USER MANUAL
ST-Configurator program
for transmitters
STN 4G (LTE)
ST-GNS 4G (LTE)
ST-GXX (2G)

Warsaw 2022
v1.53

Contents

1. Introduction

The ST-Configurator program is used for programming the ST-GXX and STX-4G transmitters. The program can choose the language of the application between Polish and English. The manual can be downloaded from the website **www.pulson.pl**, under "Download" tab.

2. Computer connection

In order to configure the transmitter, connect the power supply in accordance with the recommendations specified in the transmitter assembly manual.

a) Start the ST-Configurator program.
b) Connect (via RS-USB converter) the transmitter to the computer. The converter is used to connect the transmitter with the computer serial (COM) port.
c) In the application, select the "Port" on which the converter is installed, if it is not visible on the bar, use the "Refresh COMs" button
d) After correctly selecting the settings, use the "Open" button to establish the connection.
e) Correct connection will be indicated by the "Status: Connection active" window.

2.1 Programming the transmitter

a) **Preparation of the SIM card**

Important! Before installing the SIM card in the device, the fields in the "Modem settings" tab, in particular the PIN field, must be completed in the ST-Configurator. To do this, use the "Change settings" button. Only now can the SIM card be inserted into the device. Entering an incorrect PIN code will block the SIM card. The card must have active GPRS / LTE services to be able to perform a remote upgrade.

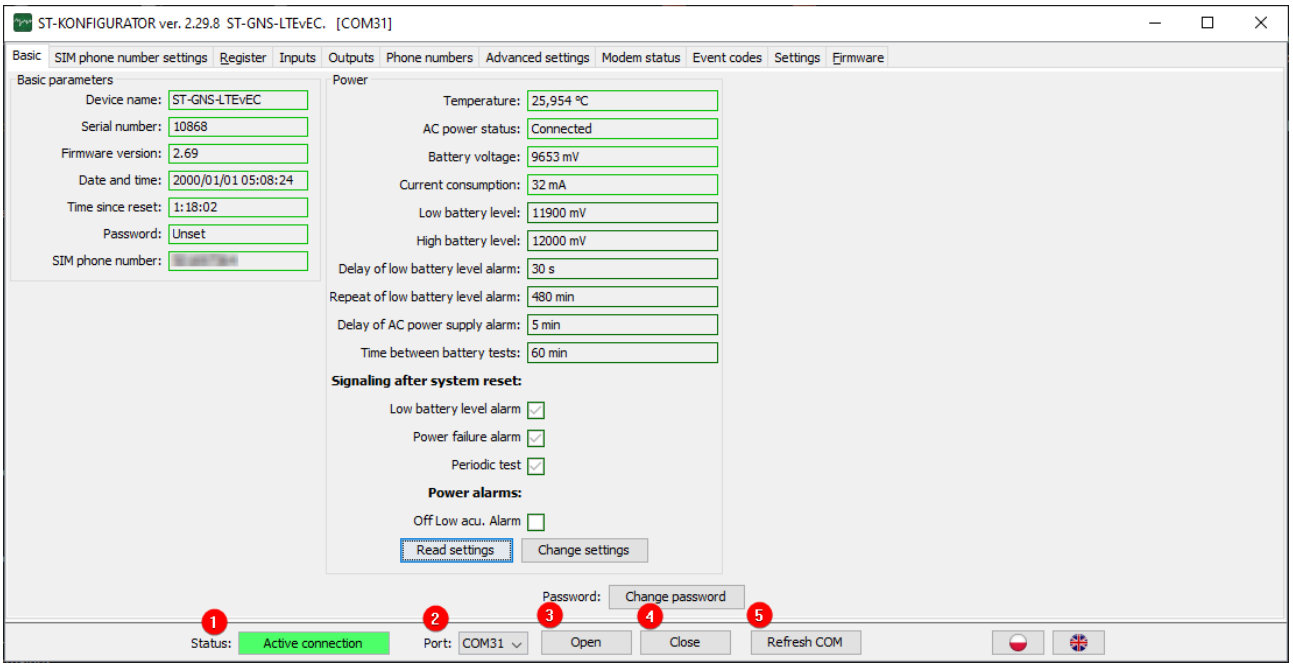
b) **Configuration of the transmitter working only in SMS mode**

ATTENTION! In SMS only mode, the transmitter can operate without the configured own number. A transmitter programmed in SMS mode sends events only via SMS. GPRS / LTE transmission is disabled. The mode change is set in the "Modem settings" tab → Change settings by checking or unchecking the checkbox named "Send only via SMS".

c) **Configuration of the transmitter working in GPRS / LTE, SMS mode**

The transmitter programmed in GPRS / LTE, SMS mode allows you to send signals via packet transmission (GPRS / LTE). If the monitoring station (server) fails to acknowledge receiving the event, the transmitter will send a signal via SMS. A transmitter programmed in GPRS / LTE mode, SMS with a non-programmed own number does not send any signals to the monitoring station.

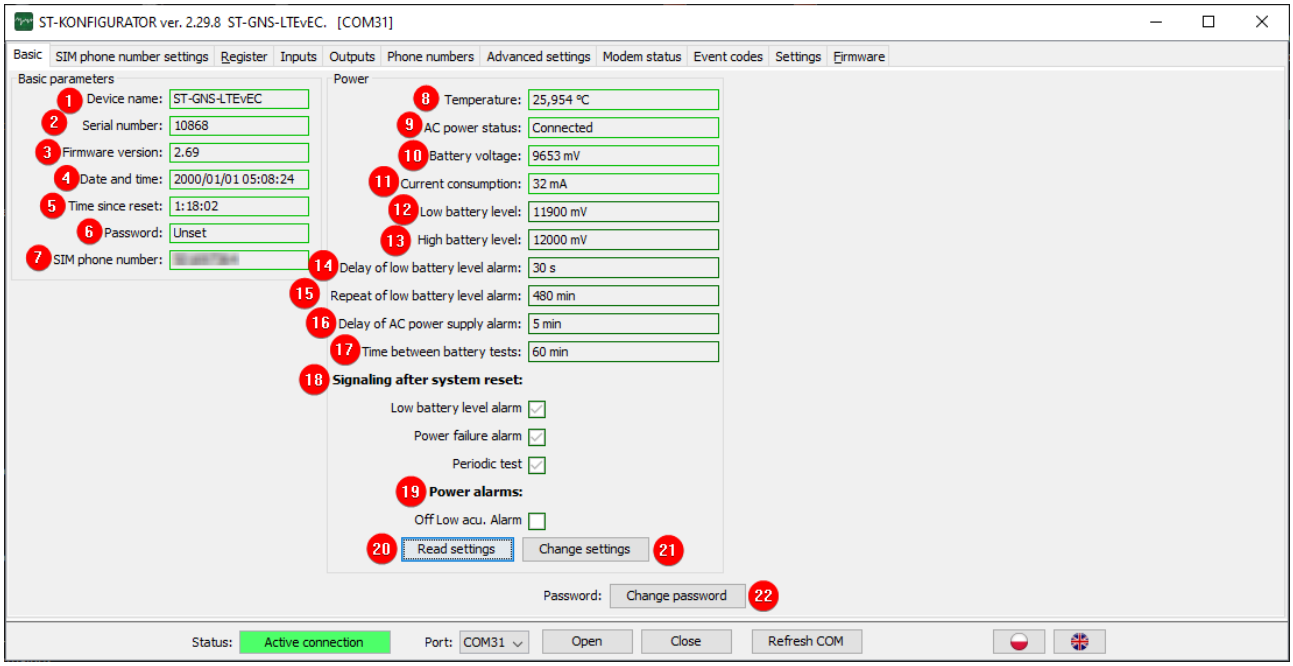
Programming the own number is described in point 3 of this manual.



