SmartGuard®

E18SGGSMGW

GSM Gateway

Quick Guide

1. Safety Instructions

Please read the following safety guidelines prior to installation.

- The SmartAccess GSM Gateway contains an integrated radio transceiver operating in GSM 850/900/1800/1900 MHz bands.
- Do not install the system where it can interfere with other devices or cause any potential danger.
- Do not mount the system next to medical equipment or medical devices.
- Do not use the system in hazardous environments.
- Do not expose the system to high humidity or in chemical environments.
- The system must only be installed by a qualified engineer.
- Any system repairs must be done only by qualified engineer.
- The system must be powered by 10-24V DC.

The WEEE (Waste Electrical and Electronic Equipment) marking on this product or its documentation indicates that in the EU the product must not be disposed of together with household waste.

2. Function

The E18SGGSMGW is a device for transmitting data from alarm system to a monitoring station via:

- GSM audio channel
- Telehone landline (PSTN)
- GPRS network

It can also send an SMS message to the user.

3. Operation Description

The E18SGGSMGW communicator acts as a gateway between the alarm system and monitoring station providing a dial tone and fully replacing the landline (PSTN). The communicator notifies the monitoring station (E18SGGSMGW ONLY) and/or the user by SMS message in case PSTN is unavailable, has been cut off or disconnected by PSTN provider. E18SGGSMGW supports only outgoing calls. DTMF number dialling mode in the alarm system must be enabled.

The E18SGGSMGW features several communication paths between an alarm system and monitoring station:

1. GSM audio channel;
2. PSTN using GSM audio channel as backup connection;
3. SMS messages to preset users;
4. PSTN using GSM audio channel as backup connection with data duplication to preset users via SMS;
5. GPRS network.
6. PSTN using GPRS network as backup connection.

Please, refer to section 6 (Communication Modes) for more details.

The E18SGGSMGW has 3 digital inputs (normally open) for sensor connection. The 3 open collector outputs allow you to connect and control up to 3 electronic appliances on receipt of SMS text message(s) from one of the pre-programmed phone numbers. This feature provides control of heating, lighting, gates, blinds etc.

The SmartGuard Configuration Tool software is used to configure the system to operate in one of its communication modes, providing data transmission either via SMS text message or via GPRS. The device has to be connected to the computer using a USB cable. Please, refer to software's HELP section for more details. This software can be downloaded from the Reliable Security Products Website—www.rspl.ie

4. Electrical & Mechanical Specifications

Power supply	10-24V 300 mA max
Current used in standby mode	120mA max
GSM modem frequency	850/900/1800/1900 MHz
Supported protocols	Contact ID, 4+2**
Maximum number of users to whom SMS messages are delivered	3
Number of "low" level (negative) digital inputs*	3
Allowable input values*	Voltage: 0... 1.45V; current: 0.8... 0.6mA
Input type	NO (normally open)
Number of outputs*	3
Output circuit*	Open collector output. Output is pulled to COM when turned on.
Maximum allowed output values*	Voltage: 30V ; current: 50 mA
Dimensions	130 x 73 mm
Operating temperature range	-20...+55°C
Generated phone line voltage	18 V
Generated phone line current	25 mA
Generated phone line impedance	600 Ω
Dial tone frequency of generated phone line	350 Hz

*only in E18SGGSMGW
**4+2 protocol operates in communication mode 1, 5 and 9 ONLY (via GSM audio channel).

