COMBINED PRESSURE & TEMPERATURE TRANSMITTER

BTT 22S Series

"-40…+150°C Temperature Measuring Range, 6…1000 Bar Pressure Measuring Range, Analog Output"

- Simultaneous pressure and temperature measurement with a single sensor
- Completely welded thin-film steel diaphragm structure that does not require o-ring
- Pressure measuring range options from 0…6 bar to 0…1000 bar (optional others)
- -40 … +150°C temperature measurement (optional others)
- 4-20mA, 0-10V, 0.5-4.5V Ratiometric, PT100, PT1000 output options
- G1/4, G1/2, NPT1/4, NPT1/2, M14x1 process connection options
- Stainless steel housing
- EMC and reverse polarity protection
- High accuracy and stability
- Excellent long-term operation

BTT 22S series combined pressure and temperature sensors provide simultaneous measurement of pressure and temperature in liquid and gaseous media via a single compact sensor, eliminating the need for 2 different sensors.

For reliable and accurate measurements, the sensor uses thin-film MEMS technology for pressure sensing as well as RTD for temperature sensing. Measurement values taken from sensors are converted into various analog output signals (4-20 mA, 0-10V, etc.) and integrated into automation systems.

BTT 22S series, which is not affected by electrical fluctuations and reverse connections thanks to overvoltage and reverse polarity protection, has a long life. With its fully welded thin-film steel diaphragm structure that does not require O-rings, it is resistant to vibrations and is ideal for use in difficult areas such as chemical applications.
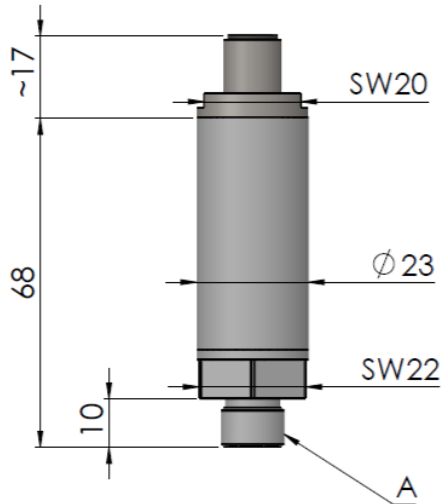
It has a wide range of user-selectable options such as measurement range, mechanical connection type, output signal, electrical connection type.
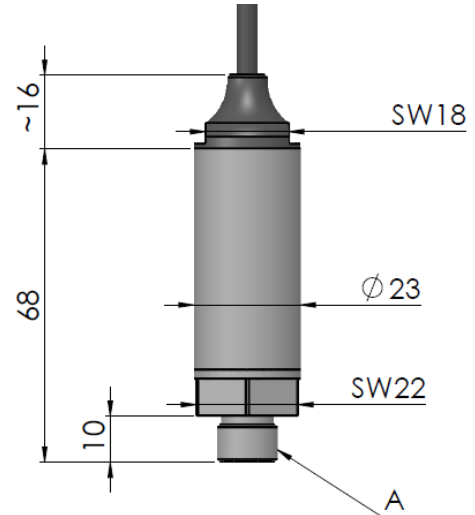
APPLICATIONS

- Industrial Machines
- Cooling and HVAC
- Hydraulic and Pneumatic

- Energy Facilities
- Automotive
- Compressors and pumps

- Test Benches
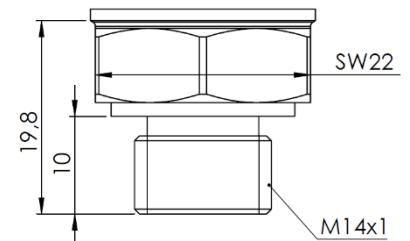- Defense and aviation
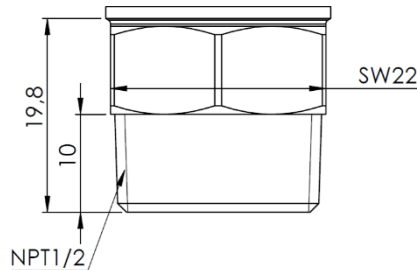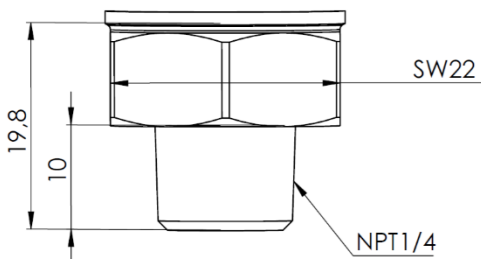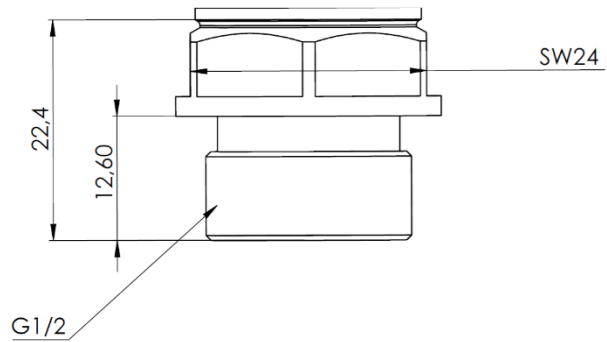- Rail systems

