



### Main characteristics (20 °C)

Standard process temperature	-50 ... 250 °C
Accuracy	Pt100 output as to DIN/EN/IEC 60751 Transmitter output <±0.1 °C / <±0,25 °C
Connections	Hygienic

### Technical specification

Measuring principle	Resistance Temperature Detector (RTD)
Measuring ranges	-50...250 °C
Immersion tube, diameter	ø 6 mm, ø 8 mm
Immersion tube, length	Min. 20 mm - Max. 3000 mm
Immersion tube, tip	Normal response - ø 6/ø 8 mm Fast response - ø 6/ø 4 or ø 8/ø 4 mm
Process connections	See page 3

### Environment

Temperature, Ambient	-40...160 °C
- w. transmitter	-40...85 °C
- w. display	-30...80 °C
Protection rating, IEC 529	IP67 / IP69K, depending on electrical connection
Humidity, IEC 68-2-38	98%, condensing
Vibration IEC60068-2-6	1.5 mm (10 - 50 Hz), 20 g (55 Hz - 2 KHz)

### Main features

- Pt100 sensor element, 2- or 4-wire
- Built in graphical display, *CombiView™* DFON optional
- Head mounted 4...20 mA transmitter, FlexTop type 22xx
- ATEX (pending)
- 3A, EHEDG, FDA (pending)
- Programmable by touch screen
- Easy and full programmable with FlexProgrammer 9701

### Applications

- Food and beverage
- Pharmaceutical
- Water treatment
- General process industry

### Sensor element and electrical specification

Sensor type	RTD type Pt100 (acc. to DIN/EN/IEC 60751) Single or Double 2-wire or 4-wire
Accuracy	Class 1/1 B ±(0,3 + (0,005 x T)) °C Class 1/3 B ±1/3 x (0,3 + (0,005 x T)) °C Class 1/6 B ±1/6 x (0,3 + (0,005 x T)) °C Class 1/1 A ±(0,15 + (0,002 x T)) °C
Analog output	4-20 mA, 4-20mA+HART®, Profibus® See separate data sheet, series 22xx

### Time constant, τ 0,5

	Liquid	Air	Air
Medium			
Velocity	0,4 m/sec.	0 m/sec	3 m/sec
ø 6mm	<6,1	<138	<27,2
ø 6/4mm	<1,5	<136	<21,4
ø 8mm	<7,6	<201	<47,7
ø 8/4mm	<1,5	<181	<33,6

## Display specifications

Type	Graphically LCD
Front glass	Polycarbonate
Display modes	8 modes, programmable, e.g. value, bar graph, analogue, tank illustration
Background	White, green, red - programmable
Measuring range	-9999...99999
Digit height	Max. 22 mm
Accuracy	0,1% @ ambient -10...70 °C
Voltage drop	4V...6,5 V
Output	2 configurable 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.

## Material

Process connection	SS 1.4404, AISI 316L
Housing	SS 1.4301, AISI 304
Sealing	To be ordered separately, see table page 3

## Approvals

Apply to	EMC directive 2004/108/CE in accordance with EN61000-6-2, EN 61000-6-3 Pressure directive 97/23/CE FDA
----------	--

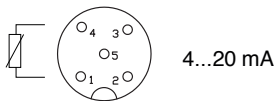
Certificates	3A (pending) EHEDG (pending)
--------------	---------------------------------

## ATEX

Ex ia IIC T4/T5, ATEX II 1G	(Preliminary) (Pending)
-----------------------------	-------------------------

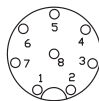
## Electrical connections

### M12, 5-wire

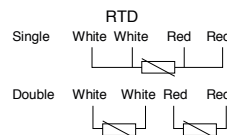
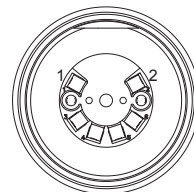


RTD Single	Double	1	+ supply, 4...20 mA
1+2	Pt100-1	2	Common for relays
3+4	Pt100-1	3	- supply, 4...20 mA
1	Pt100 - 1	4	Relay 1
2	Pt100 - 1	5	Relay 2
3	Pt100 - 2		
4	Pt100 - 2		
5	N.C.		

