HT E21 / E22
Ethernet Terminal
User Manual



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PROPER USE AND SAFETY REQUIREMENTS



Cut all the power when connecting and disconnecting the device to a panel.



Do not clean the device with a solvent or similar material. Only use a dry cloth.



Please do not intervene to the device when a technical problem is encountered and get in contact with a technical service within the shortest time.



If the warnings are not taken into account, our company or the authorized dealer shall not be held responsible for the negative consequences.



Do not dispose in the trash, the device must be delivered to the collection centers (electronic device recycling centers). It should be recycled or disposed of without harming human health and environment.



The installation, assembly, activation and operation of the device should be done and used by only expert professionals and in accordance with safety regulations and instructions.

1. INTRODUCTION

1.1. General Features

HT E21 and HT E22 Ethernet communication terminals are designed for remote monitoring of electronic electricity meters and devices such as power factor controllers and energy analyzers that support Modbus protocol. It provides communication with electricity meters via optical, RS-232 (3-wire) or RS-485 (2-wire) communication ports, and with devices with Modbus protocol via RS-485 port.

In order for the communication terminal to establish an internet connection, it must be connected to the company's internet network via an Ethernet cable. If the cable distance will exceed 70 meters, CAT-6 cable should be preferred. If dynamic IP is distributed with DHCP on the network to which the device is connected, it will automatically receive IP and try to access the internet. If DHCP is turned off, a static IP setting should be made by connecting to a computer via the USB port of the device.

The required setting program can be downloaded from the Documents -> Software section of our website at www.gruparge.com. HT E21 and HT E22 communication terminals query the data on the devices to which they are connected and send it to the Grup Arge servers via the company's internet network.

With the user account provided to you, you can access the data of all your devices by visiting our website at www.enerjitakibi.com

The main reports presented on the web interface are as follows:

- Active Consumption Reports
- Reactive Rate Reports
- Instant Electrical Parameters Such as Current, Voltage
- Step Values (Only for Power Factor Controllers)

In addition, in certain alarm situations, the system notifies the relevant persons via e-mail and SMS alerts.

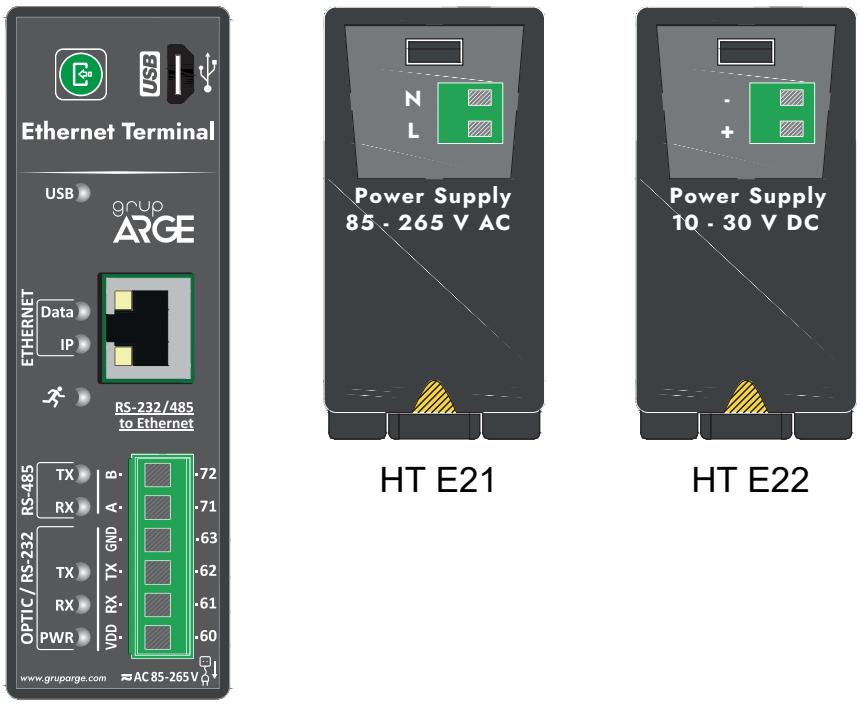
1.2. Basic Features

- Microprocessor based.
- HT E21 Ethernet Terminal operates with 85-265 V AC supply.
- HT E22 Ethernet Terminal operates with 10-30 V DC supply.
- RS-485 Standard Modbus RTU protocol supports RS-232 and optical port communication channels.
- It can communicate with all meters that support TS EN 62056-21 protocol.
- 32 meters or 247 Modbus devices can be read via RS-485 and 1 Modbus device can be read via RS-232.
- One meter can be read via optical reader and RS-232.

- It has LEDs indicating USB, Power, RS-485/Optical (Communication), IP and Internet status.
- Data sending period can be set between 1-240 minutes.
- It has a system architecture that does not require static IP. In cases where static IP is mandatory, the necessary settings can be made via the USB port on it.
- The operating ambient temperature of the device is between -10 °C and +55 °C.
- Supply consumption power is less than 1 VA.
- It has IP40 protection class.
- The dimensions of the device are (Width-Length-Depth) 35 x 110 x 80 mm.

1.3. Terminal Connections

	Ethernet	Ethernet Cable Input
	USB	Type-B USB Input (for Configuration)
	VDD	Optical Reader Supply (6.2 V DC)
RS-232	**TX**	Optik/RS-232 Data Transmit
	RX	Optik/RS-232 Data Receive
	GND	Optik/RS-232 Ground
RS-485	**A**	RS-485 Data +
	B	RS-485 Data -



WARNING! Do not energize VDD, TX, RX, GND, A, B terminals.

