



SECURECOM

SC-GSM

Analog phone line simulator (GSM gateway) or translation of
Contact ID signals to SMS messages and alarm calls

Manual version 1.4

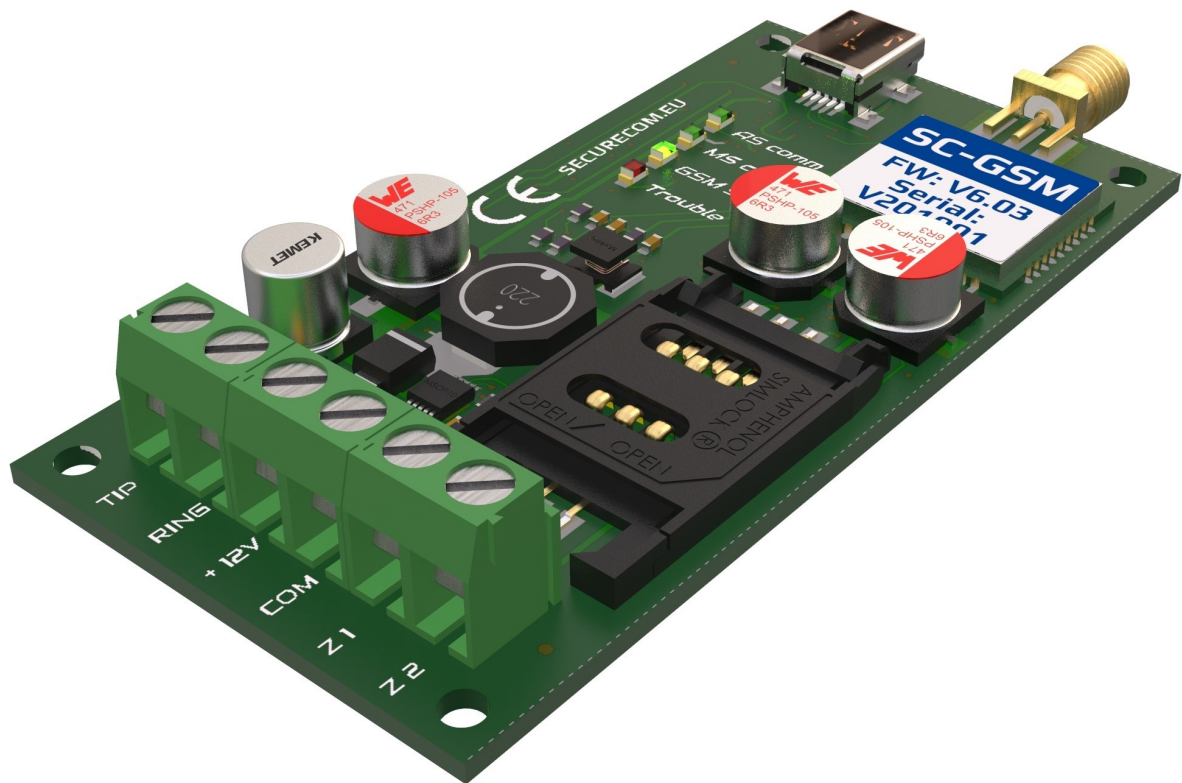


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1 Short functional description of device

In **Standalone mode** the unit behaves like a monitoring station receiver which receives and handles the CONTACT ID communication of alarm control devices. It compares the report codes with the filled in event codes of the program table and at the occurrence of the desired event it sends the assigned SMS message and initiates a call (siren sound is played). By this means the users of the alarm control panel can be notified of **any** signals, differed by the event and subject of event (user, zone, partition). Notifications are not limited to differ only few kind of events as it is usual with all other GSM (SMS) communicators, with trigger inputs only. The best describing definition for this feature would be: **Converting Contact ID messages to programmable SMS messages and phone call notifications** Further function is that by controlling the contact inputs the communicator sends the assigned SMS messages and calls the pre-set telephone numbers.

