# EDM Serial-to-Ethernet Converters


## User Guide

# EDM Serial-to-Ethernet Converters

User Guide (Ver. 2.0 | 2021-09-01)

The user guide is intended for persons who install, configure and maintain industrial Ethernet converters – RS-232/RS-485/RS-422 EDM106 Series (hereinafter referred to as converters). The manual contains information about the purpose, design, technical parameters and operating principles of the converters.

ADGT systems s.r.o. reserves the right, without any prior notice, to make changes to the User Guide, related to the improvements of hardware and software, as well as to eliminate typos and inaccuracies.

# Content

# Chapter 1. Product Overview

## Purpose

EDM106 – a series of bidirectional interface converters for connecting the devices with RS 232/RS 485/RS-422 interfaces to Ethernet networks. Data received on the Ethernet port over a TCP channel are transmitted to the serial ports. Data received on the serial ports are transmitted in TCP packets over Ethernet.

Converters are designed for data transmission in systems for automation, dispatching and resource accounting. The presence of independent interfaces RS-232, RS-485 and RS-422 allows to use the converter to connect a wide range of devices: meters, controllers, sensors, actuators, PLCs, etc.


*Fig. 1. Converter EDM106.*

The series includes the following models:

- **EDM106** – converter with non-isolated RS-485 interfaces.
- **EDM106-G** – converter with galvanically isolated interface RS-485 (package includes the terminating resistor 120 Ohms and PVC tubing (Cambrick)).

## Converter's features

- Independent interfaces RS-232, RS-485/RS-422 for connecting industrial devices. Connection of up to 256 devices via RS 485/RS-422 interfaces.
- 8.5V output for power supply of external devices.
- 32-bit microcontroller, processing the network traffic efficiently.
- Operating modes TCP server and TCP client.
- Built-in DHCP-client and DNS-client.
- Watchdog reboot timer that protects the device from freezes and failures.
- Configuration of the converter through a simple and user-friendly web interface, as well as through the console.
- Extended LED indication of: power supply, connectivity and activity of each port.
- The compact metal housing, allowing to install the converter into the telecommunication and electrical cabinets.
- Supply voltage range: 10–30V DC.
- Wide operating temperature range: -40…+70°C.

## Scope of application

EDM106 converters are widely used in automated systems for monitoring and control of technological objects and processes, allowing to poll the meters, to manage the loads, to perform remote configuration and administration of industrial devices remotely.

# Technical specifications

*Table 1. Converter EDM106. Technical specifications.*

| Parameter | Description |
|---|---|
| **Microcontroller STM32F207VCT** | |
| Processor | ARM 32-bit Cortex™-M3 120 MHz |
| Flash-memory | 256 Kb |
| RAM | 128 Kb |
| **Interfaces** | |
| Ethernet (x1) | RJ-45, 10/100 Base-TX. Transmition protocol: TCP/IP |
| RS-232 (x1) | DB-9F (COM-port) |
| RS-485 (x2)/RS-422 (x1) | Connector – terminal block (**XP1**, **XP2**: terminals **A1**, **B1**, **A2**, **B2**);<br>type of mating part - terminal block with screw connector (step – 3.81mm).<br>Max. communication range — up to 1000 m at 115200 bit/sec.<br>Load capability: up to 32 units of load or up to 256 devices with 1/8 of load capability. Terminal resistor: pluggable (120 Ohm). Galvanical isolation: optional (in the model **EDM106-G**) |
| Output 8.5V (x1) | 8.5V output for power supply of external devices. Load current - up to 50 mA.<br>Connector – terminal block (**XP2**: terminal **VO**), step - 3,81 mm. |
| PWR (x1) | Connector – RJ-12, power supply voltage 10-30 V. |
| **Parameters of serial interfaces** | |
| Port speed | 600-115200 bit/sec |
| Number of data bits | 7, 8 |
| Parity check | none, odd, even |
| Stop bit length | 1, 0.5, 1.5, 2 |
| Flow control | enable / disable |
| Transmitted signals | **RS-232**: TxD, RxD, RTS, CTS<br>**RS-485**: Data A (+), Data B (-)<br>**RS-422**: Y+, Z-, A+, B- |
| **Power supply** | |
| Power supply voltage | 10...30 V DC |
| Power consumption | max. – 1.5 W |
| Connector | Connector – terminal block (**XP2**: terminals **G**(-) and **VI**(+)), step - 3,81 mm.<br>Connector – RJ-12 |
| **Mechanical parameters** | |
| Dimensions (L x W x H) | 76 x 65 x 35 mm |
| Weight | 122 g |
| Material of housing | aluminum alloy (IP30) |
| Installation options | DIN-rail, wall-mounted, desktop (rubber feet) |
| MTBF | 100 000 hours |
| Average service life | 10 years |
| **Operating conditions** | |
| Operating temperature | -40...+70°C |
| Relative air humidity | no more than 95% at temperature +35°C |

## Product appearance

Design of the converter provides a metal housing with an IP30 protection class. Description of connectors and buttons at the panels of the device case is presented on Fig. 2.

