# HT G11 / G12 GSM Terminal
# Instruction Manual


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Version 19-2

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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.

The device operates with current transformers. Do not strictly leave current transformer tips unattached. Dangerous high voltage can occur.

# 1.INTRODUCTION

## 1.1 General Features

HT G11/G12 GSM communication terminal provide remote monitoring for devices such as electronic electric meters, compensation relays and energy analyzers supporting Modbus protocol. It provides communication with the devices that has Modbus protocol via RS-485 port, with electric meters via optical communication ports, RS-232 (3-wire) or RS-485 (2-wire).

In order for the communication terminals to establish an internet connection, a SIM card with a capacity of at least 100 MB with M2M property should be inserted into the device. If a PIN code is defined on the SIM card, the PIN code must be canceled by inserting the SIM card into a mobile phone.

HT G11/G12 GSM communication terminals query the data of the connected devices and send it to Grup Arge servers via GSM network (mobile phone network). You can access the data of all your devices by visiting our website located at www.enerjitakibi.com with your provided user account.

The main reports on the web interface are as follows:

• Active consumption reports

• Reactive ratio reports

• Instant electrical parameters such as current and voltage

• Step values (only for compensation relays)

Moreover, in the case of specific alerts, the system notifies the situation to related persons by e-mail and SMS alerts.

## 1.2 Technical Features

- Microprocessor based.
- HT G11 GSM Terminal operates with 85-265 V AC supply.
- HT G12 GSM Terminal operates with 10-30 V DC supply.
- It has RS-485, 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.
- It has LEDs that indicate RS-485/Optical/RS-232 (Communication), GSM connection and internet status.
- The data transmission period can be set between 1-240 minutes.
- It has a system architecture which does not require static IP.
- For the locations of weak GSM network signal, it has wired GSM antenna support.
- It is compatible with M2M SIM Cards of all GSM operators.
- The operating ambient temperature of the device is between -10 °C and +55 °C.
- The power consumption is less than 1 VA.
- It has IP40 protection class.
- The dimensions of the device (width-length-depth) are 35×110×80mm.

## 1.3 Terminal Connections

| | | |
|---|---|---|
| **SIM Card** | | SIM Card Slot |
| **Antenna** | | GSM Antenna Connector (SMA) |
| **AC 85/265 V DC 10/30 V** | | AC/DC Power Supply Input |
| **VDD** | | Optical Reader Supply (6.2 V DC) |
| **RS-232** | **TX** | Optical / RS-232 Data Transmit |
| | **RX** | Optical / RS-232 Data Receive |
| | **GND** | Optical / RS-232 Ground |
| **RS-485** | **A** | RS-485 Data + |
| | **B** | RS-485 Data - |

