

# Electr. Temperature Switch & Level Switch

**BTLS2000**

## Features

- ▶ Measuring ranges: 0 ... 100 °C to 30 ... 140 °C
- ▶ Max. 4 outputs
- ▶ 1 or 2 level setpoint, fixed set points depending on configuration
- ▶ Rotatable 320° display & electrical connection
- ▶ Menu navigation refers to VDMC standard

## Applications

Temperature & Level control for

- ▶ Hydraulics
- ▶ Cooling Systems



## Technical Data

|                                |                                                |
|--------------------------------|------------------------------------------------|
| <b>Sensor element: Temp.</b>   | PT100 Class A DIN/IEC 60751                    |
| <b>Sensor element: Level</b>   | Reed switch                                    |
| <b>Materials:</b>              |                                                |
| Wetted parts:                  | NBR Foam, brass                                |
| Electronic housing:            | Stainless steel, PBT                           |
| 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, 5-pin, 8-pin                     |
| <b>Process connection:</b>     | M20 x 1,5                                      |
| <b>Dimensions:</b>             | 110 x 41 mm (without plug connector and probe) |
| <b>Weight:</b>                 | approx. 250 g                                  |
| <b>Measuring ranges:</b>       | 0 ... 100 °C / 32 ... 210 °F                   |
| <b>A/D converter:</b>          |                                                |
| Resolution:                    | 12 bit                                         |
| Scanning rate:                 | (4096 steps per measuring span) 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>          | 3 bar                                          |
| <b>Temperature range:</b>      |                                                |
| Electronics:                   |                                                |
| Storage:                       | -10 °C ... +60 °C<br>-30 °C ... +80 °C         |

|                                                            |                                                                                               |                      |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------|
| Power supply:                                              | 15... 28 V DC,<br>reversed polarity protected (SELV,<br>PELV)                                 |                      |
| Digital display:                                           | 4-digit 14-segment LED display,<br>red, digit height 9 mm                                     |                      |
| Error display:                                             | LED red and alphanumeric display                                                              |                      |
| Power consumption:                                         | approx. 50 mA (without load)                                                                  |                      |
| Level switch output:                                       | 1 SPST, NO or<br>1 SPST, NO + 1 SPST, NC                                                      |                      |
| Contact rating:                                            | 24 V DC, 0.5 A                                                                                |                      |
| Accuracy:                                                  | ± 3 mm                                                                                        |                      |
| Transistor switching outputs PNP:                          |                                                                                               |                      |
| Switching function:                                        | Normally open/normally closed,<br>standard / window mode and<br>diagnosis function adjustable |                      |
| Adjustment range for<br>switching point and<br>hysteresis: | 0 %... 125 % f. s.                                                                            |                      |
| Switching frequency:                                       | max. 100 Hz                                                                                   |                      |
| Load                                                       | max. 500 mA, short-circuit proof                                                              |                      |
| Delay                                                      | 0.0 s ... 50 s adjustable                                                                     |                      |
| Status display(s):                                         | LED(s) red                                                                                    |                      |
| EMV                                                        | EN 61000-4-2 ESD                                                                              | 4 kV CD /<br>8 kV AD |
|                                                            | EN 61000-4-3 HF<br>radiated                                                                   | 10 V/m               |
|                                                            | EN 61000-4-4 Burst                                                                            | 2 kV                 |
|                                                            | EN 61000-4-5-Surge                                                                            | 1/2 kV               |
|                                                            | EN 61000-4-6 HF<br>conducted                                                                  | 10 V                 |
| Float BN18                                                 |                                                                                               |                      |
| Density Medium:                                            | min. 0.66 g/cm <sup>3</sup>                                                                   |                      |
| Depth of immersion:                                        | 16 ± 2 mm (water), 18 ± 2 mm (oil)                                                            |                      |

