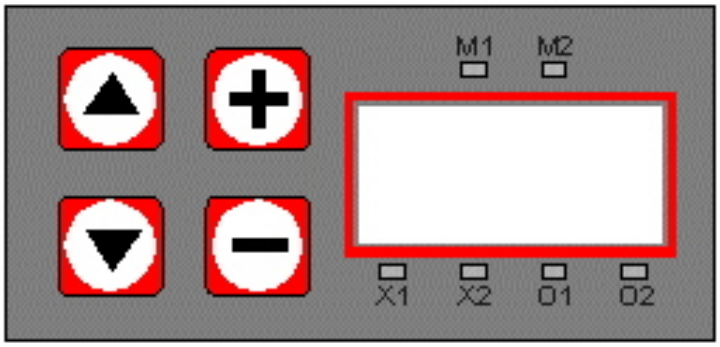
VK-2001 V1.0

Conductance measuring and control device



Ipari Elektronika Project Ltd.

8800 Nagykanizsa, Magyar u. 132.

Phone / Fax: 93 / 311-364

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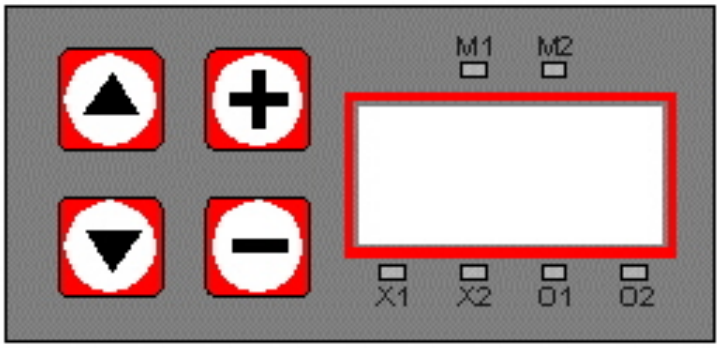
1. Controls and display elements on the device:

The device is equipped with the following display elements:

- a 3-digit, 7-segment display to show the measured values and set data
- **M1**, **M2** LEDs to display operating modes and measurement limit values
- **O1**, **O2** LEDs to show the statuses of the output relays
- **X1**, **X2** LEDs to show the different set statuses - “menu statuses”



2. Operating statuses:

Normal status - Measurement:

The **X1**, **X2** LEDs are off and **O1**, **O2** LEDs are in non-flashing mode. The display shows the current conductance value. **O1**, **O2** LEDs show the statuses of the switched outputs.

Setting the switching walue:

The one of the **O1**, **O2** LEDs corresponding to the currently set output flashes. The set switching value can be seen on the display.

Setting:

Specifying the parameters being necessary for the device operation. This status is shown by flashing one or possibly both of the **O1**, **O2** LEDs.

Movement inside the menus:

The movement between any of the menu items can be performed with the help

of the symbols

and the setting of the values with the help of the symbols

3. Setting values:

During value setting several menu items follow each other. These are as follows: Set to Zero; Calibrate; Measurement Limit Value; Probe Constant; Hysteresis; Output1 Mode; Output2 Mode; 4mA Setting; 20mA Setting.

The first menu item - Reset to Zero - can be entered by keeping the symbol

pressed down for 5 - 8 seconds. The next menu items can be accessed by pressing once

the symbol

up to the item 4mA Setting, which can be reached by pressing the symbol

for a longer period.

Set to Zero:

This operation should be performed at first during commissioning the device. It is indicated by the **X1** LED being on. After entering the menu item with the help of the + and - buttons can be set **000** on the display. Negative values are indicated by **---** and an overflow by **EEE**.

Calibrate:

Is indicated by the **X2** LED being on. By immersing the probe into a solution with a known conductivity you can now calibrate the device. Set the display to the desired value with the buttons + and -. After completing this the device is ready to fulfil its basic duty.

Measurement Limit Value:

Is indicated by the **X1** and **X2** LEDs being on and the measured value can be read from the display. You can switch between the measurement limit values 10-100-1000 by stepping by the + button. The display responds to the intervention with setting the measured value by moving the decimal points. The default measurement limit is 10.

Probe Constant:

Is indicated by the **X1** and **X2** LEDs being on, **cxx** appears on the display. This device is able to work with probe constants of 1, 0.1 and 0.01, which can be read from the display. The values can be switched by pressing the + button. Default is the probe constant 1.

Hysteresis:

Is indicated by the **X1** and **X2** LEDs being on, **hxx** appears on the display. The desired switching hysteresis can be set by pressing the + and - buttons. The hysteresis is necessary to prevent switching near to the limit value and repeated contacting. The basic value of the hysteresis is 0, its maximum value is 65 %.

Output1 Mode:

Is indicated by the **X1** and **X2** LEDs being on, **O1** LED flashes. The string **nor.** or **inv.** appears on the display. In normal setting the contact is set at the output when the measured value exceeds the set value and in inverse setting when the measured value is below the set value.

Output2 Mode:

Is indicated by the **X1** and **X2** LEDs being on, **O2** LED flashes. The string **nor.** or **inv.** appears on the display. In normal setting the contact is set at the output when the measured value exceeds the set value and in inverse setting when the measured value is below the set value.

4mA Setting:

Is indicated by the **X1** and **X2** LEDs being on and **o 4** appears on the display. The value of 4 mA can be set with the help of the + and - buttons and can be measured by a measurement instrument or by an other signal processing unit, e.g. PLC.

20mA Setting:

Is indicated by the **X1** and **X2** LEDs being on and **o20** appears on the display. The value of 20 mA can be set with the help of the + and - buttons and can be measured by a measurement instrument or by an other signal processing unit, e.g. PLC.

4. Setting the switching values:

The setting procedure of the switching value consists of only two menu items to set the

values for **O1** and **O2**. This menu can be entered by pressing the

symbol.

Setting Output1:

Is indicated by the flashing **O1** LED. The desired switching value can be set with the help of the + and - buttons and can be controlled on the display.

Setting Output2:

Is indicated by the flashing **O2** LED. The desired switching value can be set with the help of the + and - buttons and can be controlled on the display.

5. Storing the set values:

To enable the device operation based on the set values, they must be stored by the control processor. This can be performed in two ways. If settings are completed and no buttons are pressed for a period of about 30 seconds the device returns automatically to measurement mode, stores the set values at the same time and works further with them. Alternatively the device can be switched to measurement mode by stepping through the current menu to the measurement mode. Then the values will be stored and the device operates further with them.

6. Specifications:

Measuring range:	0-10-100-1000 µS/cm or 0-10-100-1000 mS/cm
Select measuring range:	On the front panel, menu selected
Applicating probe coeffitiens:	1-0.1-0.01
Select probe coeffitiens:	On the front panel, menu selected
Accuracy:	0.5 % plus probe error
Measuring signal:	Sinus 82 Hz or 1 kHz
Probes:	LM 1, LM 01, LM001 (Prominent), or special metal-, carbon-probe
Display:	3 digit 7-segments LED-display and 6 status showing LED
Switching:	Two, setting and selecting upper or lower limit, full scale
Switching accuracy:	1%
Select switching limit:	On the front panel, menu selected, in actual range
Select switching hysteresis:	On the front panel, menu selected
Switching relay contact capacity:	max. 2A, 230V AC
4-20 mA output:	galvanic isolated activ current generator loading resistor max. 300 Ohm 4 mA 0 conductivity 20 mA max. conductivity of the selected range
Power supply:	230V~ /50 Hz / 3.6 VA
Ambient temperature:	0-45 °C
Dimensions:	96x48x138 mm

7. Terminal connection: