PROGRAMMABLE CONTROLLER OC 7056

Owner's Manual

OC7056new.hex CS F216

Unpacking Instructions

Remove the Packing List and verify that you have received all equipment, including the following:
Orbit Controls Model OC 7056 Programmable Controller.
Operator's Manual OC 7056.
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 +411 730 2753 or Fax +411 730 2783 and to the shipping agent.
The carrier will not honor 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.

INDEX

Programmable Controller OC 7056

- ✓ **6 digit Display ± 999999**
- ✓ **± 200 000 true Measuring Points**
- ✓ **20 mV... 200 V Ranges**
- ✓ **0/4 - 20 mA Range**
- ✓ **Four Set Point Relay**
- ✓ **Free programmable**
- ✓ **RS232 and RS485**
- ✓ **Analog Outputs 0-10V, 0/4-20mA**
- ✓ **Adjustable Excitation**

Model OC7056 is a 6 digit programmable controller with ± 200 000 true measuring points for linear process signals such as 0-200mV, 0-20mA, 4-20mA etc.

Direct assignment of the input signal to the required display value can be achieved with the keyboard at the instrument's front and permits simple field calibration. By using the scaling constant, the input signal can be shown in required process units.

The menu can be opened with the keyboard and the parameters programmed. Three submenus are available in which the Password, Scaling, Offset, Display Resolution, Filter, Analog Output, Data Ports and Set Points can be selected.

A software calibration can be performed with the keyboard.

Scaling of the Display with the keyboard permits entering of a multiplicative and a dividing constant.

Display Resolution can be selected for up to 5 decimal points.

Four Set Points with open collector or mechanical relay outputs with adjustable Hysterese can be set within the entire display range.

Digital Filter has programmable averaging constants from 1 to 20 and can be used for disturbed signals or noisy environments to achieve steady readings.

Analog Outputs (Option) 0/4-20mA or 0 ... ±10V is derived from the display and can be assigned to the required display reading. The analog output can be set for direct acting or inverted and is isolated from the input and the supply.

RS-Ports (Option) RS232 and RS485 are available and are isolated from the input and the supply.

Tara sets the display to zero. It remains memorized also when the power is switched-off.

Password can be used to protect non authorized entry into the menu. Without the Password only the Set Points, Analog Outputs, RS-Ports and the Tara can be selected.

1   KEYBOARD

Key   Function

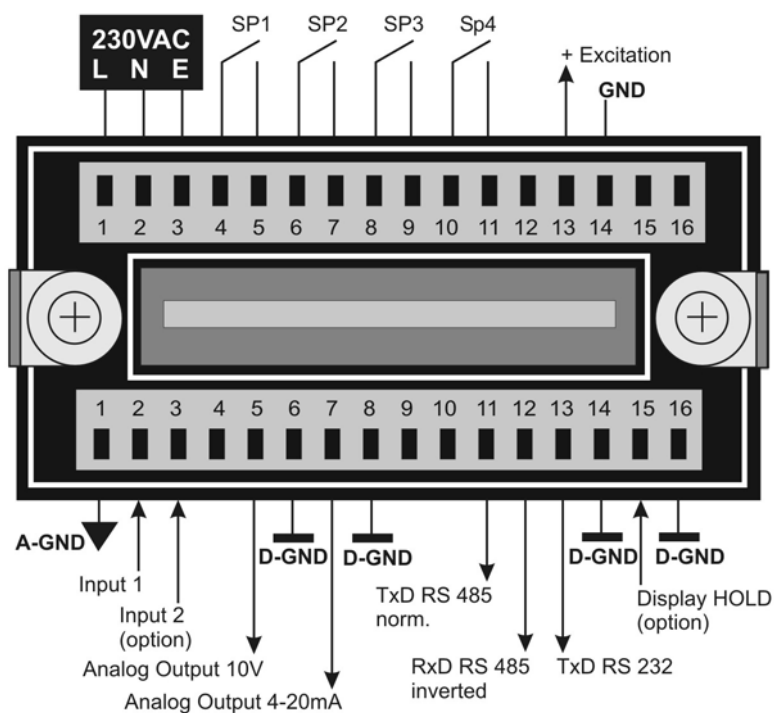MENU   opens and scrolls the menu.
ACK   confirms the selected submenu.
UP   Parameter setting: Up-setting of the selected digit, decimal point and sign.
DOWN   Parameter setting: Down-setting of the selected digit, decimal point and sign.
SET   Parameter setting: Positioning of the cursor – flashing digit.
              Measure Mode: Tara of the display

