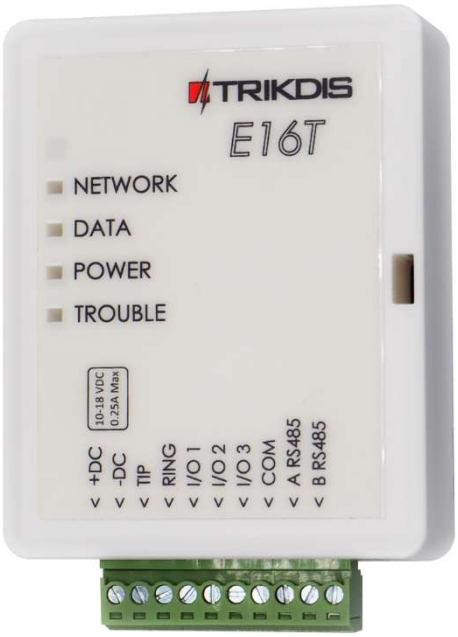

„Ethernet“ communicator E16T_2

Installation manual

March, 2021

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Contents

Safety requirements

The communicator should be installed and maintained by qualified personnel.

Prior to installation, please read this manual carefully in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Disconnect the power supply before making any electrical connections.

Changes, modifications or repairs not authorized by the manufacturer shall void your rights under the warranty.

Please act according to your local rules and do not dispose of your unusable alarm system or its components with other household waste.

1 Description

Communicator ***E16T_2*** can be connected to any alarm panel that has a landline dialer and supports dialing in Contact ID protocol with DTMF tones.

The communicator can transmit full event information to the security company's monitoring station receiver.

The communicator works with the ***Protegus*** app. Users can control their alarm system remotely and receive notifications about events. ***Protegus*** app works with all security alarm panels to which the communicator is connected to, regardless of manufacturer. Communicator can transmit event notifications to the Central Monitoring Station and work with ***Protegus*** simultaneously.

Features

Connects to panel's landline dialer:

- Communicator can be connected to control panel's landline dialer with 2 or 4 wires.
- When connected with 4 wires, the landline between the panel and communicator will be monitored.

Sends events to monitoring station receiver:

- Sends events to TRIKDIS software or hardware receivers that work with any monitoring software.
- Can send event messages to SIA DC-09 receivers.
- Can send event messages to SUR-GARD receivers. The annex has a table for converting Contact ID codes to SIA codes.
- Connection supervision by polling to IP receiver every 30 seconds (or by user defined period).
- Backup channel, that will be used if connection with the primary channel is lost.
- With parallel communication channels events can be sent to two receivers at same time.
- When ***Protegus*** service is enabled, events are first delivered to CMS, and only then are sent to app users.

Works with Protegus app:

- "*Push*" informing about events.
- Remote system Arm/Disarm.
- Remote control of connected devices (lights, gates, ventilation systems, heating, sprinklers, etc.).
- Remote temperature monitoring (with ***iO*** or ***iO-WL*** expanders).
- Different user rights for administrator, installer and user.

Notifies users:

- Users can be notified about events with ***Protegus*** app.

Controllable outputs and inputs:

- 3 double I/O terminals that can be set either as input (IN) or controllable output (OUT) terminals.
- Outputs controlled by the ***Protegus*** app.
- Add additional inputs and controllable outputs with wired and wireless ***iO*** expanders.

Quick setup:

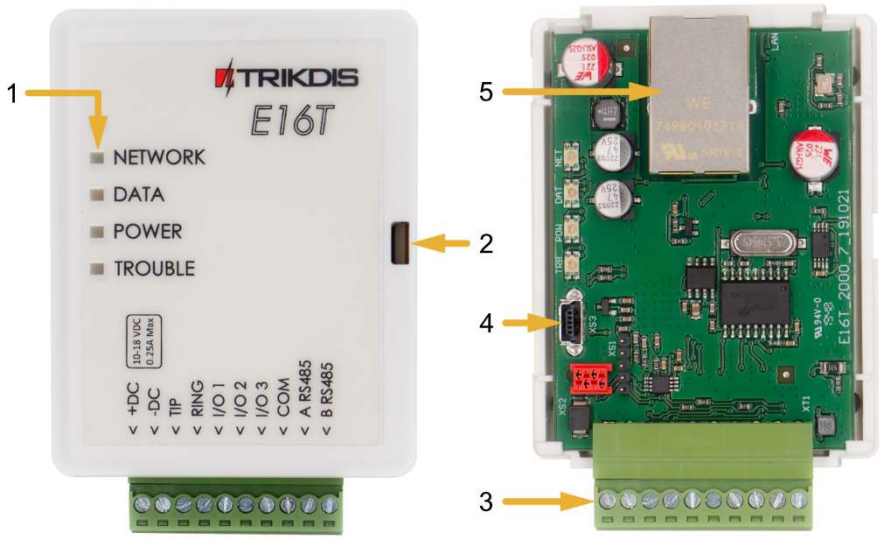
- Settings can be saved to file and quickly written to other communicators.
- Two access levels for configuring the device for CMS administrator and for installer.

- Remote configuration and firmware updates.

1.1 Specifications

Parameter	Description
Power supply voltage	10-18 V DC
Current consumption	100 mA (on standby) Up to 250 mA (while sending data)
Ethernet connection	IEEE802.3, 10 Base-T, RJ45 socket
Connection to control panel	Via Telephone Communicator (TIP RING terminals)
Dual purpose terminals [IN/OUT]	3, can be set as either NC; NO; NC/EOL; NO/EOL; NC/DEOL; NO/DEOL (10 kΩ) type inputs or open collector (OC) type outputs with current up to 0,15 A, 30 VDC max. Expandable with ***iO*** series expanders
Transmission protocols	TRK, DC-09_2007, DC-09_2012, TL150
Message encryption	AES 128
Changing settings	With TrikdisConfig computer program remotely or locally via USB Mini-B port
Memory	Up to 60 messages
Operating environment	Temperature from -10 °C to 50 °C, relative humidity - up to 80% at +20 °C
Communicator dimensions	88 x 65 x 26 mm
Weight	80 g

1.2 Communicator elements



1. Light indicators.
2. Frontal case opening slot.
3. Terminal for external connections.
4. USB Mini-B port for communicator programming.
5. Ethernet connection RJ45 socket.

1.3 Purpose of terminals

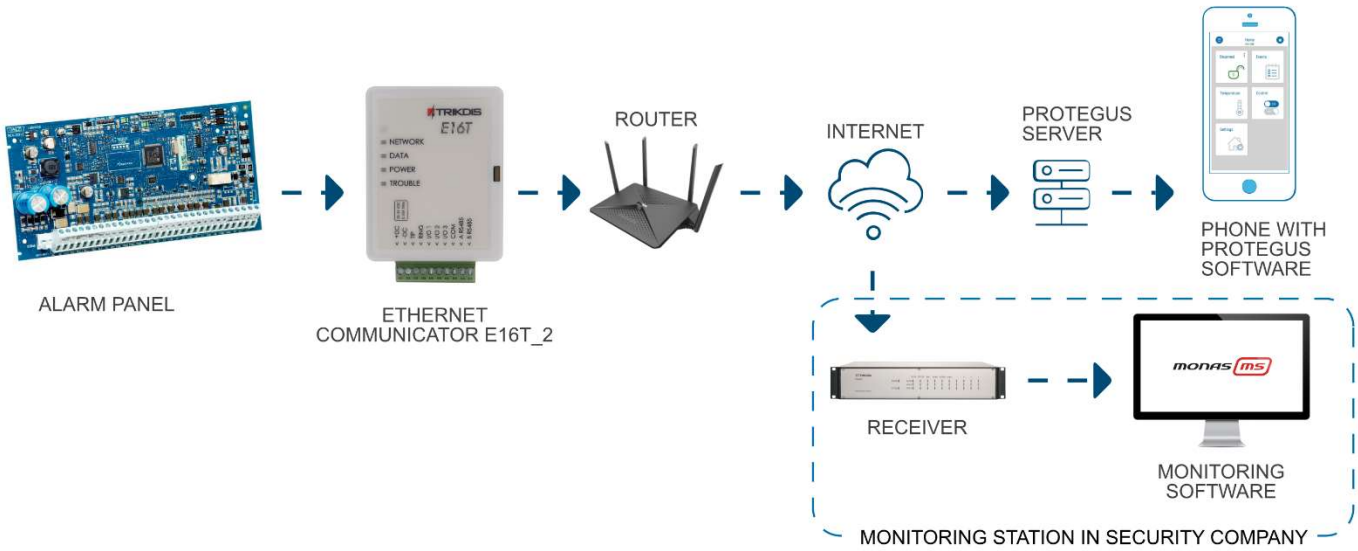
Terminal	Description
+DC	10-18 V DC power supply (positive terminal)
-DC	10-18 V DC power supply (negative terminal)
TIP	Terminal to connect with security control panel TIP terminal
RING	Terminal to connect with security control panel RING terminal

Terminal	Description
I/O 1 (T-1)	Terminal for monitoring the telephone line or an 1st input/output terminal (default setting – OFF)
I/O 2 (R-1)	Terminal for monitoring the telephone line or an 2nd input/output terminal (default setting – IN, NO circuit)
I/O 3	3rd input/output terminal (default setting – OUT)
COM	Common (negative) terminal
A RS485	*RS485* bus A contact
B RS485	*RS485* bus B contact

1.4 LED indication of operation

Indicator	Light status	Description
NETWORK	Off	No connection to a computer network
	Green solid	Communicator is connected to a computer network
DATA	Off	No unsent events
	Green solid	Unsent events are stored in buffer
	Yellow solid	The control panel calls the CMS
	Green blinking	***(Configuration mode)*** Data is being transferred to/from communicator
POWER	Off	Power supply is off or disconnected
	Green solid	Power supply is on with sufficient voltage
	Yellow solid	Power supply voltage is insufficient (≤11.5V)
	Green solid and yellow blinking	***(Configuration mode)*** Communicator is ready for configuration
	Yellow solid	***(Configuration mode)*** No connection with computer
TROUBLE	OFF	No operation problems
	1 red blink	Connection error at the "physical" level (PHY Link status error)
	2 red blinks	DHCP error
	3 red blinks	DNS error
	6 red blinks	No connection with the receiver
	7 red blinks	Lost connection with control panel
	Red blinking	***(Configuration mode)*** Memory fault
	Red solid	***(Configuration mode)*** Firmware is corrupted

1.5 Structural schematic with *E16T_2* usage



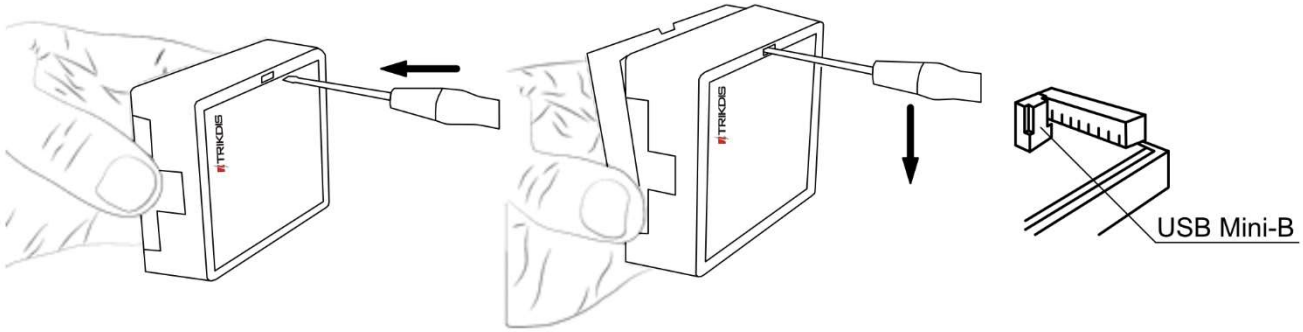
Note: Before you begin, make sure that you have the necessary:

1. USB cable (Mini-B type) for configuration.
2. „CAT-5 Ethernet" cable (maximum 100 m in length).
3. At least 4-wire cable for connecting communicator to control panel.
4. Flat-head 2,5 mm screwdriver.
5. Particular security control panel`s installation manual.

