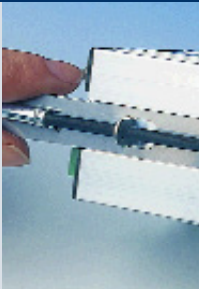


# Loop-Powered Digital Indicators

**Knick** >

The 830 loop-powered digital indicators are universally applicable. The range (either 0 to 20 mA or 4 to 20 mA) is simply selected via terminals. Display starts working at an operating current of only 0.3 mA. The low voltage drop of 0.5 V allows application in current loops with low load voltage.

## 830 Loop-Powered Process Indicator



### Bargraph for quick range overview

The digital indicators provide a bargraph in addition to the digital display. This gives you all information on your process variable at a single glance.

### Versatile setting capabilities

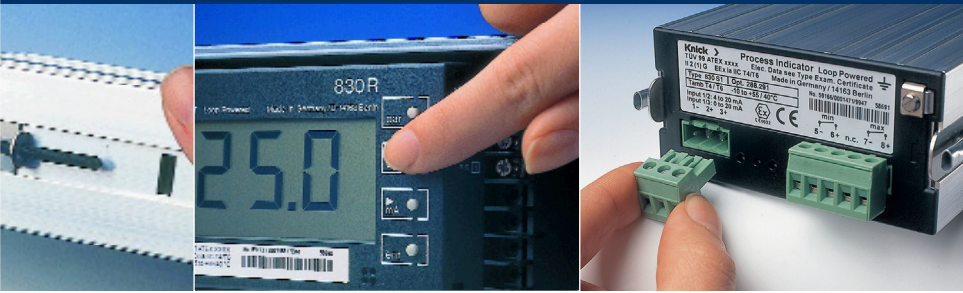
Zero, span, and min/max outputs can be adjusted as desired, enabling direct readout of measured values such as temperature, power, displacement, pH value etc. The indicator comes with a symbol set for standard engineering units. The symbols can easily be replaced. Thanks to microprocessor technology, you do not require a high-precision external reference current for parameter setting. Even during operation, the settings can be changed without problems.

### Loop-powered. Your advantage.

The digital indicators are simply inserted into the current loop like passive analog indicators. Since power supplies and their wiring are not required, costs could decisively be reduced, allowing for displays which have been too expensive before. In addition, the reliability has considerably been improved since a power failure in the control room does not interrupt the data flow.



# 830 Process Indicator



**Knick** >



And, in contrast to conventional digital indicators, there is no coupling between measuring loop and power supply.

### Construction

The product line includes indicators in modular cases, as well as large and small cases for installation in equipment and control panels.

### Floating min/max outputs on request

The two optionally available min/max outputs can be set as normally closed or normally open contacts. Limit values, hysteresis, and switch-on delay can be set as desired.

### EMC to NAMUR\*

EMC design ensures reliable measurements even under unfavorable ambient conditions.

### HART communication

The indicators transmit HART signals disturbance-free. Measured value display is not affected.

\* German committee for measurement and control standards in the chemical industry

### The facts

Digital indication without power supplies and supply leads

No signal interference due to power supply coupling

Power failure without effect on indication

No parasitic voltages

Universal range selection

Exchangeable unit symbols

Adjustable, floating min/max outputs, optional

IP 65

Large 23 mm characters

– 4-digit display

– Span up to 10,000 counts

– Display range –9999 to +9999

Range overview by integrated bar-graph

Voltage drop 0.5 V

Settings user defined without external reference current

Change of settings also during operation

Settings protected by passcode

For use in HART circuits

Warranty  
**3 years!**

### Warranty

Defects occurring within 3 years from delivery date shall be remedied free of charge at our works (carriage and insurance paid by sender).