\* only Temperature switches

## Accessories

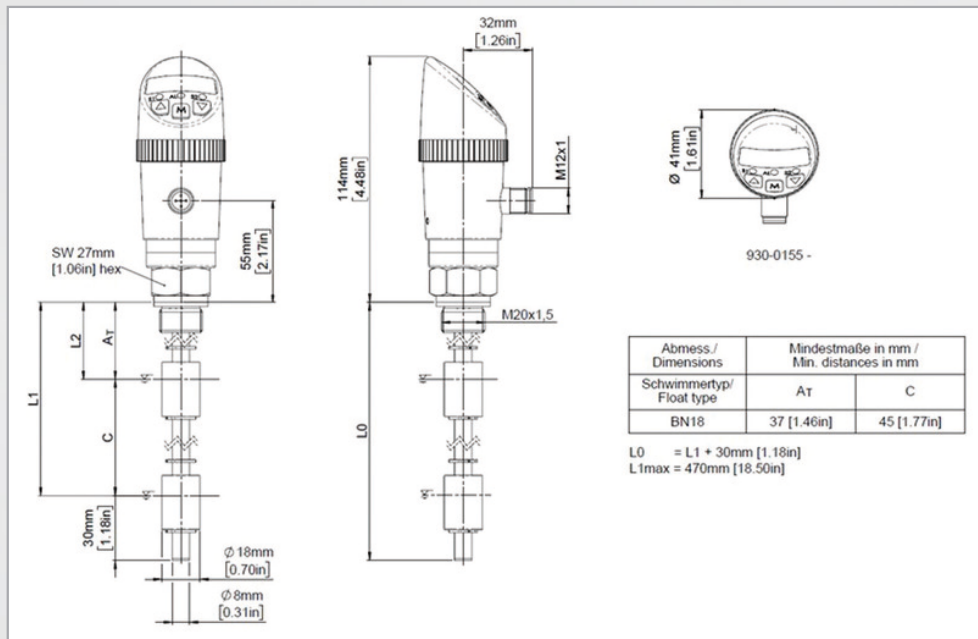
| Order Number | Description                                                |
|--------------|------------------------------------------------------------|
| 907-0185     | Plug connector M12 x 1, 5-pin, with screw terminals (IP65) |
| 908-0361     | Plug connector M12 x 1, 5-pin, with sharpened cable (IP67) |

# Temperature

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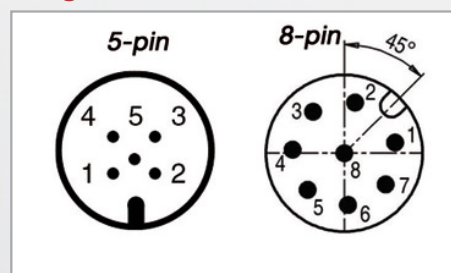
### Dimensions (mm / inch)



### Electrical Connection

| Pin | 5-pin           | 8-pin              |
|-----|-----------------|--------------------|
| 1   | VCC             | VCC                |
| 2   | SP1 Level       | Analog Temperature |
| 3   | GND             | GND                |
| 4   | SP1 Temperature | SP1 Temperature    |
| 5   | SP2 Temperature | SP2 Temperature    |
| 6   | -               | SP1 Level          |
| 7   | -               | SP2 Level          |
| 8   | -               | -                  |

### Plug



### Order Code

| BTLS2                         |  | Base Model                                                           |  |
|-------------------------------|--|----------------------------------------------------------------------|--|
| 1                             |  | 2 switch points temp.                                                |  |
| 4                             |  | 4...20 mA 2 switch points temp.                                      |  |
| 5                             |  | 0...10 V 2 switch points temp.                                       |  |
| Process Connection            |  |                                                                      |  |
| D                             |  | M20 x 1,5 mm male, with sealing (sealing code V, E or B)             |  |
| Sealing                       |  |                                                                      |  |
| V                             |  | FKM (DIN 3869)                                                       |  |
| E                             |  | EPDM (DIN 3869)                                                      |  |
| B                             |  | NBR (DIN 3869)                                                       |  |
| Temperature Range             |  |                                                                      |  |
| 1                             |  | 0...100°C                                                            |  |
| 2                             |  | -30...140°C                                                          |  |
| 3                             |  | 32...210°F                                                           |  |
| 4                             |  | -22...280°F                                                          |  |
| Level Switchpoint 1 (L1) (NO) |  |                                                                      |  |
| XXX                           |  | Length 0 ... XXX mm (0...XX inch) (L0 = L1+30mm)                     |  |
| Level Switchpoint 2 (L2) (NC) |  |                                                                      |  |
| XXX                           |  | Length 0 ... XXX mm (0...XX inch) (L2 max. = L1-45mm, L2 min = 37mm) |  |

### Example

BTLS2 1 D V 1 180 100