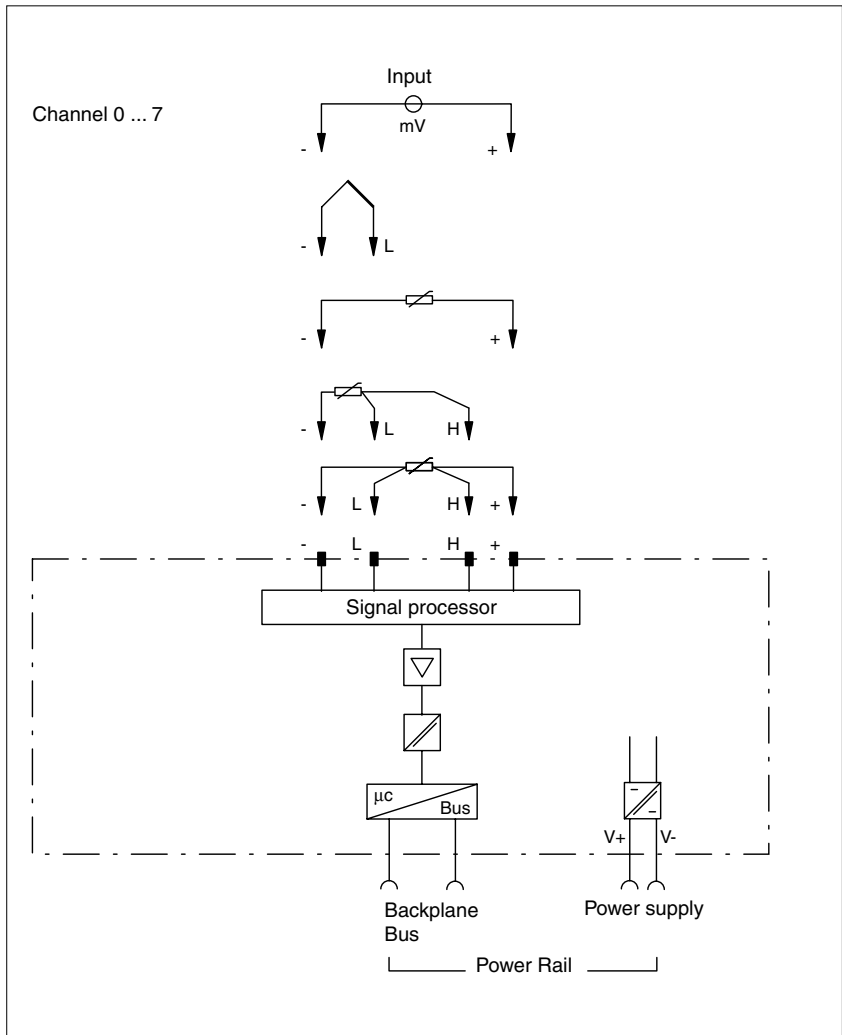


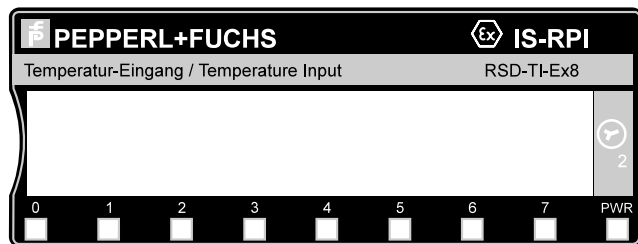
- **Module:**  
II (1)2 GEx ia/ib IIC T4 (CENELEC),  
Class I Division 1 Group A-D (US)
- **Intrinsically safe input:**  
EEx ia IIC (CENELEC),  
Class I Division 1 Group A-D (US)
- **8 input channels referenced to a single common**
- **RTDs:**
  - 3- and 4-wire connection
  - 2-wire mode:  
Compensation of lead resistances programmable
  - Sensor lead breakage detection for all 4 leads
  - Measuring resistance 0 Ω ... 500 Ω
  - Accuracy:  
0.1 % of measuring span
  - Filter cutoff frequency programmable
- **Thermocouples:**
  - Types TXA, E, J, K, TXK, N, R, S, T
  - Cold Junction Compensation (CJC)
  - External reference junction (programmable)
  - Sensor lead breakage detection
  - Accuracy:  
0.1 % of measuring span
  - Filter cutoff frequency programmable
  - Accuracy of CJC: 0.8 °C
- **mV measuring mode:**
  - Input voltage  
-40 mV ... +100 mV
  - Sensor lead breakage detection
  - Accuracy:  
0.1 % of measuring span
  - Filter cutoff frequency programmable
- **1 power supply channel for 5 modules**

\*) Russian Standard

In the configuration tool (e.g. PACTware) TXK appears as "L", while TXA appears as "B"



**Front View**



- LED PWR                    green: Power-On  
   module is operating
- LED 0 ... 7                channels 0 ... 7  
   flashing red: line breakage
- LED 0                        red: internal fault (module) or Power-On test