2   TERMINALS

3   SPECIFICATIONS

Input   **mV-DC:**   ± 200mV to ± 200V DC, state when ordering.
                   0/4-20mA: Shunt 10 Ohm.

Accuracy   Gain Error: ± 10ppm/ °C @ Gain = 10 (200mV range).
                   Offset Error: ± 10ppm/ °C.

A-D-C   2,5 samples per second.
                   Resolution 18 Bit.
                   Linearity ± (1 LSB + 1 digit).

Display   0 ... ± 9.9.9.9.9.9.   7 segment red LEDs, 14,7 mm.

Analog Outputs **Current Output:**   0-20mA or 4-20mA, load ≤ 300 Ohm.
                                          Resolution 12bit.
                    Voltage Output: 0 ... + 10V or -10 ... +10V, load >10 kOhm.
                                          Resolution 12bit.
                    Selectable for: OFF, direct acting - LH or inverted - HL.

Tara   The Tara function can be activated or switched-off in the menu. During the
                   measure mode the display can be set to zero with the key SET. The Tara remains
                   activated also when the instrument is switched-off from the supply.

Filter   Averaging filter with selectable values from 1 to 20.

Excitation   12V/40mA isolated.

Set Points   Four 6 digit set points with Hysterese. Four open collector NPN transistors 60V-100mA
                   or four relay 5A-230VAC.

Supply   115V/230V ± 15%, 48 - 60 Hz, 6VA. Option: 9-36VDC/3W.

Cabinet   DIN 48x96x150 mm (HxWxD), Panel cut-out 45 x 93 mm, screw terminals.

4   MENU

The flow chart shows the main menu and the three submenus.
The key MENU permits entering the menu. The required submenu can be open with the key ACK.

The Submenu INPUT *SETTING* is protected with a Password. The parameters in the submenus *SET POINT SETTING* and OUTPUT *SETTING* are not protected with a Password.

The measuring mode starts automatically at the end of each submenu.

The key SET in the measure mode permits setting of the Tara.

