

ProCOM GPRS ADAPTER

INSTALLATION AND APPLICATION MANUAL

For module version v1.00.0096 and up
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1 Basic functions of the ProCOM GPRS Adapter

The main function of the ProCOM GPRS ADAPTER is to adapt to GPRS network alarm systems which are capable to communicate in Contact ID format to a monitoring station through PSTN, as well as reporting through GPRS network the state of its inputs controllable by external contacts.

The adapter makes possible the installation of alarm systems in places where landline (PSTN) is not available, but reporting to a monitoring station is required.

By means of GPRS transmission, the adapter improves the reliability of alarm reporting in cases when the wired alarm transmission does not work or fails (e.g. when the phone lines are tampered or the telephone service is suspended due to technical reasons).

1.1 Functions and services

- Management of 2 independent SIM cards
- Installable behind phone exchange center
- Management of different prefix numbers for PSTN and GSM calls
- Forwards incoming SMS messages to 2 phone numbers
- Initiates calls when it receives alarm event codes in reserve GSM mode
- Stores the last 1000 events in the event list
- 4 onboard contact inputs and optional 24 input expansion module
- Reports the state of 4+24 inputs to monitoring station
- 4 configurable relay outputs, controllable by events or by the user directly
- Backup battery management
- On-board tamper protection

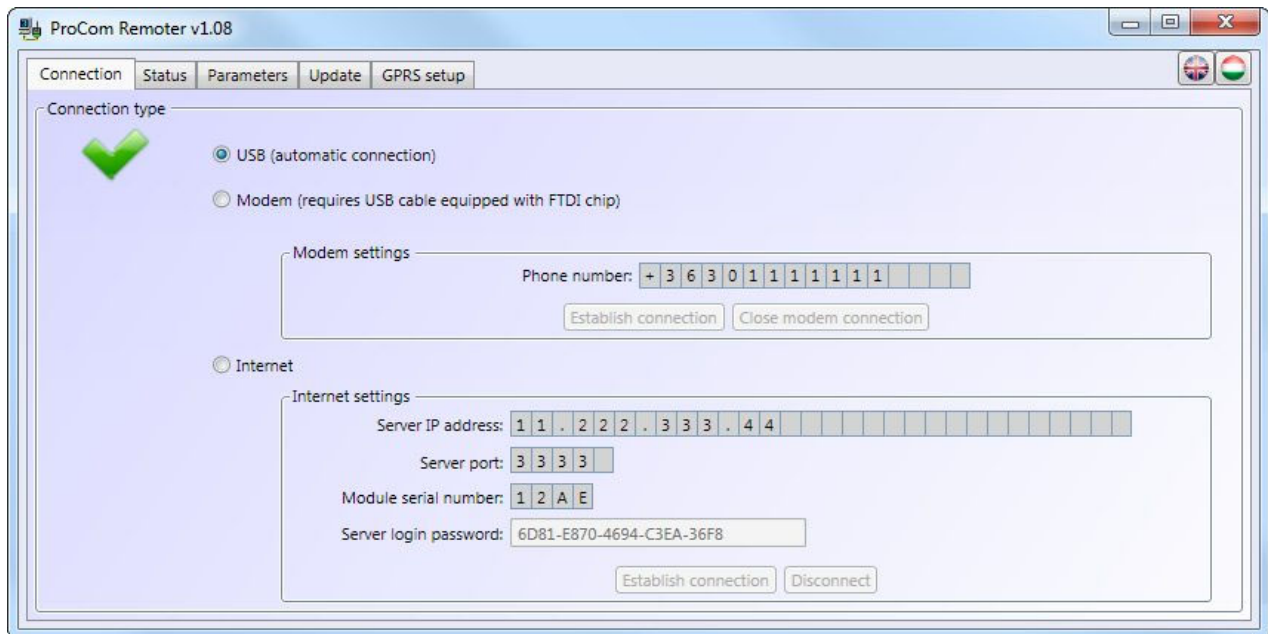
2 Programming the ProCOM

- The **ProCOM GPRS Adapter's** parameters can be set using the programming software found on the enclosed CD either by connecting it with a PC through USB port directly, with a GSM modem remotely, or through the internet if the module has already connected to a TEX server.

The programming software of ProCom GPRS and ProCOM GSM modules is the same. The software validates and displays the functions and setting possibilities for the given module type when you connect the given module to the software.

For remote connection, a GSM modem (TELL GT64 is recommended) and a USB / RS232 adapter equipped with FTDI chip are necessary which can be purchased separately.

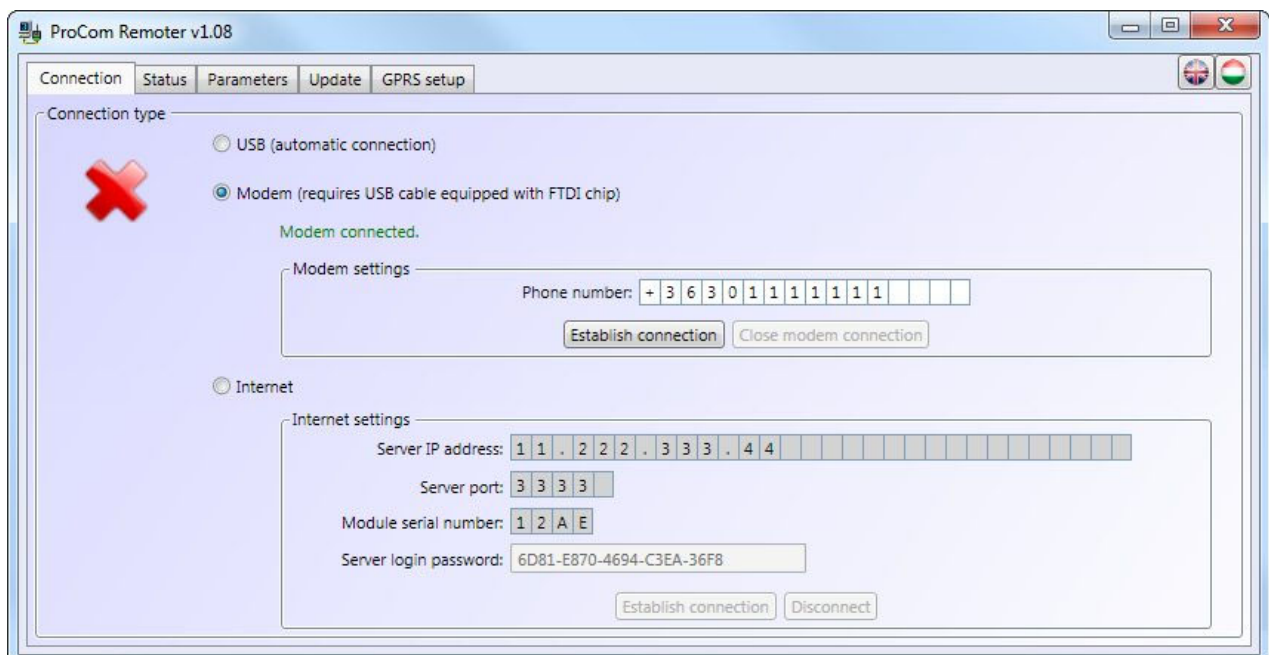
2.1 Configuring through USB connection



- Start the “**ProCOM_Remoter**” programming software
- Select the “USB” option on the “**Connection**” page
- Connect the module to the PC using USB cable
- The programming software automatically recognizes the connected device
- The software asks for the module’s password, if it is not set to default (1111)
- A green tick indicates when the connection is successfully established
- Perform the desired settings, the following chapters will give a detailed description on the different functions of the ProCOM
- When finished, disconnect the module from USB

2.2 Configuring through modem connection

For remote connection, a GSM modem (TELL GT64 is recommended) and a USB/RS232 adapter equipped with FTDI chip are necessary. GSM data call (CSD) service must be activated on the SIM card inserted in the modem and on the one inserted in the module.



Steps for establishing modem connection:

- Start the “**ProCOM_Remoter**” programming software
- Select the “Modem” option on the “**Connection**” page
- Power up the GSM modem, then connect it to the PC with a USB/RS232 cable equipped with FTDI chip
- The programming software automatically recognizes the connected device
- Enter the ProCOM module’s phone number in the “Phone number” field using the country code as well
- Start dialing by pressing “**Establish connection**” button
- The software asks for the module’s password, if it is not set to default (1111)
- A green tick indicates when the connection is successfully established
- Perform the desired settings, the following chapters will give a detailed description on the different functions of the ProCOM
- When finished, close the connection by pressing “**Close modem connection**” button

2.3 Configuring through internet connection

Internet connection can only be established when the module has already connected to the server.

The screenshot shows the 'ProCom Remoter v1.08' application window. The 'Connection' tab is active, and the 'Internet' radio button is selected. A large red 'X' is overlaid on the left side of the window. The 'Modem settings' section is visible but not active. The 'Internet settings' section contains the following fields:

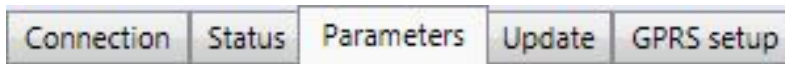
- Server IP address: 1 1 . 2 2 2 . 3 3 3 . 4 4
- Server port: 3 3 3 3
- Module serial number: 1 2 A E
- Server login password: 6D81-E870-4694-C3EA-36F8

Buttons for 'Establish connection' and 'Disconnect' are at the bottom of the Internet settings section.

