ecoLINE SIA IP Adapter

INSTALLATION AND APPLICATION MANUAL

for module version v5.02 and higher

Rev. 1.6 15.09.2015

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1 Application area

GPRS communicator for alarm control panels, which converts the Contact ID communication into SIA IP format and forwards the events towards the monitoring station's receiver using IP channel over mobile GPRS network. Can be used with any alarm system which is able to report to monitoring station in Contact ID format using PSTN landline. Using the adapter, the alarm control panel's signals are sent to the monitoring station's IP receiver over the GPRS network, using SIA IP protocol based on ANSI/SIA DC-09-2007 standard. No need for a central server, only an IP receiver with internet connection is necessary. The module operates with the TELLMon and any other receiver which supports the SIA IP protocol mentioned above. Recognition of the receiver and switching between the SIA IP and TELLMon protocol is done automatically upon connecting to the receiver, thereby configuring the communication protocol is not necessary.

2 Functions

- Converting Contact ID format and event reporting in SIA IP format
- Supports receiver-side static IP and domain as well
- Backup Contact ID communication over GSM voice call in case of an IP error
- Forwards incoming SMS messages
- Settings can be configured by PC software or SMS
- Possibility to send supervision test report to multiple IP address for continuous monitoring of the connections
- Evaluates and shows estimated data traffic
- The programming software and manual are available on the internal memory of the device which acts as a USB drive

Basically, reporting can be realized in two ways: over mobile internet using SIA IP based communication, or as a backup option, over GSM voice call towards a switched-line DTMF receiver. If the alarm control panel dials one of the numbers assigned to an IP address, reporting will be done over mobile internet. If the alarm control panel dials a number which is not defined in the module, or a number configured at the GSM call filtering option, reporting will be done over GSM voice call.
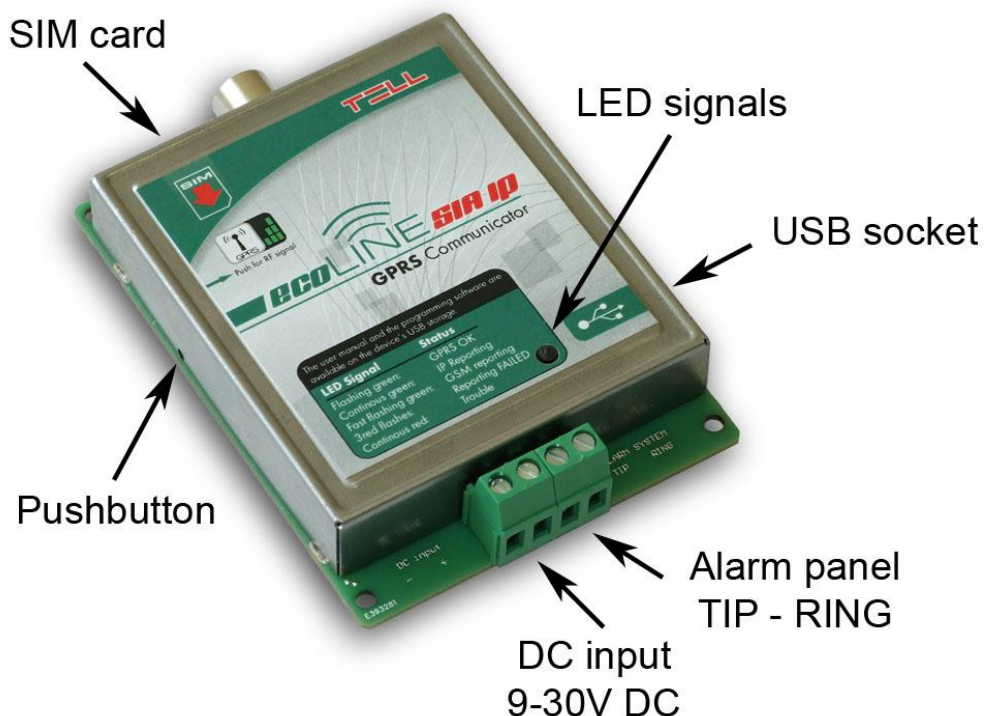
3   Settings

