Set Point Controller
OC557
4…20mA Input

Operator's Manual

METRIX ELECTRONICS LTD.
Minchens Court, Minchens Lane
Bramley, Tadley, Hampshire
RG26 5BH, United Kingdom

Tel: +44 (0)845 034 3234
Fax: +44 (0)845 034 3233
www.metrix-electronics.com
sales@metrix-electronics.com

Unpacking Instructions

Remove the Packing List and verify that you have received all equipment, including the following:

OC557 Set Point Controller
Operator's Manual OC557

If you have any questions about the shipment, please call the Metrix Electronics Ltd. Customer Service Department.

NOTE

When you receive the shipment, inspect the packaging and equipment for signs of damage and note any evidence of rough handling or damage in transit.
Immediately report any damage to the Metrix Electronics Ltd. Customer Service Department: Phone +44 (0)845 034 3234 or Fax: +44 (0)845 034 3233
Also inform the shipping agent. The carrier may not accept a claim for damage unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in case return shipment is necessary.

Safety Considerations

The instrument must be protected by power supply fuse to fulfil the safety considerations of EN 61010-1 + A2.

The instrument is not suitable for explosive environments!

EUROPEAN NORMS
OC557 controllers comply with the European Union EMC directive 89/336/EWG.

They meet the requirements of the European standards:
EN 55 022, class B
EN 61000-4-2, -4, -5, -6, -8, -9, -10, -11.

The instrument is suitable for general purpose industrial applications.

CONNECTIONS
The power supply lines should be separated from the signal lines to prevent interference.

CE

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SET POINT CONTROLLER
OC557

- ✓ 5 digit display 99999, 57mm Digit size
- ✓ 16 Bit Conversion
- ✓ 4-20mA Current range
- ✓ Two Output Relays
- ✓ Supply 18-36VDC
- ✓ Freely programmable
- ✓ Two point calibration

OC557 is a 5 Digit programmable controller with 57mm green seven segment LED displays. The instrument is mainly designed for connection to process signals such as 0/4-20mA, and optionally 60mV to 300VDC or true RMS, RTD Sensors, Thermistors, Resistors, Potentiometers, Thermocouples and other industrial signal sources.

With keys behind the front lens, the measured input signal can be assigned to any two desired display values, such as 4-20mA = 0-18500. The menu includes the scaling of the input signal to the display range, selection of two set points, setting the filter, the display rate and the display resolution.

The Service Menu *HtESt* is for checking the instrument's performance and making the calibration.

Two Set Points can be selected within the display range of -9999 to +99999. They operate two mechanical relays. Hysteresis can be set for each Set Point.

Input Range is factory set for 4-20mA inputs.

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. The Tare function is primarily determined for calibration and display check at 4mA input signal.

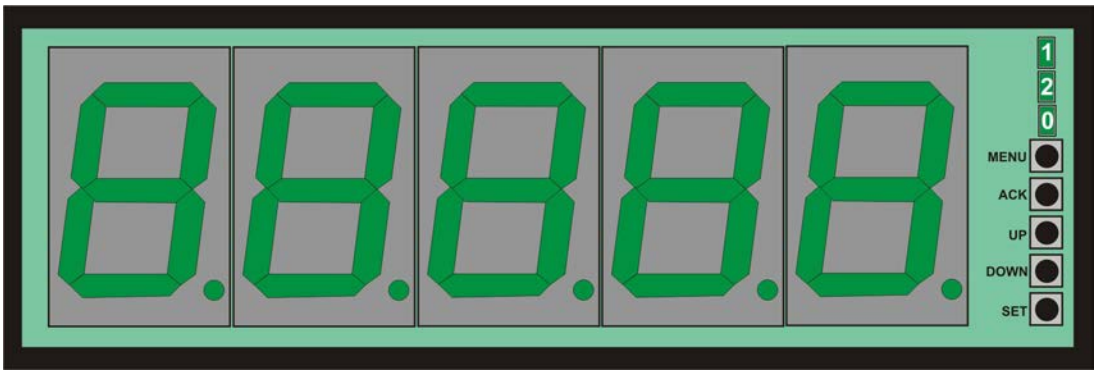
Display Rate can be selected between 1 and 50 measurements which refresh the display readings. By selecting 1 the display will refresh at a rate of 15 samples/sec.