- Start the “**ProCOM_Remoter**” programming software
- Select the “Internet” option on the “**Connection**” page
- In the “**Server IP address**” field type the TEX server’s IP address the module has connected to
- Type the communication port’s number (default: 3333) in the “**Server port**” field
- Type the serial number of the module you want to configure in the “**Module serial number**” field
- Type the TEX server’s 20 character long login password (5x4 characters divided by dashes) in the “**Server login password**” field
- Click on “**Establish connection**” button
- The software asks for the module’s password, if it is not set to default (1111)
- A green tick indicates when the connection is successfully established
- Perform the desired settings, the following chapters will give a detailed description on the different functions of the ProCOM
- When finished, close the connection by pressing “**Disconnect**” button

2.4 Parameter settings

To set parameters, select the “**Parameters**” page. The different parameters of the ProCOM are divided into several subpages.



2.4.1 Phone numbers

On the “**Phone numbers**” page the monitoring station and the user phone numbers can be set. The phone numbers for SMS forwarding must be entered using the international format, including country code:

- **Monitoring station phone numbers (C1-C2):** two phone numbers can be set for reporting events to monitoring stations. When the alarm control panel dials these numbers, the ProCOM gives out the handshake signal, then receives the events from the alarm control panel. The phone number(s) set here must be exactly the same the alarm panel dials, otherwise the module will not emit the handshake. This number will be dialed also when the module is forwarding events in reserve GSM mode in case GPRS connection is not available.
 - **Reporting to one of the numbers is sufficient:** if this option is enabled, then in case the module reports successfully to one the phone numbers set here, it will not start reporting to the other one. Otherwise, the module will continuously try to report until it successfully reports to both phone numbers or the alarm duration expires.
Important! In case only one of the options of “**Mon. st. 1 2**” is enabled on the “**Custom events**” page, the module will report only to the enabled phone number, even if the “**Reporting to one of the numbers is sufficient**” option is not set.
- **SMS forwarding (1-2):** the module forwards incoming SMS messages to the phone numbers set here, which is useful for receiving SIM card balance information messages, etc. (if left blank, the module will delete all incoming SMS messages).
Important! Never set the phone number of the inserted SIM card here, because the module’s first received SMS will start an infinite loop of SMS messages sent to itself, which will result in significant costs!

2.4.2 Miscellaneous options

On the “**Miscellaneous options**” page, you can set the daily SMS limit, monitoring station user ID, the prefix numbers and the periodic test report frequency.

The screenshot shows a web-based configuration interface for a device. The top navigation bar includes tabs for 'Phone numbers', 'Miscellaneous options' (which is active), 'Custom events', 'Incoming CID events', 'Inputs', and 'Firmware'. The 'Miscellaneous options' section is divided into three main areas. The 'Limitations' area on the left contains a 'Daily SMS limit' slider set to 50 SMS. Below it is the 'User ID for monitoring station' section with a 4-digit input field containing the digits 1, 2, 3, and 4. The 'Prefix numbers' area on the right contains an 'External line' input field with the value 9 and a 'Prefix added in GSM mode' input field which is empty. Below these is the 'Miscellaneous options' section with a 'Test report frequency (1 - 240)' input field set to 24, followed by a unit selector icon and the text 'hour(s)'. A green progress bar is visible at the bottom of the page.

- **Limitations:**

- **Daily SMS limit:** you can set the maximum number of SMS messages the module can send in a 24-hour long period. If the number of SMS messages sent exceeds this limit, the module will not send any more SMS messages until the 24-hour duration expires. You can also set the number to “**Unlimited**” if you do not want the module to limit the number of outgoing SMS messages.

- **User ID for monitoring station:** you can specify here the user ID necessary for Contact-ID reporting to monitoring stations (4 digit long, containing the following characters only: 0...9,A,B,C,D,E,F). For your user ID, please contact your monitoring station.

- **Prefix numbers:**

- **External line:** if the module’s PSTN line input is connected to a telephone exchange center and it requires a prefix number (for example: 9) to obtain the main line, then this required prefix number has to be set here. The module will remove this number when calling through GSM, will add it only for calls made on the PSTN line.
- **Prefix added in GSM mode:** If you set a prefix here, the module will add it for calls made in GSM mode. For example, if the connected alarm panel dials a local phone number without prefix (e.g. 999999) the module will attach the prefix set here that is required for calls initiated on GSM (e.g. +3652, thereby the called number will be: +3652999999).

- **Miscellaneous options:**

- **Test report frequency:** The module’s periodic test report sending frequency can be set between 1 and 240 hours. The module will not send test reports if the test report event is not added and configured on the “**Custom events**” page.

2.4.3 Custom events

No.	Event name	CID code	Par-tition	Zone	Mon.st. 1 2
1	IN1 alarm	1 1 3 0	0 1	0 0 1	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	R1: <input type="checkbox"/> State chang	0.1	<input checked="" type="checkbox"/>	R2: <input checked="" type="checkbox"/> ON - Monc	5
				R3: <input type="checkbox"/> State chang	0.1
				R4: <input type="checkbox"/> State chang	0.1
2	IN2 alarm	1 1 3 0	0 1	0 0 2	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	R1: <input type="checkbox"/> State chang	0.1	<input checked="" type="checkbox"/>	R2: <input type="checkbox"/> State chang	0.1
				R3: <input checked="" type="checkbox"/> ON - Monc	5
				R4: <input type="checkbox"/> State chang	0.1
3	IN3 alarm	1 1 3 0	0 1	0 0 3	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
	R1: <input type="checkbox"/> State chang	0.1	<input checked="" type="checkbox"/>	R2: <input type="checkbox"/> State chang	0.1
				R3: <input type="checkbox"/> State chang	0.1
				R4: <input checked="" type="checkbox"/> State chang	0.1

You can set the module's own custom events on the “**Custom events**” page. Here you can customize which events to be forwarded to which monitoring station phone number in reserve GSM mode, and which relay output(s) to be controlled when the event occurs. You can create a new custom event by clicking on the “**Add event**” button. To create a full 4 or 28 zone event pattern, click on the “**Create 4 zone pattern**” or “**Create 28 zone pattern**” button.

You can delete a custom event by first selecting it, then clicking on the “**Delete event**” button. You can select an event by clicking on its index number on the left side.

The maximum possible number of “custom events” together with the “incoming CID events” is 100.

The module's alarm duration (event lifetime) is 10 minutes for every event. The alarm duration is separate for all occurred custom and incoming Contact ID generated events, which means that the module will try to report all such events for 10 minutes separately on the preset communication channels.

Important! In case the module fails to report the specific event within its 10 minute interval, the module will stop the reporting procedure for that event and will not continue to send any notification about it.

The different columns on the “**Custom events**” page mean the following:

- **No.:** the index number of the event in the list
- **Event name:** you can select the desired event from the drop-down list that is ordered by event category names

Event categories and events:

- **Alarms:**
 - IN1...IN4 alarm:** alarm events generated when the module's IN1...IN4 inputs activate
 - XIN1...XIN24 alarm:** alarm events generated when the expansion panel's IN1...IN24 inputs activate
- **Restores:**
 - IN1...IN4 restore:** restore event generated when the module's IN1...IN4 inputs restore
 - XIN1...XIN24 restore:** restore event generated when the expansion panel's IN1...IN24 inputs restore

- **Sabotage:**
 - Chassis open:** sabotage event generated when the module's chassis is opened. The module's chassis is continuously monitored by an integrated optical sensor
 - Chassis closed:** restore event generated when the module's chassis is closed back
- **Battery:**
 - Battery fault:** this event is generated when the battery's voltage level goes outside the following ranges: 11–14V, 22–28V
 - Battery restore:** battery restore event is generated when the battery's voltage level returns into the ranges mentioned above
- **Supply voltage:**
 - Supply voltage fault:** this event is generated when the supply voltage level goes outside the following ranges for at least 6.5 minutes: 13.5–14.5V, 27–29V
 - Supply voltage restore:** supply voltage restore event is generated when the supply voltage level returns into the ranges mentioned above
- **GSM:**
 - GSM error:** this event is generated when the ProCOM fails to initialize the GSM module. This can be caused by several different things: GSM network is not available, the module does not recognize the SIM card (no SIM card is inserted, or contact error), or the GSM module is malfunctioning.
 - GSM restore:** GSM restore event is generated when the system successfully initializes and restores online after an unsuccessful GSM module initialization
- **PSTN:**
 - PSTN error:** this event is generated when the voltage level of the PSTN line connected to the PSTN terminals goes outside the range of 5–75V for at least 30 seconds
 - PSTN restore:** PSTN restore event is generated when the voltage level of the PSTN line connected to the PSTN terminals returns into the range mentioned above
- **Test event:**
 - Test event:** if the test event is added and configured as a custom event, it will be sent periodically at the set time interval under “Test report frequency” on the “Miscellaneous options” page.
- **CID code:** the event's 4 digit Contact-ID code, where the first digit represents either a new event (“1”) or event restore (“3”), while the other 3 digits are the event code itself, which can be found in the Contact ID code table.
- **Partition:** the partition's number, in which the event occurs (01...99)
- **Zone:** the zone's number, in which the event occurs (001...999)

When a new event row or pattern is created, the software automatically offers the default Contact-ID codes for the events. The default setting puts the base panel's IN1...IN4 inputs' zones 1.-4. in the 1. partition, while the expansion panel's XIN1...XIN24 inputs' zones 1.-24. in the 2. partition. In case the default setting is not suitable for your application, any parameter of the full Contact-ID code can be freely customized.

- **Mon. st. 1...2:** by enabling checkboxes 1...2, you can select which monitoring station phone numbers should be notified through reserve GSM call in Contact-ID format when the specific event occurs.
Important! If the “**Reporting to one of the numbers is sufficient**” option is enabled on the “**Phone numbers**” page, the module will send report to only one of the numbers (the first it successfully reports to), even if both checkboxes are enabled under the “**Mon. st. 1 2**” option.
- **R1-R4:** the different relay controls for all 4 relays can be set here that shall be executed when the specific event occurs. To control a relay output, enable the corresponding R1-R4 checkbox and select the desired option:
 - **State change:** as the result of the event, the relay output changes its state (if it was active, it turns to inactive, if it was inactive, it turns to active state)
 - **ON – Monostable:** as the result of the event, the relay output becomes active for the duration set in the timing field, then reverts back to inactive state. The duration can be set between 0,1 – 600 seconds
 - **ON – Bistable:** the event activates the relay output indefinitely (the relay output stays active until a relay output off or state change control command arrives)
 - **OFF:** as the result of the event, the relay output becomes inactive

2.4.4 Incoming CID events

On the “**Incoming CID events**” page, you can set which relay output(s) to be activated by the Contact-ID event codes arriving from the alarm control panel and forwarded to the monitoring station by the module through GPRS, GSM or PSTN connection.

If you do not want to forward the alarm panel’s signals to a monitoring station, you still have the option to activate the relay outputs in case an event arrives from the alarm panel. For this, set in the alarm panel **123456789** as the monitoring station’s phone number. The alarm panel will dial this number when it has to send an event. The module will recognize this number and will simulate a monitoring station receiver, gives out the handshake signal, acknowledges and receives the Contact-ID signals, then activates the specific relay, according to the actual settings.

Important! As a new event comes in during a relay is being activated by the same type of incoming event, the new event will reactivate the given relay(s) according to the settings.

You can create a new event row by clicking on the “**Add CID event**” button. You can delete an existing CID event by first selecting it, then clicking on the “**Delete CID event**” button. You can select an event by clicking on its index number on the left side.

The maximum possible number of “custom events” together with the “incoming CID events” is 100.

The module's alarm duration (event lifetime) is 10 minutes for every event. The alarm duration is separate for all occurred custom and incoming Contact ID generated events, which means that the module will try to report all such events for 10 minutes on the preset communication channels. In case the module fails to report the specific event within its 10 minute interval, the module will stop the reporting procedure and will not continue to send any notification about it.

The different columns on the “**Incoming CID events**” page mean the following:

- **No.:** the index number of the event in the list
- **CID code:** the event's 4 digit Contact-ID code, where the first digit represents either a new event (“1”) or an event restore (“3”), while the other 3 digits are the event code itself, which can be found in the Contact ID code table.
- **Partition:** the partition's number, in which the event occurs (01...99)
- **Zone:** the zone's number, in which the event occurs (001...999)

In the default setting, the Contact-ID code is filled with star * characters, which means that for any incoming Contact-ID events the module will activate the preset relay(s). Event filtering is possible by setting specific event code/partition/zone parameters.

(For example: In case of the following setting “CID code: 1130 , Partition: 01 , Zone: 004 , R2: *On - Monostable*” the module will activate relay2 when burglary event is received from zone 4 in partition 1).

It is also possible to define event groups with the star * character. The star * character behaves as a joker character and substitutes any number on the specific digit of the event code, partition or zone number. (For example: for event codes, the 13** represents all event codes that start with 13).

- **R1-R4:** the different relay controls for all 4 relays can be set here that shall be executed when the specific event occurs. To control a relay output, enable the corresponding R1-R4 checkbox and select the desired option:
 - **State change:** as the result of the event, the relay output changes its state (if it was active, it turns to inactive, if it was inactive, it turns to active state)
 - **ON – Monostable:** as the result of the event, the relay output becomes active for the duration set in the timing field, then reverts back to inactive state. The duration can be set between 0,1 – 600 seconds
 - **ON – Bistable:** the event activates the relay output indefinitely (the relay output stays active until a relay output off or state change control command arrives)
 - **OFF:** as the result of the event, the relay output becomes inactive

2.4.5 Inputs

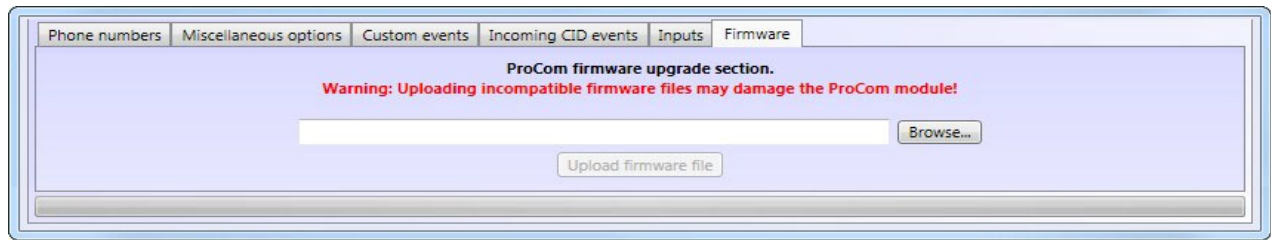
The module's and the zone expansion panel's inputs and alarm restrictions can be configured on the “**Inputs**” page.

IN1...IN4: the module's 4 contact inputs

XIN1...XIN24: the expansion panel's 24 contact inputs

- **Input type:** three different options can be selected from the drop down list separately for each input:
 - **Inactive:** the input is not in use, the module does not monitor the specific input
 - **Normally open (NO):** the input is normally open, closing the specific input to the COM common terminal will generate a new event, while opening it will generate a restore
 - **Normally closed (NC):** the input is normally closed, which means that the specific input is originally closed to the COM common point, opening it will generate a new event, while closing back generates a restore
- **Limitation of alarms per input:**
 - **Maximum number of alarms per zone:** using the slider, you can set the maximum number of alarms the module shall process. This is a global setting which affects all inputs. With this you can avoid that a faulty sensor continuously generates alarm signals that the module processes. After the restriction period expires, the specific input is enabled again, meaning that it can generate alarms, but again only up to the maximum number set in this option. If you select the “**Unlimited**” option (right side of the slider), the module will not limit the number of signals generated by the inputs.
 - **Alarm restriction period:** you can define between 1 and 24 hours for how long the module shall ignore signals from inputs that have already reached the maximum number of alarm signals set under the “**Maximum number of alarms per zone**” option. When the duration set here expires, the alarm counter is automatically reset and the specific zone becomes enabled again.

2.4.6 Firmware



The module's software can be updated on the "**Firmware**" page, if it is reasonable and necessary. The firmware (the module's software) defines the module's operation and functions. Uploading inappropriate or defective firmware to the ProCOM module will result in malfunction and damages the module!

Steps for updating the firmware:

- power up the ProCOM module
- establish connection between the programming software and the ProCOM module
- select the appropriate firmware file after clicking on the "**Browse...**" button
- click on the "**Upload firmware file**" button to start the upload
- the progress bar at the bottom shows the upload procedure's current progress
- after the upload is finished, the module will automatically restart, after which you can upload the necessary settings and verify the correct functioning

2.5 Settings management


You can easily manage and archive your settings using the seven buttons found on the upper section of the “**Parameters**” page.



The functions of the seven buttons from left to right: **Read parameters from file**, **Save parameters to file**, **Save parameters to file in printable format**, **Read parameters from module**, **Upload parameters to module**, **Compare parameters with the module** and **Change module password**.

After you finished configuring the settings, upload them to the module using the upload button. The upload/download progress is shown on the progress bar found at the bottom of the software window. The new settings are activated only after the upload has successfully finished.