MAIN MENU

SUBMENU INPUT SETTING   SUBMENU SET POINT SETTING   SUBMENU OUTPUT SETTING
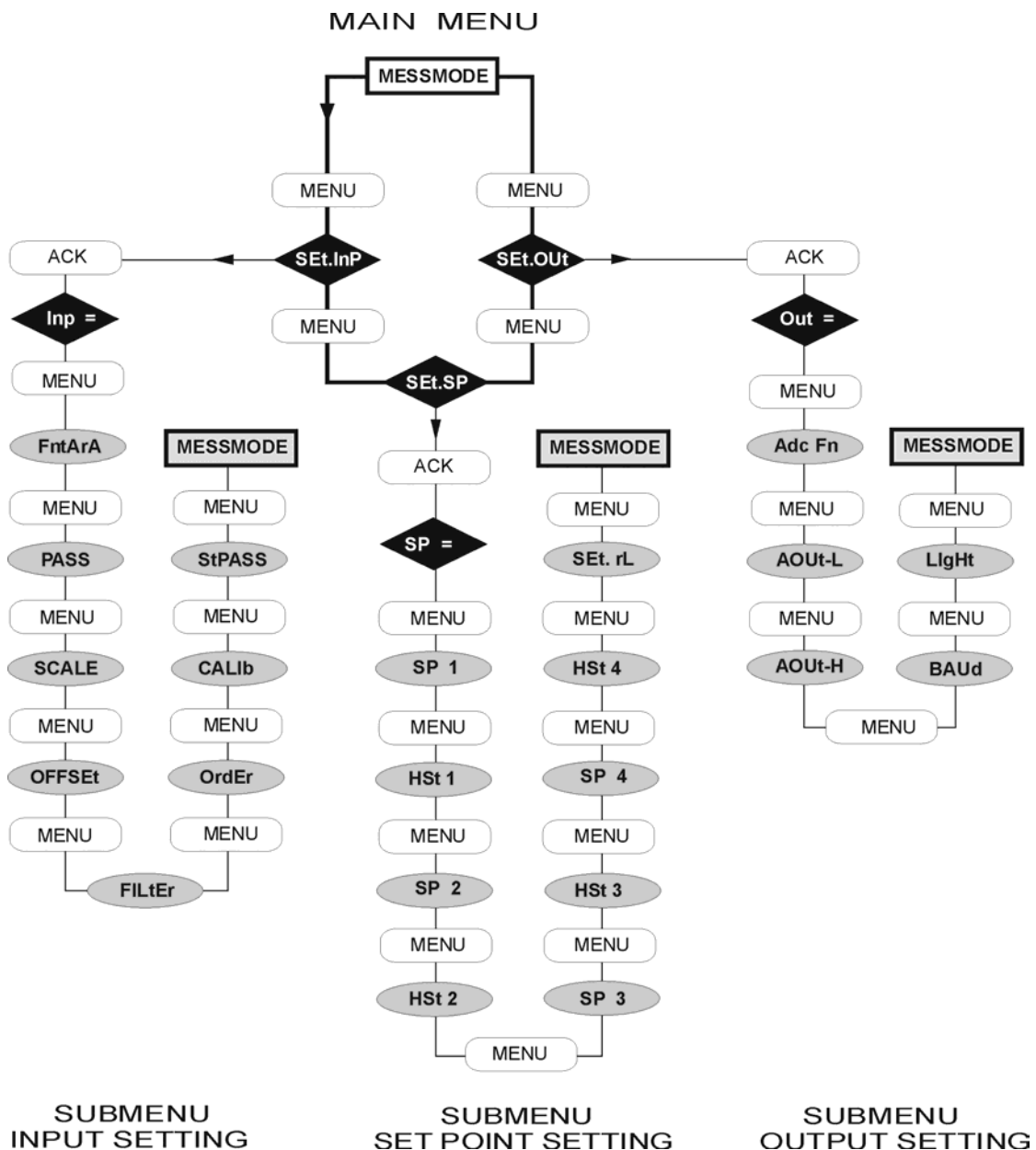
4.1 MENU STEPS

The program contains the Main Menu and three Submenus. With the key *MENU* the main menu can be scrolled at the display. The required Submenu can be open with the key *ACK*.

In the first Submenu SEt**. InP** are the measuring Parameters.
In the second Submenu Set**. SP** are the Set points.
In the third Submenu Set.Out are the analog outputs.

In each Submenu the parameters can be set as follows:
The flashing digit -Cursor- is set with UP or DOWN, positioned with SET. The decimal point and the sign can be set when the cursor is placed outside the display range (no digit flashing) with the key SET. The keys UP and DOWN set the required decimal point and the sign.

