metrix electronics
Authorised UK Distributor

OCB778

Bargraph for analogue Signals and serial Data Ports

Owner's Manual

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SICHERHEITSHINWEISE

Das Gerät muss mit selbständiger oder gemeinsamer Sicherung (Schutzschaltern) gesichert werden. Für die einzuhaltenden Sicherheitshinweise s. auch EN 61 010-1 + A2.

Das Gerät ist nicht explosionsgeschützt!

TECHNISCHE NORMEN

Die Anzeigen der Typenreihe OCB778 entsprechen der Europäischen Verordnung 89/336/EWG.

Sie erfüllen die Forderungen der folgenden europäischen Normen:
EN 55 022, Klasse B
EN 61000-4-2, -4, -5, -6, -8, -9, -10, -11.

Das Gerät ist zur unbeschränkten Anwendung in Landwirtschaft und Industrie geeignet.

ANSCHLUSS

Die Stromzuleitung von der Hauptspannungsquelle muss von den Messleitern getrennt verlegt werden.

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CE

Vor dem Einschalten

Überzeugen Sie sich, ob Ihre Sendung das richtige Gerät Orbit Controls Modell OCB778 beinhaltet, einschließlich einer Betriebsanleitung OCB778.
Vor dem Einschalten des Gerätes überprüfen Sie die Anschlüsse und die Versorgungsspannung. Ein falsch angeschlossenes Gerät kann beschädigt werden und damit auch die mitverbundene Folgeelektronik. Für falsche Handhabung wird jede Haftung abgelehnt.

ZU BEACHTEN

Dieses Gerät wurde sorgfältig verpackt. Falls es bei Ihnen in beschädigtem Zustand eintrifft, benachrichtigen Sie unverzüglich den Orbit Controls Kundendienst (Tel: +41 44 730 2753 oder Fax: +41 44 730 2783) und nehmen Sie einen Schadenrapport auf, welchen Sie auch von der Transportgesellschaft unterschreiben lassen. Bewahren Sie bitte das Verpackungsmaterial für eventuelle Reklamationen auf.

Unpacking Instructions

Remove the Packing List and verify that you have received all equipment, including the following: - Orbit Controls Model OCB778.
- Operator's Manual OCB778.

If you have any questions about the shipment, please call the Orbit Controls Customer Service Department.

NOTE

When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the Orbit Controls customer service, Phone +41 44 730 2753 or Fax +41 44 730 2783 and to the shipping agent.
The carrier will not honour damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in event the reshipment is necessary.

Bargraph for Analogue Signals and Serial Data Ports OCB778

- √ Input for DC process Signal 0/4-20 mA, 0-1V to 0-200V
- √ AC true RMS signals up to 280V
- √ Pt-100 and Thermocouples J, K, T, E, N
- √ Input for Serial Ports RS232, RS485
- √ 48 Bargraph Segments and 5 digits Display
- √ Free assignment of both displays to the input signal
- √ 244mm bar length
- √ Three Bars or Two Bars with two Set Points
- √ Set Point Relays or Transistor outputs
- √ Supply 24VDC or mains 115/230VAC
- √ DIN case

Two Bars and Two Set Points

Three Bars

OCB778 is a Bargraph with 48 segments and five digits high resolution Display.
It is designed for Analogue Process Signals and Digital Serial Ports. With keys behind the front lens both displays can be free programmed for required process units. Two Set Points with Transistor or Relay outputs are intended for control applications.

Analogue process signals, Pt-100 and Thermocouples can be directly measured with 16 bit resolution. Serial Ports RS232 or RS485 have selectable Baud Rate up to 115200 bd. The type of input signal, setting of parameters, display resolution and required scaling are Menu selectable.
In the measuring mode the display shows the input signal, in programming mode the parameters.

Scaling of both displays can be freely set to show the input signal in required process units. Displays will be set independently from each other.

Two Set Points can be selected within the entire display range of -9999 to +99999. They control two open collector transistors or two mechanical relays. Hysteresis can be set for each Set Point.

