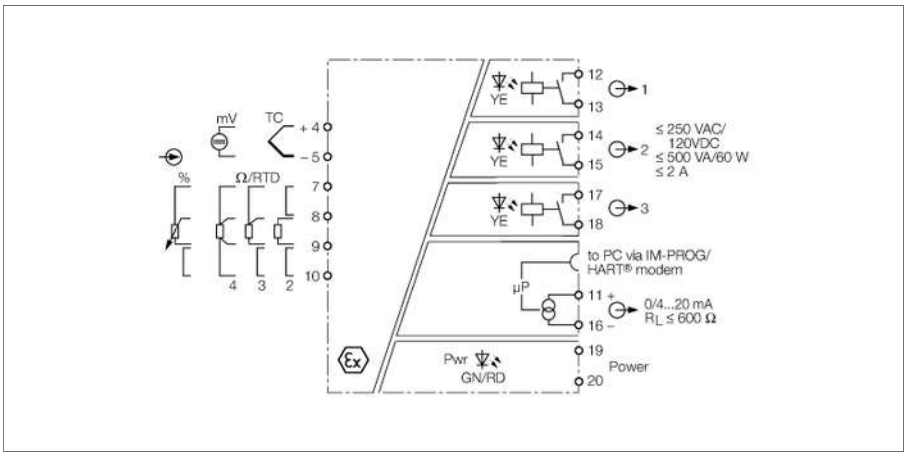
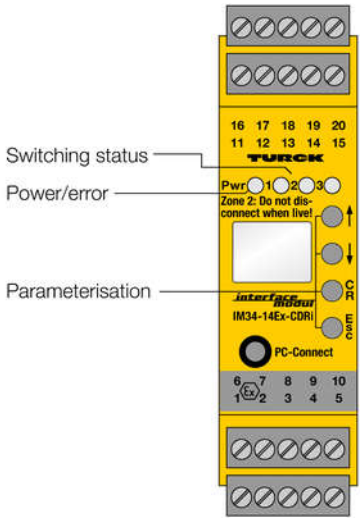
interface modul

Temperature measuring amplifier
1-channel
IM34-14EX-CDRI

TURCK
Industrial Automation





The 1-channel Ex-temperature measuring amplifier IM34-14Ex-CDRi is designed to evaluate the temperature-dependent changes of Ni100/Pt100 resistors 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 memory 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 parametrized and configured via PC (FDT / DTM). For this, connect the device to the PC via the 3.5 mm jack at the front (the matching transmission cable IM-PROG III can be ordered separately from TURCK). In addition, a basic scope of parameters can be set via buttons and display at the front as well as via the HART®capable power interface

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.

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.

- **ATEX, IECEx, FM, GOST**
- **Installation in zone 2**
- **Parametrized via PC (FDT / DTM), front-panel switch or HART®**
- **Ring memory for up to 8000 measured values**
- **Display**
- **Input for Pt100/ Ni100 resistors, variable resistors, thermocouples and millivolt signals**
- **Complete galvanic isolation**

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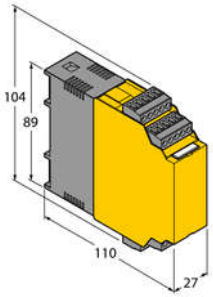
interface modul

Temperature measuring amplifier
1-channel
IM34-14EX-CDRI

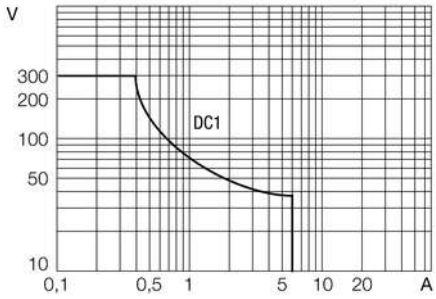
TURCK Industrial Automation

Type code	IM34-14EX-CDRI
Ident no.	7506634
Flammability class acc. to UL 94	V-0
Operating voltage	20…250 VAC
Frequency	40…70 Hz
Operating voltage range	20…125 VDC
Power consumption	≤ 3 W
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
Thermoelements	B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
Potentiometer input	
Nominal resistance	0…1.5 kΩ
Voltage input	-0.160…+0.160 VDC
Output circuits	
Output current	0/4...20 mA
Load resistance current output	≤ 0.6 kΩ
Fault current	0 / 22 mA adjustable
Output circuits (digital)	3 x relays (NO)
Relay switching voltage	≤ 250 VAC/120 VDC
Switching current per output	≤ 2 A
Switching capacity per output	≤ 500 VA/60 W
Switching frequency	≤ 10 Hz
Contact quality	AgNi, 3µ Au
Output	adjustable output mode
Rise time (10-90%)	≤ 1000 ms
Dropout time (90…10%)	≤ 1000 ms
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
Galvanic isolation	
Test voltage	2.5 kV

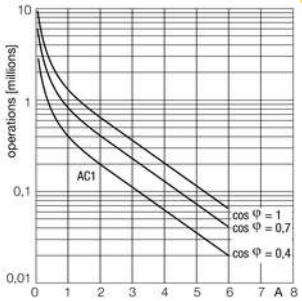
Dimensions



Load curve



Output relay electrical lifetime



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Temperature measuring amplifier
1-channel
IM34-14EX-CDRI

Ex approval acc. to conformity certificate	TÜV 05 ATEX 2877
Application area	II (1) GD
Protection type	[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
Characteristic	linear
Rated voltage	250 V
Internal inductance/capacitance L_i/C_i	Li = 75 µH, Ci negligibly small
External inductance/capacitance L_o/C_o	

EEx ia	IIC	IIB
Lo [mH]	5	10
Co [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	Li = 75 µH, Ci negligibly small
External inductance/capacitance L_o/C_o	

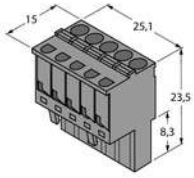
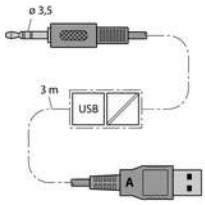
Ex ia	IIC	IIB
L_o [mH]	10	20
C_o [µF]	4.4	21

MTTF	150 years acc. to SN 29500 (Ed. 99) 40 °C
Indication	
Operational readiness	green
Switching state	yellow
Error indication	red
Protection class	IP20
Ambient temperature	-25…+70 °C
Storage temperature	-40…+80°C
Relative humidity	≤ 95%
Dimensions	104 x 27 x 110 mm
Weight	250 g
Mounting instruction	For mounting on DIN rail or mounting panel
Housing material	polycarbonate/ABS
Electrical connection	4 x 5-pole removable terminal blocks, reverse polarity protected, screw connection
Terminal cross-section	1 x 2.5 mm^2 / 2 x 1.5 mm^2
Tightening torque	0.5 Nm

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Accessories

Type code	Ident no.	Description	Dimension drawing
IM-CC-5X2BU/2BK	7504031	Cage clamp terminals for IM modules (Ex devices; width 27 mm): 2 blue/2 black, 5-pin	
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.	

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