Figure 1

2. IP SETTINGI

- After the device is installed, modem configuration software is installed on the computer from the relevant link address (https://www.gruparge.com/dokumanlar yazilimlar/). In the window that opens for the installation of the software, the ‘Install USB Driver’ button is pressed and the installation of the driver is completed.
- When no operation is applied to the device, pressing the 'Read Network Settings' button will read and display the current settings on the device.

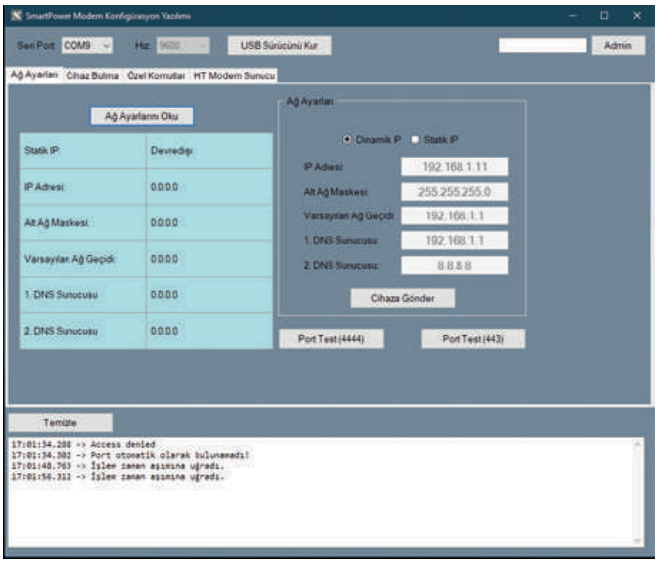


Figure 2

- If static IP is mandatory, select ‘Static IP’ in the network settings and send it to the device. The device must be restarted as the IP settings have been changed. Then the 'Read Network Settings' command is sent to the program to check that the settings are saved properly.

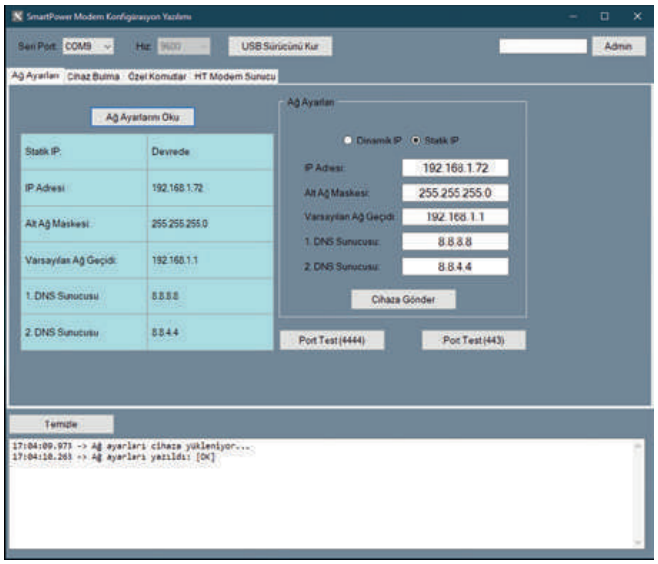


Figure 3

- Each time IP settings are changed, the device must be restarted. In case Static IP is to be disabled, Dynamic IP is selected in the program and press the Send to Device button. The USB LED on the device will blink when changes are made in the program.

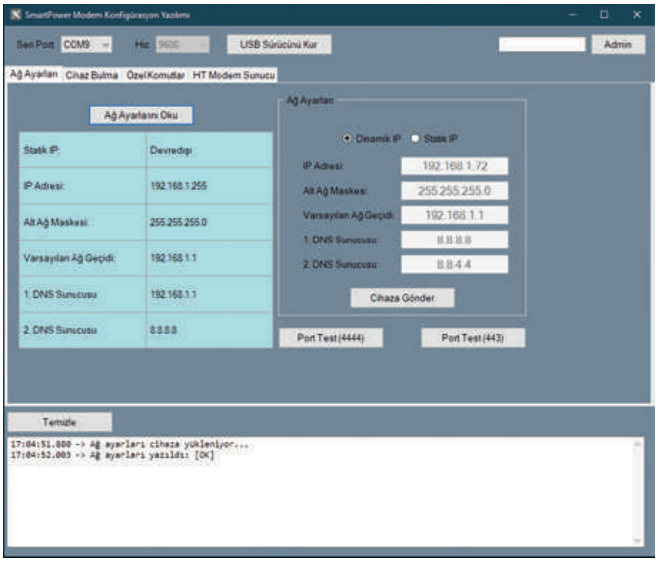


Figure 4

3. ASSEMBLY INFORMATION

1. Fix the device in a suitable place in the panel (Suitable for rail mounting).
2. HT E21 Ethernet Terminal works with 85-265 V AC supply.
3. HT E22 Ethernet Terminal works with 10-30 V DC supply.
4. Connection with the device to be communicated:
  a. Electricity Meter / Optical Port: See Figure 8; 9
  b. Electricity Meter /RS-232: See Figure 10
  c. Electricity Meter / RS-485: See Figure 11; 12; 13; 14; 15; 16
  d. Modbus Device (Relay, Analyzer, etc.) / RS-485: See Figure 17; 18
5. Connect the Ethernet cable to the Ethernet port.
6. After checking all connections for the last time, you can start working by energizing the device.
7. After a while, you can log in to the SmartPower Energy Monitoring System and check whether your device is sending data. If you do not have internet access in the field, you can get help from our technical support service.

NOTE:

1. When data is being transmitted, the Data LED on the device is on. The IP LED blinks when the Ethernet Terminal is receiving an IP Address over the network, and the IP LED is on steadily when it receives an IP Address. Please contact your Network Administrator if the IP Address is not stable.
2. If more than one electricity meter is to be connected via RS-485, the meter serial numbers must be introduced to the system by calling the technical support service.
3. Modbus devices to be read via RS-485 must be introduced to the system. Modbus addresses of all devices on the same network must be different from each other. For this, it may be necessary to change the Modbus address by entering the menu of the relevant device.

