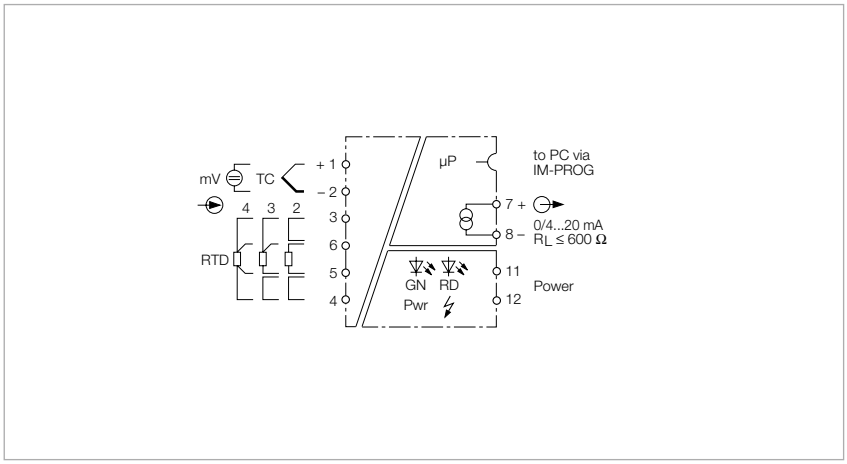
Temperature measuring amplifier, 1-channel



Features

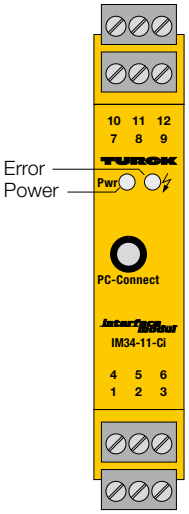
- TR CU
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Output circuit: 0/4…20 mA
- Parametrized via PC (FDT / DTM)
- Complete galvanic isolation

The 1-channel temperature measuring amplifier IM34-11-CI is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples 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 current signals.

Alternatively, Ni100/Pt100 in 2, 3 or 4-wire-technology can be operated at the measuring amplifier's input circuit. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.

The device can be configured via PC with the software tool Device Type Manager (DTM); the appropriate transmission cable IM-PROG III is available from TURCK.

The following settings are available:
- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)



Technical data

Type	IM34-11-CI
Ident no.	7506638

Power supply	
Nominal voltage	Universal voltage supply unit
Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs	
Input circuits	thermocouple, Ni100, Pt100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs	
Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Fault current	0 / 22 mA adjustable

Response characteristic	
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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90 %)	≤ 1000 ms
Dropout time (90…10 %)	≤ 1000 ms

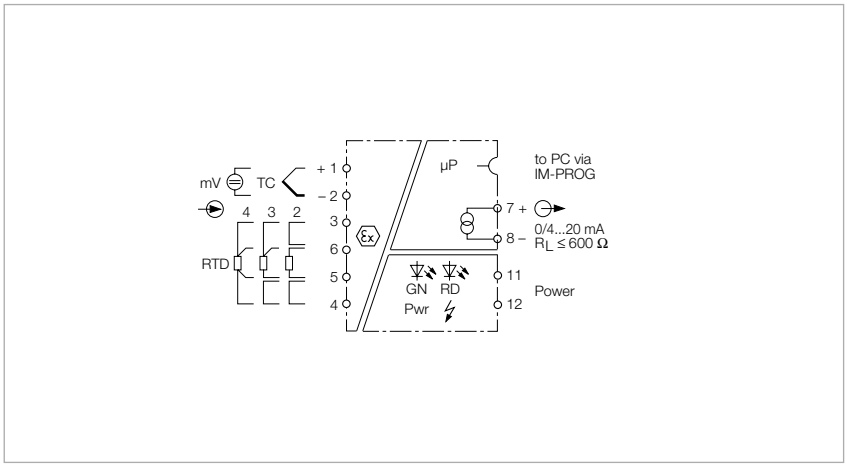
Indication	
Operational readiness	green
Error indication	red

Environmental Conditions	
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data	
Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	TR CU

Temperature measuring amplifier, 1-channel



Features

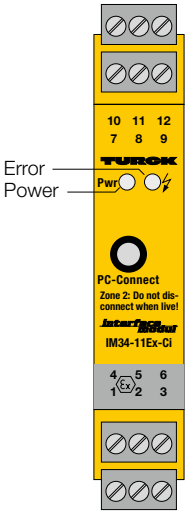
- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Output circuit: 0/4…20 mA
- Parametrized via PC (FDT / DTM)
- Complete galvanic isolation

The 1-channel Ex-area temperature measuring amplifier IM34-11EX-CI is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples 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 temperature-linear current signals 0/4…20 mA.

Alternatively, Ni100/Pt100 in 2, 3 or 4-wire-technology can be operated at the measuring amplifier's input circuit. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.

The device can be configured via PC with the software tool Device Type Manager (DTM); the appropriate transmission cable IM-PROG III is available from TURCK.

