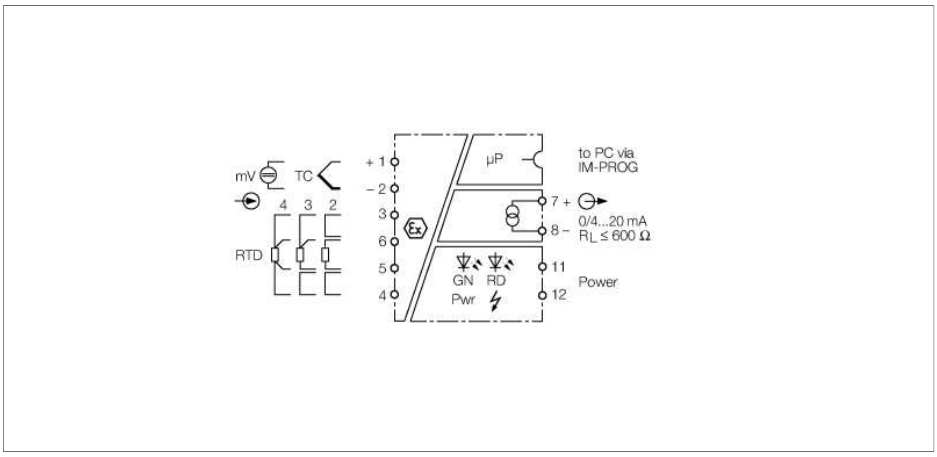
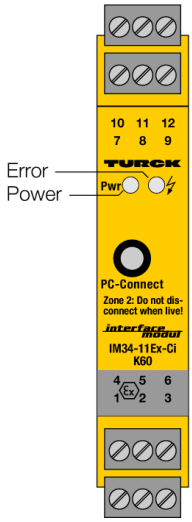
Temperature measuring amplifier
1-channel
IM34-11EX-CI/K60





Edition • 2013-07-13T20:14:14+02:00

Hans Turck GmbH & Co.KG ● D-45472 Mülheim an der Ruhr ● Witzlebenstraße 7 ● Tel. 0208 4952-0 ● Fax 0208 4952-264 ● more@turck.com ● www.turck.com

Temperature measuring amplifier
1-channel
IM34-11EX-CI/K60

The single-channel temperature measuring amplifier IM34-11Ex-Ci/K60 is designed to evaluate the temperature-dependent variations of resistance thermo detectors (RTD) Ni100/Pt100, thermoelement types B, E, J, K, L, N, R, S and T or low voltages in a range of -160…+160 mV and to output them as linear temperature currrent signals 0/4…20 mA. Resistance thermo detectors in 2, 3 or 4-wire-technology can be operated alternatively at the input circuit of the measuring amplifier. The RTD input can either be used as external cold junction compensation for the thermoelement or as independent measuring input.

If the thermoelement lines are routed to the temperature measuring amplifier TURCK recommends the use the cold junction compensation module IM-3-CJT (Ident no.:6900524). 6900524). This way the maximum possible accuracy is achieved. In order to increase the measurment speed with fast temperature changes on thermoelements, the device switches into the "Fast Mode" after 200 ms at the very latest after a gradient of 200 µV/s has been exceeded. Thereafter the cycle time of the thermal voltage measurement is < 80 ms. This means that no wire-break monitoring and no measurement of the cold junction temperature will occur. After the gradient drops below 80 µV/s the device will switch back to "Normal Mode“.

Thermoelement	„Fast Mode“ 200 µV/s	„Normal Mode“ 80 µV/s	Temperature range
Type B	20 K/s	8 K/s	1100 °C
Type E	2.6 K/s	1 K/s	0 … 1000 °C
Type J	3.5 K/s	1.5 K/s	0 … 1200 °C
Type K	5 K/s	1.6 K/s	0 … 1372 °C
Type L	3.5 K/s	1.5 K/s	0 … 900 °C
Type N	5.7 K/s	2.3 K/s	100 … 1300 °C
Type R	20 K/s	8 K/s	400 … 1768 °C
Type S	18 K/s	7 K/s	400 … 1768 °C
Type T	4 K/s	1.5 K/s	150 °C

The following table shows the approximate temperature gradients for the corresponding thermoelements.