5. Components, Connections, Pin & LED Functionality

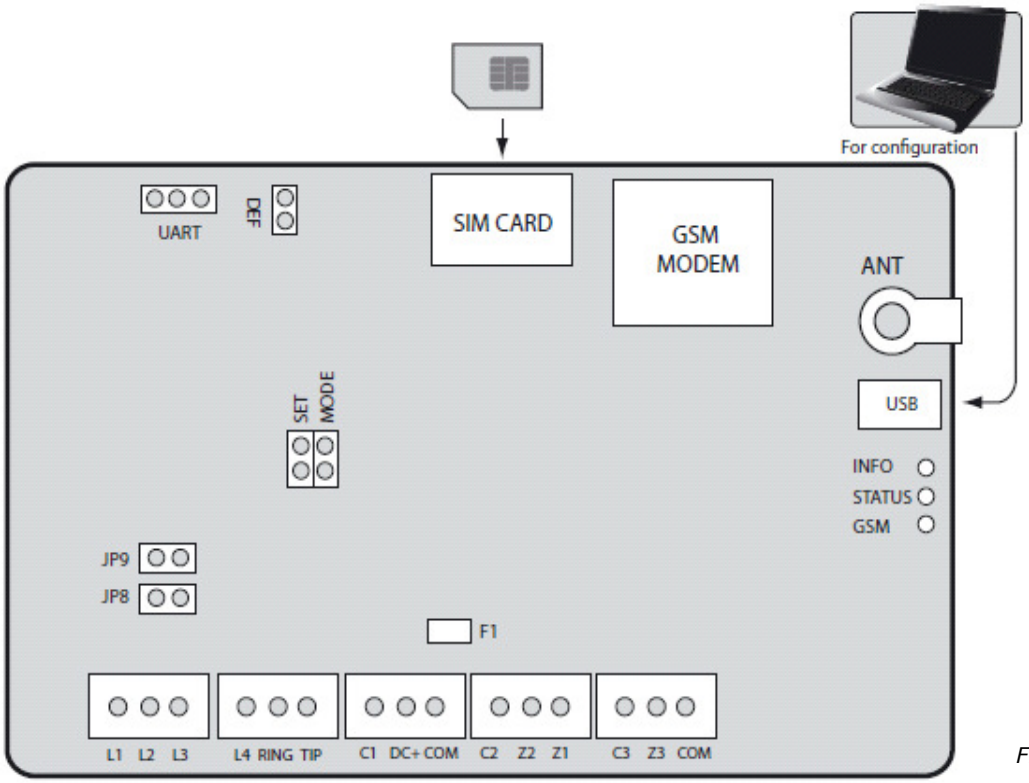


Figure 1

5.1. Component Functionality

GSM MODEM	GSM network 850/900/1800/1900 MHz modem
SIM CARD	SIM card slot / holder
ANT	GSM antenna SMA type connector
F1	Fuse model – miniSMDC 500mA
USB	Mini USB port

5.2. Connector Functionality

Labelling	Description
L1 - L4	Landline or PBX contacts (according to backup mode)
RING	RING contact
TIP	TIP contact
C1 - C3	Outputs
DC+	Positive power supply contact
COM	Negative power supply contact / Common contact
Z1 - Z3	Inputs
N/A	Not available

5.3 Pin Functionality

Labelling	Description
DEF	For restoring factory default settings
SET	For enabling communication modes
MODE	For enabling communication modes
JP8, JP9	For communication backup connection
UART	Not Used

5.4 LED Functionality

Labelling	Description
INFO	Mode indicator
STATUS	Device activity indicator
GSM	GSM network quality indicator

5.5 GSM Signal Strength Indication

GSM signal strength is indicated by the GSM LED. To ensure best network signal adjust the position of GSM antenna and find the strongest possible signal by observing the GSM LED indications.

GSM LED Indication	GSM Signal Strength
Off	No connection
Flashing every 3 seconds	The connection is not reliable
Flashing every 1 second	Satisfactory
Flashing several times per second	Good
On	Excellent

5.6 Device Activity Indication

STATUS LED Indication	Meaning
Off	No power supply or some fault is present
Flashing several times per second	SIM card is not inserted / inserted improperly
On	Device is operating and ready for use

5.7 Working Mode Indication

INFO LED	Indication Meaning
Off	Device is in standby mode
Flashing several times per second	Device retransmits the data sent from alarm system to the monitoring station (this indication is possible when device is operating in communication mode 1)
On	Device is decoding Contact ID data to user-understandable text format

5.8 Wiring Diagram

The COM connectors of E18SGGSMGW and Alarm System unit must be connected. E18SGGSMGW Inputs Z1-Z3 are connected to PGM outputs of alarm system unit if PGM output is implemented as open collector circuit or any other circuit and if it commutes with COM. The E18SGGSMGW C1-C3 outputs can be connected to the inputs of other electronic devices. This connection allows you to control heating, lighting, gates, blinds, water pump etc.

