

# Electr. Dual Temperature Switch

## BTS3000

### Features

- ▶ Measuring ranges: 0 ...100 °C to -30 ... 140 °C
- ▶ max. 2 switch points
- ▶ Analogue output 4 - 20 mA or 0 - 10 V
- ▶ Rotatable 320° display & electrical connection
- ▶ Menu navigation refers to VDMA standard

### Applications

- ▶ Temperature control for
  - Hydraulics & Pneumatics
  - Lubrication systems
  - Cooling



### Technical Data

<b>Sensor element:</b>	PT100 Class A DIN/IEC 60751
<b>Materials:</b>	
Wetted parts:	Stainless steel, mat. no. 1.4301
Electronics housing:	Stainless steel, V2A, PC, PA6.6 GF30
Seals:	FKM
<b>Operating elements:</b>	3 easy-response pushbuttons
<b>System of protection:</b>	IP65/IP67
<b>Protection class:</b>	III
<b>Electrical connection:</b>	Plug M12 x 1, 4-pin / 5-pin / 8-pin
<b>Process connection:</b>	G1/4" M, 1/4" NPT M
<b>Dimensions:</b>	110 x 41 mm (without plug connector and probe)
<b>Weight:</b>	approx. 200 g
<b>Measuring ranges:</b>	0 ...100 °C / 32 ... 210 °F -30 ... 140 °C / -22 ... 280 °F
<b>A/D converter:</b>	
Resolution:	12 bit (4096 steps per measuring span)
Scanning rate:	1000 / s
<b>Linearity error:</b>	< ± 0.5 % v. f. s. at +25 °C
<b>Temperature influence:</b>	< ±0.2 % FSO / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	±0.1 % v. f. s.
<b>Time constante T09:</b>	40 sec
<b>Max. pressure:</b>	200 bar
<b>Temperature range:</b>	
Electronics:	-10 °C... +60 °C
Storage:	-30 °C... +80 °C
<b>Power supply:</b>	15... 28 V DC, reversed polarity protected (SELV, PELV)
<b>Digital display:</b>	4-digit 14-segment LED display, red, digit height 9 mm
<b>Error display:</b>	LED red and alphanumeric display

<b>Power consumption:</b>	approx. 50 mA (without load) approx. 80 mA (Output Code 6)	
<b>Relay output:</b>	Rel. 1 normally closed, Rel. 2 normally open, Load: max. 1 A, max. 60 W, max. 30 W	
<b>Analog output:</b>		
Current output:	4...20 mA	
Load:	max. RI = (Ub-12V) / 20 mA RI = 600 Ohm at Ub = 24 V DC	
Scanning rate:	2 ms	
Voltage output:	0...10 V DC	
Rating:	max. 10 mA	
Adjustment range:	25 %... 100 % f. s.	
<b>Transistor switching outputs PNP:</b>		
<b>Switching function:</b>	Normally open/normally closed, standard / window mode and diagnosis function adjustable	
<b>Adjustment range for switching point and hysteresis:</b>	0 %... 125 % f. s.	
<b>Switching frequency:</b>	max. 100 Hz	
<b>Load:</b>	max. 500 mA, short-circuit proof	
<b>Delay:</b>	0.0 s ... 50 s adjustable	
<b>Status display(s):</b>	LED(s) red	
<b>EMV</b>	EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	EN 61000-4-3 HF radiated	10 V/m
	EN 61000-4-4 Burst	2 kV
	EN 61000-4-5-Surge	1/2 kV
	EN 61000-4-6 HF conducted	10 V
<b>Shock resistance:</b>	DIN EN 60028-2-27	50 g (11 ms)
<b>Vibrations resistance*</b>	DIN EN 60028-2-26	20 g (10...2000 Hz)
<b>Approvals</b>	cULus - E302981	

