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Bimetal Temperature Switch

Special features

- Electromechanical temperature switch with a fixed switching temperature
- Protection type IP52, IP65 and IP67
- Simple installation
- Switching capacity up to 10 A



608301/10-...-...-01



608301/30-...-...-36

Brief description

Temperature switches are used in industry in general for limiting temperature. For example, they switch the machine off in the event of overheating or switch a fan on to cool the device.

Function

The temperature measurement is carried out using a bimetal disc that switches when the rated switching temperature is reached. After cooling down to the switchback temperature, the switch returns to its original state. The switchback temperature is typically 15 to 30 K below the switching temperature.

Contact version

The bimetal temperature switches type 608301 are supplied with two switching outputs. An N/C (normally closed) contact opens an electrical circuit and switches a machine off. An N/O (normally open) contact closes an electrical circuit when the switching temperature is reached in order, for example, to activate a fan or a signal lamp. In both cases, the contacts return to their original state after cooling back to below the switch-back temperature, so that the monitored device can work again in normal mode.

The bimetal switches are RoHS-compliant and free of cadmium.



608301/10-...-...-11



608301/10-...-...-61

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Technical data

Minimum order quantity 50 items

| | | | | | |
|---|---|---|---|--|--|
| Snap-action switch 608301/10 | Tab connector A 6.3-08 | Connecting cable with cable fitting | Potted connecting cable without with protection con- ductor | Plug connector for cable connection Acc. to EN 175301-803 (DIN 43650) | Plug connector M 12 x 1 |
| Fitting | Brass (CW614N) or stainless steel (1.4305); screw-in spigot similar to DIN 3852 Form A for sealing with sealing ring | | | | |
| Protection type | IP52 | IP65 | IP67 | IP65 | IP67 |
| Electrical contact, snap-action switch Connection | A 6.3-0.8 acc. to DIN 46244 | Cable diameter approx. 6.5 mm connection cross-section 0.75 mm ² | | Cable diameter 6 to 8 mm; Connect terminals 1, 2, and protection conductor | -- |
| Switching capacity | DC 30 V, +10/-15%, max. 5 A | | | | -- |
| | Max. AC 48 V, cos φ = 0.9 10 A | Max. AC 48 V, cos φ = 0.9 10 A | | Max. AC 250 V, cos φ = 0.9 10 A | -- |
| Switching capacity with TZ 702 | DC 6 to 30 V, AC 6 to 48 V, 10 to 100 mA | | | DC 6 to 30 V, AC 6 to 120 V, 10 to 100 mA | -- |
| Max. ampacity | -- | At ambient temperature on the line/cable Up to 50 °C 10 A Up to 75 °C 7.3 A Up to 85 °C 4.2 A | | -- | -- |
| Contact resistance | < 30 mΩ | | | | |
| Dielectric strength | AC 1500 V/1 min | | | | |

Minimum order quantity 50 items

| | | | | | |
|--|---|--|---|--|--|
| Slow-action contact 608301/20 | Tab connector A 6.3-08 | Connecting cable with cable fitting | Potted connecting cable without with protection con- ductor | Plug connector for cable connection Acc. to EN 175301-803 (DIN 43650) | Plug connector M 12 x 1 |
| Fitting | Brass (CW614N) or stainless steel (1.4305); screw-in spigot similar to DIN 3852 Form A for sealing with sealing ring | | | | |
| Protection type | IP52 | IP65 | IP67 | IP65 | IP67 |
| Electrical contact, slow-action contact Connection | -- | Cable diameter approx. 4.5 mm connection cross-section 0.5 mm ² | | Cable diameter 6 to 8 mm; connect terminals 1 and 2; Protection conductor not connected | -- |
| Switching capacity | -- | DC 12 V, 8 A DC 24 V, 4 A DC 30 V, 3 A Max. AC 48 V, 6 A | -- | -- | DC 12 V, 8 A DC 24 V, 4 A DC 30 V, 3 A Max. AC 48 V, 6 A |
| Max. ampacity | -- | At ambient temperature on the line/cable Up to 85 °C 8 A Up to 105 °C 3.7 A | | -- | -- |

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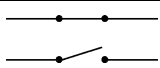
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Technical data