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).

Further factory installed options are available such as: Peak & Valley memory, additional DC and AC Ranges, inputs for Thermocouples, RTD temperature sensors, Potentiometers and Resistors, plus Bluetooth communication. The Bluetooth option enables the menu parameters to be set from a PC and the process results to down loaded to a Windows ® PC.

1 PROGRAMMING KEYS

The programming keys are accessible behind the front lens.



MENU UP SET

ACK DOWN **3 LED** SP1, SP2 and OK

2 SPECIFICATIONS

Display:	*-9999 ... 99999*	7-segment green or red 57mm LED displays with decimal point.
	LED 1, 2	Two LEDs show the activated Set Points.
	LED O	Indication of sensor break. The LED is ON when the input current is greater than 1mA.
Standard Input:	4-20mA DC factory set. Input Impedance 10 Ohm.	
Optional Inputs:	Voltage	20mV to 300V DC or true RMS.
	Current	10mA to 5A DC or true RMS.
	Pt-100	2 or 4 wire. -200...+650°C according to PT385.
	OHM	10Ω-100kΩ, 2 or 4 wire connection.
	T/C	E, J, K, S, B, C, T, according to DIN.
	Cold Junction automatic compensation 0 - 60°C.	
	Thermistors	9796Ω @ 0ºC, 27965Ω□@ 0ºC
ADC:	16 bit, bipolar, sampling time 63ms.	
	Integral Nonlinearity:	± 0.006% of range
	Zero Error:	± 0.0168% of range
	Rollover Error:	± 0.032% of range
	Tempco:	± 10ppm/°C
	Linearity:	± (1 LSB + 1 digit).

Accuracy:	DC Ranges	± (0.01% of value + 2 digit)
Accuracy Options:	True RMS	50Hz - 5kHz: ± (0.1% of value + 2 digits)
	Pt-100:	± (1°C +1 digit)
	T/C, Thermistors:	± (2°C +1 digit)
	Tempco:	± 25 ppm/°K

Set Points: Set Points SP1, SP2 with two mechanical relays 5A-230VAC.
The setting range is -9999 to 99999. Each Set Point has adjustable Hysteresis from -99 to 99. Their alarm condition is indicated by two LEDs on the display board.

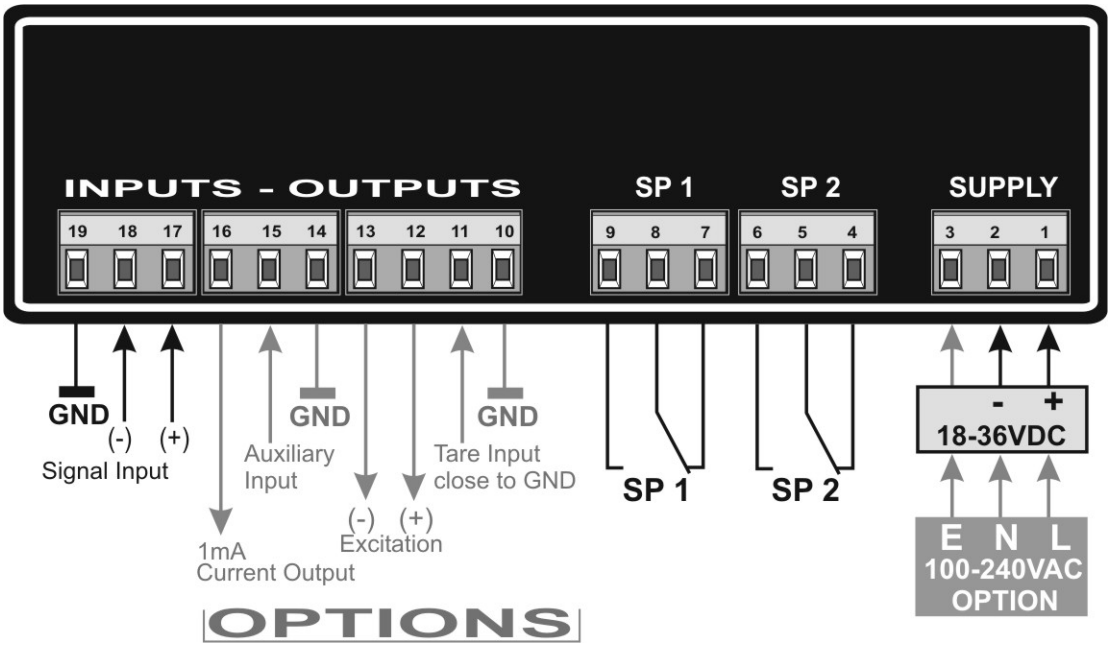
Excitation Option:	Voltage:	12V/120mA.
	Current:	Constant Current 1mA for RTD and Resistance Measurements
	Reference:	Reference voltage 1.25V for Potentiometric applications