In **transparent** mode fully replaces phone line. By this means the alarm control panel can send the report codes to monitoring station, or a simple phone device can be used on places where the phone line is not available (elevators, SOS or INFO call points, weekend houses,...)

By controlling the contact inputs the communicator immediately sends the **CONTACT ID** messages assigned to the inputs to the given monitoring station number and this way shorting down the signaling time of the alarm state to monitoring station, providing more precious time to react, while complete communication to monitoring station with full information of events in progress can take its time.

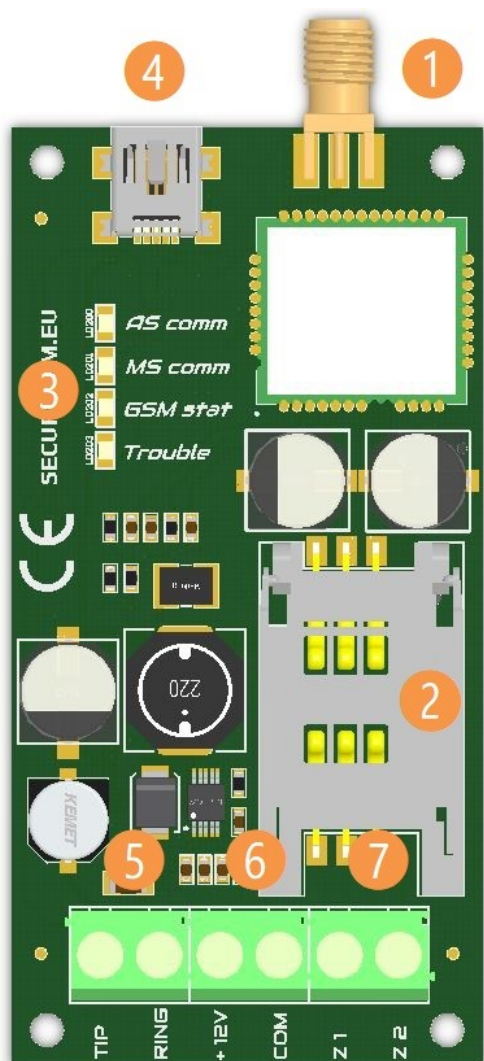
1.1 Main features

- 2 separate modes of operation in one device
- PSTN line simulation for monitoring station signal transmission
- SMS/CALL about 32 different kinds of CONTACT ID reports
- Signals to 4 telephone numbers
- 2 contact inputs with independent signals SMS/CALL
- Handling SIM PIN code
- Forwarding SMS
- Setting and diagnostics via USB connection

1.2 Technical specifications

- | | |
|-------------------------|-----------------------------|
| • Power | 9-30V (DC) |
| Power consumption | 300mA (max.) / 100mA (idle) |
| • Telephone line data | |
| Line voltage | 24V |
| Loop current | 25mA |
| Load impedance | 100-470 Ohm |
| Dial tone | 425Hz |
| • Operating temperature | 0...+70°C |
| • Size | 40x75x15mm |

2 Product Layout



Sign	Part	Description
1	ANTENNA CONNECTOR	GSM network antenna Connector type: SMA, Impedance: 50 ohm, Frequency: 900/1800 MHz
2	SIM CARD HOLDER	For mobile network connection Type: GSM voice SIM, Dimension: 2FF mini SIM
3	LED status display	The LED status signals
4	USB CONNECTOR	For parameters setting , the communicator must be connected to the computer through USB port. Type: USB mini-B
5	Communication line (TIP/RING)	Simulated landline for the alarm control panel's TIP/RING input Line voltage: 24V, Loop current: 25mA, Impedance: 100-600 ohms
6	DC POWER (+12V/COM)	Main power supply Rated voltage: DC 9-30V, Rated current: max. 300mA
7	INPUTS (Z1, Z2)	Contact Input (to negative supply "COM") to trigger the signal sending