Minimum order quantity 50 items

| | | | | | | |
|---|---|---|--|---|--|---|
| Compact snap-action switch 608301/30 | Tab connector A 6.3-08 | Connecting cable with cable fitting | | Potted connecting cable without with protection conductor | Plug connector for cable connection Acc. to EN 175301-803 (DIN 43650) | Plug connector M 12 x 1 |
| | Fitting Brass (CW614N) or stainless steel (1.4305); screw-in spigot similar to DIN 3852 Form A for sealing with sealing ring | | | | | |
| Protection type | IP52 | IP65 | | IP67 | IP65 | IP67 |
| Electrical contact, compact snap-action switch Connection | -- | Cable diameter approx. 6.5 mm; Connection cross-section 0.75 mm ² | | -- | Cable diameter 6 to 8 mm; Connect terminals 1, 2, and protection conductor | Connect terminals 1 and 2 |
| Switching capacity | -- | N/C contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.5 A (1.6 A) | | -- | N/C contact max. AC 250 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.5 A (1.6 A) | N/C contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.5 A (1.6 A) |
| Cable | -- | N/O contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.0 A/1.6 A | | -- | N/O contact max. AC 250 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.0 A/1.6 A | N/O contact max. AC 48 V, 50/60 Hz, cos φ = 0.95 (0.6) 2.0 A/1.6 A |
| | -- | Ambient temperature on the line/cable Max. 90 °C | | | | -- |
| Contact resistance | < 50 mΩ | | | | | |
| Dielectric strength | AC 1500 V/1 min | | | | | |

| | 608301/10 Snap-action switch | 608301/20 Slow-action contact | 608301/30 Compact snap-action switch |
|--|--|---|--|
| Switching temperature Increments 5K | 0 °C to +140 °C | +10 °C to +140 °C | +60 °C to +140 °C |
| Switching differential | Approx. 15 to 30 K below the switching temperature | Approx. 3 to 12 K below the switching temperature | Approx. 20 to 45 K below the switching temperature |
| Switching cycles | With AC 250 V, 10 A min. 100,000 AC 120 V, 15 A min. 100,000 AC 48 V, 15 A min. 100,000 DC 30 V, 5 A min. 10,000 DC 24 V, 5 A min. 10,000 DC 12 V, 5 A min. 10,000 DC 6 V, 5 A min. 10,000 | With AC 48 V, 6 A min. 100,000 DC 30 V, 3 A min. 5,000 DC 24 V, 4 A min. 5,000 DC 12 V, 8 A min. 5,000 | With AC 250 V, 2.5 A min. 10,000 |
| Switching point accuracy | Switching temperature: Up to 130 °C ± 5 K, above 130 °C ± 10 K at a temperature change rate of 1 K/min | | |
| Vibration strength According to EN 60068-2-6 | 10 g (with a frequency of 50 Hz and an amplitude of ± 0.75 mm) | -- | 10 g (with a frequency of 10 to 1,000 Hz and an amplitude of ± 0.75 mm) |
| Response time | t0.9 value time approx. 3.5 min | t0.9 value time approx. 3.0 min measured in flowing oil | t0.9 value time approx. 1.5 min, |
| Switching output (SA) | N/C contact SA01 or N/O contact SA02 |  relative to the rising temperature | |
| Rated position | Any | | |
| Weight | Approx. 50 g | | |

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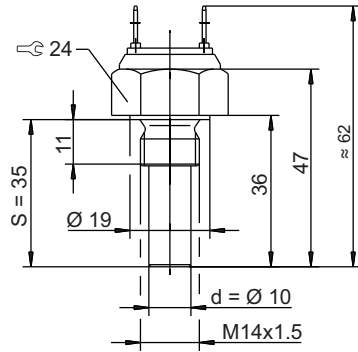
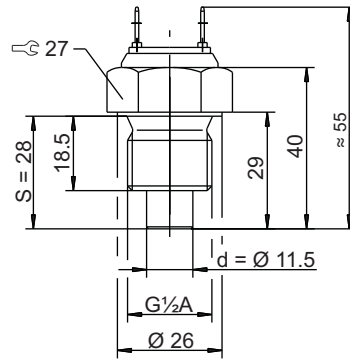
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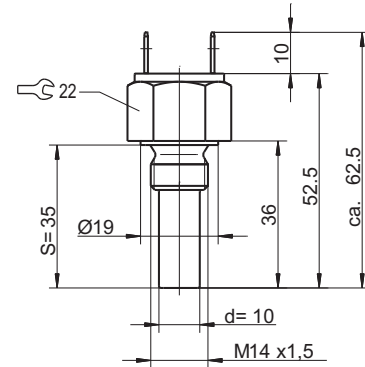
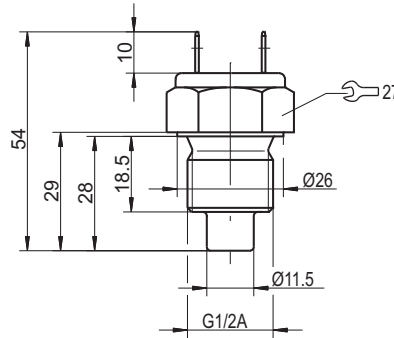


