# SERIES 1045 - SUBMINIATURE SNAP-ACTION SWITCH IP 67

**TO 10(3) A 250 V AC 1E4**



## PRODUCT FEATURES

- Dust and water protected switching system according IP 67
- Rating from low DC signal currents to ratings of 10 (3)A 250 VAC
- Versions for high motor rating up to 6 (6) A 250 VAC
- Versions with integrated mechanism for breaking contact weldings
- IEC 60335 Chapter 30 approved for household appliances
- More than 10 million switching cycles

## ON REQUEST

- Versions with reduced difference travel
- Versions with mounting pegs to the side
- With asymmetric pinning
- With customized wiring

| | |
|---|---|
| Design | DIN 41635 B |
| Mechanical life endurance | 10E6, tightness up to 1.5E6 cycles<br>1E6 (versions with auxiliary actuator) |
| Contact resistance (new condition) | < 100 mOhm (1 A 12 V DC) |
| Insulation resistance (new condition) | > 100 MOhm (500 V DC) |
| Proof tracking | 250 PTI |
| Protection type | IP 00 terminal side basic types 1045 and 1046<br>IP 40 actuator side basic type 1046<br>IP 67 actuator side basic type 1045, terminal and actuator side basic type 1048 |
| Ambient temperature | -40 °C ... +100 °C |
| Flammability | UL 94 V-0 |
| Glow wire test temperature | 850 °C |
| Material additional actuator<br>housing<br>terminals | stainless steel spring steel<br>PA Latamid glass fiber-reinforced<br>tinned / faston terminals blank |
| Bounce time | < 5 ms |
| Approval marks | / (61058) |
| Suitable for appliances of protection class II under compliance with the installation conditions required on the equipment side | |

# SERIES 1045 - SUBMINIATURE SNAP-ACTION SWITCH IP 67

TO 10(3) A 250 V AC 1E4

| | | Normally closed contact (SPNC) | | | Normally open contact (SPNO) | | | Changeover switch (SPDT momentary) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1045.0142 | 1045.1943 | | 1045.0122 | 1048.1132 | | 1045.0102 | 1045.0151 | 1045.0903 | 1045.1103 | 1045.1151 | 1045.2101 | 1045.2251 | 1045.2702 | 1045.3102 |
| 5 (5) A 250 V AC 10E3 | | | | | | | | o | | | | | | | | o |
| 1 A 250 V AC 100E3 | | | | | | | | | o | | | o | | o | | |
| 3 (3) A 250 V AC 30E3 | | | | | | o | | | | | | | | | o | |
| 6 (1) A 250 V AC 30E3 | | | | | | | | | | | | | | | | |
| 2 (1) A 250 V AC 100E3 | | | | | o | | | | | | | | o | | | |
| 3 A 250 V AC 100E3 | | o | | | | | | | | | | | | | | |
| 10 (3) A 250 V AC 10E3 | | | | | | | | | | o | o | | | | | |
| 6 (6) A 250 V AC 30E3 | | | o | | | | | | | | | | | | | |
| Terminal type | | | | | | | | | | | | | | | | |
| Terminal description | | sealed | 2.8 x 0.5 sealed | | sealed | | | sealed | sealed | sealed | 2.8 x 0.5 sealed | 2.8 x 0.5 sealed | sealed cranked | sealed coded cranked | sealed coded cranked | sealed |
| Contact material | | Ag | Ag | | Ag | Ag | | Ag | Au | Ag | Ag | Au | Ag | Au | Ag | Ag |
| Operating force (N) | | ≤ 2.6 | ≤ 3.2 | | ≤ 2.6 | ≤ 2.6 | | ≤ 2.6 | ≤ 1.9 | ≤ 3.2 | ≤ 3.2 | ≤ 1.9 | ≤ 1.9 | ≤ 1.9 | ≤ 2.6 | ≤ 2.6 |
| Operating position (OP) (mm) | | 8.4 ±0.3 | 8.4 ±0.3 | | 8.4 ±0.3 | 8.4 ±0.3 | | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 |
| Difference travel max. (mm) | | 0.2 | 0.2 | | 0.2 | 0.2 | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Free position (FP) max. (mm) | | 9.3 | 9.3 | | 9.3 | 9.3 | | 9.3 | 9.3 | 9.3 | 9.3 | 9.3 | 9.3 | 9.3 | 9.3 | 9.3 |
| Permissible total travel position (TP) (mm) | | 7.6 | 7.6 | | 7.6 | 7.6 | | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 | 7.6 |
| Actuator | | IP 67 | IP 67 | | IP 67 | IP 67 | | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 |
| Actuator description | | ▢ | ▢ | | ▢ | ▢ | | ▢ | ▢ | ▢ | ▢ | ▢ | ▢ | ▢ | ▢ | ▢ |
| Lever drawing | | | | | | | | | | | | | | | | |
| Miscellaneous | | | with positive action on NC side | | | | | | | with positive action on NC side | | | | | | |
| Stock version | | | | | | o | | o | o | o | o | o | | o | o | o |

