GSM-COM

INSTALLATION AND APPLICATION MANUAL

for module version v1.00 and higher

Table of contents

1 Module operation

Application areas: can be used as accessory for alarm control panels or as individual GSM signaling device with 2 inputs.

1.1 Functions

- GSM voice call to 4 user phone numbers on input activation with recordable message or siren tone
- SMS with default text about each event
- Report to monitoring station with Contact-ID protocol about each event
- Remote control of relay output with free call

1.2 Features

- 4 user phone numbers for GSM voice call and SMS
- SMS forwarding to the first user phone number
- 1 monitoring station phone number for reporting
- 2 NO/NC inputs
- 1 relay output

1.3 Events

- **Alarm events**

The communicator initiates GSM voice call with recordable message or siren tone and sends SMS with default text to 4 user phone numbers at the effect of input activation. At the same time it sends report to 1 monitoring station phone number with Contact-ID protocol. The module tries to perform calls and SMS sending on an event for 10 minutes from occurrence, and it stops the alarm of this event when time expires even if it fails to communicate to some of the phone numbers during this time.

- **Supply voltage monitoring**

The module sends SMS to the first two user phone numbers and report to the monitoring station in at most 12 hour interval, if the supply voltage level falls for at least 10 seconds below 11,6V or 23,2V, depending on the power source. The module does not monitor the supply voltage for the first 60 seconds from power up. Supply voltage monitoring is enabled by default, can be disabled in the settings menu.

- **Test report**

The module sends test report (alive signal) in adjustable interval in SMS to the first user phone number, as well as with GSM call to monitoring station. The first test report is sent after 3 minutes from power up or reset, followings are sent in the set interval, in the same time of day. Test report interval default setting is 7 days.

Event reporting directions:

Event	T1	T2	T3	T4	S1	S2	S3	S4	Mon. station
IN1	x	x	x	x	x	x	x	x	x
IN2	x	x	x	x	x	x	x	x	x
Voltage monitoring					x	x			x
Test report					x				x

T1-T4: reporting to 1-4 user phone numbers with GSM voice call
S1-S4: reporting to 1-4 user phone numbers in SMS
Mon. station: reporting to monitoring station with GSM voice call (Contact ID protocol)

1.4 Functions and parameters

- **Inputs**

The ÕÙT ËÔUT module has 2 inputs (IN1 and IN2), which can be activated depending on the setting with normally open (NO) or normally closed (NC) contacts wired to COM connection point. Sensitivity of inputs is 100ms, which means event is generated only if the input is activated for at least 100ms. Alarm monitoring delay is 10 seconds for each input, which means if an input is activated, the module ignores state changes on the respective input for 10 seconds from activation, so no events are generated in this period. When the 10s delay expires, the input becomes available again for activation.

- **Relay output**

The relay output can be activated by initiating a call to the module's phone number from the 4 user phone numbers using identification of caller phone number, or from any phone number without identification, depending on the setting. Relay control mode is monostable, activation time is adjustable between 0-9999 seconds. Default setting: 1s.

- **User phone numbers**

Maximum 4 phone number can be set, where the module sends reports with GSM voice call and SMS. The maximum length of the phone numbers should not exceed 16 characters and international format should not contain "+" character (e.g. 0036….).

- **Call and SMS limitation**

The module is equipped with internal call and SMS limitation. The function allows altogether 50 outgoing calls and SMS messages (including SMS forwarding) per day.

- **Confirmation**

Confirmation of alarms sent to user phone numbers (with GSM voice call) may be necessary. In this case the module recalls the number until the user confirms the alarm event. If the confirmation function is enabled, then the event can be confirmed by pressing „∗" button and all alarm events (calls and SMS) in progress can be stopped by pressing „#" button. By default the confirmation function is disabled.

- **SMS forwarding**

The module can forward incoming SMS messages to the first user phone number. SMS forwarding function is enabled by default, if not necessary, can be disabled in the settings menu.

- **Monitoring station phone number**

The module supports 1 monitoring station phone number, where it reports all events using Contact-ID protocol. The maximum length of the phone numbers should not exceed 16 characters and international format should not contain "+" character (e.g. 0036….).

- **Event codes and SMS texts**

A Contact-ID event code (3 digits) can be assigned to each event, which identifies the event at the monitoring station. The SMS texts are preset in factory and cannot be modified. The default settings for event codes and SMS texts are the following:

Event	Contact-ID event code	SMS text
Alarm input 1	130	ALARM1
Alarm input 2	130	ALARM2
Low supply voltage	302	LOW VOLTAGE
Periodic test report	602	TEST REPORT

- **User account ID**

The user account ID is a 4 digit identifier which is necessary for reporting to monitoring station and is supplied by the monitoring station. The module supports only decimal characters. Default setting: 0000.