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**Technical Data**  
**Power supply**  
 Power consumption  
 Power dissipation

**Input (intrinsically safe)**  
 Lead resistance

**Details of Certificate of Conformity**  
**Input circuits**  
 Voltage  $U_0$   
 Current  $I_0$   
 Power  $P_0$   
**Permissible circuit values**  
**Ignition protection class, category**  
 Explosion group  
 Max. external capacitance  
 Max. external inductance  
 $L_0/R_0$

Voltage  $U_i$   
 Current  $I_i$   
 Max. internal capacitance  
 Max. internal inductance

**Measuring range**  
 Output (intrinsically safe)

1.6 W  
 1.6 W

suitable for Pt 100, Pt 200, Ni 100, Ni 200, Ni 120 Minco, Cu 10 Minco thermocouples types TXA, E, J, K, TXK, N, R, S, T; configuration via internal bus < 10 Ω per lead

**Cert. No. DMT 98 ATEX E 015X**

<b>ch0 ... ch7</b>	<b>Cold-Junc.-Comp.CJC1.CJC2</b>	<b>Input/Cold-Junc.-Comp.</b>
9 V	9 V	9 V
37 mA	1 mA	38 mA
83 mW	3 mW	86 mW

<b>[EEx ia]</b>	<b>[EEx ia]</b>	<b>[EEx ia]</b>
IIB IIC	IIB IIC	IIB IIC
40 μF 4.8 μF	40 μF 4.9 μF	40 μF 4.9 μF
80 mH 20 mH	1 H 1 H	80 mH 20 mH
1.7 mH/Ω 0.4 mH/Ω	63 mH/Ω 15 mH/Ω	1.7 mH/Ω 0.4 mH/Ω

**Power Supply (Input) Internal Flex Bus**

9.5 V	5.8 V
1 A	400 mA
negligible	1.35 μF
negligible	negligible

**RTD**

Sensor type	$T_{min}$ [°C]	$T_{max}$ [°C]
Pt100 E	200	870
Pt200 E	200	400
Pt100 A	200	630
Pt200 A	200	400
Ni100	60	250
Ni200	60	200
Ni120	80	320
Cu10	200	260

**Thermocouple**

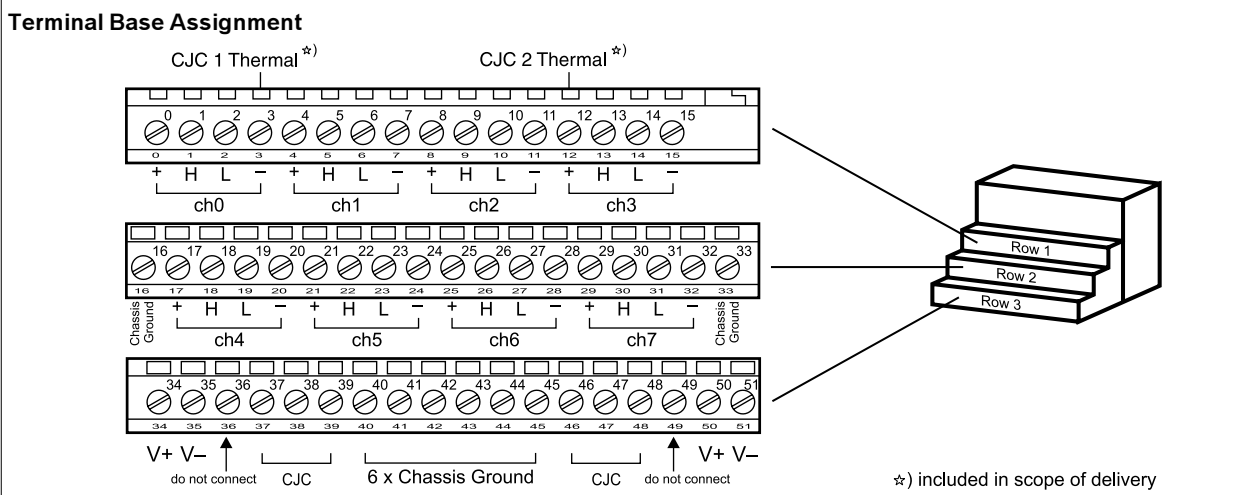
Sensor type	$T_{min}$ [°C]	$T_{max}$ [°C]
TXA	200	1300
E	250	1000
J	210	1200
K	250	1372
TXK	200	800
N	250	1300
R	50	1768
S	50	1768
T	250	400

