as PRIORITY. Input no. 1 has a higher priority than input no. 2, input no. 2 has a higher priority than input no. 3 and so forth up to input no. 4.

If during a dialing sequence triggered by the fault of one input, the fault of another input with higher priority than the first is detected, the dialing sequence that is taking place will be interrupted and the dialing sequence pertaining to the input with higher priority will start immediately. The dialing sequence that was interrupted will resume at the end of the dialing sequence of the input with higher priority.

10.3 Dialing sequence

When the dialer detects the fault of an input, it will handle its priority level accordingly and activate a dialing sequence that can be summed up into the following phases:

- Sending an SMS with a description of the event to each number of the SMS group. Please refer to paragraph "Programming SMS telephone numbers" on page 16. The SMS messages are sent in turn starting from the first number of the group and with a 5 second pause between the messages.
- A voice call is made to each of the voice group linked to the input. The calls are made in turn starting from the first number of the group and with a 5 second pause from the end of one call to the beginning of the following one.

> CAUTION: voice messages are never sent for the reset of the alarms.

- The length of the pause between one transmission and the following one is between 10 and 99 seconds.
- The cycle is repeated until there are voice calls and/or SMS repetitions to be sent.
- Any additional alarm received by an alarm input during the dialing sequence will be ignored: the input will be enabled again only after the pause at the end of the last cycle.

- The voice message is immediately transmitted after dialing the subscriber's number, but, if the call terminates within 5 seconds from when the subscriber's number is dialed, the GSMessenger will not consider that the call was completed successfully and will make up to 3 extra calls as in the case of busy numbers.
- The subscriber listening to the message can disable a specific dialing sequence and without disabling all other dialing sequences by pressing * # on the telephone's dials .
- The GSMessenger can detect the outcome of a call made to busy GSM terminals. Even if only one number has been busy during all the cycles of the dialer's dialing sequences, the unit will carry out at least 3 extra cycles dialing only the numbers that were constantly found busy. At the end of these extra cycles, the sequence will terminate and the input will be enabled again.

> CAUTION: the function for the detection of a busy number is based on a digital transmissions received by the GSM module about the outcome of the call. This function is therefore not operational if the GSM provider replaces digital transmissions with voice messages. In view of this, it is best not to completely rely on this function since its operation is based on the services offered by the providers which could change without prior notice. We recommend setting the number of voice calls to a value greater than 1 to assure a greater reliability of the transmissions.

- During a dialing sequence, the number of the relevant input will be displayed flashing or a flashing '-' will be displayed for the power supply SMS. The number pertaining to the last dialing sequence that has been carried out will flash on the display when several dialing sequences overlap (with two simultaneous alarmed inputs for example).

10.4 Messages

10.4.1 Voice messages

The GSMessenger can store up to 4 voice messages. Each message may be up to 13 seconds long and linked to a specific input.

Message3 may be linked to the low battery event, message4 may be linked to the periodic TEST call.

10.4.2 SMS messages

The GSMessenger can to send 12 SMS messages, pertaining to: alarm/reset of inputs 1-2-3-4, failure/reset of external power supply, low battery.

The SMS messages sent as are follows:

"El.Mo. GSMessenger: INPUT 1 ALARM!"

"El.Mo. GSMessenger: INPUT 2 ALARM!"

"El.Mo. GSMessenger: INPUT 3 ALARM!"

"El.Mo. GSMessenger: INPUT 4 ALARM!"

"El.Mo. GSMessenger: INPUT 1 RESTORED!"

"El.Mo. GSMessenger: INPUT 2 RESTORED!"

"El.Mo. GSMessenger: INPUT 3 RESTORED!"

"El.Mo. GSMessenger: INPUT 3 RESTORED!"

"El.Mo. GSMessenger: LOW BATTERY!"

"El.Mo. GSMessenger: EXTERNAL POWER SUPPLY FAILURE!"

"El.Mo. GSMessenger: EXTERNAL POWER SUPPLY RESTORED!"

"El.Mo. GSMessenger: CHECK SIM EXPIRY DATE AND CREDIT BALANCE!".

As previously described in chapter "SIM card" on page. 26, the GSMessenger will operate at its best when "not prepaid" telephone cards but those that are tied to a regular service agreement are being used. In order to ensure the dialer's continuous operation, the holder of the agreement must renew the agreement before its term.

10.5 To send power supply SMS

GSMessenger can send SMS messages pertaining to the device's power supply status. The systems supplies three kinds of messages:

- a low battery SMS
- an external power supply failure SMS
- an external power supply reset SMS

The power supply SMS messages will be sent in turn much in the same manner as the standard dialing sequences but without any voice message transmission.

Also the SMS messages reporting power supply status have a priority level. The priority of the power supply SMS messages is lower than the one of any input.

