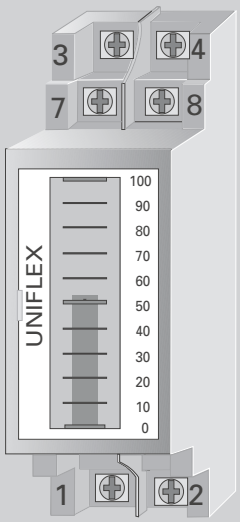


UNIFLEX RISO / RISEX

Programmable 2-wire Snap-on transmitter

Resistance transducer, thermocouple, voltage

Temperature linear or linear to specification

Configuration via PC

Bargraph scalable

Galvanical isolation

Explosion protected ATEX II 1G

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.
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		
R	-50...+1750	100	2
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

Permissable 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)

Fig. 1 Dimensions (mm)

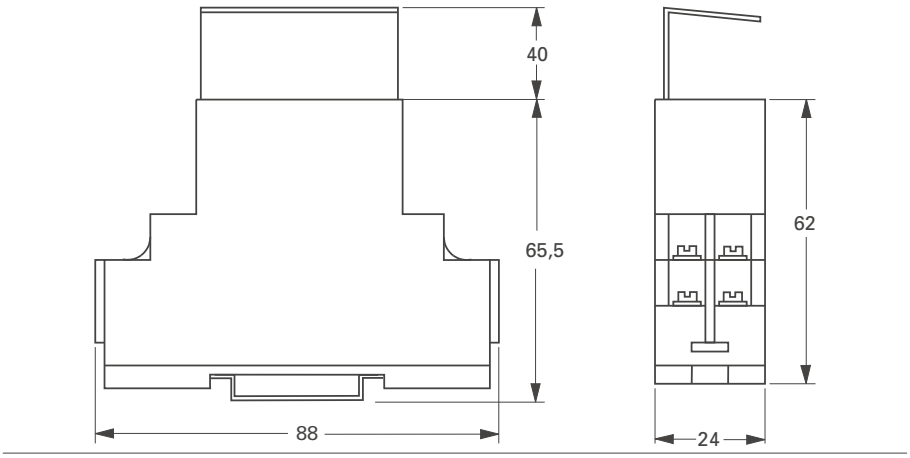
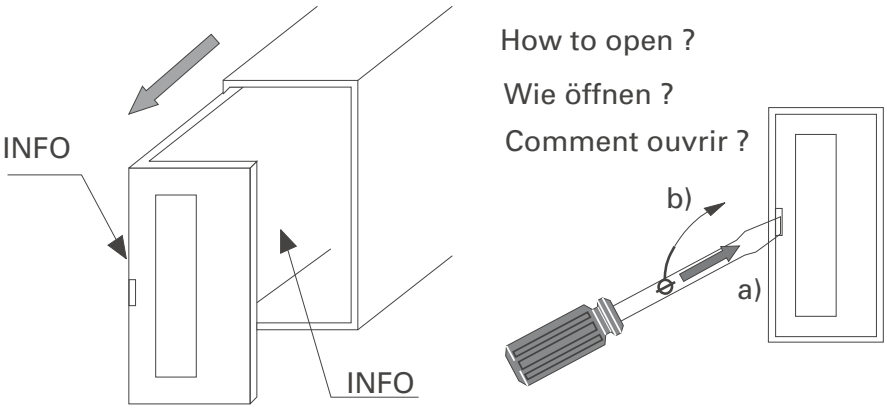


Fig. 2 How to achieve informations



OUTPUT

Standard signal: 4...20 mA

Signal direction: direct, inverse

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

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

Conformity error: 0,1 % fsd

Fig. 3 Connections

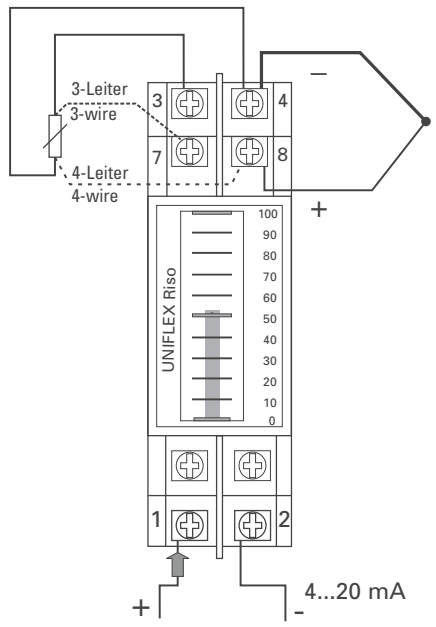
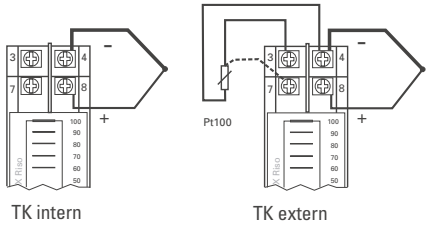


Fig. 3 Connectionthermocouple



Resolution: 12 bit

Measurement error

(excluding conformity error)

