



## Bimetal Temperature Switch (OEM Version)

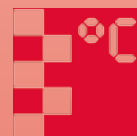


measuring  
•  
monitoring  
•  
analysing

TWS



- Easy to install
- Mounting position independent
- Material: Stainless Steel
- Switch Point: -15...+160 °C
- Optional: integrated Temperature Sensors, LED, customised lengths



T1

KOBOLD companies worldwide:

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**Description**

The KOBOLD temperature switches work with a bimetal switch and serve to monitor temperature of liquids in piping and vessels.

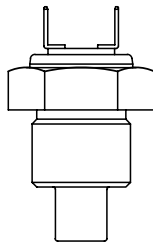
The bimetal temperature switches are designed with stainless steel housing. The mounting in process line is e.g. via threaded sleeves, which are screwed-in or welded in the pipes or vessels.

The temperature contacts have a fixed switch point in intervals of 5 °C in the range -15 °C to +160 °C. They are available as NC or NO contacts. Several electrical connection options are available for customer special applications. Optionally, a control lamp, PT100/PT1000 sensor and a second switch output are available.

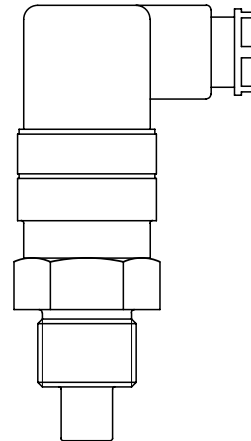
**Special features**

- Easy to install with thread unit
- Mounting position independent
- Material: Stainless Steel
- Switch Point: -15 ... +160 °C
- Switch capacity up to 16A

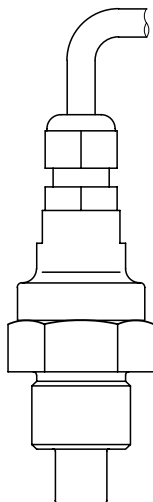
**Tab connector**



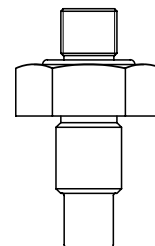
**Plug connector acc. to EN 175301-803 (DIN 43650)**



**Connecting cable with cable fitting**



**Plug connector M12 x 1**





**Technical Details**

|   | TWS-F  | TWS-D  | TWS-K  | TWS-V                      | TWS-M   |
|---|--|--|--|----------------------------|---|
| Model                                   | Tab connector<br>A 6.3-08  | Plug connector for<br>cable connection<br>(EN 175301-803<br>DIN 43650) | Connecting cable<br>with cable fitting   | Potted<br>connecting cable | Plug connector<br>M 12x 1   |
| Fitting                                 | Stainless steel  |  |  |                            |   |
| Electrical contact                      | A 6.3-08<br>acc. to DIN 46244  | Cable diameter<br>6 to 8 mm;<br>Connect terminals<br>1, 2              | Cable diameter approx. 6.5 mm<br>connection cross-section 0.75 mm <sup>2</sup>   |                            | Plug connector<br>M 12x 1   |
| Contact type                            | Snap-action switch (optional: Slow-action contact with small hysteresis)   |  |  |                            | Compact snap-<br>action switch  |
| IP grade                                | IP 52  | IP 65  |  | IP 67                      |   |
| Cable connection                        | -  | For cable<br>connection with<br>diameter 6 to 8 mm                     | Cable diameter approx. 6.5 mm,<br>2-cross-section 0.75 mm <sup>2</sup> , up to 105 °C  |                            | -   |
| Switching capacity<br>for single switch | Max. 250 V <sub>AC</sub> , cos Ø = 0.9, 10 A 100 000 cycles<br>Max. 250 V <sub>AC</sub> , cos Ø = 0.9, 16 A 6000 cycles<br>Max. 30 V <sub>DC</sub> , Max. 5 A<br>With integrated PT100/PT1000, up to max. 48 V <sub>AC</sub> or 30 V <sub>DC</sub> |  |  |                            | <b>N/C contact</b><br>max. 48 V <sub>AC</sub> ,<br>cos Ø = 0.95 (0.6),<br>3.0 (2.5) A<br>10 000 cycles  |
| Switching capacity<br>for dual switches | -  |  | <b>N/C contact</b><br>Max. 250 V <sub>AC</sub> , cos Ø = 0.95 (0.6), 3.0<br>(2.5) A 10 000 cycles<br><br><b>N/O contact</b><br>Max. 250 V <sub>AC</sub> , cos Ø = 0.95 (0.6), 2.0<br>(1.6) A 7000 cycles<br><br>Max. 24 V <sub>DC</sub> , 2 A<br>Temperature range: +70... +160 °C<br>increments 5 K |                            | <b>N/O contact</b><br>max. 48 V <sub>AC</sub> ,<br>cos Ø = 0.95 (0.6),<br>2.0 (1.6) A<br>7000 cycles<br>max. 24 V <sub>DC</sub> ,<br>max. 2 A |
| Switching<br>temperature                | -15...+160 °C increments 5 K   |  |  |                            | +70...+160 °C<br>increments 5 K   |
| Operating pressure<br>(max)             | 60 bar for insertion length „EL“ ≤ 50 mm<br>20 bar for insertion length „EL“ > 50 mm   |  |  |                            |   |
| Tolerance                               | Switching temperature: up to 130 °C ± 5 K, above 130 °C ± 10 K   |  |  |                            |   |
| Switching<br>hysteresis                 | Approx. 15 to 30 K below the switching temperature<br>(Special option: Approx. 3 to 15 K below the switching temperature with slow-<br>action contact.)  |  |  |                            | Approx. 15 to 45 K<br>below the switching<br>temperature  |
| Ambient<br>temperature                  | -30...+160 °C  | -30...+120 °C  | -30...+105 °C  |                            | -30...+85 °C  |
| Contact resistance                      | < 50 mΩ  |  |  |                            |   |
| Dielectric strength                     | AC 1500 V/1 min  |  |  |                            |   |
| Vibration strength<br>EN60068-2-6       | 10 g with a frequency of 10 to 1000 Hz and an amplitude of ±0.75 mm  |  |  |                            |   |
| Weight                                  | Approx. 50~150 g   |  |  |                            |   |



