

# HT E21/E22 ETHERNET TERMINAL USER MANUAL



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**Version 19-2**



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

## General Features

HT E21 Ethernet communication terminal is developed for remote monitoring of electronic electricity meters and devices such as compensation ratios and energy analyzers that support MODBUS protocol. It provides communication with electricity meters through optical, RS-232 (3-wire) or RS-485 (2-wire) communication ports, and communication with devices with



For more information in other languages, please scan the QR code by mobile device or visit [gruparge.com/d/eth](http://gruparge.com/d/eth)

MODBUS protocol through RS-485 port.

**T: 0212 438 61 17 / M: 0549 650 50 53**



In order for the communication terminal to connect to the internet, it must be connected to the internet network of the transmission via an Ethernet cable. If the cable distance will exceed 70 meters, CAT-6 cable should be preferred.

If the device is connected to the network with dynamic IP distribution via DHCP, it will automatically receive IP and start to access the internet. If DHCP is turned off, static IP settings should be done by connecting to a computer via the device's USB port.

You can download the required configuration program from the programs section of our website at [www.gruparge.com](http://www.gruparge.com). HT E21 communication terminals question the data on the connected devices and send it to the Grup Arge servers over the company's internet network.

You can visit our website at [www.enerjitakibi.com](http://www.enerjitakibi.com) with your user account provided to you and access the data of all devices.

The reports available on the web interface are as follows:

- - Active consumption reports
- - Reactive rate reports
- - Basic electrical parameters such as current, voltage
- - Step values (only for power factor controllers)
- In addition, the system notifies the relevant people via e-mail and SMS alerts in specific alarm conditions.

### **Technical Features**

- - Microprocessor based.
- - Operates with 85-265 V AC supply.
- - Operating frequency is 45-65 Hz
- - Supply power is less than 1 VA.
- - RS-485 Standard MODBUS RTU protocol supports RS-232 and optical port communication channels.
- - It must be able to communicate with all meters supporting TS EN 62056-21 protocol.
- - It can read 32 meters or 247 MODBUS devices via RS-485 and 1 MODBUS device via RS-232.
- - One meter can be read from optical reader and RS-232.
- - It has LEDs that indicate RS-485/Optical/RS-232 (Communication), GSM connection 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 required, the necessary settings can be made via the USB port on the device.
- - The ambient temperature of the device is between -10°C and +55°C.
- - IP40 protection class.
- - The dimensions of the device are (Width-Length-Depth) 36 x 109 x 92 mm.

## 1. Terminal Connections

	<b>Ethernet</b>	Ethernet cable Input
	<b>USB</b>	Type-B USB Input (for configuration)
	<b>VDD</b>	Optical Reader Supply (6.2 V DC)
<b>RS-232</b>	<b>TX</b>	Optical/RS-232 Data Transmit
	<b>RX</b>	Optical/RS-232 Data Receive
	<b>GND</b>	Optical/RS-232 Ground
<b>RS-485</b>	<b>A</b>	RS-485 Data +
	<b>B</b>	RS-485 Data -



Figure 1

**WARNING!** Absolutely do not energize VDD, TX, RX, GND, A B terminals.

## 2. IP Setup

After the device installation is completed, the modem software is installed on the computer. Click on the 'Install USB driver' button in the window that appears and the installation of the driver is completed.

- When no operation is applied to the device, dynamic IP is received from the device when the 'Read Network Settings' button is pressed.

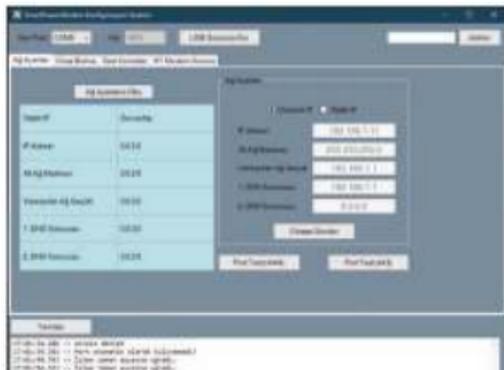


Figure 2

- If static IP is required, select 'Static IP' in the network settings and send it to the device. Since the IP settings have been changed, the device must be restarted. Then the program says 'Read network settings'.