3 Connection

In order to operate properly, the device must be equipped with a valid SIM card and the external antenna must be connected to the antenna connector. Use the supplied antenna or any other GSM antenna that suits the needs for installation. The SIM card should be inserted to the card holder "door" (the moving part of card holder). The Door must be pushed toward the PCB until completely "closed", i.e. the two parts of card holder are overlapping, and after that the card holder should be LOCKED, by pulling the holder "door" toward the terminals (as marked on the holder). The locking of card holder gives a click sound. If the card was not placed properly as it should be, the card holder door can not be locked and turning the PCB in horizontal position with card holder toward the ground will cause the holder to open. In this case, the device will not operate properly, and may cause the damaging of SIM card. Please be sure that the SIM card is placed properly before powering up the device.

Warning: The SIM card should never be removed or inserted while the device is powered up.

3.1 Power supply

SC-GSM communicators can be powered from USB connection for programming only (downloading of settings). For normal operation required the external power (connected to terminals **+12V** and **COM**). The device will be functional with any power voltage between 9 and 30 V DC is applied to the terminals.

3.2 Emulated phone line

The **TIP** and **RING** terminals of the SC-GSM device provides an emulated phone line. Connect these terminals where the PSTN (regular phone line) is supposed to be connected to the device that will use this communicator. In case of connecting to alarm panel, use the INCOMMING LINE terminals, (usually marked with TIP/RING or T/R, or Ti/Ri...).

3.3 Trigger inputs

There are 2 CONTACT inputs on device, marked as **Z1** and **Z2**. These inputs are used to trigger a voice call to a user, send an SMS message, or to send a specified *Contact ID* code to a monitoring station (when device is set to transparent mode). These inputs are triggered when connected to the **COM**, i.e. to the supply negative line. When connecting the device to an alarm panel, if the power is supplied from alarm panel (connected to its AUX terminals) these inputs can be directly connected to PGM outputs of alarm panel, that are "open collector" type, since when activated, these outputs provide a shortcut to the panel ground. With such connection, no other wiring is required. If the PGM is REELAY type (two connection points), than one pole of the output relay must be connected to the same place with the communicator **COM** terminal, and the other to **Z1** or **Z2**, in balance with programming.

4 Configuration of device

Connect the device with USB cable to a windows PC (Compatibility: Windows 7, 8.1, and 10), and a new drive will be installed. When connected to that machine for first time, the driver will be installed first, then the new drive will be found. This drive is the flash memory of SC-GSM device, and contains the software and this manual. You can run the software from device, or copy it to your PC and run it from there. When the device is powered through terminals, the USB cable can be plugged or unplugged at any time, it will not affect the device. The windows machine might require a proper closing of USB connection before unplugging the cable.

4.1 Setup program connection

If the device is password protected or a wrong type of device is connected on USB port, the PASSWORD field is displayed. If a wrong password is entered, the software will display the status fields only Settings are not displayed and can not be changed. This mechanism prevents unauthorized access to device settings.

As the software successfully connects to the device, it reads out the device and shows the status, device version and actual settings in device (marked red on following picture):

The screenshot shows the SecureCom GSM software interface. The 'Device state' section is highlighted with a red box and contains the following information:

SIM status:	-
GSM signal (0-31):	0
Line state:	ONHOOK
Z1 input:	IDLE
Z2 input:	IDLE

The 'Last events' section is empty. The 'Device settings' section includes:

- Operating mode: Standalone, Transparent
- Modem: SIM PIN []
- Incoming SMS notice: Phone nr. []
- Z1 settings: Sensitivity 0.1 sec, Contact type NO
- Z2 settings: Sensitivity 0.1 sec, Contact type NO
- Phone numbers: T1, T2, T3, T4

The 'Alarm event handling' table is highlighted with a red box:

Code	E/R	Part	Zone/User	C1	C2	C3	C4	SMS message	S1	S2	S3	S4
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												

The 'Input event handling' table is also highlighted with a red box:

	C1	C2	C3	C4	SMS message	S1	S2	S3	S4
Z1 Alarm									
Z1 Restore									
Z2 Alarm									
Z2 Restore									

At the bottom of the window, the status bar shows 'USB: Connected' and 'Firmware version v3.10 GSM', both highlighted with red boxes.