Sensor	Error
Pt (temp. > -50 °C)	± 0,1 K ± 0,1 %
TC	± 1 K ± 0,1 %
TC (R; S; B; C; D)	± 2 K ± 0,1 %

DISPLAY

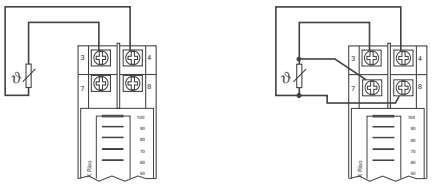
Bargraph with 51 segments
Resolution: 2 % for each visible element, respect. 1 % if upper element flashes. The display range is selectable within the measuring range, e.g.:

Output signal
4 mA = 0 °C, 20 mA = 600 °C
Display
0 % = 500 °C, 100 % = 600 °C

OPERATION

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

Fig. 4 Connection resistance thermometer



POWER SUPPLY

DC-VOLTAGE

Supply voltage: ≥ 6,5...≤ 35 V
Ex-version: ≥ 6,5...≤ 28 V

Power supply effect

On span start: ≤ ± 0,005 % / V
On span end: ≤ ± 0,001 % / V

Permissable ripple: 3 V_{rms}

Behaviour with mains failure

No loss of configuration data.

ENVIRONMENTAL CONDITIONS

Temperature limits

Operation: -40... + 85 °C
Storage: -35... + 85 °C

Temperature effect: ≤± 0,1 %/10 K

Relative humidity

≤ 98 %, condensation

Vibration

4 g, 10 bis 100 Hz
to Lloyds register test 2

Long-term drift: ± 0,1 % / 10 000 h

Fig. 5 Connection resistance, potentiometer

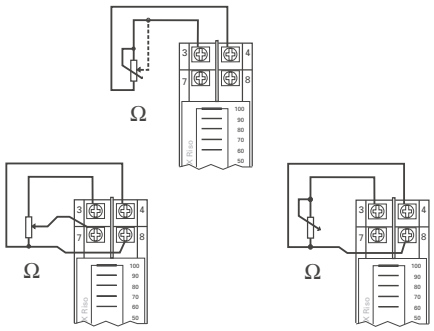


Fig. 6 Connection voltage, current

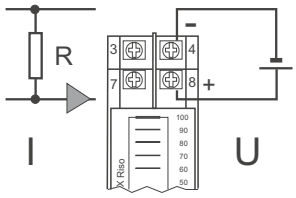
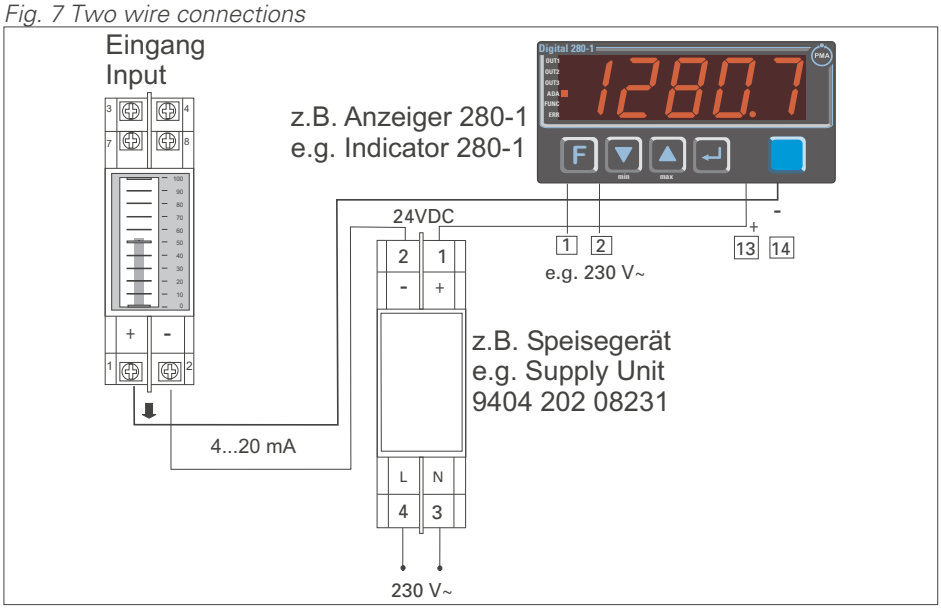


Fig. 7 Two wire connections



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 ATEX II 1G
EEx ia IIC T5

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

RISO, Not EEx, without configuration **0**
Not EEx configured to specification **5**
RISEX, EEx, new order number
EEx, new order number

EEx, Configuration

9 4 0 4 2 0 2 0 9 0 _ 1

RISEX, EEx, new: BOR-8224-524
EEx, configured new: BOR-8224-525

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**

ISOLATING TRANSMITTER POWER SUPPLY INTRINSICALLY SAFE

Output signal
0...20 mA[1] **B**
0...10 V[1] **C**
4...20 mA **E**

A H 9 0 2 7 1 - F _ 1 E _ - G 0 _ 1

Power supply
230 VAC **1**
24 VUC **4**

Communication
None **0**
with HART **1**

[1] No communication via output signal

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