### M12, 8-wire

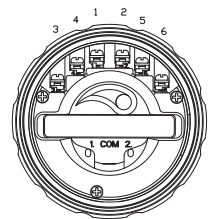


1	N.C.
2	+ supply, 4...20 mA
3	Relay 1
4	Relay 1
5	Relay 2
6	Relay 2
7	- supply, 4...20 mA
8	N.C.



### Cable gland

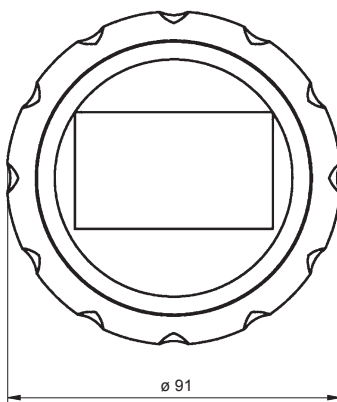
<b>Transmitter</b>	
-	- 24VDC / - 4...20mA
+	+24VDC / +4...20mA
<b>Com 1</b>	Red clip (FlexProgrammer)
<b>Com 2</b>	Black clip (FlexProgrammer)



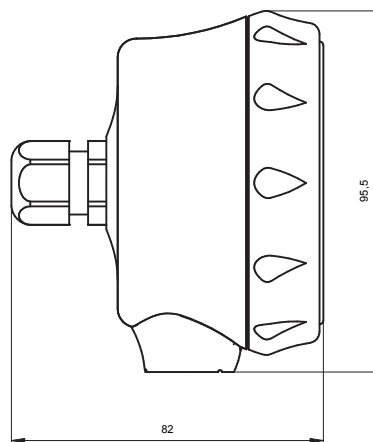
<b>Display</b>	
1	+ 4...20 mA
2	- 4...20 mA
3	Relay 1
4	Relay 1
5	Relay 2
6	Relay 2
<b>Com 1</b>	Red clip (FlexProgrammer)
<b>Com 2</b>	Black clip (FlexProgrammer)