3.1   Configuring through USB connection

The product's programming software and manual is available on the USB storage of the device. If the microswitch found under the hole on the left side of the module is pushed shortly with an appropriate tool after connected to the computer via USB, the USB storage of the device will appear for 2 minutes among the computer's drives. If you wish to use the storage thereafter, push the microswitch again. By pushing the microswitch the LED found on the module will also indicate the GSM signal level by flashing.

In case of using Windows XP, if the USB drive does not appear in a few seconds after pushing the microswitch, then the "***HID-compliant device***" marked with the yellow failure icon created by the system upon connecting the module to USB should be removed in the system's device manager, and the "***Scan for hardware changes***" icon should be clicked to redetect the connected device.

The programming software is available on the USB storage at the following path:
[*Drive letter*]:\Software\Remoter\Remoter.exe

The programming software is compatible with the following operating systems:

- **Windows XP SP2**
- **Windows 7 (32/64 bit)**
- **Windows 8.x (32/64 bit)**
- **Windows 10 (32/64 bit)**

Using the programming software, the following parameters can be configured:

3.1.1   GPRS settings

- **APN name**: access point name for connecting to the Internet (is provided by the GSM service provider)

- **User and password:** necessary only if required and provided by the GSM service provider

The module restarts in every 3 minutes if the APN settings are wrong or missing!

3.1.2   SIA settings

Depending on the alarm control panel's settings, the module can forward the signals up to 4 IP addresses or domains. Filtering and directing of the events towards the appropriate receiver is realized by the alarm control panel. The module associates the IP addresses with the numbers dialed by the alarm panel, then it converts the received events to IP-based format and sends towards the configured receivers.

To continuously check the connections it is possible to enable supervision test reports. Test reports can be enabled independently for all IP addresses except for the first (highest priority) address, for which this is always enabled. The frequency of supervision test report sending can be configured in seconds. According to this parameter, an estimated data traffic is calculated to indicate how much data traffic will be generated by using the configured settings.

- **Dialed number:** when the alarm control panel dials the number entered here, the signals will be forwarded to the IP address assigned to this number. The number set here must be exactly the same as the one dialed by the alarm control panel, otherwise the module will not emit the handshake signal.

- **Remote IP address:** enter the IP address or domain availability of the receiver to which the signals should be forwarded when the alarm control panel dials the number assigned to this address.
  Connecting to a domain is possible only if the SIM card inserted into the module uses an APN which includes a DNS server as well. Domains cannot be used when using a private APN.

- **Port:** enter the port number of the IP address, through which the receiver receives the signals.

- **Test report frequency:** enter the supervision test report sending frequency in seconds, which is used to monitor the connection between the module and the receiver found at the given IP address.

- **Test report sending:** if this option is enabled, the module will always send supervision signals to the given IP address by the configured frequency. If this option is disabled, the module sends supervision signals to the given IP address only when it is absolutely necessary, when the higher priority IP addresses are not available for some reason. The module always sends supervision signals to highest priority (first) IP address, this option cannot be changed.

- **Estimated data traffic:** indicates the estimated monthly data traffic according to the configured supervision test report sending frequency. **ATTENTION! THE INDICATED ESTIMATED DATA TRAFFIC IS CONSIDERED ONLY FOR THE TEST REPORTS, IT IS NOT EQUIVALENT WITH THE MODULE'S TOTAL MONTHLY DATA TRAFFIC!**

3.1.3 Automatic IP selection

When the alarm control panel dials the number entered here, the events will be sent to the highest priority available IP address. The priorities correspond to the physical order of the IP addresses (SIA-IP1 to SIA-IP4).