4.1.1 SUBMENU Set.InP

Key	Display	Function
MENU	Set InP	The Submenu Input *Setting* .
ACK	Inp =	Input parameters can be set.
MENU	FntArA	Tara function.
ACK	On, OFF	On: Tare is activated.
		OFF: Tare is not activated.
MENU	PASS	Password.
ACK	000000	Default 000000. The correct password has to be entered to enable The setting of parameters. The password is set in the menu step St PASS.
MENU	SCALE	Multiplicative constant selectable from 0.00001 to 9.99999.
ACK	XXXXXX	The flashing digit -Cursor- is set with UP or DOWN, positioned with SET. The decimal point and the sign can be set when the cursor is placed outside the display range (no digit flashing) with the key SET. The keys UP and DOWN set the required decimal point and the sign.
MENU	OFFSEt	Display Offset.
MENU	FILtEr	Averaging filter adjustable from 1 to 20.
MENU	OrdEr	Display Resolution C.ddddd …CCCCCC.
MENU	CALIb	Software calibration
ACK	U 0	Selection with DOWN. With Zero Signal at the input the key SET is pressed. The instrument is calibrated for Zero.
	U 1000	Selection with the key UP. With the maximum input signal the key SET is pressed. The instrument is calibrated for Maximum (e.g. 20mA). The display can be now scaled for any required value by entering the SCALE.
MENU	St PASS	Selection of the Password. This Password has to be put down. It will be used for entering the menu in the step PASS.
MENU	XXXXXX	Measure Mode.

4.1.2 SUBMENU Set.SP

Key	Display	Function
MENU	Set SP	The Submenu **Set Point Setting**.
ACK	SP =	The Parameters can be set.
MENU	SP 1	Set Point 1
MENU	HSt 1	Hysterese 1
MENU	SP 2	Set Points 2
MENU	HSt 2	Hysterese 2
MENU	SP 3	Set Point 3
MENU	HSt 3	Hysterese 3
MENU	SP 4	Set Point 4
MENU	HSt 4	Hysterese 4
MENU	SEt rL	Relay configuration for NO or OC
MENU	XXXXXX	Measure Mode

4.1.3 SUBMENU Set.OUt

Key	Display	Function		
MENU	Set OUt	The Submenu **Output Setting**.		
ACK	OUt =	The Parameters can be set.		
MENU	Adc Fn	Function of the Analog output:	OFF	not activated
			LH	direct proportional
			HL	inverted
MENU	bAUd	Serial Data Port Baud Rate 300 to 4800 bd		
MENU	Light	Display intensity		
MENU	XXXXXX	Measure Mode		

5   CALIBRATION

The Range Calibration can be set in two points and generates a linear interpolated range. The signal from a calibrator e.g. 4-20mA is applied to the input. The SCALE is selected for 1.00000. After the calibration the display shows 100 000 with the maximal value of the calibration signal.
After the SCALE can be set to display the required process value.

In the Submenu Set.InP the menu parameter CALIb has to be selected and confirmed with *ACK*.
With the key *DOWN* force the display to show   **U   0**. Apply the minimal signal value from the calibrator (e.g. 4mA) and press *SET*. The display responds with Set **0**.
With the key *UP* force the display to show U **1000**. Apply the maximal signal value from the calibrator (e.g. 20mA) and press *SET*. The display responds with Set **1**.
The calibration is finished.
Press MENU twice. The display returns to the measure mode and shows 100 000 with the maximal signal applied at the input.

6   PARAMETER SCALE and OrdEr

By selecting of these two parameters the display shows the required value with decimal point.

6.1   SCALE

This constant can be set from 0.00001 to 9.99999 and multiplies the calibrated value of 100 000. If e.g. the Scale is selected for 0.32, the display shows 32000 with the maximal input signal.

6.2   OrdEr

The parameter OrdEr determines the display resolution up to 5 decimal points. The floating arithmetic assures that the display resolution is always set to the preselected resolution at a variable input signal.
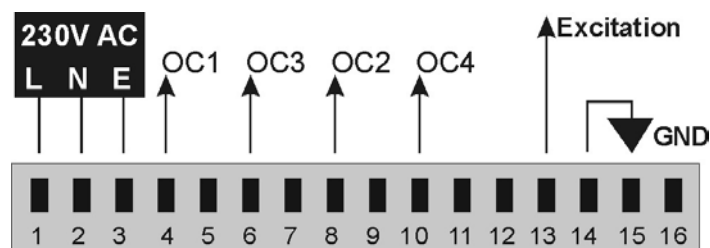
7   TARA