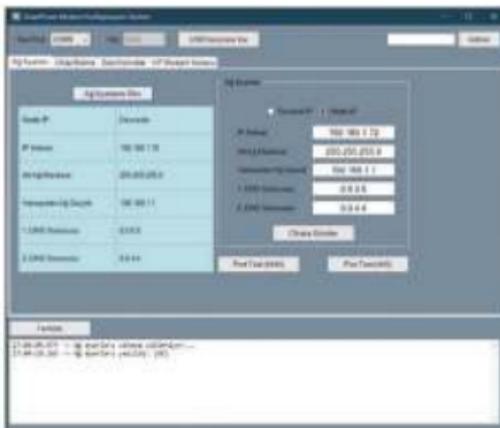


Figure 3

- - The device must be restarted every time IP settings are changed.
- - In case Static IP is to be disabled, Dynamic IP is selected in the program and the settings are read. The USB LED on the device will turn on and off when the program is changed.

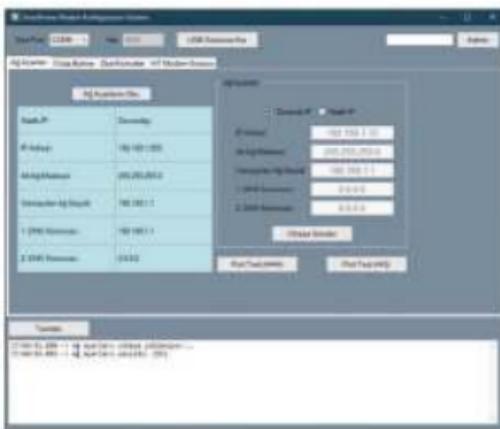


Figure 4

### 3. INSTALLATION INFORMATION

1. Secure the device to a suitable place in the panel. (Suitable for rail mounting)
2. HT E21 is powered by 85-265 V AC supply.
3. Make connections with the device to be communicated:
  - a. Electric Meter / Optical Port: See. Figure 7.8
  - b. Electric Meter / RS-232: See. Figure 9
  - c. Electric Meter / RS-485: See. Figure 1.0; 11; 12; 13; 14; 15
  - d. Modbus Device (Relay, analyzer etc.) / RS-485: See. Figure 16; 17
4. Operate the device by energizing after checking all the connections for the last time.
5. After a while, by entering SmartPower Energy Monitoring System, you can check whether your device is sending data or not. If you have no internet access in the field, you can get help from our technical support line.

#### NOTE:

1. If more than one meter is to be connected via RS-485, the technical support line must be called, and serial numbers of the meters must be defined to the system.
2. Modbus devices to be read via RS-485 must be defined to the system. The Modbus addresses of all the devices on the same line must be different. For this purpose, you may need to enter the menu of related device and change the Modbus address.

### 3.1. How to Use Authorized Code?

1. Login to SmartPower Energy Monitoring System and go to "Modem" page.
2. Click "Add Modem Authorization" button and enter the information of "Authorization Code" paper which comes out of the product box.
3. If the information is entered correctly, the device will be automatically transferred to your account.
4. Dispose of the authorization code paper after the process is done.

Please log in to our web page "<http://www.enerjitakibi.com>" to add your modem to your account. After logging in, click on the "Modem" section from the menu on the left side. Enter the "Modem No" and "Authorization Code" information on the page that opens and click the "Add Authorization" button. After this process, your modem will be added to your account. If you want, you can watch this process in detail from the "Adding Modem Authorization" video in the "Help Videos" section in the "Support" menu on the left side.



**Modem No**  
HT [REDACTED]  
**AUTHORIZATION CODE**  
22633d

Figure 5

## 4. SUPPLY CONNECTIONS

### 4.1. AC Supply Connection



Figure 6

## 5. METER COMMUNICATION CONNECTIONS

### 5.1. Optical Port Connection

**NOTE:** When placing the optical reader on the meter, make sure the arrow mark on the label points to upward direction.

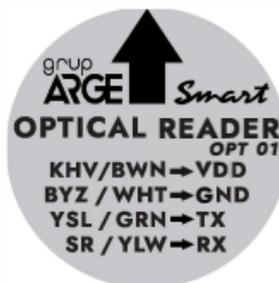
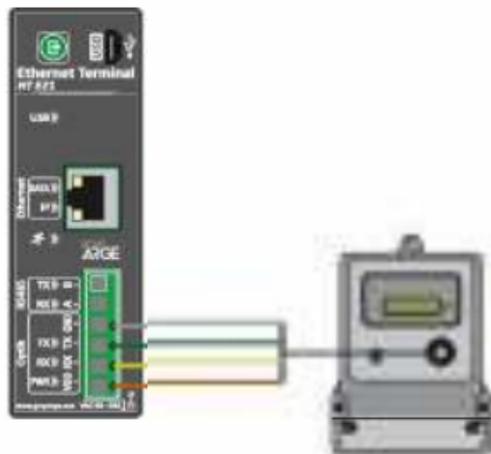


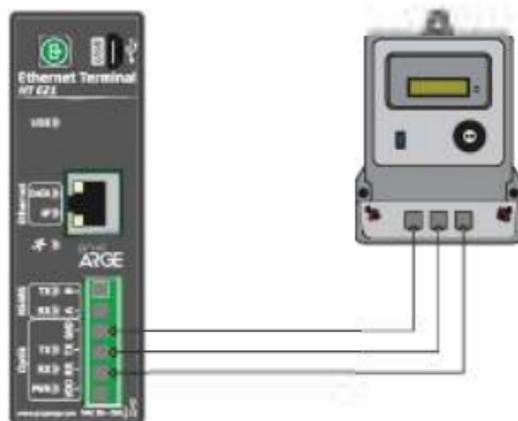
Figure 7

Cable Color	Brown	Green	Yellow	White
Terminal	VDD	TX	RX	GND



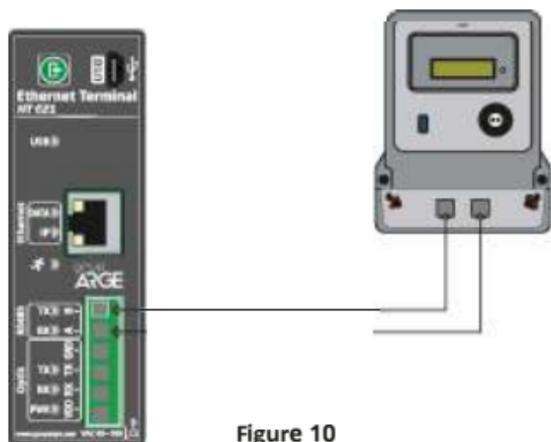
**Figure 8**

## 5.2 Makel RS-232 Communication Connection



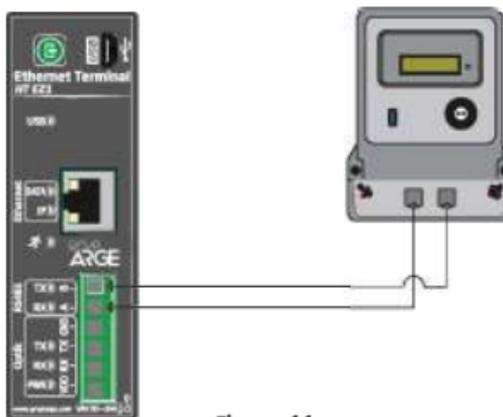
**Figure 9**

**Makel & Köhler & Viko RS-485 Communication Connection**



**Figure 10**

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



**Figure 11**

### 5.5. Elster RS-485 Communication Connection

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

