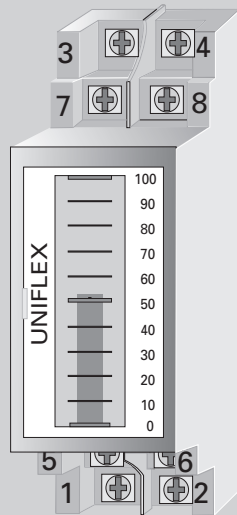




UNIFLEX RISRE / RIS(R)EX

Programmable 2-wire Snap-on transmitter



Resistance transducer, thermocouple, voltage

Temperature linear or linear to specification

Additional alarm contact

Configuration via PC

Bargraph scalable

Galvanical isolation

GENERAL

The universal 2-wire transmitter with bargraph display is the answer for measurement of temperatures and other electrical signals.

Its special feature is the bi-directional communication during configuration. By means of a PC and the standard programming kit, adjustment for the required sensor type, measuring range and parameters is performed.

The input is generally isolated from the output.

An additional relays output enables signalling of ex- or deceeding of input values.

The intrinsically safe version is suitable for application within explosion hazarded areas.

DESCRIPTION

The transmitter has signal inputs for thermocouples/voltage and for resistive sensors. With thermocouple measurement, a built-in temperature sensor enables internal cold junction compensation. Optional an external sensor facilitates remote compensation. Resistive input is provided for Pt, Ni and Cu - type sensors. Measurement is possible in 2-, 3- and 4-wire connection.

Current measurements are possible by means of an external shunt and voltage input.

TECHNICAL DATA

INPUT

Resolution 15 bit (32 768 steps)
Measuring cycle: nominal 500 ms

RESISTANCE THERMOMETER

Smallest configurable step: 0,1 K
Sensor current: 0,2 mA
Connection technique: 2-, 3- or 4-wire

α Platinum selectable
for 3850; 3920, 3916

Sensor	Range [°C]	Smallest Span [K]	Error [K]
Pt25...Pt500	-250...+850	10	0,1
Pt501...Pt1000	-200...+350		
Ni25...Ni1000	-50...+250		
Cu25...Cu1000	-50...+200		

THERMOCOUPLES

Smallest configurable step 0,1 K

Sensor	Range [°C]	Smallest Span [K]	Error [K]
T	-250...+400	40	1
U	-200...+600	50	
L	-200...+900		
J	-210...+1200		
E	-270...+900		
K	-250...+1370		
N	-200...+1300	100	2
R	-50...+1750		
S			
B	+100...+1820	50	
C (W5)	0...+2300	100	
D (W3)	0...+2300		

Temperature compensation

intern, built-in, or with Pt 100 sensor at terminals of compensation lead.

Effect of Tk: 0,1K / 10K

VOLTAGE, RESISTORS

Signal	Range	Smallest Span	Error
mV	-10...+70	2	0,05
V	-0,1...+1,1	20 mV	0,5 mV
Ω	0...390	10	0,05
Ω	0...2200	50	0,25

Loop monitoring

built-in, adjustable for upscale or downscale

Damping: adjustable 0...30 s

Permissible input interference

(to DIN IEC 770 6.2.4)

Common mode: negligible

Series mode:

370 mV for TC (type J 0...1000 °C)

460 mV for Pt100/Ω (0...100 °C)

OUTPUT

Standard signal: 4...20 mA

Signal direction: direct, inverse

Resolution: 12 bit

LOAD

$$R_{Load} = \frac{U_{Supply} - 6,5[V]}{0,022[A]} - R_{Lead}[\Omega]$$

Output signal limitation

programmable to 3,8 mA, 22 mA

Break monitoring: programmable
upscale 23 mA / downscale 3,7 mA

Fig. 1 Dimensions (mm)