NOTE: The temperature gradients in the table are only approximate values for defined temperature ranges. For exact determination of the temperature gradient the characteristic of the correspondent sensor and the related operating point have to be considered.

Parameterization and configuration are implemented with the software tool „Device Type Manager“ (DTM). For this purpose the temperature measuring amplifier is connected to the PC with a 3.5-mm front panel jack. The premoulded transmission cable can be ordered with TURCK under the type name IM-PROG (ident no. 6890422). The following settings can be made with the DTM:

- Measurement mode (RTD, TC, low voltage, line compensation)
- Tag number designation (32 freely selectable characters)
- Temperature unit (°C or °F)
- RTD connection mode (2, 3-or 4-wire technology)
- Cold junction compensation(internal or with external RTD). NOTE: If the thermoelement lines are routed to the temperature measuring amplifier TURCK recommends the use the cold junction compensation module IM-3-CJT (Ident no.:6900524). 6900524).
- Measurement range mapped to current source
- Output current (0/4…20 mA)
- Fault current (0 or < 20 mA)

The signals are transformed according to ITS 90/IEC 584 for thermoelements and IEC 751 for Pt100 RTDs and provided as temperature linear signals at the current output.

- **Intrinsically safe input circuits Ex ia**
- **Application area acc. to ATEX: II (1) G; II (1) D**
- **Installation in zone 2**
- **Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology**
- **Suitable for fast temperature changes, ex thermal gradient 200µV/s**
- **Parametrization via PACT*ware*™**
- **Output: 0/4…20 mA**
- **HART®**

Edition • 2013-07-13T20:14:14+02:00

Temperature measuring amplifier
1-channel
IM34-11EX-CI/K60

Type code	IM34-11EX-CI/K60
Ident no.	7506636
Operating voltage	20…250 VAC
Frequency	40…70 Hz
Operating voltage range	20…125 VDC
Input circuits	thermocouple Pt100
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermoelements	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC
Output circuits	
Output current	0/4...20 mA
Fault current	0 / 22 mA adjustable
Switching frequency	≤ 1 Hz
Output	adjustable output mode
Reference temperature	23 °C
Accuracy current output	± 5 µA
Temperature drift analogue output	0.0025 %/K
Temperature drift RTD input	± 3 mΩ/K
Temperature drift TC input	3.2 µV / K (of 320mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100mΩ after line compensation 3-wire < 100mΩ with asymmetrical wiring 4-wire < 50mΩ with cold junction compensation with IM-3-CJT < 1K
Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Application area	II (1) G, II (1) D
Protection type	[Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max.output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small
External inductance/capacitance L_o/C_o	

	EEx ia IIC	EEx ia IIB
Lo [mH]	1000	1000
Co [µF]	100	1000

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection class for belonging equipment	Ex nA [ic Gc] IIC T4
Max.output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Internal inductance/capacitance L_i/C_i	negligibly small
External inductance/capacitance L_o/C_o	

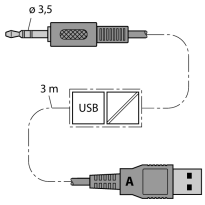
Ex ic	IIC	IIB
Lo [mH]	100	100
Co [µF]	3.6	18

Ex approval acc. to conformity certificate	IS-1.106
MTTF	200 years acc. to SN 29500 (Ed. 99) 40 °C
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80°C
Weight	133 g

Edition • 2013-07-13T20:14:14+02:00

Temperature measuring amplifier
1-channel
IM34-11EX-CI/K60

Accessories

Type code	Ident no.	Description	Dimension drawing
IM-PROG III	7525111	The programming adapter IM-PROG III is used for parametrization of TURCK IM and IMB devices via FDT/DTM and for galvanic separation.	

Edition • 2013-07-13T20:14:14+02:00