# Loop-Powered Digital Indicators

## 830 Process Indicator

### ■ Product line

Instrument		Ref. No.
830 R Process Indicator	Loop-powered indicator in modular case with standard symbol set	<b>830 R</b>
830 S1 Process Indicator	Loop-powered indicator in panel-mount case (96 x 48 mm) with standard symbol set	<b>830 S1</b>
830 S2 Process Indicator	Loop-powered indicator in panel-mount case (144 x 72 mm) with standard symbol set	<b>830 S2</b>
<b>Options</b>		
Additional Pg cable gland	For version R as branching box	<b>119</b>
Outputs	Versions S1 and S2 With two min/max outputs (60 V DC, 350 mA)	<b>290</b>
Range selection	Range fixed according to customer requirements	<b>365</b>
<b>Accessories</b>		
Symbol	Other unit symbol (not standard symbol set)	<b>ZU 0129</b>
Pipe mount kit	Pipe mount kit (only version R)	<b>ZU 0154</b>

### ■ Standard symbol set

°C	pH	μS/cm	mS/cm	mm
%	ppm	1/min	kg	t
mA	A	mbar	bar	kPa
mV	V	m <sup>3</sup>	m <sup>3</sup> /h	Nm <sup>3</sup> /h

# 830 Process Indicator

Isolation Amplifiers  
Transmitters

Indicators

Process Analytics

Portable Meters

Laboratory Meters

Sensors

Fittings

**Knick** 

## ■ Specifications

Input	4 to 20 mA, voltage drop approx. 0.5 V 0.3 to 20 mA, voltage drop approx. 3.2 V
Display	LCD: character height 23 mm (R, S2), 16 mm (S1) 4-digit measured value display, sign, 3 decimal points Function indicators: par, 0 mA, 4 mA, 20 mA, min, max, hyst, s, n/c, n/o, adj, bargraph limits Bargraph with 2 % resolution, height approx. 3.5 mm (R, S2), approx. 2.5 mm (S1)
Display range	-9,999 to +9,999
Range selection	Span up to 10,000 counts, displacement up to ±9,999 counts Bargraph user defined within span Rising / falling characteristic
Keypad	4 buttons [TAB]par, [▲] span, [▶] mA, ent par: [TAB]Activate parameter mode [▲] span: [TAB]In parameter mode: select submenu, [TAB]count up selected digit, [TAB]In measuring mode: alternately display start/end of scale [▶] mA: [TAB]In parameter mode: select digit, [TAB]In measuring mode: display loop current ent: [TAB]Confirm entered value
Decimal point	User defined, without, P1, P2, P3
Measuring rate	1 / s
Accuracy	<0.1 % of measured value ±2 counts
Temperature coefficient	<0.01 % of span / K ±0.1 count / K (average over permissible temperature range)
Overload capacity	±150 mA
Min/Max outputs	Floating solid-state switches (min and max), 60 V DC, 350 mA Voltage drop when switched approx. 0.5 V, With input currents <0.3 mA (<3.8 mA) or >approx. 24 mA the solid-state switches block Hysteresis: [TAB]0 to 9,999 counts, user defined Switch-on delay: [TAB]0 to 9,999 s, user defined Contact type: [TAB]normally closed (n/c) or normally open (n/o), user definable Separate indication of switching state on display Display flashing can be turned off
Symbols	Set of 20 symbols and five blank labels included
Terminals	For version R, two wires can be connected to one terminal (Opt. 119) Stranded wire: [TAB]up to 1.5 mm <sup>2</sup> Single wire: [TAB]up to 2.5 mm <sup>2</sup> (S1, S2), up to 1.5 mm <sup>2</sup> (R)
Data retention	Parameters and calibration data >10 years (EEPROM)
Product family standard	EN 61326
EMC	Accuracy during disturbance <1 % span

# Loop-Powered Digital Indicators

## 830 Process Indicator

continued – **Specifications** 830 Process Indicator

	<b>830 R</b>	<b>830 S1</b>	<b>830 S2</b>
Ambient temperature Operation: Storage:	-25 to +65 °C -30 to +70 °C	-10 to +65 °C -20 to +70 °C	
Adjustments	Internal	Front panel	
Min/max outputs	No	Yes (Option 290)	
Enclosure	Version R: modular	Version S1: panel	Version S2: panel
Material	Al Si 12, DIN 1725, with glass pane, Insert made of Byblend, Rating plate: polyester	Front panel overlay: polyester, with window, Front: PA + GF, sides: Al, Rear: PA + GF	Front panel overlay: polyester, with glass pane, Front and sides: PA + GF, Rear: PA + GF
Color	Lid: iron gray RAL 7011, Bottom: gray RAL 7001, Insert: black	Front: iron gray RAL 7011, Sides: Al, Rear: black, Buttons: black	Front: iron gray RAL 7011, Sides and rear: black, Buttons: black
Dimensions in mm (incl. terminals and cable glands)	W 200 x H 80 x D 57	W 96 x H 48 x D 118	W 144 x H 72 x D 57
Protection (EN 60529) Front to control panel: Rear:	IP 65	IP 65 IP 20	
Weight	Approx. 750 g	Approx. 300 g	Approx. 300 g

