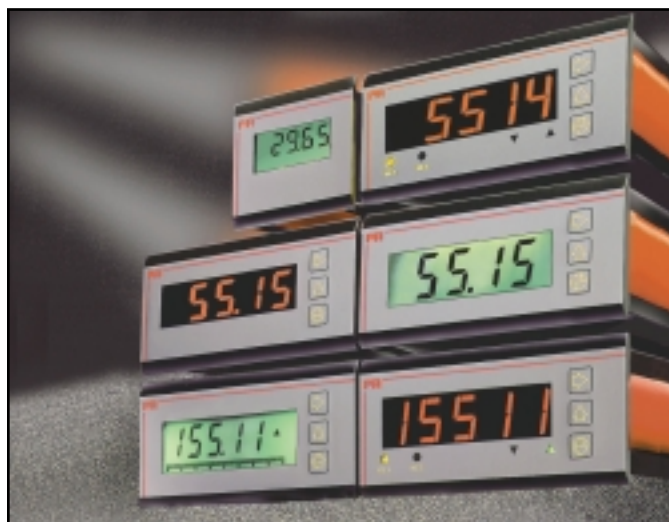


LOOP-POWERED LCD INDICATOR



- 3¾-digit LCD display, 48 x 48 mm
- Loop-powered
- Scaling mode simulating 4 mA and 20 mA signals
- Programmable backlight
- Ex version acc. to EEx ia IIC T6
- IP65-front



Application:

As a digital indicator of 4...20 mA current signals scaled directly in process units. • Especially fit for applications where an external power supply is not readily available, as the indicator is powered by the loop signal. • The Ex version can be applied for local readout of current signals in areas classified as zone 0, 1 or 2.

Technical characteristics:

General:

Input: 4...20 mA standard signal. Input voltage drop = 1.6 VDC at 20 mA, corresponding to a load resistance of 75 Ω and 6.5 VDC with backlight at 20 mA, corresponding to 325 Ω. Reversed display readout is possible, e.g. input 4...20 mA with readout 399.9 to 00.0.

By internal switches it is possible to choose between display and scaling mode. The display mode is the common mode which indicates the process values. Scaling mode is applied for adjustment of the display to the required readout. In scaling mode 0% the indicator simulates an input current of 4 mA and in scaling mode 100% 20 mA is simulated.

Display updating: 2.5 times per second.

Programming: Direct or reversed display, decimal point and backlight are programmed by internal dipswitches. By DP1, SW3 and 4 the display adjustment range is selected. The 0% trimmer sets the min. display readout, and the 100% trimmer sets the max. display readout. The adjustment covers the entire positive and negative readout range.

On request the indicator is available with the process unit placed behind the front glass.

Readout:

3¾-digit LCD display with 8 mm digit height.
Display resolution 0 to ±3999 counts.

If the input signal is reduced to below 3.5 mA, the "LOW BATTERY" in the display is activated as an indication of out of range.

Ex installation:

The Ex version can be applied in intrinsically safe current loops with max. no-load voltage < 45 VDC and max. short circuit current < 500 mA.

The panel indicator must be protected with an approved isolating stage (CENELEC EN 50014 / EN 50020) placed outside the Ex area.

Electrical specifications:

Specifications range:

(@: -20°C to +60°C)

Common specifications:

Max. drop voltage at 20 mA:	
Without backlight	< 1.6 VDC
With backlight	< 6.5 VDC
Warm-up time	10 min.
Response time (0...90%)	0.9 s
Signal dynamics, input	12 bit
Calibration temperature	20...28°C
Temperature coefficient:	
Zero point	±0.2 counts/°Camb.
Span	±0.01% of span / °Camb.
Linearity error	±1 count
EMC immunity influence	< ±0.5% of span
Max. wire size	1 x 1.5 mm ²
Humidity	< 95% (non-cond.)
Dimensions (HxWxD)	48 x 48 x 100 mm
Panel cutout (HxW)	44.5 x 44.5 mm
Tightness (from front)	IP65
Weight	150 g

Input:

Measurement range	4...20 mA / 10...50 mA
Min. measurement range (span)	16 mA / 40 mA

Display:

Display readout	±3999
Min. display readout (span)	2 counts / mA
Max. display readout (span)	500 counts / mA
Decimal point	Programmable
Digit height	8 mm
Updating rate	400 ms

Ex data for 2965B:

Uol	< 45 VDC
Isc	< 500 mA
Ceq	≈ 0 μF
Leq	≈ 0 μH

EEx approval CENELEC:

DEMCO	93C.110095
	EEx ia IIC T6
Applicable in zone	0, 1 or 2

Observed authority requirements: Standard:

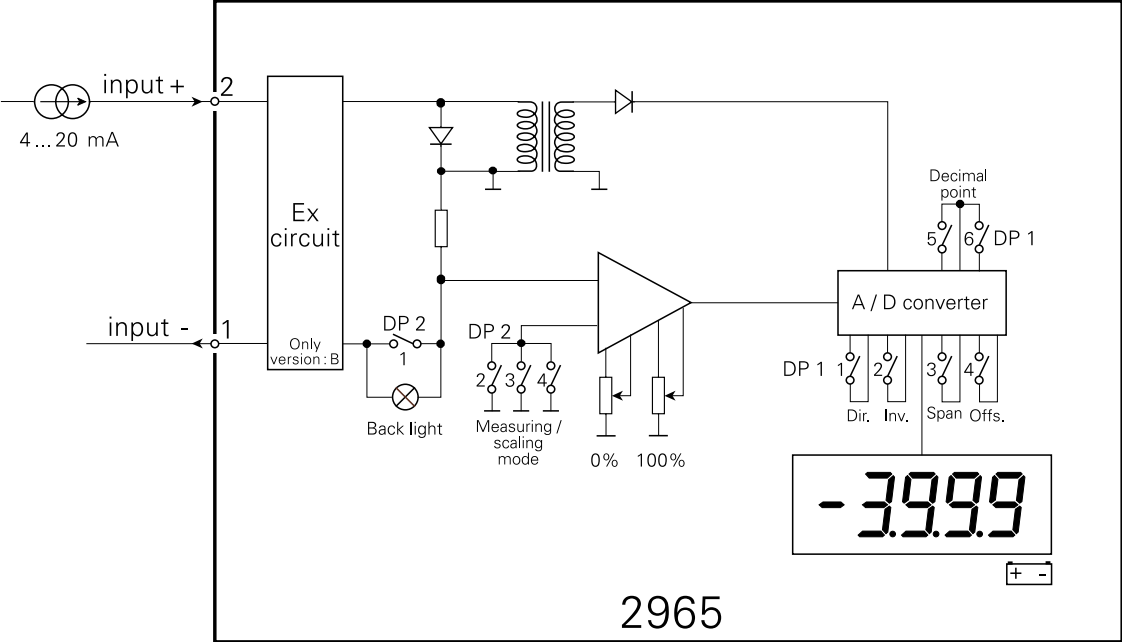
EMC 89/336/EEC, Emission	EN 50 081-1, EN 50 081-2
Immunity	EN 50 082-2, EN 50 082-1
Emission and immunity	EN 61 326
Ex 76/117/EEC	EN 50 014 and EN 50 020

Of span = Of the presently selected range

Order: 2965

Type	Version	Enclosure	Input
2965	Standard : A	48 x 48 mm : 1	4...20 mA : A
	EEx : B		10...50 mA : B
			Special : X

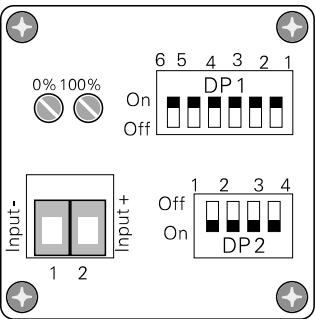
Block diagram:



Front layout:



Back plate:



Programming:

DP1 Function	SW1	SW2	SW3	SW4	SW5	SW6
Display action: Direct Inverted	ON OFF	OFF ON				
Display offset (0%): 0...±2000 counts 0...±3999 counts				ON OFF		
Display span (100%): 0...6000 counts 0...7998 counts			ON OFF			
Decimal point: XXXX XXX.X XX.XX X.XXX					OFF ON ON ON	OFF OFF ON ON
DP2 Function:						
Backlight status: Backlight ON Backlight OFF	OFF ON					
Mode: Measuring mode Scaling mode 0% Scaling mode 100%		ON OFF OFF	OFF OFF ON	OFF ON OFF		

ADJUSTMENT EXAMPLE:
Input 4...20 mA, Display 0...350.0, direct, Backlight ON

Setup: DP1	SW1	SW2	SW3	SW4	SW5	SW6
Display action Direct	ON	OFF				
Display offset (0%): 0...±2000 counts				ON		
Display span (100%): 0...6000 counts			ON			
Decimal point: XXX.X					ON	OFF
Setup: DP2						
Backlight status: Backlight ON	OFF					
Mode: Measuring mode		ON	OFF	OFF		

CALIBRATION:

- 1: Set DP2, SW4 ON, DP2, SW2 and SW3 OFF (0% ref.)
- 2: Adjust 0% trimmer until display = 000.0
- 3: Set DP2, SW3 ON, DP2, SW2 and SW4 OFF (100% ref.)
- 4: Adjust 100% trimmer until display = 350.0
- 5: Repeat 1-4 if necessary