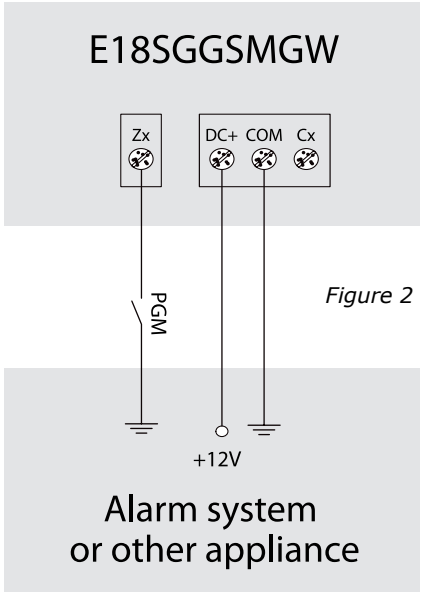


Figure 2

1. Make sure that SIM card PIN code is disabled. PIN code can be disabled by putting SIM card into a mobile phone
2. Insert the SIM card into the holder.
3. Terminate the Input and Output connections first before adding power.
4. The system will start in less than a minute.
5. LED2 indicator should flash or will be ON indicating connection to the GSM Network.

ATTENTION: The system is not compatible with pure 3G SIM cards. Only 2G SIM cards and 3G SIM cards with 2G profile enabled are supported. For more details, contact your GSM operator.

NOTE: Pay-as-you-go SIM cards are not recommended for use with the system as an insufficient credit balance will disable the system from transmitting information.

6. Communication Modes

ATTENTION: DTMF phone number dialling mode must be enabled on alarm system, activated Contact ID or 4+2 data transmission protocol and monitoring station phone number set with international code, i.e. 00353XXXXXXXX. Do not use the + character.

ATTENTION: Before connecting E18SGGSMGW power supply to alarm system's auxiliary output (AUX), please ensure that the output is able to maintain peak current consumption of up to 700mA max. Otherwise, please, use an external power supply for E18SGGSMGW.

6.1 Data Transmission from Alarm System to Monitoring Station via GSM Audio Channel - No PSTN Connection

In this mode the communicator retransmits Contact ID or 4+2 data sent from alarm system to the monitoring station via the GSM audio channel. There is NO backup connection for this mode.

NOTE: No additional communicator configuration is required for this mode.

Figure 3

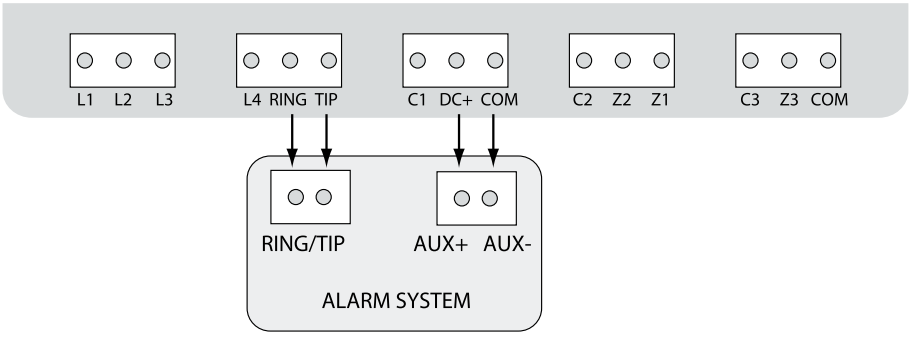
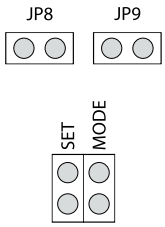


Figure 4



1. Connect the circuit as indicated in Figure 3 above—connect telephone contacts of the alarm system RING/TIP to RING/TIP contacts of the communicator.
2. Power the unit from the alarm panel +12V and –0V.
3. No jumpers have to be set on any pins. See Figure 4 for correct jumper position.

6.2 Data Transmission from Alarm System to Preset User (-s) by SMS

In this mode the communicator retransmits Contact ID data sent from alarm system and decodes it to user-understandable text format which is sent to preset user (-s) by SMS message. There is NO backup connection for this mode.

NOTE: User phone number (-s) must be set for the communicator using the SmartGuard Configuration Tool. Please, refer to software's HELP section for more details.

ATTENTION: You must set a monitoring station phone number in the alarm system's digital communicator (one digit is enough).