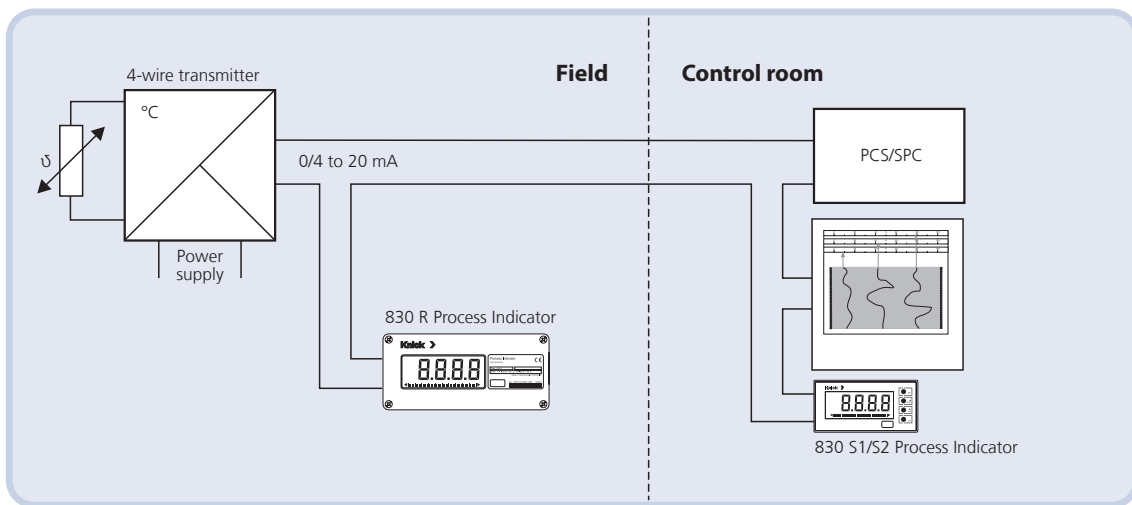
# 830 Process Indicator



## ■ Typical applications

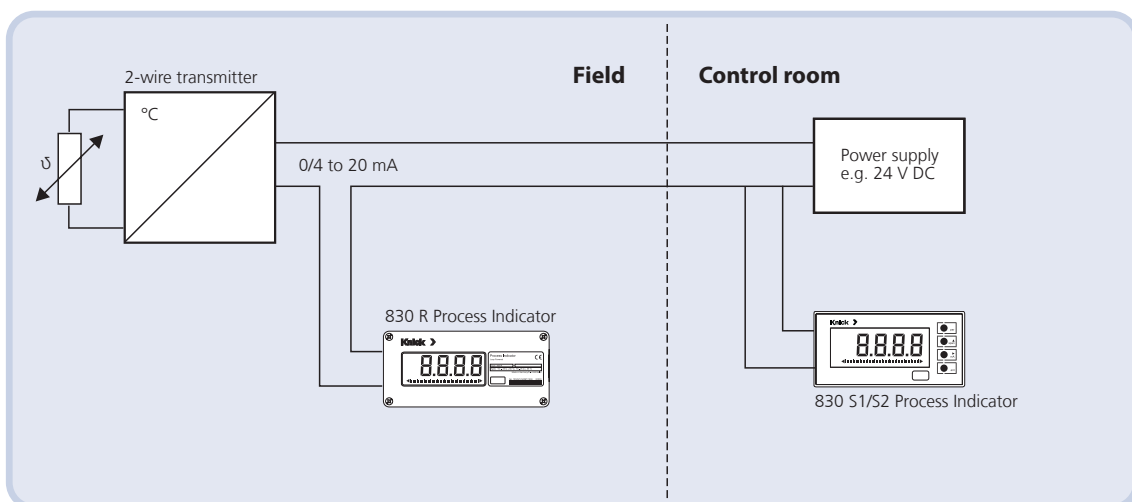
### Application with 4-wire transmitter

Different design versions allow to install the indicators on the site and/or in the control panel