Order the necessary components separately from your local distributor.

2 Quick configuration with *TrikdisConfig* software

1. Download **TrikdisConfig** configuration software from www.trikdis.com (type "TrikdisConfig" in the search field) and install it.
2. Open the casing of the ***E16T_2*** with a flat-head screwdriver as shown below:

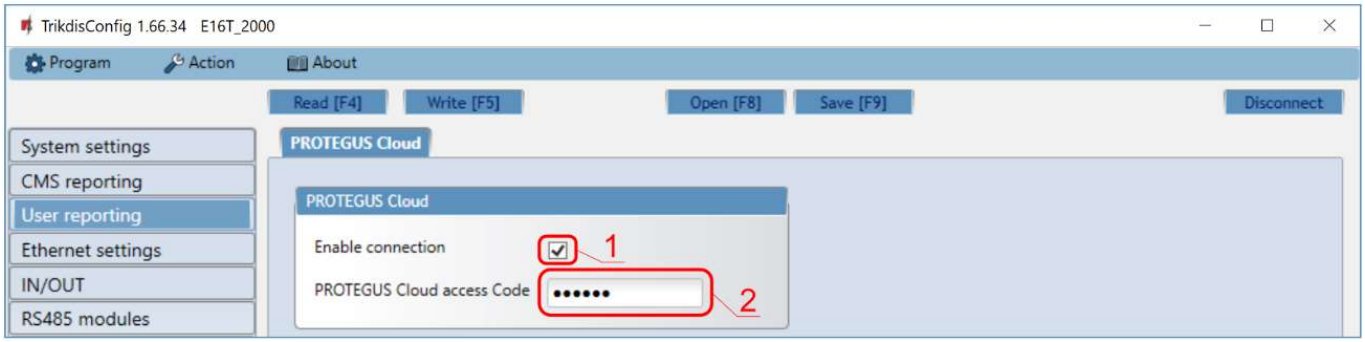


3. Using a USB Mini-B cable connect the ***E16T_2*** to the computer.
4. Run ***TrikdisConfig***. The software will automatically recognize the connected communicator and will open a window for configuration.
5. Click **Read [F4]** to read the communicator's settings. If requested, enter the Administrator or Installer 6-digit code in the pop-up window.

Below we describe what settings need to be set for the communicator to begin sending events to the CMS (central monitoring station) and to allow the security system to be controlled with the ***Protegus*** app.

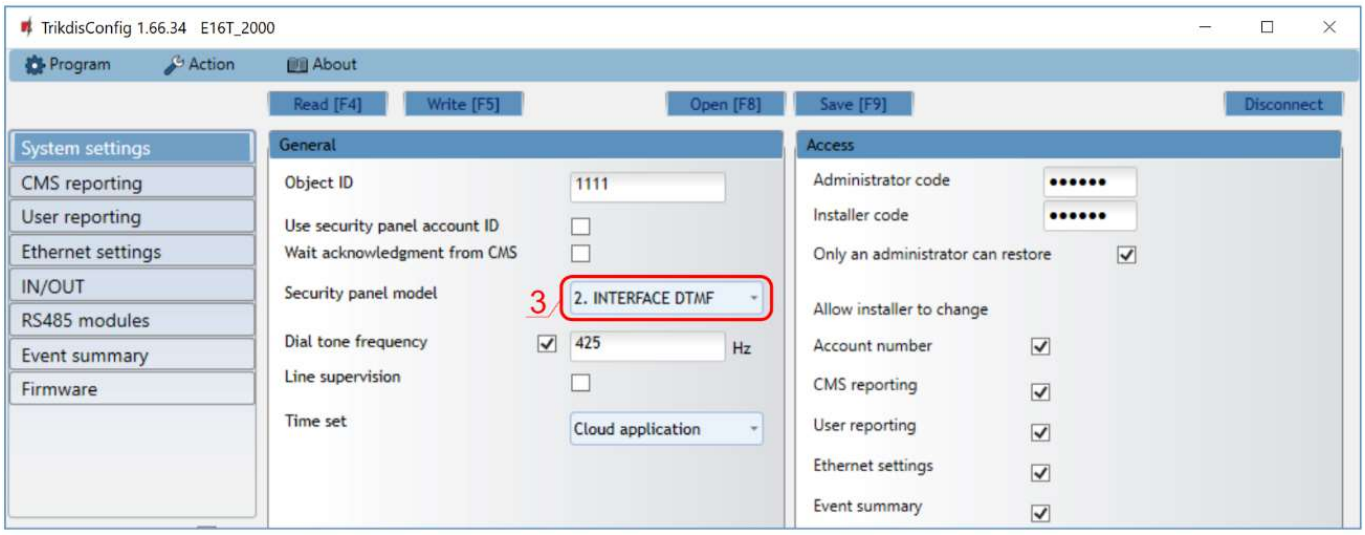
2.1 Settings for connection with Protegus app

In "User reporting" window:



1. Select checkbox **Enable connection** to the ***Protegus*** Cloud.
2. You can change the **Protegus Cloud access Code** for logging into ***Protegus*** if you want users to be asked to enter it when adding the system to ***Protegus*** app (default password - 123456).

In "System settings" window:



3. Select **Security panel model** that will be connected to the communicator.

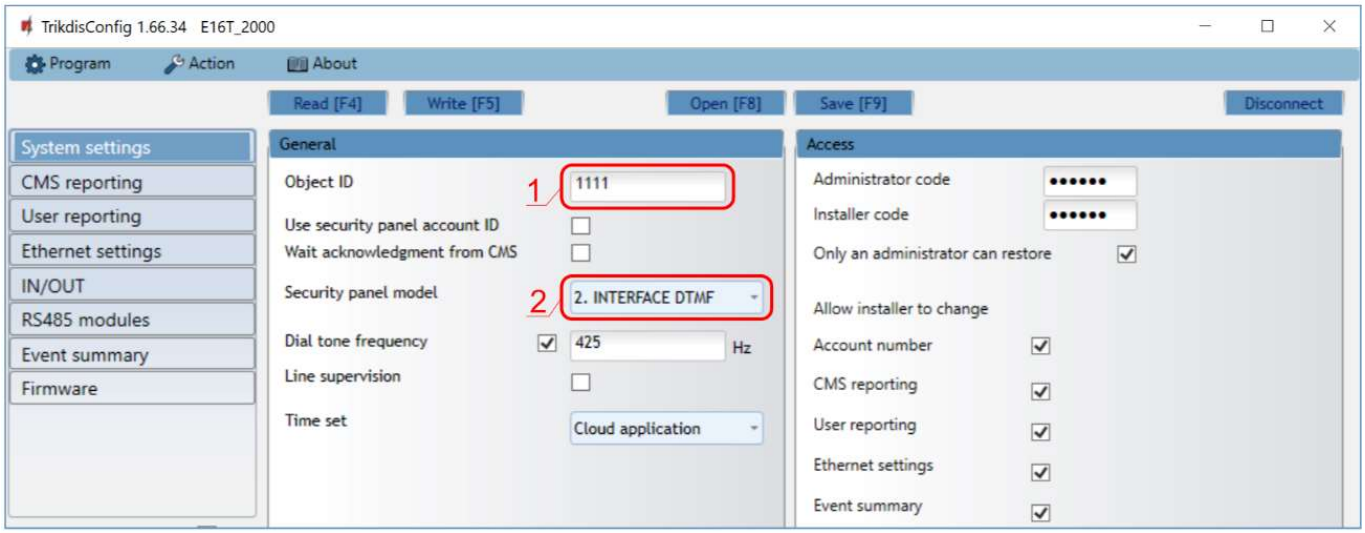
After finishing configuration, click the button **Write [F5]** and disconnect the USB cable.

Note:	For more information about other ***E16T_2*** settings in ***TrikdisConfig***, see chapter 0 " TrikdisConfig window description".

Important:	Do not forget to turn on the landline dialer of the alarm panel and set it up correctly, so that the panel would send the events. Alarm panel setup is described in chapter 4 "Programming the control panel".

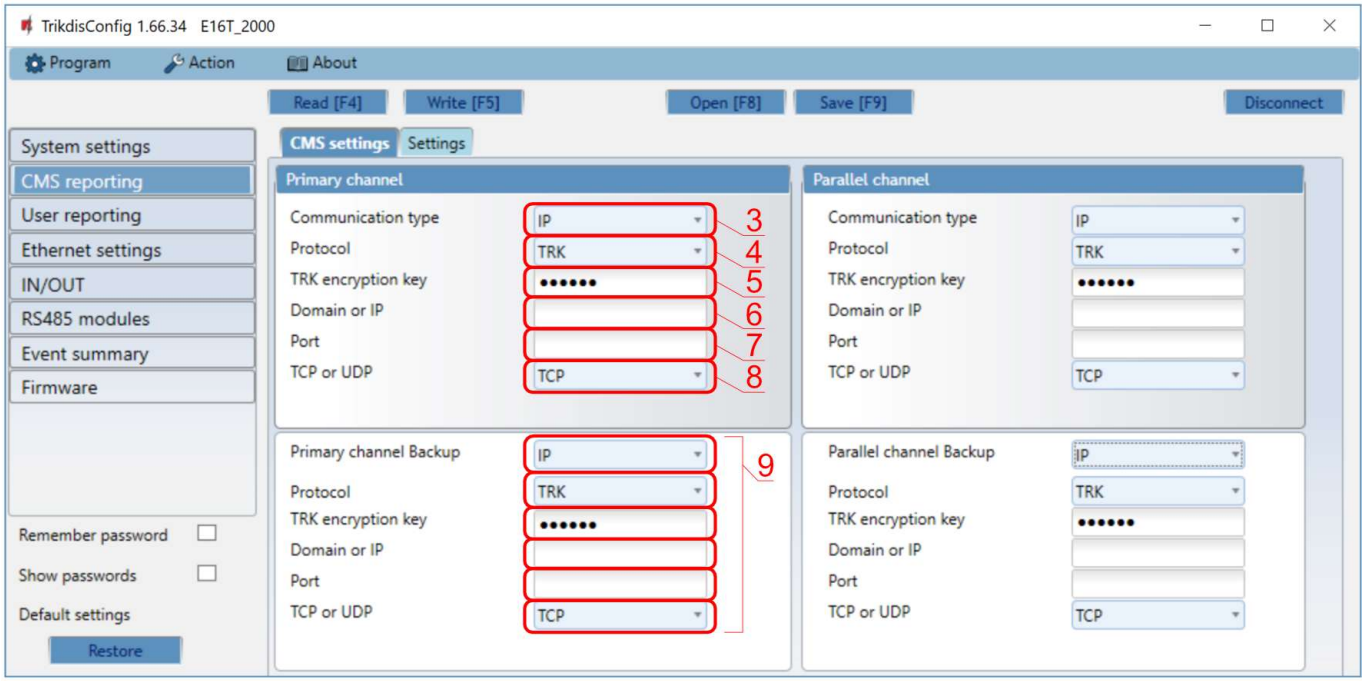
2.2 Settings for connection with Central Monitoring Station

In "System settings" window:



1. Enter **Object ID** (account) number provided by the Central Monitoring Station (4 characters, 0-9, A-F. **Do not use FFFE, FFFF Object ID**).
2. Select **Security panel model** that will be connected to the communicator.

In "CMS reporting" window settings for "Primary channel":



3. **Communication type** - select the **IP** connection method.
4. **Protocol** - select the protocol type for event messages: **TRK** (to TRIKDIS receivers), **DC-09_2007** or **DC-09_2012** (to universal receivers), **TL150** (to SUR-GARD receivers).
5. **TRK encryption key** - enter the encryption key that is set in the receiver.
6. **Domain or IP** - enter the receiver's Domain or IP address.
7. **Port** - enter receiver's network port number.
8. **TCP or UDP** - choose event transmission protocol (**TCP** or **UDP**) in which events should be sent.