Out of the tree kinds of power supply SMS messages, the low battery SMS has a higher priority than the external power supply failure SMS.

As previously described in chapter "Protracted power supply failure condition" on page 22, in the case of a permanent and abnormal external power supply failure, the built-in controller of the GSMessenger will generate a warming message and send it as an SMS to all the stored phone numbers.

The transmission is carried out after 4 hours of continuous power supply failure. This is a cyclic transmission that cannot be disabled or programmed.

10.6 Periodic TEST call

The GSMessenger can be programmed to send a periodic voice call to check the credit balance on the SIM card.

The call is made using the first subscriber's number stored in the memory position no. 4.

The periodic TEST call procedure generates only one call that is dialed at the end of the programmed time regardless of any other programming.

The programming procedure is illustrated in paragraph "To program the transmission duration of the periodic TEST voice call" on page. 19.

10.7 SMS to check the credit balance on the SIM card

Checking the prepaid SIM card credit status is not possible since the different providers do not supply this service. The only way to obtain this information without making voice test calls is to set the periodic transmission of the message "CHECK SIM EXPIRY DATE AND CREDIT BALANCE".

The SMS is sent to all stored phone numbers only once. The timer is reset each time that the device is turned on/reset or after each new time setting.

The programming procedure is illustrated in paragraph "To program the credit balance SMS message" on page. 20.

10.8 Fault relay

The GSMessenger features a relay output to report faulty conditions.
The fault relay, with positive driver contacts, is de-excited in the following cases:

- No GSM registration for more than one minute, the relay intervenes as soon as the GSM connection is restored.
- GSM module fault. Example: when the GSM module does not respond to the commands carried out by the microprocessor; in this case the relay intervenes if the GSM module is "unblocked" by an initialization procedure.
- Flat battery.

The fault relay can also be set to operate for the telephone remote control function using an appropriately connected device. For the programming syntax please refer to Chapter "To program telephone remote control function" on page. 23.

10.9 Telephone remote control of a device connected to the GSMessenger

The telephone remote control operations must be carried out using a remote telephone that is able to transmit DTMF tones, such as for example Telecom's phone model SIRIO or a mobile phone.

NOTE: the GSMessenger will not respond to an incoming call if a remote control call is attempted without first having programmed the device.

Telephone remote control procedure:

1. Call the GSMessenger using a remote telephone able to transmit DTMF tones.
2. The GSMessenger responds after 1 or 2 rings and transmits two beeps to report that it awaits the access code.
3. Enter the six digit access code.
4. The GSMessenger acknowledges that the correct access code has been entered by beeping as follows:
   - if the relay is currently activated, it will beep four times
   - **if the relay is deactivated, it will transmit one long beep.**
5. Press ✳ using the telephone dials and then press one of the following numbers to transmit the new status required for the fault relay:
   - 0 to deactivate,
   - 1 to activate.
6. The GSMessenger will report that the status of the fault relay has been changed successfully by transmitting one of the following beeps:
   - if the relay is currently activated, it will beep four times
   - if the relay is deactivated, it will make on long beep.
7. You may hang up the phone if the required setting has been programmed or you may repeat steps 5 and 6 to change the status again (thereby controlling the relay through pulses).

NOTE: steps 5 and 6 must be repeated twice in order to arm and disarm an intrusion detection control unit employing pulses.

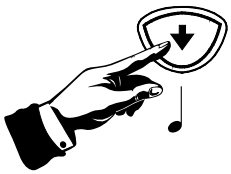
The GSMessenger aborts the call in the following cases:
- when the wrong access code is entered
- when no dial is pressed for 15 sec.
- when a dialing sequence is triggered by an alarm or power supply event.

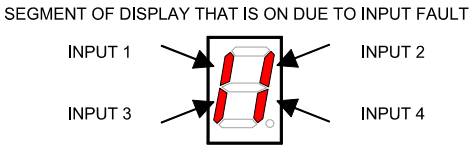
During a dialing sequence the relay cannot be controlled by remote phone and the GSMessenger will reject any incoming call.

In this case you must wait until all dialing sequences have been carried out (the call will be rejected also during a sequence pause) before attempting the call.

10.10 To display the status of the inputs

Please carry out the following procedure to display the status of the inputs:



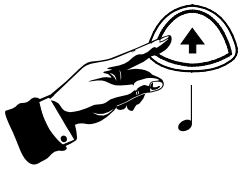


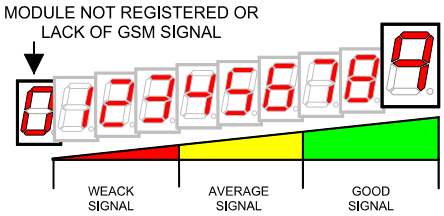
Press any key to end the display. Should you press a numeric key the device will read the number as the first digit of the access code.

