

Temperature Measuring Amplifier IM34-11Ex-i IM34-12Ex-Ri 1-channel



- **1-channel temperature measuring amplifier with removable terminal blocks**
- **Intrinsically safe input circuit EEx ia with wire-break monitoring function**
- **Area of application according to ATEX: II (1) GD, II 3 G**
- **Approved for installation in zone 2, however the device must be installed in a housing which complies with the requirements of EN 60079-15 with a minimum protection degree of IP54**
- **Input for Ni100/Pt100 resistance temperature detectors, thermoelements and millivolt signals**
- **Lower and upper measuring range value adjustable via coded rotary switches**
- **Current output 0/4...20 mA, limit value relay (IM34-12Ex-Ri only)**
- **Complete galvanic isolation**
- **Adjustable analogue output performance in case of errors in the input circuit**
- **Universal supply voltage (20...250 VAC/20...125 VDC)**

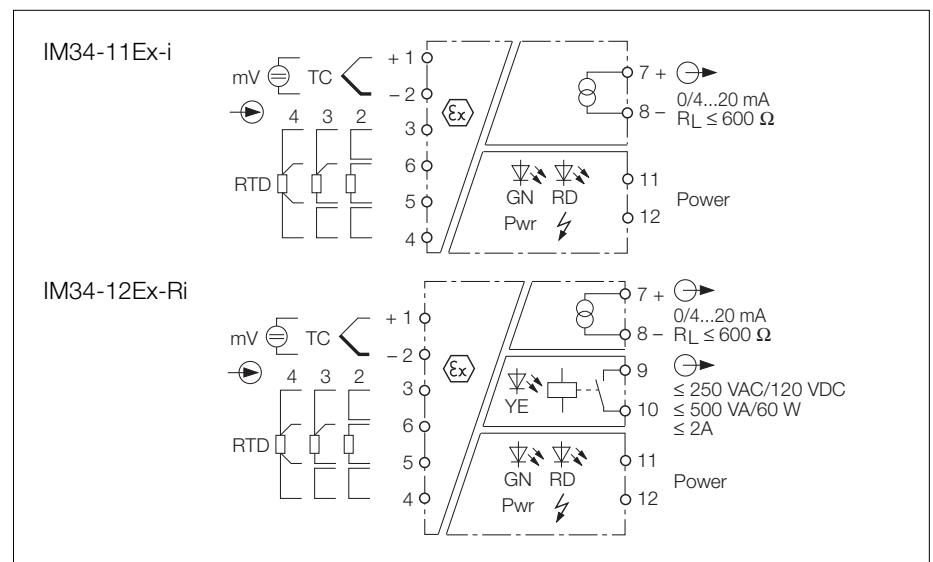
The single-channel temperature measuring amplifier IM34-1.Ex-... is designed to evaluate the temperature-dependent variations of Ni100/Pt100 resistance temperature detectors, thermoelement

types B, E, J, K, L, N, R, S and T or low voltages in a range of -160...+160 mV and to reproduce these values as temperature-linear current signals of 0/4...20 mA. The IM34-12Ex-Ri is equipped with an additional relay output to monitor a limit value for under- and overrange conditions. The input circuit of the measuring amplifier is also suited for connection of 2, 3 or 4-wire Ni100/Pt100 resistors. The Ni100/Pt100 input may be used for external cold junction compensation for the thermoelements (2-wire types) or as an independent measuring input. The measuring range and the device functions are set via coded rotary switches or slide switches (on the right side of the device). Version IM34-12Ex-Ri enables adjustment of a limit value via the coded rotary switch. The following parameters may be set:

- type of measuring device

- connection of the Ni100/Pt100 resistance temperature detector in 2, 3 and 4-wire technology
- lower measuring range value -100...+1°C in increments of 1 K
- upper measuring range value 0...990 °C in increments of 10 K
- limit value (IM34-12Ex-Ri only)
- input circuit monitoring for wire-break
- current output performance in case of errors in the input circuit: 0 or > 22 mA
- internal or external cold junction compensation

The signals are transformed according to ITS90 IEC 584 for thermoelements and IEC 751 for PT100 RTDs and provided as temperature-linear signals at the current output.



Temperature Measuring Amplifier IM34-11Ex-i/IM34-12Ex-Ri

Type	IM34-11Ex-i	IM34-12Ex-Ri
Ident.-no.	7506630	7506631
Supply voltage U_B	20...250 VAC/20...125 VDC	
Line frequency (AC)	40...70 Hz	
Power consumption	≤ 3 W	
Galvanic isolation	between input and output circuit and supply voltage for 250 V _{rms} , test voltage 2.5 kV _{rms}	
Input circuit	intrinsically safe according to EN 50020 version Ni100 and Pt100 (IEC 751), 2, 3 and 4-wire technology measuring range -200...800 °C (Pt100), -60...250 °C (Ni100) thermoelements B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710) extra-low voltages with a measuring span of -160 mV...+160 mV Resistor current Pt100/Ni100 approx. 200 µA	
Output circuits	0/4...20 mA (load ≤ 600 Ω)	0/4...20 mA (load ≤ 600 Ω)
Current output	0/4...20 mA (load ≤ 600 Ω)	0/4...20 mA (load ≤ 600 Ω)
Relay output	–	1 normally open contact
– Switching voltage	–	≤ 250 VAC/120 VDC
– Switching current	–	≤ 2 A
– Switching capacity	–	≤ 500 VA/60 W
– Switching frequency	–	≤ 10 Hz
– Switching hysteresis	–	≤ 5 K
– Contact materials:	–	Ag alloy + 3 µm Au
Ex-approvals acc. to certificate of conformity	TÜV 02 ATEX 1898 / TÜV 06 ATEX 552978 X	TÜV 02 ATEX 1898 / TÜV 06 ATEX 552978 X
Input circuit		
– Max. values		
No-load voltage U_0	5 V	5 V
Short-circuit current I_0	2 mA	2 mA
Power P_0	2.6 mW	2.6 mW
Internal inductances/capacitances L_i/C_i	0.2 mH/–	0.2 mH/–
Max. external inductances/capacitances L_o/C_o		
– [EEx ia] IIC	1000 mH/100 µF	1000 mH/100 µF
– [EEx ia] IIB	1000 mH/1000 µF	1000 mH/1000 µF
– Ex nL IIC	100 mH/3,6 µF	100 mH/3,6 µF
– Ex nL IIB	100 mH/18 µF	100 mH/18 µF
Marking of the Device	⊕ II (1) GD [EEx ia] IIC II 3 G Ex nA nC [nL] IIC/IIB T4	⊕ II (1) GD [EEx ia] IIC II 3 G Ex nA nC [nL] IIC/IIB T4
Transfer characteristics	see page 3 – 55	
Accuracy	see page 3 – 55	
Total error	see from pages 3 – 56 on	
Rise time (10 %...90 %)	< 1 s	
Release time (90 %...10 %)	< 1 s	
Response time	< 1 s	
LED indications		
– Power	green	green
– Error	red	red
– Switching status	–	yellow
Housing	12 poles, 18 mm wide, Polycarbonatet/ABS, flammability class V-0 per UL94	
Mounting	snap-on hat rail (DIN 50022) or panel screw mounting	
Connection	removable terminal blocks, polarity protected screw connection, self-lifting	
Connection profile	≤ 1 x 2.5 mm ² , 2 x 1.5 mm ² or 2 x 1.0 mm ² with wire sleeves	
Degree of protection (IEC 60529/EN 60529)	IP20	
Operating temperature	-25...+70 °C	