Note:	If you selected the **DC-09** protocol, additionally enter object, line and receiver numbers in the **Settings** tab of the **CMS reporting** window.

9. (Recommended) Configure **Primary channel Backup** settings.
10. (Recommended) Configure **Parallel Channel** and its **Parallel Channel Backup** settings.

After finishing configuration, click **Write [F5]** and disconnect the USB cable.

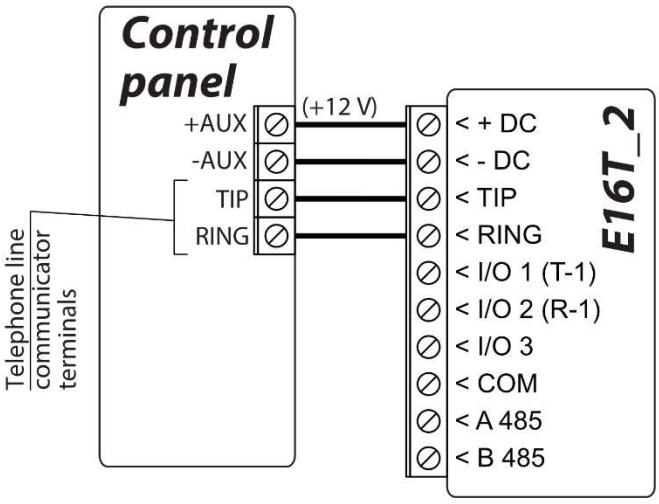
Note:	For more information about other ***E16T_2*** settings in ***TrikdisConfig***, see chapter 0 " TrikdisConfig window description".

Important:	Do not forget to turn on the landline dialer of the alarm panel and set it up correctly, so that the panel would send the events. Alarm panel setup is described in chapter 4 "Programming the control panel".

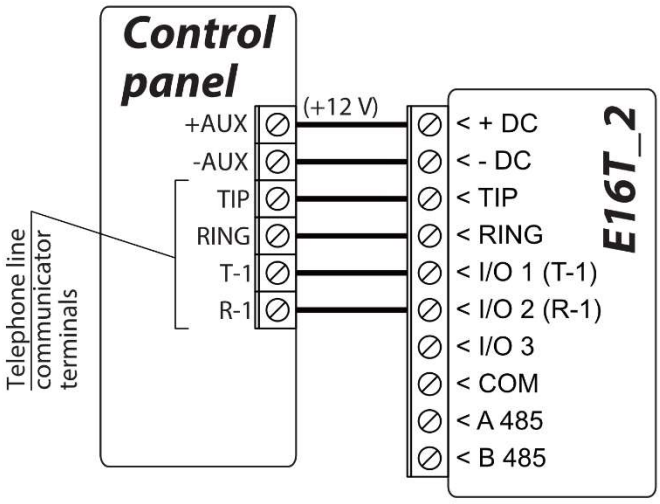
3 Installation and wiring

3.1 Schematics for wiring the communicator to a security control panel

Following one of the schematics provided below, connect communicator to the control panel.

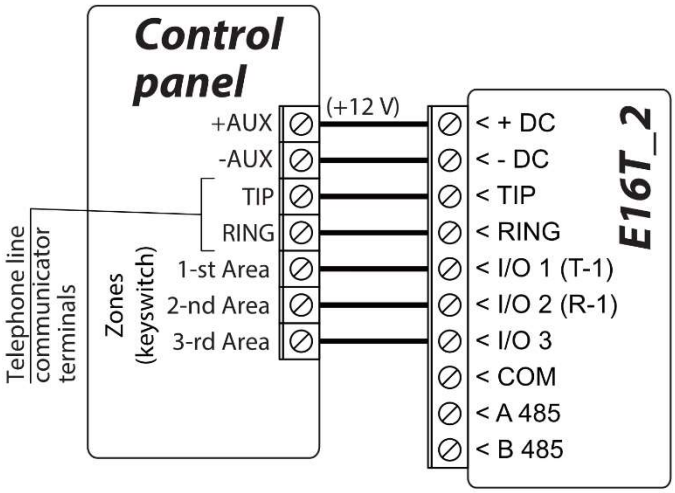


Communicator wiring diagram, when telephone line supervision is not set.

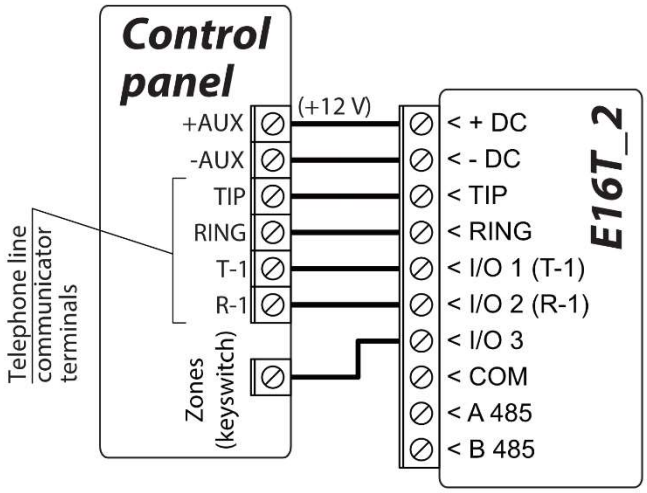


Communicator wiring diagram, when telephone line supervision is set.

3.2 Schematics for connecting to panel keyswitch zone



Arming/Disarming the panel via keyswitch zone, when telephone line supervision is not set.



Arming/Disarming the panel via keyswitch zone, when telephone line supervision is set.

Follow this schematic if the control panel will be armed/disarmed with a ***E16T_2*** PGM output turning on/off the panel's keyswitch zone.

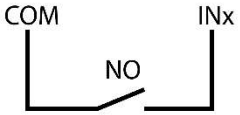
Note:	***E16T_2*** communicator has 3 universal input / output terminals that can be set to the OUT (PGM) operating mode. The outputs can control three areas of the security system. Area control settings are made in the ***Protegus*** app.

3.3 Schematics for input connection

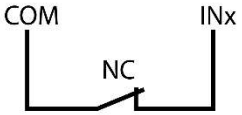
The communicator has 3 universal input / output terminals that can be set to input IN mode. NC, NO, NO / EOL, NC / EOL, NO / DEOL, NC / DEOL circuits can be connected to the input terminal. Default I/O 2 input setting – NO. The input type can be changed in the ***TrikdisConfig*** window **IN/OUT -> Type.**

Connect the input according to the selected input type (NO, NC, NC/EOL, NO/EOL, NO/DEOL, NC/DEOL), as shown in the schemes below:

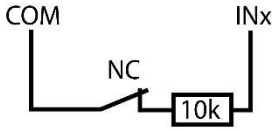
Normally open (NO).
Short - Alarm; Open - Restore.



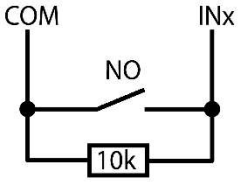
Normally closed (NC).
Short - Restore; Open - Alarm.



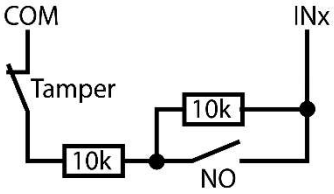
Normally closed with 10k End of line resistor (NC/EOL).
Short - Alarm; Open - Alarm; 10k - Restore.



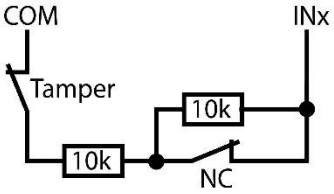
Normally open with 10k End of line resistor (NO/EOL).
Short - Alarm; Open - Alarm; 10k - Restore.



Normally open with 10k End of line resistor and tamper recognition (NO/DEOL).
Short - Tamper; Open - Tamper; 10k - Alarm; 12k-25k - Restore.

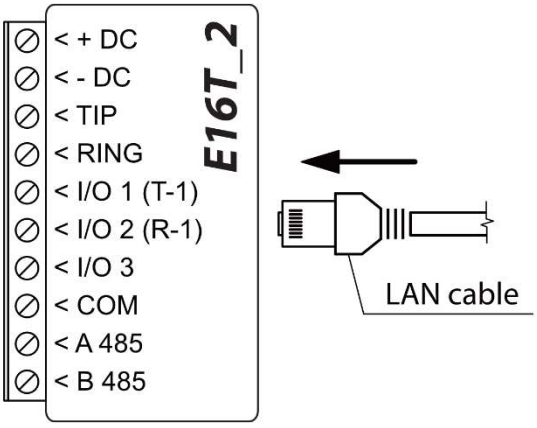


Normally closed with 10k End of line resistor and tamper recognition (NC/DEOL).
Short - Tamper; Open - Tamper; 10k - Restore; 15k-25k - Alarm.

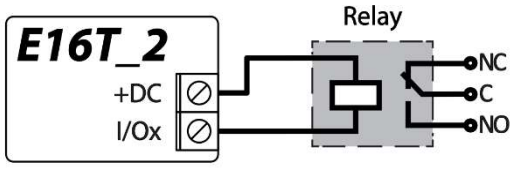


Note:	If more inputs or outputs need to be connected to the communicator, or if you want to connect a temperature sensor, connect the TRIKDIS ***iO*** series wired or wireless output expander.

3.4 Connect LAN cable



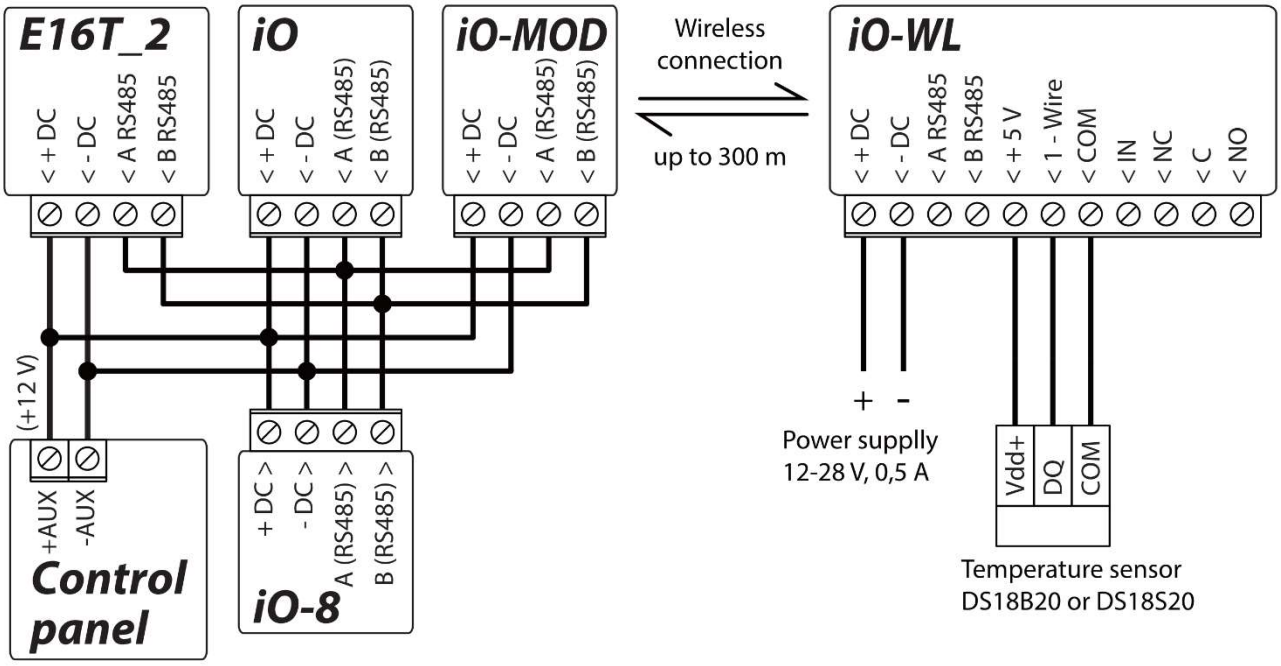
3.5 Schematics for wiring a relay



With relay contacts you can control (turn on/off) various electric appliances. The I/O terminal of the communicator must be set to an output (OUT) mode.

