Voltmeter
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.

1. INTRODUCTION

1.1 General Features

Voltmeter measures and calculate the voltage value that belongs to a single phase as True-RMS.

The voltage transformer settings can be made via the menu.

In the versions with the output feature, the relay is controlled according to the voltage value ranges that are set through the menu.

Voltmeter does not require a separate supply input with its new supply design. The device can operate if there is power (85-265 Volt) in the voltage phase (L1).

1.2 Technical Features

- Microprocessor based.
- The operating ambient temperature of the device must be between -10 °C and +55 °C.
- The power consumption of the measuring inputs is less than 1 VA.
- It has IP20 protection class.
- The voltage measurement range is 85-265 V AC (45-65 Hz).
- Its operating frequency is 45-65 Hz.
- The measurement precision is 1%.
- The device can make the single-phase voltage measurement.
- The power consumption in the version with relay output is 4.0-8.5 VA and 3.0-7.0 VA in the normal version.
- It can optionally have one 5A relay output.
- It has one 4-digit 7-segment display.
- The dimensions of the device are (width-length-depth) 97.5x97.5x50.5 mm.
- It operates under 85-265 V AC voltage.
- It has control output, menu and k (x1000) LEDs.

1.3 Dimensions of the Device

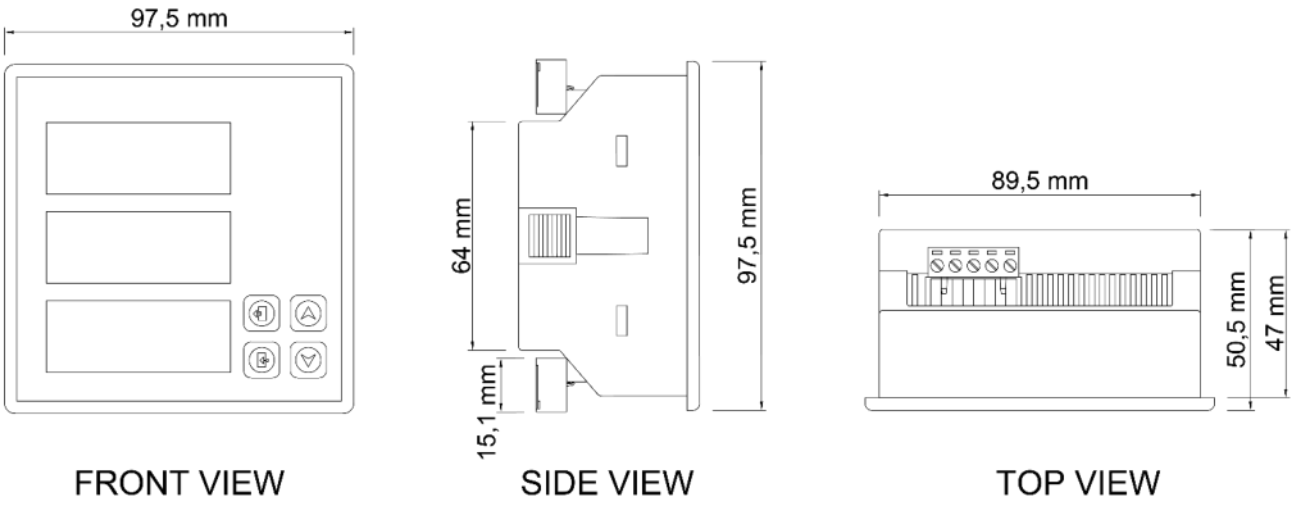

Figure 1.1

1.4 Measurable Line Parameters

Voltmeter can make single phase voltage measurement.

1.5 Buttons and Functions

	PRG button enables to access the menu when on operation screen. It fulfills selection function when scrolling through the menu.
	It enables to return to the previous process and exit from the menu.
	Up arrow button enables to change parameters displaying on operation screen and stroll between the menus.
	Down arrow button enables to change parameters displaying on operation screen and stroll between the menus.