MECHANICAL DIMENSIONS (mm)

M12 CONNECTOR

SW20
Ø23
SW22
~17
68
10
A

CABLE

SW18
Ø23
SW22
~16
68
10
A

PROCESS CONNECTION (A)

SW22
19,8
10
G1/4

SW24
22,4
12,60
G1/2

SW22
19,8
10
NPT1/4

SW22
19,8
10
NPT1/2

SW22
19,8
10
M14x1
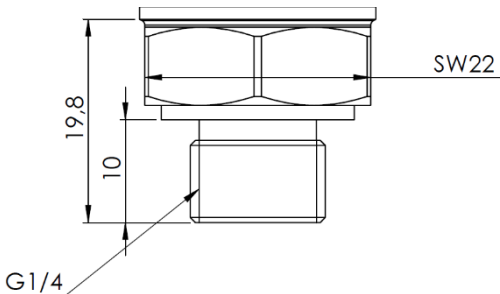
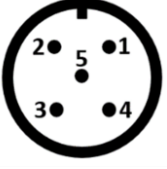*   In the case of the G1/2 model, the dimension of key slot is 24mm. All other models are 22mm.

**   Do not turn the product by holding from socket during installation. Otherwise, the product may be damaged.
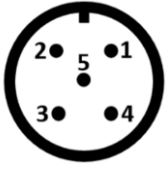
TECHANICAL FEATURES

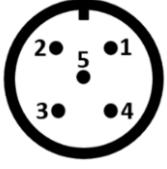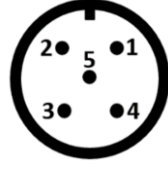|	Pressure	Temperature
Measuring Sensor	Thin-film MEMS Sensor	PT100 (Class B EN60751)
Measuring Range	6,10,16,25,40,100,250,400,600 and 1000 bar	-40 ... +150°C (optional others)
Over Pressure	%300FS <1000Bar, %150FS ≥1000Bar	-
Burst Pressure	%500FS (Max. 4000 bar)	-
Response Time	25ms (standard) %10...%90 nominal pressure 1ms, 5ms, 125ms (optional)	1sn
Accuracy	±0.5%FS (@0°C～70°C)	±%0.5 FS (@0°C～70°C)
Long Term Stability	≤±%0.1 FS/ year	-
Zero temperature drift	±%0.03FS/°C	-
Full scale temperature drift	±%0.03FS/°C	-
Output Type (*) *There are 2 separate outputs for Pressure and Temperature on the sensor. Output types must be selected in accordance with the horizontal table on the side. For example, if the pressure output is selected as 0-10V; temperature output can be selected as 0-10V, PT100 or PT1000.	**Pressure**	**Temperature**
	2 wire 4-20mA	2 wire 4-20mA, PT100, PT1000
	0-10V	0-10V, PT100, PT1000
	0.5-4.5V Ratiometric	0.5-4.5V Ratiometric, PT100, PT1000
Supply Voltage	2 wire : 8-32VDC 3 wire : 12-30VDC	2 wire : 8-32VDC 3 wire : 12-30VDC
Current Consumption	2 wire : ≤20 mA @24VDC 3 wire : <30 mA @24VDC	2 wire : ≤20 mA @24VDC 3 wire : <30 mA @24VDC
Reverse polarity protection	Yes	
Short circuit protection	Yes	
Overload protection	Yes	
Electrical connection	M12 connector or cable	
Mechanical connection (A)	G1/4, G1/2, NPT1/4, NPT1/2, M14x1	
Mounting Torque	15 ... 20 Nm	
Material	Body: 304L stainless steel Diaphragm: 316L stainless steel Process connection: 316L stainless steel	
Operating Temperature	-10°C ... +70°C	
Storage Temperature	-40°C ... +85°C	
Protection	IP65 or IP67 *IP67 protection is provided if M12 connector models are equipped with press-printed connectors.	

