

## USER INSTRUCTIONS

# Loop Powered LCD Indicator for In-head Mounting



The manual must be read prior to adjustment and/or installation. All information subject to change without notice.

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MEASURE OF SUCCESS

## GENERAL INFORMATION

LCD-H20 is a digital indicator for installation directly in a 4-20 mA loop without need for external power.

It is designed for in-head mounting in a sensor connection head with window.

The indicator is equipped with 12 mm LCD digits.

The scale is easily programmable, without reference signal, by 3 pushbuttons for any values between -1999 and 9999.

As an option, LCD-H20 can be delivered mounted in a connection head.

## DATA (shortform)

Input Current	4-20 mA
Operating range	3.8-22 mA
Voltage drop	2.5 V
Display	4 digits including minus sign, height 12 mm
Indication range	Scalable -1999 to 9999, 0 to 3 decimals
Scale setting	3 pushbuttons
Operating temperature	-20 to +70 °C (-4 to +158 °F)
Typical accuracy	±0.1 % of programmed span ±1 digit
Connection	Stranded, ≤ 1 mm <sup>2</sup> , AWG 16
Mounting	Connection head type DANAWdia with mounting kit KDST1

## ORDERING TABLE

LCD-H20 indicator only	70LCDH2001
LCD-H20 in connection head DANAWdia	70LCDH2011
Configuration	70CAL00001

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## GERMANY



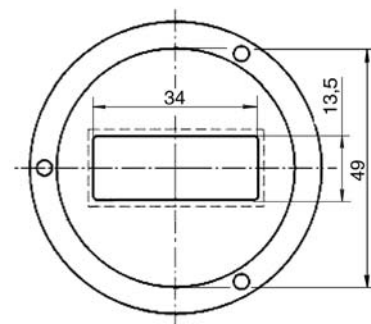
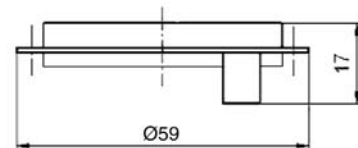
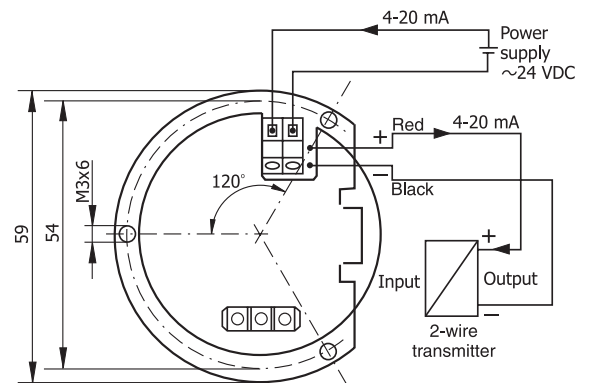
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## CONNECTIONS/DIMENSIONS INDICATOR



## CONFIGURATION

**Programming:** The programming is executed through 3 keys mounted on the bottom of the display. The central key is the Enter (**F**) key. The lateral keys act as the up ▲ and down ▼ digit; they also act as selection of the parameters.

Key	Function
<b>F</b>	Access to the programming; move to the following parameter menu; saving of data and close of the programming
▼	Decreasing digit; selection/set-up of a parameter
▲	Increasing digit; selection/set-up of a parameter
▲ + ▼	"Escape"

**Operation:** Press the key **F** for more than 3 seconds to get access to the programming procedure. The display will visualize the "dP" function, which is the first programming section: **D**ecimal **P**oint. By pressing the ▲ (increase) and ▼ (decrease) keys it's possible to scroll all the other programming windows. At the end of the programming phase the modified parameters are stored automatically and retained also during the switch off of the instrument.

### Programming procedure:

#### Set-up of the decimal point (dP)

Press the ▲ or ▼ keys to select the decimal point position (from zero to 3 decimals). Press **F** to confirm. Default = 1 decimal

#### Set-up of the engineering value related to the zero point (ZErO)

Press the ▲ or ▼ keys to select the engineering value zero (-1999 to 9999). Press **F** to confirm. Default = 0.0

#### Set-up of the engineering value related to the span range (SPAn)

Press the ▲ or ▼ keys to select the engineering range value (-1999 +9999). Press **F** to confirm. Default = 100.0

**Set-up of the limit on the input current (Li)** This parameter allows to select the over-load limit of the visualization.

If  $Li = 0$ , when the current overcomes the 20 mA value, the display will indicate the **OverLoad** message **OL** (-OL when the current is lower than 4 mA). If  $Li = 1$ , the visualization will be extended of a 10% over the 4...20 mA range, before indicating the overload. In both cases, overcoming the display maximum readings (-1999 +9999), the overload message will be indicated. Default = 1

**Set-up of the filter (FiLt)** When the 4...20 mA is disturbed it is possible to select an higher value of FiLt in order to get a more stable and clear visualization on the display.