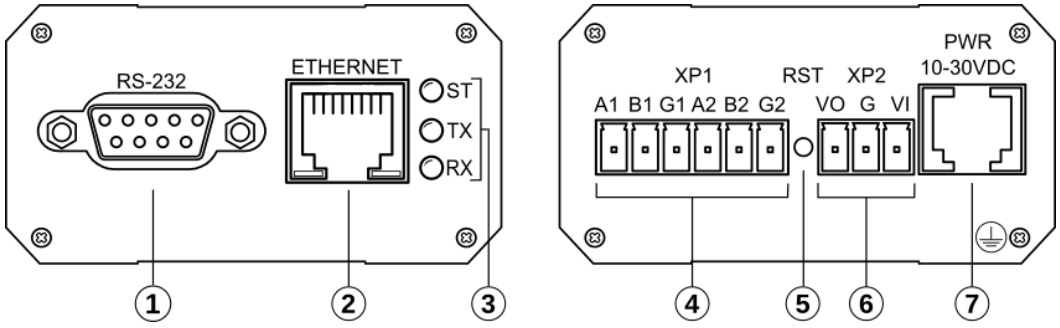



*Fig. 2. Converter EDM106. Device appearance.*

*Table 2. EDM106. Description of contacts and connectors.*

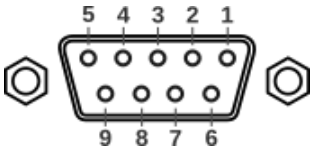
| № | Connector | Contact | Description | |
|---|---|---|---|---|
| **Front panel view** | | | | |
| **1** | **RS-232** | | Interface RS-232, connector – DB9-F | |
| **2** | **ETHERNET** | | Ethernet 10/100Base-TX, connector – RJ45 | |
| **3** | **ST**, **TX**, **RX** | | LED indicators **ST**, **TX**, **RX** | |
| **Back panel view** | | | | |
| **4** | **XP1** Connector - breakaway terminal block | A1 | Signal "A+" RS-485 (1) | Output "Y+" of RS-422 line |
| | | B1 | Signal "B-" RS-485 (1) | Output "Z-" of RS-422 line |
| | | T/T1 (G/G1)[1] | Lead of the pluggable terminal resistor 1 (connect with output B/B1 ("B-") to plug-in) | |
| | | A2 | Signal "A+" RS-485 (2) | Output "A+" of RS-422 line |
| | | B2 | Signal "B-" RS-485 (2) | Output "B-" of RS-422 line |
| | | T2 (G2)[1] | Lead of the pluggable terminal resistor 2 (connect with output B2 ("B-") to plug-in) | |
| **5** | **RST** | | Reset / Switch to console mode button | |
| **6** | **XP2** Connector - breakaway terminal block | VO | Output 8.5B for power supply of external devices | |
| | | G | Ground | |
| | | VI | Low voltage power input 10-30 VDC | |
| **7** | **PWR** Connector - 6P6C | 1 | Low voltage power input 10-30 VDC | |
| | | 2,3,4,5 | Not used | |
| | | 6 | Ground | |

1 EDM106: T (T1, T2) – terminal resistor output.
EDM106-G: G (G1, G2) – isolated ground connector.

## Connector DB-9F of RS-232 interface

Interface RS-232 of converters EDM106 has the standard 9-pin connector DB-9F. The pinout of the connector is shown in Table 3.

*Table 3. Pinout of DB9-F connector.*




| Pin | Parameter |
|---|---|
| 1 | Output DCD |
| 2 | Output TX |
| 3 | Input RX |
| 4 | Input DTR |
| 5 | Ground |
| 6 | Output DSR |
| 7 | Input CTS |
| 8 | Output RTS |
| 9 | Output RING |

## LED Indication

The converters have three LED indicators:

- RX – data reception,
- TX – data transmission,
- ST – indication of the connection of serial ports on TCP.

**Algorithm of ST indicator operation:**

Three timeslots of 1.2 s. for each interface (total - 3.6 s.):

- Timeslot 1 – RS-232: one flash – 500 ms, pause – 700 ms.
- Timeslot 2 – RS-485(1): two flashes – 250 ms each, pauses – 350 ms.
- Timeslot 3 – RS-485(2): three flashes – 150 ms each, pauses – 250 ms.

Pause between the indication periods – 3.6 s.

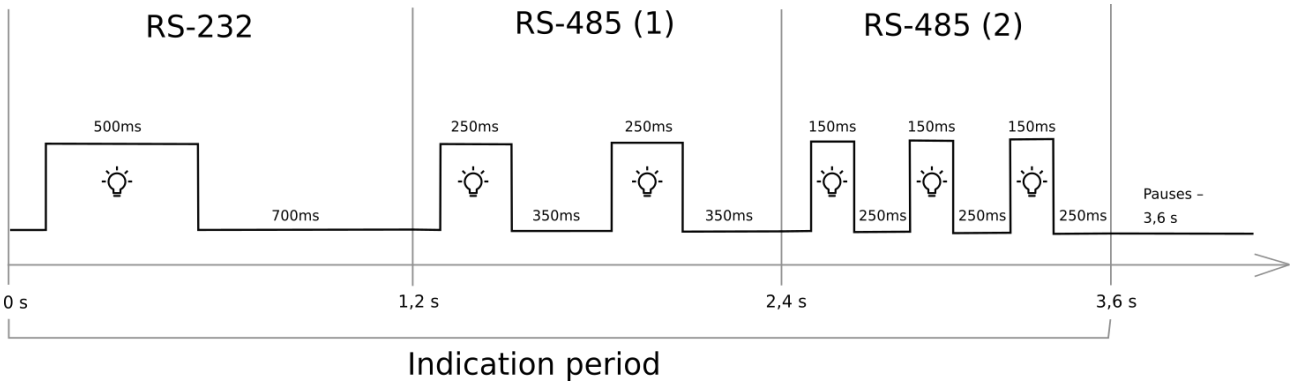



*Fig. 3. Algorithm of ST indicator operation.*

*Table 4. Modes of indication.*

| | ST | RX | TX |
|---|---|---|---|
| **No power /<br>Connection standby mode** | – | – | – |
| **Power connection /<br>Resetting the device /<br>Factory settings reset** | ST LED-indicator is on for 1 second, and then all LEDs flash once alternately (from bottom to top and from top to bottom) | | |

# Chapter 2. Operating the converter

## Connection and installation

1. Connect external 12V power to terminals G and VI of the terminal block **XP2** or to connector 6P6C **(PWR)**.
2. Connect the device to a local network (to a LAN hub or to a PC) using an Ethernet cable.
3. Connect the equipment with RS-232 and/or RS-485 interfaces to the corresponding connectors of the converter.