2.6 Changing the module password

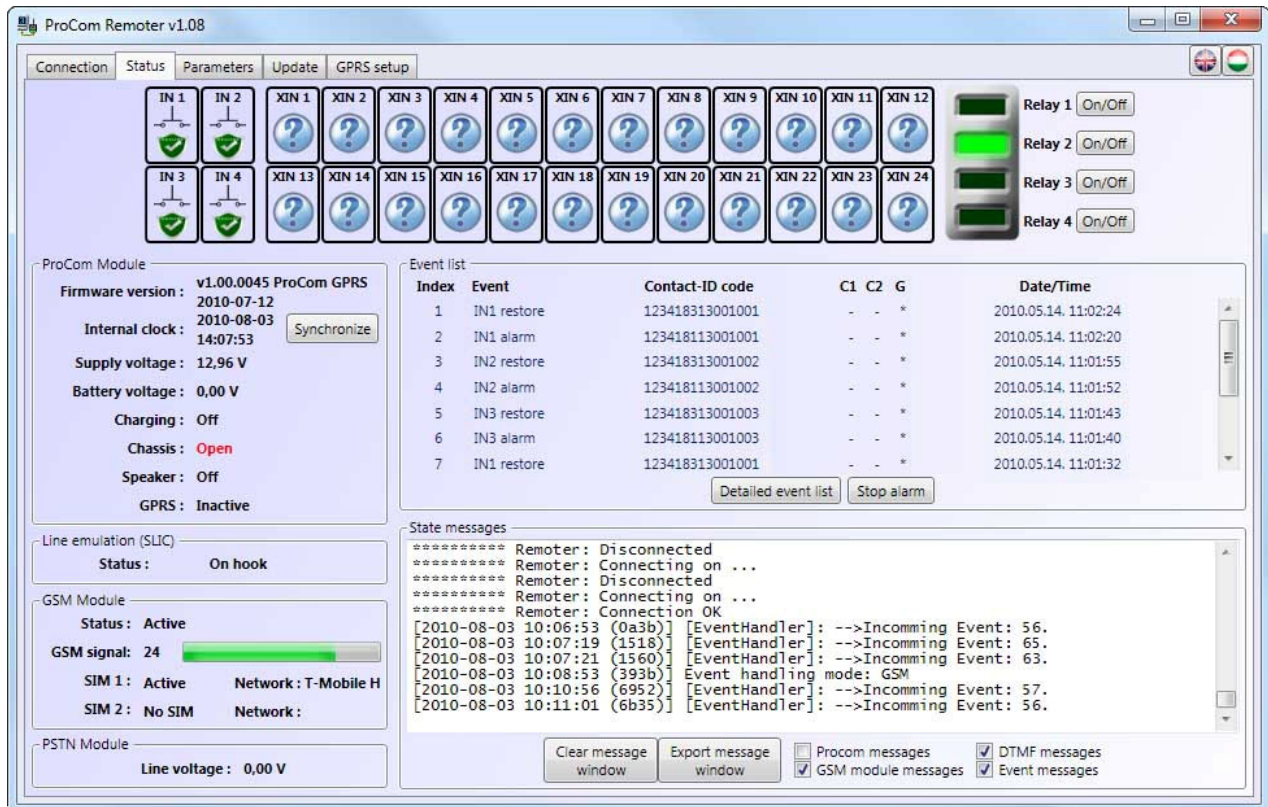
To change the module password, first click on the “lock”  button, then fill in the text fields and click on the **OK** button. In case you forgot the password, you cannot change it, therefore you have to reset the module to its default state, which will also reset the password to the default 1111. On how to reset the module to default, please see chapter “*Pushbutton*”.

A dialog box titled "Change password" with a close button in the top right corner. It contains three text input fields with masked characters (dots): "Current password:", "New password:", and "Confirm new password:". At the bottom, there are two buttons: "OK" and "Cancel".

Warning! In case you reset the module to its default state, all previously set parameters also revert back to their default, which means that the module’s settings are erased.

2.7 Module status monitoring

The ProCOM module's actual status (PSTN line, inputs, relay outputs, GSM line and signal strength, voltage levels, event list and module messages) is shown on the **"Status"** page.



Input status icons:

Icon	Meaning
	Input not configured – not in use
	The input is in normal state
	The input is in active state – alarm
	Normally open (NO) – normal state
	Closed contact – normally open input activated
	Normally closed (NC) – normal state
	Open contact – normally closed input activated

Elements and available functions on the software window:

- **Inputs:**
 - **IN 1...IN 4:** displays the state of the main panel's 4 inputs
 - **XIN 1...XIN 24:** displays the state of the expansion panel's 24 inputs
- **Relay outputs:**
 - **Relay1...Relay4:** displays the state of the main panel's 4 relay outputs. Active relays are indicated by a green light.
 - **"On/Off" button:** the On/Off buttons are used to activate/deactivate the selected relay output while the module and the software are connected.
- **ProCOM module window:**
 - **Firmware version:** the connected module's firmware version and date
 - **Internal clock:** the connected module's internal clock
 - **"Synchronize" button:** this button is used to synchronize the connected module's internal clock with the computer's clock
 - **Supply voltage:** the input supply voltage level of the module
 - **Battery voltage:** the voltage level of the battery connected to the module
 - **Charging:**
 - Yes:** the battery is currently charging
 - No:** the battery is not charging or no battery is connected
 - **Chassis:**
 - Open/Closed:** shows the current state signaled by the optical sabotage sensor
 - **Speaker:**
 - On/Off:** shows the state of the built-in speaker
 - **GPRS:**
 - **/Active/Inactive:** shows the current state of the connection to the server
- **Line emulation (SLIC) window:**
 - **Status:** shows the state of the simulated GSM line:
 - On hook/Off hook:** the state of the line
 - Line error (voltage):** the module is unable to set the line voltage because the line is overloaded (short circuit on the line)
 - Line error (no answer):** hardware error
 - Line error (DC):** the line generator is unable to set the supply voltage, which can be caused by low voltage levels on the module's input or the supply current is too low for proper operation
 - Line error (current):** the current is too high on the line
 - Unknown:** other unknown error has occurred on the line

- **GSM module window:**

- **Status:** displays the GSM module's state:
Registration in progress: registering on the GSM network is currently in progress
Active: the GSM module is registered on the network and is ready
Inactive: the GSM module failed to register on the GSM network
- **GSM signal:** displays the current GSM signal strength on a scale of 0-31
- **SIM1-2:** displays whether a SIM card is present in the specific SIM socket, and which SIM card is currently active
- **Network:** displays the currently active SIM card's network (GSM service provider)

- **PSTN module window:**

- **Line voltage:** displays the voltage level of the phone line connected to the PSTN input

- **Event list window:**

The event list shows the module's events, ordered by their time of occurrence. The list is automatically refreshed every second.

- **Index:** the index number of the event
- **Event:** the name of the event
- **Contact-ID code:** the 16 digit long Contact-ID code of the event
- **C1 ... C2:** report sending to monitoring station phone numbers 1...2
- **G:** reporting to monitoring station through GPRS connection
- **Date/Time:** the date and time of the event's occurrence

- **The different signs and meanings of columns C1-C2 and G:**

- **?** - event processing/reporting is currently in progress
- ***** - reporting successful
- **R** - reporting already successful through another way, therefore it is unnecessary to send notification here
- **!** - reporting was unsuccessful
- **S** - alarm has been stopped, it is unnecessary to send notification here
- **T** - time limit expired, reporting was unsuccessful within the alarm duration interval

- **State messages window:**

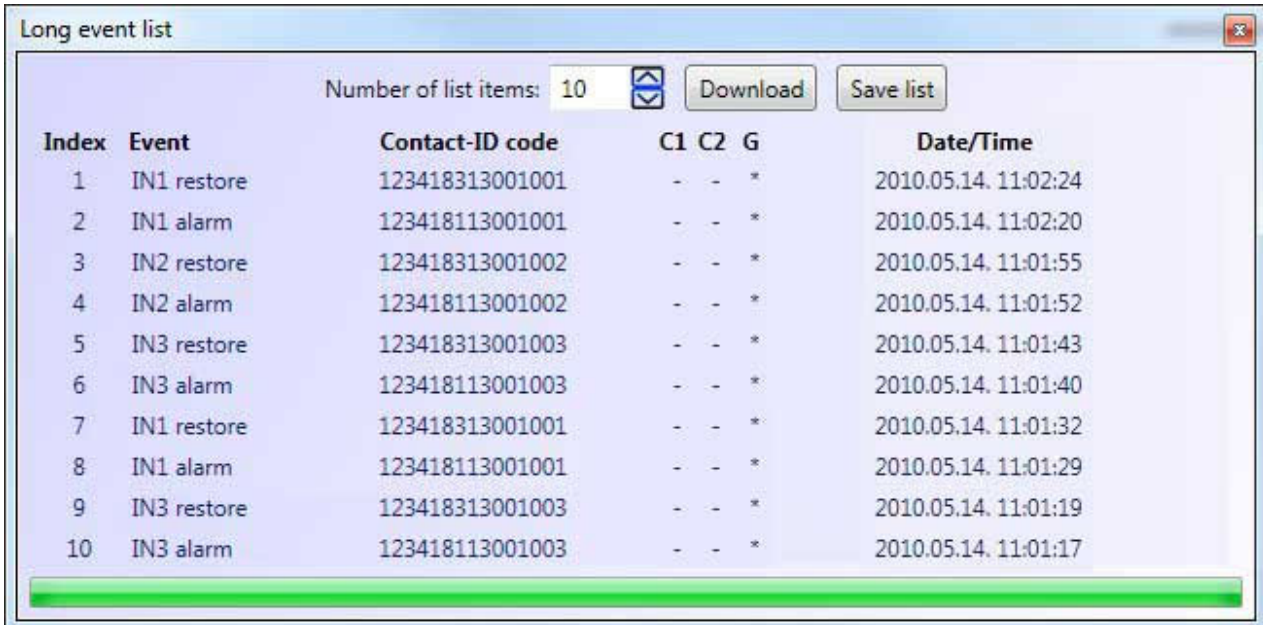
The module's latest messages with timestamps are displayed here.

These messages can be filtered by selecting the appropriate checkboxes of "**Procom messages**", "**GSM module messages**", "**DTMF messages**" and "**Event messages**".

The message window's content can be exported to file by clicking on the "**Export message window**" button, or cleared by clicking on the "**Clear message window**" button.

2.7.1 Downloading the event list

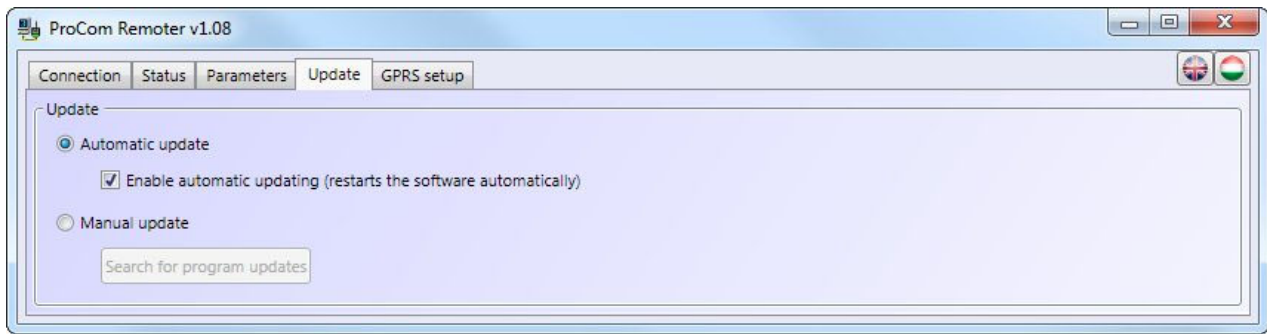
To download the detailed event list, click on the “**Detailed event list**” button found on the “**Status**” page. The module stores the last 1000 events in memory.