Figure 5

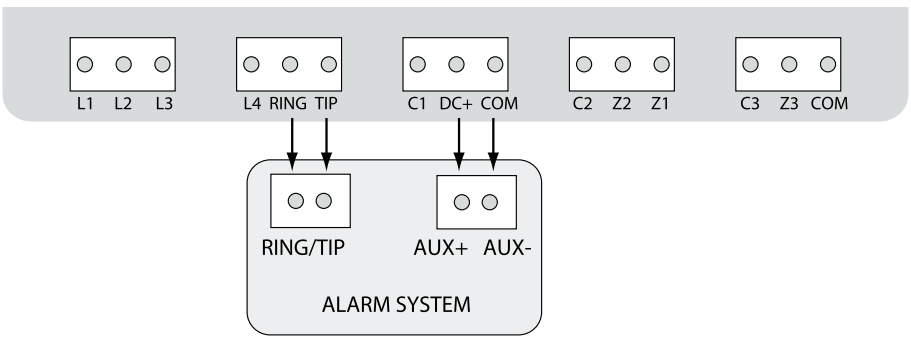
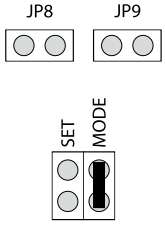


Figure 6



1. Connect the circuit as indicated in Figure 5 – connect telephone contacts of the alarm system RING/TIP to RING/TIP contacts of the communicator.
2. Power the unit from the alarm panel +12V and –0V.
3. Set the jumper on MODE pins. See Figure 6 for correct jumper position.

6.3 Data Transmission from Alarm System to Monitoring Station via GSM Audio Channel and SMS Messages to Preset User (-s)

In this mode the communicator retransmits Contact ID data sent from alarm system to the monitoring station via GSM audio channel. In addition, the data is duplicated and decoded data to user-understandable text format and sent to preset user (-s) by SMS message. There is NO backup connection for this mode.

NOTE: User phone number (-s) must be set for the communicator using the SmartGuard Configuration Tool. Please, refer to software's HELP section for more details.

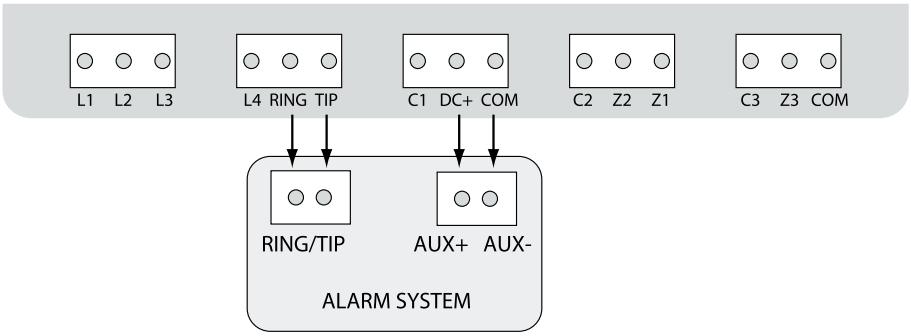


Figure 7

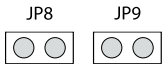
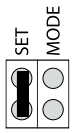


Figure 8

1. Connect the circuit as indicated in Figure 7 – connect telephone contacts of the alarm system RING/TIP to RING/TIP contacts of the communicator.
2. Power the unit from the alarm panel +12V and –0V.
3. Set the jumper on SET pins. See Figure 8 for correct jumper position.



6.4 Data Transmission from Alarm System to Monitoring Station via PSTN using GSM Audio Channel as Backup Connection

In this mode the communicator retransmits Contact ID and 4+2 data via landline (PSTN) sent from the alarm system to the monitoring station. The communicator also monitors the voltage (dial tone monitoring optional) on the PSTN and in case the PSTN is unavailable, disconnected or cut off (voltage drops below 4V), the system:

- switches to backup connection – GSM audio channel,
- notifies the monitoring station about PSTN failure,
- continues transmitting data to the monitoring station via GSM audio channel until the PSTN is restored.

NOTE: Notification about PSTN loss/restore (if required) has to be enabled for the communicator using the SmartGuard Configuration Tool. Please, refer to software's HELP section for more details.

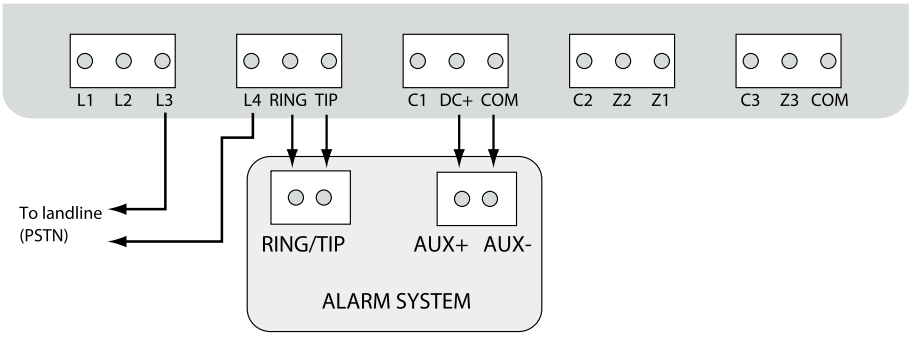
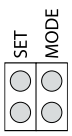


Figure 9

Figure 10

1. Connect the circuit as indicated in Figure 9 – connect telephone contacts of the alarm system RING/TIP to RING/TIP contacts of communicator.
2. Connect L3/L4 contacts to landline (PSTN).
3. Power the unit from the alarm panel +12V and –0V.
4. Set the jumpers on JP8 and JP9 pins. See Figure 10 for correct jumper position.



