FlexTop 2211 Universal Transmitter

4...20 mA transmitter

RTD, T/C, mV and R inputs

Isolation voltage 3.75 kV_{ac}

Configuration via FlexProgrammer

Accuracy better than 0.1°C (Pt100)

Configurable linearisation, damping and status indication

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

Ex approvals:
Ex ia IIC T5/T6, ATEX II 1G
Ex nA II T5, ATEX II 3G

Description

FlexTop 2211 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 2211 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 2211 has a 6 mm center hole for fast sensor replacement and spring loaded mounting screws which ensure a safe fastening even in vibrating environments.

Baumer

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	
2-wire	Max. 30 Ohm/wire {1}
3-/4-wire	T > 600°C: Max. 10 Ohm/wire
3-/4-wire	T < 600°C: Max. 30 Ohm/wire
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}
Characteristic	Linear or customised with max. 30 points {1}
Accuracy	< 0.1% of signal span
Supply range	6.5...35 Vdc
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
Storage temperature	-55...90°C
Humidity	< 98% RH, condensing
Vibrations	Lloyds Register, test 2

EMC data

Immunity	EN 61326
Emission	EN 61326
NAMUR	NE 21

Approval — Ex ia IIC T5/T6, ATEX II 1G

Supply range	6.5...30 V_{dc}
Internal inductivity	$L_i \leq 15$ µH
Internal capacity	$C_i \leq 5$ 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
	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

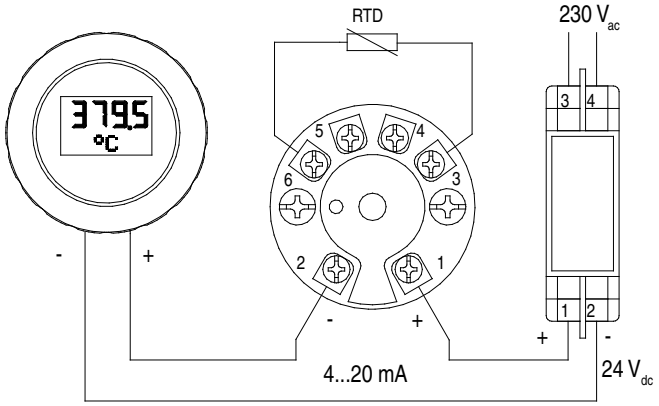
Disposal of product and packing

According to national laws or by returning to Baumer

Note

{1} Configurable

Example of Application



FlexView FlexTop 2211 Power supply

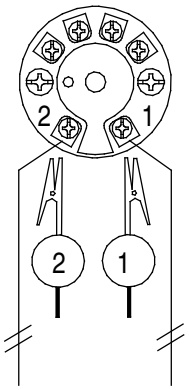
Measuring Ranges

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
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
W5-Re (Type C)	ASTM 988	0...2300°C	100°C	2°C	0.1°C
W3-Re (Type D)	ASTM 988	0...2300°C	100°C	2°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

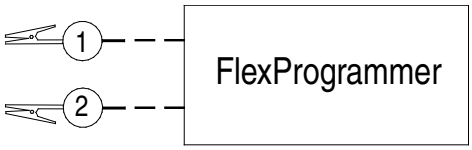
{2} The max. temperature is lower for RTD-elements in the range 500...1000, i.e. Pt1000 max. 350°C.

Configuration

Note:
Disconnect loop supply before connecting the FlexProgrammer to FlexTop 2211.

