CODIX 529



Ordering code: 6.529.012.300

1.1 Safety instructions and warnings

Only use this display

- in a way according to its intended purpose
- \triangle
- if its technical condition is perfect
- adhering to the operating instructions and the general safety instructions.

1.2 General safety instructions

- Before carrying out any installation or maintenance work, make sure that the power supply of the digital display is switched off.
- Only use this digital display in a way according to its intended purpose: If its technical condition is perfect. Adhering to the operating instructions and the general safety instructions.
- Adhere to country or user specific regulations.
- The digital display is not intended for use in areas with risks of explosion and in the branches excluded by the standard EN 61010 Part 1.
- The digital display should only operate if it has been correctly mounted in a panel, in accordance with the chapter "Technical features".

1.3 Use according to the intended purpose

The digital display may be used only as a panel-mounted device. Applications of this product may be found in industrial processes and controls, in manufacturing lines for the metal, wood, plastics, paper, glass, textile and other processing industries.

Over-voltages at the terminals of the digital display must be kept within the limits in Category II.

If the digital display is used to monitor machines or processes in which, in case of a failure of the device or an error made by the operator, there might be risks of damaging the machine or causing accidents to the operators, it is your responsibility to take appropriate safety measures.

1.4 Description

- · 5-digit digital display with analogue inputs
- LED-Display with 8 mm high characters and very high luminosity
- Display range -19999...99999 with leading zero blanking
- Programming of functions and operating parameters via the two setting keys. During programming the display guides the user with text prompts.
- Programmable features: Range Max. value display yes/no Max. value reset yes/no Min. value reset yes/no Decimal point Min. input signal Displayed value at min. input signal Max. input signal Displayed value at max, input signal

2. Inputs

LATCH (Connect 4)

Static input freezing the displayed value. If this input (pnp) is supplied with 4...30 V DC the actual value is frozen until the input is released or the signal level gets below 2 V DC. The calculating of max. and min. value is not affected.

CURRENT INPUT (Terminal 5)

Analogue current input with reverse connection protection and current limitation to max. 50 mA. Connect the signal line with the analogue + signal with this input. Caution: To prevent interfering signals caused by the supply voltage, this input is isolated from the supply voltage. Thus, for the measurement, connect the signal line with the most negative signal to the analogue reference input.

ANLOGUE GND (Terminal 6)

If no isolation between measuring circuit and supply voltage is necessary, connect terminal 2 or 3 to this input.

VOLTAGE INPUT (Terminal 7)

Analogue voltage input. Connect the signal line with the analogue + signal with this input. In case of reverse connection, the display shows "Err4".

3. Setting of the operating parameters

3.1 Selecting the displayed value and resetting the maximum or minimum value

Pressing the right key allows switching the display can be switched between the current, min., or max. measured value.

Pressing the right key once displays the current function ("Act", "Min" or "Max") for 2 seconds. If within this period the right key is pressed again, the current function is changed. The display shows the new current function for two seconds. Afterwards the corresponding value is displayed. If "Min" or "Max" is the current function, the value can be reset by pressing the left key. If neither storing of min. nor max. value is activated in set up, both keys are out of function.

3.2 Setting the device parameters

- Hold down both keys on front panel and switch on the supply voltage.
- b. The display shows



c. After releasing the keys the display alternates between menu title and corresponding menu setting at a frequency of 1 Hz. After any key is pressed, only the menu setting is displayed.

- d. Pressing the right key will switch the menu setting to the following value. If numerical values are to be set (e.g. factor setting), the left key allows selecting the decade and the right key sets the value.
- e. Hold down the left key and press the right key to switch to the next menu item.
- f. The last menu item, "EndPro", allows exiting; the programming routine by selecting "Yes"; the new values will be stored. If "No" is selected, the programming routine will be passed through once again. The last set values remain maintained, allowing to check or modify them once more.

4. Programming routine

The programmable device parameters are shown in succession. After one pass, the device is fully programmed.

In each case the first item shown is the factory preset.

4.1 Input signal range



4.2 Max. value display



Max. value can be displayed

no Ma

Max. value will not be displayed, next menu item is skipped

4.3 Max. value reset



585

Max. value can be reset by pressing the red button (current value becomes new max. value).



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4.4 Min. value display

485

Min. value can be displayed

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Min. value will not be displayed, next menu item is skipped

4.5 Min. value reset



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Min. value can be reset by pressing the red button (current value becomes new min. value).



Min. value cannot be reset.

4.6 Decimal point

d P _____

The decimal point indicates the number of decimal places.

0.	0	01	31	3	

0 no decimal place 0.0 one decimal place 0.00 two decimal places 0.000 three decimal places 0.000 four decimal places

4.7 Min. input signal (only if input signal range is 4...20 mA or 2...10 V)

This menu item allows a limitation of the display range (refer to 4.9 and 9.4)

E c		a) or b) is selected depend- ing on the chosen input range
a)	04000 20000	If, with the input range 420 mA, the input signal level becomes smaller than this value, the display shows "Io".
b)	2.000	If, with the input range 210 V, the input signal leve becomes smaller than this
	10.000	value, the display shows "lo".