6.5 Data Transmission from Alarm System to Monitoring Station via PSTN using GSM Audio Channel as Backup Connection and SMS Messages to Preset User (-s)

In this mode the communicator retransmits Contact ID data via landline (PSTN) sent from alarm system to monitoring station. The communicator also monitors the voltage (dial tone monitoring optional) on the PSTN and in case the PSTN is unavailable, disconnected or cut off (voltage drops below 4V), the system:

- switches to backup connection – GSM audio channel,
- notifies monitoring station about PSTN failure,
- sends an SMS report to the preset user (-s) on PSTN failure,
- continues transmitting data to monitoring station via GSM audio channel until the PSTN is restored,
- duplicates and decodes data to user-understandable text format and sends it to preset user (-s) by SMS message until the PSTN line is restored.

NOTE: User phone number (-s) must be set and notification about PSTN loss/restore (if required) has to be enabled for the communicator using the SmartGuard Configuration Tool. Please, refer to software's HELP section for more details. for more details.

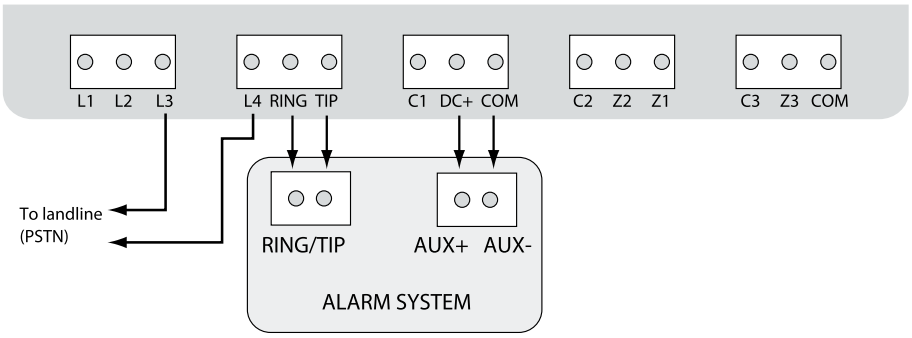


Figure 11

1. Connect the circuit as indicated in Figure 11 – connect telephone contacts of the alarm system RING/TIP to RING/TIP contacts of communicator.
2. Connect L3/L4 contacts to landline (PSTN).
3. Power the unit from the alarm panel +12V and –0V.
4. Set the jumpers on JP8, JP9 and SET pins. See Figure 12 for correct jumper position.

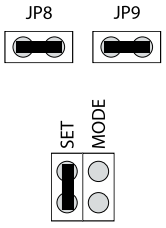


Figure 12

7. SMS Commands

ATTENTION! In this user manual the underscore _ character represents one <space> character. There must be no spaces or other characters at the beginning and at the end of the message. XXXX – 4-digit SMS password.

In order to configure and control E18SGGSMGW system using SMS message, send the text command to E18SGGSMGW SIM card phone number from one of the authorized phone numbers. The structure of SMS message consists of 4-digit SMS password (the default SMS password is 0000 – four zeros), the command and the parameters. For some commands the parameters are not applied, i.e. STATUS.

E18SGGSMGW notifies the user if a mistake was made in SMS command: "Command is not correct".

Password

The 4-digit SMS password intended for system configuration and control via SMS messages. Manufacturer default SMS password is **0000** (four zeros) which is NECESSARY to change.

SMS Text:

0000_PSW_XXXX

Value: XXXX – new 4-digit password.

Status

The SMS report indicating information on system input and output status.

SMS Text:

XXXX_STATUS

Set User Phone Number

The system supports up to 3 user phone numbers which can receive input alarm and restore texts by SMS. *User 1* phone number is mandatory while other phone number entries are optional. All numbers must be entered starting with international country code e.g. [country code][area code][local number]. Do not use the *plus (+)* symbol.

