



Technical specifications

Housing material	FlexHousing, Ø80 mm Stainless steel, AISI 304
El. connection	M16 cable gland M12 5-pin or M12 8-pin
Material	Plastic Stainless steel, AISI 303
Sensor tube dimensions	Fixed sensor Ø6 x 100 mm Cable sensor Ø5.8 x 60 mm
Material	Stainless steel, AISI 316L (1.4404)
Cable material for cable sensor	High flexible silicone, grey

Sensor element, Pt100 - DIN/EN/IEC 60751

Pt100 1/1 DIN class B	$\pm (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Pt100 1/3 DIN class B	$\pm 1/3 \times (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Pt100 1/6 DIN class B	$\pm 1/6 \times (0.3 + 0.005xt) \text{ } ^\circ\text{C}$
Pt100 1/1 DIN class A	$\pm (0.15 + 0.002xt) \text{ } ^\circ\text{C}$

Single element	1 x Pt100
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Output

Resistance, ceramic terminal	Pt100 signal, 2, 3 or 4 wire
Analogue, built in transmitter	4...20 mA, 4...20 mA HART

Single element	1 x Pt100
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Connection	2-wire or 4-wire
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Environment

Media temperature and ambient temperature (air temperature)	-40 ... 85°C -30...80°C with DFON display -10...70°C with BattTemp display
Protection class	IP67
Humidity	< 98% RH, condensing

Main features

- Sensor in stainless steel, AISI 316L
- FlexHousing, Ø80 mm, stainless steel
- Wall or pipe mounted

Applications

- Room temperature measurement
- Outdoor
- In cold stores
- ATEX applications (pending)

Display, DFON

Type	Graphically LCD
Front glass	Polycarbonate
Display modes	8 modes, programmable, e.g. value, bar graph, analogue, tank illustration, visual data logger
Background	White, green, red, programmable
Measuring range	-9999 ... 99999
Digit height	Max. 22 mm
Accuracy	0.1% @ ambient -10 ... 70°C
Voltage drop	4V ... 6.5V
Output	2 configurables relay output, 60 Vp, 75 mA
Programming	Touch screen or FlexProgrammer 9701

Further information can be found in separate data sheet for DFON, D21.09

Display, BattTemp

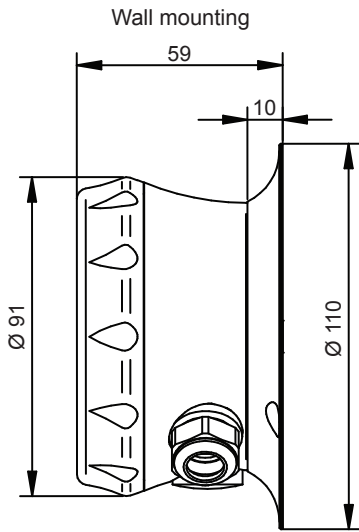
Type	LCD
Front Glass	Polycarbonate
Measuring range	-200...850°C
Accuracy	$\pm 0.3^\circ\text{C}$
Power supply	1 x AA battery
Protection class	IP 54

Further information can be found in separate data sheet for BattTemp 2400-1

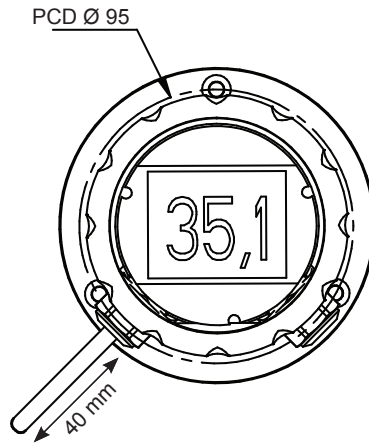
Comply to / Approvals

Comply to	EMC directive 2004/108/CE in accordance with EN61326-1/2013
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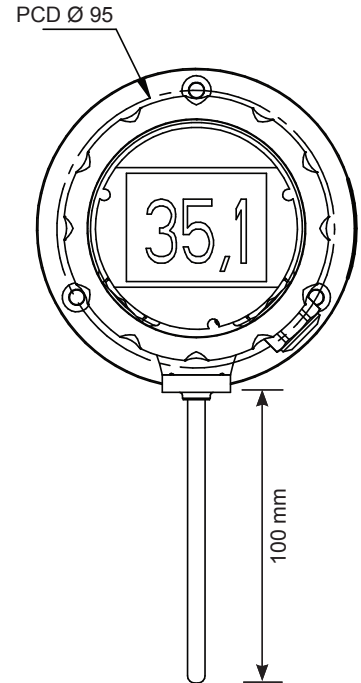
Technical Data