Index	Event	Contact-ID code	C1	C2	G	Date/Time
1	IN1 restore	123418313001001	-	-	*	2010.05.14. 11:02:24
2	IN1 alarm	123418113001001	-	-	*	2010.05.14. 11:02:20
3	IN2 restore	123418313001002	-	-	*	2010.05.14. 11:01:55
4	IN2 alarm	123418113001002	-	-	*	2010.05.14. 11:01:52
5	IN3 restore	123418313001003	-	-	*	2010.05.14. 11:01:43
6	IN3 alarm	123418113001003	-	-	*	2010.05.14. 11:01:40
7	IN1 restore	123418313001001	-	-	*	2010.05.14. 11:01:32
8	IN1 alarm	123418113001001	-	-	*	2010.05.14. 11:01:29
9	IN3 restore	123418313001003	-	-	*	2010.05.14. 11:01:19
10	IN3 alarm	123418113001003	-	-	*	2010.05.14. 11:01:17

- **Number of event list items:** the number of events the software will display in the list, starting from the most recent event
- **Download:** the event list downloading can be started with this button
- **Save list:** the list content can be saved to an Excel file with this button
- **Event list columns:**
 - **Index:** the index number of the event
 - **Event:** the name of the event
 - **Contact-ID code:** the 16 digit long Contact-ID code of the event
 - **C1 ... C2:** report sending to monitoring station phone numbers 1...2
 - **G:** reporting to monitoring station through GPRS connection
 - **Date/Time:** the date and time of the event's occurrence
- **The different signs and meanings of columns C1-C2 and G:**
 - **?** - event processing/reporting is currently in progress
 - ***** - reporting successful
 - **R** - reporting already successful through another way, therefore it is unnecessary to send notification here
 - **!** - reporting was unsuccessful
 - **S** - alarm has been stopped, it is unnecessary to send notification here
 - **T** - time limit expired, reporting was unsuccessful within the alarm duration interval

2.8 Updating the software



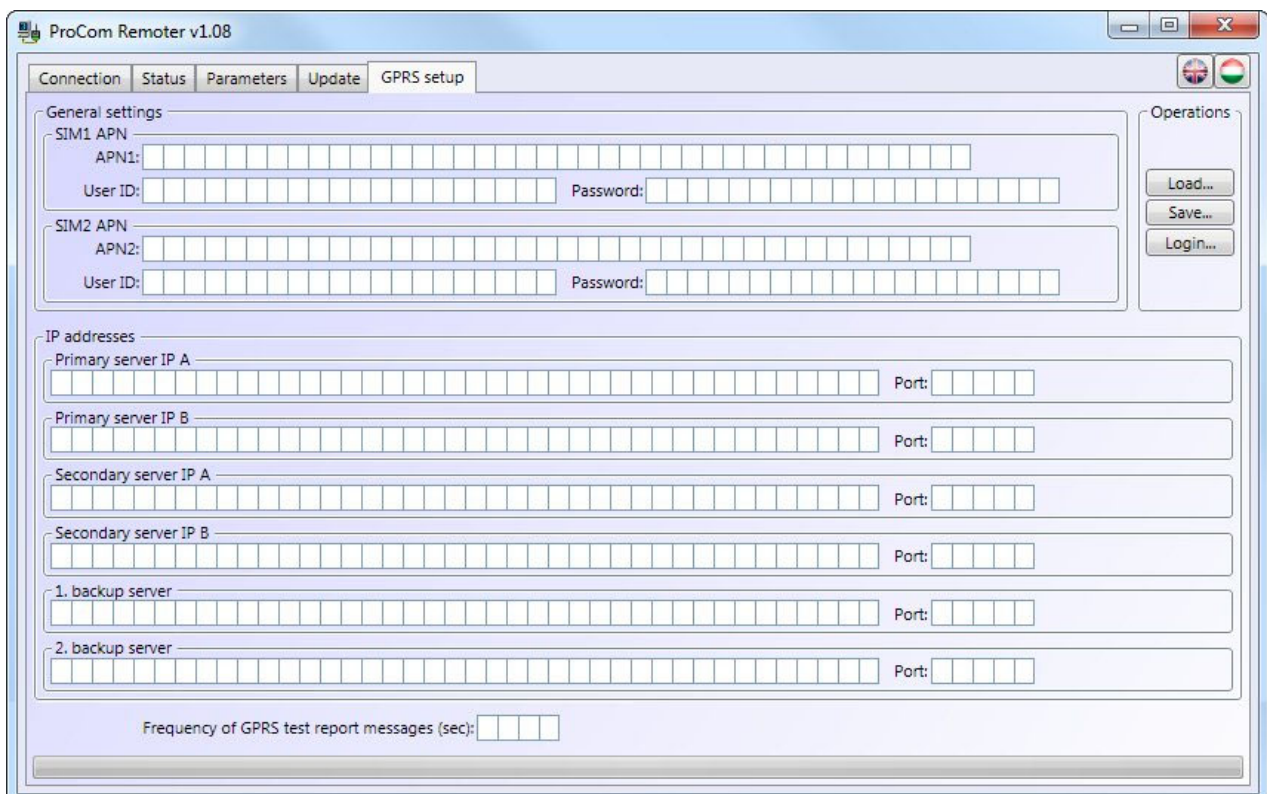
On the “**Update**” page, you can specify how the programming software should be updated.

Update: if automatic update is selected, the software will check for updates every 20 minutes. In case of manual mode, the software will check for updates when the “**Search for program updates**” button is clicked.

Enable automatic updating: if this option is enabled, the software will automatically download updates without user intervention, then automatically restarts itself upon a successful download. If not enabled, the software will ask for confirmation before it starts the software update procedure.

Search for program updates: by clicking this button, the software starts the update procedure.

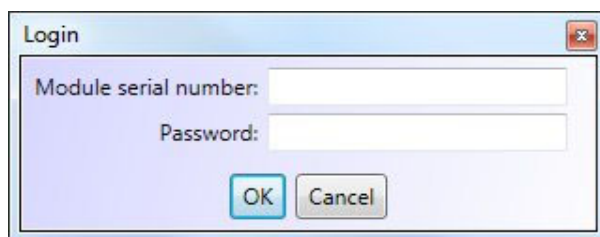
2.9 GPRS settings



You can set the GPRS connection parameters on the “**GPRS setup**” page.

- The settings can be saved to file by clicking on the “**Save**” button, or loaded from file by clicking on the “**Load**” button
- To access the module’s GPRS settings, a separate login verification is necessary, which can be done after you click the “**Login**” button

To access the GPRS parameters, please type the module's serial number and password:



After a successful login, new buttons for reading/writing module settings will appear in the Operations section on the “**GPRS settings**” page:



- If you want to modify the current GPRS settings, first read them from the module by clicking on the “**Read settings from module**” button, or load them from file by clicking on the “**Load**” button, then carry out the necessary modifications.
- Verify that the parameters are correct, then load them up to the module by clicking on the “**Write settings to module**” button.
- All read/write process statuses are displayed on the progress bar visible at the bottom of the software window.

Settings:

- **SIM1 APN**: type the name of the APN assigned to the SIM card inserted into the SIM1 slot (for example in case of public T-Mobile APN: “internet”, else the GSM service provider can provide details)
- **SIM2 APN**: type the name of the APN assigned to the SIM card inserted into the SIM2 slot
- **User ID** and **password** are only necessary only when the SIM card connects to a dedicated (private) APN
- **IP addresses**: (server IP addresses have to be fix IP addresses provided by the internet service provider)
 - **Primary server IP A** :
 - Type the primary TEX server's IP address here
 - **Port**: default setting: **3333**
 - In case there are further available primary or secondary servers in the system, then set their connection parameters in the “**Primary server IP B**”, “**Secondary server IP A**”, and “**Secondary server IP B**” fields.
 - **1. backup server IP**:
 - Type the backup TEX server's IP address here
 - **Port**: default setting: **3333**
 - In case there is another available backup server in the system, then set its connection parameters in the “**2. backup server IP**” field.

- **Frequency of GPRS test report messages:** This setting is used to continuously test the existence of the GPRS connection. You can set frequency (in seconds) of test reports the module will send through GPRS connection (default and suggested optimal setting: 180 seconds).

Important! This setting significantly influences the amount of data traffic. The lower this value, the bigger the amount of data traffic will be. Settings a too high value will result in decreased security. The higher the value, the later the GPRS connection problems will be notified.

2.10 ProCOM GPRS module operation, switching connections

- **General operation**

In case there are two SIM cards used, the module treats them as equal. Upon initialization, the module will try to use the SIM card inserted into the SIM1 slot to connect to GPRS, if the APN1 parameter is set. If unsuccessful, it switches to the SIM card inserted into the SIM2 slot. If the module cannot connect to GPRS within 10 minutes, it automatically switches to the other card and continues connection through that.