3.6 Schematics for connecting iO series expansion modules

If more inputs or outputs need to be connected to the communicator, or if you want to connect a temperature sensor, connect the TRIKDIS ***iO*** series wired or wireless output expander. Configuration of expander modules connected to the ***E16T_2*** is described in chapter 6.7 ""RS485 modules" window".



3.7 Turn on the communicator

To start the communicator, turn on the security control panel's power supply. This LED indication on the ***E16T_2*** communicator must show:

- "POWER" LED illuminates green when the power is on;
- "NETWORK" LED illuminates green, when the communicator is connected to the network.

Note: If you see a different LED indication, it indicates a certain malfunction. Diagnose it by following the LED indication table in chapter 1.4 "LED indication of operation".

If the ***E16T_2*** indication does not illuminate at all, check the power supply and connections.

4 Programming the control panel

For the control panel to send events via the landline dialer, it must be turned on and properly set up. Following the panel's programming manual, configure the control panel's landline dialer:

1. Turn on the panel's PSTN landline dialer.
2. Enter the monitoring station receiver's telephone number (you can use any number longer than 2 digits. The ***E16T_2*** will pick up and answer when the panel calls to any phone number).
3. Choose DTMF mode.
4. Select Contact ID communication protocol.
5. Enter the panel's 4 digit account number.

The control panel zone to which the ***E16T_2*** output OUT is connected should be set to keyswitch zone for arming/disarming the control panel remotely.

Note: Keyswitch zone can be momentary (pulse) or level. By default, the ***E16T_2*** controllable output OUT is set to 3 second pulse mode. You can change the impulse duration or change to level mode in ***Protegus*** settings. See chapter 5.2 "Additional settings to arm/disarm the system using the control panel's keyswitch zone".

4.1 Programming Honeywell Vista landline dialer

Using the control panel's keypad enter these sections and set them as described:

- *41 – enter monitoring station receiver telephone number;
- *43 – enter control panel's account number;
- *47 – set the Tone dial to [1] and enter the number of dial attempts;
- *48 – use default setting, *48 must be set to 7;
- *49 – Split/Dual message. *49 must be set to 5;
- *50 – delay for sending burglary alarm events (optional). Default value is [2,0]. With it the event message transmission will be delayed for 30 seconds. If you want the message to be sent immediately, set [0,0].

4.2 Special settings for Honeywell Vista 48 panel

If you want to use ***E16T_2*** communicator with Honeywell Vista 48 panel, set the following sections as described:

Section	Data
*41	1111 (receiver telephone number)
*42	1111
*43	1234 (panel account number)
*44	1234
*45	1111
*47	1
*48	7
*50	1
*59	0

Section	Data
*60	1
*61	1
*62	1
*63	1
*64	1
*65	1
*66	1
*67	1
*68	1

Section	Data
*69	1
*70	1
*71	1
*72	1
*73	1
*74	1
*75	1
*76	1

When all required settings are set, it is necessary to exit programming mode. Enter *99 in keypad.

5 Remote control

5.1 Adding the security system to Protegus app

With ***Protegus*** users will be able to control their alarm system remotely. They will see the status of the system and receive notifications about system events.

1. Download and launch the ***Protegus*** application or use the browser version: www.protegus.eu/login.

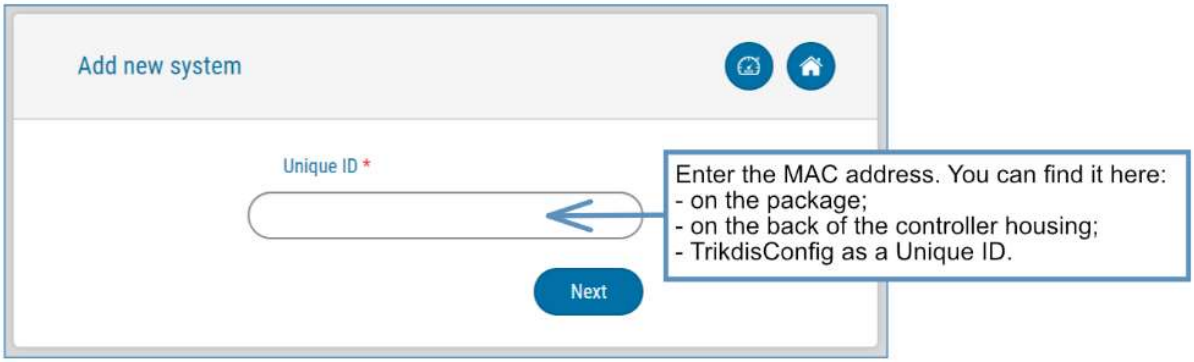
2. Log in with your user name and password or register and create new account.

Important: When adding the ***E16T_2*** to ***Protegus*** check if:

1. ***Protegus cloud*** is enabled. See chapter 6.4 ""User reporting" windows";
2. Power supply is connected ("POWER" LED illuminates green);

3. Registered to the network ("NETWORK" LED illuminates green).

3. Click **Add new system** and enter the ***E16T_2***'s "*MAC*" address. This number can be found on the device and the packaging sticker. After entering click **Next**.

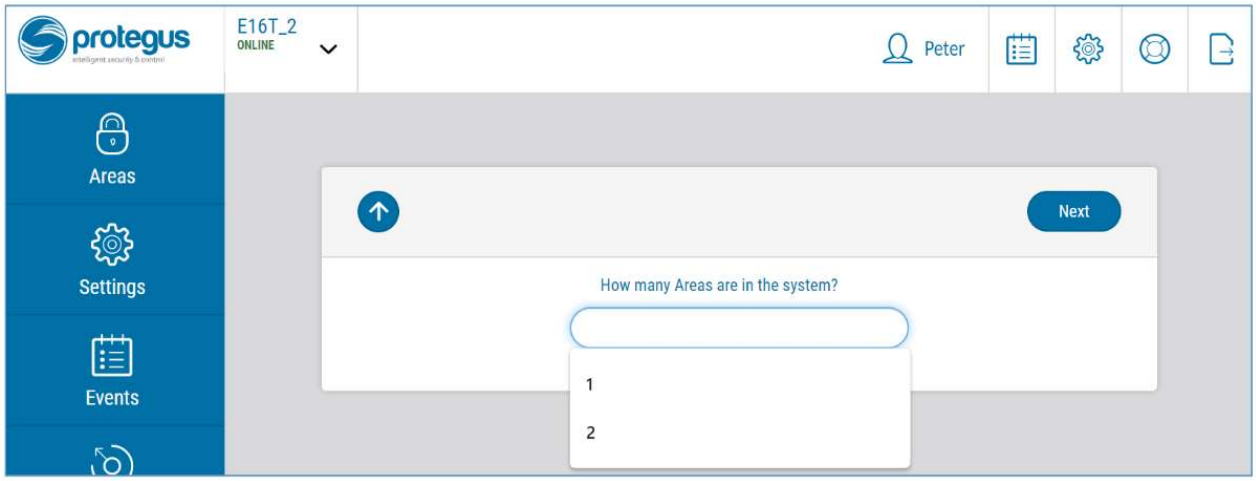


5.2 Additional settings to arm/disarm the system using the control panel's keyswitch zone

Important: The control panel zone to which the ***E16T_2*** output OUT is connected to has to be set to keyswitch mode.

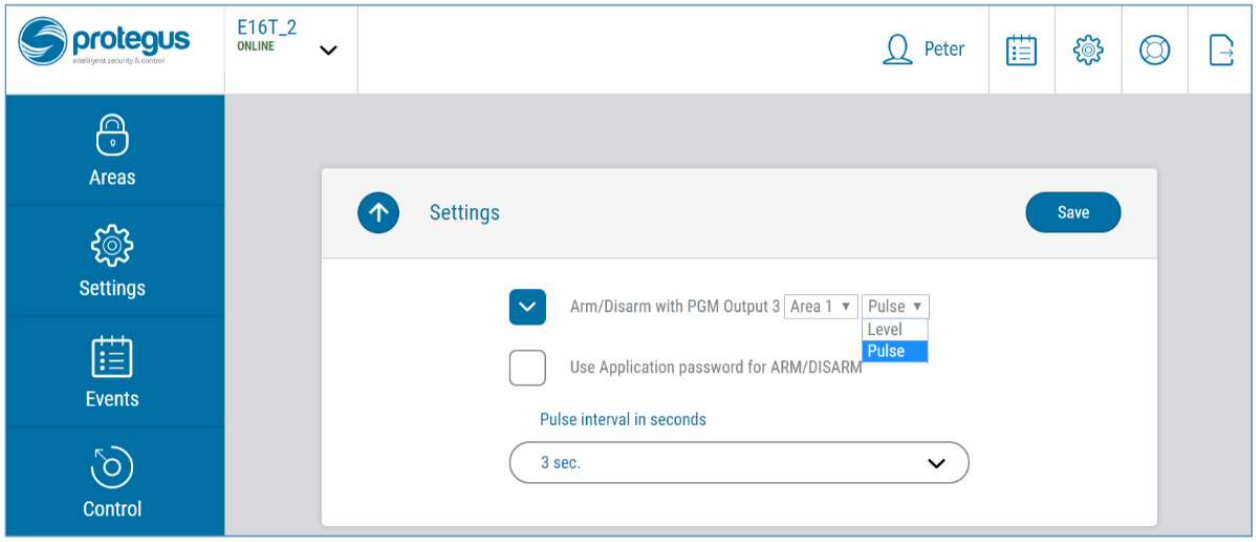
Follow the instructions below if the security control panel will be controlled with a ***E16T_2*** PGM output, ARM/DISARM the control panel keyswitch zone.

1. In the new window, click **Areas** in the side menu. In the next window, specify how many alarm system areas (1, 2, 3) are in the system and press **Next**.



2. In the new window, identify what is the number for each of the specified areas in the security system and press **Save**.

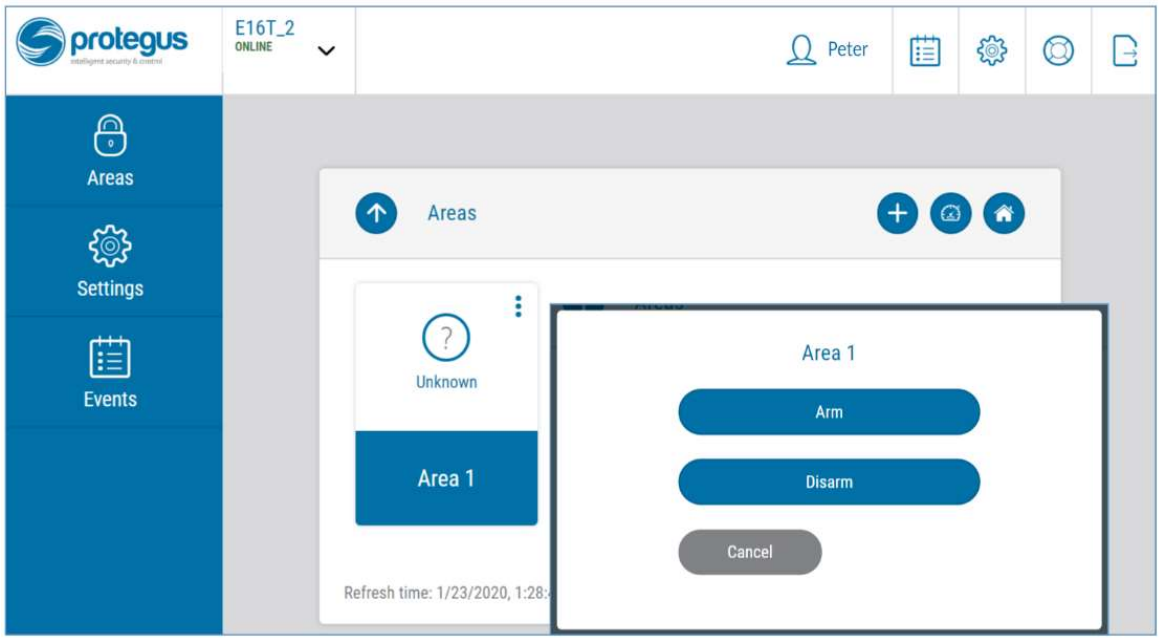
3. In the side menu press **Settings** and in the newly opened window press **Settings**. Select the box **Arm/Disarm with PGM output** and specify which area the output will control. One PGM output can control only one area.



