FlexTop Iso Universal Transmitter

4...20 mA transmitter

RTD, T/C, mV and R inputs

Isolation voltage 3.75 kV_{ac}

Configuration via FlexProgrammer

Accuracy < 0.1°C (Pt100)

Configurable linearisation, damping and status indication

Loop test and PC signal monitoring

Local, remote or fixed compensation for "cold junction" (CJC)

Ex approvals:
Demko EEx ia IIC T5/T6, ATEX II 1G
Demko Ex N IIC T5/T6
Barbara Ex ia IIC T5/T6

Description

FlexTop Iso is a 4...20 mA loop-powered, configurable universal transmitter with galvanic isolation between input and output. The input can be configured for RTD or T/C sensors, resistance, current or voltage signals.

Either 2-, 3- or 4-wire connection can be selected for the resistance input. The built-in temperature sensor or a remote Pt100 sensor can be used to compensate for "cold junction" (CJC) if thermocouples are connected.

FlexTop Iso is embedded in silicone which makes it resistant to humid environments.

The configuration can be established from the dedicated FlexProgrammer configuring tool connected to a PC.

FlexTop Iso has a 6 mm center hole for fast sensor replacement and spring loaded mounting screws which ensure a safe fastening even in vibrating environments.

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Technical Data

Input

Digital accuracy	See „Measuring ranges“
CJC-compensation {1}	Local < 0.5°C Remote < 0.2°C
RTD measuring current	0.2 mA, continuously
Cable resistance (3-/4-wire)	T > 600°C: Max. 10 Ohm/wire {1} T < 600°C: Max. 30 Ohm/wire {1}
Protection	+/- 35 V_{dc}
Suppression	50 and 60 Hz
Resolution	16 bit
Repeatability	< 0.05°C

Output

Signal span	4...20 mA, 2-wire {1} 20...4 mA, 2-wire {1}
Accuracy	< 0.1% of signal span
Supply range	6.5...35 V_{dc}
Ripple immunity	3 V_{rms}
Load equation	$R_L \leq (V_{cc} - 6.5)/23$ [kOhm]
Up/Down scaling limits	23 mA/3.5 mA {1}
Damping	0...30 sec. {1}
Response time (t_{90})	Pt100 1.0 sec. ; T/C 1.6 sec.
Resolution	12 bit

Environmental conditions

Operating temperature	-40...85°C
Humidity	< 98% RH, condensing
Vibrations	Lloyds Register, test 2

EMC data

Immunity	EN 50082-2, EN 61326
Burst:	2 kV
RFI, shielded cable:	30 V/m
RFI, unshielded cable:	10 V/m
Emission	EN 50081-1, EN 61326

Approval (Demko) EEx ia IIC T5/T6, ATEX II 1G
Approval (Barbara) Ex ia IIC T5/T6

Supply range	6.5...30 V_{dc}
Internal inductivity	$L_i \leq 15$ µH
Internal capacity	$C_i \leq 2$ nF
Barrier data	$U \leq 30$ V_{dc} ; $I \leq 0.1$ A ; $P \leq 0.75$ W
Temperature class	T1...T5: $-40 < T_{amb} < 85$°C T1...T6: $-40 < T_{amb} < 50$°C

Approval (Demko) Ex N IIC T5/T6

Temperature class	T1...T5: $-40 < T_{amb} < 85$°C T1...T6: $-40 < T_{amb} < 50$°C

Mechanical data

Dimensions	ø44 x 26.3 mm
Protection class	Housing: IP 55 Terminals: IP 10

Other data

Isolation	3.75 kV_{ac}
Temperature drift	Typ. 0.003% per °C Max. 0.01% per °C
Power-on time	1.8...3.9 sec.