1. **Status: -** displays the connection status of the computer with the transmitter.

- COM port closed
- COM port… open.
- Active connection

2. **Port: -** selection list of available COM ports.
3. **Open** - COM port opening button
4. **Close -** the button to close the COM port
5. **Refresh COM -** the button refreshes the list of available COM ports (useful eg when connecting the transmitter after starting the program).



1. **Device name -** Transmitter type and version
2. **Serial number -** The serial number of the transmitter assigned by the manufacturer
3. **Firmware version -** transmitter software version
4. **Date and time -** Date and time set in the transmitter (downloaded automatically from the GSM network).
5. **Time to Reset -** Time to automatic transmitter reset
6. **Password -** setting a password to access the transmitter configuration.
   - NOT SET
   - SET
7. **Own number** - 9-digit MSN number of SIM card - number identifying the device in GPRS / LTE packet transmission

   If the transmitter is programmed to work in the GPRS / LTE, SMS mode and it detects the lack of the set own number, the automatic procedure of registering own number will be started. In order for the identification process to run correctly, the following conditions must be met:

- SIM card inserted in the transmitter
- pre-programmed number of the base station receiving SMSs ("Telephones" tab)
- correct PIN entered ("Modem settings" tab)

After registration, the device sends a special SMS message to the receiving station. The station sends its coded own number to the transmitter. After receiving the message, the transmitter writes down its own number and restarts. After restart, the transmitter performs network login in accordance with the configuration and starts normal operation. In case of problems with communication with the monitoring station during the own number configuration procedure, it is possible to set the own number from any telephone. Thanks to this, even in the case of problems with communication with the station, it is possible to correctly complete the own number configuration procedure. SMS control commands can be found at the end of this manual.

Manual configuration by ST-Configurator:

In order to change own number, connect the transmitter to a computer via a USB converter and place the SIM card in the transmitter. In the ST-Configurator application, go to the **"Own number settings"** tab. Use the button in the line own number "Change", if the button is locked, the transmitter has not read the SIM card yet. In the newly opened window, enter the nine-digit number of the SIM card. The device should restart and save the new own number.

8. **Temperature**
9. **AC power status**
10. **Battery voltage -** current battery voltage
11. **Charger current -** the amperage with which the battery is charged
12. **Low battery -** voltage level at which low battery charge will be signaled
13. **High battery -** voltage level at which the low battery indication will be disabled
14. **Low battery alarm delay**
15. **Repetition of low battery alarm**
16. **AC power alarm delay**
17. **Time between battery tests**
18. **Signaling after system reset:**

- **Low battery alarm**
- **Power failure alarm**
- **Periodic test**

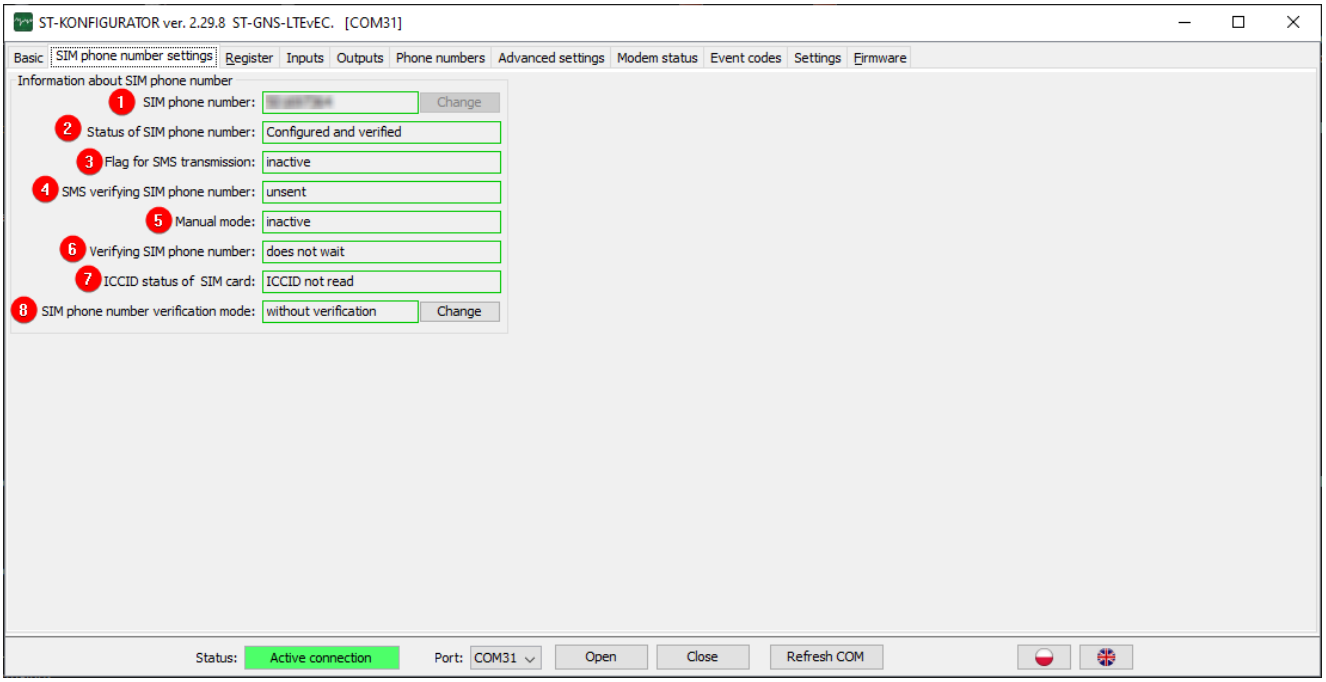
(The above-mentioned signals will be generated 2 minutes after starting the transmitter)

19. **Power alarms:**

- **Off Low battery alarm. -** the battery condition test is performed periodically to prevent excessive generation of transmission to the receiving station when the battery is discharged, it is possible to disable reporting of this event.