The following settings are available:
- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)



Technical data

Type	IM34-11EX-CI
Ident no.	7506633

Power supply	
Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs	
Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Pt100, Ni100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs	
Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Fault current	0 / 22 mA adjustable
Output	adjustable output mode

Response characteristic	
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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations	
Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

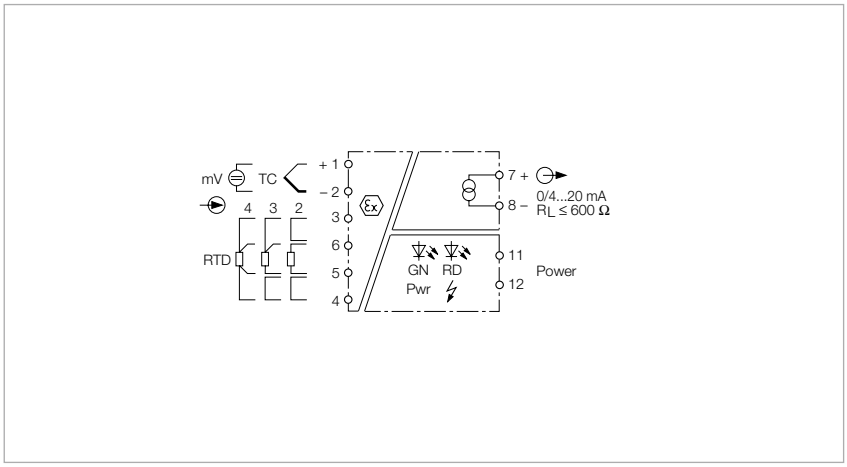
Indication	
Operational readiness	green
Error indication	red

Environmental Conditions	
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data	
Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, $_cFM_{us}$, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

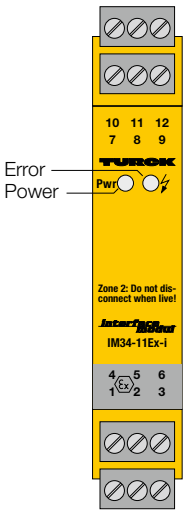
- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Output circuit: 0/4…20 mA
- Upper and lower limit adjustable via rotary coding switch
- Complete galvanic isolation

The 1-channel Ex-area temperature measuring amplifier IM34-11EX-I is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples types B, E, J, K, L, N, R, S and T or low voltages in a range of -100… +160 mV and to output them as temperature-linear current signals 0/4…20 mA.

Alternatively, Ni100/Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.

The measuring range and the device functions are set via coded rotary switches or slide switches (located on the right side of the device).

The following settings are available:
- Type of probe
- Connection of the Ni100/Pt100 resistor in 2, 3 or 4-wire technology
- Measuring range, lower limit -100…- 1 °C in 1-K steps, 0…990 °C in 10-K steps
- Measuring range upper limit 0…1990 °C in 10-K steps
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation



Technical data

Type	IM34-11EX-I
Ident no.	7506630

Power supply

Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Ni100, Pt100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Fault current	0 / 22 mA adjustable
Output	adjustable output mode

Response characteristic

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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Indication

Operational readiness	green
Error indication	red

Environmental Conditions

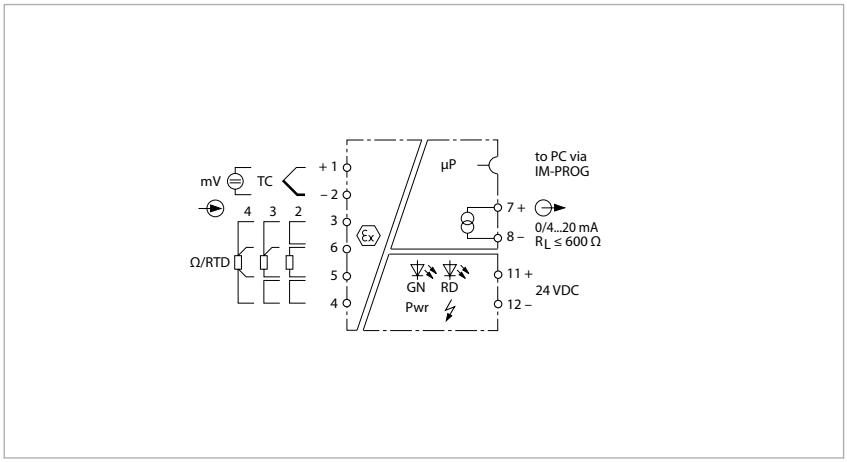
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, $_cFM_{us}$, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

- ATEX, IECEx, TR CU, INMETRO, CCOE
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Parametrization via PACT*ware*™
- Output: 0/4…20 mA
- Complete galvanic isolation

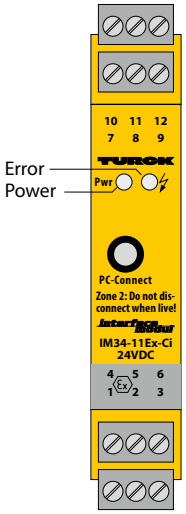
The temperature measuring amplifier IM34-11Ex-C_i/24VDC is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples types B, E, J, K, L, N, R, S and T or low voltages in a range of -160…+160 mV and to output them as temperature-linear current signals.

Alternatively, Ni100/Pt100 in 2, 3 or 4-wire-technology can be operated at the measuring amplifier's input circuit. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.

The device can be configured and parametrized via PC (FDT/DTM); the appropriate TURCK-PROG III transmission cable is available from TURCK.

The following settings can be adjusted via DTM:

- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal, external or constant cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)



Technical data

Type	IM34-11Ex-CI/24VDC
Ident no.	7506637

Power supply

Nominal voltage	24 VDC
Operating voltage range	20…30 VDC
Power consumption	≤ 1.5 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Ni100, Pt100, mV signals
RTD	Pt100 (IEC 751), NI100 (DIN 43760), 2- und 3-Leiter-Technik, nach Gost: Pt100, Cu50, Cu53, Cu100, CuZn100
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710), acc. to Gost: L, M, A1, A2, A3
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Fault current	0 / 22 mA adjustable
Output	adjustable output mode

Response characteristic

Reference temperature	23 °C
Accuracy current output	± 20 µA
Temperature drift analogue output	0.0025 %/K
Temperature drift RTD input	± 3 mΩ/K
Temperature drift TC input	3.2 µV / K (of 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	⟨Ex⟩ II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Indication