## Dimensions (mm)

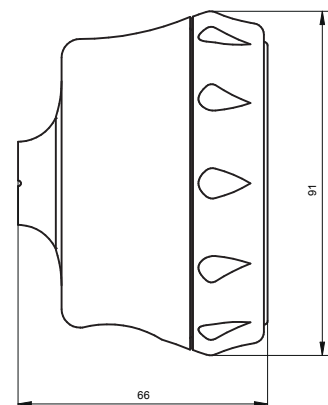
Front view



Bottom connection

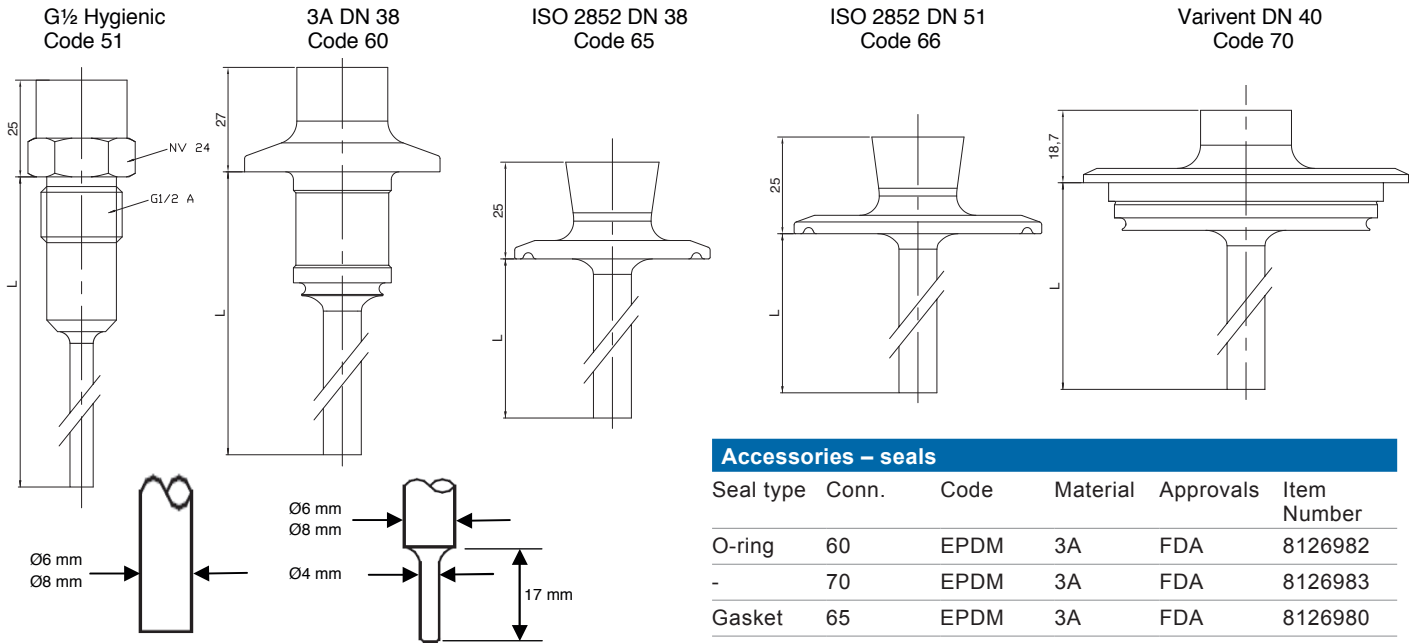


Rear connection



Disposal of product and packing.  
According to national laws or by returning to Baumer.

**Process connections dimensions (mm)**



Seal is to be purchased separately.  
For other types and materials please see data sheet for accessories.

**Accessories – seals**

Seal type	Conn.	Code	Material	Approvals	Item Number
O-ring	60	EPDM	3A	FDA	8126982
-	70	EPDM	3A	FDA	8126983
Gasket	65	EPDM	3A	FDA	8126980
-	66	EPDM	3A	FDA	8126981

**Ordering details**

	-																				
<b>Model</b>																					
<i>CombiTemp™</i>	TFRH																				
<b>Housing material</b>																					
ø 80 mm, Stainless steel, AISI 304 Bottom																					
ø 80 mm, Stainless steel, AISI 304 Rear																					
<b>Electrical connection</b>																					
M12, 5 pins																					
M12, 8 pins																					
Cable gland, M16																					
<b>Material el. connection</b>																					
Plastic																					
AISI 304																					
<b>Display</b>																					
Without display																					
With display No relays activated																					
With display With activated relays																					
<b>Transmitter / socket</b>																					
Flying leads																					
Ceramic socket Pt100																					
Transmitter 2202 4-20 mA ±0,25 °C (Accuracyclass)																					
Transmitter 2211 4-20 mA ±0,10 °C (Accuracyclass)																					
Transmitter 2221 4-20 mA/HART® ±0,10 °C (Accuracyclass)																					
Transmitter 2231 Profibus® ±0,10 °C (Accuracyclass)																					
<b>Safety</b>																					
Standard																					
<b>Configuration</b>																					
No configuration																					
Configuration of Range																					
Configuration of Range + Display																					
Configuration of Range + Display incl. 2x relays																					
<b>Sensor element (DIN/EN/IEC 60751)</b>																					
None (for cable sensor)																					
1x Pt100 Class 1/1 B																					
2x Pt100 Class 1/1 B																					
1x Pt100 Class 1/1 B (fast response)																					
2x Pt100 Class 1/1 B (fast response)																					
1x Pt100 Class 1/3 B																					
2x Pt100 Class 1/3 B																					
1x Pt100 Class 1/6 B																					
2x Pt100 Class 1/6 B																					
1x Pt100 Class 1/1 A																					
2x Pt100 Class 1/1 A																					
<b>Sensor insert type</b>																					
Sensor tube with embedded sensor element 2-wire																					
Sensor tube with embedded sensor element 4-wire																					
Cable sensor Pt100 Class 1/1 B (1xPt100 only, for ø 8 mm only)																					
Cable sensor Pt100 Class 1/3 B (1xPt100 only, for ø 8 mm only)																					
Cable sensor Pt100 Class 1/6 B (1xPt100 only, for ø 8 mm only)																					
Cable sensor Pt100 Class 1/1 A (1xPt100 only, for ø 8 mm only)																					
<b>Cooling neck</b>																					
None																					
<b>Process connection</b>																					
G½ hygienic																					
3A DN38 Hygienic connection 3A																					
DN25/DN38 Clamp ISO 2852, 1" - 1½" 3A																					
DN51 Clamp ISO 2852, 2" 3A																					
DN40 Varivent Gea Tuchenhagen																					
<b>Seal</b>																					
Without (to be ordered separately)																					
<b>Sensor diameter</b>																					
ø 6 mm AISI 316																					
ø 8 mm AISI 316																					
<b>Sensor tip</b>																					
Standard Normal response																					
Fast Fast response ø 4 mm tip																					
<b>Approvals</b>																					
None																					
<b>Sensor tube length</b>																					
Length in mm																					

If the product wanted is not available from above list please inquire.