Supply: 24VDC-15W Option: 100-240V, 48-60 Hz.
Recommended fuse rating 1A slow blow

Cabinet: DIN 288 x 96 x 85 mm (H x W x D), Panel cut-out 282 x 90 mm.

Terminals: Pluggable Terminal Blocks

3 TERMINALS



4 MENU

The programming keys are accessible behind the front lens.

The **MENU** key opens the Menu. The required parameter is confirmed with the **ACK** key.
Parameter values are set with the **UP** or **DOWN** keys.
The flashing digit - Cursor - can be positioned with **ACK** key. The sign and the decimal point can be set after the cursor is positioned outside the display range (none of the digits are flashing).
The **UP** key sets the decimal point, the key **DOWN** sets the sign. The **SET** key ends the programming and the display returns to the measuring mode.

4.1 Standard Menu for 4-20mA Current Loops

KEY	DISPLAY	FUNCTION
MENU	SP 1	Set Point SP1
ACK	XXXXXX	Selection -9999 to 99999. The Relay SP1 is activated at the Set Point value or above it.
MENU	HSt 1	Hysteresis of the SP1
ACK	XXXXXX	Selection: -9999 to 99999
MENU	SP 2	Set Point SP2
ACK	XXXXXX	Selection -9999 to 99999. The Relay SP2 is activated at the Set Point value or above it.
MENU	HSt 2	Hysteresis of the SP2
ACK	XXXXXX	Selection: -9999 to 99999
MENU	Set Lo	Required display value with the minimum input signal (e.g. 4mA)
MENU	Set Hi	Required display value with the maximum input signal (e.g. 20mA)
MENU	d.P.	Display resolution
ACK	CCC.dd	Selection with UP or DOWN
	tnP-C.	resolution with °C symbol. Display without decimal point
	tnP-F.	resolution with °F symbol. Display without decimal point
MENU	FILtE	Digital average Filter
ACK	OFF	Selection from OFF or 1,2….99
MENU	Count	Count of the LSD
ACK	0	Dummy Zero
	1	Display incrementing 1,2,3….9,0
	2	Display incrementing 2,4,6…
	5	Display incrementing 0,5,0,5…
MENU	dISPL	Display refresh after selected number of measurements
ACK	1	Selection 1, 2 …. 50
MENU	IntEn	Display intensity in %
ACK	L 80	Selection L 1, L 2, L 5…… L 100
MENU	Start	Returns to the 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 pressing the SET key the display 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.

5 SERVICE and CALIBRATION MENU - HtESt

The Service Menu ***HtESt*** enables a fast check of the instrument's operation and offers the software calibration via the keyboard. To enter the Service menu, keep the **MENU** key pressed while the instrument is switched-on. Release the key when the display shows ***HtESt***. The Service Menu is stepped forward with the **MENU** key and stepped backwards with the **SET** key.

NOTE

Current calibrator with an accuracy of 0.01% such as OC502-t is required to set the instrument's calibration

88888 All display segments are activated

SP1 Set Point LED 1 and Relay 1 are activated.

SP2 Set Point LED 2 and Relay 2 are activated.

AdC ADC internal DC value of the converter. This step sets the calibration.
ATTENTION! The input signal has to be set to ZERO before this Step is entered!