   **Attention!** For the models of converters with isolated RS-485 interfaces, fix the terminal resistor in the isolated PVC tube and connect its contacts to terminals "A" and "B".
4. To configure the converter through the web interface, launch a browser and enter into the address line the default IP address of the device: **192.168.88.1**.
5. An authorization window will appear in the browser window after the successful connection. Default authorization data:
   - username – *adgt*
   - password – *adgt*.

   The password can be changed in the **General Settings** section.

   **Attention!** After three incorrect attempts to enter the username/password, the access to the device will be blocked for 30 seconds.
6. Configure the parameters of Ethernet and serial interfaces. By default, the serial ports are in the ***Disabled*** state. Save the settings using the **Setup** button. List of configurable parameters and the values of default parameter are available in section Configuring the converter through the web interface.

   **Attention!** When changing the used Ethernet standard in the network, to which the converter is connected, for example, from 10BASE-T to 100BASE-T and vice versa, restart the converter for the correct operation of the device.
7. Install the device. Depending on the type of mounting version, EDM106 converter can be placed horizontally, on a flat surface, or mounted on a wall or on a DIN-rail (see sticker at the housing for mounting options).

### DIN-rail installation

For installation of converter onto a standard 35 mm DIN rail (**H**, **V** mounts), the delivery pack includes a set of plastic mounts (brackets). **Mounting kit H** includes 2 brackets and 4 self-tapping screws. **Mounting kit V** includes 1 bracket and 2 self-tapping screws. To install the converter on a DIN rail, attach the brackets with self-tapping screws to the holes on the device housing (2 self-tapping screws for one bracket).

Installation of converter with **R-type mount** is performed onto a standard 35 mm DIN rail using a metal plate with a clamp on the device housing.

### Wall mounting

The converter with **T-type mount** is installed onto the wall with use of the metal mounting plate and two screws. Two plastic dowels with screws are included into the delivery pack.

# Configuring EDM Converter

The EDM106 converter can be configured in two ways: through the web interface and through the console port (port RS-232).

## Configuring Converter via Web Interface

### Setting up a local connection in Windows 10

After connecting converter to a PC or LAN hub, it is necessary to configure the local connection. Perform the following steps to change the network parameters:

1. In Windows 10, click **Start → Settings → Network and Internet**.
2. Enter **Change adapter options**.

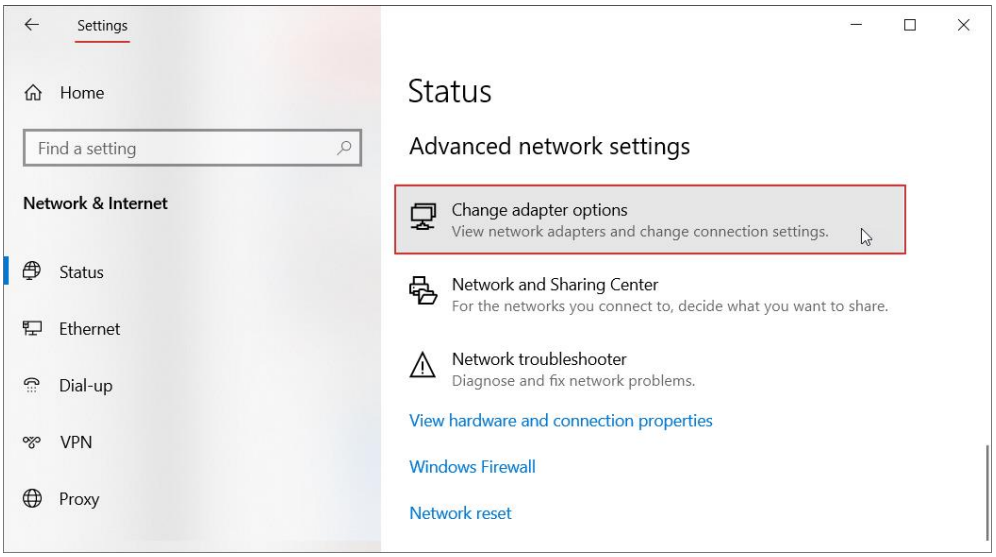



*Fig. 4. Menu "Change adapter options".*

3. Right-click network adapter of the converter and then choose **Properties**.

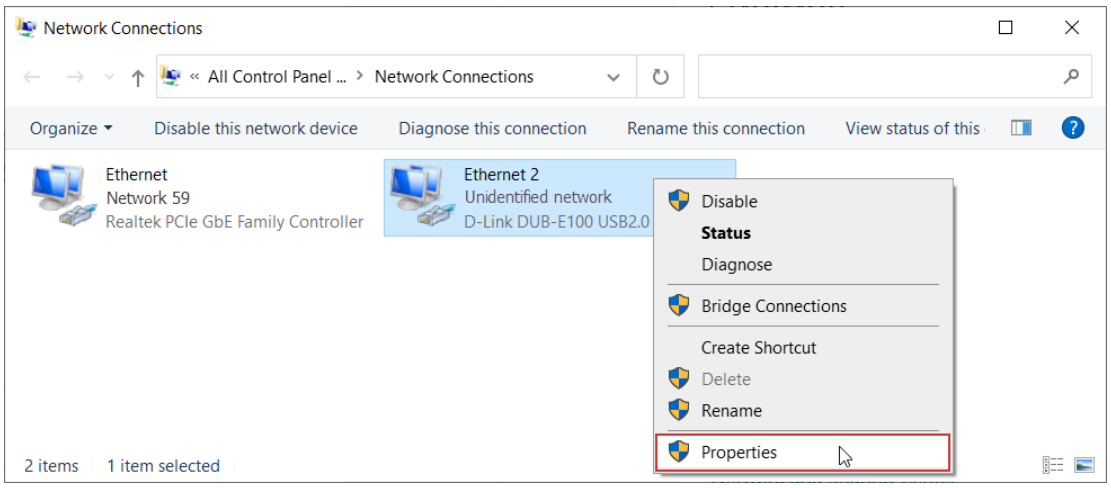



*Fig. 5. Ethernet adapter properties.*

4. In the dialog box that opens, select the item **Internet Protocol version 4 (TCP/IPv4)** and click **Properties** button.

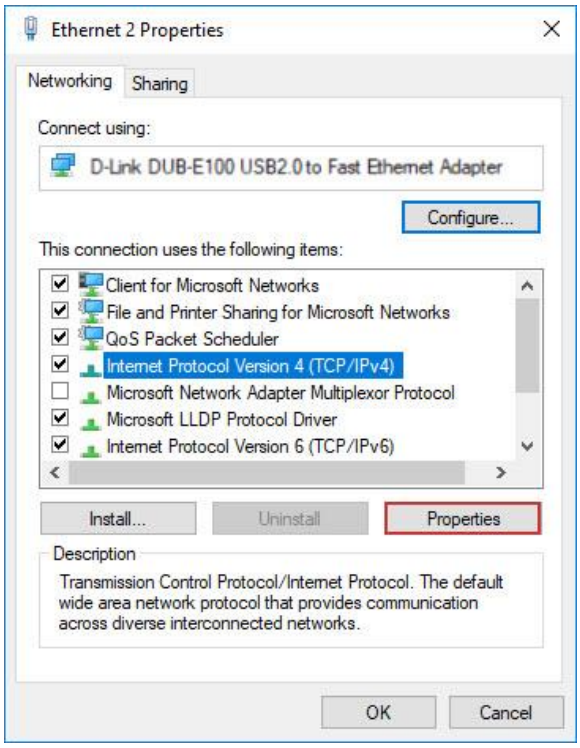



*Fig. 6. Internet Protocol version 4 (TCP/IPv4).*

5. In the protocol settings, select **Use following IP address** and fill the lines **IP-address** and **Subnet mask** manually.

   The IP-address for local connection must belong to the same subnet as the IP-address of the converter. The converter has the following default settings:

   - **IP-address: 192.168.88.1**
   - **Subnet mask: 255.255.255.0**

   Accordingly, the IP-address in the connection settings must be the same as the address of the converter, except for the last digits. The last digits can be any from 0 to 254 (except 0 and 254) as, for example:

   - **IP-address: 192.168.88.2**
   - **Subnet mask: 255.255.255.0**

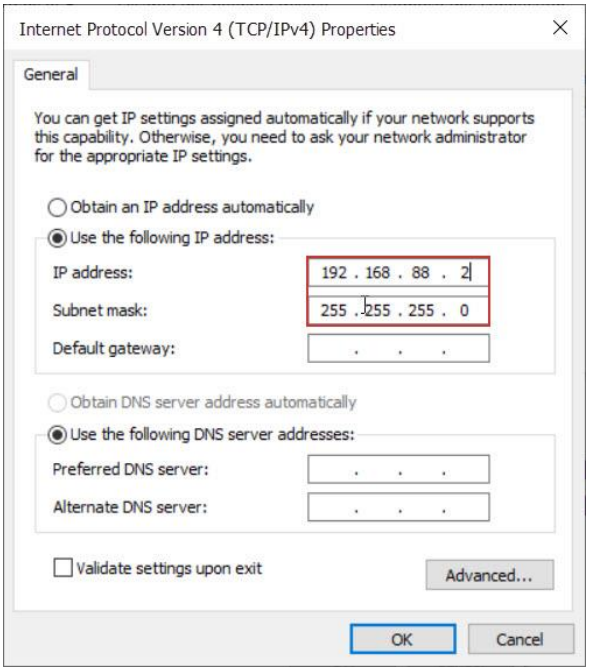



*Fig. 7. Configuring the IP-address of the local connection.*

**Note:** *if the converter is connected to the network directly, it is not necessary to specify the* ***Default gateway****. If the converter is located in the subnet which differs from the PC's one, the IP-address of the converter must be specified as the gateway.*

6. Click **OK**. If the connection was successful, you can proceed to configuring the device through the web interface.

## Configuring converter parameters

1. Launch the browser and go to the device configuration page by IP-address **192.168.88.1**, after which the authorization window will open.
2. Enter your username and password to enter the web interface. Default authorization data are:
   - username – **adgt**
   - password – **adgt**

> **Attention!** After three incorrect attempts to enter a username / password, access to the device will be blocked for 30 seconds.