Operational readiness	green
Error indication	red

Environmental Conditions

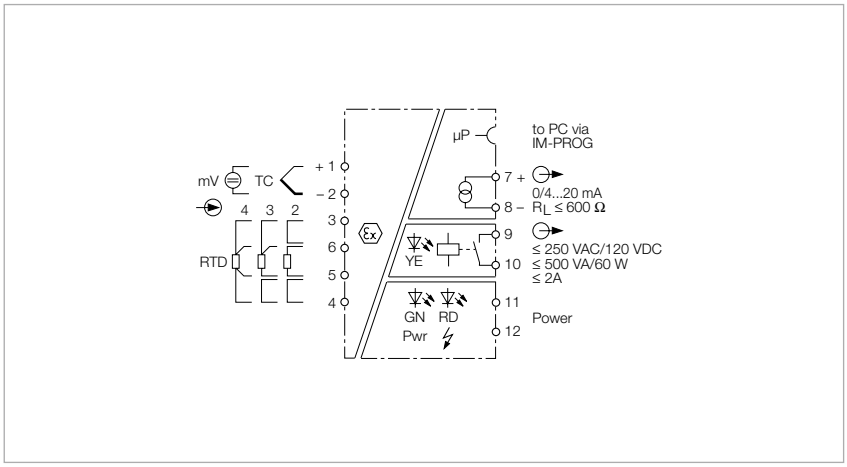
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

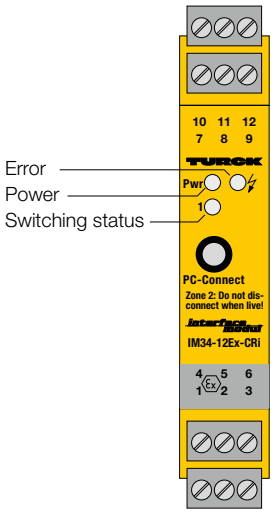
- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Output circuit: 0/4…20 mA, limit value relay
- Parametrized via PC (FDT / DTM)
- Complete galvanic isolation

The 1-channel Ex-area temperature measuring amplifier IM34-12EX-CRI is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples 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 temperature-linear current signals 0/4…20 mA.

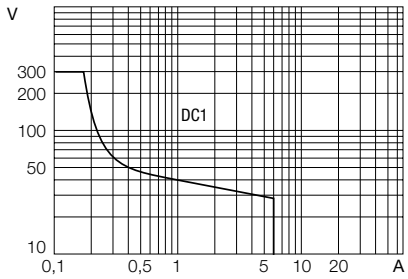
Alternatively, Ni100/Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.
The device has an additional relay output to monitor over or underrange of a limit value.

The device can be configured and parametrized via PC (FDT/DTM); the appropriate TURCK-PROG III transmission cable is available from TURCK.

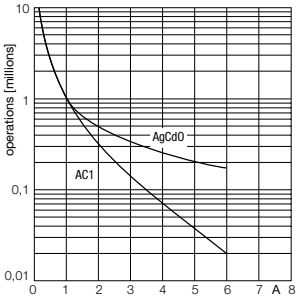
The following settings are available:
- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Limit value
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)



Output relay – Load curve



Output relay – Electrical lifetime



Hans Turck GmbH & Co. KG ▪ Tel. +49 208 49 52-0 ▪ Fax +49 208 49 52-264

Technical data

Type	IM34-12EX-CRI
Ident no.	7506632

Power supply

Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Pt100, Ni100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Output circuits (digital)	1 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Fault current	0 / 22 mA adjustable
Contact quality	AgNi, 3µ Au
Output	adjustable output mode

Response characteristic

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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Indication

Operational readiness	green
Switching state	yellow

Environmental Conditions

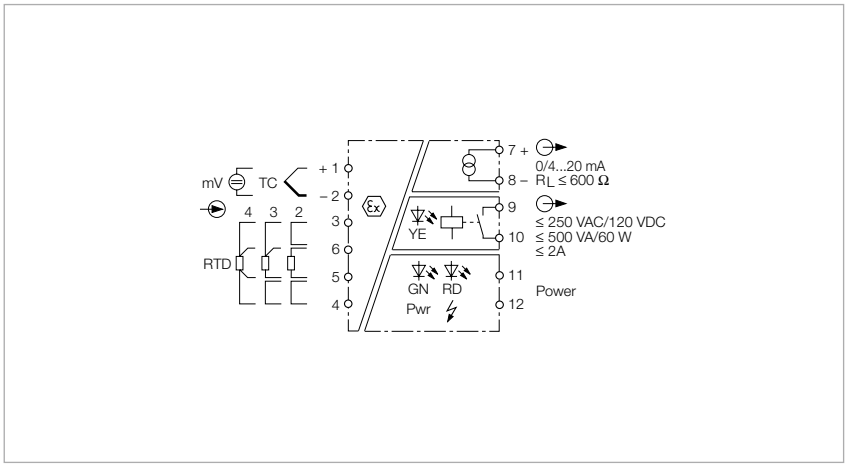
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, $_cFM_{us}$, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

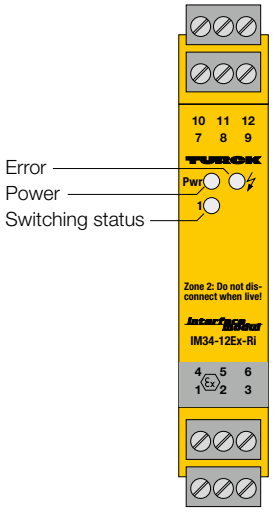
- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Output circuit: 0/4…20 mA, limit value relay
- Upper and lower limit adjustable via rotary coding switch
- Complete galvanic isolation

The 1-channel Ex-area temperature measuring amplifier IM34-12EX-RI is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples types B, E, J, K, L, N, R, S and T or low voltages in a range of -100… +160 mV and to output them as temperature-linear current signals 0/4…20 mA.