**MV Signal**

Sensor type	$U_{min}$ [mV]	$U_{max}$ [mV]
mV	40	100

**Resistance**

Sensor type	$R_{min}$ [Ω]	$R_{max}$ [Ω]
Ω	0	500



<p><b>Output (intrinsically safe)</b></p> <p><b>Transmission characteristics</b></p> <p><b>Accuracy</b> RTD Mode</p> <p>Thermocouple mode</p> <p><b>Temperature drift</b> RTD Mode</p> <p>Thermocouple mode</p> <p><b>Resolution</b></p> <p><b>Galvanic isolation</b> Input/power supply Input/backplane bus</p> <p><b>Environmental conditions</b> Ambient temperature Storage temperature Maximum relative humidity Pollution gas test Shock test Vibration test Protection class</p> <p><b>Conformity to standards</b></p> <p>Climatic conditions E.M. compatibility</p> <p><b>Mechanical</b> Weight Dimensions</p> <p><b>Status and configuration</b> Overrange alarm Lead breakage alarm Fault handling Measuring mode: RTDs, Thermocouples, mV, Ohm Sensor type (thermocouples type B, E, J ... or RTDs with 2-, 3- or 4-wire connection) External reference junction (thermocouple)</p>	<p><b>vendor specific bus</b></p> <p>all types except Minco Cu 10: 0.1 % of span over 20 °C</p> <p>Accuracy Minco Cu 10: 1 % of span over 20 °C</p> <p>all types: 0,1 % of span over 20 °C</p> <p>all types except Minco Cu 10: 100 ppm/ °C (K)</p> <p>Accuracy Minco Cu 10: 400 ppm/°C (K)</p> <table border="1"> <thead> <tr> <th></th> <th colspan="2">Lower Band</th> <th colspan="2">Upper Band</th> <th colspan="2">Single Band</th> </tr> <tr> <th>Type</th> <th>measur. band</th> <th>ppm/°C</th> <th>measur. band</th> <th>ppm/°C</th> <th>measur. band</th> <th>ppm/°C</th> </tr> </thead> <tbody> <tr> <td>TXA</td> <td>200 ... +399 °C</td> <td>100</td> <td>400 ... +1300 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>E</td> <td>-250 ... -201 °C</td> <td>250</td> <td>-200 ... +1000 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>J</td> <td></td> <td></td> <td></td> <td></td> <td>-210 ... 1200 °C</td> <td>100</td> </tr> <tr> <td>K</td> <td>-250 ... -171 °C</td> <td>250</td> <td>-170 ... +1372 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>TXK</td> <td>-200 ... -181 °C</td> <td>100</td> <td>-180 ... +800 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>N</td> <td>-250 ... -181 °C</td> <td>350</td> <td>-180 ... +1300 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>R</td> <td>-50 ... -1 °C</td> <td>150</td> <td>0 ... +1768 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>S</td> <td>-50 ... -1 °C</td> <td>150</td> <td>0 ... +1768 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>T</td> <td>-250 ... -171 °C</td> <td>600</td> <td>-170 ... +400 °C</td> <td>100</td> <td></td> <td></td> </tr> <tr> <td>mV</td> <td></td> <td></td> <td></td> <td></td> <td>-40 ... 100 mV</td> <td>100</td> </tr> </tbody> </table> <p>16 Bit</p> <p>galvanic isolation according to DIN EN 50020 galvanic isolation according to DIN EN 50020</p> <p>-20 °C ... +70 °C (253 K ... 343 K) -20 °C ... +100 °C (253 K ... 373 K) 95 %, non-condensing accord. to ISA-S71.04-1985, test level G3 15 g peak 11 ms duration 2 g, 10 Hz ... 500 Hz according to IEC 68-2-6 IP20; for installation in the field a separate housing with protection class IP54 or better is required</p> <p>according to DIN EN 50014: 1994-03 according to DIN EN 50020:1996-04 according to DIN IEC 721 according to DIN EN 50081-2, DIN EN 50082-2, NAMUR NE 21 Note: To reach the EMC protection class it is necessary to use screened multicore cable and to have a screen for each channel. The isolation of each wire must be higher than 500 V.</p> <p>approx. 200 g see page 11</p> <p>1 status bit for each channel 1 status bit for each channel individually for each channel (incl. overrange + lead breakage) common to groups of 4 channels (ch0 ... ch3, ch4 ... ch7) common to groups of 4 channels (ch0 ... ch3, ch4 ... ch7) common to all thermocouple channels (0°,20°,25°,30°,40°,50°,60°,70°C selectable)</p>		Lower Band		Upper Band		Single Band		Type	measur. band	ppm/°C	measur. band	ppm/°C	measur. band	ppm/°C	TXA	200 ... +399 °C	100	400 ... +1300 °C	100			E	-250 ... -201 °C	250	-200 ... +1000 °C	100			J					-210 ... 1200 °C	100	K	-250 ... -171 °C	250	-170 ... +1372 °C	100			TXK	-200 ... -181 °C	100	-180 ... +800 °C	100			N	-250 ... -181 °C	350	-180 ... +1300 °C	100			R	-50 ... -1 °C	150	0 ... +1768 °C	100			S	-50 ... -1 °C	150	0 ... +1768 °C	100			T	-250 ... -171 °C	600	-170 ... +400 °C	100			mV					-40 ... 100 mV	100
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