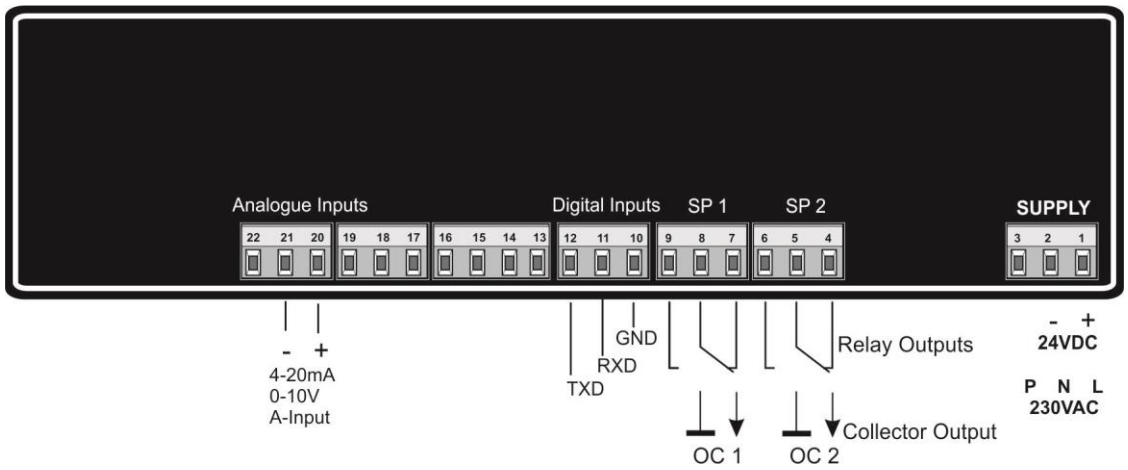
Digital Filter calculates the average value of a number of measurements before the value is displayed. The filter value can be set OFF, or 1 ... 99 measurements to smooth noisy input signals.

Tare function is activated by the SET key behind the lens. It forces the display to zero. The value remains stored when the power is switched-off from the instrument.

Display Intensity is settable from 1% to 100%.

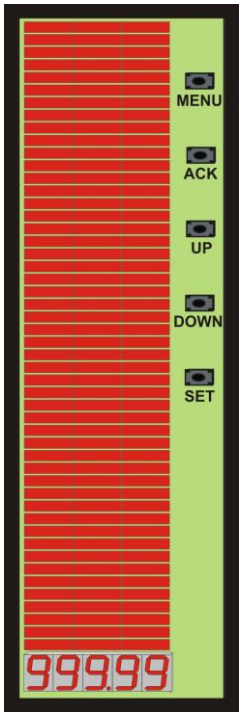
Display Count can be selected for 1, 2, 5 or 0 counts. With *Count 1* the display increments all numbers 1, 2, 3,....9, 0. With *Count 2* the display increments only even numbers, with *Count 5* the display shows only 5 and 0. With *Count 0* the LSD remains at zero (dummy zero).

TERMINALS



SPECIFICATIONS

Displays:	Bargraph length:	244mm, 50 red Segments 60mm width.
	Accuracy:	± 1 Segment.
	Digital Display:	5 digits, 15mm digit size, resolution 16 Bits
	Accuracy:	0.1% from value.
Inputs:	Analogue:	0/4 - 20mA, 0-10V, 0-200VDC 1V to 280V true RMS Pt-100 Four wire terminals Thermocouples J, K, T, E, N with or without compensation.
	Digital:	RS232, RS485, 1200 - 115200 Bd, ASCII with CRLF.
Set Points:	SP1, SP2 two open collector NPN Transistors 40V-100mA Option: two Relays 5A-230VAC	
Supply:	115/230V, 10%, 48 ... 60Hz. Option 18-36VDC.	
Cabinet:	DIN 288 x 96 x 80mm (H x W x D). Panel cut-out 282 x 92mm. Pluggable screw terminals at the rear	



SETTINGS

The control keys are accessible after removing the front lens and are assigned MENU, ACK, UP, DOWN and SET. They permit setting of the process parameters and selection of two Set Points SP1 and SP2.

MENU STEPS

The key *MENU* opens the Menu and permits scrolling the menu steps on the display. The required parameter will be confirmed with *ACK* and adjusted with *UP* or *DOWN* and confirmed with *MENU od SET*. The flashing digit - Cursor - will be positioned with *ACK*. The decimal point and the sign can be set when the cursor is positioned outside the display (no flashing digit). The sign and the decimal point can then be set with *UP* or *DOWN*.