3.1. How to Use the Authorization Code?

1. Log in to SmartPower Energy Monitoring System and go to the “Modem” page.
2. Click on the “Add Modem Authorization” button and enter the information on the “Authorization Code” sheet that comes out of the product box on the page that opens.
3. If the information is entered correctly, the device will be automatically transferred to your account.
4. Destroy the authorization code sheet when you are completed..

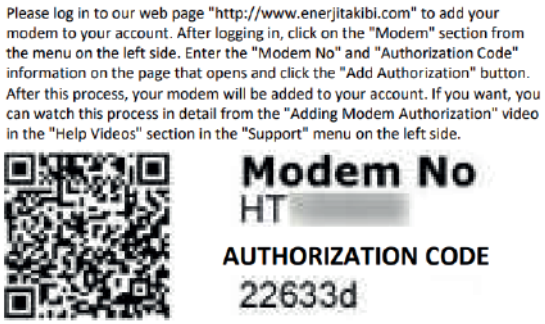


Figure 5

4. SUPPLY CONNECTIONS

4.1. AC Supply Connections

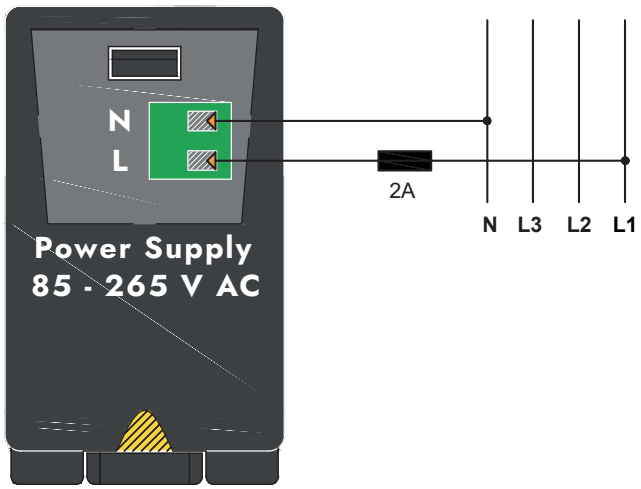


Figure 6

4.2. DC Supply Connections

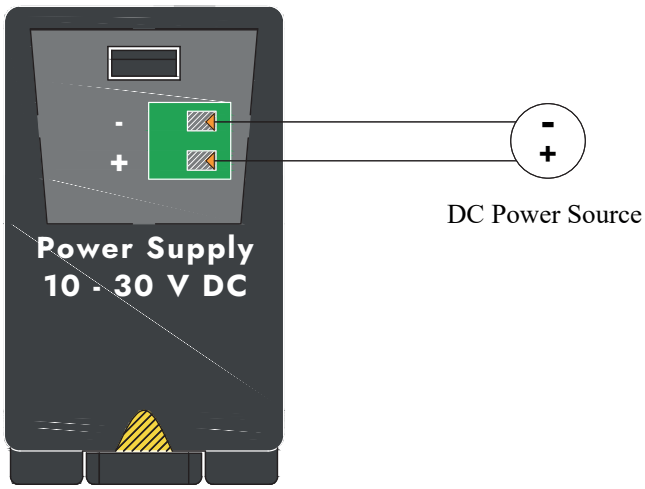


Figure 7

5. METER COMMUNICATION CONNECTIONS

5.1. Optical Port Connection

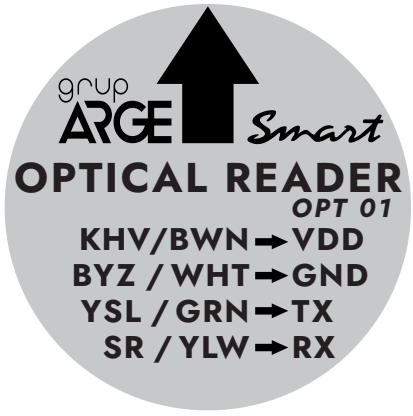


Figure 8

NOTE: When placing the optical reader on the meter, make sure that the arrow on the label points upwards.