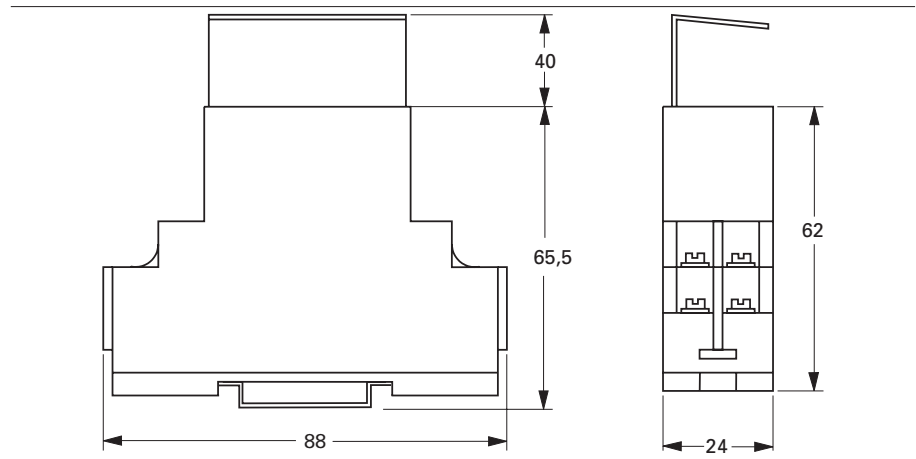
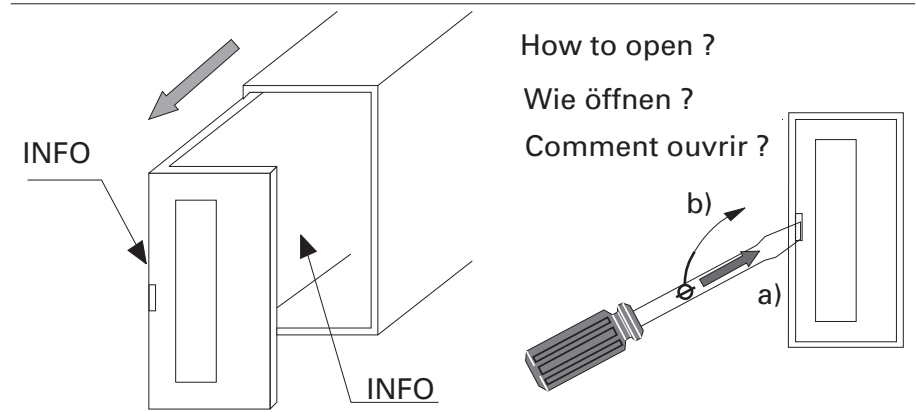


Fig. 2 How to achieve informations



Characteristic: temp.linear or adjustable
with up to 29 segments.