### Application with 2-wire transmitter and power supply / mains adapter

Different design versions allow to install the indicators on the site and/or in the control panel

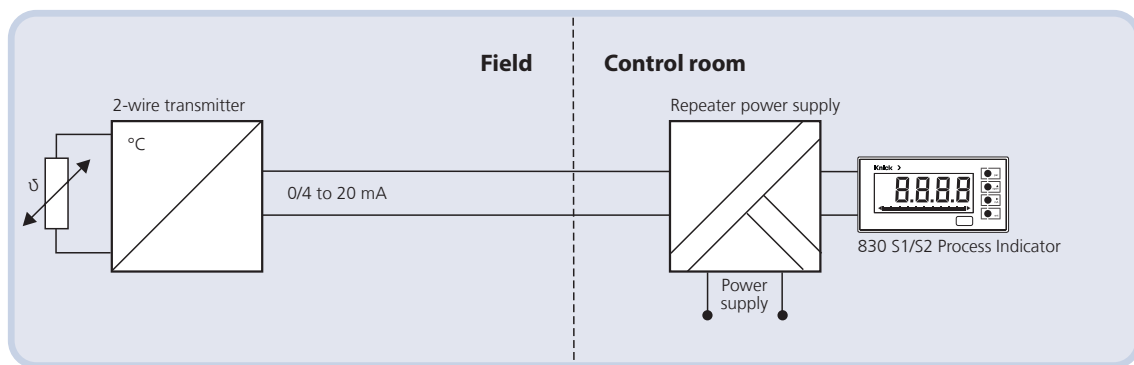


# Loop-Powered Digital Indicators

## 830 Process Indicator

### ■ Typical applications

#### Application with 2-wire transmitter and repeater power supply

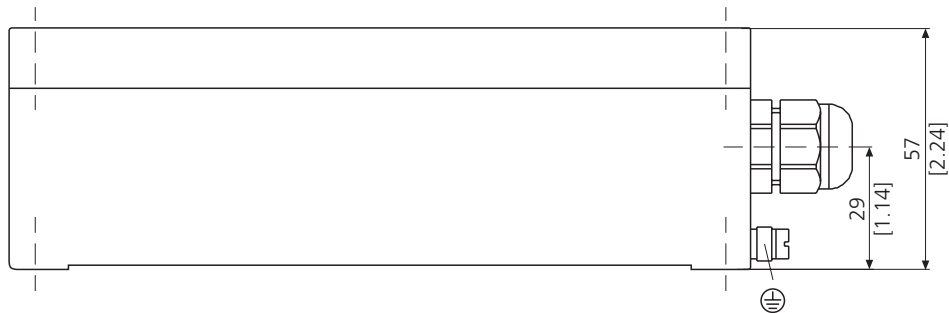


# 830 Process Indicator

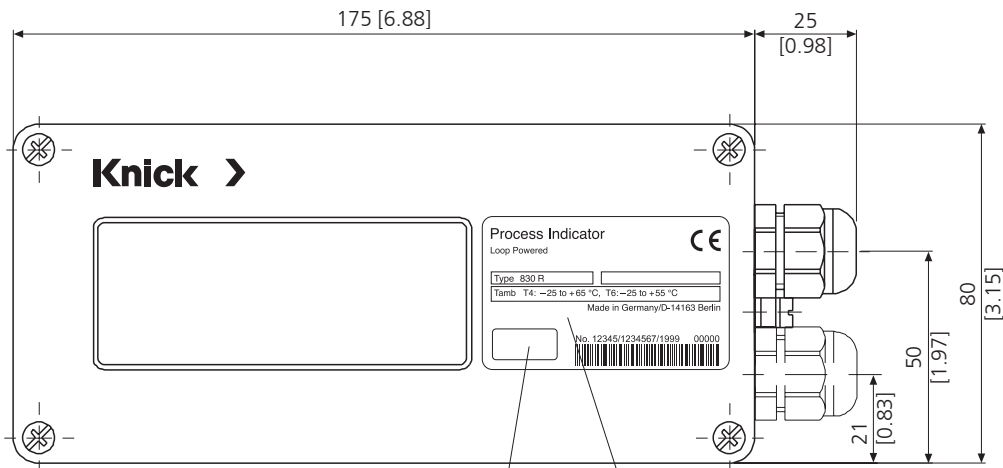