## Bimetal Temperature Switch Model TWS

### Order Details TWS (Example: TWS-D1 M4 0401 001)

| Model  | Contact version                                  | Process connection [T]  | Switching temperature   | Installation length Process connection Dimension [EL]  | Cable length  | Option #1   | Option #2 [d]  |
|--|--|---|---|--|---|---|--|
| <b>TWS-F</b> = Tab connection DIN 46244  | <b>1</b> = N/C contact<br><b>0</b> = N/O contact | <b>M4</b> = M14x1.5<br><b>G4</b> = G ½<br><b>G5</b> = G ¾<br><b>N4</b> = NPT ½"<br><b>N5</b> = NPT ¾"<br><b>YY</b> = other option | <b>Mxx</b> = -15... -5 °C, increments 5 K, (e.g. M10 = -10 °C)<br><b>xxx</b> = 0... +160 °C, increments 5 K, (e.g. 040 = 40 °C)   | <b>1</b> = 22 mm<br><b>2</b> = 28 mm<br><b>3</b> = 35 mm<br><b>9<sup>1)</sup></b> = Custom length (max. 1000 mm) | <b>0</b> = none   | <b>0</b> = none<br><b>Y</b> = other option  | <b>1</b> = probes diameter d = 10 mm<br><b>2<sup>2)</sup></b> = probes diameter d = 21 mm<br><b>Y</b> = other option |
| <b>TWS-D</b> = Plug connector EN 175301-803 DIN 43650  |  |   |   |  |   | <b>0</b> = none<br><b>H<sup>3)</sup></b> = with integrated Pt100 Class B<br><b>T<sup>3)</sup></b> = with integrated Pt1000 Class B  |  |
| <b>TWS-K</b> = Connector cable with cable gland<br><b>TWS-V</b> = Connector cable with potting |  |   |   |  | <b>1</b> = 1.0 m PVC cable 105 °C<br><b>2</b> = 2.0 m PVC cable 105 °C<br><b>3</b> = 3.0 m PVC cable 105 °C<br><b>9<sup>2)</sup></b> = Special cable length | <b>V<sup>4)</sup></b> = with LED 24V <sub>DC</sub><br><b>Z<sup>4)</sup></b> = with LED 230V <sub>AC</sub><br><b>D<sup>5)</sup></b> = 2 x switch outputs (T1/T2)<br><b>Y</b> = other option                          |  |
| <b>TWS-M</b> = Round plug M 12 x 1   |  |   | <b>0</b> = none<br><b>H<sup>3)</sup></b> = with integrated Pt100 Class B<br><b>T<sup>3)</sup></b> = with integrated Pt1000 Class B<br><b>D<sup>5)</sup></b> = 2 x switch outputs (T1/T2)<br><b>Y</b> = other option |  |   |   |  |
|  |  |   | <b>xxx</b> = +70... +160 °C, increments 5 K (e.g. 130 = 130 °C)   |  | <b>0</b> = none   | <b>0</b> = none<br><b>H<sup>3)</sup></b> = with integrated Pt100 Class B<br><b>T<sup>3)</sup></b> = with integrated Pt1000 Class B<br><b>D<sup>5)</sup></b> = 2 x switch outputs (T1/T2)<br><b>Y</b> = other option |  |

<sup>1)</sup> Standard for process connection code "G5". Please specify length in clear text.