20. **"Read settings" button**
21. **"Change settings" button**
22. **"Change password" button**

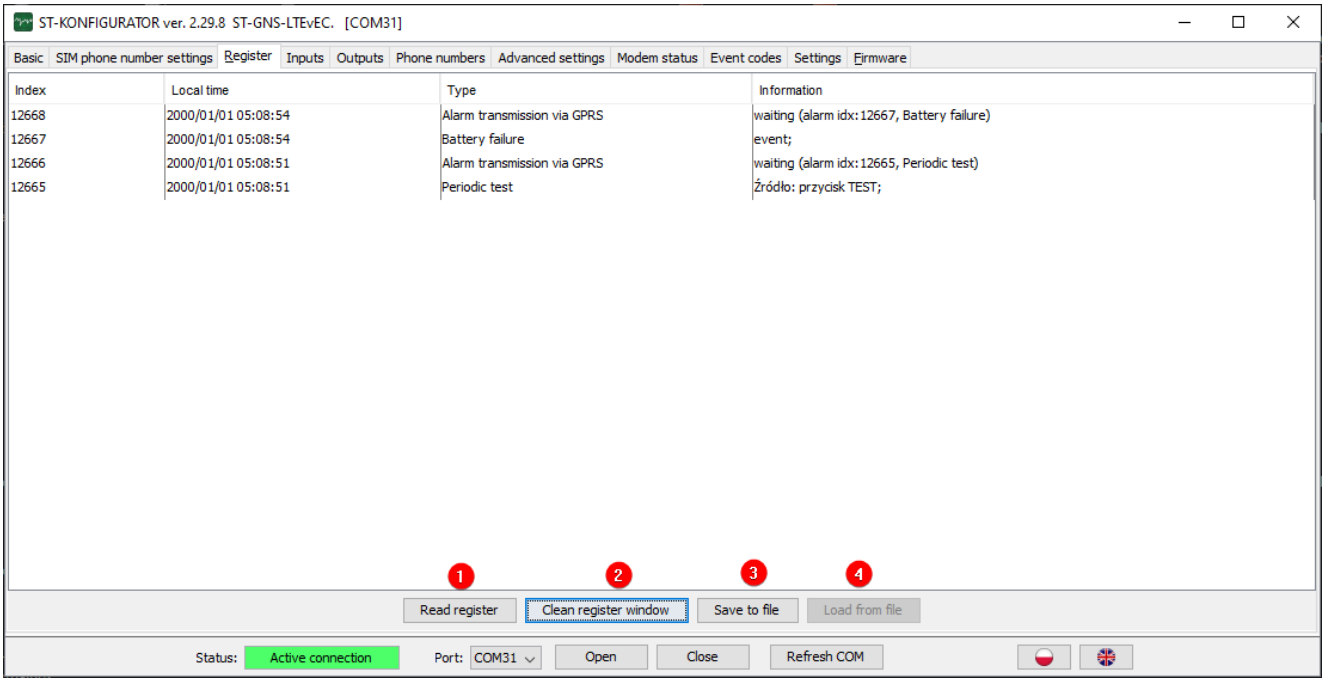
4. Tab: Own number settings.



1. **Own number**
2. **Own number status**
3. **Flag of sending sms to the server**
4. **SMS verifying own number**
5. **Manual mode**
6. **The verification SMS is pending**
7. **ICCID status of the SIM card**
8. **Number verification mode**

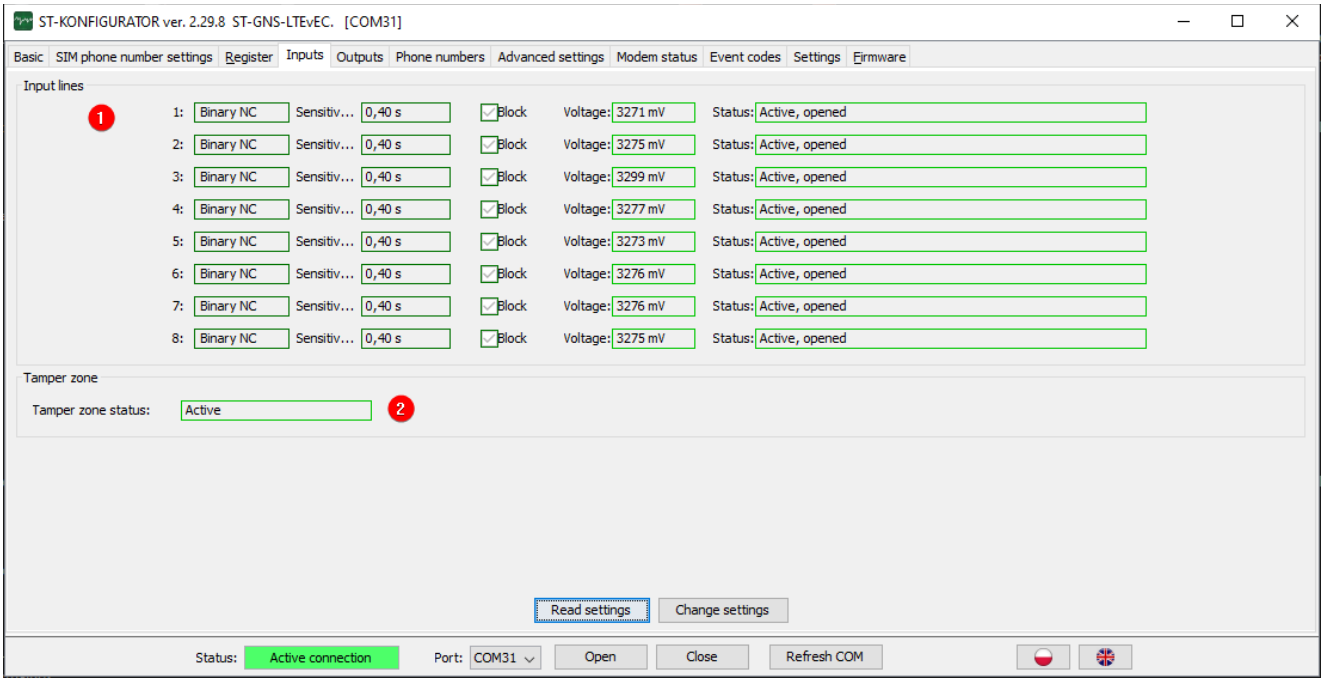
5. Tab: Recorder.