# SERIES 1045 - SUBMINIATURE SNAP-ACTION SWITCH IP 67

TO 10(3) A 250 V AC 1E4



| | Changeover switch (SPDT momentary) | 1045.3151 | 1045.4102 | 1045.4151 | 1045.5102 | 1045.5112 | 1045.5502 | 1045.5512 | 1045.6102 | 1045.6502 | 1045.7102 | 1045.7502 | 1046.0104 | 1046.1103 | 1046.2904 | 1048.0151 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 (5) A 250 V AC 10E3 | | | o | | | | | | | | | | | | | |
| 1 A 250 V AC 100E3 | | o | | o | | | | | | | | | | | | o |
| 3 (3) A 250 V AC 30E3 | | | | | | | | | | | | | | | | |
| 6 (1) A 250 V AC 30E3 | | | | | o | o | o | o | o | o | o | o | | | | |
| 2 (1) A 250 V AC 100E3 | | | | | | | | | | | | | | | | |
| 3 A 250 V AC 100E3 | | | | | | | | | | | | | | | | |
| 10 (3) A 250 V AC 10E3 | | | | | | | | | | | | | | o | | |
| 6 (6) A 250 V AC 30E3 | | | | | | | | | | | | | o | | o | |
| Terminal type | | J | L | L | G | G | G | G | J | J | T | T | G | J | T | I |
| Terminal description | | sealed | sealed | sealed | sealed | sealed | sealed | sealed | 2.8 x 0.5 sealed | 2.8 x 0.5 sealed | sealed cranked | sealed cranked | sealed | 2.8 x 0.5 sealed | sealed cranked | |
| Contact material | | Au | Ag | Au | Ag | Ag | Ag | Ag | Ag | Ag | Ag | Ag | Ag | Ag | Ag | Au |
| Operating force (N) | | ≤ 1.9 | ≤ 2.6 | ≤ 1.9 | ≤ 0.7 | ≤ 2.0 | ≤ 0.7 | ≤ 2.0 | ≤ 0.9 | ≤ 0.9 | ≤ 0.9 | ≤ 0.9 | ≤ 2.8 | ≤ 2.8 | ≤ 2.8 | ≤ 1.9 |
| Operating position (OP) (mm) | | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 11.1 ±1.5 | 9.5 ± 1.0 | 16.2 ±1.5 | 15 ±1 | 11.1 ±1.5 | 16.2 ±1.5 | 11.1 ±1.5 | 16.2 ±1.5 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 | 8.4 ±0.3 |
| Difference travel max. (mm) | | 0.2 | 0.2 | 0.2 | 0.8 | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 | 1.0 | 1.0 | 0.2 | 0.2 | 0.2 | 0.2 |
| Free position (FP) max. (mm) | | 9.3 | 9.3 | 9.3 | 15 | 12 | 20 | 17 | 15 | 20 | 15 | 20 | 9.3 | 9.3 | 9.3 | 9.3 |
| Permissible total travel position (TP) (mm) | | 7.6 | 7.6 | 7.6 | 7.6 | 8 | 13 | 13.6 | 7.6 | 13 | 7.6 | 13 | 7.6 | 7.6 | 7.6 | 7.6 |
| Actuator | | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 67 | IP 40 | IP 40 | IP 40 | IP 67 |
| Actuator description | | ▢ | ▢ | ▢ | — | — | ⌇ | ⌇ | — | ⌇ | — | ⌇ | ▢ | ▢ | ▢ | ▢ |
| Lever drawing | | | | | L02 | L02 | L22 | L22 | L02 | L22 | L02 | L22 | | | | |
| Miscellaneous | | | | | | lever on NC side mounted | | lever on NC side mounted | | | | | | | with positive action on NC side | |
| Stock version | | o | o | o | o | o | o | o | o | o | o | o | o | o | o | o |