3.1.4 SIA user ID

Enter here the user account ID programmed in the alarm control panel. In case of using multiple partitions / user account IDs, enter the first partition's user account ID. The module sends the supervision test reports using this user ID. The length of the SIA user ID can be minimum 1, maximum 6 characters. Do not fill the user ID with zeros!

3.1.5 Dialed numbers for backup GSM call

If the *"GSM call filtering"* option is enabled, and the alarm control panel dials one of the phone numbers configured in the *"Dialed numbers for backup GSM call"* section, the module will initiate a GSM voice call to the specified phone number and will let the alarm control panel communicate through this call. If this filter is disabled and the alarm control panel dials any number which is not configured in the module, reporting will be done over GSM voice call.
Maximum 6 phone numbers of switched-line receivers can be configured which can be called by the alarm control panel for reporting over backup GSM voice call.

3.1.6 Modification of the settings by SMS

A superuser phone number can be configured in this section, which is authorized to modify the settings by sending commands by SMS. Details about the SMS commands can be found in the *"**Configuring by SMS commands**"* chapter.

3.1.7 Incoming SMS message forwarding

The module forwards the incoming SMS messages to the phone number entered here. This is useful for receiving SIM card balance information messages sent by the GSM service provider to the module's SIM card, etc. (if left blank, the module will automatically delete all incoming SMS messages).
Attention! DO NOT enter here the phone number of the SIM card inserted into the module!

3.2 Configuring by SMS commands

It is possible to configure the module and receive status information by sending the appropriate command in SMS to the module's phone number. First please set the SUPERUSER phone number from which the module will then accept SMS commands:

SMS command	Operation
SUPERUSER#	The module sets the sender's phone number as Superuser. **The module accepts this command only if no Superuser has been set yet!**
SU=#	Deletes the current Superuser phone number. The module accepts this command only from previously set (actual) Superuser phone number.
APN=APN name**#**	Sets the APN name
UN=APN user name**#**	Sets the APN user name
PW=APN password**#**	Sets the APN password
PHX=dialed number**#**	Setting the numbers dialed by the alarm control panel assigned to IP addresses: substitute "X" with the ordinal number of the number dialed by the alarm control panel to be set or modified (1 to 4).
IPX=IP address**#**	Setting the IP addresses: substitute "X" with the ordinal number of the IP address to be set or modified, which you wish to assign to the number dialed by the alarm control panel, with the same ordinal number (1 to 4).
PORTX=port number**#**	Setting the port numbers: substitute "X" with the ordinal number of the IP address port number to be set or modified (1 to 4).
TESTX=Y**#**	Setting the supervision test report assigned to IP addresses: substitute „X" and „Y" with the desired values: X= the ordinal number of the IP address Y=0 (test report sending disabled) Y=1 (test report sending enabled)

TSTFR*X=frequency***#**	Setting the supervision test report sending frequency assigned to IP addresses: substitute "X" with the ordinal number of the IP address. The frequency value should be entered in seconds.
AUTOIP=*dialed number***#**	Setting the number dialed by the alarm control panel for the "*Automatic IP selection*" option.
SELFID=*SIA user ID***#**	Sets the SIA user ID.
GSMS=*Y***#**	Sets the „*GSM call filtering*" option. Y=0 (call filtering disabled) Y=1 (call filtering enabled)
SPH*X=phone number***#**	Setting the phone numbers for backup GSM voice call filtering: substitute "X" with the ordinal number of the DTMF receiver phone number to be set or modified.
SFW=*phone number***#**	Sets the phone number where incoming SMS messages will be forwarded.
FWVER?#	Module firmware version query.
TROUT?#	Querying outgoing data traffic counter. The value in the response message is specified in Bytes.
TRIN?#	Querying incoming data traffic counter. The value in the response message is specified in Bytes.
TRALL?#	Querying total data traffic counter. The value in the response message is specified in Bytes.
GMIC=*X***#**	Adjusts the microphone volume (outgoing Contact ID volume). Substitute X with a number between 0…15. Default setting: 3.
GSPK=*X***#**	Adjusts the speaker volume (incoming HSK/ACK volume). Substitute X with a number between 0…100. Default setting: 50.