Dimensions

Type:
608301/10-...-...-01

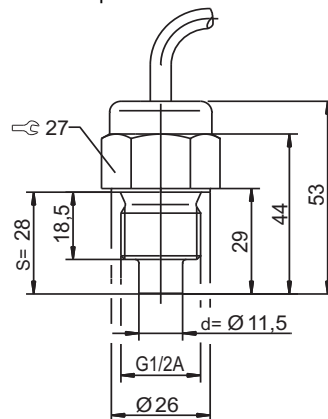


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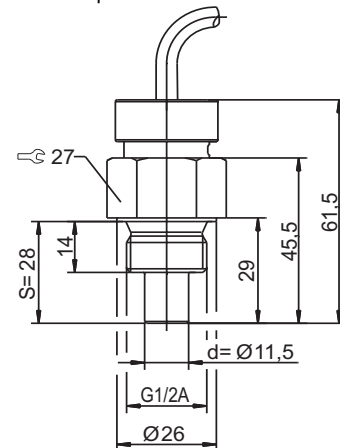


Type:
608301/10-...-...-11

Version without protection conductor



Version with protection conductor



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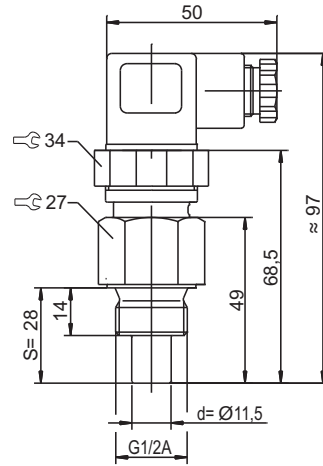
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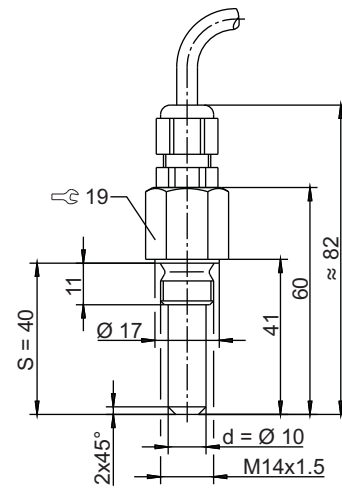
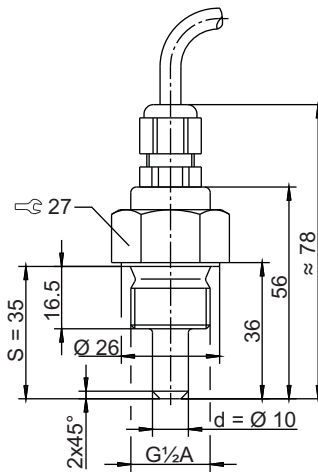