After the successful authorization, the main page of the web interface with the current settings of the device will appear in the browser window.

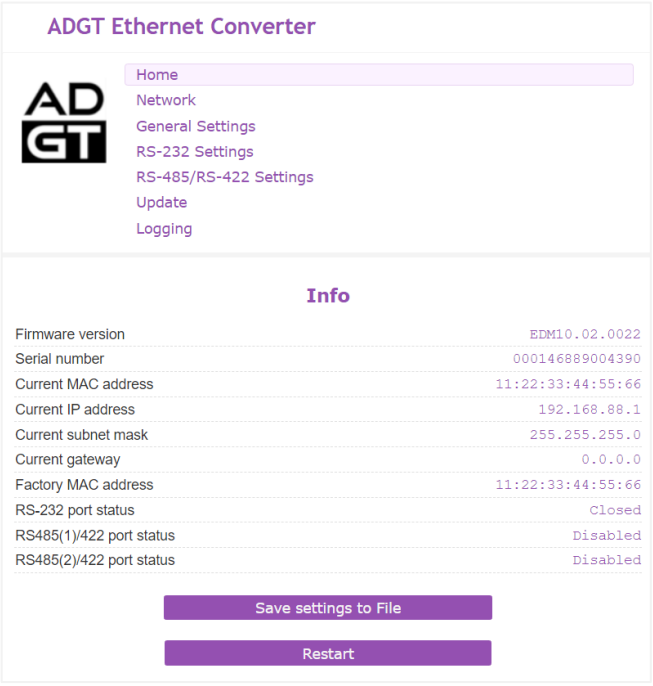



*Fig. 8. Converter EDM106. Main page of web interface.*

> **NOTES:**
> - You can set a new password in the **General settings** menu.
> - If the current settings of the device are unknown, it is necessary to reset the settings to the factory values (see Reboot and factory reset).

3. In the **Network** menu, configure the Ethernet network settings and save changes using **Submit** button.

*Table 5. Network settings.*

| Parameter | Default value | Possible values |
|---|---|---|
| MAC-address | Use factory | • **Use factory** - indicated on the sticker of the case<br>• **Set manually** |
| IP-address | 192.168.88.1 | • **Use the following IP address** - static address, default one or manually entered one<br>• **Obtain automatically** - from DHCP-server |
| Subnet mask | 255.255.255.0 | |
| Default gateway | 0.0.0.0 | |
| DNS server address | 0.0.0.0 | |

4. In the **RS-232 Settings** and **RS-485/RS-422 Settings** menues, configure parameters of the serial ports in accordance with the settings of the connected equipment. For each port, select the operating mode **Client** or **Server** and set its parameters.

   Save changes using the **Submit** button.

*Table 6. Configuring serial ports.*

| Parameter | Default value | | Possible values |
|---|---|---|---|
| | **RS-232** | **RS-485/RS-422** | |
| State | Enabled<br>--------<br>*Closed*<br>in menu **Home** | Disabled port 1 and port 2<br>--------<br>*Disabled*<br>in menu **Home** | **RS-232**: disabled/enabled<br>**RS-485**: disabled port 1 and port 2/<br>enabled port 1/<br>enabled port 2/<br>enabled port 1 and port 2<br>**RS-422**: disabled port 1 and port 2/<br>enabled port RS-422 |
| **Operation mode "TCP-server" (default)** | | | |
| Port number | 60001 | RS-485(1): 60002<br>RS-422: 60002<br>RS-485(2): 60003 | Number of TCP-port of server |
| List of allowed Client IP-addresses (IP1-IP5) | 0.0.0.0<br>("White" list disabled,<br>all connections are allowed) | | "White" list of IP-addresses of clients (*up to 5 addresses*), which are allowed to connect the converter, when it operates in the "Server" mode |
| Maximum number of incoming connections | 2 | | 2, 1 |
| **Operation mode "TCP-client"** | | | |
| Port number | 60001 | RS-485(1): 60002<br>RS-422: 60002<br>RS-485(2): 60003 | Port of TCP-server, to which the connection will be made |
| Server IP address | 0.0.0.0<br>(not specified) | | IP-address of server, to which the connection will be made |
| Authorization type | No authorization | | No authorization, ADGT |
| Serial number | Each port has its own serial number | | 15-digit number for registration on the server (when choosing an authorization type ADGT) |
| | | | |
| Clearing the input buffer on connection | not clear | | not clear, clear |
| Maximum TCP Packet Length | 1024 byte | | 1 – 1024 byte |
| Force Transmit Timeout | 10 ms | | 1 – 10000 milliseconds |
| Inactivity Time | 30 sec | | 1 – 216000 seconds |
| Ping IP Address | 0.0.0.0<br>(connection check disabled) | | To enable connection check, specify the IP-address to ping the connection (ICMP-echo) |
| Ping Request Frequency | 30 sec | | 10 seconds – 43200 seconds |
| Flow Control | Disabled | | Enabled, Disabled |
| Baud Rate | 9600 | | 600-115200 bit/sec |
| Data bits | 8 | | 8, 7 |
| Parity | No check | | Even, Odd, No check |
| Stop bits | 1 | | 1, 0.5, 1.5, 2 |

5. In the **General settings** section, you can, if necessary:
   - set a new password to access the converter settings;
   - set the time of periodic system reboot of converter (in hours);
   - reset converter settings to factory values;
   - specify a white list of IP-addresses.