Chart 1.1

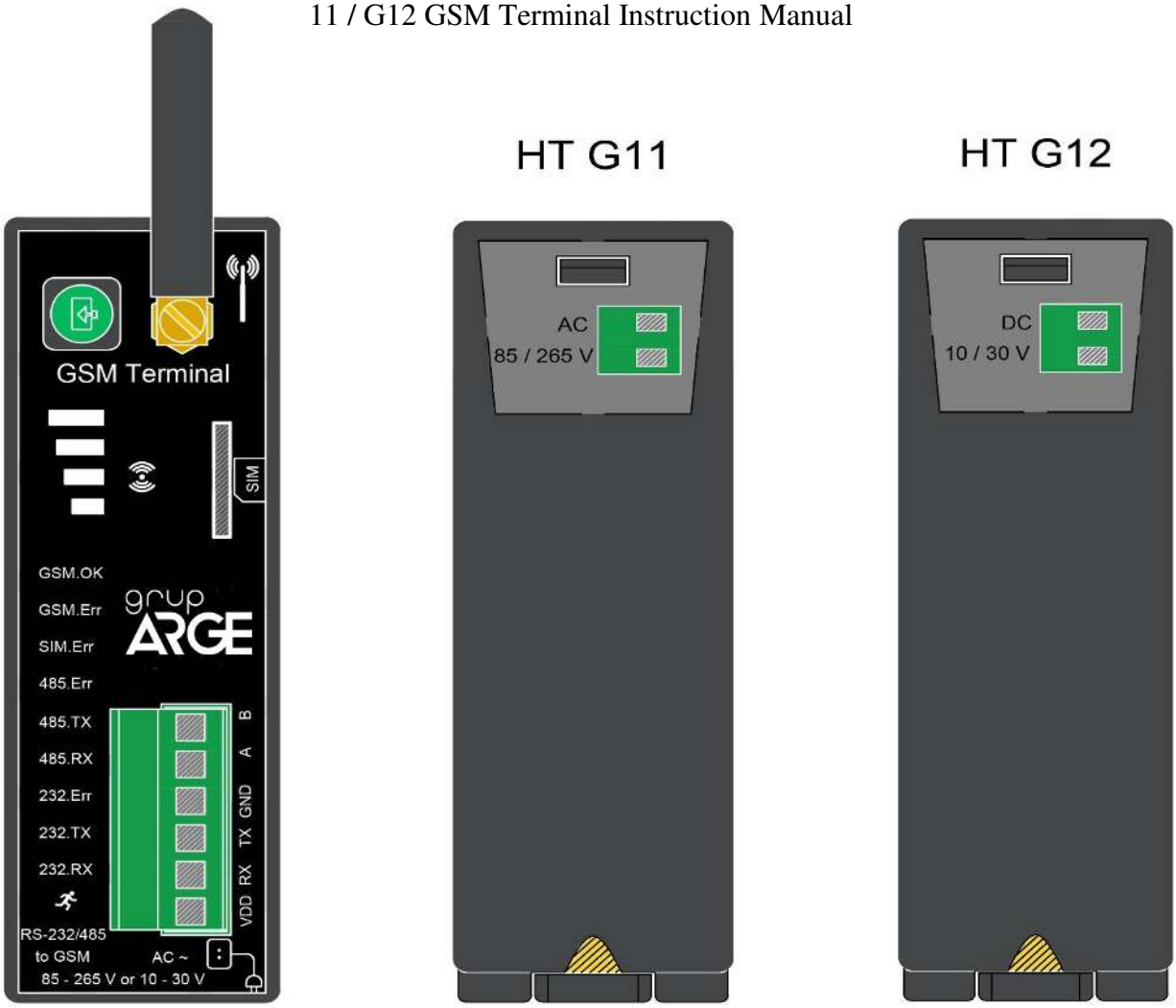


Figure 1.1

*WARNING! VDD, TX, RX, GND, A, B terminals should not be connected to the mains.*

## 1.4 LED Descriptions


1. **4 level LED**: It indicates GSM signal quality. If all 4 are on, it has the best signal. If a single LED or none is on, it is recommended to amplify the signal with a wired antenna (ANT 03 or ANT 07).
2. When the LED is steady, it indicates the server connection has been established. When it is flashing, it is attempting to establish a connection.
3. No server connection is established.
4. The SIM card is not inserted, or the PIN code is not cancelled.
5. It indicates a communication problem in RS-485 line.
6. A query is sent from the terminal via RS-485 port.
7. A response comes to the terminal from RS-485 port.
8. It indicates a communication problem in Optical/RS-232 line.
9. A query is sent from the terminal via optical/RS-232 channel.
10. A response comes to the terminal from optical/RS-232 channel.
11. **Power LED:** It indicates whether there is power or not in the device.

# 2. INSTALLATION INFORMATION

## 2.1 Installation Information

1. Secure the device to a suitable place in the panel. (Suitable for rail mounting)
2. Make a supply connection to terminal named “AC 85/265 V” or “DC 10/30 V”. Make sure that there is no power in the cables in the meanwhile.