In case that software does not show a “connected” status or the firmware version, the USB connection was not made properly. Please select a different USB port check the USB cable. If the problem persists, the device USB driver might be in conflict with some other driver in windows, restart the windows or try the connection on another machine.

4.2 Moving data between the PC and the device

Reading out data from the device happens automatically as soon as connection is established. Settings can be saved to PC or loaded from PC file. These icons are used to handle the settings data:



(File_reading / File_saving / Download to device)

IMPORTANT NOTICE: *if a new settings file is loaded or ANY setting is modified on software screen, all data needs to be downloaded onto the device. You can make all required changes in software, and then download data. Changes that were not downloaded will be terminated when the software is closed or the connection is cut (cable unplugged).*

4.3 Device code lock (protection)

The device can be locked with a security code. By default, there is no code but once entered, the code will be required for each connection. After connecting, the new code can be entered with the icon:

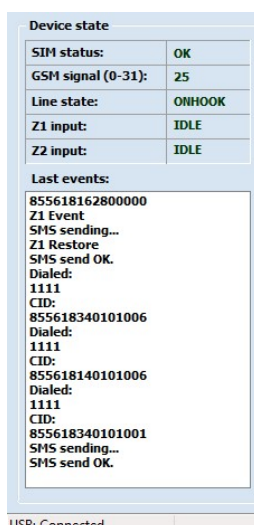


After connecting via USB, if the device was set with a code, the software requests to enter the device code. If you cancel the code entry, the software will display only the status and no settings can be read or edited. After closing re-starting the software, the code entry box is displayed again. Only after the right code was entered, the software will be fully functional, presenting the whole window with all settings displayed and editable.

WARNING: *If the password is lost or forgotten, only way to access to device setting is with **FACTORY DEFAULT**. For that procedure, the device must be sent to appropriate service*

4.4 Device Status

The left side of the software window is showing the device status. This part is ALWAYS VISIBLE, even when the device is protected with code lock. These are the fields in the status view:



USB: Connected

Field name	Options (description)
SIM status	Waiting (connecting...) / OK / PIN request
GSM signal	A value between 0 and 31, (12-16 is minimal for reliable functionality)
Line state	ONHOOK / OFFHOOK (emulated phone line idle / active)
Z1 input state	IDLE / ACTIVE (Input Z1 idle / active)
Z2 input state	IDLE / ACTIVE (Input Z2 idle / active)

Communicational event messages:

Dialed	The number dialed by the alarm control panel
CID	The CONTACT ID code sequence sent by the alarm control panel
Z1 Event	Activated input one
Z1 Restore	Input one got back to default
SMS sending	Sends the SMS messages belonging to the event
CALL(1)	Calls the first set number
DTMF recd.	got DTMF code, that is acknowledgement from the notified number

USB	Status of USB connection (Connected or Disconnected)
------------	--

4.5 General setting

The General setting parameters are valid for both operating modes, and in this area the operating mode (transparent or standalone) is selected

The screenshot shows the 'Device settings' menu with the following sections:

- Operating mode:** Radio buttons for 'Standalone' (selected) and 'Transparent'.
- Modem:** A field for 'SIM PIN' with the value '2237'.
- Incoming SMS notice:** A field for 'Phone nr.' with the value '01234567891'.
- Z1 settings:** Fields for 'Sensitivity' (1 sec) and 'Contact type' (NO).
- Z2 settings:** Fields for 'Sensitivity' (1 sec) and 'Contact type' (NO).
- Phone numbers:** A table with columns 'Phone number' and 'ACK'.