# SERIES 1045 - SUBMINIATURE SNAP-ACTION SWITCH IP 67

**TO 10(3) A 250 V AC 1E4**

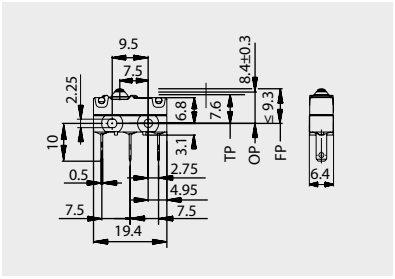
| | Changeover switch (SPDT momentary) | 1048.1102 | 1048.2151 | 1048.6113 |
|---|---|---|---|---|
|  | | | | |
| 5 (5) A 250 V AC 10E3 | | | | |
| 1 A 250 V AC 100E3 | | | o | |
| 3 (3) A 250 V AC 30E3 | | o | | |
| 6 (1) A 250 V AC 30E3 | | | | |
| 2 (1) A 250 V AC 100E3 | | | | |
| 3 A 250 V AC 100E3 | | | | |
| 10 (3) A 250 V AC 10E3 | | | | o |
| 6 (6) A 250 V AC 30E3 | | | | |
| Terminal type | | ⊢ | ⊢ | ⊢ |
| Terminal description | | | | |
| Contact material | | Ag | Au | Ag |
| Operating force (N) | | ≤ 2.6 | ≤ 1.9 | ≤ 2.0 |
| Operating position (OP) (mm) | | 8.4 ±0.3 | 8.4 ±0.3 | 15 ±1 |
| Difference travel max. (mm) | | 0.2 | 0.2 | 0.7 |
| Free position (FP) max. (mm) | | 9.3 | 9.3 | 17 |
| Permissible total travel position (TP) (mm) | | 7.6 | 7.6 | 13.6 |
| Actuator | | IP 67 | IP 67 | IP 67 |
| Actuator description | | ▢ | ▢ |  |
| Lever drawing | | | | L22 |
| Miscellaneous | | cable outlet on actuator side | cable outlet down | lever on NC side mounted |
| Stock version | | o | o | o |

# SERIES 1045 - SUBMINIATURE SNAP-ACTION SWITCH IP 67

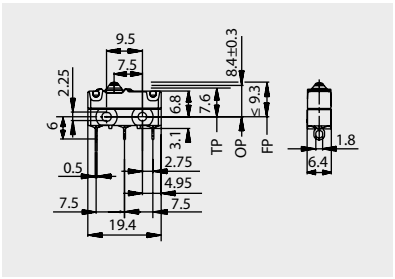
**TO 10(3) A 250 V AC 1E4**



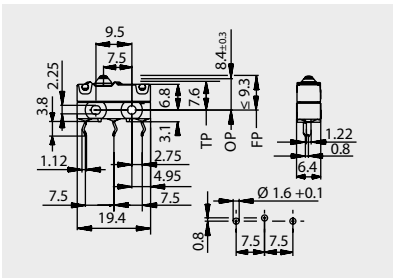
Basic type 1045



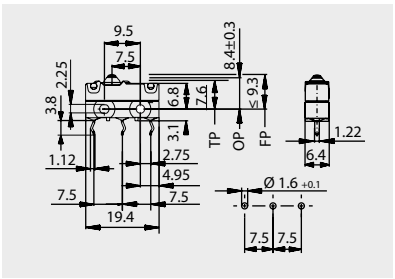

Quick-connect terminal 2.8 x 0.5
sealed



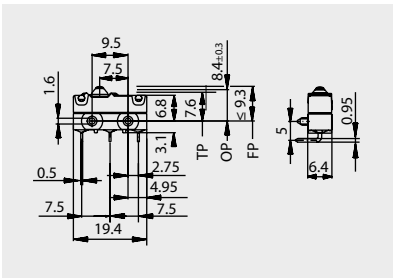

Solder terminal
sealed



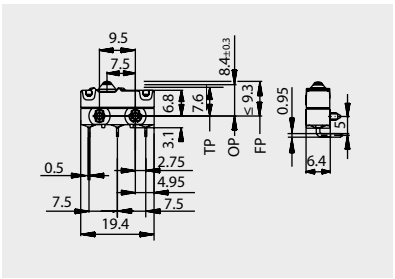

PCB terminal
sealed, coded, cranked




PCB terminal
sealed, cranked




PCB terminal
sealed, left angled

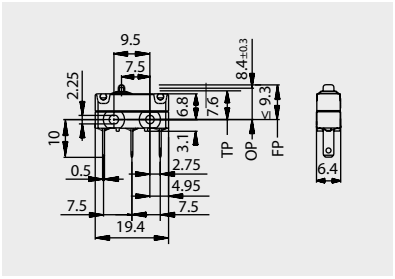



PCB terminal
sealed, right angled

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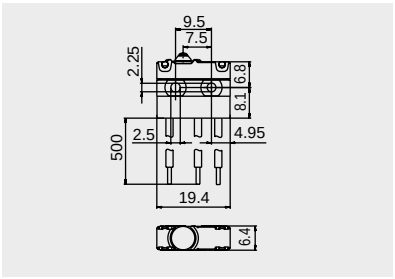