   *WARNING! If AC voltage is applied to the devices with DC supply, the device is out of warranty.*

   Connection between the device to be communicated:

   **a.** Electric Meter / Optical Port: See. Figure 3.1

   **b.** Electric Meter / RS-232: See. Figure 3.3

   **c.** Electric Meter / RS-485: See. Figure 3.4; 3.5; 3.6; 3.7; 3.8; 3.9

   **d.** Modbus Device (Relay, analyzer etc.) / RS-485: See. Figure 4.1; 4.2
3. Cancel the PIN code of the SIM card and insert into the SIM card slot as shown on the device.
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 the GSM signal power is insufficient, disassemble the whip antenna on the device and assemble a wired antenna instead.*
2. *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.*

3. *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.*

## 2.2 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.


Figure 2.1

# 3.SUPPLY CONNECTIONS

## 3.1 AC Supply Connection


Figure 3.1

## 3.2 DC Supply Connection

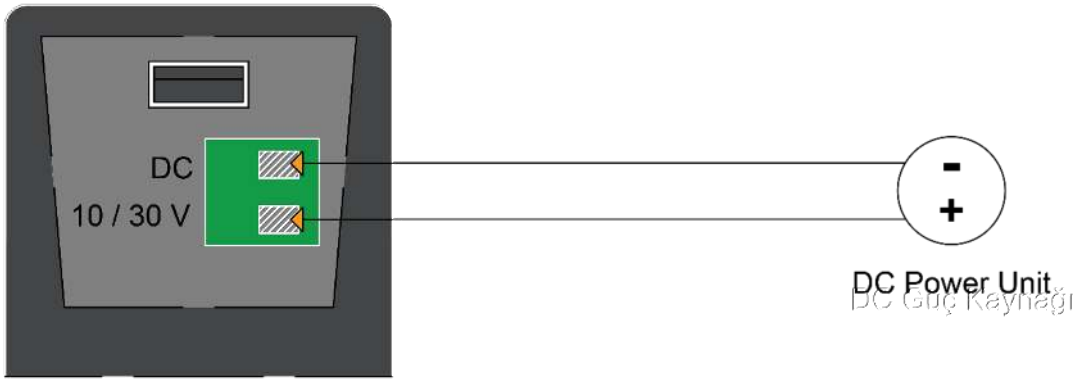


Figure 3.2

# 4.METER COMMUNICATION CONNECTIONS

## 4.1 Optical Port Connection

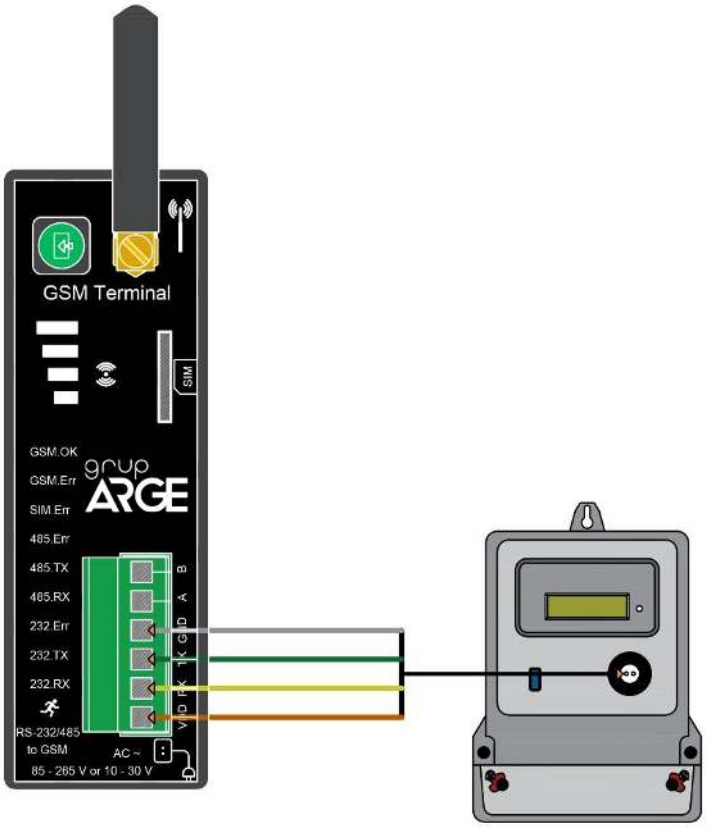


Figure 4.1

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


Figure 4.2

| Cable Color | Brown | Green | Yellow | White |
|---|---|---|---|---|
| Terminal | VDD | TX | RX | GND |