Cable Color	Brown	Green	Yellow	White
Terminal	VDD	TX	RX	GND

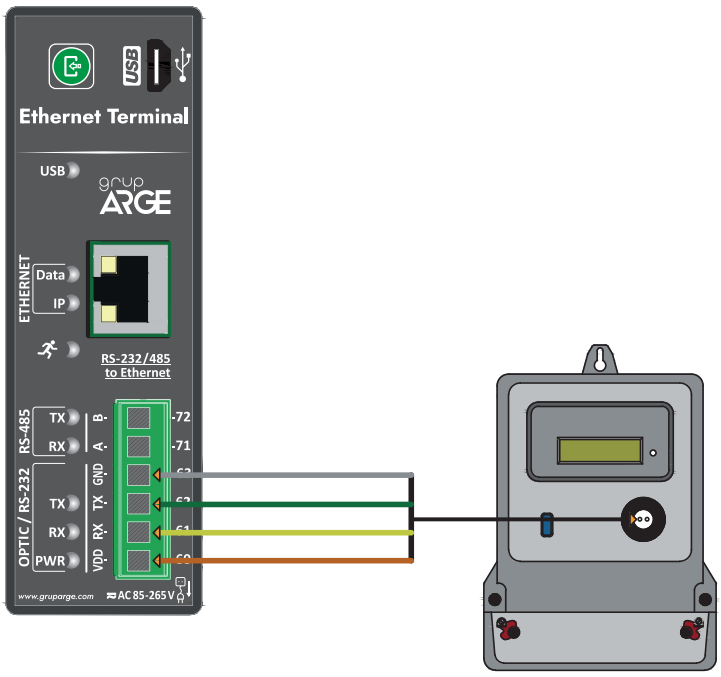


Figure 9

5.2. Makel RS-232 Communication Connection

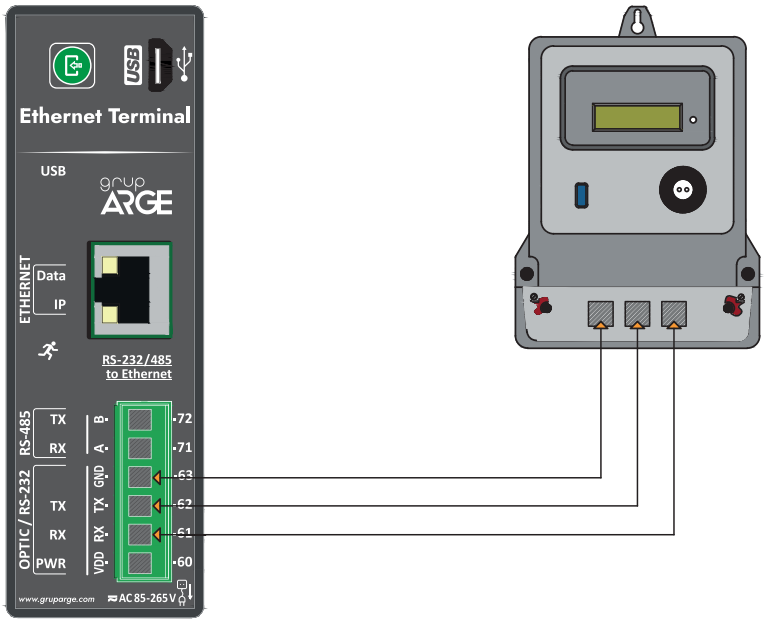


Figure 10

5.3. Makel RS-485 Communication Connection & Köhler RS-485 Communication Connection & Viko RS-485 Communication Connection