4. Select **Level** or **Pulse**, depending on the type of control panel keyswitch zone. You can also change the duration of the pulse interval if it is required for the connected control panel.
5. For additional security, you can select **Use Application password for ARM/DISARM**. Then after pressing the button to arm/disarm the alarm system, a window for entering the app password will open.

5.3 Arming/disarming the alarm system with Protegus

1. To control the system, open the **Areas** window.
2. In the **Areas** window click the Area button. In the pop-up window select the action (arm or disarm the security system area).
3. If requested, enter the user code or ***Protegus*** password.



6 TrikdisConfig window description

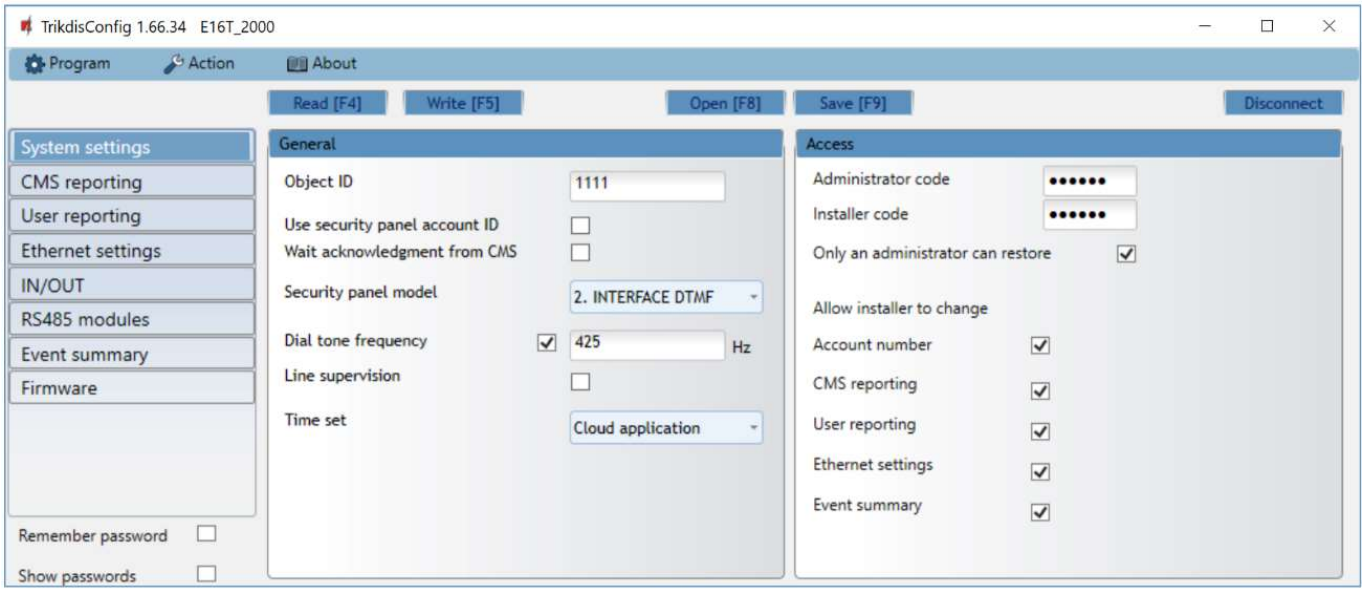
6.1 *TrikdisConfig* status bar description

After connecting the ***E16T_2*** and clicking **Read [F4],** ***TrikdisConfig*** will provide information about the connected device in the status bar:

Object	Description
Unique ID	Device MAC number
Status	Operating condition
Device	Device type (***E16T_2*** should be shown)
SN	Device serial number
BL	Browser version
FW	Device firmware version
HW	Device hardware version
Status	Connection to program type (via USB or remote)
Administrator	Access level (shown after access code is approved)

After pressing **Read [F4]**, the program will read and show the settings which are set in the ***E16T_2.*** Set the necessary settings according to the ***TrikdisConfig*** window descriptions given below.

6.2 "System settings" window



"General" settings group

- **Object ID** – if the events will be sent to the CMS (Central Monitoring Station), enter the account number provided by the CMS (4 characters hexadecimal number, 0-9, A-F. **Do not use FFFE, FFFF object ID**).
- **Use security panel account ID** – if the checkbox is selected, the communicator will send events with the account ID entered in the panel instead of the value set in the **Object ID** field.
- **Wait acknowledgment from CMS** – if the checkbox is selected, after sending each event the communicator will wait for acknowledgment from the IP receiver indicating that it has successfully received the event message. If the communicator

will not receive the acknowledgement signal, it will not form the end-of-communication (kiss-off) signal. After not receiving the kiss-off, the control panel landline dialer will repeatedly transmit the event message.

- **Security panel model** – enable/disable DTMF landline interface on the communicator.
- **Dial tone frequency** – frequency in which the ***E16T_2*** communicates with the control panel landline dialer.
- **Line supervision** – if this checkbox is selected, landline connection between the communicator and control panel will be monitored. For the supervision to work, the control panel's landline dialer needs to be connected with the ***E16T_2*** with 4 wires (see chapter 3.1 „Schematics for wiring the communicator to a security control panel").
- **Time synchronization** – select which server to use for time synchronization.

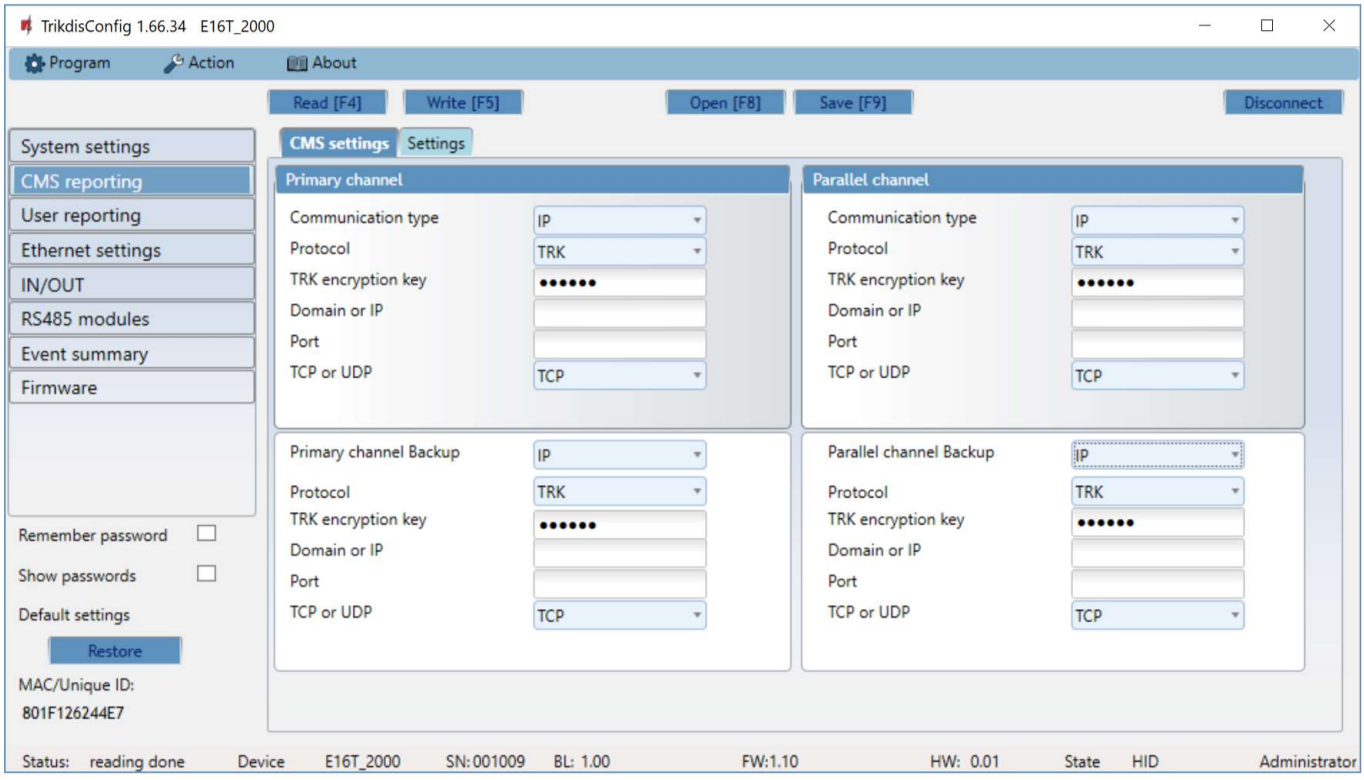
"Access" settings group

When setting up the communicator ***E16T_2*** there are two levels of access for, the administrator and the installer:

- **Administrator code -** allows you to access all configuration fields (default code - 123456).
- **Installer code** - limited access for configuring the communicator (default code - 654321).
- **Only an administrator can restore** - if the box is checked, factory settings can be restored only by entering the administrator code.
- **Allow installer to change** – the administrator can specify which settings can be changed by the installer.

6.3 "CMS reporting" window

"CMS settings" tab



The communicator sends events to the monitoring station via a wired internet (IP) connection.

Events can be sent over several channels of communication. The primary and parallel communication channels can operate simultaneously, this way the communicator can send events to two receivers at the same time. Backup channels can be assigned for both primary and parallel channels, which will be used when the connection via the primary or parallel channel is interrupted.

Communication is encoded and password protected. A TRIKDIS receiver is required for receiving and sending event information to the monitoring programs:

- For connection over IP - software receiver IPcom Windows/Linux, hardware IP/SMS receiver RL14 or multichannel receiver RM14.

"Primary channel" settings group

- **Communication type** - select which method for connecting to the monitoring station receiver will be used (IP).
- **Protocol** - select in which coding the events should be sent: **TRK** (to TRIKDIS receivers), **DC-09_2007** or **DC-09_2012** (to universal receivers), **TL150** (to SUR-GARD receivers).
- **TRK encryption key** - 6-digit message encryption key. The key written to the communicator must match the receiver's key.
- **Domain or IP** - enter the domain or IP address of the receiver.
- **Port** - enter the network port number of the receiver.
- **TCP or UDP** - select in which protocol (TCP or UDP) the events should be sent.

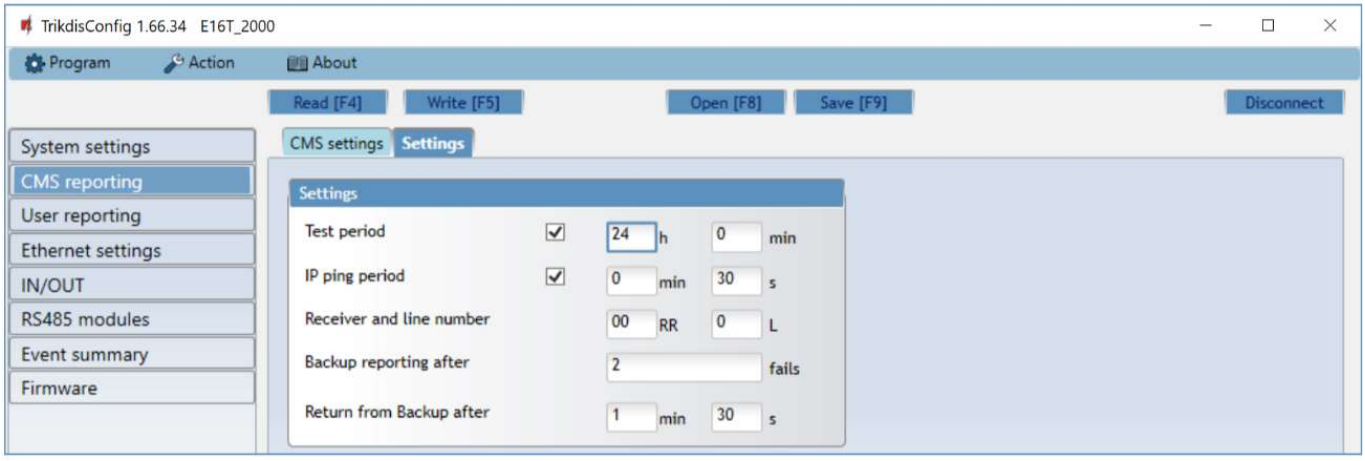
"Primary channel Backup" settings group

Enable the backup channel mode to send events via backup channel if connection via primary channel is lost. Backup channel settings are same as described above.