Test conditions

Configuration	Pt100; 0...100°C
Amb. temperature	23°C +/- 2°C

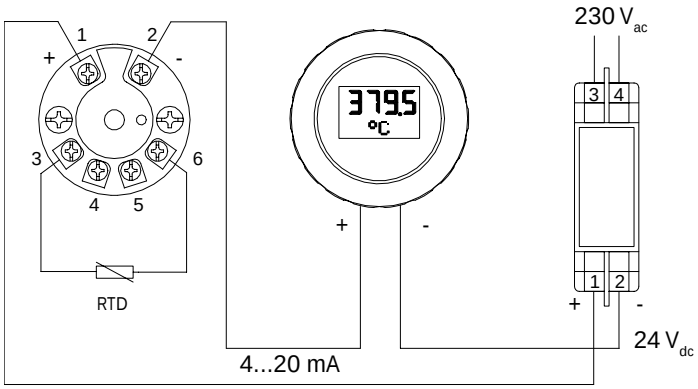
Disposal of product and packing

According to national laws or by returning to Bourdon-Haenni

Note

{1} Configurable

Example of Application



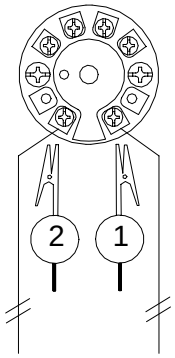
Measuring Ranges

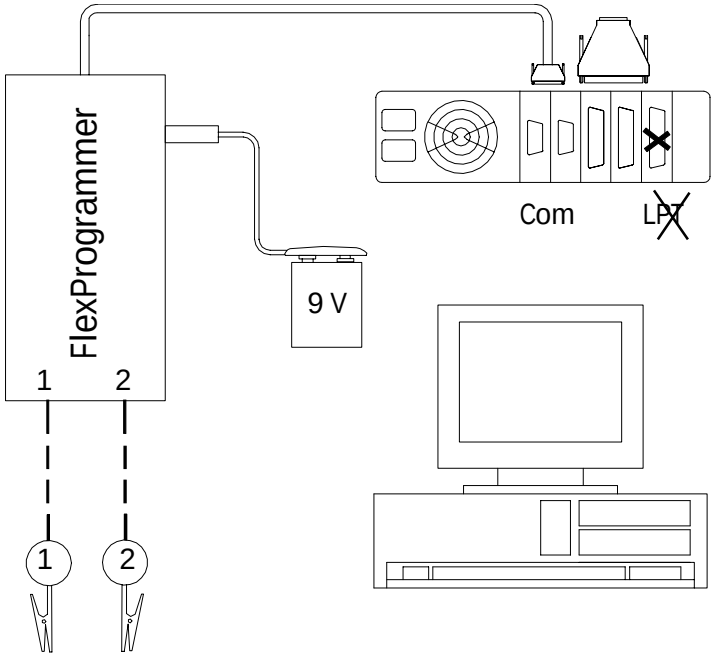
Type	Standard	Range	Min. span	Accuracy	Resolution
Pt25...Pt1000	DIN/EN/IEC 60751	-200...850°C {2}	10°C	0.1°C	0.1°C
Pt25...Pt1000	a = 0.003902	-200...850°C {2}	10°C	0.1°C	0.1°C
Pt25...Pt1000	a = 0.003916	-200...850°C {2}	10°C	0.1°C	0.1°C
Ni25...Ni1000	DIN 43760	-50...250°C {2}	10°C	0.1°C	0.1°C
Cu25...Cu1000	0.428 Ohm/°C	-50...200°C	10°C	0.1°C	0.1°C
B(PtRh30-Pt)	IEC 584	100...1820°C	50°C	2°C	0.1°C
C(W5-Re)	ASTM 988	0...2300°C	100°C	2°C	0.1°C
D(W3-Re)	ASTM 988	0...2300°C	100°C	2°C	0.1°C
E(NiCr-CuNi)	IEC 584	-270...900°C	50°C	1°C	0.1°C
J(Fe-CuNi)	IEC 584	-210...1200°C	50°C	1°C	0.1°C
K(NiCr-Ni)	IEC 584	-250...1370°C	50°C	1°C	0.1°C
L(Fe-CuNi)	DIN 43710	-200...900°C	50°C	1°C	0.1°C
N(NiCrSi-NiSi)	IEC 584	-200...1300°C	50°C	1°C	0.1°C
R(PtRh13-Pt)	IEC 584	-50...1750°C	100°C	2°C	0.1°C
S(PtRh10-Pt)	IEC 584	-50...1750°C	100°C	2°C	0.1°C
T(Cu-CuNi)	IEC 584	-250...400°C	40°C	1°C	0.1°C
U(Cu-CuNi)	DIN 43710	-200...600°C	50°C	1°C	0.1°C
Lin. voltage		-10...70 mV	2 mV	0.04 mV	0.1 mV
Lin. voltage		-0.1...1.1 V	20 mV	0.4 mV	1 mV
Lin. resistance		0...390 Ohm	5 Ohm	0.05 Ohm	0.01 Ohm
Lin. resistance		0...2200 Ohm	25 Ohm	0.25 Ohm	0.1 Ohm

{2} The max. temperature is lower for RTD-elements in the range 500...1000, i.e. Pt1000 max. 350°C.

Configuration

Note:
Disconnect loop supply before connecting the FlexProgrammer to FlexTop Iso.