IMPORTANT! The values have always to be set with a decimal point even after the last digit. (e.g. at SP1: 0.20 = 0.20 or 02.0 = 2 or 020. = 20)

MENU STEPS

Key	Display	Function
MENU	SP 1	Set Point SP1
ACK	XXXXX	Setting: -9999 to 99999. The SP1 is activated once the display reaches or exceeds the selected value
MENU	HSt 1	Hysteresis of SP1
ACK	XXXXX	Setting: -9999 to 99999
MENU	SP 2	Set Point SP2
ACK	XXXXX	Setting: -9999 to 99999. The SP2 is activated once the display reaches or exceeds the selected value
MENU	HSt 2	Hysteresis of SP2
ACK	XXXXX	Setting: -9999 to 99999
MENU	SEnSr	Input Type Selection
ACK	Lin	DC or AC Voltage or Currents
	Pt 100	RTD Thermometer
	tC J	Thermocouple J with automatic compensation
	tCC J	Thermocouple J without automatic compensation
	tC L	Thermocouple K with automatic compensation
	tCC L	Thermocouple K without automatic compensation
	tC t	Thermocouple T with automatic compensation
	tCC t	Thermocouple T without automatic compensation
	tC E	Thermocouple E with automatic compensation
	tCC E	Thermocouple E without automatic compensation
	tC n	Thermocouple N with automatic compensation
	tCC n	Thermocouple N without automatic compensation
	Cold	Temperature measurement of the internal junction
MENU	Set Lo	Required Display value for the minimum of the input signal, e.g. 4mA
MENU	Set Hi	Required Display value for the maximum of the input signal, e.g. 20mA
MENU	bAr Lo	Required Bargraph length at minimum input signal value e.g. 4mA
MENU	bAr Hi	Required Bargraph length at maximum input signal value e.g. 20mA
MENU	FnBAr	Wahl von 3 Balken oder zwei Balken und Set Points
ACK	FULL	Three Bars
	HALF	Two Bars and one Bar with two Set Points
MENU	d.P.	Decimal Point – reading resolution oft he digital display
ACK	CCCC.d	Select with UP and DOWN
MENU	FILtE	Filter constant – Average Value
ACK	OFF	Select OFF and 1,2….99
MENU	Count	Display reading oft he LSD
ACK	Cnt 0	0 = dummy zero 1 = 1,2,3…9 2 = 2,4,6,8,0 5 = 0,5,0,5
MENU	dISPL	Number of measurements for one display reading
ACK	dSP 1	Select 1 … 50
MENU	IntS	Display Intensity
ACK	L1	L 0, 1, 2 … L100 %
MENU	StArt	Measuring Mode

Function TARE (key *SET* at the display board)

The Tare Function can be used for fast calibration of the 4mA input signal. By applying 4mA at the input and pressing the SET key, the display board is forced to show the value set in the Menu Step *Set Lo*. Please note that the input signal must be 4mA when the key SET is pressed. If the input current is not exactly 4mA, the display reading in the measuring mode will be incorrect.

HtESt Sub Menu and Calibration

The Sub Menu HtESt will opens during the key MENU is pressed while the instrument is powered-on. The display shows HtESt. After each MENU keystroke the Submenu steps will increment at the display. The key SET permits decrementing.

8.8.8.8.8	Segment test
SP1	Set Point 1 activated
SP2	Set Point 2 activated
ADC	Analogue Converter displays the input signal value
2.4567	ADC – Reference signal with input signal displays

CALIBRATION
In this step the instrument will be calibrated:

Input Signal LO (e.g. 4mA) connect to the input. Press shortly the key LOW and confirm with ACK.
The display confirms with EEStO.

Input Signal HI (e.g. 20mA) connect to the input, Press shortly the key HIGH and confirm with ACK.
The Display confirms with EEStO.

rES	99.996	ADC value from momentary input signal
26°C	Temperature oft he junction for Thermocouples	
bd OFF	Baud Rate oft he Data Port	
bd 1.2	1200 bd	
bd 2.4	2400 bd	
bd 4.8	4800 bd	
bd 9.6	9600 bd	
bd 19.2	19200 bd	
bd 57.5	57600 bd	
b 115.2	115200 bd	Set with SET and confirm with ACK.
StArt	Measuring Mode	

MEASURING RANGES

The factory setting of OCB778 is upon the customer order. The digital display and the Bargraph will be precisely calibrated.
If not specified, the instrument will be calibrated and delivered with input voltage range 0-10VDC.