Type:
 608301/10-.....-61

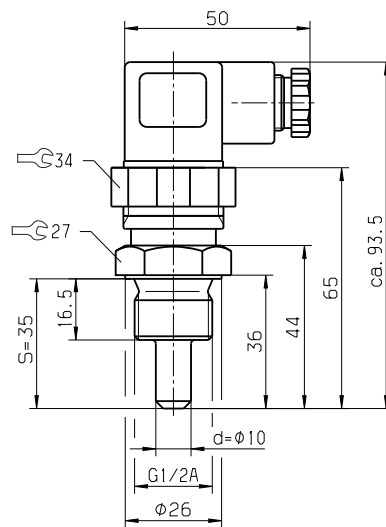
Version with protection conductor



Type:
 608301/20-.....-18



Type:
 608301/20-.....-61



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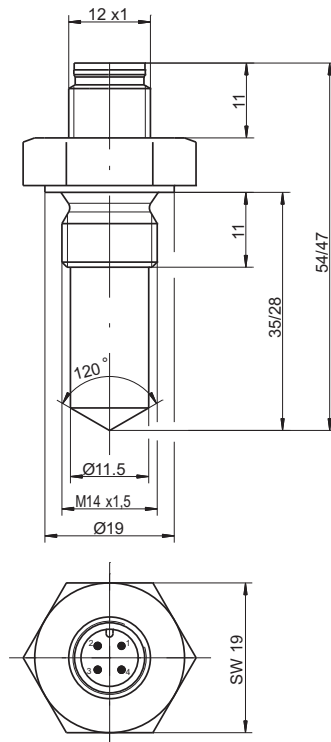
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Dimensions

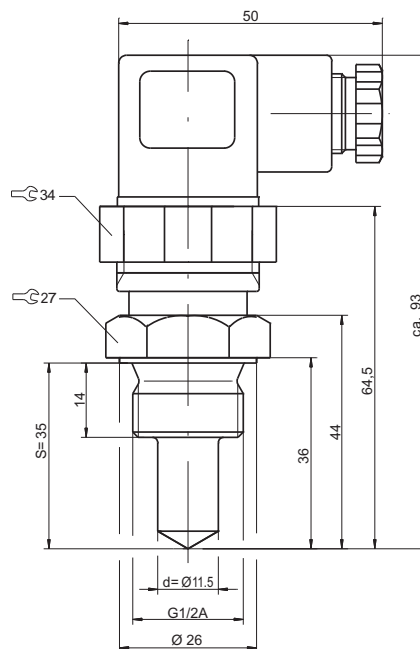
Type:

608301/30-...-...-36



Type:

608301/30-...-...-61



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Order details

Bimetal temperature switch, type 608301

Minimum order quantity 50 items

| | | |
|-------------------|--|---|
| Order code | (1) Basic type | |
| 608301 | Bimetal temperature switches | |
| | (2) Basic type extension | |
| 10 | Snap-action switch | |
| 20 | Slow-action contact | |
| 30 | Compact snap-action switch | |
| | (3) Switching temperature | (with cable version, with due consideration of the ambient temperature/ampacity on the cable!) |
| ... | from +0 °C to +140 °C | Increments 5K (with basic type extension 608301/10) |
| ... | from +10 °C to +140 °C | Increments 5K (with basic type extension 608301/20) |
| ... | from +60 °C to +140 °C | Increments 5K (with basic type extension 608301/30) |
| | | (e.g. 85 Δ + 85 °C) |
| | (4) Switching output | |
| 98 | N/C contact (SA01) | |
| 99 | N/O contact (SA02) | |
| | (5) Rated voltage | |
| 50 | AC 6 to 48 V | (with basic type extension 608301/10, /20, /30 and /10 with TZ 702) |
| 51 | AC 6 to 230 V | (with basic type extension 608301/10 and /30) |
| 52 | DC 12 to 30 V | (with basic type extension 608301/20) |
| 53 | AC 6 to 120 V | (with basic type extension 608301/10 with TZ 702) |
| 54 | DC 6 to 30 V | (with basic type extension 608301/10 and /10 with TZ 702) |
| | (6) Electrical connection | |
| 01 | Tab connector A 6.3 – 0.8 DIN 46244 | (not with rated voltage 51 (AC 0 to 230 V) (not with basic type extension 608301/20 and /30) |
| 02 | Tab connector A 6.3 – 0.8 DIN 46244, potted | (not with rated voltage 51 (AC 0 to 230 V) (not with basic type extension 608301/20 and /30) |
| 61 | Plug connector for cable connection acc. to EN 175301-803 (DIN 43650) | |
| 18 | Connecting cable with cable fitting | (not with rated voltage 51 (AC 0 to 230 V) (not with basic type extension 608301/10) |
| 11 | Potted connecting cable | (not with basic type extension 608301/20 and /30) |
| 36 | Round plug M 12 × 1 | (only in connection with basic type extension 608301/30) |
| | (7) Process connection material | |
| 50 | Brass (CuZn) | |
| 78 | Stainless steel (CrNi, 1.4305) | |
| | (8) Diameter of process connection (PC), dimension "d" | (For selection see table "Possible combinations") |
| 10 | 10 mm | |
| 11.5 | 11.5 mm | |
| | (9) Thread type of process connection (PC) | |
| 121 | Screw connection M 14 × 1.5 | |
| 104 | Screw connection G 1/2 | |