## ■ Dimension drawings

### 830 R Process Indicator



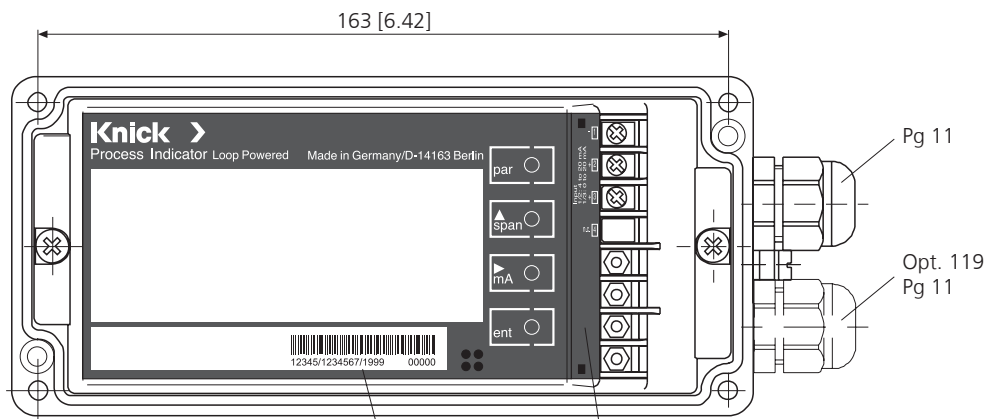
Bottom view



Front view with cover

Unit symbol

Rating plate



Front view without cover

Rating plate

Terminal assignments

Pg 11

Opt. 119  
Pg 11

Note: All dimensions in mm [in]

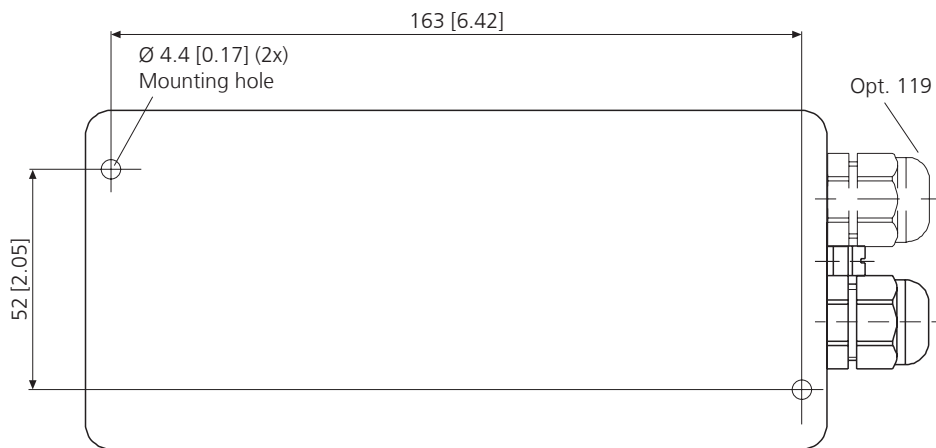


# Loop-Powered Digital Indicators

## 830 Process Indicator

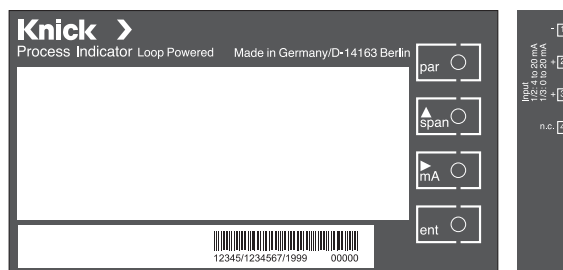
### ■ Dimension drawings

#### 830 R Process Indicator



Rear view

Note: All dimensions in mm [in]