1.6 Connection Diagram

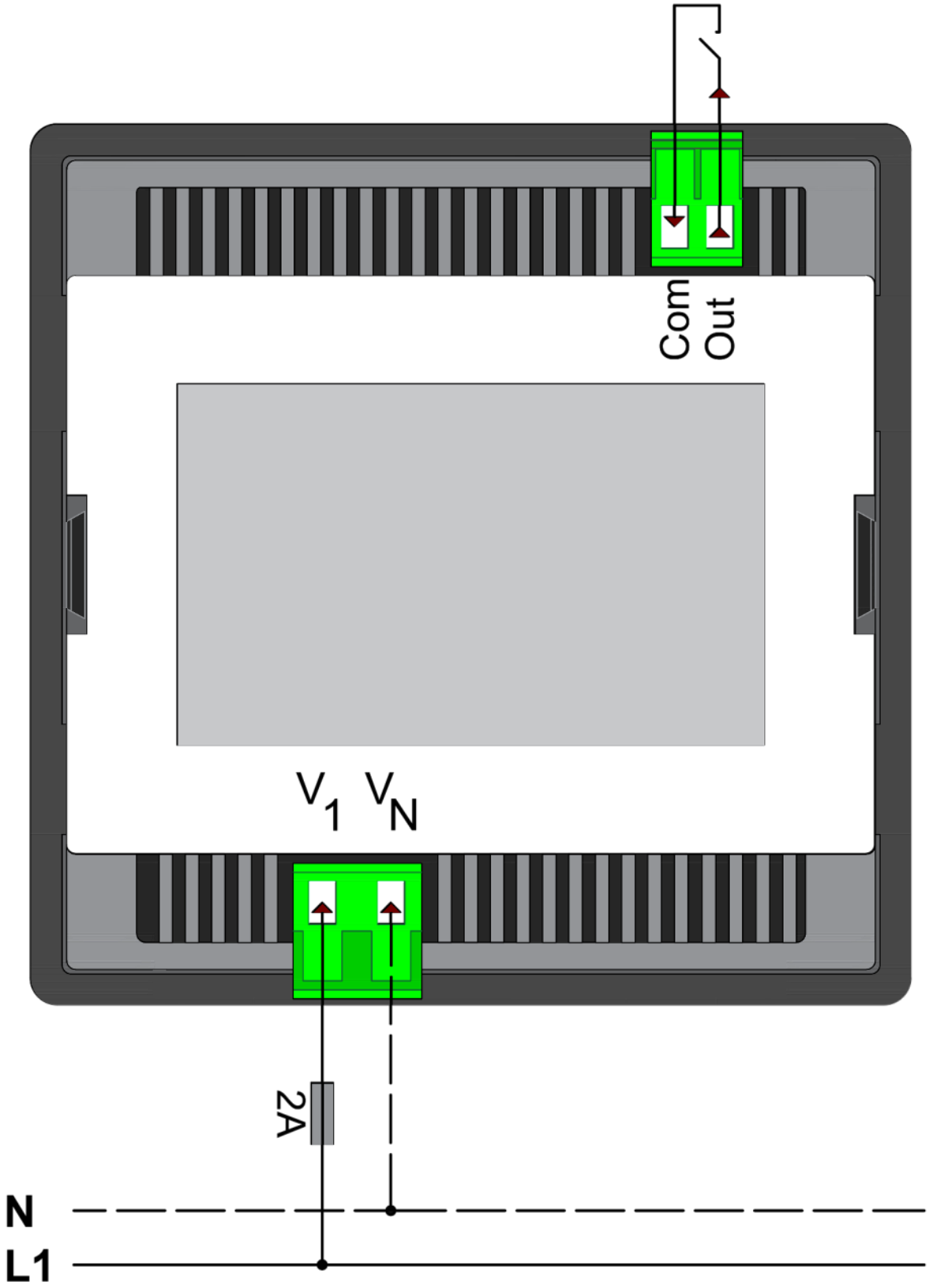

Figure 1.2

2.INSTALLATION

2.1 Device Installation

Make the connections of the voltage input according to the Figure 1.2.

Give energy to the device after checking and verifying the connections.

2.2 Installation Menu

Figure 2.1

After giving energy to your device, the voltage measurement value is shown as in Figure 2.1

2.3 LED Descriptions

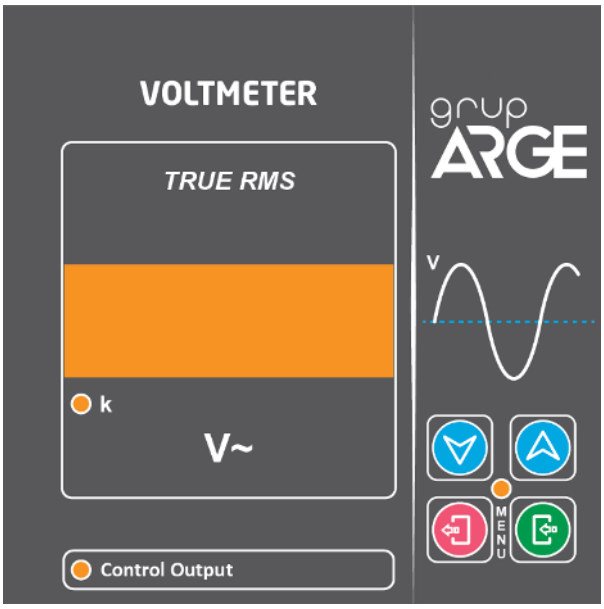

Figure 2.2

There are two LEDs (three in the devices with output option) on your device.

The menu LED will be on when entering the menu.

There is a K(x1000) LED on the left bottom of the device screen.

NOTE: If the related LED is on, the unit of the value displaying on the screen is in **Kilo**.

3. MAIN MENU AND SUB-MENUS

To enter menu, press the PRG button in the front panel of the device. The up and down buttons are used to scroll between menus in the device. There are five main menus in total. Press the PRG button to enter the wanted menu

NOTE: When scrolling through the menu, holding down to the up button makes the transition fast and the menu come to the top. Moreover, holding down to the down button makes the transition fast and the menu comes to the bottom

3.1 Line Voltage Menu

In "LinE" menu, the line voltage value is set among the values that are seen in the table below.