The GPRS transmitter is equipped with an event recorder. It creates the history of the transmitter's operation, which allows you to recreate the device's operation. Recorded one record contains the index number, time and date, event / alarm type and additional information. The recorder can be saved to a file and read from a file. Reading is possible only when COM connection is turned on.



1. **"Read recorder" button**
2. **"Clear table" button**
3. **"Save to file" button**
4. **"Read from file" button** (you can load from file only if COM port is not connected)

6. Tab: Inputs

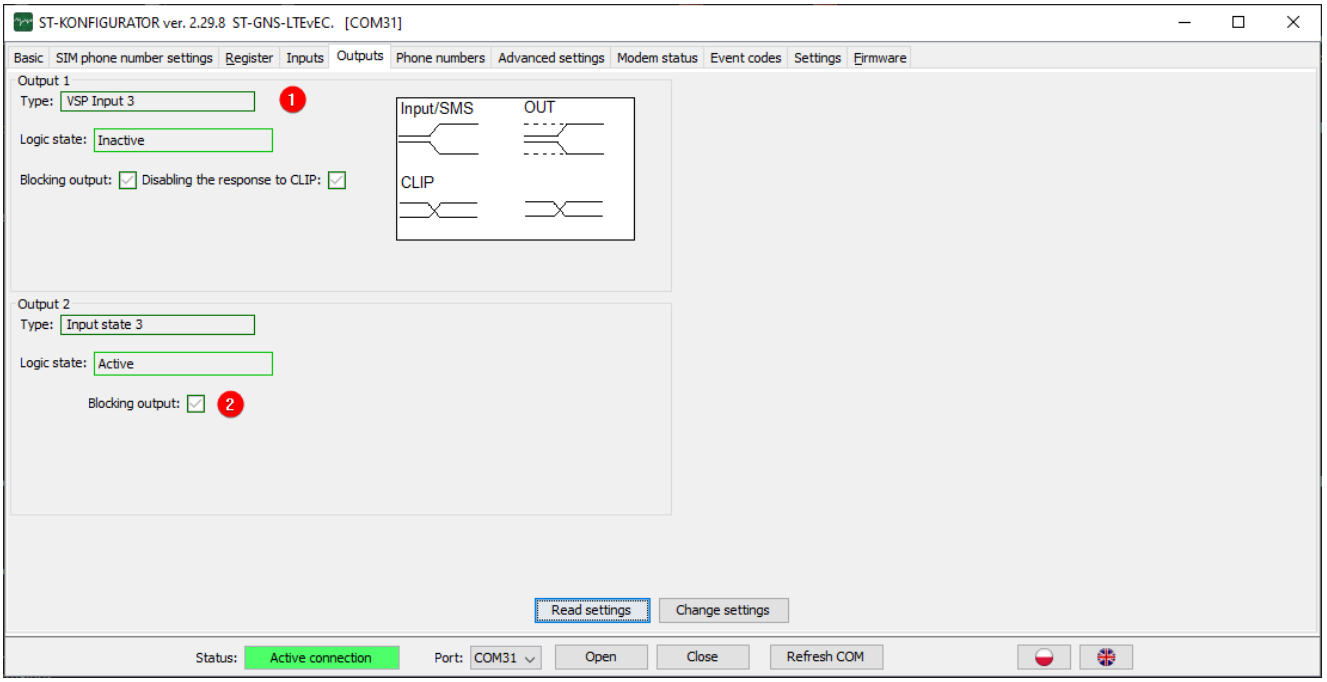


1. **Input lines (1 to 8)**

- (NO, NC, Disabled) - input mode
- sensitivity - pulse length needed for the input to activate.
- Blocking - enabling the limitation of the number of alarms, configured in the "Modem settings →" Limiting the number of alarms "tab
- voltage
- status