Keypad

# 830 Process Indicator

Isolation Amplifiers  
Transmitters

Indicators

Process Analytics

Portable Meters

Laboratory Meters

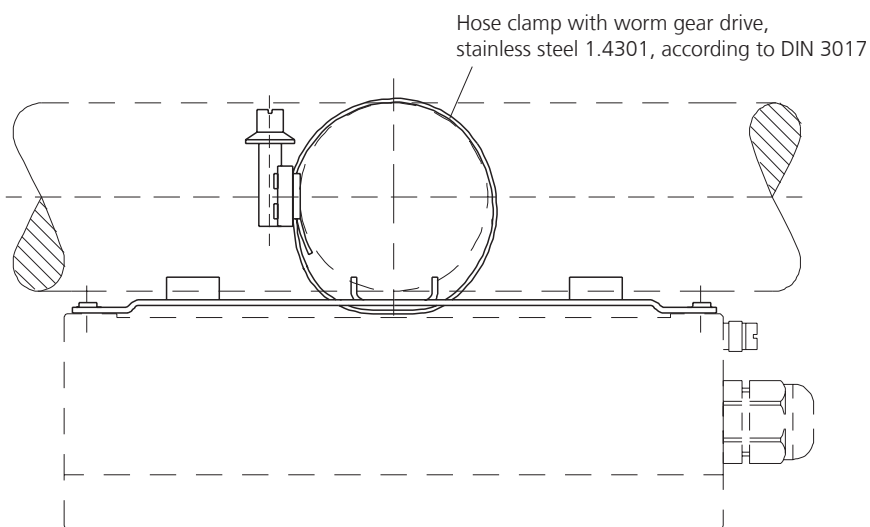
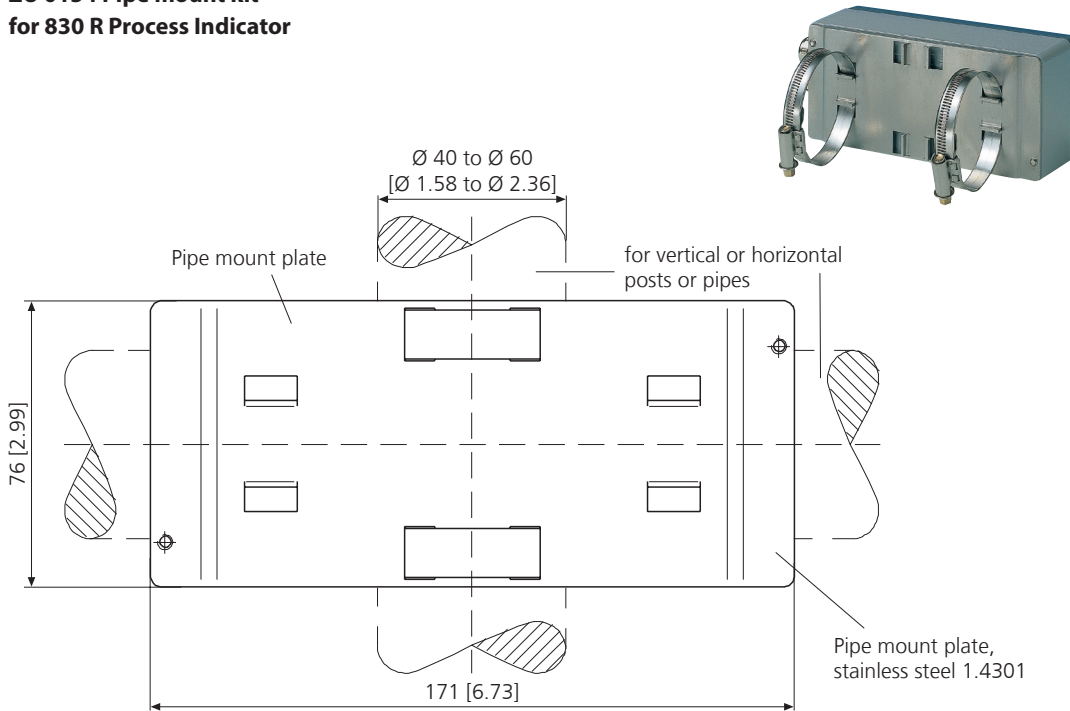
Sensors

