OCB201, OCB301 Bargraphs

for analogue signals and Pt-100

Owner's Manual

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BARGRAPH OCB201, OCB301

OCB201 and OCB301 are programmable Bargraph for visualising of process analogue signals. The instruments have 20 (OCB201) or 30 (OCB301) LED segments red, orange and green. The colour can be free selected across the entire display length. Two Set Point relays are optionally available with OCB301. The Bargraph is designed for panel mount. The programming of the colours is with three keys at the display board.

The unit is designed for panel mounting and complies with the EMC requirements.

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Last update: November 2017

√ Process Signals mV, V, mA DC
√ Display dimming
√ 20 or 30 Bargraph Segments
√ Three color selection
√ Supply 24VDC

OCB201 or OCB301 is a digital controller with a single three color Bargraphs. The controller is key programmable and permits connection to analogue process signals and Pt-100 Sensors.

Menu is accessible with three keys behind the front lens and contains settings of two Set Points, Colors of the Bargraph, and Calibration of signal channels.

Set Points SP1 and SP2 define the switching points of the Relay 1 and Relay 2. The color of the switching points can be set for red, green or orange across the entire bargraph length.

In the measure mode, the color of the display can be set for single bar color red, orange or green or for two or three color combinations.

OCB201 is enclosed in DIN case 24 x 72 x 100mm, **OCB301** is enclosed in DIN 24 x 96 x 100mm. The Bargraphs are supplied from 18-36VDC. The programming keys are accessible after removing the front lens.

Bargraphs for horizontal and vertical mount are available. The direction of the bargraph measurement from down to up or from up to down is settable in the menu.

1.   SPECIFICATIONS OCB201 and OCB301

INPUT

Ranges	0/4-20mA	< 400mV	Input 1
	2V	1MOhm	Input 2
	5V	1MOhm	Input 2
	10V	1MOhm	Input 2
	Pt-100	the range is calibrated upon ordered customer requirements, e.g. 0-300ºC.	

BARGRAPH

OCB201-A	20 LED, red-green-orange
OCB301-A	30 LED, red-green-orange
Intensity	programmable in steps 20, 40, 60, 80, 100%

SUPPLY

Standard	18 …36V DC isolated

MECHANICAL

Material	Noryl GFN2 SE1 according to UL 94 V-I		
Dimensions	OCB201:	24 x 72 x 100mm	Panel cut-out: 22.5 x 66mm
	OCB301:	24 x 96 x 100mm	Panel cut-out: 22.5 x 92mm

OPERATION

Terminals	Pluggable Screw Terminals	
Temperature	Working:	0 … 60 ºC
	Storing:	-10 … 85 ºC
Cover	IP40 (front panel)	
El. Class	Security Class 1, EN 61010-1, A2	
EMC	EN 61000-3-2+A12; EN 61000-4-2, 3, 4, 5, 8,11;	
	EN 550222, A1, A2.	

2.   KEYS behind Front Lens
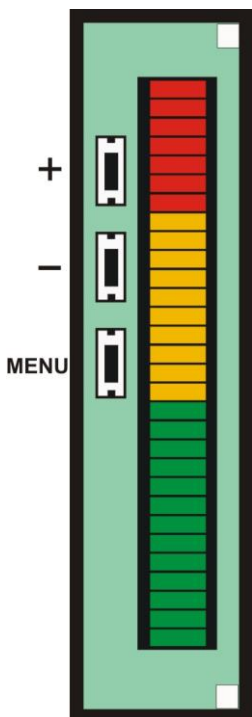
FRONT SETTING KEYS

MENU	To enter and to scroll the Menu
+	To increase the value
-	to reduce the value

POWER ON

After applying the power, the display performs test of all segments and switches into the operating mode.

THE DEVICE MENU

Three keys behind the front lens are used for setting of operating parameters.
The Menu can be entered with the key MENU and scrolled by repeated pressing of this key. To exit the menu, the key has to be pressed until the last menu step.
The selected menu step will be set with + or - keys.