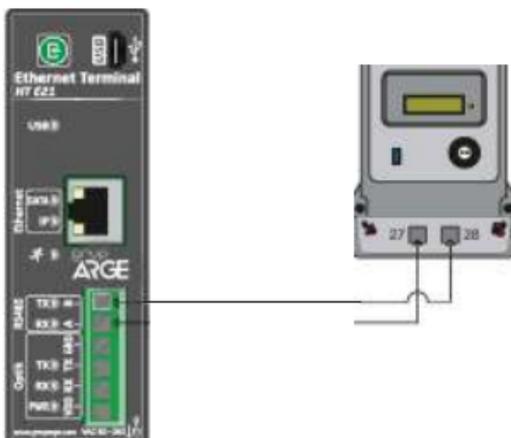


Figure 12

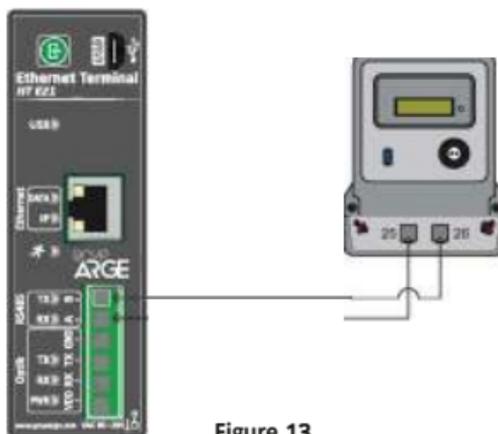
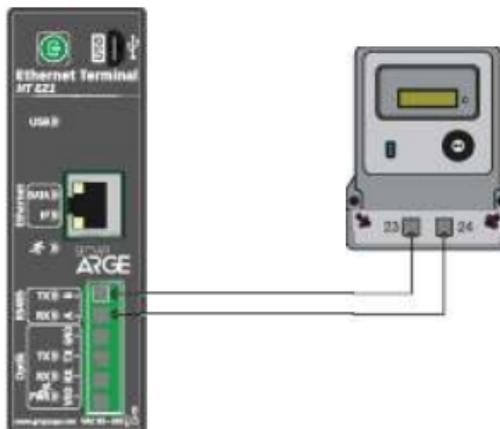


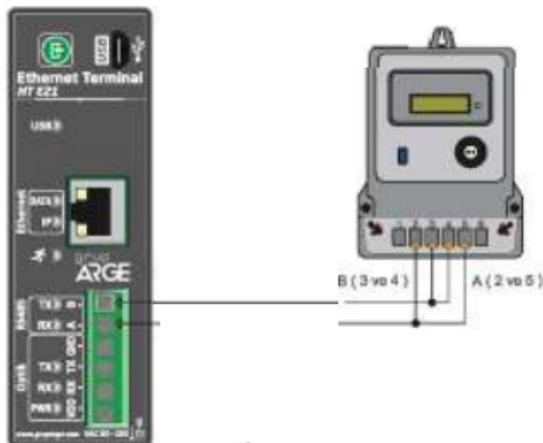
Figure 13

### 5.6. EMH RS-485 Communication Connection



**Figure 14**

### 5.7. Landis RS-485 Communication Connection



**Figure 15**

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

## 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

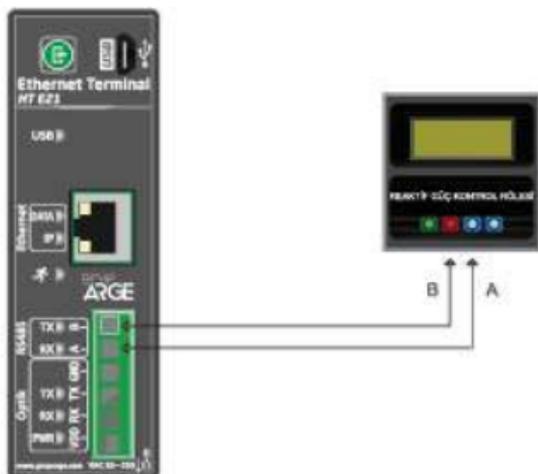


Figure 16

## 6.2. Klemisan Relay REMO-Q and RAPIDUS – Terminal Connection

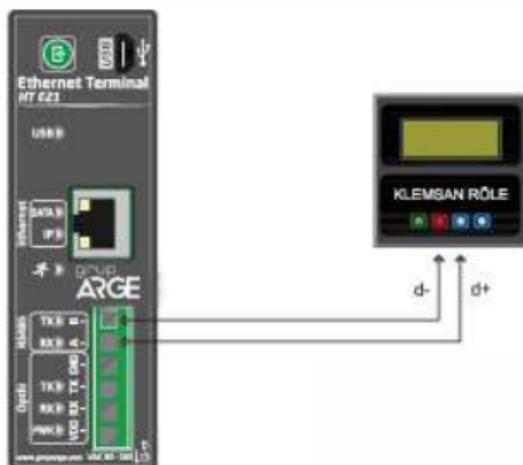


Figure 17