Conformity error: 0,1 % fsd

SWITCHING OUTPUT

Contact

normally open

Contact rating

Max. 230 VAC, 50 VDC, 50 mA

Set value

Accuracy of setting = 1K

Hysteresis

Freely adjustable

Fig. 3 Connections

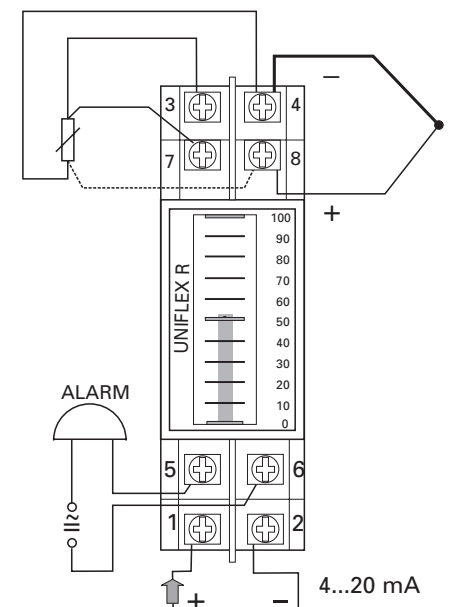


Fig. 3 Connection thermocouple

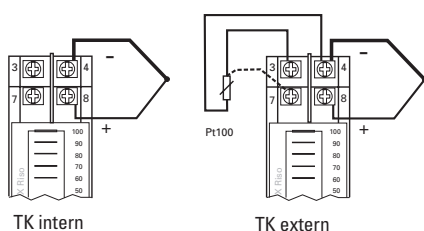


Fig. 4 Connection resistance thermometer

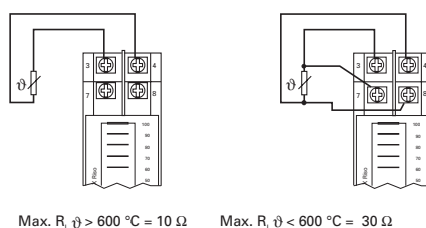
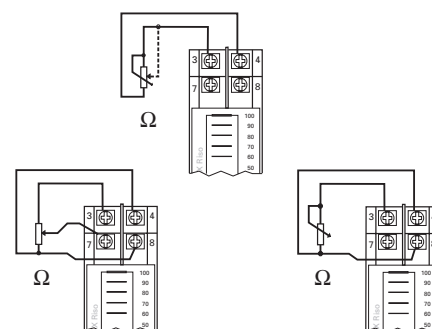


Fig. 5 Connection resistance, potentiometer



Measurement error

(excluding conformity error)

Sensor	Error
Pt (temp. $> -50\text{ }^{\circ}\text{C}$)	$\pm 0,1\text{ K} \pm 0,1\text{ }^{\circ}\text{C}$
TC	$\pm 1\text{ K} \pm 0,1\text{ }^{\circ}\text{C}$
TC (R; S; B; C; D)	$\pm 2\text{ K} \pm 0,1\text{ }^{\circ}\text{C}$

DISPLAY

Bargraph with 51 segments

Resolution: 2 % for each visible element, respect. 1 % if upper element flashes. The display range is selectable within the measuring range, e.g.:

Output signal

4 mA = 0 $^{\circ}\text{C}$, 20 mA = 600 $^{\circ}\text{C}$

Display

0 % = 500 $^{\circ}\text{C}$, 100 % = 600 $^{\circ}\text{C}$

OPERATION

Via programming unit and serial interface of PC for configuration and parameter setting.

POWER SUPPLY

DC-VOLTAGE

Supply voltage: $\geq 6,5... \leq 35\text{ V}$

Ex-version: $\geq 6,5... \leq 28\text{ V}$

Power supply effect

On span start: $\leq \pm 0,005\text{ }^{\circ}\text{C} / \text{V}$

On span end: $\leq \pm 0,001\text{ }^{\circ}\text{C} / \text{V}$

Permissible ripple: 3 V_{rms}

Behaviour with mains failure

No loss of configuration data.