For further customer applications following ranges are available:

Selection inside the instrument

	20mV	1V	10V	100V	20mA
	H5 = open	H5 = closed	H5 = closed	H5 = closed	H5 = closed
	H7 = 1+2	H7 = 1+2	H7 = 2+3	H7 = 2+3	H7 = 1+2
	H6 = open	H6 = open	H6 = open	H6 = 2+3	H6 = 1+2
	H8 = open	H8 = closed	H8 = closed	H8 = closed	H8 = open
	H9 = 1+3 (DC) H9 = 3+4 (AC)	H9 = 1+3 (DC) H9 = 3+4 (AC)	H9 = 1+3 (DC) H9 = 3+4 (AC)	H9 = 1+3 (DC) H9 = 3+4 (AC)	H9 = 1+3
*	Z5 = open	Z5 = open	Z5 = open	Z5 = open	Z5 = open
*	Z5 = 2.00V Ref R39 = Gain				

Selector H5 defines the Type of the Input Stage:
Differential Input: H5 = open
Single Ended Input: H5 = closed (- Input of the Instrumentation Amplifier connected to GND).
For 20mV Range is he input amplifier differential.

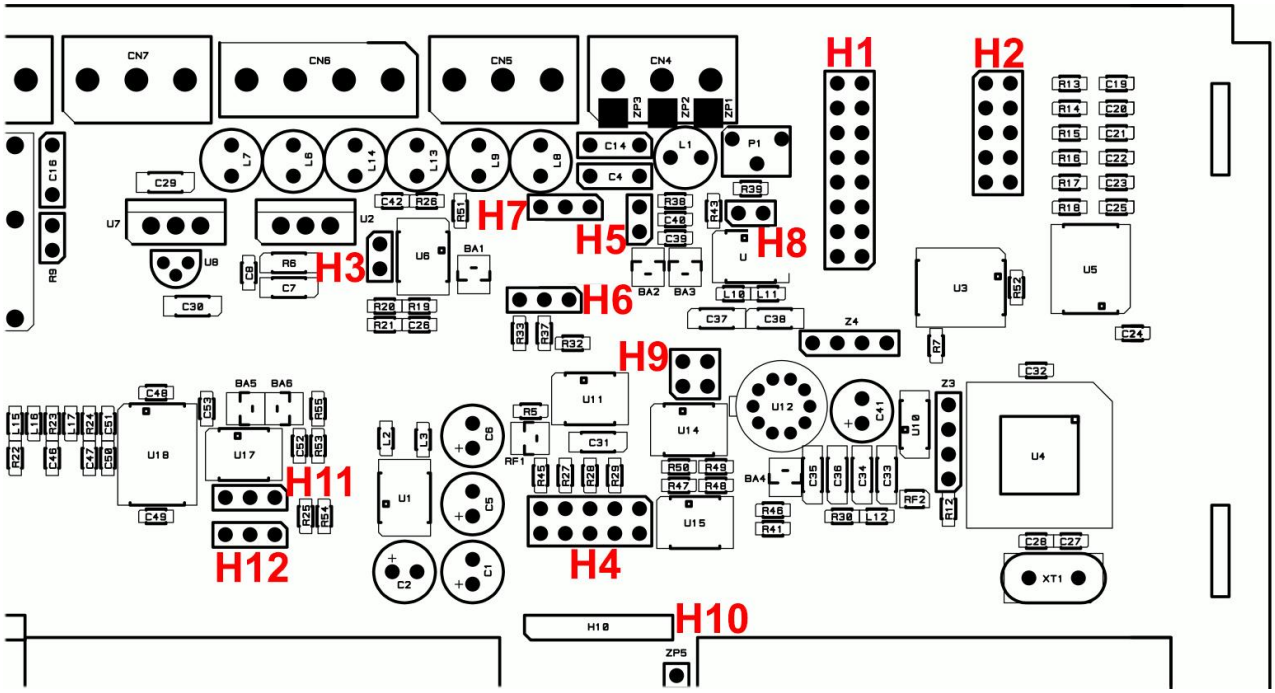
Selector H11 and H12 define the Type of **RS Data Port**:

RS232	RS485
H11 = 2+3	H11 = 1+2
H12 = 2+3	H12 = 1+2

For correct operation select the Baud Rate in the HtESt.