Cable sensor



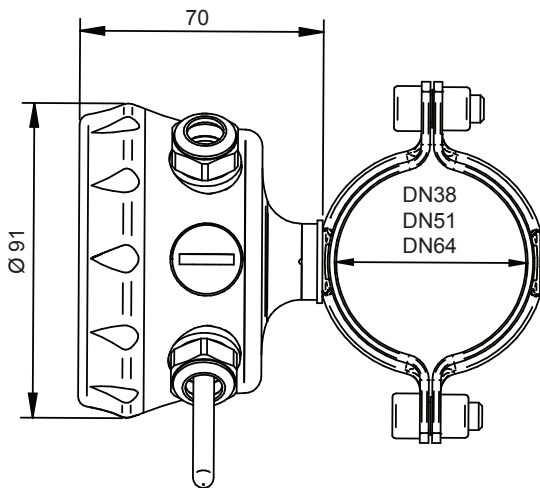
Fixed sensor



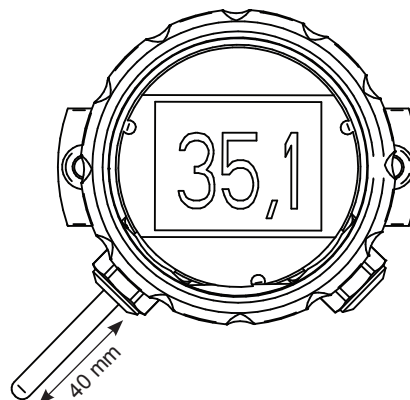
Available with cable between sensor and housing in free selectable length



Pipe mounting



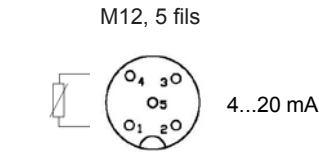
Cable sensor



Available with cable between sensor and housing in free selectable length

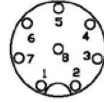


Electrical connections

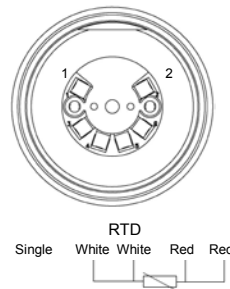


RTD Single	1	+ supply, 4...20 mA
1+2 Pt100-1	2	Common for relays
3+4 Pt100-1	3	- supply, 4...20 mA
	4	Relay 1
	5	Relay 2
5		N.C.

M12, 8 fils



	1	N.C.
	2	+ supply, 4...20 mA
	3	Relay 1
	4	Relay 1
	5	Relay 2
	6	Relay 2
	7	- supply, 4...20 mA
	8	N.C.



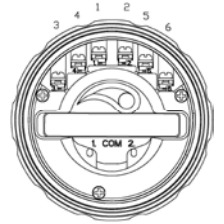
Cable gland

Transmitter

1	+24VDC / - 4...20mA
2	- 24VDC / +4...20mA
1	Red clip (FlexProgrammer)
2	Black clip (FlexProgrammer)

Display

	+ 4...20 mA
	- 4...20 mA
3	Relay 2
4	Relay 2
5	Relay 1
6	Relay 1
Com 1	Red clip (FlexProgrammer)
Com 2	Black clip (FlexProgrammer)



Temperature transmitters

Transmitter, type FlexTop 2202 - Standard

Input	Pt100
Output	4...20 mA
Accuracy	
Input	<0.25°C
Output	<0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701
For further information please see data sheet for FlexTop 2202	

Transmitter, type FlexTop 2211 - Performance

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA
Accuracy	
Input	<0.1°C
Output	<0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701
For further information please see data sheet for FlexTop 2211	

Transmitter, type FlexTop 2221 - performance, HART®

Input	Pt100 / Pt1000 (universal)
Output	4...20 mA / HART
Accuracy	
Input	<0.1°C
Output	<0.1% signal span (16mA)
Range	-200...850°C
Minimum span	25°C
Supply	8...35 VDC
Programmability	By FlexProgrammer 9701 By HART terminal/modem
For further information please see data sheet for FlexTop 2221	

Temperature transmitters - ATEX specifications

Transmitter, type FlexTop 2202 - ATEX

Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	8...28 VDC
Internal inductivity	$L_i \leq 10 \mu\text{H}$
Internal capacity	$C_i \leq 10 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	$U: \leq 28 \text{VDC}$ $I: \leq 0.1\text{A}$ $P: \leq 0.7$

Transmitter, type FlexTop 2221 - ATEX


Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	8...30 VDC (Ex nA: 12...30 VDC)
Internal inductivity	$L_i \leq 15 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	$U: \leq 30 \text{VDC}$ $I: \leq 0.1\text{A}$ $P: \leq 0.7$