All events are forwarded through GPRS by default. In case the GPRS network is inaccessible (for example all TEX servers are down, or the GPRS service is suspended due to maintenance), the module switches to alternative reporting methods.

If PSTN line is available, it will be used primarily in reserve mode to forward the signals received from the connected alarm control panel.

If no PSTN line is available, it switches to reserve GSM mode, and forwards the alarm panel's signals through GSM voice calls.

When in reserve reporting mode, the module tries to connect to the server (any available server, according to priority) every minute. If successful, it switches back to the default GPRS communication. During the connection procedure, the module will give a busy signal on the simulated line.

- **Server IP address priority**

In case all six available IP addresses are set, the module will try to connect to the preset IP addresses after successfully registering itself on the GPRS network in the following manner:

Server IP address	Number of connection attempts
Primary server IP A	2
Primary server IP B	1
Secondary server IP A	1
Secondary server IP B	1
Backup server IP 1	1
Backup server IP 2	1

It starts from the beginning after it reached the end of the list.

The module switches between two IP addresses in 45 seconds on the average.

Switching back to the “primary IP A” (and “secondary IP A”) address:

The GPRS devices maintain connection mainly with the “primary server IP A” or the “secondary server IP A” IP address.

If the devices connect to the other server due to a connection loss, they try to switch back to the “primary server IP A” address after a certain time.

The module counts the time beginning from the event of successful connection, or the last Contact ID signal, or the interruption of the remote PC connection. If this time reaches 10 minutes, the device tries to switch back to the “primary server IP A” address. (10 minutes < switch back time < 10 minutes + GPRS test report frequency). The higher the time set for GPRS test report frequency, the later the module can switch back to the primary IP address. The above mentioned 10 minutes is true only when there is no event, but if an event arrives in the meantime, the 10 minute counter will start again.

▪ Connection switching timers

Event	Duration
Connecting to the primary IP address after restart or power up	≈ 35 sec
Switching time between IP addresses (starting from the notification of the connection loss)	≈ 45 sec
Switching to GSM mode – in case there are no events and the server is unreachable (starting from the notification of the connection loss)	120 sec
Switching to GSM mode – in case there is a custom event and the server is unreachable (starting from the time of the event's occurrence)	≈ 120 sec
Switching back from GSM line to server (without event, or with event counting from the last event's time of occurrence)	60 sec
Switching from backup server to primary server (without event, or with event counting from the last event's time of occurrence). The counter resets if a new event occurs (either custom or incoming).	10 minutes + GPRS test report frequency
Switching to PSTN mode, if GSM mode is disabled or the server is unreachable (starting from the notification of the connection interrupt or event occurrence)	120 sec

2.11 Relay control and sabotage monitoring deactivation with SMS messages

It is possible to control the module's outputs and deactivate sabotage monitoring by sending the appropriate command in SMS to the module's phone number as following:

SMS command	Operation
*R1=ON, PWD=yyyy, CRQ#	Relay1 ON (bistable mode) Substitute "yyyy" with the module password, see explanation at the table's bottom
*R2=ON, PWD=yyyy, CRQ#	Relay2 ON (bistable mode) Substitute "yyyy" with the module password, see explanation at the table's bottom
*R3=ON, PWD=yyyy, CRQ#	Relay3 ON (bistable mode) Substitute "yyyy" with the module password, see explanation at the table's bottom
*R4=ON, PWD=yyyy, CRQ#	Relay4 ON (bistable mode) Substitute "yyyy" with the module password, see explanation at the table's bottom
*R1=OFF, PWD=yyyy, CRQ#	Relay1 OFF Substitute "yyyy" with the module password, see explanation at the table's bottom
*R2=OFF, PWD=yyyy, CRQ#	Relay2 OFF Substitute "yyyy" with the module password, see explanation at the table's bottom
*R3=OFF, PWD=yyyy, CRQ#	Relay3 OFF Substitute "yyyy" with the module password, see explanation at the table's bottom
*R4=OFF, PWD=yyyy, CRQ#	Relay4 OFF Substitute "yyyy" with the module password, see explanation at the table's bottom
*R1=ONx, PWD=yyyy, CRQ#	Relay1 ON for „x” (1-254) seconds (monostable mode) Substitute „x” with the desired time duration „x” can be between 1 – 254 seconds Substitute "yyyy" with the module password, see explanation at the table's bottom
*R2=ONx, PWD=yyyy, CRQ#	Relay2 ON for „x” (1-254) seconds (monostable mode) Substitute „x” with the desired time duration „x” can be between 1 – 254 seconds Substitute "yyyy" with the module password, see explanation at the table's bottom
*R3=ONx, PWD=yyyy, CRQ#	Relay3 ON for „x” (1-254) seconds (monostable mode) Substitute „x” with the desired time duration „x” can be between 1 – 254 seconds Substitute "yyyy" with the module password, see explanation at the table's bottom

*R4=ONx, PWD=yyyy, CRQ#	Relay4 ON for „x” (1-254) seconds (monostable mode) Substitute „x” with the desired time duration „x” can be between 1 – 254 seconds Substitute “yyyy” with the module password, see explanation at the table’s bottom
*TAMPEROFF=z, PWD=yyyy, CRQ#	Sabotage monitoring OFF (for 1-60 minutes) Substitute „z” with the desired time duration „z” can be between 1 – 60 minutes Substitute “yyyy” with the module password, see explanation at the table’s bottom

yyyy = module password (default: 1111). The module will not execute the SMS command if it does not contain the module password.

CRQ = request answer SMS from the module about task completion (optional parameter, necessary only when an answer SMS from the module about task completion is required).

All commands must start with a star "*" character, and end with a hashmark "#" character. Multiple commands can be issued in one SMS, but the maximum length is 160 characters total. If the SMS exceeds 160 characters, the module will process the first 160 characters only.

- **SMS answers from the module (in case the CRQ parameter is used):**

Example:

Rel1 ON = Relay1 turned ON
 Rel2 OFF = Relay2 turned OFF

- **Examples for SMS commands:**

- **Activating Relay1 indefinitely (bistable mode):**

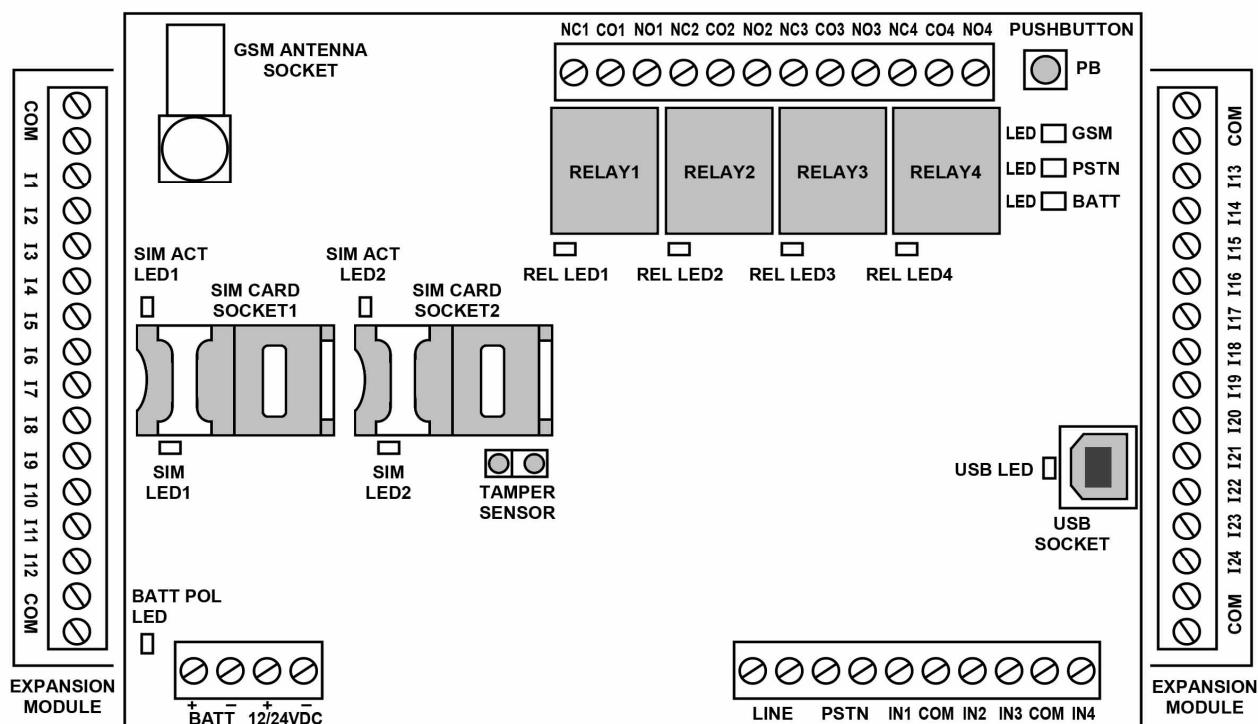
- If an answer SMS is not required, the SMS command looks as the following:
***R1=ON, PWD=1111#** (in case the module password is 1111)
- If an answer SMS is required, the SMS command looks as the following:
***R1=ON, PWD=1111, CRQ#** (in case the module password is 1111)

- **Turning off sabotage monitoring for 20 minutes:**

- If an answer SMS is not required, the SMS command looks as the following:
***TAMPEROFF=20, PWD=1111#** (in case the module password is 1111)
- If an answer SMS is required, the SMS command looks as the following:
***TAMPEROFF=20, PWD=1111, CRQ#** (in case the module password is 1111)

3 The ProCOM module peripherals

3.1 Panel overview



3.2 SIM card slot

There are two SIM card slots on the panel (SIM1 and SIM2). You can insert the SIM card(s) here. The two SIM slots are functionally equal. SIM cards required for the ProCOM to function can be acquired at any GSM service provider. **The ProCOM accepts all network providers' SIM cards.**

3.3 Pushbutton

The pushbutton's (marked as "PB" on the panel) functions:

- **GSM signal strength display**
Push the button for a short time (<1 sec) and the module's GSM LED (green) indicates by flashing the current GSM signal strength, according to a 10-point scale.
- **Speaker ON/OFF**
Keep the button pressed continuously for at least 2, but maximum 5 seconds then release it to turn on the module's speaker, which is used for diagnostic tasks (to hear the current communication on the line). The speaker stays on for 3 minutes, then turns off automatically.
- **Switch to GSM**
Keep the button pressed continuously for at least 5 seconds, then release it in order to make the module switch to simulated GSM line for at least 30 seconds, regardless of the PSTN line's state. It automatically reverts back to normal line management after the time period expires. This state is indicated by the alternating flashes of the GSM LED (green) and PSTN LED (red).