Fittings



## ■ Dimension drawings

### ZU 0154 Pipe mount kit for 830 R Process Indicator



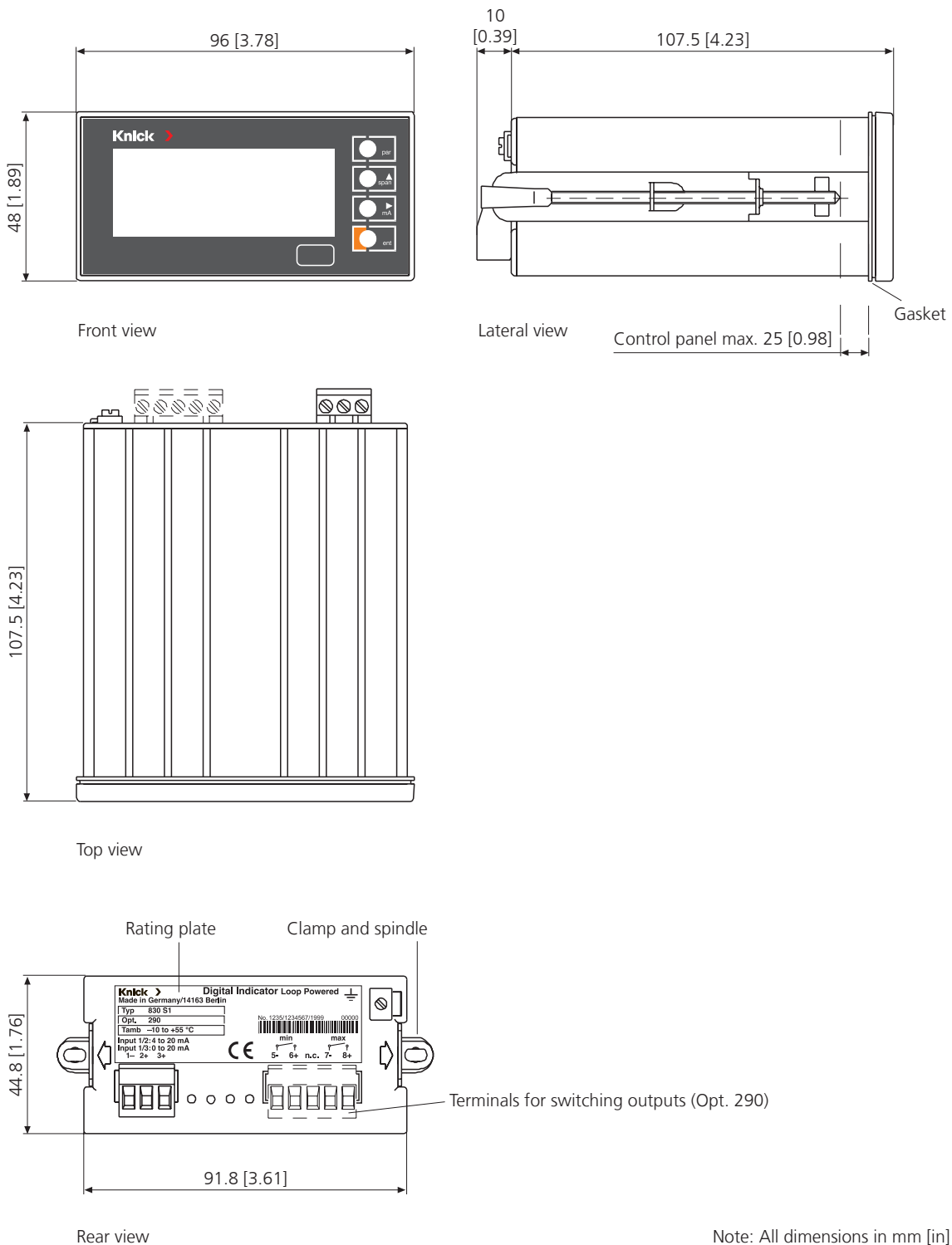
Note: All dimensions in mm [in]