LINE VOLTAGE	190	380	400	480	500	525	550	650	690
	725	900	1000	6300	10500	11000	14000	15800	28500
	29250	30000	30750	31500					

3.2 Measurement Voltage Menu

In "SEnS" menu, the measurement voltage value is set among the values that are seen in the following table.

MEASUREMENT VOLTAGE	100	110	115	120	190	380	400	480

3.3 Cnt Menu

The settings related to the output control are made in "Cnt" menu. In this menu, there are eight sub-menus as "tYPE", "Inur", "SEt.a","SEt.b","t.on","t.oFF", "t.rdy" and "rSt".

3.3.1 Reverse Menu

If "YES" is selected in "rEvr" menu, the relay outputs are set reverse to the present status.

3.3.2 Type Menu

By entering "tYPE" menu, the parameter to produce output value will be selected.

"Volt" → The output controls are made via the **voltage parameter.**
"none" → No parameter is selected for output control.

3.3.3 SetA Menu

In "SEt.A" menu, a value is given if "Volt" is selected in the "tYPE" menu before.

The A point in Figure 3.1 indicates the required quantity (0 – 1000) for the output to be "On". If the voltage value is bigger than the value that is determined in the "SEt.A" menu, the voltmeter output becomes "On" and "Control Output" LED becomes on. If the voltage value is smaller than "SEt.b" value, the voltmeter output becomes "OFF" and "Control Output" LED becomes off.

NOTE: The entered values are in Volt (V).

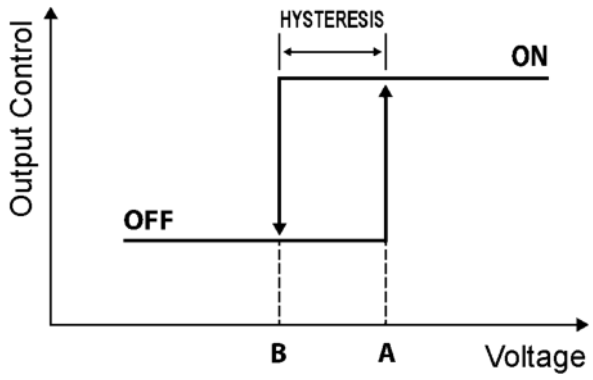

Figure 3.1

A and B points in Figure 3.1 are the voltage points that are read from the system.

If the voltage value is bigger than A value, the output that is related to the voltmeter becomes ON. If the measured value is smaller than B value, the output that is related to the voltmeter becomes OFF.

3.3.4 SetB Menu

In "SEt.b " menu, a value is given if "Uo lt" is selected in the "tYPE" menu before.

It indicates the quantity (0-1000) of B point in the Figure 3. If the voltage value is smaller than the value of point B that is determined in "SEt.b" menu, the voltmeter output becomes "OFF" and "Control Output" LED becomes off.

NOTE: The entered values are in Volt (V).

3.3.5 Relay Control Time Menu

In "t.on" menu, in the case of the electrical values exceed the "SEt.a" value ,the time to wait for pulling the relay is determined.

In "t.oFF" menu, in the case of the electrical values drop below the "SEt.b" values, the time to wait for releasing the relay is determined.

In "t.rdy" menu, the time between the relay pull and release processes are determined. A period of time is waited depends on charge and discharge states of the capacitor and then the relay is pulled or released.

NOTE: The main aim to determine time is to prevent the relay to be pulled and released frequently in case of sudden increasing and decreasing of values.

3.4 Default Setting Menu

All the settings except for the current transformer ratio are reset in the "dSEt" menu. (return to default values). Press the PRG button to enter the menu. There appear two options as "YES" and "no". If "YES" option is selected with the PRG button, the device will return to the factory default settings.

3.5 Reset Menu

The "rSt" (Reset) menu brings the device back to its state before the installation. All the saved information and parameters are reset with this menu. It also provides to use the same device in different panels. Press the PRG button to enter the "rSt" menu. There appear two options as "YES" and "nO". If the "YES" is selected with the PRG button, the device will be reset.

NOTE: The voltage transformer ratio does not return to the factory default settings.

4. LANGUAGE MENU

The "lnG" menu has two language options "tur" Turkish, and "EnG" English. When the language is changed, the menu and units will change.

5. SELECTION TABLE

Product Code	Product Name	Product Description	Measurmenet Range 0-265V AC	Panel Type	Display	Display Digit	Relay Output	85-265 V AC	1 Phase Measurmenet	Size (mm) (Width-Size-Length)
GA4311	VTM 11	VOLTMETER	✓	✓	1	4		✓	✓	96 x 96 x 47
GA4312	VTM 12	SET VOLTMETER	✓	✓	1	4	✓	✓	✓	96 x 96 x 47

Table 5.1