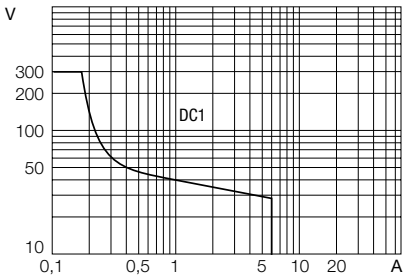
Alternatively, Ni100/Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.
The device has an additional relay output to monitor over or underrange of a limit value.

The measuring range, limit value and the device functions are set via rotary coding switches or rather slide switches.

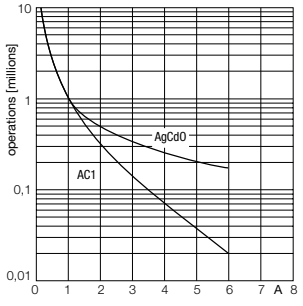
The following settings are available:
- Type of probe
- Connection of the Ni100/Pt100 resistor in 2, 3 or 4-wire technology
- Measuring range, lower limit -100… -1 °C in 1-K steps, upper limit 0…990 °C in 10-K steps
- Limit value
- Measuring range upper limit 0…1990 °C in 10-K steps
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation
- Relay output mode



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM34-12EX-RI
Ident no.	7506631

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Ni100, Pt100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Output circuits (digital)	1 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Fault current	0 / 22 mA adjustable
Contact quality	AgNi, 3µ Au
Output	adjustable output mode

Response characteristic

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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
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

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Indication

Switching state	yellow

Environmental Conditions

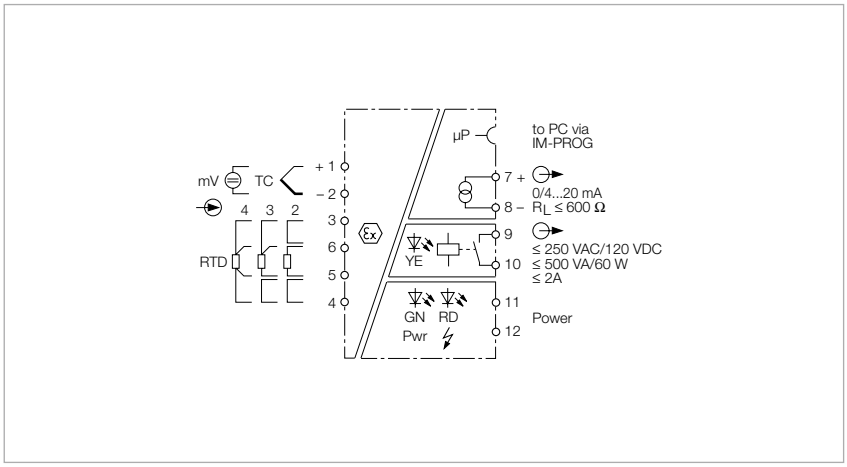
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, $_cFM_{us}$, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- Installation in zone 2
- Connection of thermocouples acc. to IEC 751 and GOST
- Connection of thermocouples acc. to IEC 584 and GOST
- Parametrized via FDT / DTM
- Complete galvanic isolation

The temperature measuring amplifier IM34-12EX-CRI/K63 is designed to evaluate the temperature-dependent changes of RTDs, thermocouples or low voltages and to output them as temperature-linear current signals between 0/4…20 mA. The special device K63 analyzes standard Pt100/NI100 RTDs acc. to IEC 751, as well as Pt100 acc. to Gost, also CU50, CU53 CU100 and CuZn100 acc. to Gost.

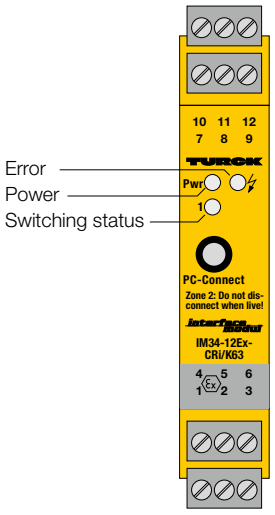
Moreover, standard thermocouples B, E, J, K, L, N, R, S and T , also the types L, A1, A2, A3 and M acc. to Gost can be connected. The device has an additional relay output to monitor over or underrange of a limit value.

The devices are parametrized and configured via PC with the software tool „Device Type Manager" (DTM). For this, connect the temperature measuring amplifier to the PC with the 3.5 mm jack plug on the front.

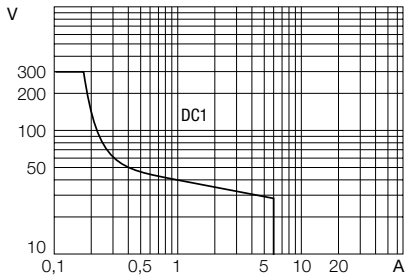
The ready-made transmission cable can be ordered from TURCK under the type name IM-PROG (ident no. 6890422).

The following settings can be adjusted via DTM:

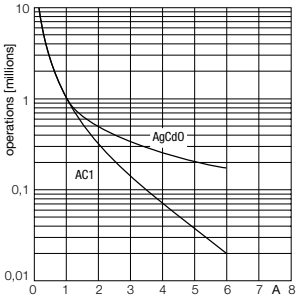
- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Limit value
- Input circuit monitoring for wire-break
- Behaviour of current output in the event of input circuit errors: 0 resp. > 22 mA
- Internal or external cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM34-12Ex-CRi/K63
Ident no.	7506605

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Ni100, Pt100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology, acc. to Gost: Pt100, Cu50, Cu53, Cu100, CuZn100
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710), acc. to Gost: L, A-1, A-2, A-3, M
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Output circuits (digital)	1 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Fault current	0 / 22 mA adjustable
Contact quality	AgNi, 3µ Au
Output	adjustable output mode

Response characteristic

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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA nC [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