- **Reset (restore default settings)**

Remove all SIM cards from their sockets. Keep the button pressed continuously for at least 5 seconds, then release. This state is indicated by the GSM LED's alternating red and green flashes. Push both concealed buttons of the SIM slots (SIM card sensor switches) simultaneously to reset the default settings and restart the module.

3.4 Tamper protection

The ProCOM module is equipped with optical approach-sensor tamper protection. The optical sensor is integrated on the panel, next to the SIM2 card slot. It's operation is based on light-reflection, it senses the surface in front of the panel (for example the door of the metal box). It generates a tamper event when the surface is removed, and a restore event when replaced.

For proper operation, the surface in front of the panel should be light colored and matte. In case the module is installed into a box that's surface in front of the panel is dark colored or shiny, reflective, then stick a white paper or decal on the surface opposite to the panel. By default (when the box is closed) the distance between the panel and the surface in front of it should not exceed 50mm. Any greater space can cause improper functioning of the optical sensor, which may result in fake alarms.

If you do not want to use the tamper protection function, you can disregard the instructions mentioned above.

3.5 USB connector




The USB connector on the panel is used to establish direct USB connection between the ProCOM module and a computer through a USB cable. With this, you can easily connect the module to the programming software found on the product's install CD.

To establish connection, a USB A-B cable is required.

3.6 Antenna connection

The GSM antenna can be connected to the FME (spike) connector slot. The antenna found in the product package assures good transmission in normal environments. In case of signal strength problems and/or wave interferences (fading) use another antenna with better gain, or find a more favorable place for the module.

3.7 LED signals

GSM LED 	<p>Continuous red: the GSM module cannot be initialized. The reason can be that the module does not sense a SIM card in the slot, or some other hardware error has arisen.</p> <p>Slow flashing red: the GSM module is initializing.</p> <p>Fast flashing red: the GSM module has initialized, registering on the GSM network is currently in progress.</p> <p>Continuous green: the GSM module has registered on the GSM network, and is ready for use.</p> <p>Flashing green: a call is currently in progress on the GSM module, or it is displaying the actual signal strength after the pushbutton has been released.</p> <p>Alternately flashing red and green: the pushbutton was pushed for more than 5 seconds and the module is ready for reverting back to default settings (reset).</p>
PSTN LED 	<p>Continuous red: no PSTN line, or currently inaccessible.</p> <p>Continuous green: PSTN line present, and ready.</p> <p>Flashing green: off hook detected on the PSTN line.</p> <p>Alternately flashing red and green: the pushbutton was pressed for long, therefore a simulated GSM line has been activated on the LINE connector, regardless of the PSTN line's state.</p>
BATT LED 	<p>Continuous red: the supply or battery voltage is low.</p> <p>Flashing red: the supply voltage is low, but the battery voltage is sufficient, thereby the module is working from battery.</p> <p>Continuous green: the supply and battery voltages are sufficient.</p> <p>Flashing green: the supply voltage is sufficient, but the battery voltage is low and the battery is currently charging</p>
SIM LED1-2	<p>Active when a SIM card is inserted into the specific slot.</p>
SIM ACT LED1-2	<p>The active led represents the SIM card currently used by the module. If the led is flashing, the GSM module is searching for a usable SIM card.</p>
REL LED1-4	<p>Active when the specific relay is in activated state.</p>
BATT POL LED	<p>Active when the battery has been connected improperly to the module (switched polarity). The LED is continuously on while this state is active.</p>
USB LED	<p>Active when the module is connected to a PC through USB cable.</p>

3.8 Module wiring

Attention! The module requires a 12V battery for 12V power supply, and a 24V battery for 24V power supply! The charge controller automatically recognizes the connected battery type and adjusts the necessary charging voltage level. Battery charging turns on automatically if the battery voltage drops below 13V (respectively 26V).

Due to security reasons, the charge controller does not enable charging when:

- **In case of a 12V battery, its voltage is under 10V or over 14V**
- **In case of a 24V battery, its voltage is under 20V or over 28V**

Connectors of the ProCOM panel	
BATT+	External battery connector, positive polarity: 12/24VDC
BATT-	External battery connector, negative polarity
12/24VDC+	Power supply positive polarity: 13,5V – 14V DC; 27V – 28V DC
12/24VDC-	Power supply negative polarity
LINE	Simulated line output from the GSM network (should be connected to the alarm control panel's RING-TIP inputs)
PSTN	PSTN line input
IN1...IN4	1...4 contact inputs
COM	1...4 common point of the contact inputs
NC1...NC4	1...4 normally closed relay outputs (opens on activation)
CO1...CO4	1...4 common points of the relay contacts
NO1...NO4	1...4 normally open relay outputs (closes on activation)

Connectors of the ProCOM expansion panel	
I1...I24	1...24 contact inputs
COM	1...24 common point of the contact inputs

- **Contact (zone) inputs:** the contact shall be interpreted as a simple short circuit NO/NC type.

Contact inputs on the terminal connector:

1. input:	IN1
2. input:	IN2
3. input:	IN3
4. input:	IN4

- **Relay output:** potential independent closing and opening relay contact outputs, the maximum load capacity is 5A/12VDC per relay.

Contact outputs on the terminal connector:

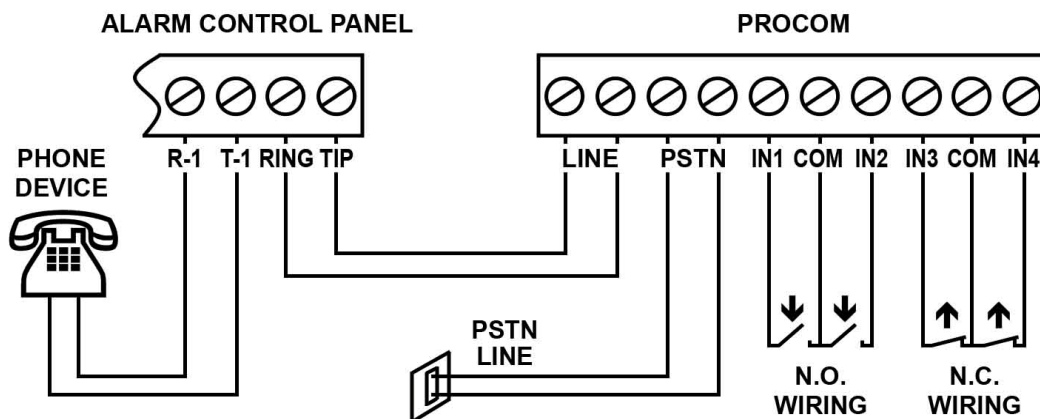
Relay1:	NC1, CO1, NO1
Relay2:	NC2, CO2, NO2
Relay3:	NC3, CO3, NO3
Relay4:	NC4, CO4, NO4

- **Extension module contact (zone) inputs:** the contact shall be interpreted as a simple short circuit NO/NC type.