ELECTRICAL CONNECTIONS

➢ **ANALOG PRESSURE OUTPUT + ANALOG TEMPERATURE OUTPUT**

3 Wire 0-10V, 0.5-4.5V Ratiometric (Pressure and Temperature) Connection		
Cable	M12 5 pin male connector	Signal
Red	1	+12...30 VDC (Supply)
Yellow	2	0-10V, 0.5-4.5V Ratiometric (Pressure)
Black	3	GND
Green	4	0-10V, 0.5-4.5V Ratiometric (Temp.)
Pink	5	N/C

2 Wire 4-20mA (Pressure and Temperature) Connection		
Cable	M12 5 pin male connector	Signal
Red	1	+8...32 VDC (Supply)
Black	2	4-20mA (Pressure)
Yellow	3	N/C
Green	4	4-20mA (Temp.)
Pink	5	N/C

➢ **ANALOG PRESSURE OUTPUT + RTD TEMPERATURE OUTPUT**

3 Wire 0-10V, 0.5-4.5V Ratiometric (Pressure) and PT100, PT1000 (Temperature) Connection		
Cable	M12 5 pin male connector	Signal
Red	1	+12...30 VDC (Supply)
Yellow	2	0-10V, 0.5-4.5V Ratiometric (Pressure)
Black	3	GND
Green	4	PT100, PT1000 (Temp.)
Pink	5	PT100, PT1000 (Temp.)

2 Wire 4-20mA (Pressure) and PT100, PT1000 (Temperature) Connection		
Cable	M12 5 pin male connector	Signal
Red	1	+8...32 VDC (Supply)
Black	2	4-20mA (Pressure)
Yellow	3	N/C
Green	4	PT100, PT1000 (Temp.)
Pink	5	PT100, PT1000 (Temp.)

PRESSURE RANGE SELECTION

Code	Pressure Range	Overpressure	Burst Pressure
6Bar	0〜6Bar	%300FS	%500FS
10Bar	0〜10 Bar	%300FS	%500FS
16Bar	0〜16Bar	%300FS	%500FS
25Bar	0〜25Bar	%300FS	%500FS
40Bar	0〜40Bar	%300FS	%500FS
100Bar	0〜100Bar	%300FS	%500FS
250Bar	0〜250Bar	%300FS	%500FS
400Bar	0〜400Bar	%300FS	%500FS
600Bar	0〜600Bar	%300FS	%500FS
1000Bar	0〜1000Bar	%150FS	%500FS

OUTPUT SIGNAL SELECTION

	Pressure	Temperature
Output Type (*)	2 wire 4-20mA	2 wire 4-20mA, PT100, PT1000
	0-10V	0-10V, PT100, PT1000
	0.5-4.5V Ratiometric	0.5-4.5V Ratiometric, PT100, PT1000

*There are 2 separate outputs for Pressure and Temperature on the sensor. Output types must be selected in accordance with the horizontal table above.
For example, if the pressure output is selected as 0-10V; temperature output can be selected as 0-10V or PT100 or PT1000.
For example, if the pressure output is selected as 2-wire 4-20mA; temperature output can be selected as 2-wire 4-20mA or PT100 or PT1000.

ORDER CODE

1-Model

BTT 22S

2- Temperature Range

-40 … +150 °C standard (Ask for others)

3- Pressure Range

6, 10, 16, 25, 40, 100, 250, 400, 600, 1000 bar (Ask for others)

4- Temperature Output Signal

A : 4-20mA (2-wire)	V : 0-10VDC	PT100
	V8 : 0.5-4.5VDC Ratiometric	PT1000

*There are 2 separate outputs for pressure and temperature. Output signals must be selected in accordance with the output signal selection table above (page 5).

5- Pressure Output Signal

A : 4-20mA   (2-wire)   V : 0-10VDC
V8 : 0.5-4.5VDC Ratiometric
*There are 2 separate outputs for pressure and temperature. Output signals must be selected in accordance with the output signal selection table above (page 5).

6- Process Connection

G1/4 : G1/4	NPT1/4 : NPT1/4	M14 : M14x1
G1/2 : G1/2	NPT1/2 : NPT1/2	
* Optional others		

7- Electrical Connection

S165 : M12 5 pin male (std)   1M : 1 meters cable
* Optional others

8- Body Material

E304 : 304L
* Optional others

Sample order code 1: BTT 22S -40…+150 250Bar V V G1/4 S165 E304
BTT 22S series, -40…+150°C temperature measurement, 250Bar pressure measurement, 0-10V temperature output, 0-10V pressure output, G1/4 process connection, M12 5 pin male connector, 304L body
Sample order code 2: BTT 22S -40…+150 100Bar PT100 V G1/2 S165 E304
BTT 22S series, -40…+150°C temperature measurement, 100Bar pressure measurement, PT100 temperature output, 0-10V pressure output, G1/2 process connection, M12 5 pin male connector, 304L body

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