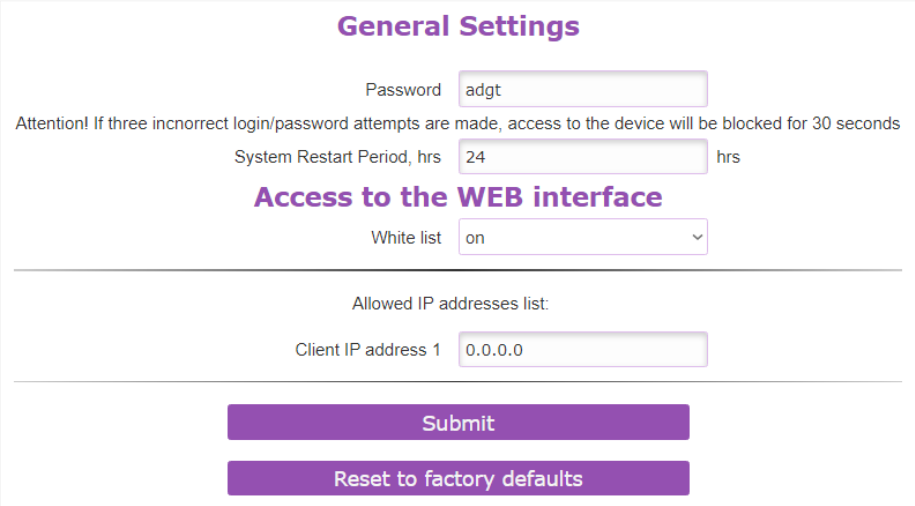



*Fig. 9. Web interface of converter. General settings.*

*Table 7. General settings.*

| Parameter | Default value | Possible values |
|---|---|---|
| Password | adgt | from 1 to 10 characters<br>(Latin letters of different case, numbers) |
| System reboot timeout | 24 hours | from 0 (disabled) to 168 hours (7 days)<br>Step - 1 hour. |

## Configuring Converter via Console port (RS-232)

In cases where access to the converter via Ethernet is not possible, the device can be configured through the RS-232 console port (COM-port):

1. Connect the converter to the PC using a console cable with a DB-9F – DB-9M connector. Connect one end of the cable to the DB-9F connector of the converter, connect the other end to the COM port on the PC. If your computer does not have a COM port, use a COM-USB converter. The COM-port number of the connected device can be seen in the section **Device Manager → Ports (COM & LPT)**.
2. Switch the converter to console mode: press **RESET** button on the device case and hold it pressed for at least 3 seconds. In console mode, RS-232 port operates at speed of 115200 bps.
3. Open any terminal program on your PC, for example *PuTTY*. In the connection window, select **Serial connection**, enter the COM-port number of the converter, the port speed (**115200**) and click **Open**.
4. To access the settings in the console window, enter the password (default – *adgt*):

   `passw adgt`

   The responce will be:

   `Authorization successful` — if the password is correct;

   `Incorrect password` — if the password is wrong.

For a list of commands for reading and changing the parameters, see Appendix 1. List of commands for configuring the converter through the console port.

# Reading Logs

You can view the converter logs in the web interface in the **Logging** menu (Fig. 10). The debug window displays information about the operating modes and status of serial ports, states of connection and authorization, connection errors, the amount of received data, etc.

Log output can be started (by **Start** button), interrupted (by **Stop** button), as well as saved into *.txt* text file (by **Save to file** button).

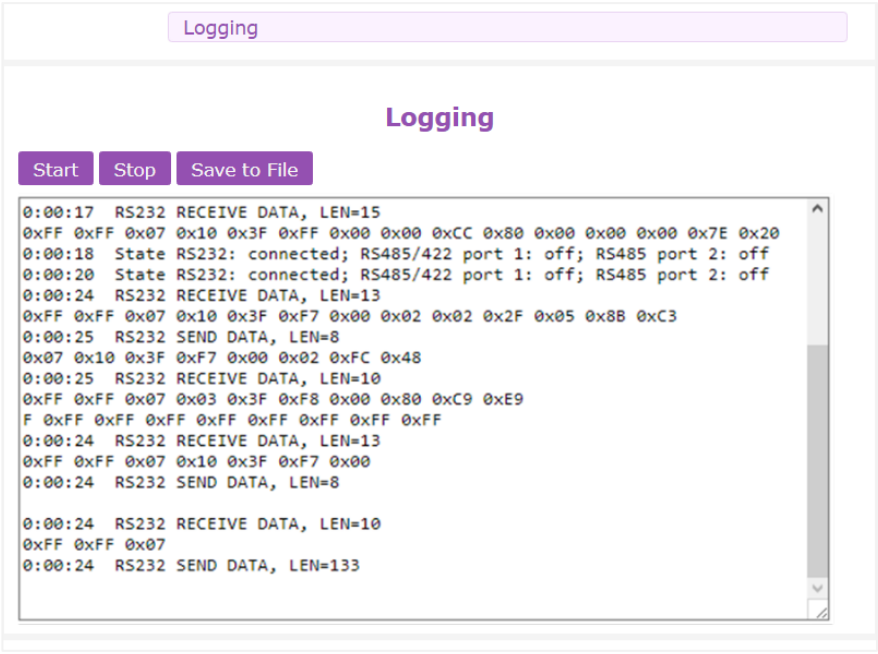



*Fig. 10. Debug messages.*

# Reboot and factory reset

### Rebooting converter

To reboot the device click **Restart** button in the **Home** menu.