Press the key ▲ to increase the filter value on the input and the key ▼ to decrease the filter value.

It's possible to set-up different values from 1 to 8; when  $FiLt = 1$  no filter is applied on the input and the digital reading occurs every 250 ms.

In this case the updating period of the display will be 250 ms multiplied by the FiLt value. Example: if  $FiLt = 5$  the updating period of the display will be 1.25 s. Default = 2

**Set-up of resolution (riS)** This function allows to set-up the resolution of the display; when  $riS = 1$  the display will indicate all the available digit in the scale, within the programmed range.

When  $riS = 2$  the steps between two consecutive readings will be doubled: with  $riS = 2$  it will not be possible to indicate odd numbers.

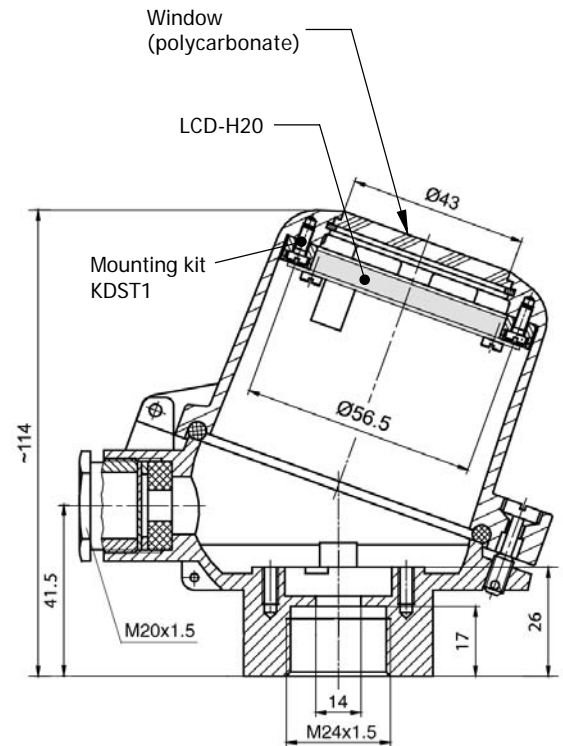
Selectable values for riS are: 1, 2, 5 and 10.

It is suggested to increase the resolution only if the set range is very large (example 10000 points) and/or if the 4...20 mA signal is quite unstable: on the contrary the maximum resolution is normally used. Default = 1

### Summary

Key	Function	Disply
<b>SCROLL</b>	Set-up of the decimal point	DP / 000.0
▲ or ▼	Set-up of the engineering value ZERO	ZErO / 0.0
	Set-up of the engineering range SPAN	SPAn / 100.0
	Set-up of the OverLoad Limit	Li / 0
	Set-up of the input Filter	FiLt / 1
	Set-up of the Resolution	riS / 1
<b>F</b>	Access to enter the programming window. Allow to exit the programming window and to save the modifications.	
▲	Increasing digit	0 to 9
▼	Decreasing digit	9 to 0
▲ + ▼	Exit the programming without saving	

## MOUNTING/DIMENSIONS CONNECTION HEAD



## CALIBRATION

By pressing contemporary the ▲ + ▼ keys for more than 3 s, it is possible to access to the calibrating function where it is possible to calibrate the zero and the full scale of the A/D converter of the digital indicator.

⚠ Entering this procedure and modifying the parameters will change the factory calibration data. This function must be executed by specialised personnel only by using adequate instrumentation. A wrong calibration will affect the right functionality of the instrument itself.

### Step 1: Zero-point calibration

Inside the calibration window, select the ZERO point calibration (**C4**) by pressing ▲ or ▼ keys. Apply a 4 mA current to the instrument, wait for the stabilization of the signal and of the indication and press the key **F** until the indication **CAL** will appear on the display. After few seconds, the new engineering ZERO value will be indicated.

Exit the Zero-point calibration by pressing ▲ + ▼ keys together and proceed with the Full Scale calibration.

### Step 2: Full scale calibration

Inside the calibration window, select the Full Scale calibration (**C20**) by pressing ▲ or ▼ keys. Apply a 20 mA current to the instrument and proceed as for the Zero-point calibration.

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- 1 Whether Inor acknowledges its responsibility for any asserted defect in materials or workmanship; and, if so,
- 2 the appropriate cause of action to be taken (i.e. whether a defective product should be replaced or repaired by Inor).

This Limited Warranty applies only if the Product:

- 1 is installed according to the instructions furnished by Inor;
- 2 is connected to a proper power supply;
- 3 is not misused or abused; and
- 4 there is no evidence of tampering, mishandling, neglect, accidental damage, modification or repair without the approval of Inor or damage done to the Product by anyone other than Inor.

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