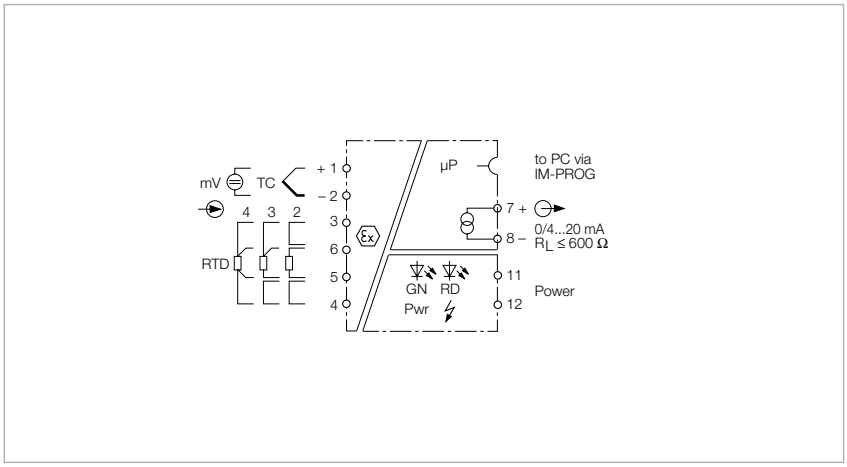
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, $_cFM_{us}$, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Parametrized via PC using PACTware™
- Output: 0/4…20 mA
- Complete galvanic isolation

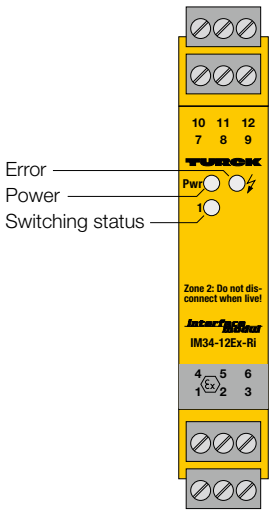
The 1-channel Ex-area temperature measuring amplifier IM34-11EX-CI/K51 is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples types B, E, J, K, L, N, R, S and T or low voltages in a range of -160…+160 mV and to output them as temperature-linear current signals 0/4…20 mA.

Alternatively, Ni100/Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.

The device can be configured and parametrized via PC with the software tool Device Type Manager (DTM). For this, connect the device to the PC via the 3.5 mm jack on the front (the matching transmission cable IM-PROG III can be ordered separately from TURCK).

The following settings are available:
- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)

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



Hans Turck GmbH & Co. KG ▪ Tel. +49 208 49 52-0 ▪ Fax +49 208 49 52-264

Technical data

Type	IM34-11EX-CI/K51
Ident no.	7506635

Power supply

Nominal voltage	Universal voltage supply unit
Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Ni100, Pt100, intrinsically safe acc. to EN 60079
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Switching frequency	≤ 1 Hz
Fault current	0 / 22 mA adjustable

Response characteristic

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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2.5 mA
Max. output power P_o	≤ 3 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Indication

Operational readiness	green

Environmental Conditions

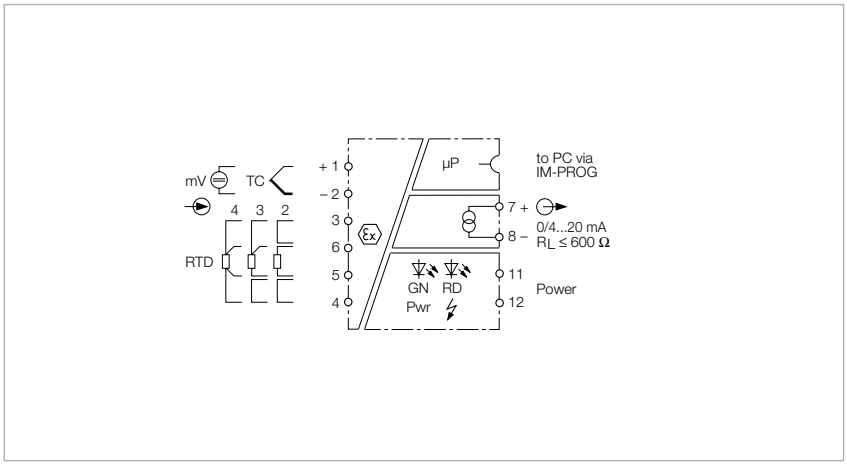
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	4.0 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, $_cFM_{us}$, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel

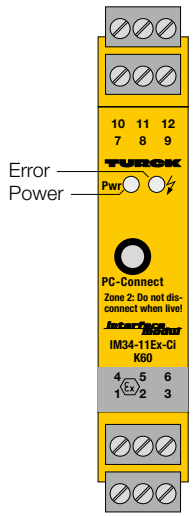


Features

- ATEX, IECEx, $_{C}FM_{US}$, UL, TR CU, INMETRO, CCOE
- 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, starting with a thermal gradient of 200 µV/s
- Parametrized via PC using PACTware™
- Output: 0/4…20 mA
- Complete galvanic isolation

The 1-channel temperature measuring amplifier IM34-11Ex-CI/K60 is designed to evaluate the temperature-dependent changes of Ni100/Pt100 (RTD), thermocouples (TC) 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 temperature-linear current signals of 0/4…20 mA. Alternatively, Ni100/Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple or as independent measuring input.

If the thermocouples lines are routed to the temperature measuring amplifier TURCK recommends the use the cold junction compensation module IM-3-CJT (Ident no.: 6900524) This way the maximum possible accuracy is achieved. In order to increase the measurment speed with fast temperature changes on thermocouples, 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“.