- **Recordable voice messages**

For each of the two inputs a voice message can be recorded with a maximum length of 6 seconds each. If no message is recorded, the module uses instead a built-in siren tone when calling the user phone numbers. The recorded voice messages cannot be erased separately, are automatically replaced with the built-in siren tone if the settings are restored to factory default (module reset).

- **Caller identification**

Caller identification is a security function useful in the course of relay remote control. If enabled, the module checks the caller's phone number and activates the relay only when called from one of the 4 user phone numbers. For this it is essential to have the phone number information sending service enabled on the caller's SIM card and in the phone as well. At the same time, phone number information detection service must be enabled on the SIM card placed into the module. The caller identification function is disabled by default, so the relay output may be activated from any phone number.

- **Program push-button**

The program push-button is placed on the panel, in the vicinity of the GSM antenna socket. Functions of the push-button are the following:
- *GSM signal query:* after pressing the button shortly (>1sec), the number of green blinks indicate the level of the GSM signal
- *Entering programming mode:* for this keep the button pressed for 3…5 seconds, then release (see „Programming" and „LED signals" chapters)
- *Restore factory default settings (reset):* this function restores all parameters to factory default, according to "Adjustable parameters" table. For this keep the button pressed for at least 10 seconds, then release (see „LED signals" chapter)

2 Programming

Programming of the module can be performed through call center. For this the program button must be pressed for 3-5 seconds, then released. Thereafter the module enters the programming mode and accepts call to its SIM card from any phone number within 60 seconds. After calling the module, menu item selection and settings can be performed in the voice menu with DTMF commands, by pressing the correspondent buttons on the phone. The module exits programming mode automatically when line is hanged up.

2.1 Adjustable parameters

Parameter	Default	Parameter	Default
Input 1 (NO/NC)	NO	User account ID	0000
Input 2 (NO/NC)	NO	Test report period (0-99 days)	7
Relay timer 0-9999s	1s	SMS forwarding (Y/N)	Yes
User phone numbers 1…4	-	Supply voltage monitoring (Y/N)	Yes
Confirmation from 1…4 ph.nrs	No	Voice messages 1,2	Siren tone
Monitoring station phone nr	-	Caller identification (Y/N)	No
Contact ID event codes 1...4	130,130,302,602		

2.2 Program menu structure

Button 1: User phone number settings
    Button 1: Enter first user phone number
        Button 1: Enable confirmation request
        Button 0: Disable confirmation request
    Button 2: Enter second user phone number
        Button 1: Enable confirmation request
        Button 0: Disable confirmation request
    Button 3: Enter third user phone number
        Button 1: Enable confirmation request
        Button 0: Disable confirmation request
    Button 4: Enter fourth user phone number
        Button 1: Enable confirmation request
        Button 0: Disable confirmation request
Button 2: Input and relay parameter settings
    Button 1: Configure input 1
        Button 1: Normally Closed
        Button 0: Normally Open
    Button 2: Configure input 2
        Button 1: Normally Closed
        Button 0: Normally Open
    Button 3: Enter relay active state duration
Button 3: Monitoring settings
    Button 1: Enter monitoring station phone number
    Button 2: Enter user account number
    Button 3: Event code settings
        Button 1: Enter event code for input 1
        Button 2: Enter event code for input 2
        Button 3: Enter event code for low supply voltage
        Button 4: Enter event code for periodic test report
Button 4: Other parameters and settings
    Button 1: Enter test report period
    Button 2: SMS forwarding settings
        Button 1: Enable SMS forwarding
        Button 0: Disable SMS forwarding
    Button 3: Supply voltage monitoring settings
        Button 1: Enable supply voltage monitoring
        Button 0: Disable supply voltage monitoring
    Button 4: Caller identification settings
        Button 1: Enable caller identification
        Button 0: Disable caller identification
Button 5: Record voice messages
    Button 1: Record voice message for input 1
    Button 2: Listen to voice message of input 1
    Button 3: Record voice message for input 2
    Button 4: Listen to voice message of input 2
Button 6: Settings query
    Button 1: Send settings in SMS to the caller's phone number

✳ **button:** return to previous menu, can be used in any submenu.