4.8 Displayed value at min. input signal





99999

A corresponding display value between -19999 and 99999 can be assigned to the lowest input signal. The decimal point position is considered.

4.9 Max. input signal (only if input signal range is 4...20 mA or 2...10 V)

This menu title allows a limitation of the display range (refrt to 4.7 and 9.4)

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a) or b) is selected depending on the chosen input range

a)	04.000 20.000	If, with the input range 420 mA, the input signal level exceeds this value, the display shows "hi".
b)	2.000	If, with the input range 210 V, the input signal

2...10 V, the input signal level exceeds this value, the display shows "hi".

4.10 Displayed value at max. input signal





99999

:0000

A corresponding display value between -19999 and 99999 can be assigned to the highest input signal. The decimal point position is considered.

4.11 End of programming

EndPro

00

Programming routine will be passed through once again. All parameters can be checked.

485

Programming routine will be left and the new parameters will be stored. Afterwards the device is ready to use.

5 Connections

- 1 10-30 VDC
- 2 GND
- 3 GND
- 4 LATCH
- 5 0 (4)-20 mA
- 6 Analogue GND
- 7 0 (2)-10 V DC

6 Technical data

Display: 5-digit 7-segment red LED-Display. 8 mm high characters

Range of input signals

0 10 V DC 2...10 V DC 0 20 mA

4 20 mA

Resolution:

14 bits Linearity: < 0.1% ± 1 digit at an ambi-

ent temperature of 20°C Zero adjustment: automatic

Temperature drift:

<70ppm/K

Measuring rate: 0.5 measurement/sec 2 measurements/sec

Current measurement:

Voltage drop: max. 2.0 V at 20 mA Current limitation: 50 mA

Voltage measurement:

Input resistance: >1 MΩ Max. voltage: 30 V

Elimination of power line hum:

digital filter at 50 Hz

Supply voltage: 10...30 VDC.

galvanically isolated

Current consumption:

max, 50 mA

Ambient temperature:

-10°C...+50°C

Storage temperature:

	-25°C+70°C
Data retention:	via EEPROM 1 Million of
	memory cycles or 10 years
Weight:	approximately 50 g
Protection:	IP65 (front)



Noise emission: EN 55011 Class B Noise immunity: EN 61000-6-2

Cleaning:

The front of the unit is only to be cleaned with a soft wet (water!) cloth.

Error messages:

Err 0*	A/D section error/defect
Err 3*	EEPROM error/defect
Err 4**	Analogue input exceeds the
	measuring range
Err 5*	EEPROM error/defect.
	Device not calibrated

* Please send the device back for checking

** Please check input signal and programming

7. Delivery includes

- Digital display with analogue inputs
- Panel mounting clip
- Bezel for screw mount, panel cut-out 50 x 25 mm
- Bezel for clip mount, panel cut-out 50 x 25 mm
- Sealing
- Tack dry symbols

8. Examples

8.1 Temperature measurement

A temperature sensor with linear characteristic (non-linear sensors, e.g. thermocouples have to be linearised) supplies 0 V at -10°C and 10 V at 80°C

0...10 V is chosen as input range.

Assign -10 as "displayed value at min. input signal" to the lowest input level (0 V) and 80 as "displayed value at max. input signal" (10V). The device is now tuned to the sensor, intermediate measurement values and their corresponding display values can be calculated.



8.2 Level measurement

A level sensor with linear characteristic (non-linear sensors have to be linearised) supplies 19 mA at full tank and 5 mA at empty tank. If the tank is filled up, 10 m³ should be displayed and if the tank is empty 0 m³ should be displayed. 4...20 mA is chosen as input range.

Assign 0 as "displayed value at min. input signal" to the lowest input level (5 mA) and 10 as "displayed value at max. input signal" (19 mA). The device is now tuned to the sensor, intermediate measurement values and their corresponding display values can be calculated.

8.3 Drawn quantity

Instead of the level, the drawn quantity should be displayed.

Again 4...20 mA is chosen as input range. Assign 10 as "displayed value at min. input signal" to the lowest input level (5 mA) and 0 as "displayed value at max. input signal" (19 mA).



8.4 Level measurement with limited display range

A third example is level measurement with limited display range, that means a tank with 10 m³ have to be filled up at best to 8 m³ and its level should not decrease below 1 m³. At values > 8 m³ the display is to show "hi" and at values < 1 m³ the display is to show "lo". 4...20 mA is chosen as input range. Assign 0 as "displayed value at min. input signal" to the lowest input level and 10 as "displayed value at max. input signal" to the

Additionally, program for menu item "min. input signal", the value of which corresponds to the 1 m³ level, e.g. 5.6 mA. Do the same for menu item "max. input signal" with the value which corresponds to the 8 m³ level, e.g. 16.8 mA. At input levels > 16.8 mA "hi" will be displayed and at input levels < 5.6 mA "lo".



10. Abmessungen/Dimensions/Dimensions/Dimensioni/Dimensiones

Maße in mm [inch]/Dimensions in mm [inch]/Cotes en mm [inch]/Dimensioni in mm [inch]/ Cotas en mm [inch]





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