2. **Status of the tamper zone**

7. Tab: Outputs.

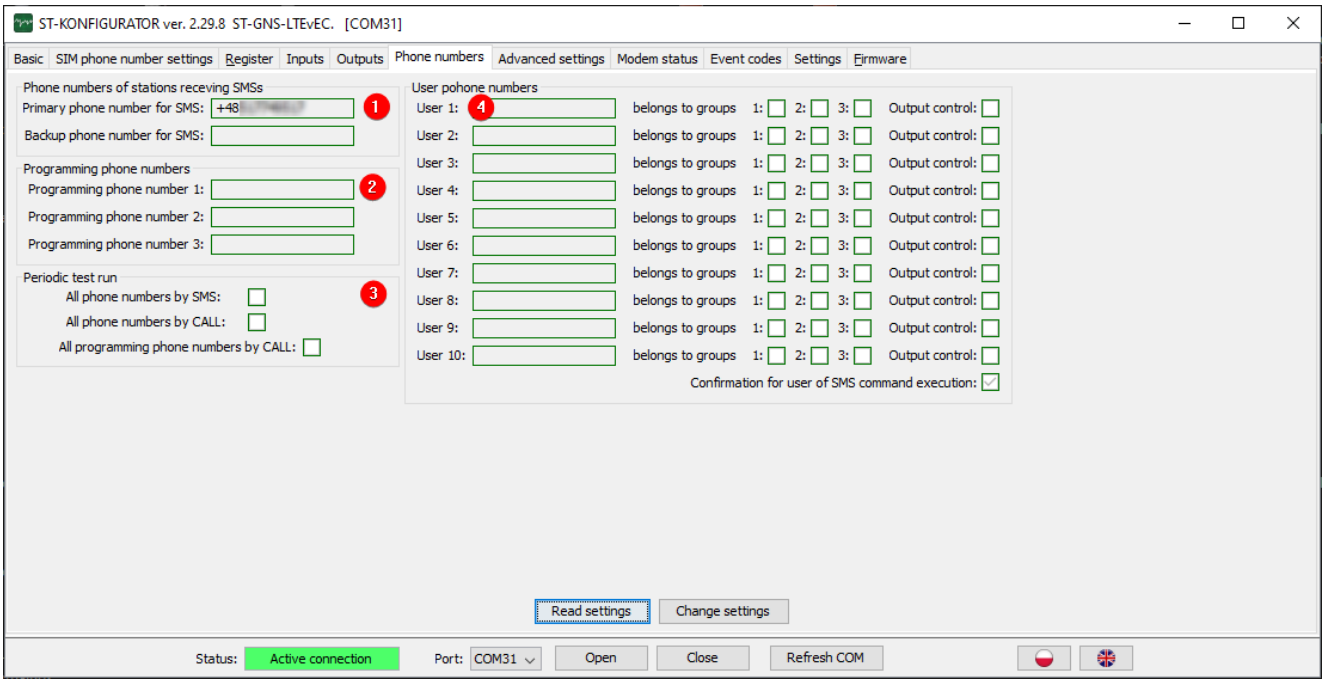


1. **Exit (1, 2)**

- **turned off**
- **GSM failure indication -** no GSM coverage (the output switches on after the "GSM failure timeout" set in the "Modem settings" tab). The end of failure indication takes place after logging into the GSM network again.
- **Mirror -** violation of any input will activate the output (it simulates the input state).
- **Monostable remote control -** after activating the line by CLIP / SMS, the output will be activated for the time set by the program.
- **Bistable remote control -** activation by CLIP will alternately turn the output on or off. By means of SMS, you can turn the output on or off with an appropriate command (the list of SMS commands is at the end of this manual).
- **Jamming -** detection of jamming the GSM network signal.
- **Input 3 state -** sets the logical state on the output which is currently at input 3.
- **Input 4 state -** sets the logical state on the output which is currently at input 4.
- **Output disablement -** sets the given line to alarm number limits configured in the "Modem settings" tab (checked active, unchecked inactive).

2. ATTENTION! The output line only blocks writing to the event recorder, it does not block signaling.

8. Tab: Phones.



1. **Base station phones that receive SMS messages**

- **Main SMS telephone number -** all information about events is sent to this number - encoded in the form of SMS. These can be both alarm signals and periodic tests (if the system operator has decided to use the SMS mode or the UDP / TCP connection is lost). In the event codes tab, configure the events that will be handled by the SMS path.
- **Backup SMS telephone -** used in case of problems with communication to the "Main SMS telephone". In the absence of confirmation of the delivery of information to the "Main SMS telephone", the transmitting module sends messages to the "Backup SMS telephone". In the Event codes tab, configure the events that will be handled by the SMS path.

2. **Programming telephones -** telephone numbers which are authorized to remotely configure the transmitter via SMS commands. If no programming numbers have been entered, any numbers are authorized to remotely configure the transmitter.

- **Programing telephone 1**
- **Programing telephone 2**
- **Programing telephone 3**

3. **Triggering the periodic test -** the device sends a periodic test in response to an SMS command or a phone call from any number. SMS command: **!TEST**

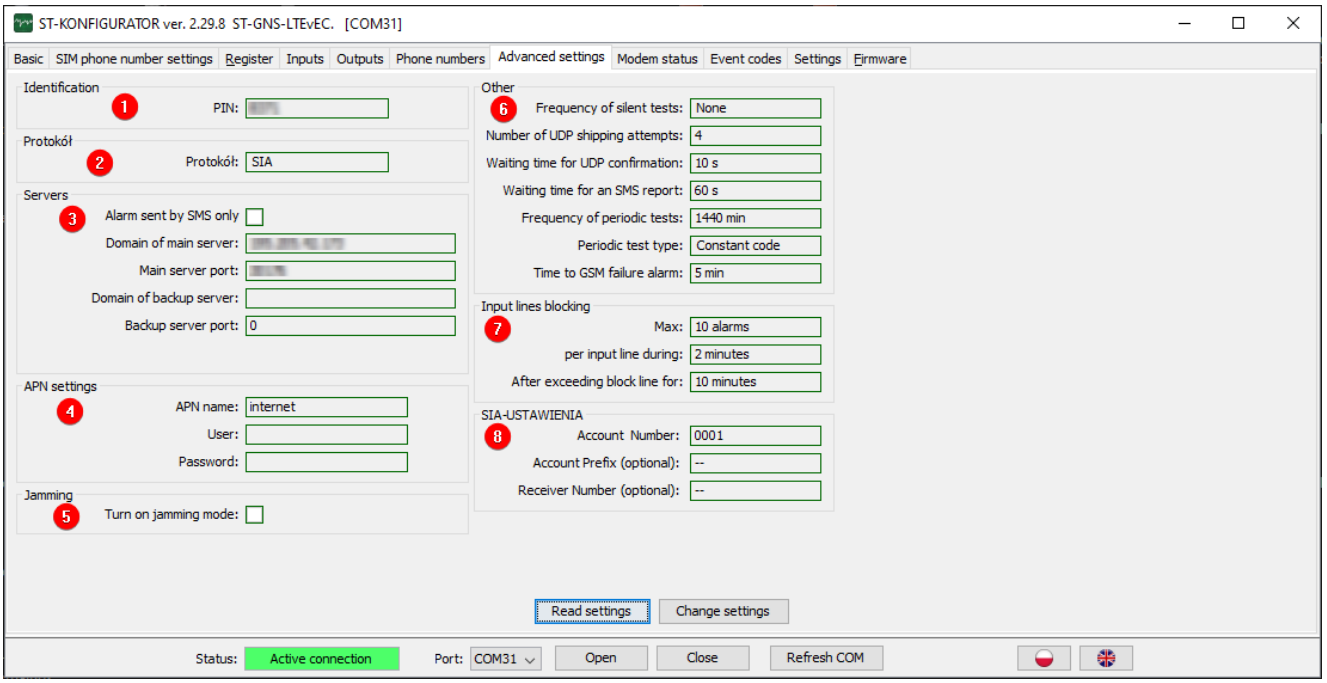
- **All numbers by SMS**
- **All numbers by CALL**
- **Numbers programming via CALL**

4. **Users' telephones** – the telephone number is used to inform the owner or another authorized person about the situation in the protected facility. It is possible to assign a user to one of the three groups. You can assign events to each group in the "Event codes" tab. The user number

may be authorized to control the remotely controlled output. Checking the "output control" checkbox next to a given user means that the number is authorized to control the outputs, an unchecked checkbox means that the number cannot control remotely controlled outputs.

- **User (1 – 10)**
- **Belongs to groups (1,2,3)**
- **Control of outputs**
- **Acknowledgment to the client on executive SMS** - the device confirms to the user by SMS the execution of the remote control command.

9. Tab: Modem settings.



1. **Identification SIM Card**

- **PIN - the transmitter supports only 4-digit PINs**

2. **Protocol**

- **UDP –** the protocol allows event codes to be sent in two-character format.
- **SIA –** the SIA-IP protocol sends event codes in the Contact Id format.

3. **Servers**

- **Notification by SMS only**
- **Receiving server's root domain -** This is the address with the higher priority. All information about events from the site is sent to this address in the form of GPRS packets. Configure the events that will be handled by the SMS path in the "Event codes" tab.
- **The UDP / TCP port of the primary receiving server**
- **Secondary domain of the receiving server -** this is the address with a lower priority. All information about events that have not been confirmed by the main receiving server is sent to this address. Configure the events to be sent in the "Event codes" tab
- **UDP / TCP port of the backup receiving server**

4. **APN settings -** these are the packet network settings, thanks to which the transmitter can use data transmission in the public / private network.