MENU STEPS

Key   **Function**

MENU   **Reading Direction** from left to right or right to left. Setting with + or -

MENU   **Color combination**: The display flashes 1:1. There are three sections and three color combinations, total 27 color combinations. Setting with + or -

MENU   **Display Intensity**: The display flashes 9:1. With + or - the intensity can be selected for 20,40,60,80 and 100%

MENU   **Input**: Five top segments are flashing. Voltage or Current inputs can be selected. There are following ranges pre-calibrated. They can be selected with + or -:

- Without changes (10 bottom segments are illuminated, another 2 segments indicate the input source: green = voltage, orange = current. Keep these settings, do not make any change.
- 0-10V   10 bottom green segments are illuminated
- 0-5V   5 bottom green segments are illuminated
- 0-2V **(*)**   2 bottom green segments are illuminated
- 4-20mA   3rd to 10th orange segments are illuminated
- 0-20mA   10 bottom orange segments are illuminated

(*) For Pt-100 (two or four terminal connections) the Range 0-2V will be selected.

By using one of the firm ranges, press MENU until 3rd bottom segment flashes. The customized setting of the Minimum and the Maximum values will be skipped.
If, however, the firm ranges have to be differently set, the menu permits free setting of the Minimum and the Maximum display values.

MENU   **Minimum Value**: Top orange LED is flashing. Pressing + or - the value can be set. Holding the key, the changes are faster.
The value is defined absolutely as a sum of red segments (course) and green segments (fine) according to the table below:

INPUT	red segment (course)	green segment (fine)
Voltage	1 V	0.1 V
Current	2 mA	0.2 mA

The Minimum Value can be set with + or - keys.
Example: Minimum value 4,2mA: Adjust the display such that 2 red and 1 green segment are visible. Press MENU to store the settings.

MENU   **Maximum Value** can be set with + or - keys.
Example: Maximum value 19.6 mA: Adjust the display with + or - such that 9 red and 3 Green Segments are visible. Press MENU to store the settings.
By using these method there is no necessity of utilizing an external Calibrator.

> **ERROR MESSAGE**
> When the input signal is lower than the programmed Minimum Value, the lowest segment will be flashing.

> **NOTE**
> The minimum value has always to be lower than the maximum value, otherwise the display will shows an error by flashing 1:1 red-green. The menu has to be re-entered and the values set correctly.
> There is no restriction in relation between SP1 and SP2.

MENU   **SP1 - Set Point 1**: The entire display is illuminated and 3rd bottom segment is flashing. With + and - the Set Point 1 can be selected.

MENU   **SP2 - Set Point 2**: The entire display is illuminated and 3rd top segment is flashing. With + and - the Set Point 1 can be selected.