<sup>2)</sup> Please specify special cable length in clear text.

<sup>3)</sup> Class A on request

<sup>4)</sup> Only possible with model TWS-D

<sup>5)</sup> Second switch output (T2): Please specify "Contact version" and "Switching temperature" in clear text; only possible with option #2 code "2!"

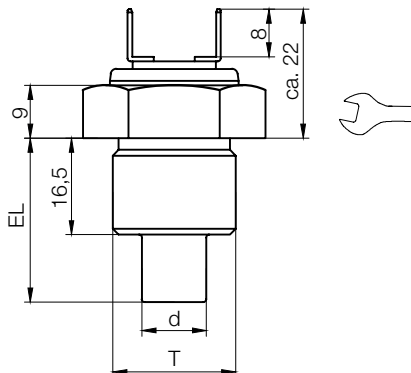
<sup>6)</sup> Standard for option #1 code "D", double switch outputs

**Note: Minimum order quantity per order (PO): 50 pieces (minimum 10 pcs. for each model code)**

### Dimensions [mm]

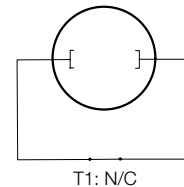
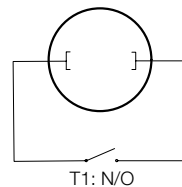
#### TWS-F

Tab connector  
A 6.3-08



#### Model TWS-F

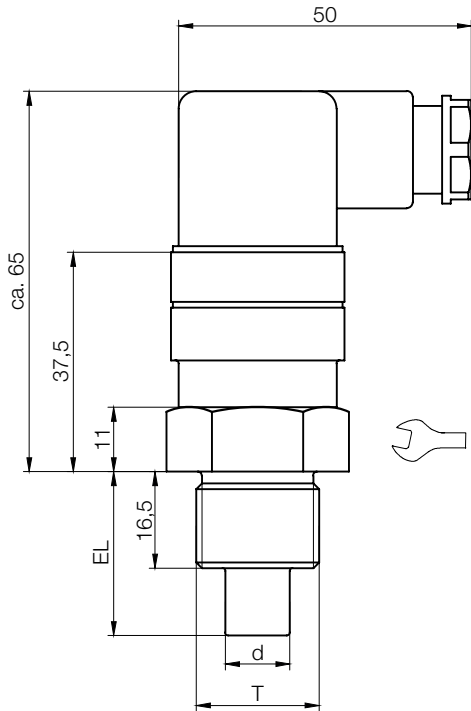
| Item | EL       | d   | T            |    |
|------|----------|-----|--------------|----|
| 1    | 22/28/35 | Ø10 | M14x1.5      | 24 |
| 2    | 22/28/35 | Ø10 | G ½ / NPT ½" | 27 |
| 3    | 22/28/35 | Ø21 | G ¾ / NPT ¾" | 30 |



**Dimensions [mm] (cont'd)**

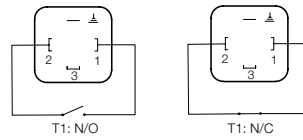
**TWS-D**

Plug connector for cable connection EN 175301-803

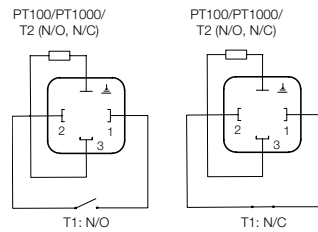


**Model TWS-D**

| Item | EL       | d   | T                 |    |
|------|----------|-----|-------------------|----|
| 1    | 22/28/35 | Ø10 | M14x1.5           | 27 |
| 2    | 22/28/35 | Ø10 | G 1/2" / NPT 1/2" | 27 |
| 3    | 22/28/35 | Ø21 | G 3/4" / NPT 3/4" | 30 |