- **APN name**
- **User**
- **Password**

5. **Jamming**

6. **Intervals**

- **Implicit test frequency -** these are periodic tests sent every 30 seconds, 60 seconds, 100 minutes, or None. Implicit tests do not require confirmation from the receiving station.
    - **None**
    - **100 minutes**
    - **30 seconds**
    - **60 seconds**
- **Number of UDP sending attempts -** the number of attempts to send the event via GPRS to the receiving server. The sender after N unsuccessful attempts to send the message to the UDP primary server and after successive N unsuccessful attempts to the backup UDP server sends the events via SMS.
- **UDP confirmation waiting time -** waiting time for a response from the server, confirming that the event was received.
- **SMS report waiting time -** waiting time for confirmation of the event received by the station with the SMS channel.
- **Time between explicit tests -** the transmitter sends an open test from the object according to the set interval. This allows you to control whether the system is operational. Open tests require confirmation from the receiving station.
- **Open test type -** selection of the type of explicit test to be sent to the monitoring station**.**
- Fixed code - two-character code contained in the "Event codes" tab. Signal strength - determines the signal strength. In the GPRS mode, the G1, G2, G3, G4 codes are sent, and in the SMS mode, T1, T2, T3, T4.
    - **Fixed code**
    - **Signal strength**
- **GSM failure signaling time -** after losing the GSM signal, the transmitter starts counting down the time until GSM failure is signaled. For signaling, it uses the appropriately programmed OC output (GSM trouble signaling).

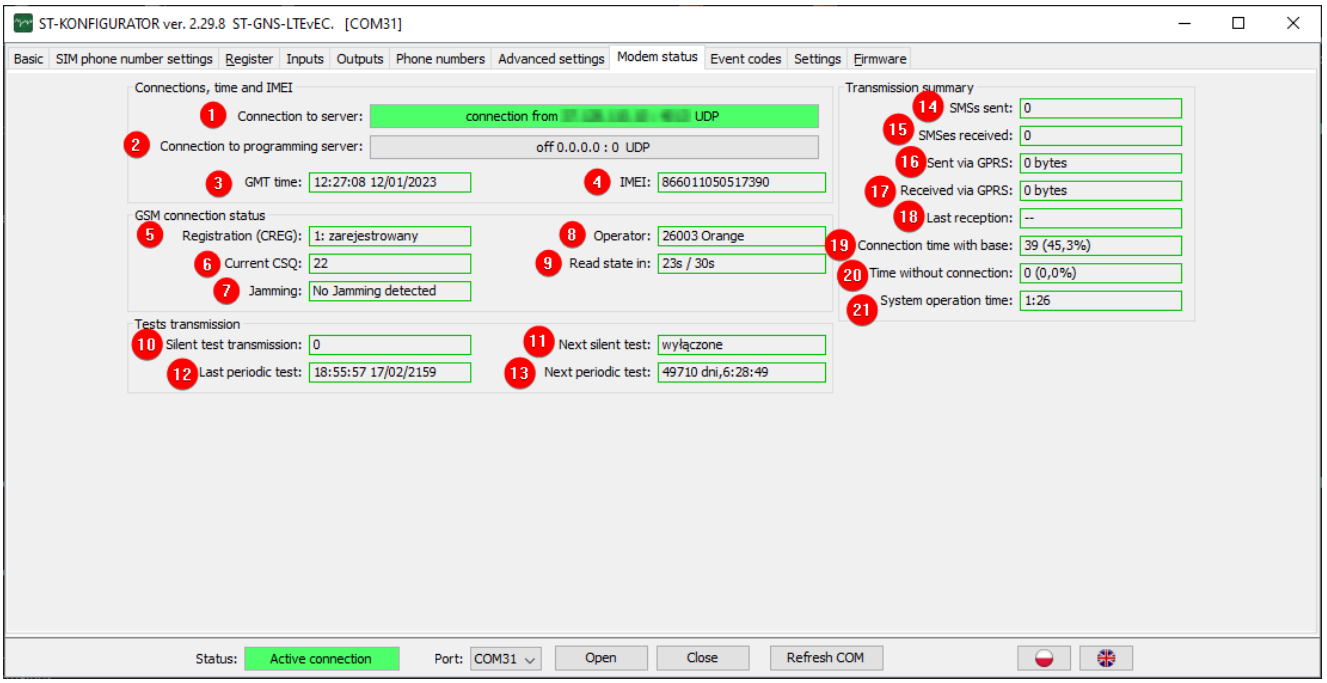
7. **Limiting the number of alarms -** the transmitter allows you to program the limit of events sent from the zone in a specified time. If it is exceeded, the specified input will be bypassed for a programmed time period. This allows you to reduce the costs of monitoring in the event of cyclical false alarms. The programmed limit applies to each input line separately, set in the "Inputs" → "Blocking" tab.

- **Maximum**
- **on lines dispatched within**
- **When exceeded, ignore for**

8. **SIA-SETTINGS**

- **Account Number -** the main identification number (it is suggested to enter 9 digits of the phone number of the SIM card for unambiguous identification in accordance with the transmitter logic).
- **Account Prefix (optional) –** additional identification number. If not, enter 0.
- **Receiver Number (optional) -** the number of the receiver to which the report is to be sent.

10. Tab: Modem status



1. **Central server -** current connection status of the transmitter with the UDP server
2. **Programming server -** the current connection status of the transmitter with the programming server
3. **GMT time -** time downloaded from the GSM operator's network
4. **Modem IMEI -** individual number of the mobile device
5. **Registration (CREG) -** connection status with the GSM network
6. **Current CSQ -** parameter defining GSM signal strength (weakest 0, best 31)
7. **Jamming** – GSM signal jamming detection
8. **Operator -** the name and code of the GSM operator to which the transmitter is connected
9. **Status reading for**
10. **Implicit tests sent -** the number of implicit tests sent
11. **Next in -** time after which the next implicit test will be sent
12. **Last explicit test -** date and time of the last explicit test
13. **Next open test in -** time in which the next open test will be sent
14. **SMS number Sent -** the number of SMS messages sent since the transmitter was turned on
15. **SMS number Received -** the number of received SMS messages since the transmitter was turned on
16. **Sent via GPRS -** number of data packets sent since the transmitter was turned on
17. **Received via GPRS -** number of data packets received since the transmitter was turned on
18. **Last pickup time**