Table 4.1

## 4.2 Makel RS-232 Communication Connection

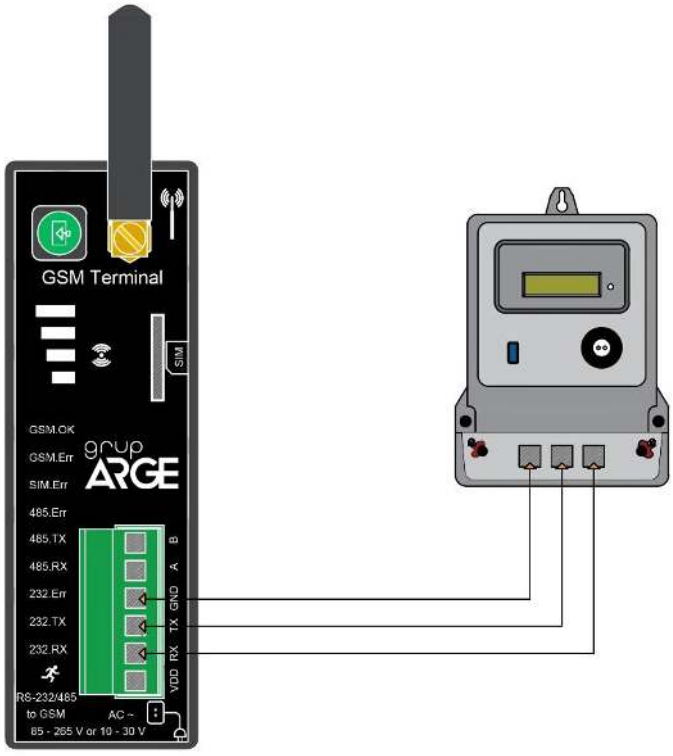


Figure 4.3

## 4.3 Makel & Köhler & Viko RS-485 Communication Connection

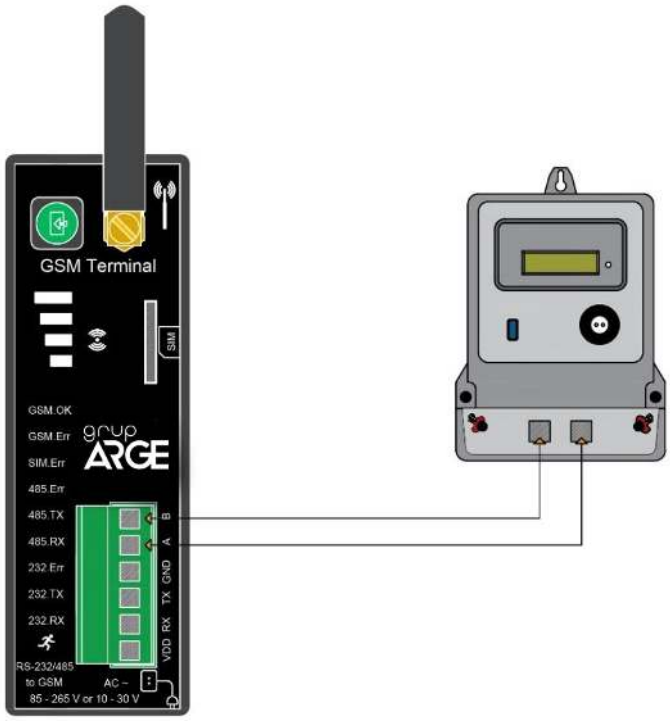


Figure 4.4

## 4.4 Elektromed & Luna RS-485 Communication Connection

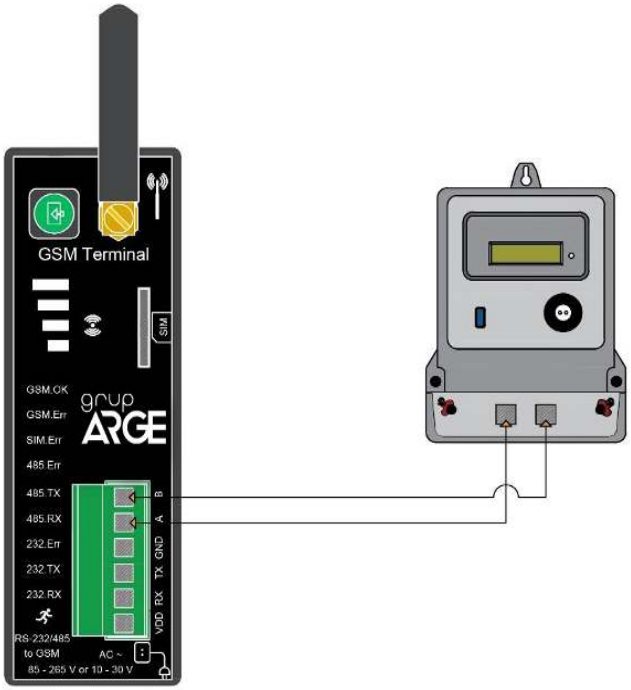


Figure 4.5