Configuring commands must always end with hash "**#**" character. It is also possible to send multiple commands in one SMS, but the message must not exceed 160 characters. If the response SMS to be received from the module would exceed 160 characters, only the first 160 characters are sent. In case of making typing or command mistakes, the following response SMS will be received: "**SYNTAX ERROR!**" and the command(s) will not be executed. The module accepts SMS commands sent from the **Superuser** phone number only.

Deleting settings:

To delete a setting, do not enter any value after the equality sign. This can be applied for all configuring commands found in the spreadsheet above. Example:
PH2=#   : deletes the second dialed number assigned to the second IP address
IP3=#   : deletes the third IP address
SPH3=#   : deletes the third backup GSM phone number
SFW=#   : deletes the SMS forwarding phone number

Settings query:

For settings query insert a question mark after the command. This can be applied for all configuring commands in the spreadsheet above. Example:

PH2?# : querying the second dialed number assigned to the second IP address
IP3?# : querying the third IP address
SPH3?# : querying the third backup GSM phone number
SFW?# : querying the SMS forwarding phone number

Examples for SMS command usage:

To configure the first number dialed by the alarm control panel (e.g. 1111) assigned to the first IP address (e.g. 111.112.113.114) with port number (e.g. 9999), send the following SMS message to the module's phone number:

PH1=1111#IP1=111.112.113.114#PORT1=9999#

To **erase** a **dialed number** configured earlier, leave the "*dialed number*" part blank (e.g.: to erase the second number dialed by the alarm control panel, send: **PH2=#** command).

For **dialed number query**, leave out the equality "=" sign and use question mark "?" instead of the *"dialed number"* (e.g.: to request the second number dialed by the alarm control panel, send: **PH2?#** command).

4   Volume adjusting application

The volume adjusting application (Volsetter.exe) is available on the manufacturer's website (www.tell.hu). You can use this software to adjust the in-call volume levels if necessary and justified. Adjusting may be necessary if voice quality or volume problems are experienced, caused by the circumstances in the given place of installation.
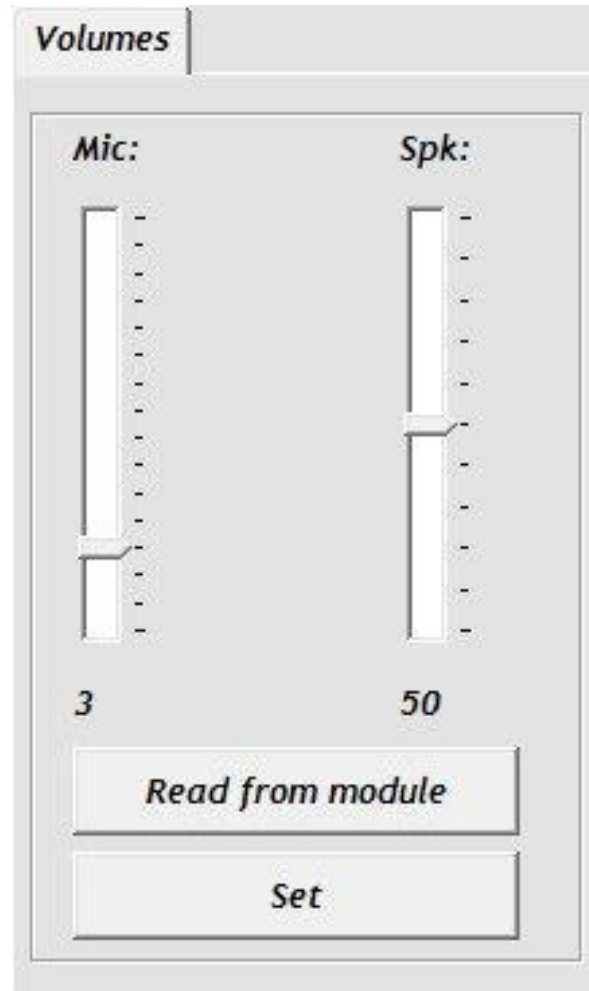
Using the software:

- Open the Volsetter.exe application.
- Connect the module to USB. The software connects to the module automatically, then "**Read**" and "**Set**" buttons become available.
- Read the actual settings from the module by clicking on "**Read from module**" button.
- **Mic** volume: microphone volume (outgoing Contact-ID).
- **Spk** volume: speaker volume (incoming HSK/ACK signal).
- Set the desired volume level, then write the settings to the module by clicking on "**Set**" button.
  Attention! Even minor level adjustment result significant changes in the in-call volume, therefore it is recommended to make slight changes in the appropriate direction and then check the voice quality again and test the communication!
- The new settings are applied after writing, in the very next voice call.

5 Module status

5.1 LED signals

Green blinks slowly, Red is not lit	GPRS OK
Green is continuously lit	IP reporting in progress
Green blinks fast	GSM reporting in progress
Red blinks 3 times	Reporting failed
Red is continuously lit	Trouble

5.2 Status

On the *"Status"* page the connected ecoLINE SIA IP Adapter's state can be monitored (version information, system timer, GSM status, GPRS network, communication, event monitoring).

Available status information:

- **Version information:**
  - **Type:** the type of the module
  - **Hardware version:** version of the hardware
  - **Firmware version:** version of the firmware

- **System timer:**
  - **Date/time:** internal timer of the connected module
  - **Uptime:** elapsed time since the latest module restart

- **GSM status:**
  - **GSM signal:** current GSM signal strength
  - **Uptime:** elapsed time since the latest GSM network connection

- **GPRS network:**
  - **Module IP:** the module's actual IP address
  - **Uptime:** elapsed time since the latest GPRS network connection
  - **Data traffic:** data traffic since the latest GPRS network connection
  - **Number of connections:** actual number of the IP connections

- **Communication:**
  - **Line status:** actual state of the simulated phone line
  - **Dialed number:** the last number dialed by the alarm control panel
  - **Protocol:** the last used protocol

- **Event monitoring:** list of the latest Contact ID events

6 Installation guide

6.1 Mounting

- Test the GSM signal strength with your mobile phone and then repeat this using the module after the installation. It may happen that the signal strength is not sufficient in the desired place of mounting. 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 interference (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: connect the antenna the module's FME-M connector. 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 missed call notification services on the SIM card placed into the module.
- Enable caller identification and caller ID sending services on the SIM card at the GSM service provider (some types of SIM cards do not have these services enabled by default).
- Enable the mobile data traffic service at the GSM service provider
- Insert the SIM card into the socket as indicated on the sticker on the module. If you wish to remove the SIM card, push the card in and release.
- Make sure the antenna is connected properly to the ecoLINE module.
- You can now power up the device. Make sure that the power supply is sufficient for the load of the module. The quiescent current of the module is 110mA, however it can reach up to 400mA during communication.

The module performs a scheduled automatic restart by 24 hours.

7 Technical details

7.1 Technical specification

Supply voltage:	9-30 VDC
Nominal current consumption:	110mA @ 12VDC, 60mA @ 24VDC
Maximum current consumption:	400mA @ 12VDC, 200mA @ 24VDC
Operating temperature:	-20ºC - +70ºC
Transmission frequency:	GSM 900/1800 MHz, 850/1900 MHz
GSM phone type:	Simcom SIM900
Dimensions:	100 x 70 x 19mm
Weight:	80g (packed: 100g)

7.2 Generated phone line specification

Line voltage:	48 V
Line current:	20 mA
Line impedance:	600 Ohm
Ring voltage:	±72V (25 Hz)
Tone:	400 Hz

7.3 Contents of the package

- ecoLINE SIA IP module
- GSM 900/1800 MHz antenna (0dB)
- Velcro fastener
- Installation and application manual
- Warranty card