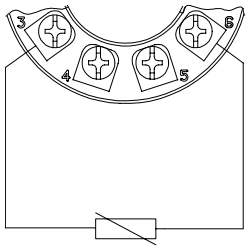
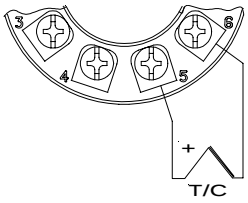
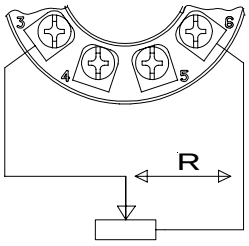
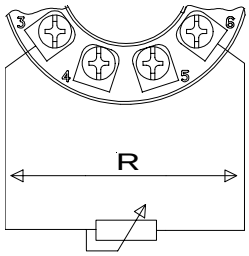
Ordering Details

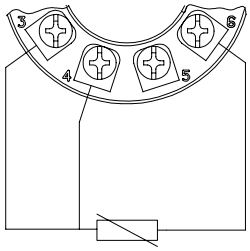
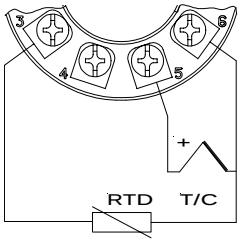
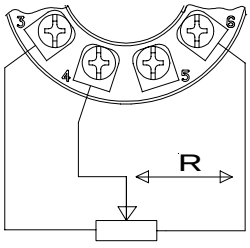
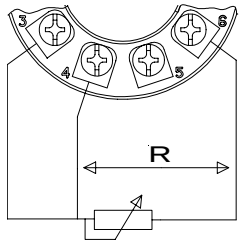
FlexTop Iso

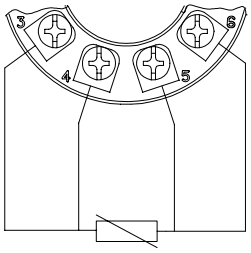
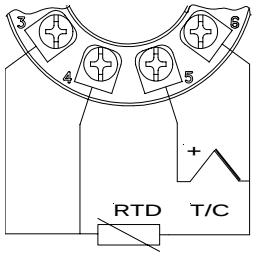
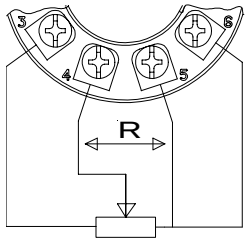
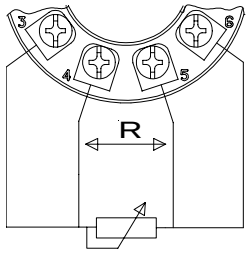
81 4x-52x	Type
7	Standard version
8	Demko EEx ia IIC T5/T6, ATEX II 1G
9	Demko Ex N IIC T5/T6
A	Barbara Ex ia IIC T5/T6

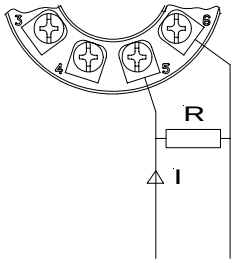
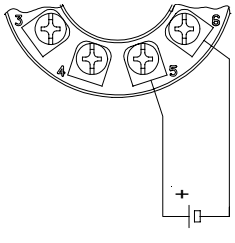
	Configuration
4	Not configured
5	Configured according to customer specifications

Electrical Installation

RTD	T/C	Potentiometer	Resistance
			
No cable compensation {3}	Internal CJC-compensation	No compensation {3}	No compensation {3}

RTD	T/C	Potentiometer	Resistance
			
3-wire cable compensation	External CJC-compensation No cable compensation {3}	3-wire compensation for transfer resistance {4}	3-wire cable compensation

RTD	T/C	Potentiometer	Resistance
			
4-wire cable compensation	External CJC-compensation 3-wire cable compensation	4-wire compensation for transfer resistance {4}	4-wire cable compensation

Current measurement	Voltage measurement
	

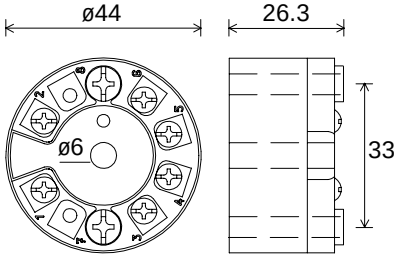
Notes

{3} Configurable compensation for cable resistance
{4} Transfer resistance between element and wiper

Accessories

FlexProgrammer configuration set,
type number 82 23-903 comprises:
FlexProgrammer with 9 pole RS232C cable
3.5" Program diskettes
Battery plug
Cable with test plugs

Dimensional drawing



ø4 mounting hole.
Spring loaded
mounting screws.