2.3   Structure of SMS containing settings

The module can send current settings in SMS (see item 6/1. of the programming menu). The settings are sent in 2 SMS messages, having the following structure:

Example:

GSM settings (1):

TEL1=06301111111/Y	(**TEL1…TEL4** = the 4 adjustable user phone numbers, after
TEL2=06302222222/Y	the phone numbers the confirmation setting can be found)
TEL3=06203333333/N	**/Y** = event must be confirmed from this phone number
TEL4=06704444444/N	**/N** = event confirmation is not requested from this phone nr.)
M STAT=0615555555	(**M STAT** = monitoring station phone number)

GSM settings (2):

Z1=NO	(input 1 setting: **NO**= normally open)
Z2=NC	(input 2 setting: **NC**= normally closed)
RELTIME=0002	(relay active state duration in seconds)
USER ID=1234	(4 digit decimal user account ID)
EVENT_Z1=130	(Contact ID code of input 1 - **130**=burglary)
EVENT_Z2=130	(Contact ID code of input 2 - **130**=burglary)
EVENT_LOW V=302	(Contact ID code of low supply voltage)
EVENT_TEST=602	(Contact ID code of periodic test report)
TESTDAYS=7	(Automatic test report sending period in days)
LOW V REP=Y	(Supply voltage monitoring setting - **Low v**oltage **rep**ort: **Y**=enabled, **N**=disabled)
CALLID CHK=N	(Caller identification: **Y**=enabled, **N**=disabled)

3   Module overview

GSM antenna connector

Program pushbutton

SIM card case

Terminal connectors
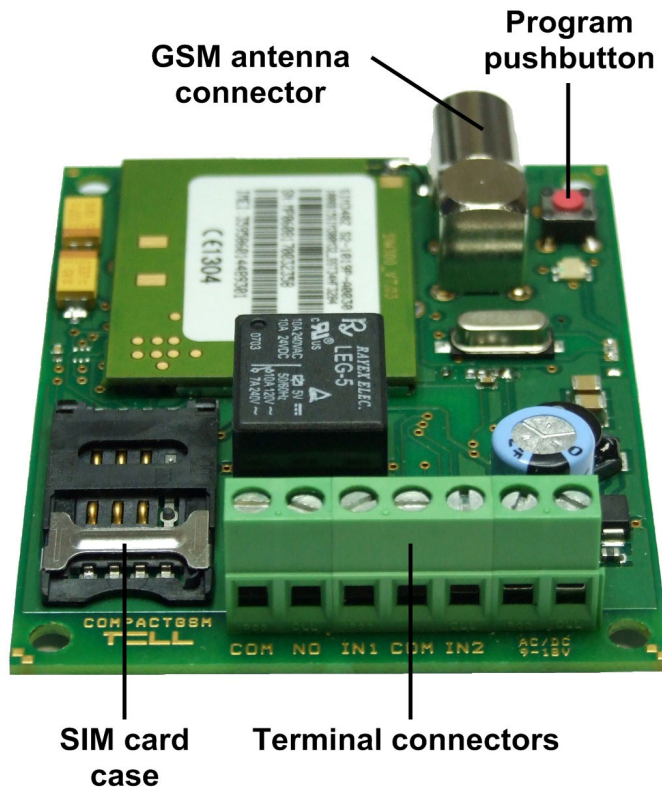
4 LED signals

Red is continuously lit	No GSM network available, or phone restart/power up in progress
Red blinks fast Green blinks with longer intervals	Event transmission in progress
Green blinks impulsely, Red is not lit	GSM network is available, standby status
Green performs a determined number of blinks after pressing the program button	GSM signal strength query
Orange blinks fast	Programming mode
Orange is continuously lit	Restore settings to factory default (reset)