Technical data

Type	IM34-11EX-CI/K60
Ident no.	7506636

Power supply	
Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz

Inputs	
Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Pt100, Ni 00, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Voltage input	-0.160…+0.160 VDC

Outputs	
Output current	0/4…20 mA
Switching frequency	≤ 1 Hz
Fault current	0 / 22 mA adjustable
Output	adjustable output mode

Response characteristic	
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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K

Approvals and declarations	
Ex approval acc. to conformity certificate	TÜV 02 ATEX 1898
Device designation	Ⓔx II (1) G, II (1) D [Ex ia Ga] IIC ; [Ex ia Da] IIIC ;
Max. values:	Terminal connection: 1…6
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

Ex ia	IIC	IIB
L_o [mH]	100	100
C_o [µF]	2	9.1

Ex approval acc. to conformity certificate	TÜV 06 ATEX 552978 X
Application area	II 3 G
Protection type	Ex nA [ic Gc] IIC T4
Max. values:	Terminal connection: 1…6
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

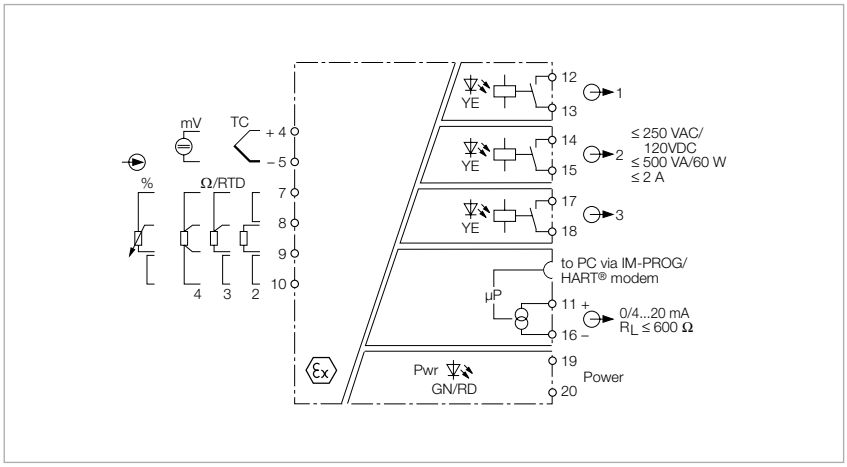
Ex ic	IIC	IIB
L_o [mH]	100	100
C_o [µF]	3.6	18

Environmental Conditions	
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data	
Tightening torque	0.5 Nm
Electrical connection	4 x 3-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, UL, cFMus, TR CU, INMETRO, CCOE

Temperature measuring amplifier, 1-channel



Features

- ATEX, IECEx, $_{C}FM_{US}$, TIIS
- Installation in zone 2
- Monitors over and underrange of analog values and window limits
- Line monitoring
- Parametrized via PC (FDT / DTM), front-panel switch or HART®
- Input for Pt100/ Ni100 resistors, variable resistors, thermocouples and millivolt signals
- Output circuit: 0/4…20 mA
- 3 relay outputs
- Universal operating voltage
- Complete galvanic isolation

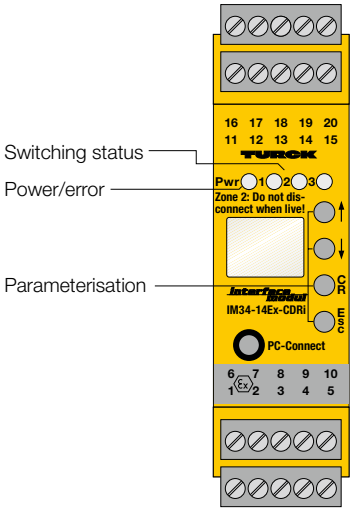
The 1-channel Ex-area temperature measuring amplifier IM34-14Ex-CDRi is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs and thermocouples types B, E, J, K, L, N, R, S, T and to output them as temperature-linear current signals 0/4…20 mA. Furthermore, resistors, potentiometers or low voltages can be mapped linearly as current signals in a range between -160…+160 mV.

The device features one output for analog signals 0/4…20 mA and three outputs for limit value relays. The measured value can be viewed on a 2-line display.

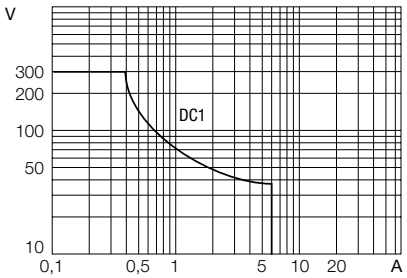
The measured value is permanently written to a ring buffer with space for 8000 values. The writing process is stopped with a predefined trigger event, like for example “limit value exceeded“. After that, the stored signal sequence can be read out.

The device can be configured and parametrized via PC (FDT/DTM); the appropriate TURCK-PROG III transmission cable is available from TURCK. A basic scope of parameters can be set via buttons and display on the front or remotely via the current interface and HART®.

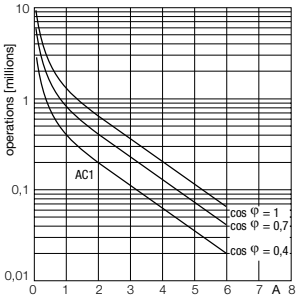
Cold junction compensation of thermocouples is either realized via an externally connected Pt100/Ni100 resistor, via temperature measured inside the amplifier or via an individually adjustable constant temperature value.