Selector Z5 at the solder side of the board defines the Type of Bipolar or Unipolar Range operation:

Z5 – closed: Unipolar e.g.4-20mA, 0-10V.
Z5 – open: Bipolar e.g. -10…+10V



BURST TEST and RECOMMENDED GROUNDING

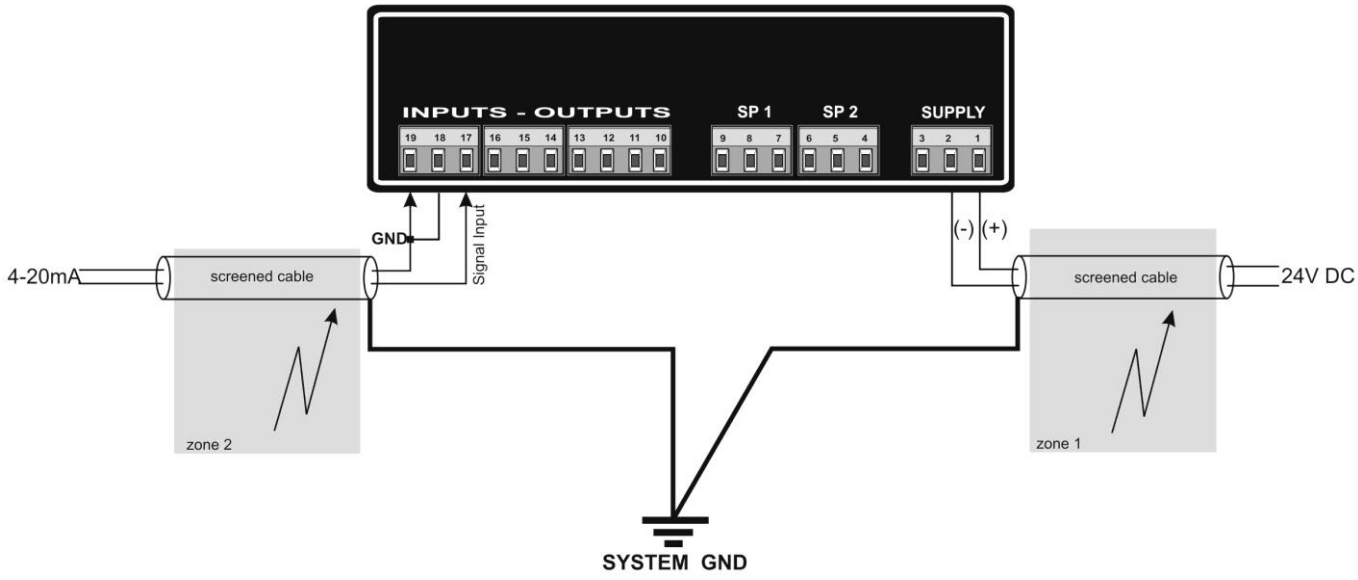
Tester: EM Tester Type UCS 500M2, SN: 0499-41
E.U.T.: OCB778, SN: 20151015-1, Supply 24VDC
OCB778, SN: 20151015-2, Supply 230VAC
Input: 4-20mA
Display: 0-100
Bargraph: 0-100%

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

Burst into Antenna **Zone 2** **Instruments with DC Supply**
Burst Voltage 2500V, f = 5 kHz
fr = 300 ms
td = 15 ms Coupling +/-

Test Conditions **Zone 2** **Instruments with DC Supply**
The supply and the signal lines are tested together in the Antenna Zone 2, see Test Set-Up.
The terminal 1 and the Cable Screen are connected to the **System GND**

Test Set - Up



Test Results

Zone 1: Digital Display and Bargraph without change
Zone 2: Digital Display and Bargraph without change

Technician: S. Batinic 15. October 2015