In the menus step tArA can this function be activated (On) or suppressed (OFF). When the Tara is activated, the display can be reset to zero in the measuring mode by using the key SET.
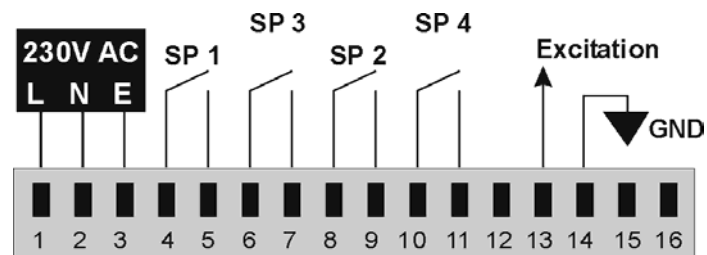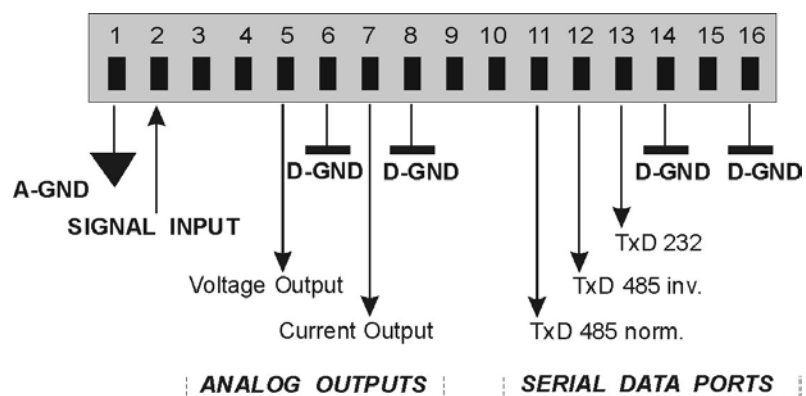
8 CONNECTIONS

8.1 Upper and lower terminals
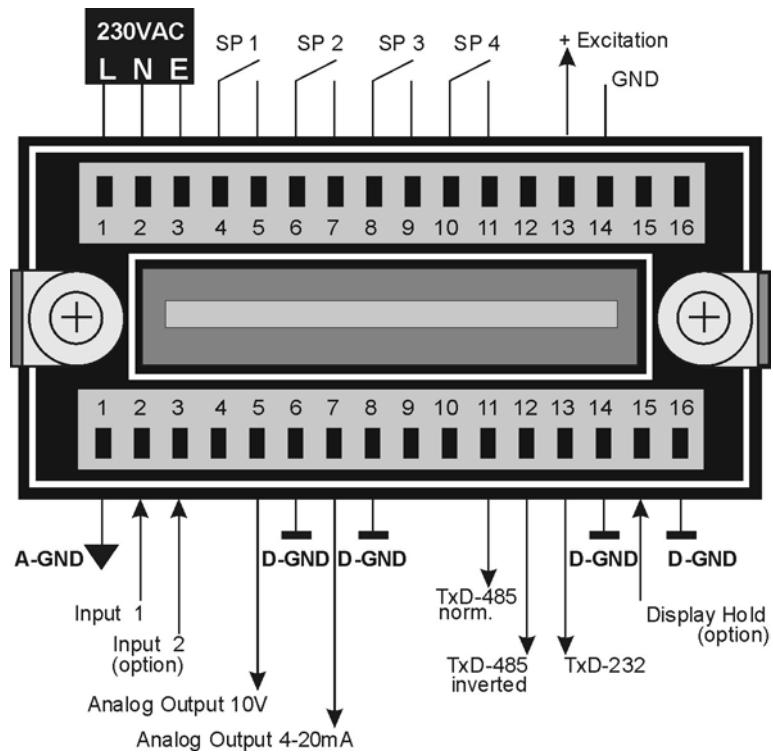
8.2 Upper Terminals with 4 open collector transistors

8.3   Upper Terminals with 4 Relay

8.4   Lower Terminals: Signal Input and Options

9 ANALOG OUTPUTS and SERIAL DATA PORTS

9.1 Analog Outputs

Two analog outputs are generated simultaneously: 0/4 - 20 mA und -10V ... 10V. With the keyboard the can be set in the menu step Adc **Fn** as direct acting, inverted or switched-off.