3.   TERMINALS
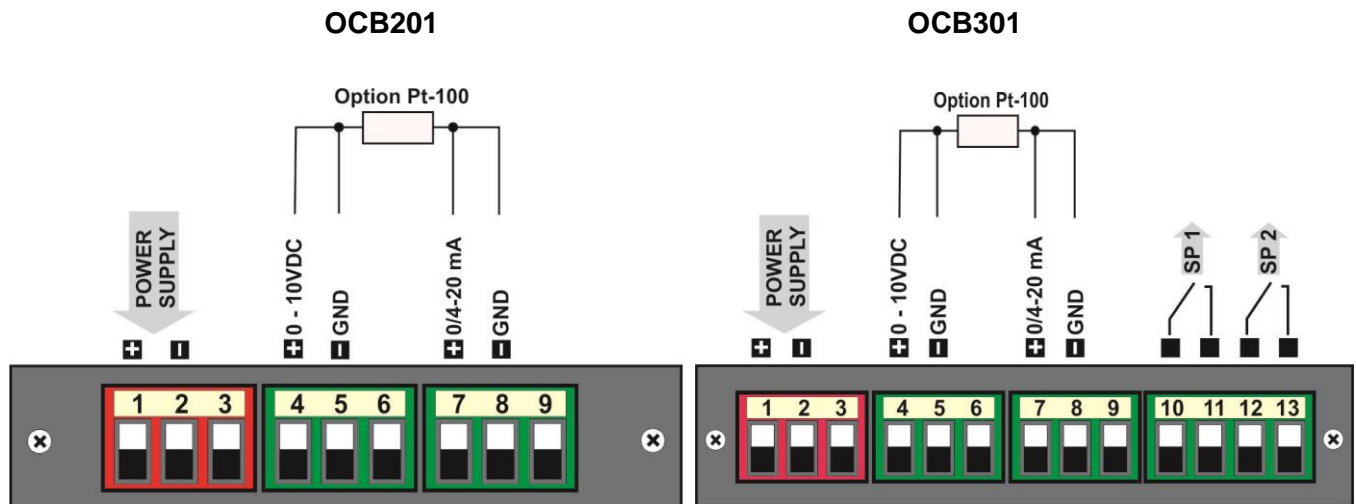
OCB201

OCB301

| **Power Supply**	**Input 1**	**Input 2**	**Set Point**
Pin 1: +24VDC	Pin 4: 0-10VDC	Pin 7: 0/4-20mA	Pin 10-11: Relay SP1
Pin 2: GND Supply	Pin 5: GND Signal	Pin 8: GND Signal	Pin 12-13: Relay SP2

4 BURST TEST and RECOMMENDED GROUNDING

Tester: EM Tester Type UCS 500M2, SN: 0499-41
E.U.T.: OCB200-D, SN: 2111129, Supply 24VDC
Set LO = 000, Set HI = 100
Input: RS485, Address 01, Baud Rate 9600bd
Bargraph: 100%

Test Conditions	**Zone 1**	
According to:	IEC 61000-4-4 level 3	2000V
	EN 50052-2 generic	2000V

Antenna Injections Zone 2
Burst Voltage 2500V, f = 5 kHz
fr = 300 ms
td = 15 ms coupling +/-

DC powered instrument are tested with power cord and signal input in Zone 2 at conditions shown in "Antenna Injections" above.

4.1 Test Set - Up
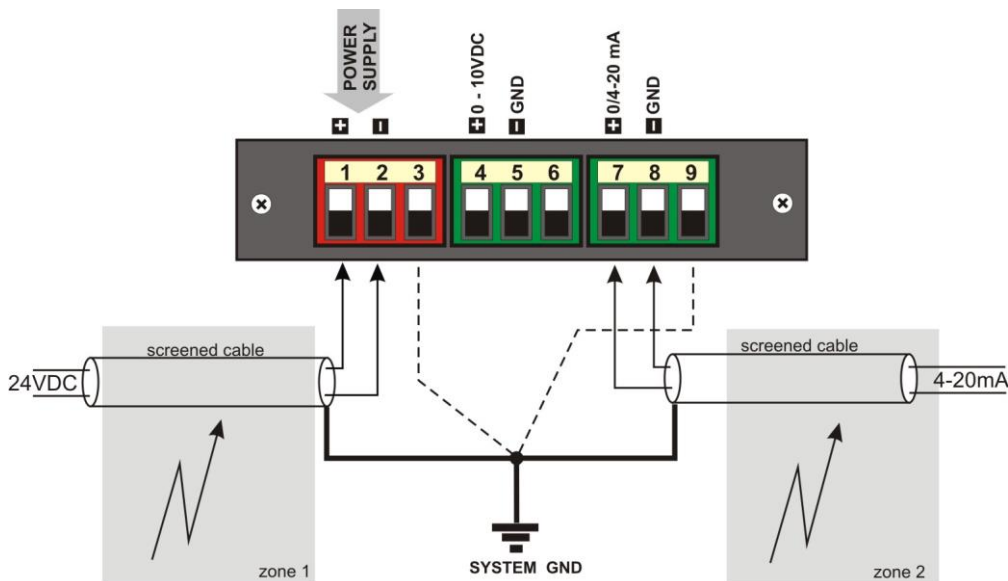
4.2 Test Results

Zone 1: Bargraph without change
Zone 2: Bargraph without change