Transmitter, type FlexTop 2211 - ATEX


Approval	Ex ia IIC T5/T6, ATEX II 1G Ex nA II T5, ATEX II 3G
Supply	6.5...30 VDC
Internal inductivity	$L_i \leq 1.5 \mu\text{H}$
Internal capacity	$C_i \leq 5 \text{nF}$
Temperature class	T1...T5: $-40 < T_{\text{amb}} < 85^\circ\text{C}$ T6: $-40 < T_{\text{amb}} < 50^\circ\text{C}$
Barrier data	$U: \leq 30 \text{VDC}$ $I: \leq 0.1\text{A}$ $P: \leq 0.7$

DFON display - ATEX specifications

ATEX Gas ia

Approval Gas Zone 0/1	 II 1 G, Ex ia IIC T5 Ga
Voltage drop	U_{Disp} 4.5 ... 6.5 VDC
Temperature class	T1...T5 Zone 0 $-20 \dots 60^\circ\text{C}$ Zone 1/2 $-30 \dots 65^\circ\text{C}$
Internal inductivity	$L_i < 10 \mu\text{H}$
Internal capacity	$C_i < 15 \text{nF}$
Barrier data	$U_i < 30 \text{VDC}$ $I_i < 0.1 \text{A}$ $P_i < 0.75 \text{W}$

ATEX Gas nA

Approval Gas Zone 2	 II 3 G, Ex nA II T5
Voltage drop	U_{Disp} 4.5 ... 6.5 VDC
Temperature class	T1...T5 $-30 < T_{\text{amb}} < 65^\circ\text{C}$
Internal inductivity	$L_i < 10 \mu\text{H}$
Internal capacity	$C_i < 15 \text{nF}$
Maximum voltage	$U_{\text{max}} < 35 \text{VDC}$
Maximum current	$I_{\text{max}} < 0.1 \text{A}$

BattTemp display - ATEX specifications

ATEX Gas ia

Approval Gas Zone 0/1	Ex II 1G, Ex ia IIC T4/T5
Battery	Energizer Lithium FR6 L91 AA T1...T4: $-10 < T_{\text{amb}} < 70^\circ\text{C}$ T5: $-10 < T_{\text{amb}} < 50^\circ\text{C}$ Duracell Alkaline MN1500 LR6 AA T1...T4: $-10 < T_{\text{amb}} < 70^\circ\text{C}$ T5: $-10 < T_{\text{amb}} < 60^\circ\text{C}$

Ordering details

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Model								
CombiTemp™ TRF5 temperature room sensor	TFR5							
Housing material								
FlexHousing Ø80 mm, Stainless steel, AISI 304, wall mount, cable sensor	A							
FlexHousing Ø80 mm, Stainless steel, AISI 304, pipe mount DN38, cable sensor	B							
FlexHousing Ø80 mm, stainless steel, AISI 304, pipe mount DN51, cable sensor	C							
FlexHousing Ø80 mm, stainless steel, AISI 304, pipe mount DN65, cable sensor	D							
FlexHousing Ø80 mm, stainless steel, AISI 304, wall mount, fixed sensor	E							
Electrical connection (output)								
M12, 5 pins	1							
M12, 8 pins	3							
Cable gland, M16	5							
No electrical connection - for BattTemp only	9							
Material el. connection								
None - for BattTemp only	0							
Plastic	1							
AISI 303	3							
Display								
Without display	1							
With display No relays activated	2							
With display With activated relays	4							
With BattTemp Battery powered	6							
Transmitter / socket								
Flying leads	0							
Ceramic socket Pt100	1							
Transmitter 2202 4-20 mA ±0.25 °C	2							
Transmitter 2211 4-20 mA ±0.10 °C	3							
Transmitter 2221 4-20 mA/HART® ±0.10 °C	4							
Safety								
Standard	0							
Ex ia IIC T4/T5 1G (Gas) (pending)	1							
Ex nA II T4/T5 3G (Gas) (pending)	3							
Ex ia II 1 G Eex ia IIC, Zone 0, Pt100 output only (pending)	9							
Configuration								
No configuration	0							
Configuration of Range	1							
Configuration of Range + Display	2							
Sensor element (DIN/EN/IEC 60751)								
None (open cable gland)	0							
1x Pt100 Class 1/1 B	1							
1x Pt100 Class 1/3 B	5							
1x Pt100 Class 1/6 B	7							
1x Pt100 Class 1/1 A	A							
Cable length								
None								0000
Cable length between housing and sensor in cm (0100 = 1 meter)								0000