	Phone number	ACK
T1	01234567891	X
T2	01234567892	
T3		
T4		

Operating mode

TRANSPARENT operating mode (chapter 3.6)
STANDALONE operating mode (chapter 3.7)

PIN code

PIN code of the SIM card must be entered here if the card is set to request a PIN. If a wrong PIN is entered, the device will „lock” the PIN card by trying to activate the SIM with entered code, over and over. After 3 unsuccessful PIN code entries, the SIM requires a PUK code. This code must be entered with a different device (mobile phone)

Incomming SMS notice

Incomming SMS messages will be forwarded to the given telephone number

Z1 input

setting the sensitivity and type of contact input **Z1**

Z2 input

setting the sensitivity and type of contact input **Z2**

(Next fields available in *Standalone mode* ONLY)

Phone numbers

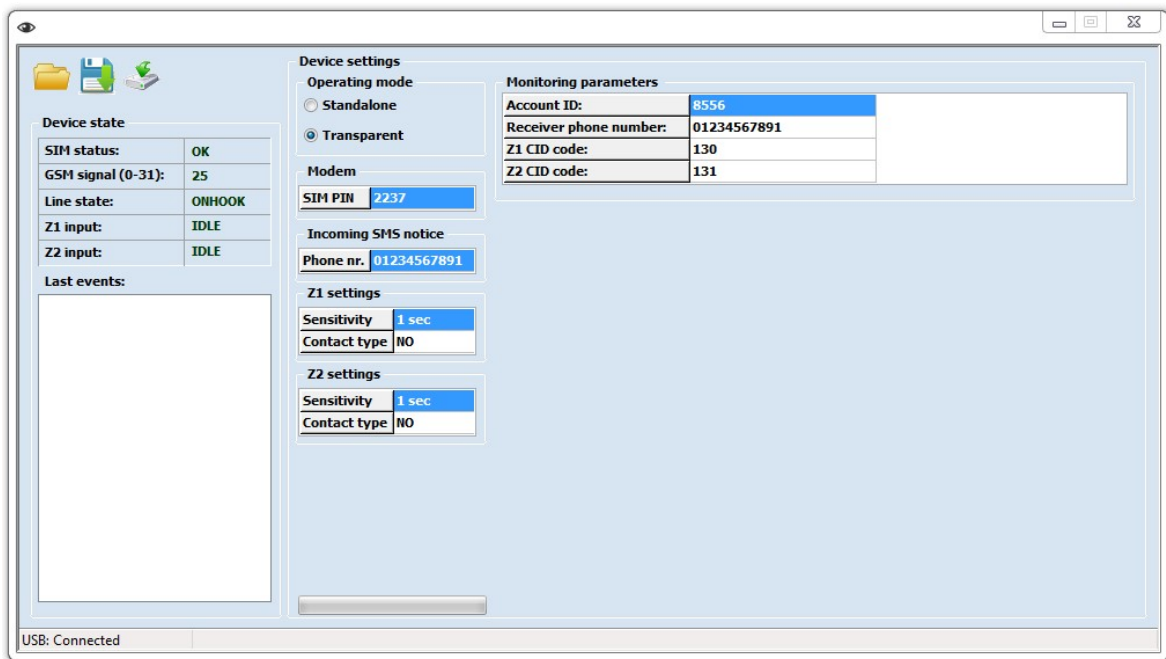
User phone numbers where the unit can send the signal in the form of SMS and/or call (to maximum 4 numbers).

ACK

If the ACK field is selected next to a number, the device requests an acknowledge signal for every call made to this number. Acknowledge signal is any DTMF signal (any number from telephone keypad). If the acknowledge is not received, the call is repeated until the acknowledge is made, but maximum 3 times. If the Acknowledge is received, all further calls for that event are terminated. This means that the called party, who acknowledges the call, will STOP the calls to numbers that are next in order (T1/T4).