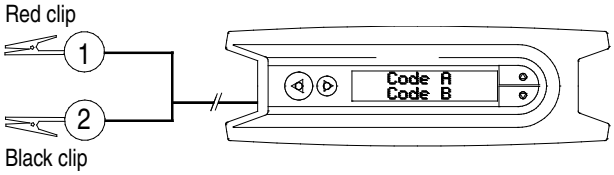


FlexProgrammer



FlexProgrammer 9701

Red clip



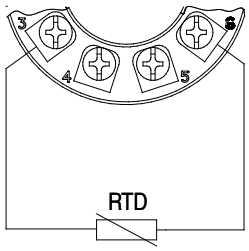
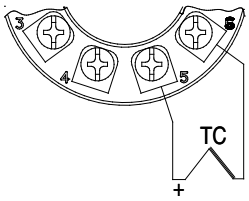
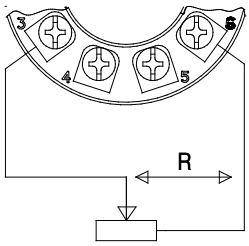
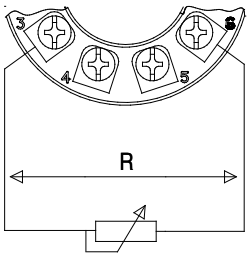
Black clip

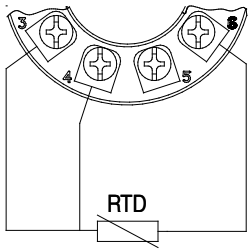
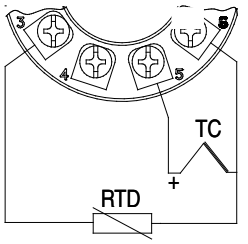
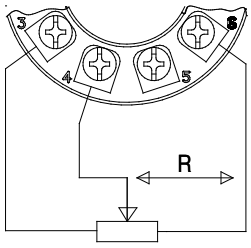
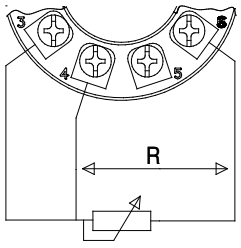
Note: Ambient temperature range 0...50°C

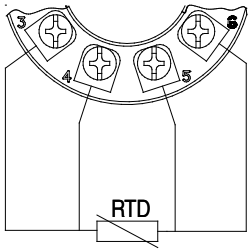
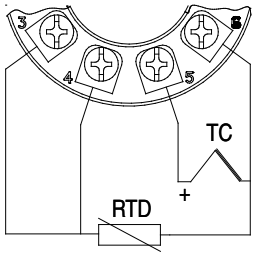
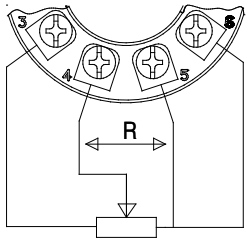
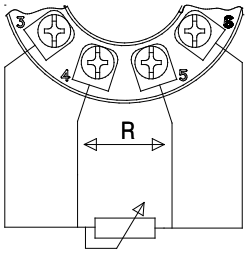
Ordering Details - FlexTop 2211

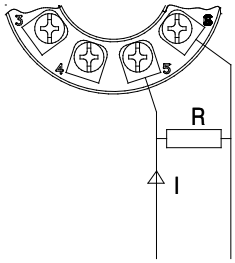
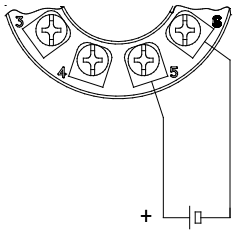
		2211 000x (x)
Type	**5...8´ digit**	
Ex ia IIC T5/T6, ATEX II 1G		2
Not configured, Ex nA II 3G		3
Configuration	**9´ digit**	
Configuration according to customer specifications		C

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

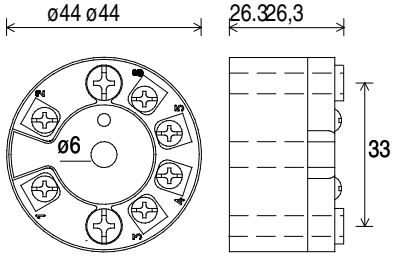
{3} Configurable compensation for cable resistance
{4} Transfer resistance between element and wiper

Accessories

The FlexProgrammer 9701 is a dedicated tool to configure all Baumer configurable products.

Type No. 9701-0001 comprises:
FlexProgrammer
Cable with 2 aligator clips
Cable from FlexProgrammer to M12 plug for TE2
Cable from FlexProgrammer to M12 Plug for LFFS, LBFS, CPX
USB cable
CD with the FlexProgram software

Dimensional drawing



ø4 mounting hole.
Spring loaded mounting screws.