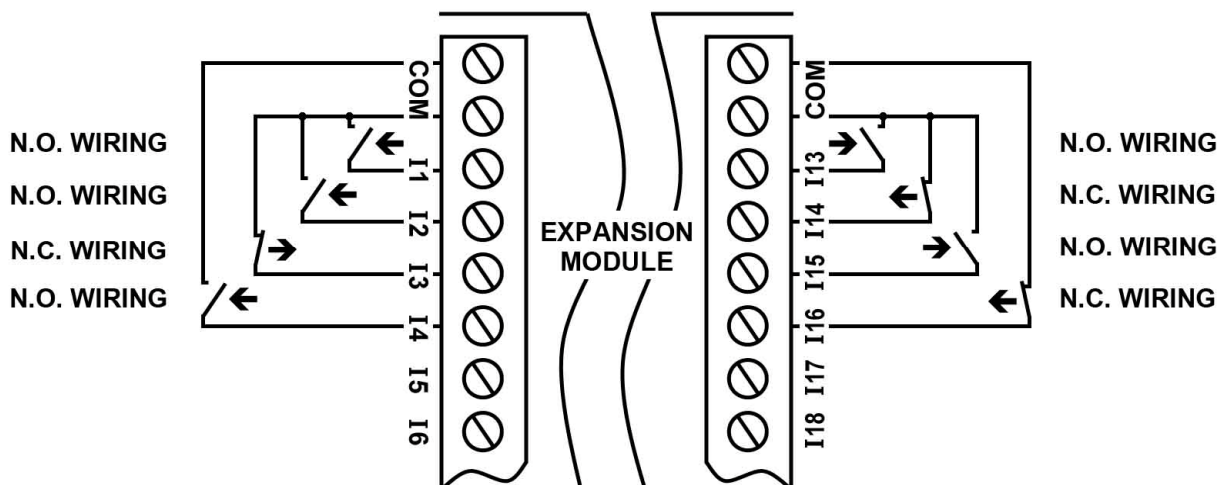
Contact inputs on the expansion module's terminal connectors:

1. input:	I1	13. input:	I13
2. input:	I2	14. input:	I14
3. input:	I3	15. input:	I15
4. input:	I4	16. input:	I16
5. input:	I5	17. input:	I17
6. input:	I6	18. input:	I18
7. input:	I7	19. input:	I19
8. input:	I8	20. input:	I20
9. input:	I9	21. input:	I21
10. input:	I10	22. input:	I22
11. input:	I11	23. input:	I23
12. input:	I12	24. input:	I24

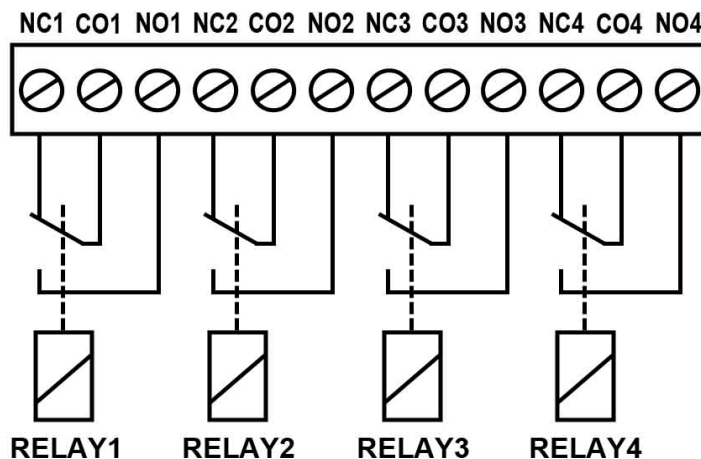
3.8.1 Inputs and phone line wiring



3.8.2 Expansion module inputs wiring

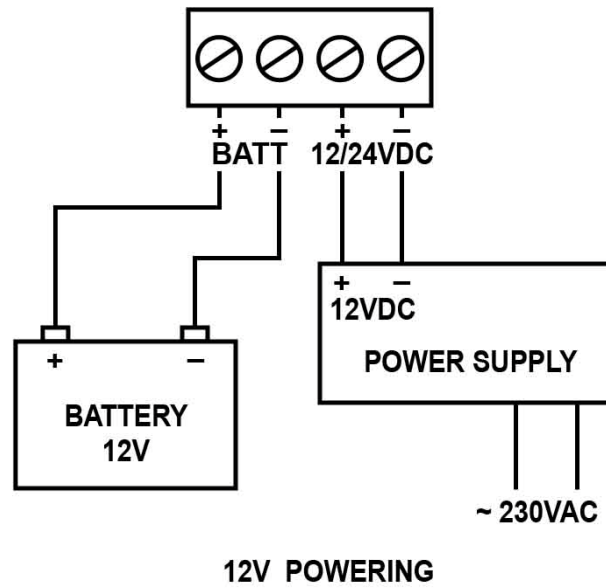


3.8.3 Relay outputs wiring

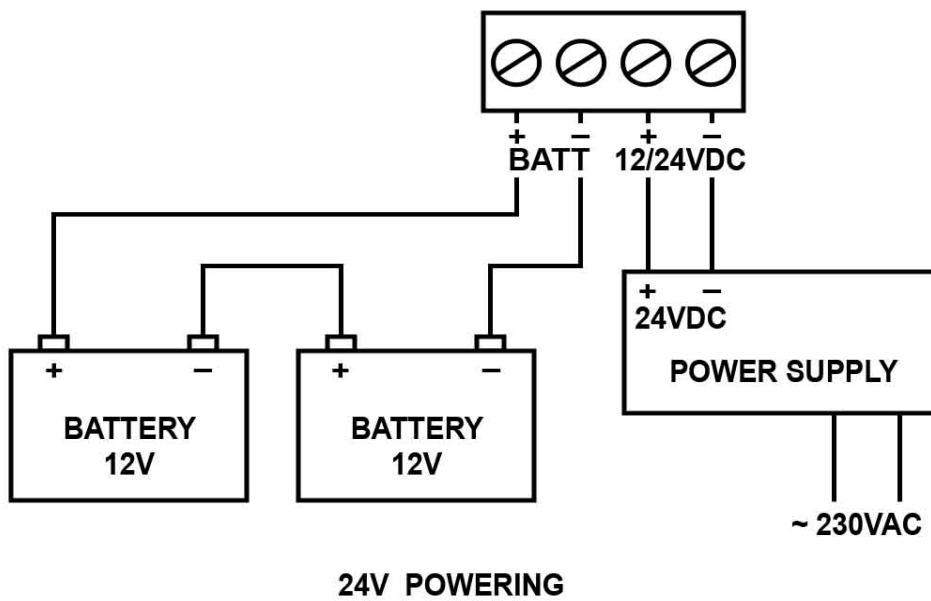


SCHEME OF RELAY OUTPUTS

3.8.4 12V power supply and battery wiring



3.8.5 24V power supply and battery wiring



4 Alarm panel preparation

Please verify the following on the alarm control panel for which you install the ProCOM module:

- Reporting format has to be set to either CONTACT ID or ADEMCO Express format.
- The monitoring station's phone numbers must be set with area codes, in order to be accessible for the SIM card over the GSM network.
- Dial method has to be set to TONE mode.

5 Installation guide

5.1 Mounting

- Measure the GSM signal strength with your mobile phone. It is possible, that the desired place for installation has unsatisfactory levels of signal strength. With this simple measurement, you can modify the place of the module before mounting it.
- Do not install the module where electro-magnetic disturbances can happen, for example near electrical motors.
- Do not install in moist, humid places.
- Antenna connection: the GSM antenna can be connected to the FME (spike) connector slot. The antenna found in the product package assures good transmission in normal environments. In case of signal strength problems and/or wave interferences (fading) use another antenna with better gain, or find a more favorable place for the module.
- **When installing the boxed module variant, it is mandatory to connect the protective ground to the GND point of the metal box!**

5.2 Putting into operation

- Disable PIN-code request and voice mail service on the SIM cards you want to use in the module
- **Enable caller identification and caller ID sending services at the GSM service provider of the SIM card** (for some card types this is not enabled by default).
- Make sure that the SIM card is placed into its slot properly.
- Make sure that the antenna is connected to the module properly.
- Make sure that the wiring is done according to the way it was mentioned earlier.
- Power up the module. If you use the panel-variant ProCOM for alarm control panel, make sure that the power supply is enough for the load of the alarm panel and the module together.

The quiescent current of the module is 120mA, however it can reach up to 500mA during communication and relay handling procedures.

- **In case you want to use another power supply instead of the one supplied with the module, make sure that the voltage level is inside the interval necessary for battery charging:**
 - 12V battery: 13,5V – 14V DC
 - 24V battery: 27V – 28V DC.

Important! In case of using power supplies with voltage levels outside the ranges mentioned above, the module will NOT charge the connected battery due to safety and security reasons!

6 Technical details

6.1 Technical specification

Power supply voltage:	9V – 30V DC (for the panel-type variant)
Power supply voltage:	230VAC (for the factory boxed variant)
Power supply voltage level necessary for battery charging:	13,5V – 14V DC or 27V – 28V DC
Nominal consumption:	120mA /12VDC
Maximum consumption:	500mA /12VDC
Operating temperature:	-20°C – +70°C
Transmission frequency:	GSM 900/1800 MHz, 850/1900 MHz
GSM phone type:	Simcom SIM900
Connectable battery:	12V-type: for 13,5V – 14V DC power supply 24V-type: for 27V – 28V DC power supply
Dimensions:	150 x 110 x 19 mm (panel) 180 x 110 x 34 mm (panel + expansion module) 227 x 286 x 79 mm (metal box + GSM antenna)
Net weight:	200g (panel) 100g (expansion module) 2kg (boxed variant, with expansion, no battery)
Gross weight (packed):	2,1kg (boxed variant)

6.2 Generated phone line specification

Line voltage:	48 V
Line current:	20 mA
Line impedance:	600 Ohm
Ring voltage:	±50V (20 Hz)
Tone:	425 Hz

6.3 Package contents

Boxed type with zone expansion module:

- ProCOM GPRS Adapter
- EXT24 expansion module
- GSM 900MHz /1800MHz antenna
- Metal box
- Power supply 230VAC/12VDC 1,3A
- CD, user's manual, warranty card

Boxed type without zone expansion module:

- ProCOM GPRS Adapter
- GSM 900MHz /1800MHz antenna
- Metal box
- Power supply 230VAC/12VDC 1,3A
- CD, user's manual, warranty card

Panel type:

- ProCOM GPRS Adapter
- GSM 900MHz /1800MHz antenna
- CD, user's manual, warranty card

6.4 Manufacturer's contact information

T.E.L.L. Software Hungária Kft
4034 Debrecen, Vágóhíd u. 2.
Hungary
Tel.: +36-52-530-130
Fax.: +36-52-530-131
Web: www.tell.hu