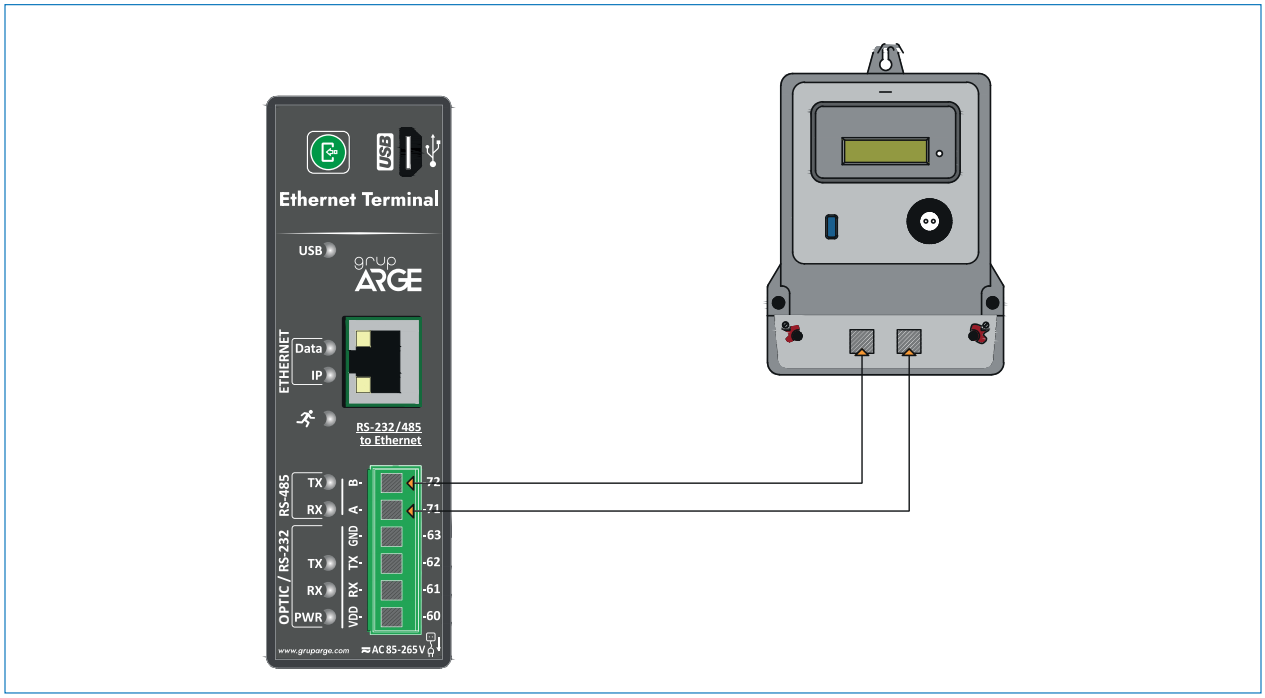


Figure 11

5.4. Elektromed RS-485 Communication Connection & Luna RS-485 Communication Connection

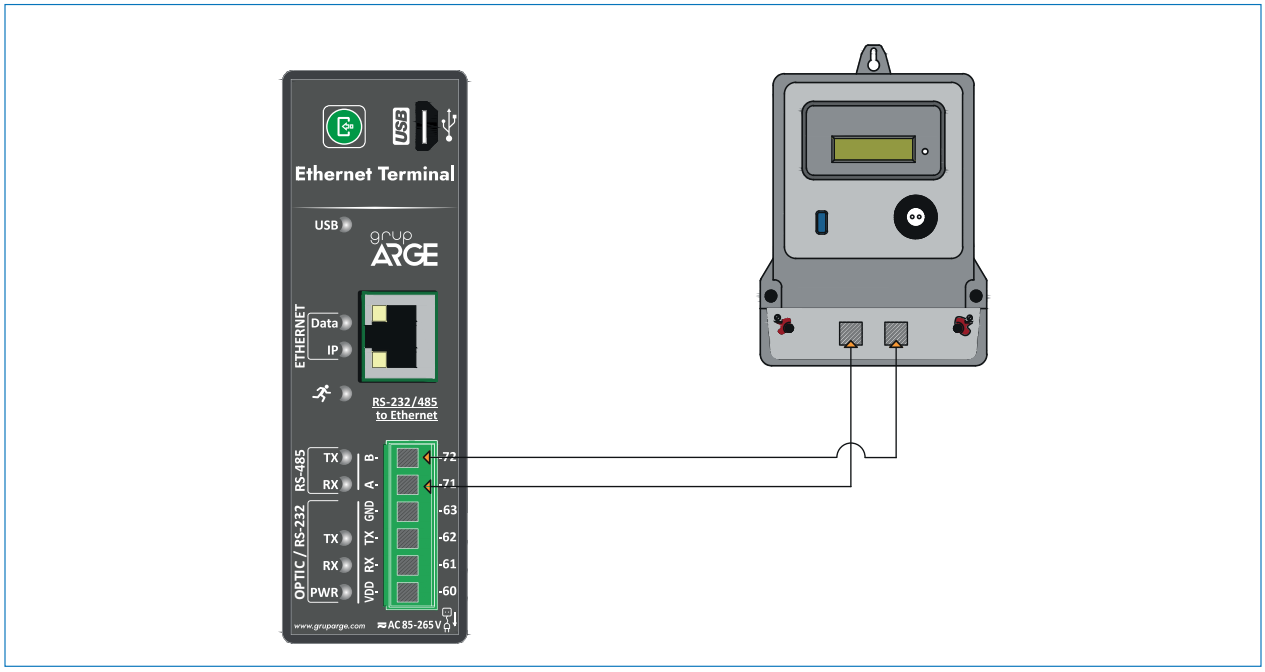


Figure 12

5.5. Elster RS-485 Communication Connection

There are two RS-485 terminals in some models of Elster meters.