# Loop-Powered Digital Indicators

## 830 Process Indicator

### ■ Dimension drawings

#### 830 S1 Process Indicator



Note: All dimensions in mm [in]

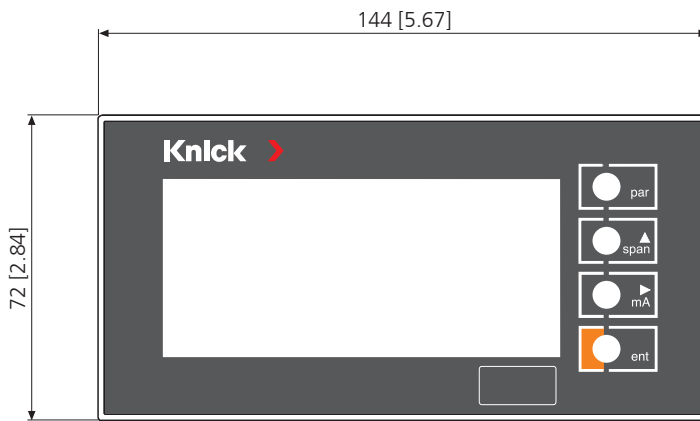
Subject to change!

# 830 Process Indicator

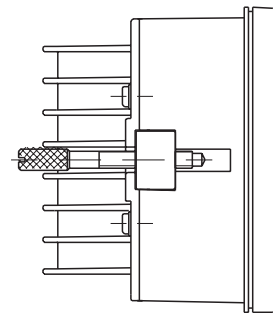


## ■ Dimension drawings

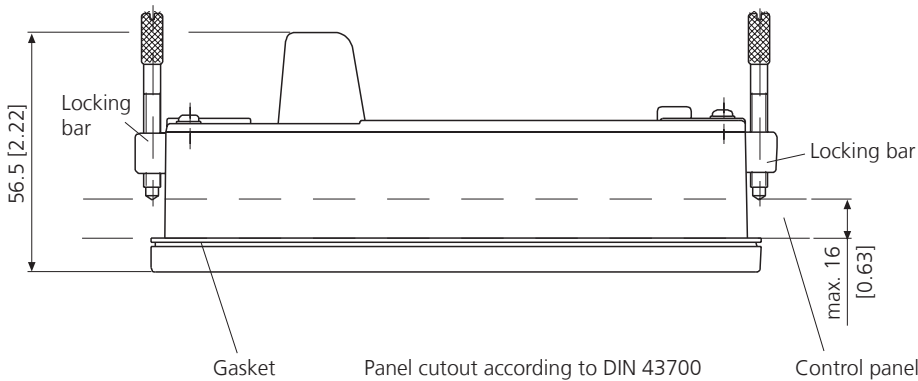
### 830 S2 Process Indicator



Front view



Lateral view

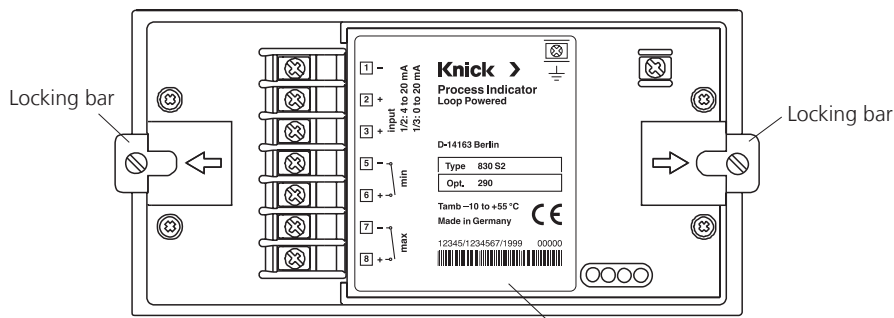


Top view

Panel cutout according to DIN 43700  
 $138^{+1} \times 68^{+0.7}$   
 $[5.43^{+0.04} \times 2.68^{+0.03}]$

Control panel

Note: All dimensions in mm [in]



Rear view

Rating plate