4.6 Transparent mode

In this mode, device can be used as a transparent GSM Gateway, to forward voice signals (DTMF or speech) from a phone device or alarm panel through a GSM network, to called party or a monitoring station receiver. The phone device (alarm panel) connected to the RING/TIP terminals make the dialing, the SC-GSM device just dials that number, and opens the VOICE channel to transfer all sounds in high quality through GSM network. In case of incoming call, the device will ring, the connected phone device or alarm panel.



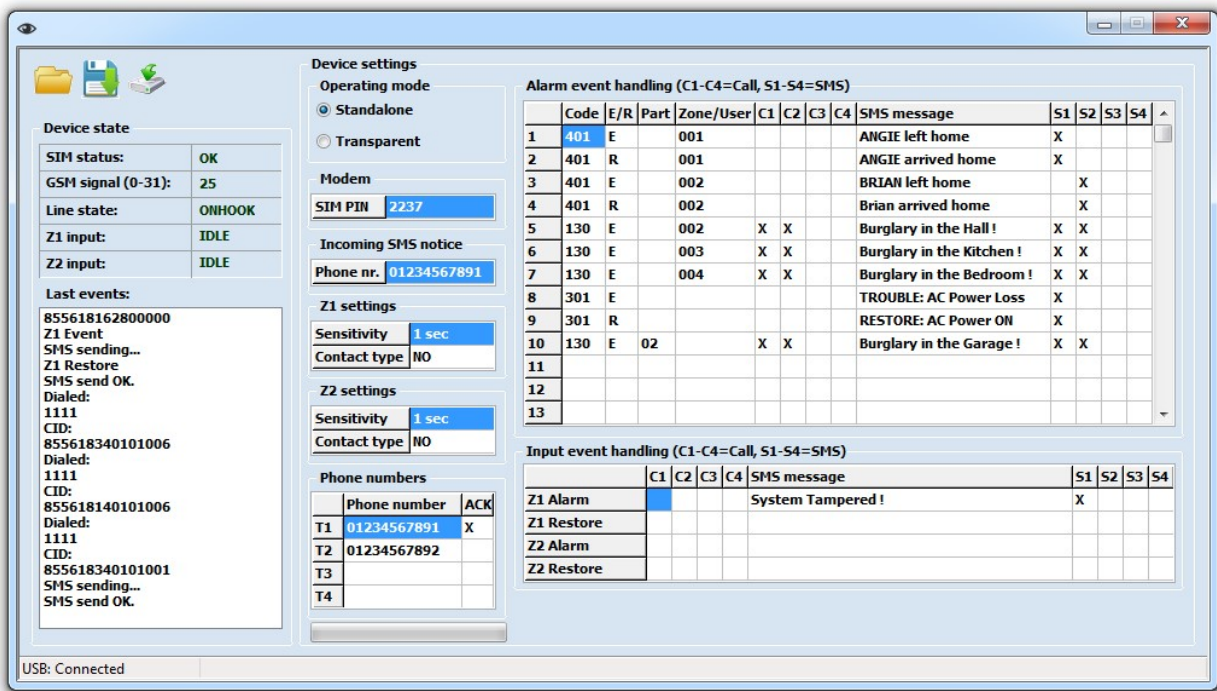
Z1 and **Z2** contact inputs are used as inputs of independent alarm communicator, triggering them causes the sending of programmed **event code** (Contact ID protocol) to the programmed **Receiver Phone Number**, paired with the programmed **Account Id**.

The partition number in the message is 01 and the value of the zone in the message is 001 and 002 and they cannot be changed. Communication format is CONTACT ID. You can find the requested Contact ID code in the Chapter 6, or the "Contact-ID-codes-with-explanation.PDF" file.