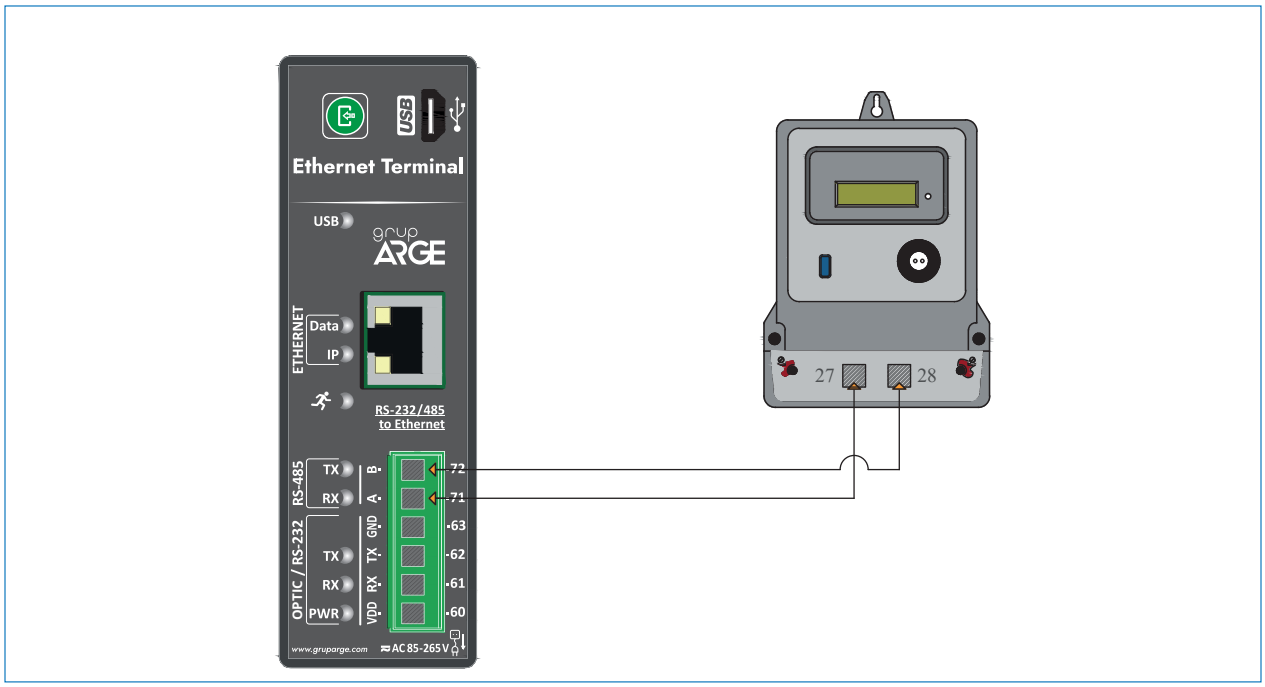


Figure 13

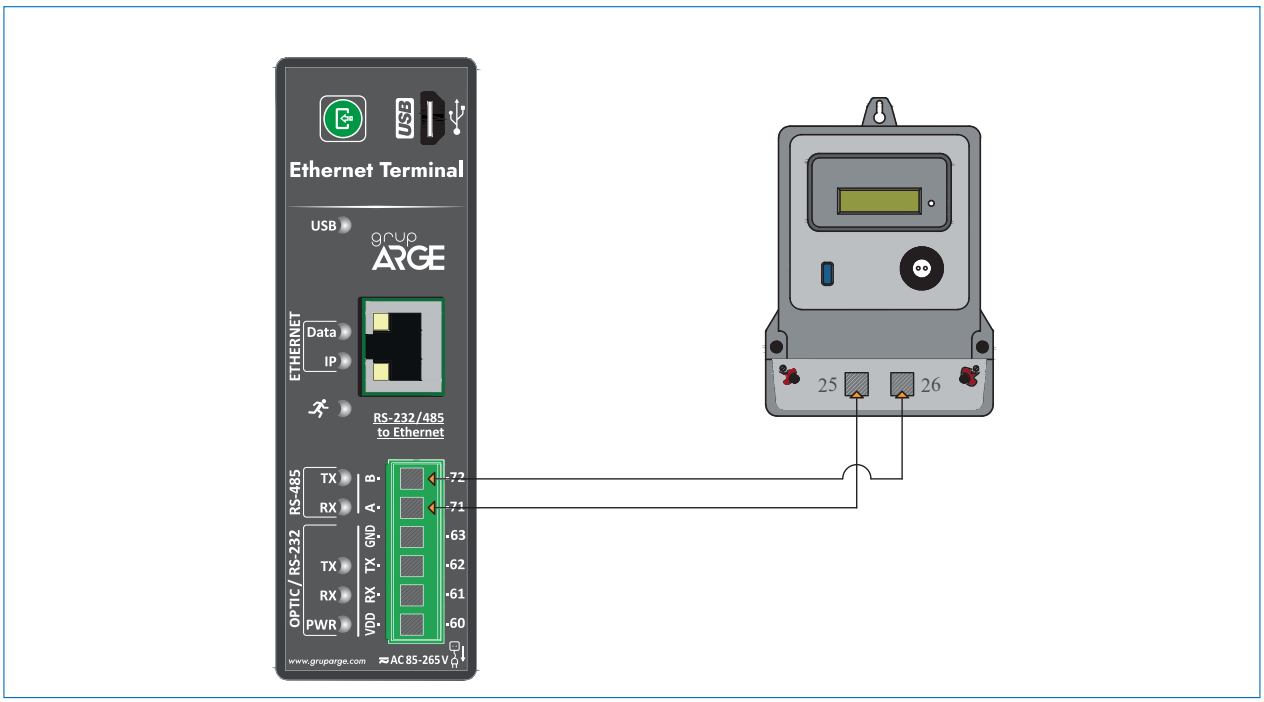


Figure 14

5.6. EMH RS-485 Communication Connection

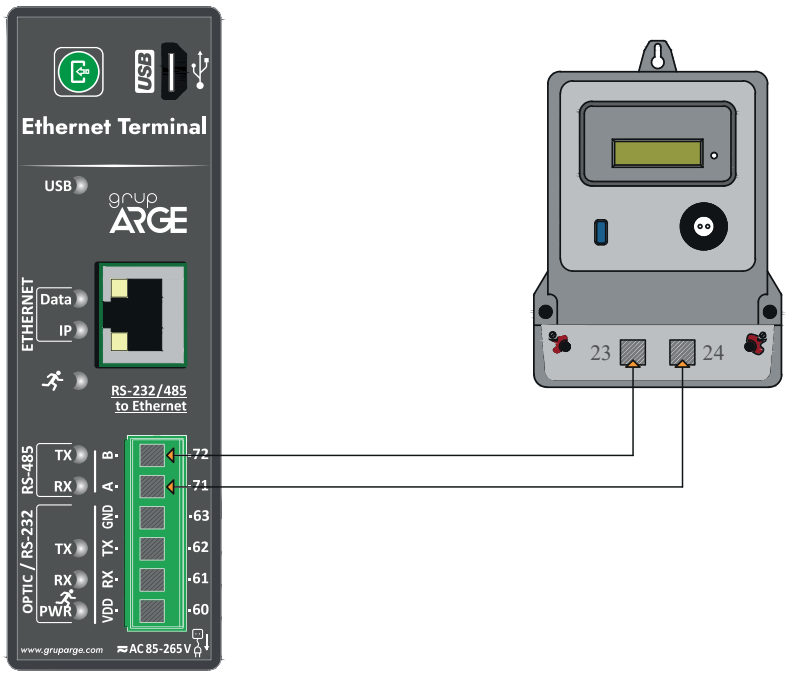


Figure 15

5.7. Landis RS-485 Communication Connection

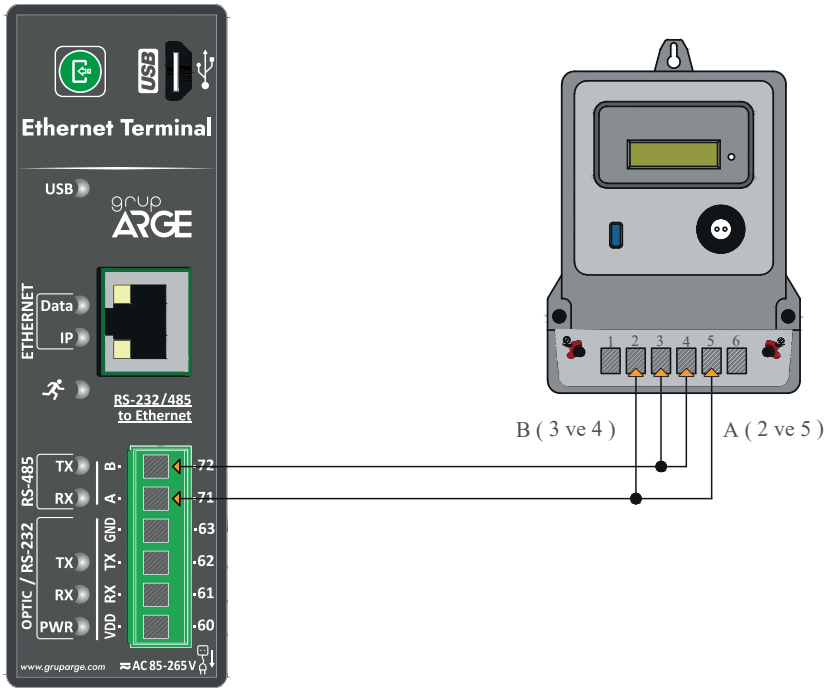


Figure 16

NOTE: In order to read Landis Meters via RS-485, the technical support service must be called, and serial number of the meter must be introduced on the system.