"Parallel channel" settings group

Events are transmitted in parallel with the first channel through this channel. When the second channel is enabled, events can be sent simultaneously to two receivers (e.g., local and centralized monitoring stations). Parallel channel settings are the same as described above.

"Settings" tab



"Settings" settings group

- **Test period** - TEST event period for testing the connection. Test events are sent as Contact ID messages and forwarded to the monitoring software.
- **IP ping period** – period for sending internal PING heartbeats. These messages are only sent via IP channel. The receiver will not forward PING messages to the monitoring software to avoid overloading it. Notifications will only be sent to the monitoring software if the receiver fails to receive PING messages from the device within the set time.

  By default, the *"Connection lost"* notification will be transmitted to the monitoring software if the PING message is not received by the receiver over a time period three times longer than set in the device. E.g. if the PING period is set for 3 minutes, the receiver will transfer the *"Connection lost"* notification if a PING message is not received within 9 minutes.

  PING heartbeats keep the active communication session between the device and the receiver. An active session is required for remote connection, control and configuration of the device. We recommend setting the PING period for no more than 5 minutes.
- **Backup reporting after** - indicates the number of unsuccessful attempts to send the message via Primary channel. If device fails to transmit specified number of times, the device will connect to transmit the messages via Backup channel.
- **Return from backup after** - time after which the ***E16T_2*** will attempt to reconnect and transmit messages via the Primary channel.

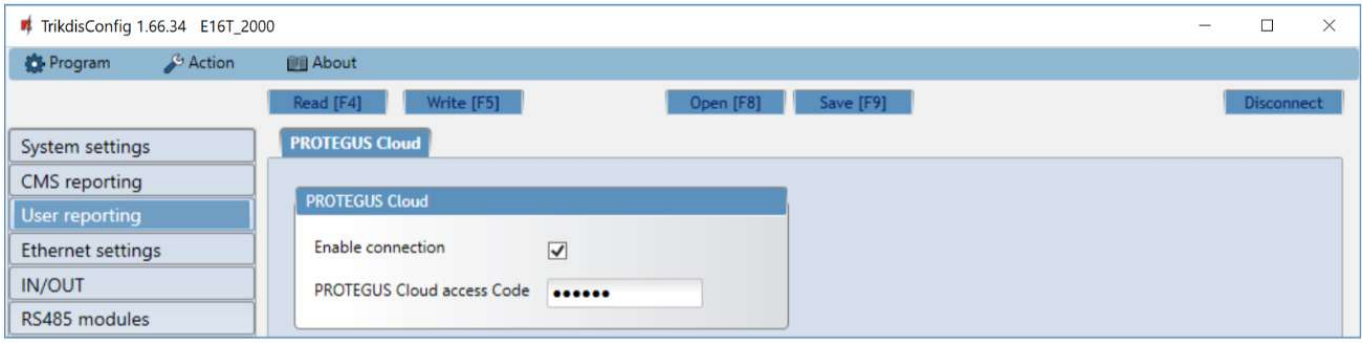
“DC-09 settings” settings group

The settings are displayed when the **DC-09_2007** or **DC-09_2012** protocol is set in the communication channel **Protocol** field for sending events to universal receivers.

- **Object ID in DC-09** - enter the object number. The object number entered in this field will be used if DC-09 encoding is selected. A hexadecimal number from 3 to 16 characters can be entered. This Number is provided by the CMS (central monitoring station).
- **DC-09-line No**. - enter line number of the receiver.
- **DC-09 receiver No.** - enter the receiver number.

6.4 “User reporting” window

“PROTEGUS Cloud” tab



Protegus service allows users to remotely monitor and control the communicator. For more information about ***Protegus*** service, visit www.protegus.eu.

“Protegus Cloud” settings group

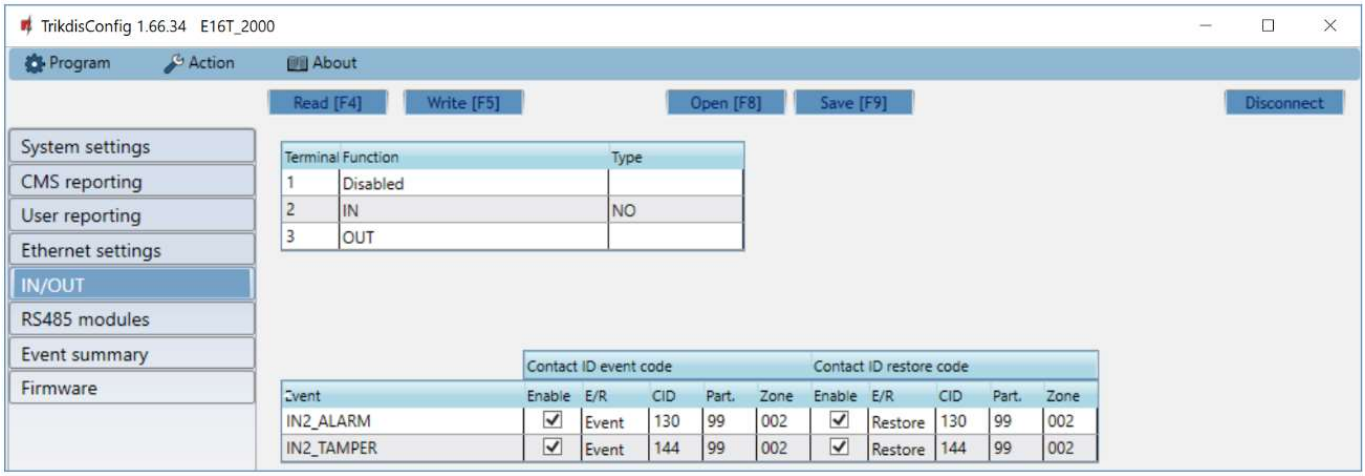
- **Enable connection** – enable the ***Protegus*** service, the ***E16T_2*** will be able to exchange data with ***Protegus*** app and to be remotely configured via ***TrikdisConfig*****.**
- **Protegus Cloud access Code -** 6-digit code for connecting to the ***Protegus*** app (default - 123456).

6.5 “Ethernet settings” window

“Ethernet settings” settings group

- **Use DHCP** - check the box to have the communicator automatically register to the network. If the auto-register fails, you will need to enter it manually:
  - **Static IP** – static IP address for when manual registering mode is set.
  - **Subnet mask** – subnet mask for when manual registering mode is set.
  - **Default gateway** – gateway address for when manual registering mode is set.
  - **DNS1, DNS2** - (Domain Name System) identifies the server that specifies the IP address of the domain. Used when domain is set in the communication channel **Domain or IP** field (not IP address). Google DNS server is set by default.

6.6 "IN/OUT" windows



The communicator has 3 universal (input / output) terminals. The table can set the terminal operating mode (Off, IN, OUT). The input must specify the type of circuit to be connected NC, NO, NO / EOL, NC / EOL, NO / DEOL, NC / DEOL.

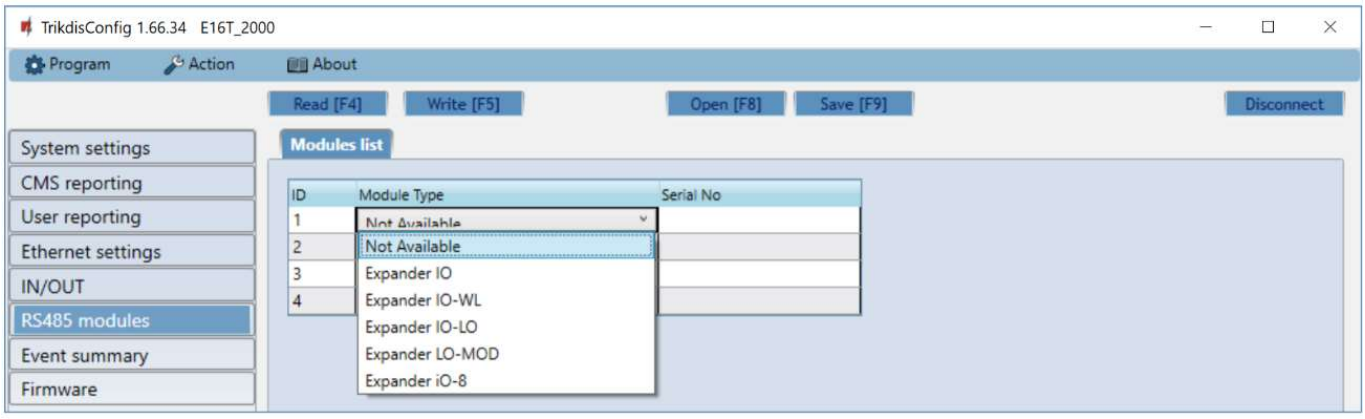
Additional sensors can be connected to the communicator inputs. When the sensor is triggered, the communicator will send an event message. The input is assigned a Contact ID code, which will be sent to CMS and ***Protegus***.

- **Enable** – checked event fields where messages will be sent to CMS and ***Protegus***.
- **E/R** – choose what type of event will be sent when input is triggered – **Event** or **Restore**.
- **CID** – enter the event code or leave the default value. Upon entering the event, the event code will be sent to ***Protegus*** and CMS.
- **Part**. – enter the partition (area) number that will be sent when an internal event occurs and the system is restored.
- **Zone** - enter the zone number that will be sent when an internal event occurs and the system is restored.

6.7 "RS485 modules" window

"Modules list" tab

iO series expanders can be connected to the communicator to add additional inputs, outputs and serial buses for temperature sensors. Connected expanders must be added to the **Modules list** table.



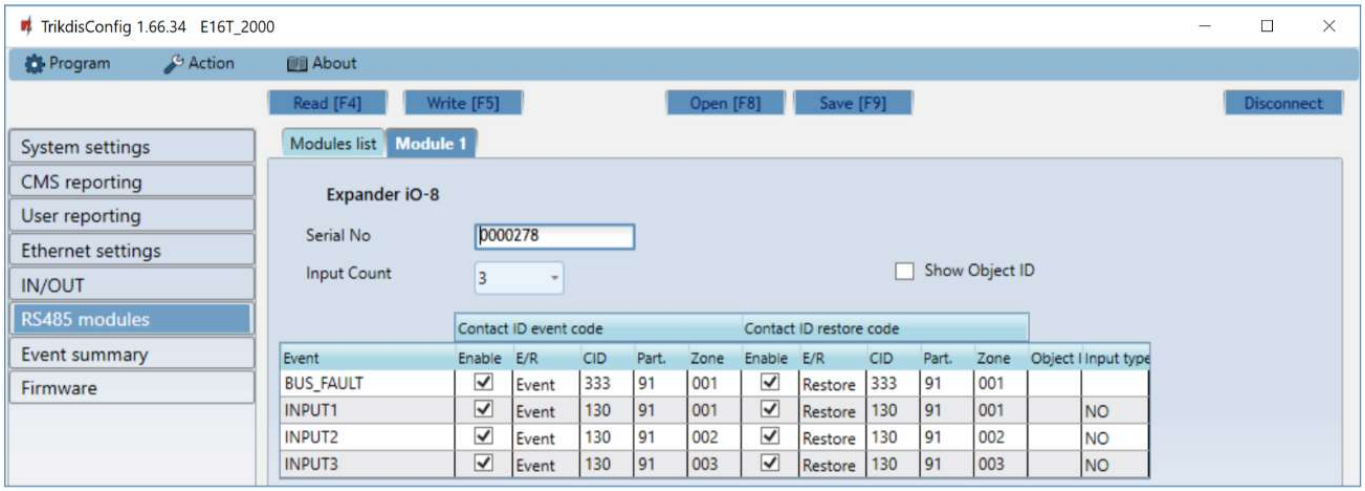
- **Module type** – select the module that is connected to the communicator via RS485 from the list.
- **Serial No –** enter the module serial number (6 digits), which is indicated on stickers on the module's case and packaging.