Output relay – Load curve



Output relay – Electrical lifetime



Technical data

Type	IM34-14EX-CDRI
Ident no.	7506634

Power supply

Operating voltage range	20…125 VDC
Operating voltage range	20…250 VAC
Frequency	40…70 Hz
Power consumption	≤ 3 W

Inputs

Input circuits	intrinsically safe acc. to EN 60079, thermocouple, Ni100, Pt100, mV signals
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Nominal resistance	0…1.5 kΩ
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Output circuits (digital)	3 x relays (NO)
Switching frequency	≤ 10 Hz
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Fault current	0 / 22 mA adjustable
Contact quality	AgNi, 3µ Au
Output	adjustable output mode

Response characteristic

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 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 05 ATEX 2877
Device designation	⟨Ex⟩ II (1) GD [EEx ia] IIC
Max. values:	Terminal connection: 4…10
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 9 mA
Max. output power P_o	≤ 11 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	L_i = 75 µH, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	5	10
C_o [µF]	2.9	13

Ex approval acc. to conformity certificate	TÜV 05 ATEX 2889 X
Application area	II 3 G
Protection type	EEx nA nC [nL]
Max. values:	Terminal connection: 4…10
Max.output voltage U_o	≤ 5 V
Max. output current I_o	≤ 9 mA
Max. output power P_o	≤ 11 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	L_i = 75 µH, C_i negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIC	IIB
L_o [mH]	10	20
C_o [µF]	4.4	21

Indication

Operational readiness	green
Switching state	yellow
Error indication	red

Environmental Conditions

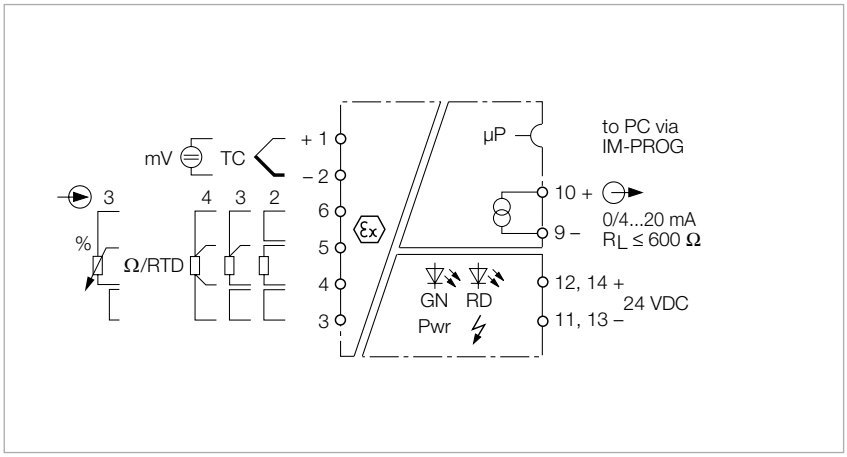
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Relative humidity	≤ 95 %
Test voltage	2.5 kV

Mechanical data

Tightening torque	0.5 Nm
Electrical connection	4 x 5-pin removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm² / 2 x 1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail / panel
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	27 x 104 x 110 mm

Approval | Certification	ATEX, IECEx, $_cFM_{us}$, TIIS

Temperature measuring amplifier, 1-channel



Features

- ATEX, IECEx, TR CU, NEPSI
- Installation in zone 2
- Input for Pt100/ Ni100 resistors, thermocouples and millivolt signals in 2, 3 or 4-wire technology
- Parametrized via PACTware™
- Output: 0/4…20 mA
- Line monitored for wire-break/short-circuit (ON/OFF switchable)
- Complete galvanic isolation

The temperature measuring amplifier IME-TI-11Ex-CI/24VDC is designed to evaluate the temperature-dependent changes of Ni100/Pt100 RTDs, thermocouples 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 current signals 0/4…20 mA.

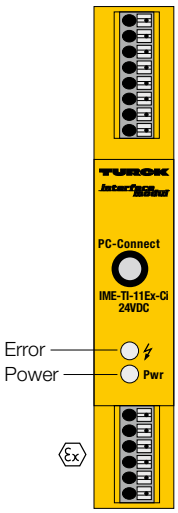
Alternatively, Ni100/Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier. The Ni100/Pt100 input can either be used as external cold junction compensation for the thermocouple (2-wire) or as independent measuring input.

The devices are parametrized and configured via PC with the software tool „Device Type Manager" (DTM). For this, connect the temperature measuring amplifier to the PC with the 3.5 mm jack plug on the front. The ready-made transmission cable can be ordered from TURCK under the type name IM-PROG (ident no. 6890422).

The following settings can be adjusted via DTM:

- Connection mode (2, 3 and 4-wire technology)
- Measuring range start
- Measuring range end
- Input circuit monitoring for wire-break
- Current output behaviour in the event of input circuit errors: 0 or > 22 mA
- Internal or external cold junction compensation
- Output current (0/4…20 mA)
- Temperature (°C or °K)
- Mode (resistor, thermocouples, low voltage, line compensation)

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



Technical data

Type	IME-TI-11Ex-CI/24VDC
Ident no.	7541199

Power supply

Nominal voltage	24 VDC
Operating voltage range	20…30 VDC
Power consumption	≤ 1.5 W

Inputs

Input circuits	thermocouple, Pt100, Ni100
Pt100	(IEC 751), 2, 3 and 4-wire technology
Ni100	(DIN 43760), 2, 3 and 4-wire technology
Probe current	≤ 0.2 mA
Thermocouples	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Nominal resistance	0…1.5 kΩ
Voltage input	-0.160…+0.160 VDC

Outputs

Load resistance, current output	≤ 0.6 kΩ
Output current	0/4…20 mA
Switching frequency	≤ 1 Hz
Fault current	0 / 22 mA adjustable

Response characteristic

Reference temperature	23 °C
Accuracy current output	± 20 µA
Temperature drift analogue output	0.0025 %/K
Temperature drift RTD input	± 3 mΩ/K
Temperature drift TC input	3.2 µV / K (of 320 mV)
Accuracy RTD input	± 50 mΩ
Accuracy TC input	± 15 µV
Cold junction compensation error	2-wire < 100 mΩ after line compensation 3-wire < 100 mΩ with asymmetrical wiring 4-wire < 50 mΩ with cold junction compensation< 2 K with IM-3-CJT < 1 K
Rise time (10-90%)	≤ 30 ms