ENVIRONMENTAL CONDITIONS

Temperature limits

Operation: $-40... + 85\text{ }^{\circ}\text{C}$

Storage: $-35... + 85\text{ }^{\circ}\text{C}$

Temperature effect: $\leq \pm 0,1\text{ }^{\circ}\text{C} / 10\text{ K}$

Relative humidity

$\leq 98\text{ }^{\circ}\text{C}$, condensation

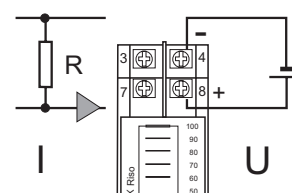
Vibration

4 g, 10 bis 100 Hz

to Lloyds register test 2

Long-term drift: $\pm 0,1\text{ }^{\circ}\text{C} / 10\text{ 000 h}$

Fig. 6 Connection voltage, current



ELECTROMAGNETIC COMPATIBILITY

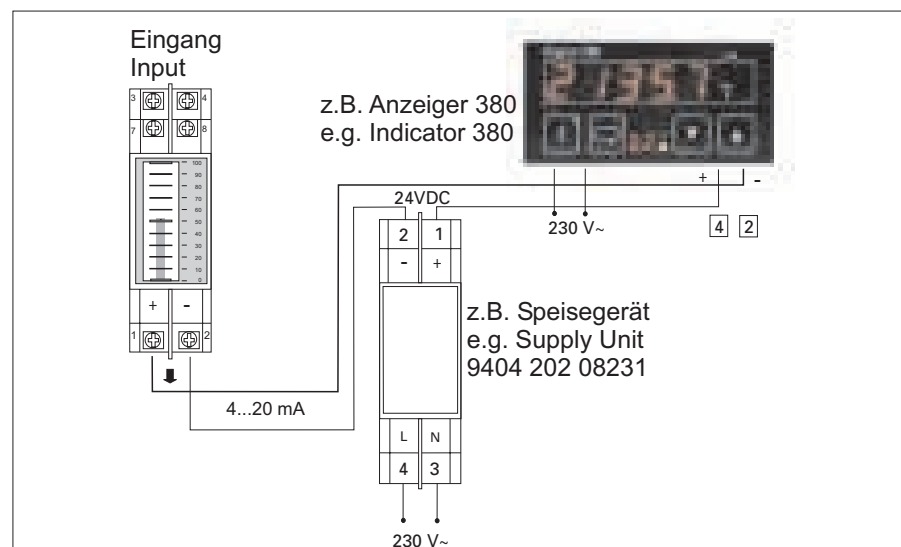
Complies with EN 50 081-2 and EN 50 082-2 for unlimited use in rural and industrial areas

EXPLOSION PROTECTION

According to EN 50 014 and 50 020
EEx ia IIC T5

Certificate of conformity
DEMKO 96D.120131X

Fig. 7 Two wire connections



GENERAL

Dimensions: 62 x 88 x 24 mm

Protection type

housing IP30
terminals IP10

Electrical connection

Screw terminals

Weight: 0,12 kg

Mounting

35 mm rail to DIN

Mounting position

not critical (check display)

ORDERING STRUCTURE

<u>RISRE</u> , Not EEx, without configuration	0
Not EEx configured to specification	5
<u>RIS(R)EX</u> , EEx, without configuration	1
EEx, configured to specification	6

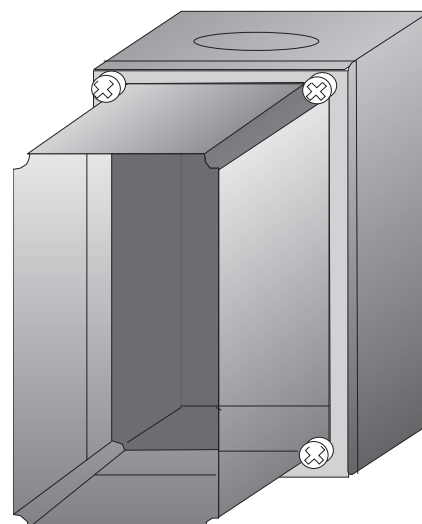
EEx, Configuration

9 4 0 4 2 0 2 0 9 1 1

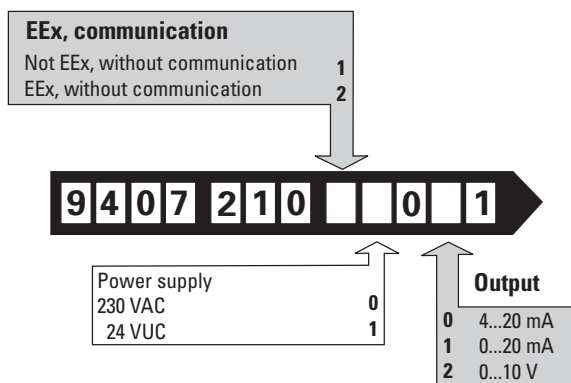
Fig. 8 Field housing IP 67

ACCESSORIES

Description	Order-no.
Programmer UNICONVERTER	
Adapter for connection to serial interface RS232 C of a PC, compatible to IBM PC XT.	9404-202-09301
Transmitter Power Supply	
230 VAC, standard	9404-202-08231
230 VAC HRT, 70 mA	9404-202-08401
115 VAC HRT, 70 mA	9404-202-08411
Fieldhousing IP 67	
To take one or two transmitters Uniflex R, RISO, RISEX etc. With transparent lid and DIN rail	9407-290-01001



ISOLATING TRANSMITTER POWER SUPPLY INTRINSICALLY SAFE



Deutschland

PMA Prozeß- und Maschinen- Automation GmbH
Miramstrasse 87, D-34123 Kassel

Tel./Fax: (0561) 505 - 1307/-1710
E-mail: mailbox@pma-online.de
Internet: <http://www.pma-online.de>

Your local distributor