Direct acting outputs will be selected as Adc **Fn** and LH.
Inverted outputs will be selected as Adc **Fn** and HL.
Inactive outputs will be set as Adc **Fn** and OFF.

The assignment of the analog output to the desired display value with the keyboard is performed in the submenu Set.Out and in the menu step Aout-**L** and Aout-**H**.

Example:　　　　*Aout-L* = 000000
　　　　　　　　　　Aout-H = 001500

　　　　　　　　　　Adc Fn = LH　direct acting output

The two analog outputs 0 or 4mA (selection inside the instrument) and -10V are generated when the display shows 000000. At the display of 1500 and larger the analog output is 20mA and 10V. The values in-between are linear interpolated.
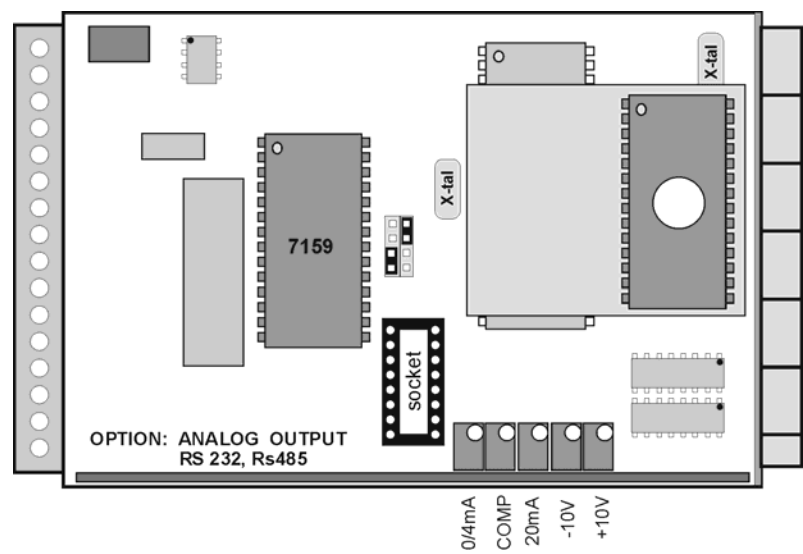
9.2 Serial Data Ports RS232 and RS485

The baud rate is selectable in the menu step bAUd, the address in rS **Adr**.　Address 00 selects RS232. One of addresses 01 - 31 selects RS485.
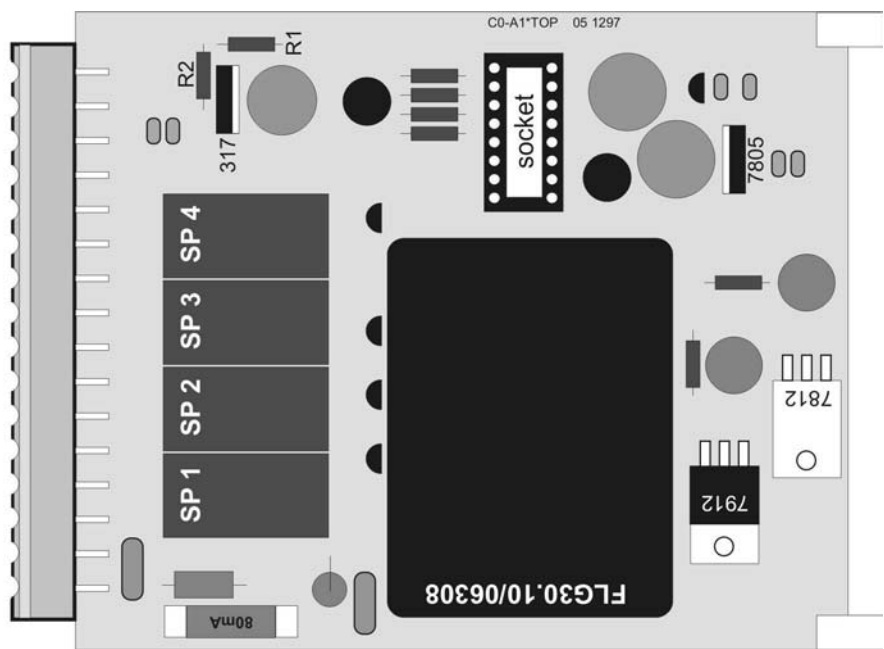
Data Format:　8 bit, no Parity, 1 Start, 1 Stop, Baud Rate 300 to 4800 bd selectable.