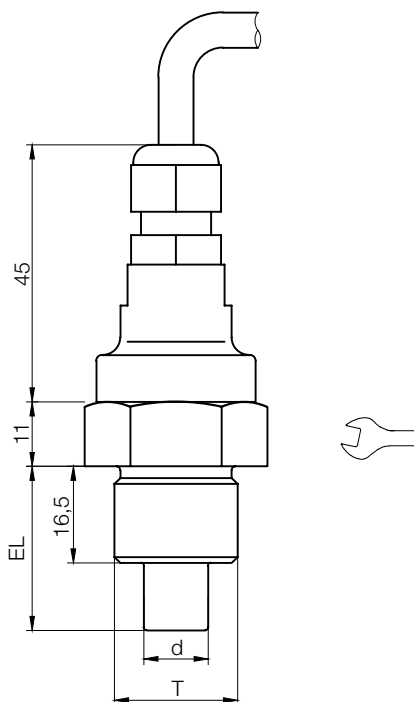
Only with one switch T1



Option to have one of  
 1. PT100  
 2. PT1000  
 3. T2 switch, NO or NC

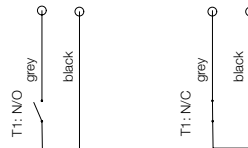
**TWS-K**

Connecting cable with cable fitting

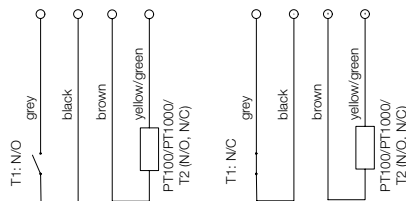


**Model TWS-K**

| Item | EL       | d   | T                 |    |
|------|----------|-----|-------------------|----|
| 1    | 22/28/35 | Ø10 | M14x1.5           | 27 |
| 2    | 22/28/35 | Ø10 | G 1/2" / NPT 1/2" | 27 |
| 3    | 22/28/35 | Ø21 | G 3/4" / NPT 3/4" | 30 |



Only with one switch T1

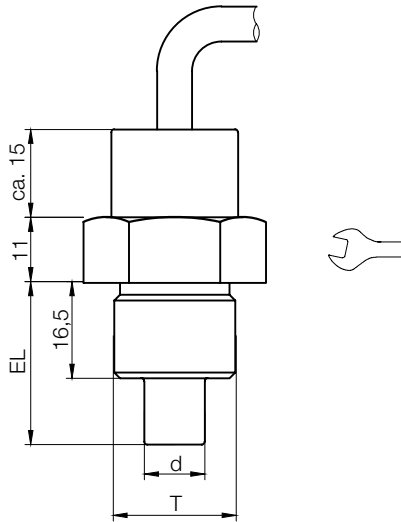


Option to have one of  
 1. PT100  
 2. PT1000  
 3. T2 switch, NO or NC

Dimensions [mm] (cont'd)

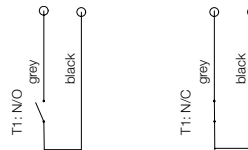
TWS-V

Potted connecting cable

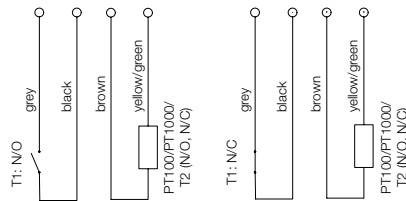


Model TWS-V

| Item | EL       | d   | T           |    |
|------|----------|-----|-------------|----|
| 1    | 22/28/35 | Ø10 | M14x1.5     | 24 |
| 2    | 22/28/35 | Ø10 | G½ / NPT ½" | 27 |
| 3    | 22/28/35 | Ø21 | G¾ / NPT ¾" | 30 |



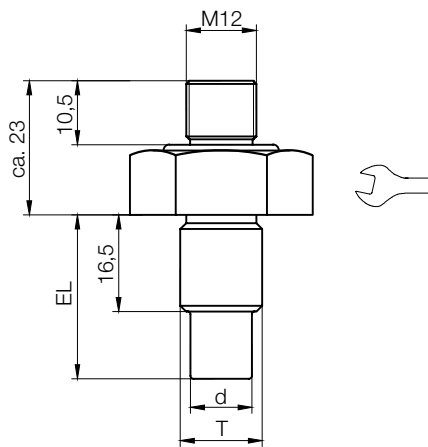
Only with one switch T1



Option to have one of  
 1. PT100  
 2. PT1000  
 3. T2 switch, NO or NC

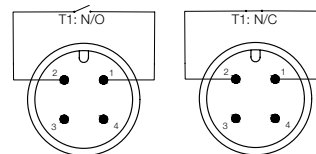
TWS-M

Plug connector M 12 x 1

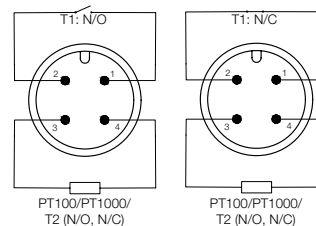


Model TWS-M

| Item | EL       | d   | T           |    |
|------|----------|-----|-------------|----|
| 1    | 22/28/35 | Ø10 | M14x1.5     | 24 |
| 2    | 22/28/35 | Ø10 | G½ / NPT ½" | 27 |
| 3    | 22/28/35 | Ø21 | G¾ / NPT ¾" | 30 |



Only with one switch T1



Option to have one of  
 1. PT100  
 2. PT1000  
 3. T2 switch, NO or NC