10.11 To display the strength of the GSM signal

During the installation and maintenance of the device, it is useful to have an indication of the GSM signal strength.

Please carry out the following procedure to display the strength of the GSM signal:





11. WHAT TO DO IF ..... QUESTIONS AND ANSWERS

Q = The GSMessenger reports the lack of GSM registration by turning on the LED of module and by showing a flashing letter "A" on the display:

A = Check that the SIM card has been properly inserted.

Check that the SIM card is unlocked (i.e., it does not require entering a PIN code).

Check that the SIM card has not expired.

Try to change the location of the device since it could offer a poor reception level (check the quality of the GSM signal by pressing key ↑ during logout).

Q = The GSMessenger reports a fault by turning on the Fault LED and by showing a flashing letter "G" on the display:

*A = The module has not been initialized. Initialize the module by pressing simultaneously * # at reset. Hardware fault, the device requires servicing by a technician.*

Q = The GSMessenger is not dialing and the display shows a flashing  **.**

A = The dialer's power supply voltage is less than 9 V. The dialer will become operational only when the voltage is higher than 9V for at least one minute.

Q = The GSMessenger sends several SMS messages reporting an external power supply failure when the device has not been powered externally for a protracted period of time.

A = The GSMessenger has been designed to transmit a special SMS message when the external power supply failure is detected over a period of time. This special SMS is sent to all the numbers of the SMS group every 4 hours. This function cannot be disabled nor can its timing be changed.

Q = The GSMessenger displays a weak GSM signal when the Fault LED flashes slowly.

A = Display the strength of the GSM signal (press key during logout) and check that is not less than or equal to 3.
Check that the antenna is properly connected and that the wire is not damaged.
The dialer could be in a place with a poor GSM reception range. Change the dialer's location.

Q = The GSMessenger show the calls but does not dial them.

A = The credit balance of the SIM card could be depleted. Check that the SIM card is supplied with a sufficient amount of funds to carry out the required operations.

Q = The GSMessenger does not report a low battery.

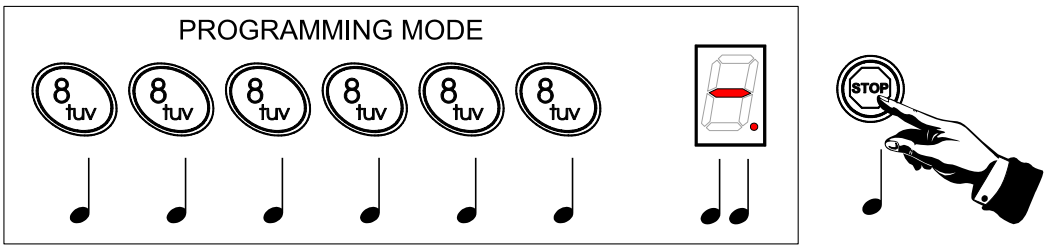
A = When the device is powered by an external power supply it will never report a low battery.

Q = The GSMessenger does not report an external power supply failure.

A = The external power supply failure report is programmable. Check the parameters set on the device. If required set a delay of 0 minutes.

Q = Can the dialer's operations be disabled?

A = The dialer can be disabled by accessing the programming mode and carrying out the following procedure:



*The same function can be carried out also remotely by pressing * # one after the other when a message is being received. The GSMessenger will acknowledge the command by transmitting four beeps.*

Q = The remote transmission of the disabling code may not be acknowledged after the first attempt.

A = The ✳ # dials must be pressed without hurry so that the GSMessenger may properly decode the DTMF tone. In other words, each of the keys must be pressed for at least half a second.

Q = The dialer's operations will not be fully disabled by entering the disabling code via remote.

A = The disabling code disables only the dialing sequence that pertains to the call received by the user that enters the disabling code.
You will have to enter the disabling code several times when the transmissions are triggered by multiple alarms of different inputs.

Q = The GSMessenger does not respond to remote mobile or telephone calls.

A = The dialer has not been programmed for the telephone remote control function.

Q = I cannot find the function to program the timer activating the fault relay.

A = The telephone remote function to activate the fault relay does not foresee the option for a scheduled activation.
The activation/deactivation of the relay can be controlled manually thereby determining also its time frame based on the operation that is required from the device controlled by the GSMessenger.

12. DISPOSAL INSTRUCTIONS

Dispose of the GSMessenger in compliance with current city regulations and by leaving the device in a dumping ground that is authorized for the disposal of electronic products. If required, please contact the appropriate city office for additional information.

Warning on battery usage

In order to properly operate, a battery must be connected to the dialer. When the battery is replaced, make sure that the old battery is disposed of in a dumping ground that is authorized for the disposal of batteries.

The materials used for this product are very harmful and polluting if dispersed in the environment.

13. NOTE

14. INDEX

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