## 4.5 Elster RS-485 Communication Connection

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

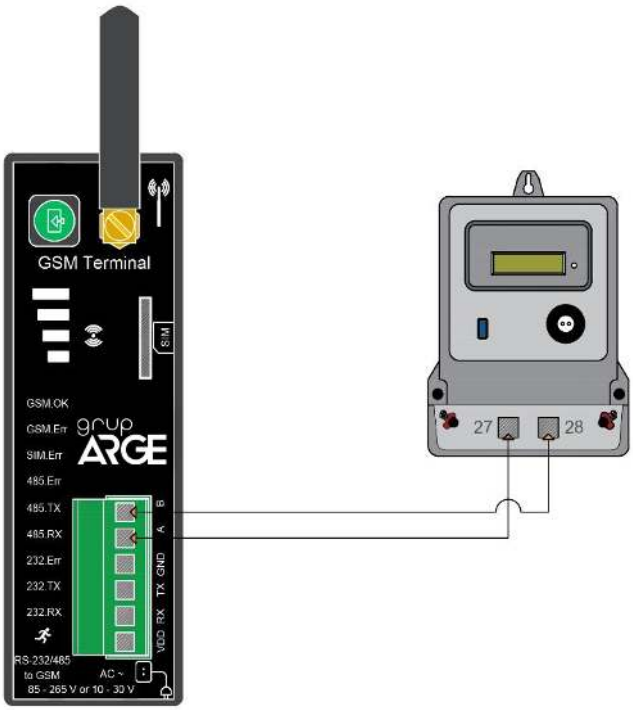


Figure 4.6

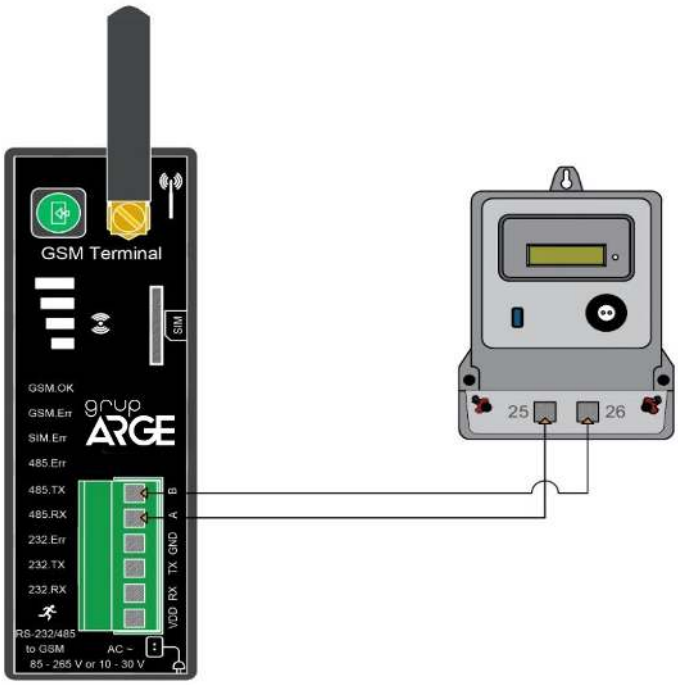


Figure 4.7

## 4.6 EMH RS-485 Communication Connection

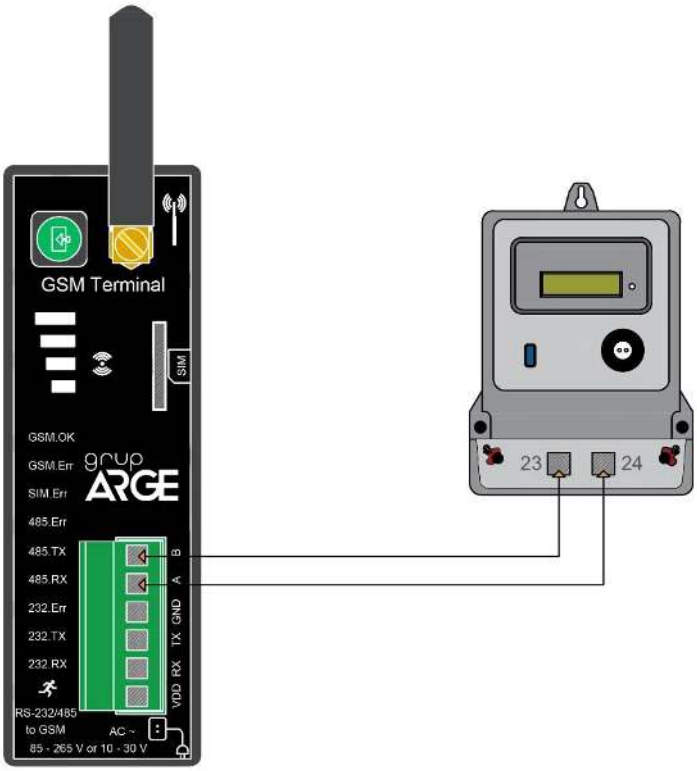


Figure 4.8

## 4.7 Landis RS-485 Communication Connection

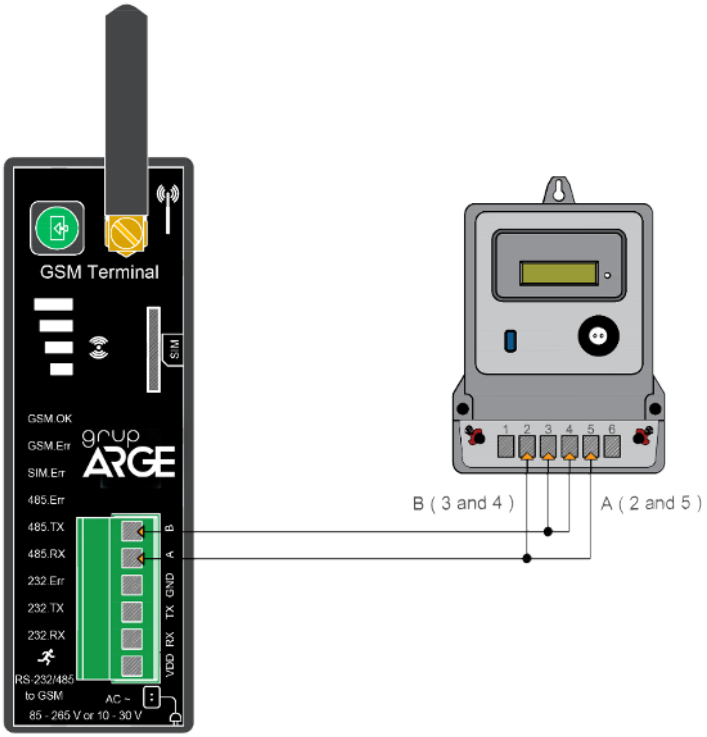