The best example of usage of these inputs is when the SC-GSM is used with alarm panel, to send a QUICK signal of an alarm state, while the dialer in alarm panel slowly makes the complete reporting of complete events through the emulated phone line. To achieve this, it is enough to connect a PGM or BELL output from alarm panel to a zone input, along with ring/tip lines and the AUX (power supply) wires.

4.7 Standalone mode

This mode is used to send notifications and informations from alarm panel directly to USERS. When the alarm panel transmits a selected *Contact ID* event **Code** (through emulated phone line on ring/tip terminals), SC-GSM device simulates a monitoring receiver, accepts the code and confirms the event reception to alarm panel. After that, the received Code is compared to all codes set in the „**Alarm Event Handling**“, and if it exists in the table, the communicator makes the programmed procedure-starts a voice call or sends SMS messages to selected user numbers (1-4). The two inputs do the set procedure same way, but activated with an external trigger (contact).



In this mode the device expects to receive signal in the format defined by the CONTACT ID standard. The Contact ID Message is defined this way:

SUBSCRIBER ID	EVENT QUALIFIER	EVENT CODE	PARTITION	ZONE or USER
XXXX	Event or Restore	XXX	XX	XXX
8556	1	401	01	001

In the example , the received Contact ID code /8556 18 1 401 01 001/ means that a system with ID number (“account number”) **8556**, has sent a signal that **EVENT (1) of ARMING (401)** was made in Partition **01**, by user **001**. With settings as shown on picture on top of this page, Appropriate SMS message for this code ,”**ANGIE left home**” (Angie is user 001), will be sent to T1 telephone number.

Another example: When the alarm occurs in zone 2 of the alarm system, the code **8556 18 1 130 01 002** will be transmitted, and the SC-GSM device will be sending the “**Burglary in the Hall!**” SMS message to required two phone numbers and starting call the phone numbers T1 (01234567891) and expect the ACKNOWLEDGE from the called party (any button on dialer pressed) will be expected. If the T1 number is not acknowledged, the communicator calling the next phone number T2 (01234567892).

4.7.1 Setting the signaling in standalone mode

Each line of the table should be set like this:

Code	E/R	Part	Zone / User	C1,C2,C3,C4	SMS message	S1,S2,S3,S4
CID code (3 digit)	E: event R: restore	Partition Code (2 digit)	Zone or User code (3 digit)	Telephone numbers (T1-T4) designated to voice call	SMS message to be sent if a code occurs	Telephone numbers (T1-T4) designated to SMS sending

If the received **Contact ID Code** fits the setting in one line of the table, the SC-GSM will perform the procedure of calls and messages as set in that line. Each line is independent from another. You can use the same **Code** in several lines, if any of other “filters” that are used for the received code comparison (**E/R, Part, Zone/User**) differ from each other.

Alarm event handling (C1-C4=Call, S1-S4=SMS)												
Code	E/R	Part	Zone/User	C1	C2	C3	C4	SMS message	S1	S2	S3	S4

4.7.2 The Contact ID codes comparison

Code: Contact ID code that should be received in the Contact ID message from alarm panel, in order to make the procedure that is defined in same line of the table. You can find the requested Contact-ID code in the Chapter 6, or the “Contact-ID-codes-with-explanation.PDF” file.

E/R: Event or restore of the event defined by the code, along with the CODE it presents the event that is being transmitted. For example 1-130 is Event for Burglary alarm, and the 3-130 is RESTORE of Alarm state (zone closed or system disarmed). Also 1-401 means ARMING, while 3-401 means DISARMING.

Part: The Partition number that should be received in the Contact ID message from alarm panel in order to perform the procedure defined in that line of the table. If this field was left empty, the “partition filter is off”, so the device will not check the Partition number in the received Contact ID message, and the procedure will be performed for ANY partition signal, if the rest of receive message fits the settings.