0.00XXX Apply the zero signal value. The display shows the internal voltage reference 0.00V. With 4mA the display shows ***0.7XXX***. The Zero Value will be calibrated when the **DOWN** key is pressed. The display shows ***Ac LO***. Press the **ACK** key and keep it pressed until the display shows ***EE StO***. The Zero Signal Value has been calibrated.

3.6XXX The Maximum Signal Value will be calibrated when the full range signal is applied and the **UP** key is pressed. With 20mA the display shows ***3.6XXX***. The display shows ***AC HI***. Press the **ACK** key and keep it pressed until the display shows ***EE StO***. The maximum signal value has been calibrated.

rES The display briefly shows ***rES*** and switches into the measuring mode. The display value corresponds to the **SEt HI** value programmed in the main menu.

StArt Return to the Measuring Mode

6 BURST TEST and RECOMMENDED GROUNDING

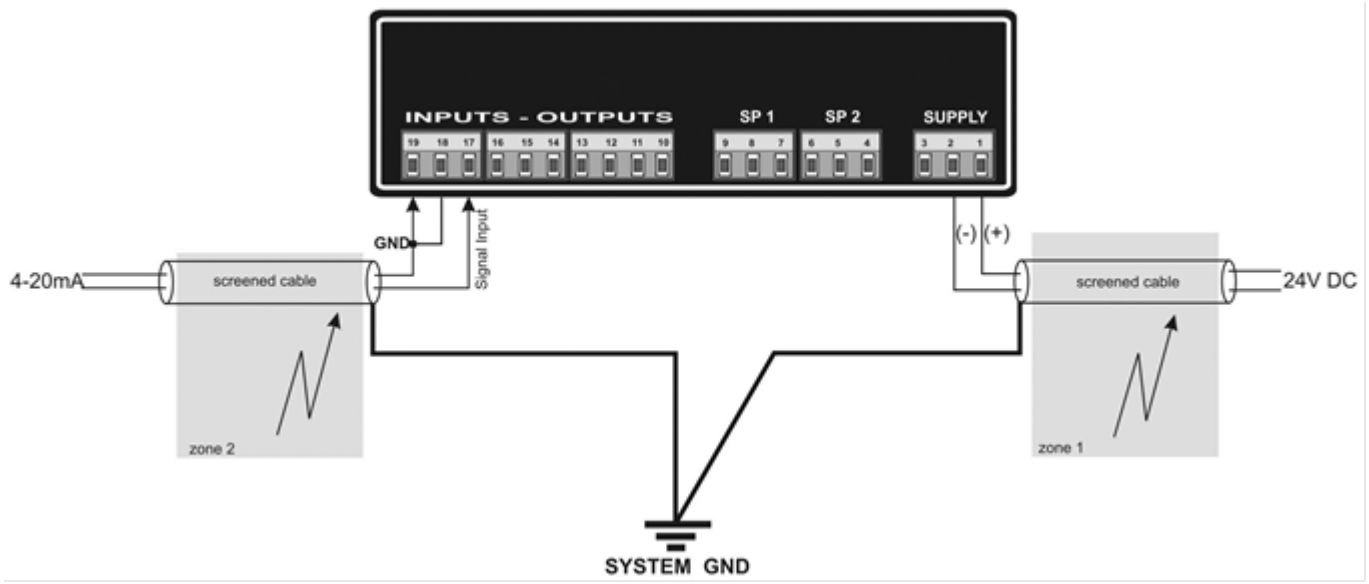
Tester: Burst-Surge Generator HILO, Model CE-Tester
E.U.T.: OC557, SN: 2100614, Supply 24VDC
Mode: Linear, Set LO = 00000, Set HI = 10000
Input: 4-20mA
Display: 10000

6.1 Conditions

Electrical Safety: EN 61010-1 + A2.

The instrument fulfils the requirement of the norms:
EN 55 022, class B and EN 61000-4-2, -4, -5, -6, -8, -9, -10, -11.

6.2 Test Set - Up



6.3 Test Results

Zone 1:	2kV Burst	Display 10000 without change
Zone 2:	2kV Burst	Display 10000 without change

Technician: A. Moncada July 29th, 2010