Figure 4.9

**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.**

# 5. 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.*

## 5.1 All Relays Using A-B Naming Terminal Connections

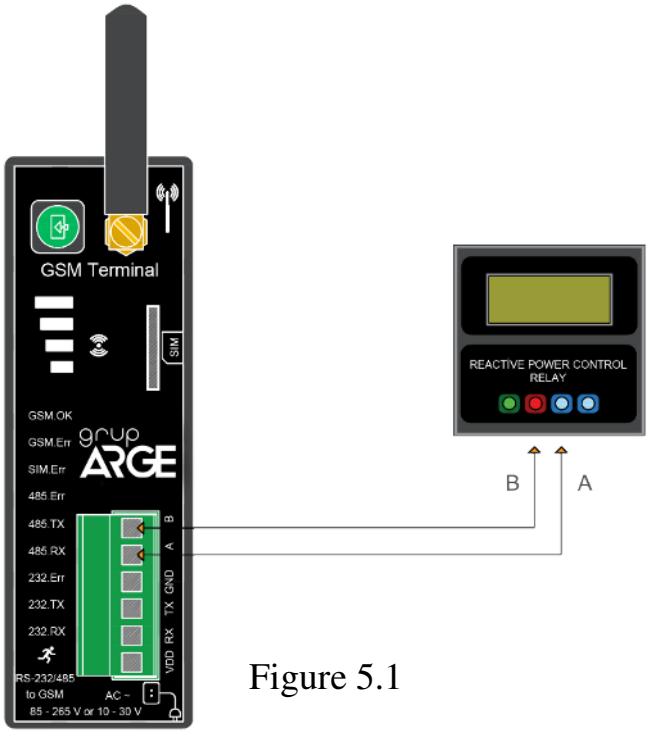


Figure 5.1

## 5.2 Klemsan Relay REMO-Q and RAPIDUS – Terminal Connection

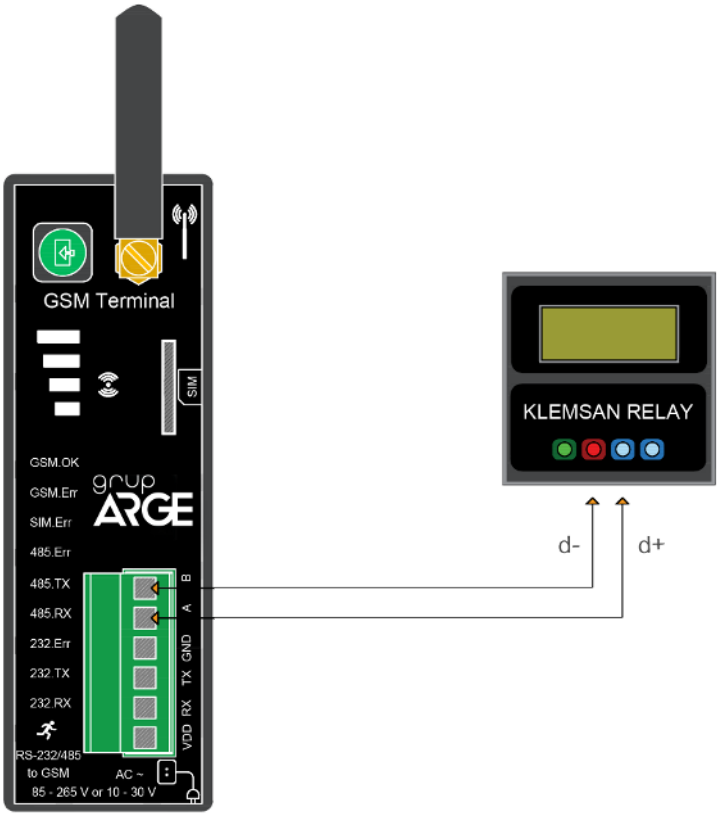


Figure 5.2

# 6.SELECTION TABLE

| Product Code | Product Name | Product Description | Power Source | Protocol | Size (mm) (Width - Size - Length) |
|---|---|---|---|---|---|
| **GA3111** | HT G11 | GSM TERMINAL (METER/MODBUS) | 85-265 V AC | Meter/Modbus | 35 x 110 x 80 |
| **GA3112** | HT G12 | GSM TERMINAL (METER/MODBUS)-DC | 10-30 V DC | Meter/Modbus | 35 x 110 x 80 |

Table 6.1