Zone/User: The Zone or User number that should be received in the Contact ID message from alarm panel in order to perform the procedure that is defined in that line of the table. If this field was left empty, the “zone filter is off”, so the device will not check the Partition number in the received Contact ID message, and the procedure will be performed for ANY partition signal, if the rest of receive message fits the settings.

4.7.3 The reporting procedure

C1-C4: The marked field means that that phone number will be called if the received message fits the setting for the code comparison. The C1 means „Calling phone number T1“, C2 means „Calling number T2“, etc. If the field is left empty, that number will not be called even if the received message fits the setting for the code comparison. The „ACK“ field next to number affects the call order. Please refer to field explanation on chapter 4.5 „General setting“ (page 7), or the „important Notices“ below.

SMS Message: The text that will be sent to the selected numbers when the received Contact ID message fits the setting for the code comparison.

S1-S4: The marked field means that that the set text will be sent in the SMS message to that phone number if the received message fits the setting for the code comparison. The S1 means „Send message to phone number 1“, S2 means „Send message to number 2“, etc. If the field is left empty, message will not be sent to that number even if the received message fits the setting for the code comparison.

Important Notices:

- *The procedure will be performed in following order: first the SMS messages are sent to all required numbers, after that the required calls are made, in numeric order (from T1 to T4). If the acknowledge from some number is required, that call will be repeated until acknowledged or timed out. The next call will be made only after time out.*
- *Acknowledge confirms call to THAT number and stops all other calls for that event that are following in order (1-4).*
- *Maximum duration of call is 20 seconds including the ring time. If the acknowledge is received, the call is immediately finished.*
- *If „ACK“ reception acknowledgement is set and the acknowledge signal is not received during the call time, the device will end the call and repeat the call, maximum three times. After that the call is timed out and next call is made.*
- *When a number is called, a SIREN SOUND is played, until the end of call.*
- *If **Part** (partition) or **Zone/User** (zone/user) is left blank, that value in the Contact ID message will be disregarded, the SC-GSM will make the calls and sent the messages that are set in this line, no matter what value was sent by alarm panel (if the other fields fit the received message)*

5 LED signals

The LED signals show the communicator's operating state. Following the LEDs on device, you can see the momentary situation i.e. the status. In Transparent mode:

NORMAL OPERATION

■ AS comm	■ AS comm	■ AS comm
■ MS comm	■ MS comm	■ MS comm
■ GSM stat	■ GSM stat	■ GSM stat
■ TROUBLE	■ TROUBLE	■ TROUBLE
GSM LED: Signal status GSM Signal LOW: 1 blink GSM signal OK: Continuously ON	MS LED: Incoming call Ringing: 1 blink Call answered: Continuously ON	AS LED: Outgoing call OffHook: Continuously ON In progress: 1 blink

In "Idle state", when everything is „Normal" only the GSM STATUS LED will be ON. If the GSM Signal is below the requested level, this LED will blink. The **MS comm** LED is showing the status of the incoming call (If somebody dials the phone number assigned to inserted SIM card). The **MS comm** LED presents the status of the calls started from the device connected to the communicator (Alarm system, telephone device, etc).

If some fault is valid, red TROUBLE will lit continuously, while green LED shows the cause of the fault with blinks

GSM NETWORK FAILURE

■ AS comm	■ AS comm	■ AS comm
■ MS comm	■ MS comm	■ MS comm
■ GSM stat	■ GSM stat	■ GSM stat
■ TROUBLE	■ TROUBLE 1 blink	■ TROUBLE 2 blink
SIM card missing or wrong	PIN missing or wrong	Poor GSM signal strength

6 Most frequently used Contact ID codes

120	Panic
130	Burglary
144	Sensor tamper
300	System Trouble
301	AC Loss
302	Low system battery
311	Battery Missing/Dead
316	System Tamper

321	Bell 1
383	Sensor tamper
401	Arm/disarm by user
602	Periodic test report
626	Time/Date trouble
627	Installer programming