Data Transmission: Uninterrupted displayed value. Request transmission is not available.

9.3   Option Board: Analog Outputs and RS Ports

OPTION: ANALOG OUTPUT
RS 232, Rs485

7159

X-tal

X-tal

socket

0/4mA
COMP
20mA
-10V
+10V

9.4   Supply Board 115/230VAC

C0-A1*TOP   05 1297

R2
R1
317
socket
7805
SP 4
SP 3
SP 2
SP 1
7812
7912
FLG30.10/06308
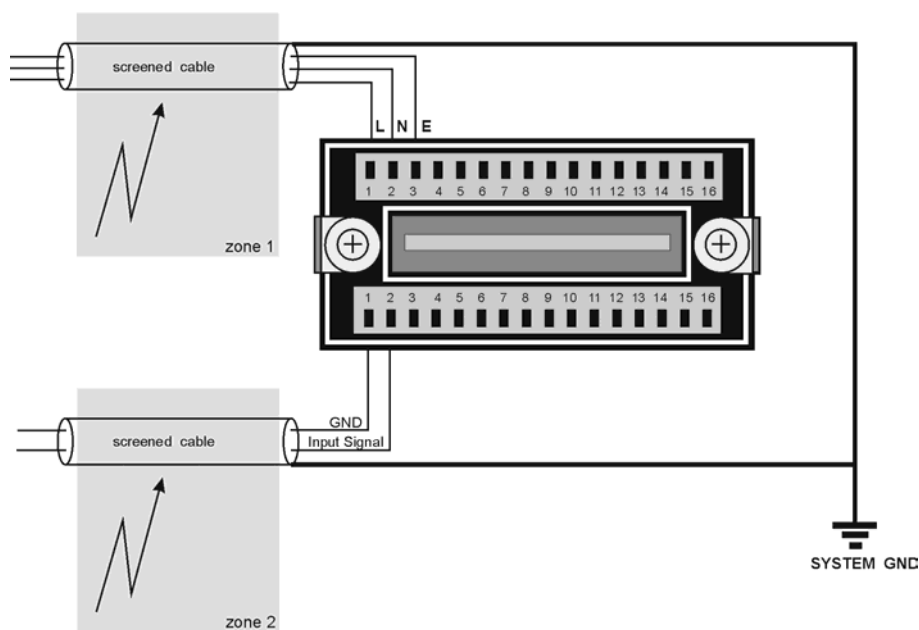80mA

10   BURST TEST and RECOMENDED CONNECTIONS

Tester: Burst-Surge Generator HILO, Model CE-Tester
Date: 28. August 2000
U.U.T.:   OC7056, SN:200829, Supply 230VA
                 Input: 4-20mA
                 Display: 100000

10.1   Test Conditions
According to: IEC 801-4
               IEC 1000-4-4
               EN 50052-1

10.2   Test Set - Up

10.3   Test Results

Zone 1:   2kV Burst   Display 100000, no deviation.
Zone 2:   2kV Burst   Display 100000, no deviation

Technician: Oliver Matthews   28. August 2000