Approvals and declarations

Ex approval acc. to conformity certificate	TÜV 09 ATEX 555273
Device designation	Ⓔx II (1) G, II (1) D [Ex ia] IIB/IIC; [Ex iaD]
Max. values:	Terminal connection: 1…6
Max. output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2 mA
Max. output power P_o	≤ 2.5 mW
Rated voltage	250 V
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex ia	IIB			IIC		
L_o [mH]	100	10	1	100	10	1
C_o [µF]	10	13	21	2.2	2.7	3.9

Ex approval acc. to conformity certificate	TÜV 09 ATEX 555274 X
Application area	II 3 G
Protection type	Ex nA [nL] IIB/IIC T4
Max. values:	Terminal connection: 1…6
Max.output voltage U_o	≤ 5 V
Max. output current I_o	≤ 2 mA
Max. output power P_o	≤ 2.5 mW
Characteristic	linear
Internal inductance/capacitance L_i/C_i	negligibly small

External inductance/capacitance L_o/C_o

Ex nL	IIB			IIC		
L_o [mH]	100	10	1	100	10	1
C_o [µ]	18	23	37	3.6	4.5	6.6

Indication

Operational readiness	green
Error indication	red

Environmental Conditions

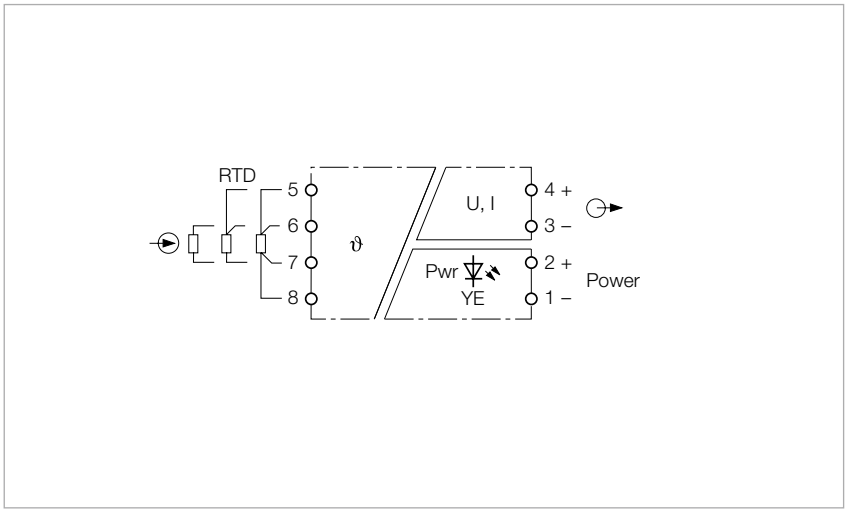
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80 °C
Test voltage	2.5 kV

Mechanical data

Electrical connection	Spring terminal made of Beryllium-Bronze
Terminal cross-section	1.5 mm²
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	18 x 112 x 110 mm

Approval | Certification	ATEX, IECEx, TR CU, NEPSI

Temperature measuring amplifier, 1-channel



Features

- UL: Class1, Div2, Group A, B, C, D; GOST
- Connection of temperature probes Pt100
- Output circuit: 0/4…20 mA or 0…10 V
- Linearity < 0.1 % f.s.
- Accuracy < 0.3 % f.s.
- Complete galvanic isolation
- 6.2 mm width

The 1-channel temperature measuring amplifier IMS-TI-Pt100/24V is designed to evaluate the temperature-dependent changes of Pt100 RTDs, to isolate them galvanically and to output them as temperature-linear voltage or current signals of 0…10 V, 0…20 mA or 4…20 mA.

Alternatively, Pt100 RTDs in 2, 3 or 4-wire technology can also be operated at the input circuit of the measuring amplifier.

The number of Pt100 wires, the transmission characteristic (0…20 mA, 4…20 mA or 0…10 V) as well as the measuring range are adjusted via DIP switch.

Wire-break and short-circuit are detected. In the event of error, 12 V or 22 mA are provided at the output and the error is additionally signalled by the flashing power LED.

The following measuring ranges can be adjusted:

- -50…+150 °C
- 0…+100 °C
- 0…+200 °C

In the event of error (wire-break or short-circuit), 12 V or 22 mA are provided at the output and the error is additionally signalled by the flashing power LED.
The IM34 temperature measuring amplifiers from TURCK offer more solutions for applications with other measuring ranges and temperature probes.

Technical data

Type	IMS-TI-PT100/24V
Ident no.	7504012
Power supply	
Nominal voltage	24 VDC
Operating voltage range	19…29 VDC
Power consumption	≤ 0.32 W
Residual ripple	≤ 5 mV_{ss}
Inputs	
Pt100	-50…150°C; 0…100°C; 0…200°C
Input resistance (voltage)	≥ 1000 kΩ
Outputs	
Load resistance, current output	≤ 0.4 kΩ
Load resistance voltage output	≥ 1 kΩ
Output current	0/4…20 mA
Output voltage	0…10 V
Response characteristic	
Measuring accuracy	≤ 0.3 % of full scale
Temperature drift	≤ 0.00015 % / K
Rise time (10-90%)	≤ 30 ms
Dropout time (90…10%)	≤ 30 ms
Indication	
Operational readiness	green
Environmental Conditions	
Ambient temperature	-20…+60 °C
Storage temperature	-40…+80 °C
Test voltage	1.5 kV
Mechanical data	
Tightening torque	0.5 Nm
Electrical connection	screw terminals
Terminal cross-section	2.5 mm^2
Housing material	Polycarbonate/ABS
Mounting instruction	for DIN rail
Protection class	IP20
Flammability class acc. to UL 94	V-0
Dimensions	6.2 x 114.5 x 90 mm
Approval | Certification	$_cUL_{us}$, GOST