We recommend selecting the cable to be used for RS-485 communication according to the table below.

Cable Distance	Recommended Cable	Alternative Recommendation
Up to 30 m	3*0,22 Shielded and Twisted Signal Cable	CAT-5 Ethernet Cable
Over 30 m	3*0,50 Shielded and Twisted Signal Cable	CAT-6 Ethernet Cable

6. RELAY TERMINAL CONNECTIONS

If compensation relay or analyzer to be connected to communication terminals are named as A and B, A must be connected to A; and B must be connected to B. The connection of the different named devices is showed below.

NOTE:

- The Modbus addresses and types of the devices that connected to modem must be defined by entering the setup page of the relevant modem via web interface.
- Modbus addresses of Grup Arge products without screen are found by adding 100 to the last 2 digits of serial number of the device

6.1. All Relays Terminal Connection

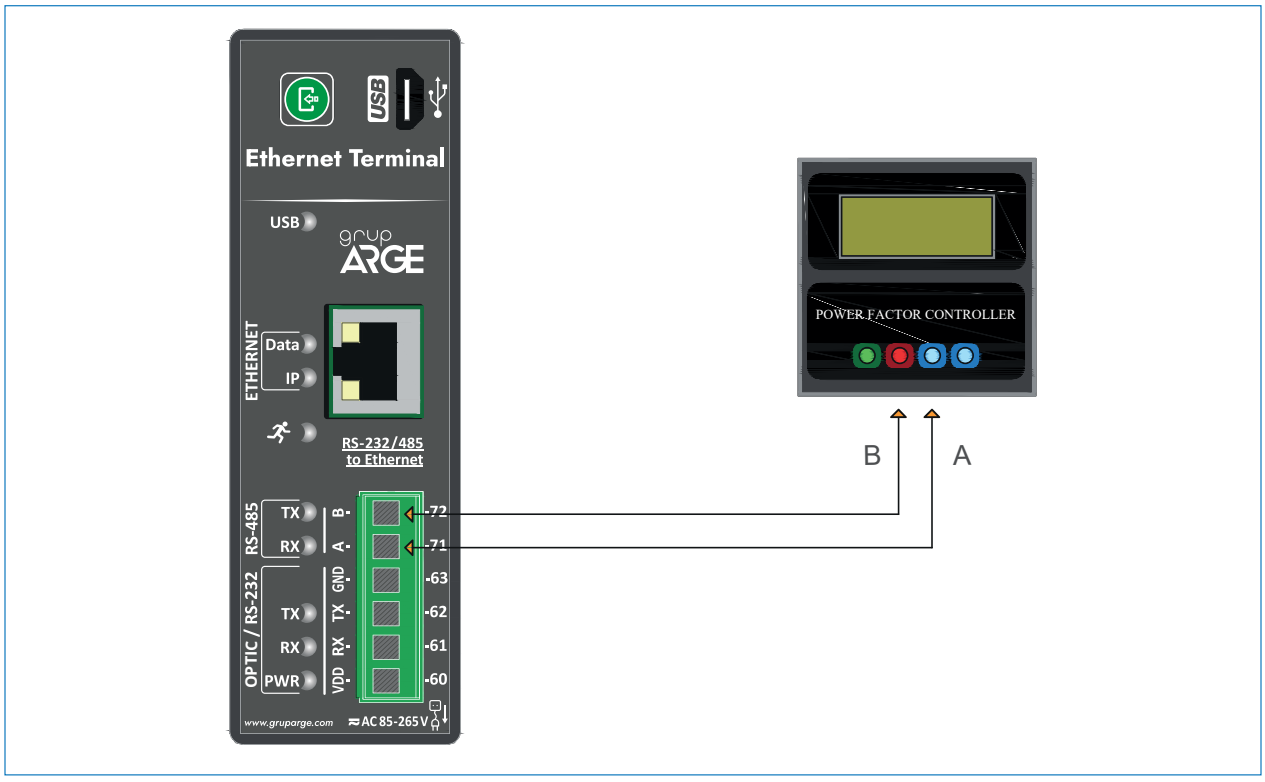


Figure 17

6.2. Klemsan PFC REMO-Q and RAPIDUS – Terminal Connection

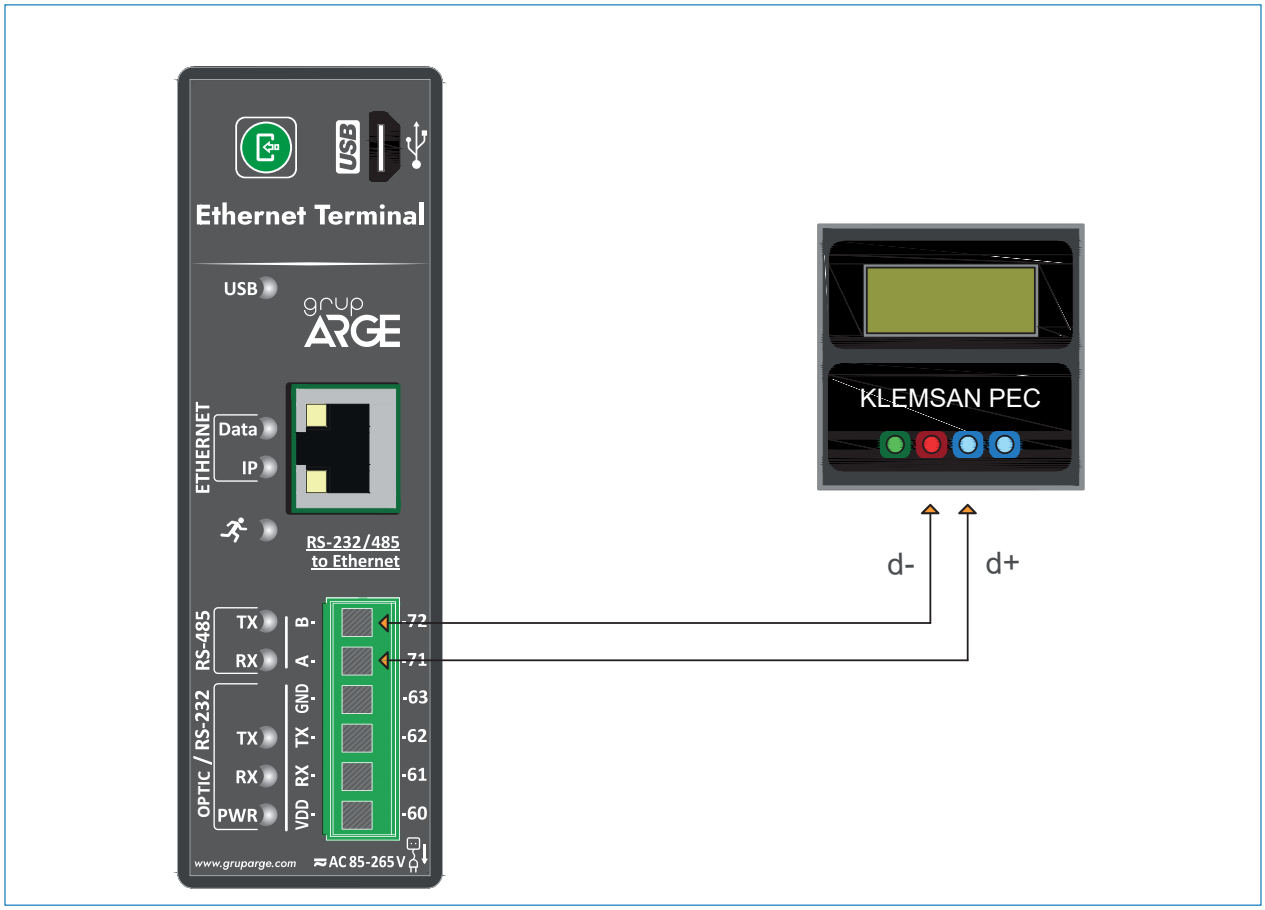


Figure 18

7. TECHNICAL DRAWING

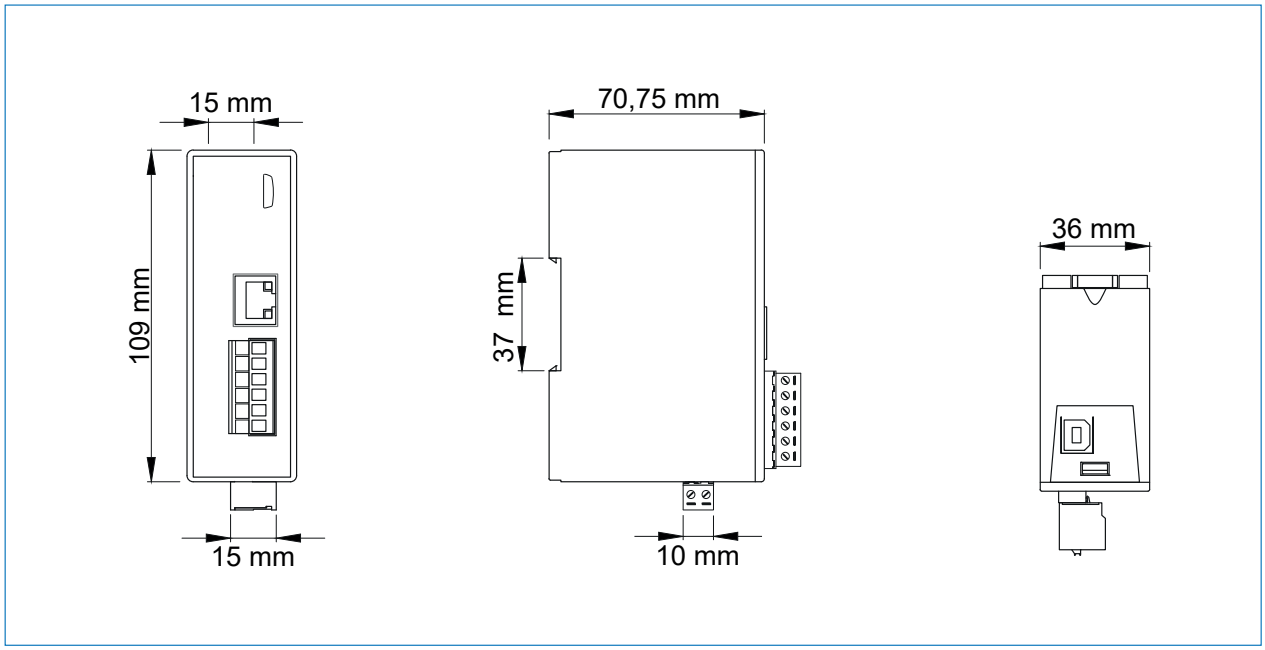


Figure 19