19. **Time of connection with the base -** time of connection with the base

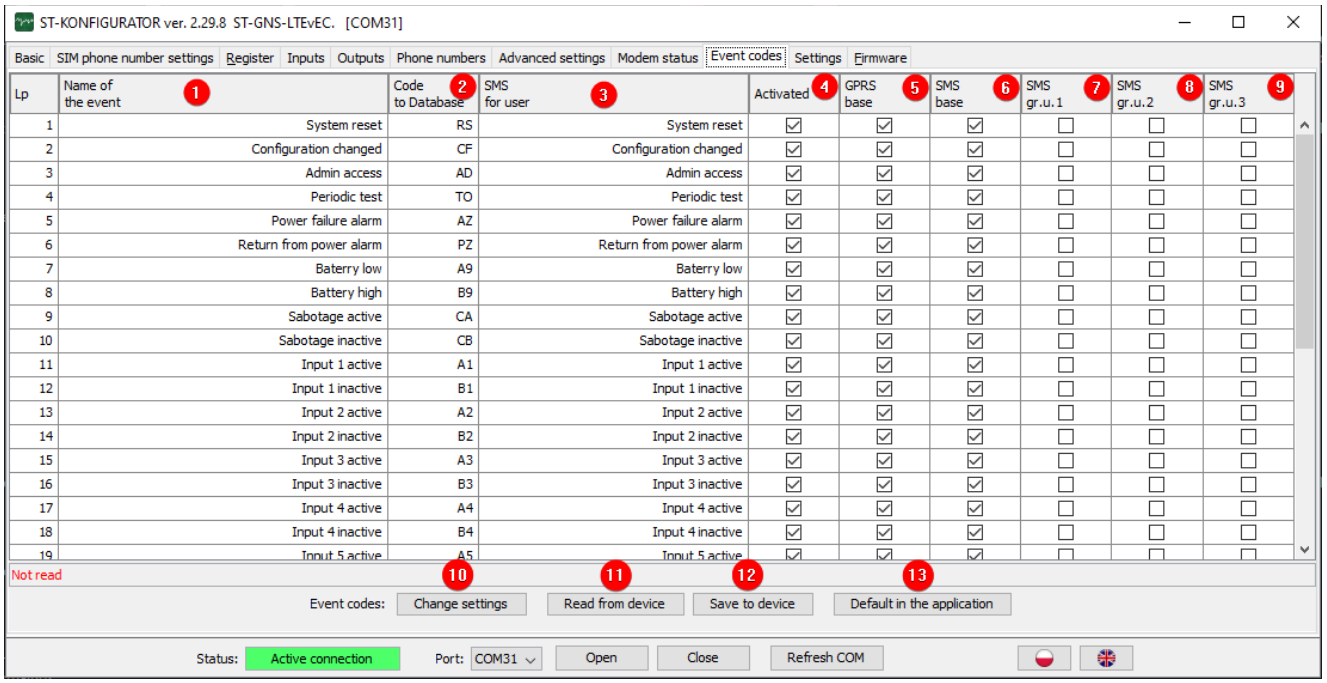
20. **Time without connection -** time without connection to the base

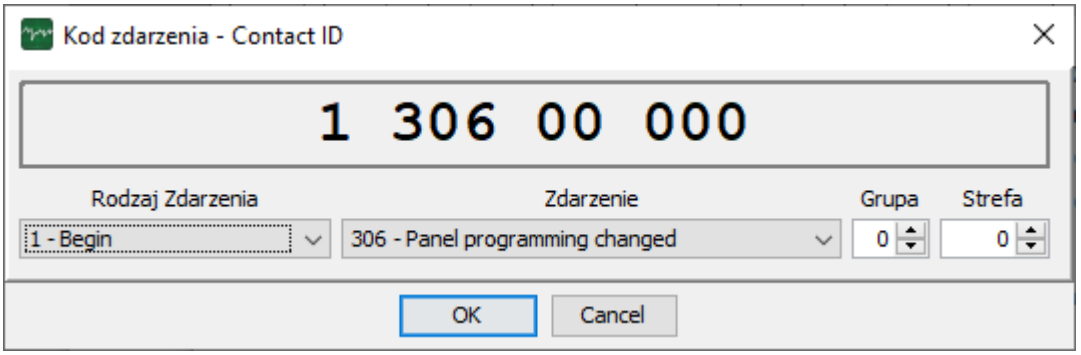
21. **System operation time -** transmitter operation time

11. Tab: Event codes.

Information on events in the protected facility is sent to the monitoring station as data packets or SMS messages. Event codes are sent to the monitoring station, depending on the selected protocol, in two-character or Contact Id format. The user (operator) can assign a code for each event individually. The codes must be configured according to the requirements of the receiving station, customer or company.

The SMS content sent to users is the text entered in the "SMS to user" column. A checked checkbox means that the code will be sent. In the "Enabled" column, you can disable or enable sending of events. The "GPRS base" column is responsible for sending events to the UDP / TCP server, while the "SMS base" column is responsible for sending events to the SMS base. Sending events can also be assigned to the appropriate user groups in the "SMS gr. u. 1, 2, 3 ".

