



# Polynom Linearizer OC7040A-POL

- ✓  $\pm 100\ 000$  true Increments
- ✓ 6 digit Display  $\pm 999999$  scalable
- ✓ 20mV, 100mV, 1V, 10V, 0/4-20mA
- ✓ Excitation 5 - 24V
- ✓ Polynom 6th Degree
- ✓ Four Set Points
- ✓ Analog Outputs 4-20mA, 0-10V
- ✓ RS 232 and RS 485
- ✓ Mains or DC Supply



**Orbit Controls OC7040A-POL** is a programmable 6 digit controller with 100000 true measuring increments and selectable inputs for linear or non-linear input signals.

Linear signal will be calibrated in two points for the desired display readings like e.g. input 4-20mA will be displayed as 0-15500.

Non linear sensor signals can be linearized by using a polynom of sixth degree.

The polynom parameters will be entered into the microcontroller by using the keyboard or the serial data port.

## ORBIT CONTROLS AG

Zürcherstrasse 137  
CH-8952 Schlieren

Tel: +41 1 730 2753  
Fax: +41 1 730 2783

info@orbitcontrols.ch  
www.orbitcontrols.ch

© orbit controls 2504

## MENU

The menu contains settings of four Set Points, selection of the input range, setting of the polynom coefficients, programming of the filter, two analog outputs, the display resolution and two serial data ports.

**Four Set Points** can be selected within the entire display range  $\pm 999999$ . They activate four open collector transistors or four mechanical relays. Each set point has programmable hysteresis and type of activation in the alarm conditions.

**Digital Filter** averages the readings at the display. The filtering constant can be selected from 1 to 99 or the filter can be deactivated.

**Analog Outputs** 0 ...  $\pm 10V$  and 4-20mA are generated simultaneously and can be assigned to any two desired display values.

**Serial Ports** RS232 and RS485 are available. The RS485 has programmable addresses and permits bus operation.

**Tara** will set the display to zero. The tara value remains memorized also when the instrument is switched-off from the power. The tara can be canceled with the keyboard at any time causing the display to return to the original non-tara signal.

**Peak & Valey** memory stores automatically the maximum and the minimum display readings during desired time period. The both values can be recalled at the display or erased with the keyboard.

**Polynom** of sixth degree can be used for linearizing of non-linear signals. The polynom contains seven coefficients each with six digits, decimal point and sign. The exponents are programmable from 0 to  $\pm 24$ . The polynom can be entered with the keyboard or via the serial data port.

## SPECIFICATIONS OC 7040A - POL

### DISPLAY

0 ... ± 999999, 7 segment red LED, 14,7 mm with sign and decimal point.

### INPUT RANGES

20mV, 0/4-20mA, 100mV, 1V or 10V for display of up to 100 000 points. Other ranges are available upon request.

### ADC - CONVERTER

Resolution: 19bit.  
Conversion Time: 66ms.

### LINEARITY

± (1 LSB + 1 Digit).

### TEMPCO

± 10ppm/K.

### ANALOG OUTPUTS (Option)

Current: 0-20mA or 4-20mA  
Voltage: 0... ±10V  
Resolution: 12 bit - standard.  
16 bit - option.

### TARA

The key SET activates the Tara. After pressing the key, the display shows **tArA** and resets the display to zero. When pressed for second time, the display shows **notArA** and follows the original non-tara input signal.

The Tara remains memorized also when the instrument is switched-off from the supply.

### FILTER

Averaging filter is programmable from 0 to 99.

### SET POINTS (Option)

Programmable from 0 to ±999999.

Four Transistor Outputs:  
NPN-open collectors 60V-100mA.

Four Relay Outputs:  
Contacts 5A-230VAC.

Hystereze:  
Programmable from 0 to 99.

### SERIAL PORTS (Option)

RS232 and RS485 can be selected in the menu.

Format: 8 Bit, no Parity, 1 Start and 1 Stop.

Baud Rate programmable from 300 to 19200 bd.

Address 00 activates RS232. One of addresses 01-31 activates automatically RS485 and permits the instrument to operate in addressable data bus.

### EXCITATION

Adjustable from 5 to 24V/40mA.

### SUPPLY

115V/230V +/-15%, 48 - 60 Hz.  
Option: 24VDC, 4W.

### TERMINALS

Plugable Screw Terminals.

### CABINET IP65

DIN 48 x 96 x 100 mm (HxWxD),  
Panel cut-out 45 x 90 mm.

### POLYNOM - LINEARIZING

The Polynom Linearizing will be activated in the Menu. Available is a polynom of sixth degree.

The Polynom contains 7 coefficients: **coef0 cee0** to **coef6 coee6**, whereas the Index is the Exponent which multiplies the measured value. It will also be multiplied by a tenth power which is entered as **coee**. The coefficients have 6 digits with decimal point and sign, the exponents can be set from 0 to ± 24.

The entry can be done with the keyboard or via the data port. The display follows the input signal in a polynom format:

**DISPLAY = ± Coef 0x10<sup>+0</sup> ± Coef 1x10<sup>+1</sup> ± Coef 2x10<sup>+2</sup> ± Coef 3x10<sup>+3</sup> ± Coef 4x10<sup>+4</sup> ± Coef 5x10<sup>+5</sup> ± Coef 6x10<sup>+6</sup>**