5 Wiring diagram

- For Normally Open setting:
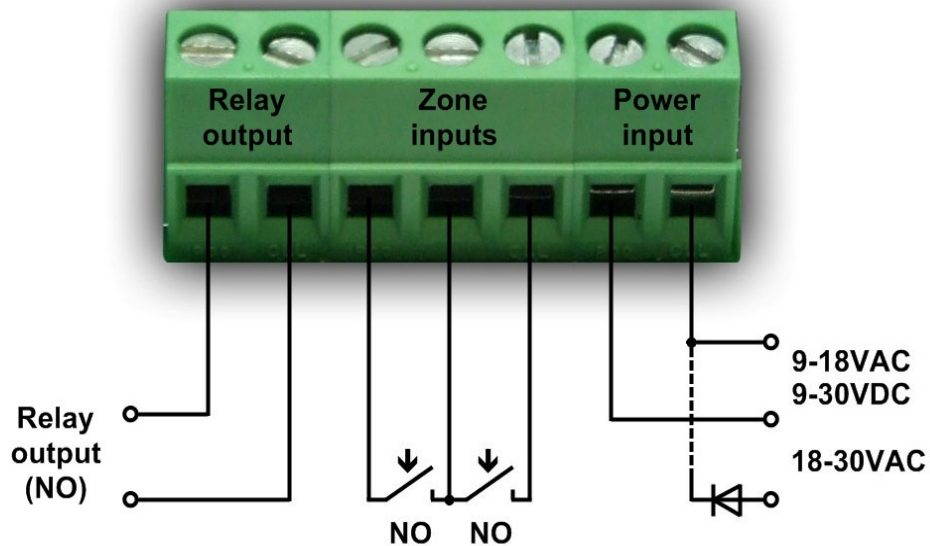
- For Normally Closed setting:
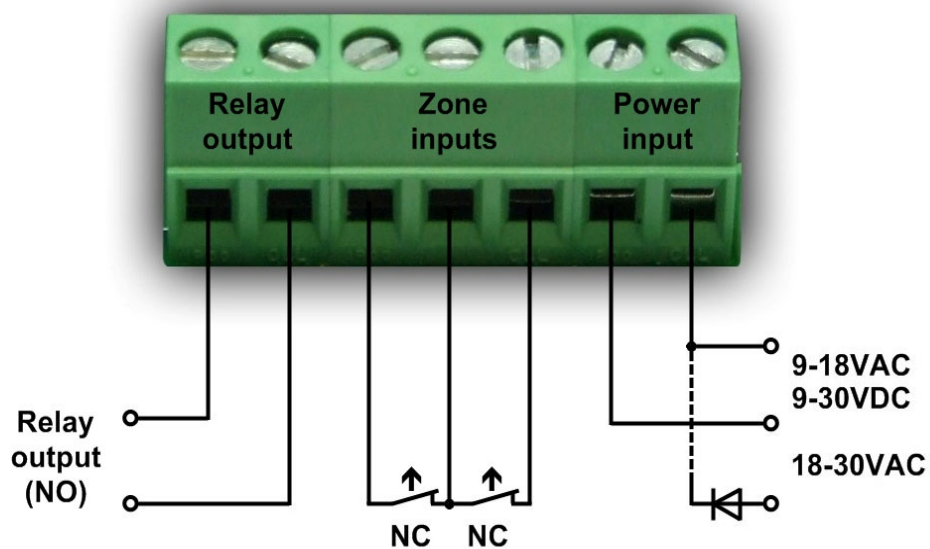
6 Installation guide

6.1 Mounting

- Test the GSM signal strength with your mobile phone. It may happen that the signal strength is not sufficient in the desired mounting place. In this case the planned installation place can be changed before mounting the device.
- Do not mount the unit in places where it can be affected by strong electromagnetic disturbances (e.g. in the vicinity of electric motors, etc.).
- Do not mount the unit in wet places or places with high degree of humidity.
- Connecting the GSM antenna: the GSM antenna can be fixed in the FME-M socket found on the panel. The antenna supplied with the module provides good transmission under normal reception circumstances. In case of occasionally occurring signal strength problems or/and wave interference (fading), use another (directed) type of antenna or find a more suitable place for the module.

6.2 Putting into operation

- Disable PIN code request, voicemail and notification in SMS about missed calls on the SIM card placed into the module.
- If caller identification is used, this service must be enabled on the SIM card placed into the module (a few types of SIM cards do not have this function enabled by default).
- Check the SIM card to be placed into its case properly.
- Check the antenna to be fixed properly to the ÕÙT ËÔUT module.
- Check the wires to be connected as instructed by the wiring diagram.
- The device can be powered up. Make sure that the power supply is sufficient for the load of the module. The quiescent current of the module is 100mA, however it may increase up to 500mA during communication.

7 Technical details

7.1 Technical specifications

Supply voltage:	9-30 VDC, 9-18VAC, or by using the serial diode: 18-30VAC
Nominal current consumption:	100mA
Maximum current consumption:	500mA @ 12VDC, 250mA @ 24VDC
Operating temperature:	-10ºC - +60ºC
Transmission frequency:	GSM 900/1800, 850/1900 MHz
Maximum relay output load:	5A @ 24VAC/DC
Dimensions:	82 x 67 x 22mm
Weight:	80g (packed: 100g)

7.2 Contents of the package

- ÕÙT ËÔUT module
- GSM 900MHz / 1800MHz antenna
- Plastic spacer support / snap fasteners
- Diode
- Application manual, warranty card