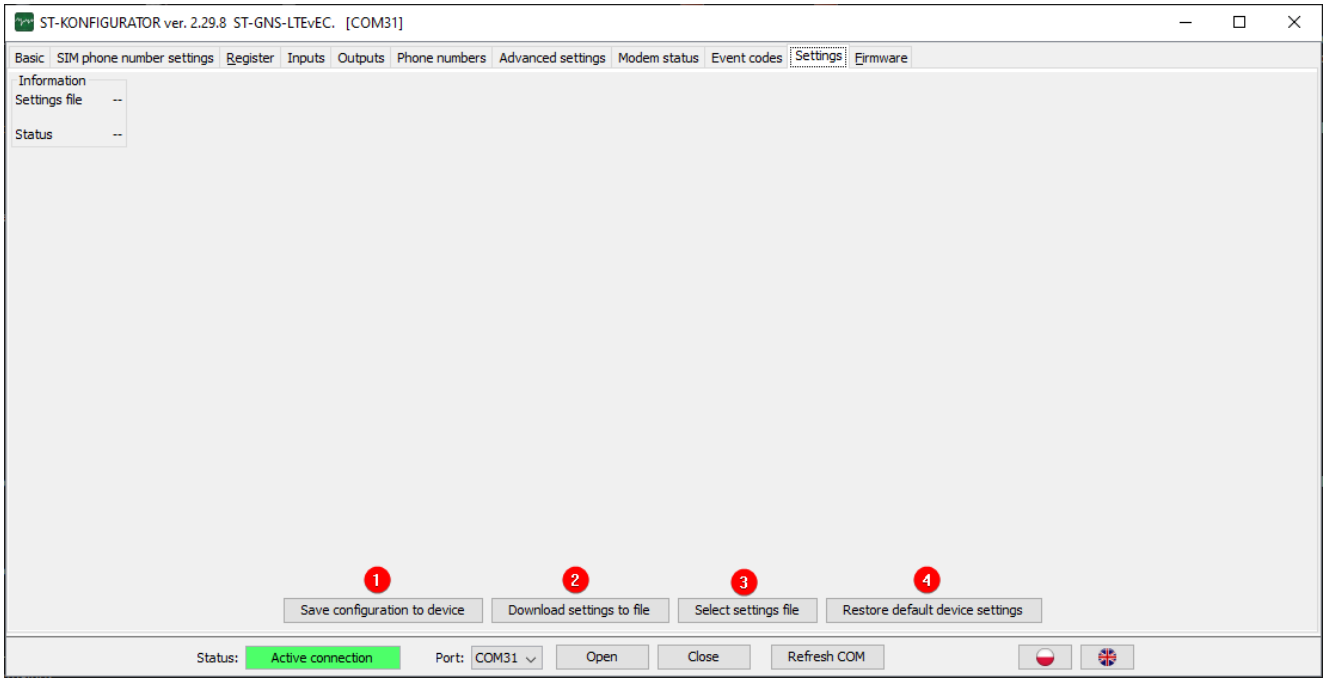




1. **Name of the event**
2. **Base Code**
3. **SMS to be sent to the user.**
4. **Turned On**
5. **GPRS base**
6. **SMS base**

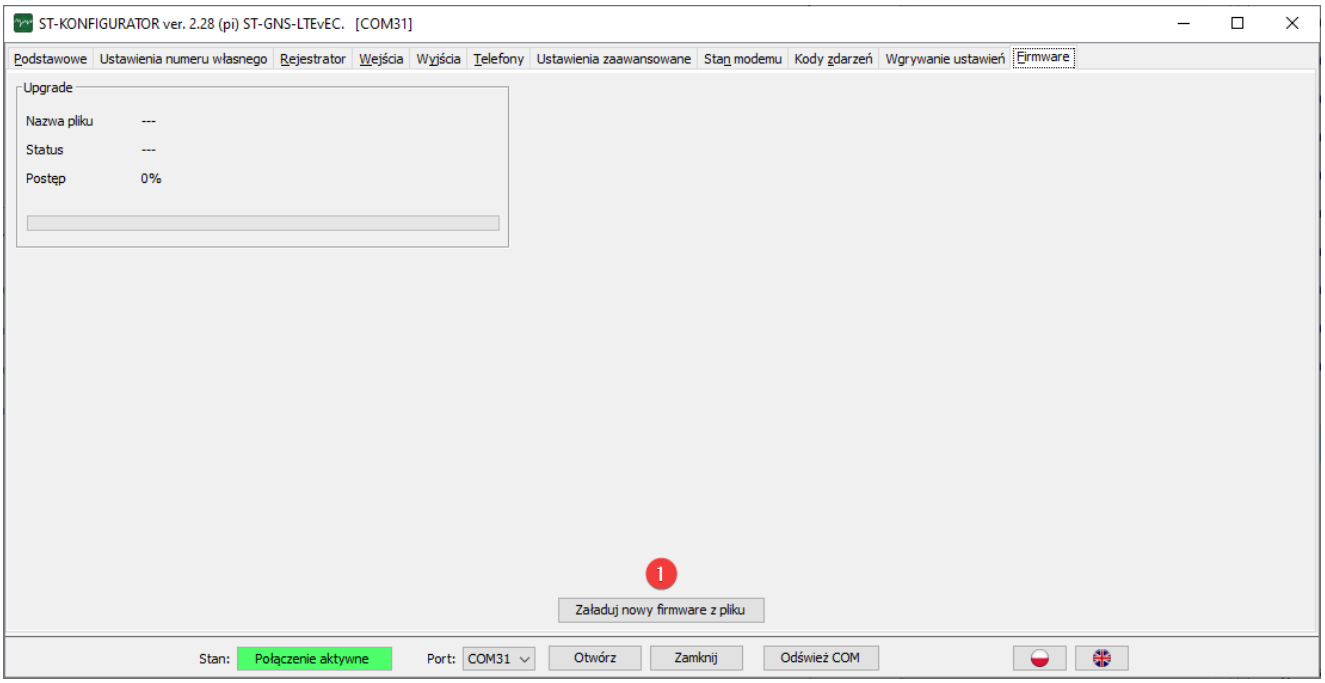
7. **SMS gr.u.1**
8. **SMS gr.u.2**
9. **SMS.gr.u.3**
10. **"Edit" button**
11. **"Read from device" button**
12. **"Save to device" button**
13. **"Terminal default" button**

12. Tab: Uploading settings.



1. **Save the configuration to the transmitter**
2. **Download settings to file**
3. **Settings file selection**
4. **Restore the default settings of the transmitter**

13. Tab: Firmware.



1. **Button "Load new firmware from file**

14. SMS control commands.

Command	Desc.	Authorized number	Customer number	Any number	Notes
Controlling the outputs	the command allows you to change the output state	STGNS:CMM:O1:ON - turn on output. 1 STGNS:CMM:O1:OFF - turn off output. 1 STGNS:CMM:O2:ON - turn on output. 2 STGNS:CMM:O2:OFF - turn off output. 2	OUT1=ON - turn on output. 1 OUT1=OFF - turn off output.1 OUT1=ON - turn on output. 2 OUT1=OFF - turn off output. 2		
Trigger the test	The command triggers the behavior in the transmitter as if the test button was pressed.	STGNS:CMM:TEST - without confirmation STGNS?CMM:TEST - with confirmation		!TEST	For the command to work from any number, it is necessary to properly configure the transmitter.
Own number record	It allows to save in the transmitter its own number during the procedure of learning its own number			PULSON:0xxxxxxxxx	xxxxxxxxx is a 9 digit phone number. It works from any number, if the transmitter is in the process of learning its own number. Otherwise, the command is ignored
Authorized number	Record in the transmitter the number from which it is possible to remotely configure and give commands to the transmitter.	STGNS:ZAP:MPP1='+48xxxxxxxxx' STGNS:ZAP:MPP2='+48xxxxxxxxx' STGNS:ZAP:MPP3='+48xxxxxxxxx'			xxxxxxxxx is a 9 digit phone number
SMS number	Configuration of numbers to which events are to be sent (numbers of receiving stations)	STGNS:ZAP:MPS1='+48xxxxxxxxx' STGNS:ZAP:MPS2='+48xxxxxxxxx'			xxxxxxxxx is a 9 digit phone number
FW No.	Read the FW version number	STGNS:ODC:SREV			Reading the firmware version number
The status of the transmitter	Reads the status of the transmitter	STGNS;CMM:STATUS			