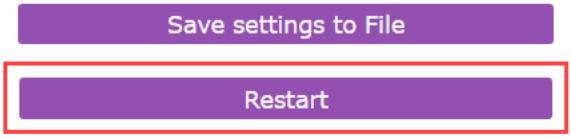



*Fig. 11. Rebooting the converter.*

### Reset to factory settings

You can perform a factory reset in two ways:

**Via web interface:**

In the **General settings** menu, click the **Reset to factory defaults** button.

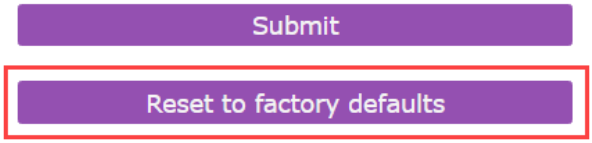



*Fig. 12. Settings reset.*

**With the RESET button:**

To reset the settings, press the **RESET** button on the device housing with a thin object simultaneously with turning on the power and hold the button pressed for about 5 seconds.

# Firmware and Configuration Updates

## Firmware update

To update the firmware version of the converter:

1. Download the archive with the current firmware version from the website adgt.cz.
2. In the menu **Update** → **Firmware update**, specify the path to the firmware file with the extension *.crt* and click **Upload**.
3. After the firmware is updated, the message **File is successfully uploaded. Rebooting is in progress** appears, and you will be automatically redirected to the main page of the web-interface.

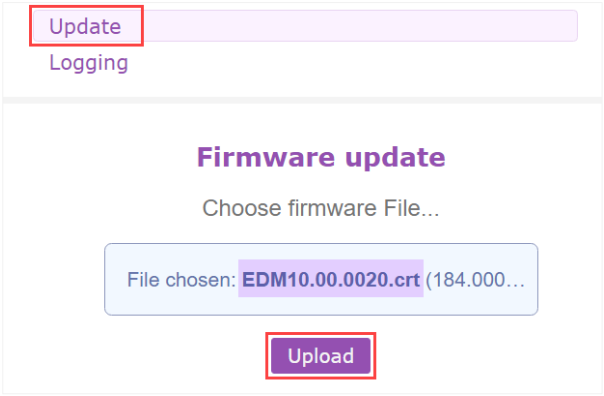



*Fig. 13. Converter firmware update.*

## Saving and Restoring the Configuration Settings

To *save* the current settings into a separate file (configuration file), in the **Home** menu click **Save settings to File** button and save the file with the **.cfg** extension into a folder on your PC.

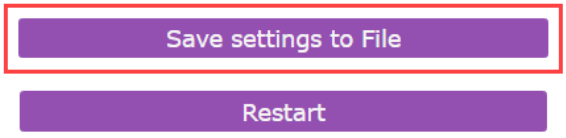



*Fig. 14. Saving the configuration file.*

To *restore* the settings from a file, specify the path to the **.cfg** file in the **Update** → **Configuration update** menu, and click the **Upload** button.

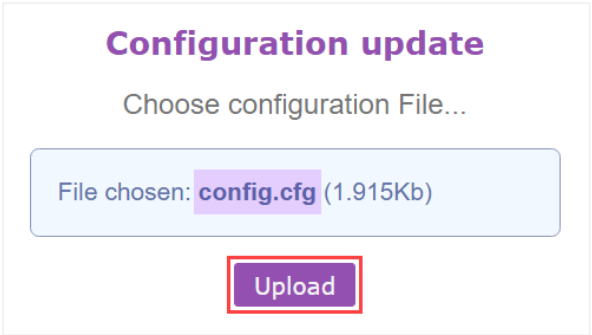



*Fig. 15. Restoring the configuration from file.*

# Appendix 1. List of commands for configuring converter via the console port

When operating the converter through the console port, the user can both read and change the current converter settings. The list of commands is given in the Table 8.

**To access the settings** in the console window, enter the password (default – *adgt*):

```
passw adgt
```

The responce will be:

`Authorization successful` — if the password is correct;

`Incorrect password` — if the password is wrong.

**To request the parameter value,** enter the command: *get, space, parameter name*. For example,

```
get rs485_2_port
```

**To change the value of a parameter**, enter the command: *get, space, parameter name, space, parameter value*. If the value is within the allowed limits, it will return in response *Set OK*. For example,

```
set fixed_ip 192.168.88.1
```

*Table 8. List of commands for configuring the converter.*

| Command | Description | Note | Feature[2] |
|---|---|---|---|
| /?<br>help | List of available commands | | R |
| curr_gw | Current network gateway | | R |
| curr_ip | Current IP-address | | R |
| curr_mac | Current MAC-address | | R |
| curr_mask | Current subnet mask | | R |
| def_mac | Factory MAC address | | R |
| dhcp_client | Use set IP-address or get it from DHCP | 0 – set,<br>1 – from DHCP | R/W |
| firmware | SW version | | R |
| fixed_dns | DNS-server address | | R/W |
| fixed_gw | Defined default gateway | | R/W |
| fixed_ip | Manually defined IP-address | | R/W |
| fixed_mask | Defined net mask | | R/W |
| mode_rs485 | State of interface RS485/RS-422 | 0 – Disabled port 1 and port 2<br>1 – Enabled port 1<br>2 – Enabled port 2<br>3 – Enabled port 1 and port 2<br>4 – Enabled port RS-422 | R/W |
| password | Password to access settings | from 1 to 10 characters (latin letters of different case, numbers) | R/W |
| **Settings of RS-232 interface** | | | |
| rs232_auth | Authorization type | 0 – no autorization<br>1 – authorization ADGT | R/W |
| rs232_baud | Interface port speed | from 600 to 115200 bit/sec | R/W |
| rs232_check_period | Ping Request Frequency | from 10 to 43200 seconds | R/W |