Go to **RS485 modules → Module.**

"Module" tabs

After adding the expander to the communicator as described above, in the **RS485 modules** window a new tab will appear with this module's settings. The tab will be given a number. Bellow we describe the settings for ***iO-8*** and ***iO*** series expanders.

iO-8 expander settings window



Expander ***iO-8*** has 8 universal (input/output) terminal contacts. Up to four ***iO-8*** expanders can be connected.

- **Input Count** – select what number of terminal contacts should be set to input (IN) mode. The rest of the terminal contacts will become outputs (OUT).

Settings for controllable outputs are set directly in ***Protegus*** app. There you can assign an output for arming/disarming the alarm system or for remote control of devices.

In the table inputs can be assigned Contact ID event and restore codes. After input is triggered, the communicator will send an event with set event code to monitoring station receiver, ***Protegus*** app.

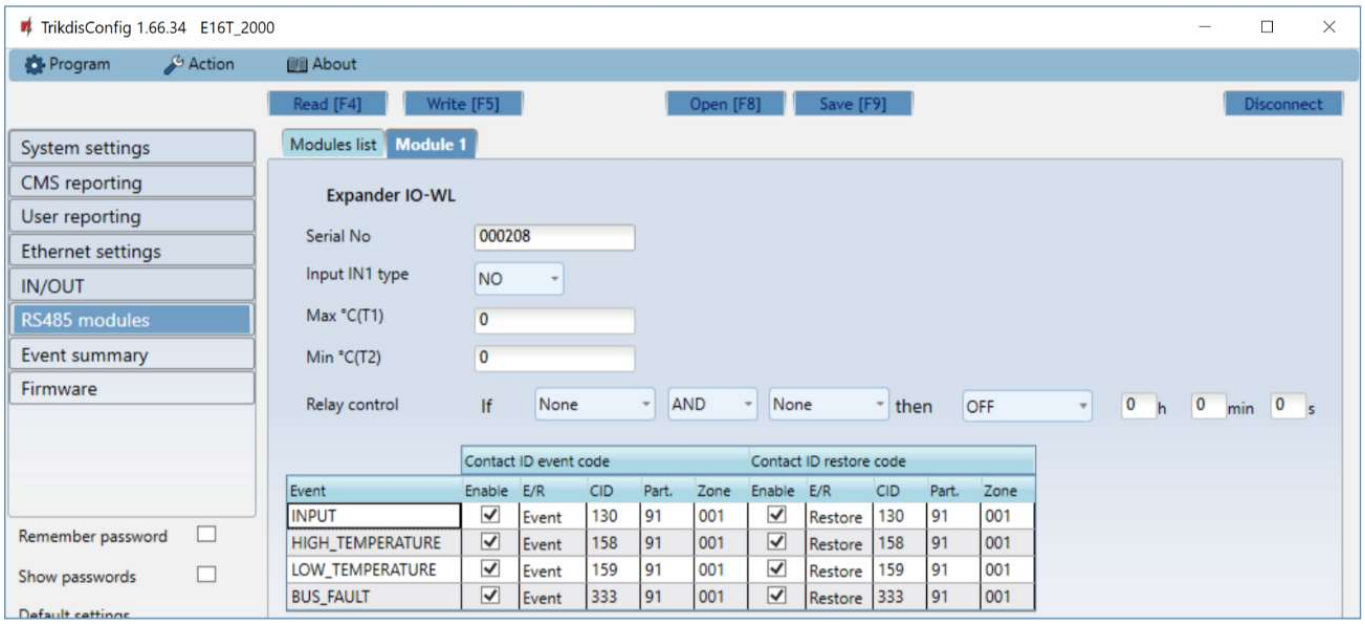
Contact ID event code:

- **Enable** – allow message transmission, when the input is triggered.
- **E/R** – choose what type of event will be sent when input is triggered – **Event** or **Restore**.
- **CID** – assign a Contact ID event code to the input.
- **Part.** – assign the partition (area) to the input. It is set automatically: if the module no. is 1, then the area is 91; if the module no. is 4, then the area is 94.
- **Zone** – set the zone number for the input.

Contact ID restore code:

- **Enable** – allow message transmission when the input is restored.
- **E/R** – choose what type of event will be sent when input is restored – **Restore** or **Event**.
- **CID** – assign the Contact ID restore code to the input.
- **Part.** – assign the partition (area) to the input. It is set automatically: if the module no. is 1, then the area is 91; if the module no. is 4, then the area is 94.
- **Zone** – set the zone number for the input.
- **Input type** – select the type of the input (NO, NC or EOL (10 kΩ)).

iO expander settings window



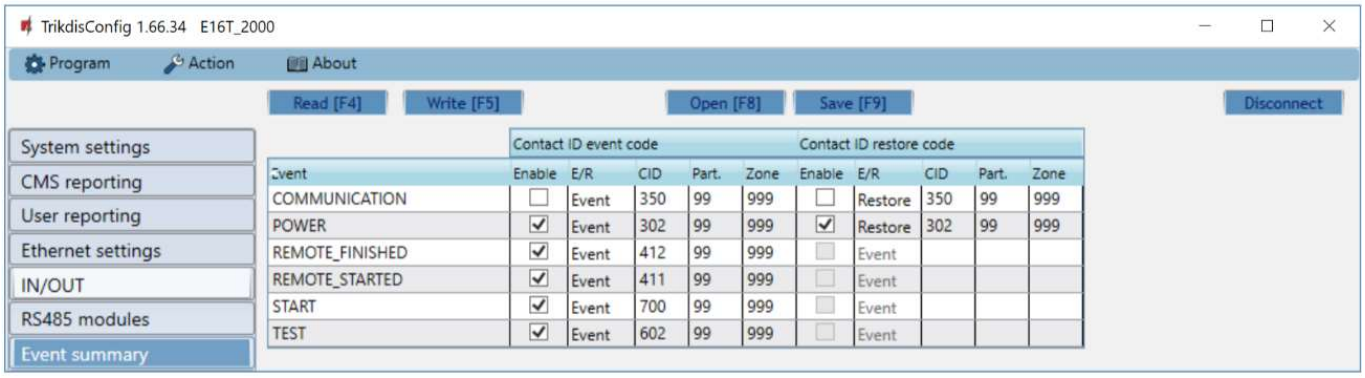
Expander ***iO*** has: terminals for 1 input, 1 output (relay contacts) and 1-Wire serial bus for connecting temperature sensors.

- **Input IN1 type** – set the input type (NO or NC).
- **Max °C(T1)** – when the temperature is higher than this setting, an event message will be generated. For an event message to be generated, it must be enabled in the table.
- **Min °C(T2)** – when the temperature is lower than this setting, an event message will be generated. For an event message to be generated, it must be enabled in the table.

In the table inputs can be assigned Contact ID event and restore codes. After an input is triggered, the communicator will send an event with the set event code to the monitoring station receiver and to ***Protegus*** app. Set as described in the previous page about **iO-8 expander settings window**.

6.8 "Event summary" window

This window allows you to turn on, off, and modify internal messages sent by your device. Disabling an internal message in this window will prevent it from being sent regardless of other settings.



- **COMMUNICATION** – message about connection error between the control panel and ***E16T_2***.
- **POWER** – message about low power supply voltage.
- **REMOTE_FINISHED** – message about disconnection from remote configuration with ***TrikdisConfig***.
- **REMOTE_STARTED** – message about remote connection to configure ***E16T_2*** with ***TrikdisConfig***.
- **START** – message about ***E16T_2*** connecting to the network.
- **TEST** – periodic test message.

Note:	To enable periodic TEST messages and set their period, go to **CMS reporting -> Settings -> Test period**.

- **Enable** – when selected, the sending of messages is enabled.

You can change the Contact ID code for each event, and also the zone and partition number.

6.9 Restoring factory settings

To restore the communicator's factory settings, you need to click the **Restore** button in the ***TrikdisConfig*** window.

7 Remote configuration

Important:	Remote configuration will work only if: 1. ***Protegus cloud*** is enabled. How to enable cloud is described in section 6.4 ""User reporting" window"; 2. Power supply is connected ("POWER" LED illuminates green); 3. Registered to the network ("NETWORK" LED illuminates green).

1. Start the configuration program ***TrikdisConfig***.
2. In the **Remote access** section enter the communicator's **MAC** number. This number can be found on the device and the packaging sticker.

3. (Optional) in the **System name** field, enter the desired name for the ***E16T_2*** with this Unique ID.
4. Press **Configure**.
5. In the newly opened window click **Read [F4]**. If required, enter the administrator or installer code. To save the password, select **"Remember password"**.
6. Set the necessary settings and when finished, click **Write [F5]**.

8 Test communicator performance

When the configuration and installation is complete, perform a system check:

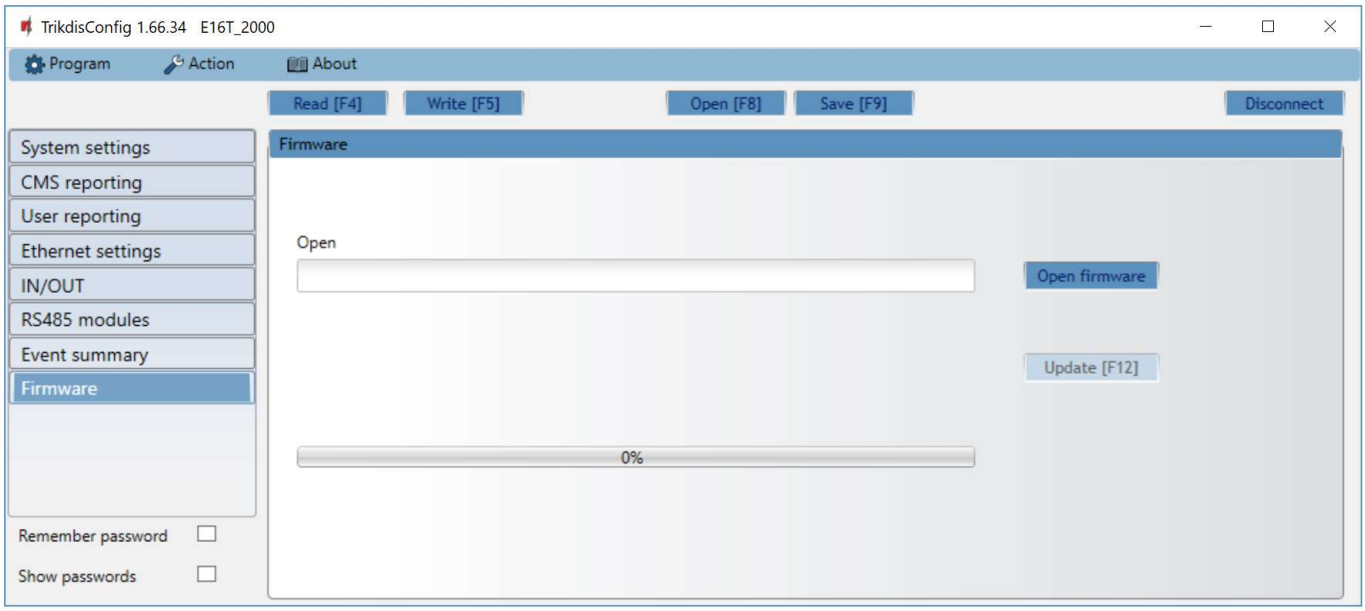
1. Generate an event:
   - by arming/disarming the system with the control panel's keypad;
   - by triggering a zone alarm, when the security system is armed.
2. Make sure that the event arrives to the CMS (central monitoring station) and/or is received in the ***Protegus*** application.
3. To test communicator input, trigger it and make sure to receive the correct event.
4. To test the communicator outputs, activate them remotely and check their operation.
5. If the security control panel will be controlled remotely, arm/disarm the security system remotely by using the ***Protegus*** app.