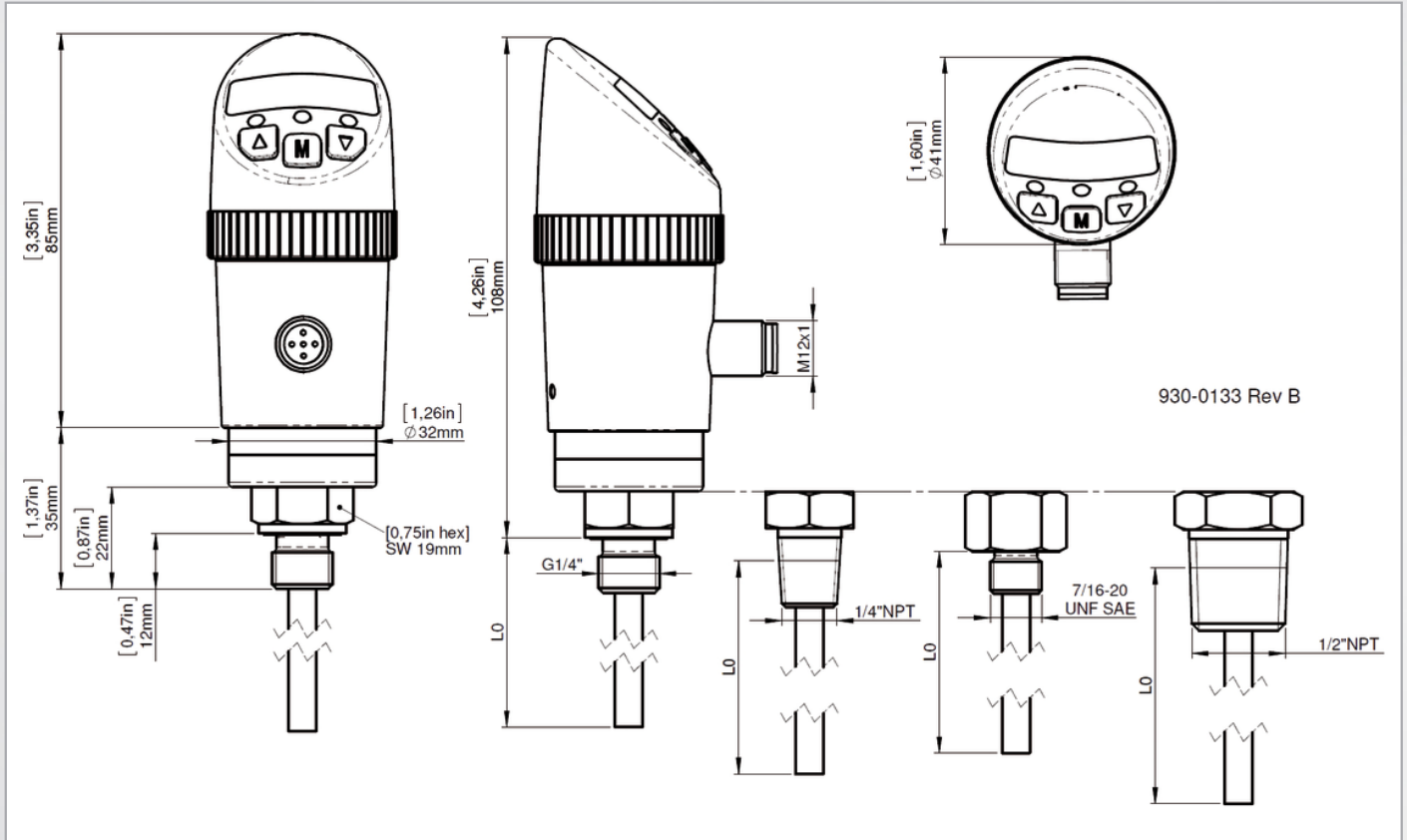
### Accessories

Order Number	Description
907-0357	Plug connector M12 x 1, 4-pin, with screw terminals, angled (IP65)
907-0185	Plug connector M12 x 1, 5-pin, with screw terminals, angled (IP65)
908-0361	Plug connector M12 x 1, 5-pin, with moulded cable (IP67), 2 m length
908-0544	Plug connector M12 x 1, 8-pin, with moulded cable (IP67), 2 m length

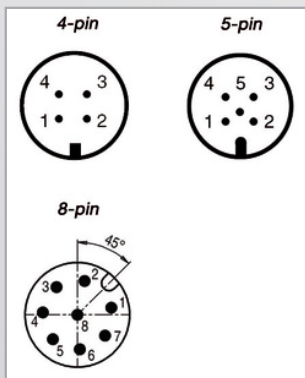
## Electr. Dual Temperature Switch

**BTS3000**

### Dimensions (mm / inch)



### Plug



### Electrical Connection

Pin	Signal Order Code 1	Signal Order Code 2, 3	Signal Order Code 4, 5	Signal Order Code 6	
1	+Ub	+Ub	+Ub	+Ub	
2	SP2	Signal	Signal	SP1a	NC
3	0V	0V	0V	SP1b	
4	SP1	SP1	SP1	0V	
5	-	-	SP2	SP2a	NO
6	-	-	-	SP2b	
7	-	-	-	-	
8	-	-	-	Housing	

## Order Code

**BTS3000**

**BTS3**

**Base Mode**

**Output**

1	2 switch points
2	4...20mA - 1 switch point
3	0...10 V 1 - switch point
4	4...20 mA - 2 switch points
5	0...10 V 2 - switch points
6	2 relais switch points (1x NO SPST / 1 x NC SPST), no UL

**Process Connection**

G	G1/4" ext. Threat, (Sealing Code V, E and F)
2	G1/2" ext. Threat, on request, (Sealing Code V, E and F)
N	1/4" NPT ext. Threat (Sealing Code X)
3	1/2" NPT ext. Threat (Sealing Code X)
E	7/16...20 UNF ext. Threat (Sealing Code X)

**Sealing**

V	FKM
E	EPDM
F	FFKM on request
X	No sealing other on request

**Electrical Connection**

M	M12
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**Probe length\***

0 0 1 7 M	17 mm (Process Connection Code G and 2)
0 0 2 5 M	25 mm (Process Connection Code G and 2)
0 0 5 0 M	50 mm (Process Connection Code G and 2)
0 1 0 0 M	100 mm (Process Connection Code G and 2)
0 3 0 0 M	300 mm (Process Connection Code G and 2)
0 6 5 0 M	650 mm (Process Connection Code G and 2)
0 . 7 0 Z	0.7 in (Process Connection Code N, 3 and E)
2 . 0 0 Z	2 in (Process Connection Code N, 3 and E)
4 . 0 0 Z	4 in (Process Connection Code N, 3 and E)
6 . 0 0 Z	6 in (Process Connection Code N, 3 and E)
1 2 . 0 Z	12 in (Process Connection Code N, 3 and E) other on request

**Temperature Range**

1	0...100°C
2	-30...140°C
3	32...210°F
4	-22...280°F

**BTS3** X X X X X X X X X X

\* If probe length >100 mm shock and vibration values can deviate - depending on application.  
 If probe length >300 mm keep away the flow from the probe.  
 If probe length < 25 mm linearity error and time constant values can deviate - depending on application.