SMS Text:

XXXX_NRx:[country code][area code][local number]

Value: NRx: - user phone number entry, range - [NR1... NR3]

Set Input Alarm Text

Each input has an alarm text which is sent by SMS message to a preset user(-s) in case the input is violated. Manufacturer default input alarm texts: *Z1 - Input 1 TRIGGERED, Z2 - Input 2 TRIGGERED, Z3 - Input 3 TRIGGERED.*
This command sets an alarm text for a specified input. Maximum allowed length is 23 characters including *space* characters.

SMS Text:

XXXX_TZx:ON:NewAlarmText
Value: TZx - input number, range - [TZ1... TZ3].
Example: *1111_TZ3:ON:Sensor violated*

Set Input Restore Text

Each input has a restore text which is sent by SMS message to a preset user(-s) in case the input is restored. Manufacturer default input alarm texts: *Z1 - Input 1 RESTORED, Z2 - Input 2 RESTORED, Z3 - Input 3 RESTORED.*
This command sets a restore text for a specified input. Maximum allowed length is 23 characters including *space* characters.

SMS Text:

XXXX_TZx:OFF:NewAlarmText
Value: TZx - input number, range - [TZ1... TZ3].
Example: *1111_TZ3:OFF:Sensor restored*

Disable Input

This command disables a specified input. By default, all inputs are enabled.

SMS Text:

XXXX_Zx:OFF
Value: Zx - input number, range - [Z1... Z3]
Example: *1111_Z3:OFF*

Enable Input

This command enables a specified input.

SMS Text:

XXXX_Zx:ON
Value: Zx - input number, range - [Z1... Z3]
Example: *1111_Z1:ON*

Set Output Name

Each output has a name which is sent by SMS to a preset user (-s). Manufacturer default output names: C1 - *Output1*, C2 - *Output2*, C3 - *Output3*.
This command sets at name for a specified output. Maximum allowed length is 23 characters.

SMS Text:

XXXX_TCx:NewOutputName
Value: TCx - output number, range - [TC1 ... TC3]
Example: *1111_TC2:Pump*

Output ON

This function switches a specified output ON.

SMS Text:

XXXX_Cx:ON **or** XXXX_OutputName:ON

Value: Cx - output number, range - [C1 … C3]

Output OFF

This function switches a specified output OFF.

SMS Text:

XXXX_Cx:OFF **or** XXXX_OutputName:OFF

Value: Cx - output number, range - [C1 … C3]

Output Pulse ON

This function switches a specified output ON for a set period of time and switches the output back to OFF after the set period of time is over.

SMS Text:

XXXX_Cx:ON:T **or** XXXX_OutputName:ON:T

Value: T - period of time in seconds, range - [1-9999]

Output Pulse OFF

This function switches a specified output OFF for a set period of time and switches the output back to ON after the set period of time is over.

SMS Text:

XXXX_Cx:OFF:T **or** XXXX_OutputName:OFF:T

Value: T - period of time in seconds, range - [1-9999]

Telephone Line Failure/Restore Delay

The delay period of time between telephone line failure and restore events. If telephone line failure and restore events occur before the set delay period of time is over, the system will not send the SMS report.

SMS Text:

XXXX_TELDLY_T

Value: T - period of time in seconds, range - [1-250]

8. Appendix

8.1 Restoring Default Parameters

To restore the default parameters:
1. Disconnect the power supply;
2. Short circuit (connect) DEF pins;
3. Power up E18SGGSMGW for 7 seconds;
4. Disconnect the power supply;
5. Remove short circuit from DEF pins;
6. Parameters restored to default.

8.2 SmartGuard Configuration Tool Software

To configure the system, please install the configuration software, the SmartGuard Configuration Tool which can be downloaded from www.rspl.ie. Before connecting USB cable to the computer, please, read the SmartGuard Configuration Tool user guide available in the HELP section of the software.

8.3 Troubleshooting

Problem	Possible Reason
GSM LED is off or not flashing	• No external power supply • Circuit not properly connected • Blown fuse • No GSM network signal
STATUS LED flashing several times per second	• SIM card not inserted / improperly inserted • PIN code enabled • SIM card inactive
System does not send any SMS messages	• SIM card credit limit exceeded • Incorrect SMS centre phone number • No GSM network signal • User phone number is not preset.
Received SMS message "Incorrect Format" or "Command is not correct"	• Incorrect syntax Extra <space> character is left in SMS message