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(10) Insertion length of process connection (PC), dimension "S" (For selection see table "Possible combinations")

- 28 28 mm
- 35 35 mm
- 40 40 mm

(11) Cable length

- 0 None
- 1000 1000 mm
- 2000 2000 mm
- 3000 3000 mm
- 4000 4000 mm
- 5000 5000 mm

(12) Extra codes (TZ)

- 000 Without extra code
- 702 Gold-plated snap-action switch for currents (only with basic type extension 608301/10)
 from 10 to 100 mA and DC 6 to 30 V / AC 6 to 120 V
- 840 With integrated Pt100 (only with basic type extension 608301/30, up to max. AC 48 V)
- 841 With integrated Pt1000 (only with basic type extension 608301/30, up to max. AC 48 V)

Other versions (switching temperatures, fittings, etc.) available upon request.

Possible combinations

| Basic type extension | Diameter PC | Thread type PC | Insertion length | | Nominal voltage |
|----------------------|-------------|----------------|------------------|-----|------------------|
| 608301/..(2)-...-(6) | (8) | (9) | (10) | | |
| 608301/10-...-01 | 11.5 mm | G 1/2 A | 28 mm | 27 | 50 AC 0 to 48 V |
| | 10 mm | M 14 x 1.5 | 35 mm | 24 | |
| 608301/10-...-61 | 11.5 mm | G 1/2 A | 28 mm | 27* | 51 AC 0 to 230 V |
| | 10 mm | M 14 x 1.5 | 35 mm | | |
| 608301/10-...-11 | 11.5 mm | G 1/2 A | 28 mm | 27 | 50 AC 0 to 48 V |
| | | | | 27* | 51 AC 0 to 230 V |
| | 10 mm | M 14 x 1.5 | 35 mm | 22 | 50 AC 0 to 48 V |
| | | | | 27* | 51 AC 0 to 230 V |
| 608301/20-...-61 | 10 mm | G 1/2 A | 35 mm | 27 | 52 AC 0 to 30 V |
| | | M 14 x 1.5 | | | |
| 608301/20-...-18 | 10 mm | G 1/2 A | 35 mm | 27 | |
| | | M 14 x 1.5 | 40 mm | 19 | |
| 608301/30-...-61 | 11.5 mm | G 1/2 A | 35 mm | 27* | 51 AC 0 to 230 V |
| | | M 14 x 1.5 | 28 mm | | |
| 608301/30-...-18 | 11.5 mm | G 1/2 A | 35 mm | 27 | 50 AC 0 to 48 V |
| | | M 14 x 1.5 | 28 mm | 19 | |
| 608301/30-...-36 | 11.5 mm | G 1/2 A | 35 mm | 27 | 50 AC 0 to 48 V |
| | | M 14 x 1.5 | 28 mm | 19 | |

* With protection conductor

Order code

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|--------|---|-----|----|---|-----|-----|---|-----|----|---|-----|----|---|-----|----|---|-----|----|---|-----|----|---|-----|-----|---|------|----|---|------|------|---|------|-----|
| (1) | 608301 | / | (2) | .. | - | (3) | ... | - | (4) | .. | - | (5) | .. | - | (6) | .. | - | (7) | .. | - | (8) | .. | - | (9) | ... | - | (10) | .. | - | (11) | | / | (12) | ... |
|-----|--------|---|-----|----|---|-----|-----|---|-----|----|---|-----|----|---|-----|----|---|-----|----|---|-----|----|---|-----|-----|---|------|----|---|------|------|---|------|-----|

Order example 608301 / 10 - 140 - 98 - 50 - 01 - 50 - 10 - 121 - 35 - 0 / 000*

* List extra codes in sequence, separated by commas.