9 Firmware update

Note:	When the communicator is connected to ***TrikdisConfig***, the program will automatically offer to update the device's firmware if updates are present. Updates require an internet connection. Antivirus software, firewall or strict access to internet settings can block the automatic firmware updates. In this case, you will need to reconfigure your antivirus program.

The communicator's firmware can also be updated or changed manually. After an update, all previously set settings will remain unchanged. When writing firmware manually, it can be changed to a newer or older version. To update:

1. Run ***TrikdisConfig***.
2. Connect the communicator via USB cable to the computer or connect to the communicator remotely.
   - If a newer firmware version exists, the software will offer to download the newer firmware version file.
3. Select the menu branch **Firmware**.



4. Press **Open firmware** and select the required firmware file. If you do not have the file, the newest firmware file can be downloaded by registered users from www.trikdis.com , under the download section of the ***E16T_2*** communicator.
5. Press **Update [F12]**.
6. Wait for the update to complete.

10 Annex

The communicator can work with a SUR-GARD receiver. The communicator converts Contact ID codes received from the alarm control panel into SIA codes.

Contact ID to SIA code conversion table

System Event	CID Report Code	SIA Report Code
Medical alarm	E100	"MA"
Personal emergency	E101	"QA"
Fire in zone: <z>	E110	"FA"
Water flow detected in zone: <z>	E113	"SA"
Pull station alarm in zone: <z>	E115	"FA"
Panic in zone: <z>	E120	"PA"
Panic alarm by user: <v>	E121	"HA"
Panic alarm in zone: <z>	E122	"PA"
Panic alarm in zone: <z>	E123	"PA"
Panic alarm in zone: <z>	E124	"HA"
Panic alarm in zone: <z>	E125	"HA"
Alarm active in zone: <z>	E130	"BA"
Alarm active in zone: <z>	E131	"BA"
Alarm active in zone: <z>	E132	"BA"
Alarm active in zone: <z>	E133	"BA"
Alarm active in zone: <z>	E134	"BA"
Alarm active in zone: <z>	E135	"BA"
Tamper active in zone: <z>	E137	"TA"
Intrusion verified in zone: <z>	E139	"BV"
Alarm active in zone: <z>	E140	"UA"
System failure (143)	E143	"ET"
Tamper active in zone: <z>	E144	"TA"
Tamper active in zone: <z>	E145	"TA"
Alarm active in zone: <z>	E146	"BA"
Alarm active in zone: <z>	E150	"UA"
Gas detected in zone: <z>	E151	"GA"
Water leakage detected in zone: <z>	E154	"WA"
Foil break detected in zone: <z>	E155	"BA"
High temperature at sensor: <n>	E158	"KA"
Low temperature at sensor: <n>	E159	"ZA"
CO detected in zone: <z>	E162	"GA"
Fire failure in zone: <z>	E200	"FS"
Monitored alarm	E220	"BA"
System failure (300)	E300	"YP"
AC power supply loss	E301	"AT"
Low battery	E302	"YT"
System failure (304)	E304	"YF"

System Event	CID Report Code	SIA Report Code
System reset in zone: <z>	E305	"RR"
Panel programming changed	E306	"YG"
System shutdown	E308	"RR"
Battery failure (309)	E309	"YT"
Ground fault	E310	"US"
Battery failure (311)	E311	"YM"
Power supply overcurrent (312)	E312	"YP"
Engineer reset by user: <v> (313)	E313	"RR"
Sounder/Relay failure	E320	"RC"
System failure (321)	E321	"YA"
System failure (330)	E330	"ET"
System failure (332)	E332	"ET"
System failure (333)	E333	"ET"
System failure (336)	E336	"VT"
System failure (338)	E338	"ET"
System failure (341)	E341	"ET"
System failure (342)	E342	"ET"
System failure (343)	E343	"ET"
System failure (344)	E344	"XQ"
System communication failure (350)	E350	"YC"
System communication failure (351)	E351	"LT"
System communication failure (352)	E352	"LT"
System failure (353)	E353	"YC"
System communication failure (354)	E354	"YC"
System failure (355)	E355	"UT"
Fire trouble in zone: <z>	E373	"FT"
Trouble in zone: <z>	E374	"EE"
Trouble in zone: <z>	E378	"BG"
Trouble in zone: <z>	E380	"UT"
Wireless zone fault: <z>	E381	"US"
Wireless module failure (382)	E382	"UY"
Tamper active in zone: <z>	E383	"TA"
Low battery in wireless zone: <z>	E384	"XT"
Trouble in zone: <z> (389)	E389	"ET"
Trouble in zone: <z> (391)	E391	"NA"
Trouble in zone: <z> (393)	E393	"NC"
User <v> disarmed the system	E400	"OP"
User <v> disarmed the system	E401	"OP"
Automatic disarm	E403	"OA"
Deferred disarm <v> user	E405	"OR"
Alarm cancelled by user: <v>	E406	"BC"

System Event	CID Report Code	SIA Report Code
User <v> disarmed remotely	E407	"OP"
Quick disarm	E408	"OP"
Remote disarm	E409	"OS"
Callback request made by CMS	E411	"RB"
Successful data download	E412	"RS"
Entry access denied for user <v>	E421	"JA"
Entry by user <v>	E422	"DG"
Forced Access <z> zone	E423	"DF"
Exit access denied for user <v>	E424	"DD"
Exit by user <v>	E425	"DR"
User <v> disarmed too early	E451	"OK"
User <v> armed too late	E452	"OJ"
User <v> Failed to Disarm	E453	"CT"
User <v> Failed to Arm	E454	"CI"
Auto arm failed	E455	"CI"
Partial arm by user: <v>	E456	"CG"
Exit violation by user: <v>	E457	"EE"
System disarmed after alarm by user: <v>	E458	"OR"
Recent arm <v> user	E459	"CR"
Wrong code entered	E461	"JA"
Auto-arm time extended by user: <v>	E464	"CE"
Device disabled (501)	E501	"RL"
Device disabled (520)	E520	"RO"
Wireless sensor disabled in zone:<z> (552)	E552	"YS"
Zone <z> bypassed	E570	"UB"
Zone <z> bypassed	E571	"FB"
Zone <z> bypassed	E572	"MB"
Zone <z> bypassed	E573	"BB"
Group bypass by user: <v>	E574	"CG"
Zone <z> bypassed	E576	"UB"
Zone <z> bypass cancelled	E577	"UB"
Vent zone bypass	E579	"UB"
Walk test activated by user:<v>	E607	"TS"
Manual test report	E601	"RX"
Periodic test report	E602	"RP"
System event (605)	E605	"JL"
System event (606)	E606	"LF"
Periodic test report with trouble	E608	"RY"
System event (622)	E622	"JL"
System event (623)	E623	"JL"
Time/Date was reset by user <v>	E625	"JT"

System Event	CID Report Code	SIA Report Code
Inaccurate Time/Date	E626	"JT"
System programming started	E627	"LB"
System programming finished	E628	"LS"
System event (631)	E631	"JS"
System event (632)	E632	"JS"
System not active (654)	E654	"CD"
Medical alarm restored	R100	"MH"
Personal emergency restored	R101	"QH"
No more fire alarm in zone :<z>	R110	"FH"
No more water flow alarm in zone:<z>	R113	"SH"
Panic alarm restored in zone:<z>	R120	"PH"
Panic alarm cancelled by user: <v>	R121	"HH"
Panic alarm restored in zone:<z>	R122	"PH"
Panic alarm restored in zone: <z>	R123	"PH"
Panic alarm restored in zone: <z>	R124	"HH"
Panic alarm restored in zone: <z>	R125	"HH"
No more alarm in zone: <z>	R130	"BH"
No more alarm in zone: <z>	R131	"BH"
No more alarm in zone: <z>	R132	"BH"
No more alarm in zone: <z>	R133	"BH"
No more alarm in zone: <z>	R134	"BH"
No more alarm in zone: <z>	R135	"BH"
No more tamper in zone: <z>	R137	"TA"
No more alarm in zone:<z>	R140	"UH"
No more system failure (143)	R143	"UR"
No more tamper in zone: <z>	R144	"TR"
No more tamper in zone: <z>	R145	"TR"
No more alarm in zone: <z>	R146	"BH"
No more alarm in zone: <z>	R150	"UH"
No more gas alarm in zone:<z>	R151	"GH"
No more water leakage alarm in zone: <z>	R154	"WH"
Foil break restored in zone: <z>	R155	"BH"
Temperature has normalized at sensor: <n>	R158	"KH"
Temperature has normalized at sensor: <n>	R159	"ZH"
No more CO alarm in zone: <z>	R162	"GH"
No more fire failure in zone: <z>	R200	"FV"
Monitored restore alarm	R220	"BH"
No more system failure (300)	R300	"YA"
AC power supply OK	R301	"AR"
Battery OK	R302	"YR"
No more system failure (304)	R304	"YG"

System Event	CID Report Code	SIA Report Code
System reset restored in zone: <z>	R305	"RR"
No more battery failure (309)	R309	"YR"
Restore ground fault	R310	"UR"
No more battery failure (311)	R311	"YR"
Restore power supply overcurrent (312)	R312	"YQ"
No more sounder/Relay failure	R320	"RO"
No more system failure (321)	R321	"YH"
No more system failure (330)	R330	"ER"
No more system failure (332)	R332	"ER"
No more system failure (333)	R333	"ER"
No more system failure (336)	R336	"VR"
No more system failure (338)	R338	"ER"
No more system failure (341)	R341	"ER"
No more system failure (342)	R342	"ER"
No more system failure (344)	R344	"XH"
No more system communication failure (350)	R350	"YK"
No more system communication failure (351)	R351	"LR"
No more system communication failure (352)	R352	"LR"
No more system failure (353)	R353	"YK"
No more system communication failure (354)	R354	"YK"
No more system failure (355)	R355	"UJ"
Fire trouble restored in zone: <z>	R373	"FJ"
No more trouble in zone: <z>	R374	"EA"
No more trouble in zone: <z>	R380	"UJ"
No more wireless zone fault: <z>	R381	"UR"
No more wireless module failure (382)	R382	"BR"
No more tamper in zone: <z>	R383	"TR"
Battery OK in wireless zone: <z>	R384	"XR"
No more trouble in zone: <z> (391)	R391	"NS"
No more trouble in zone: <z> (393)	R393	"NS"
User <v> armed the system	R400	"CL"
User <v> armed the system	R401	"CL"
Automatic arm	R403	"CA"
User <v> armed remotely	R407	"CL"
Quick arm	R408	"CL"
Remote arm	R409	“CS”
User <v> armed to Stay mode	R441	"CG"
User <v> armed too early	R451	“CK”
User <v> disarmed too late	R452	“CJ”
User <v> Failed to Disarm	R454	“CI”
Partial Arm by user: <v>	R456	"CG"

System Event	CID Report Code	SIA Report Code
Recent disarm <v> user	R459	“CR”
Device enabled (501)	R501	"RG"
Device enabled (520)	R520	"RC"
Wireless sensor enabled in zone: <z> (552)	R552	"YK"
Zone <z> bypass cancelled	R570	"UU"
Zone <z> bypass cancelled	R571	"FU"
Zone <z> bypass cancelled	R572	"MU"
Zone <z> bypass cancelled	R573	"BU"
Group bypass by user: <v> cancelled	R574	"CF"
Zone <z> bypass cancelled	R576	"UU"
Zone <z> bypass cancelled	R577	"UU"
Vent zone bypass cancelled	R579	"UU"
Walk test deactivated by user <v>	R607	"TE"
Time/Date was reset by user <v>	R625	"JT"
System active (654)	R654	"CD"