[2] R – read-only command, R/W – read and write command.

| | | | |
|---|---|---|---|
| rs232_check_port | Server port number to check TCP connection | | R/W |
| rs232_check_server | Server IP address to check TCP connection | | R/W |
| rs232_flow_control | Flow control | 0 – Disabled<br>1 – Enabled | R/W |
| rs232_idle_time | Inactivity Time | from 1 to 216000 seconds | R/W |
| rs232_ip_client1 | Allowed IP-address of Client 1 for Server mode | The same way<br>for Clients 2-5 | R/W |
| rs232_mode | Operation mode | 0 – Client<br>1 – Server | R/W |
| rs232_parity | Parity | 1 – even<br>2 – odd<br>0 – no check | R/W |
| rs232_port | Port number | | R/W |
| rs232_power | State | 0 – Disabled<br>1 – Enabled | R/W |
| rs232_remote | Interface state | Disabled, Closed, IP-address, if connected | R |
| rs232_serial | Serial number for ADGT authorization type | | R |
| rs232_server | Server address for Client mode | | R/W |
| rs232_size_pack | Maximum TCP Packet Length | from 1 to 1024 byte | R/W |
| rs232_stop_bit | Stop bits | 0 – 1 character<br>1 – 0.5 characters<br>3 – 1.5 characters<br>2 – 2 characters | R/W |
| rs232_time_wait_pack | Force Transmit Timeout | from 1 to 10000 milliseconds | R/W |
| rs232_world | Data bits | 0 – 8 bit<br>1 – 7 bit | R/W |
| **Settings of RS-485/RS-422 interface, port 1** | | | |
| rs485_1_auth | Authorization type | 0 – No authorization<br>1 – ADGT authorization | R/W |
| rs485_1_baud | Interface port speed | from 600 to 115200 bit/sec | R/W |
| rs485_1_check_period | Ping Request Frequency | from 10 to 43200 seconds | R/W |
| rs485_1_check_port | Server port number to check TCP connection | | R/W |
| rs485_1_check_server | Server address to check TCP connection | | R/W |
| rs485_1_flow_control | Flow control | 0 – Disabled<br>1 – Enabled | R/W |
| rs485_1_idle_time | Inactivity Time | from 1 to 216000 seconds | R/W |
| rs485_1_ip_client1 | Allowed IP-address of Client 1 for Server mode | The same way<br>for Clients 2-5 | R/W |
| rs485_1_mode | Operation mode | 0 – Client<br>1 – Server | R/W |
| rs485_1_parity | Parity | 1 – even<br>2 – odd<br>0 – no check | R/W |
| rs485_1_port | Port number | | R/W |
| rs485_1_remote | Interface state | Disabled, Closed, IP-address, if connected | R |
| rs485_1_serial | Serial number for ADGT type of authorization | | R |
| rs485_1_server | Server address for Client mode | | R/W |
| rs485_1_size_pack | Maximum TCP Packet Length | from 1 to 1024 byte | R/W |
| rs485_1_stop_bit | Stop bits | 0 – 1 character<br>1 – 0.5 characters<br>3 – 1.5 characters<br>2 – 2 characters | R/W |

| | | | |
|---|---|---|---|
| rs485_1_time_wait_pack | Force Transmit Timeout | from 1 to 10000 milliseconds | R/W |
| rs485_1_world | Data bits | 0 – 8 bit<br>1 – 7 bit | R/W |
| **Settings of RS485/422 interface, port 2** | | | |
| rs485_2_auth | Authorization type | 0 – No authorization<br>1 – ADGT authorization | R/W |
| rs485_2_baud | Interface port speed | from 600 to 115200 bit/s | R/W |
| rs485_2_check_period | Ping Request Frequency | from 10 to 43200 seconds | R/W |
| rs485_2_check_port | Server port number to check TCP connection | | R/W |
| rs485_2_check_server | Server address to check TCP connection | | R/W |
| rs485_2_flow_control | Flow control | 0 – Disabled<br>1 – Enabled | R/W |
| rs485_2_idle_time | Inactivity Time | from 1 to 216000 seconds | R/W |
| rs485_2_ip_client1 | Allowed IP-address of Client 1 for Server mode | The same way<br>for Clients 2-5 | R/W |
| rs485_2_mode | Operation mode | 0 – Client<br>1 – Server | R/W |
| rs485_2_parity | Parity | 1 – even<br>2 – odd<br>0 – no check | R/W |
| rs485_2_port | Port number | | R/W |
| rs485_2_remote | Interface state | Disabled, Closed, IP-address, if connected | R |
| rs485_2_serial | Serial number for authorization ADGT | | R |
| rs485_2_server | Server address for Client mode | | R/W |
| rs485_2_size_pack | Maximum TCP Packet Length | from 1 to 1024 byte | R/W |
| rs485_2_stop_bit | Stop bits | 0 – 1 character<br>1 – 0.5 characters<br>3 – 1.5 characters<br>2 – 2 characters | R/W |
| rs485_2_time_wait_pack | Force Transmit Timeout | from 1 to 10000 milliseconds | R/W |
| rs485_2_world | Data bits | 0 – 8 bit<br>1 – 7 bit | R/W |
| **Basic settings** | | | |
| time_reboot | Non-conditional reset timer, in hours | 0 – Disabled<br>1–168 – Enabled, in hours | R/W |
| user_mac | User-defined MAC-address | 0 – Use factory set<br>1 – Set user-defined one | R/W |
| utilize_user_mac | Which MAC-address to use | | |

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