Basic type 1046

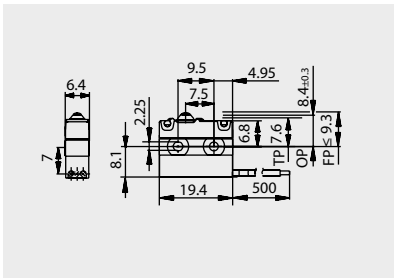
Quick-connect terminal 2.8 x 0.5 sealed





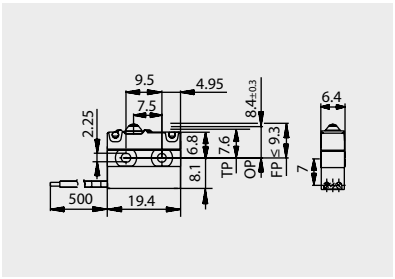

Basic type 1048

Cable, outlet down

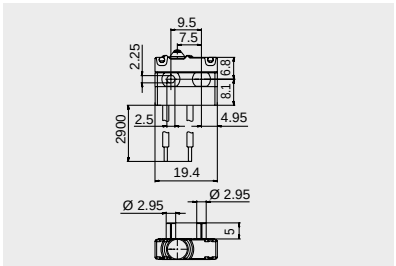



Cable, outlet NC side

Wires potted with switch, wire ends tinned




Cable, outlet C side



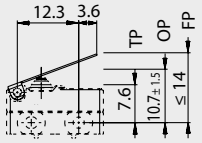

Cable, outlet down, normally open contact, mounting pegs



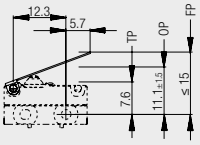
Auxiliary actuators

The auxiliary actuators are available as additional parts for later assembly or are already pre-assembled depending on the product. In the adjustable versions the operating position can be set application-specifically by the set screw.

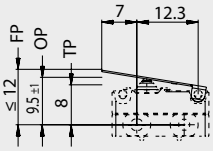
Switch versions without positive action feature a lever mounting point on the C and NC side, those with positive action only on the C side.



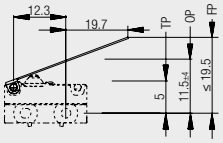

L01: straight lever
191.071.011



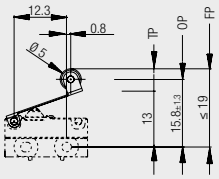

L02: straight lever
191.071.021



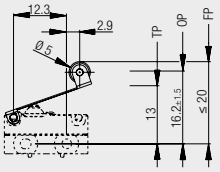

L02: straight lever, mounted on NC side
191.071.021



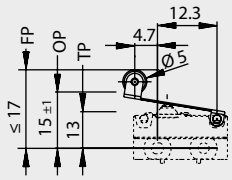

L03: straight lever
191.071.101



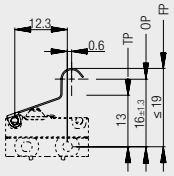

L11: roller lever
191.078.023



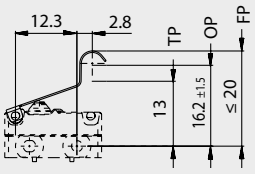

L12: roller lever
191.078.023



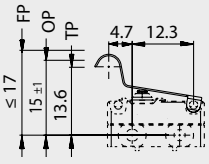

L12: roller lever, mounted on NC side
191.078.023




L21: simulated roller
191.071.041




L22: simulated roller
191.071.051



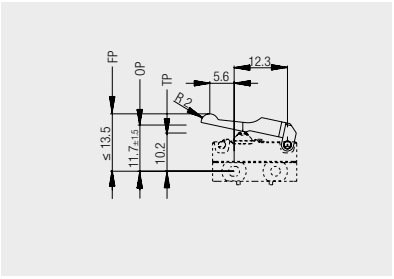

L22: simulated roller, mounted on NC side
191.071.051

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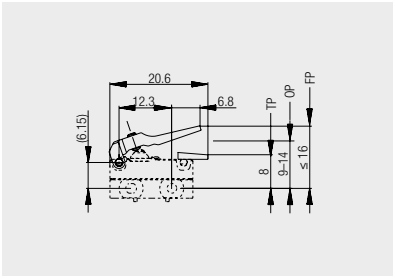
**TO 10(3) A 250 V AC 1E4**



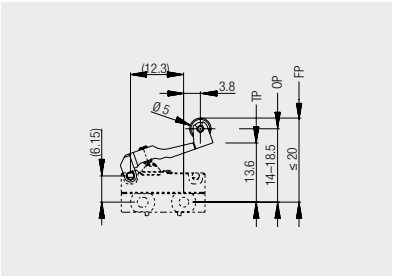
Auxiliary actuators
(continue from page 195)



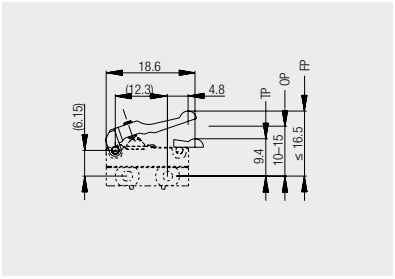

L32: simulated roller, mounted on NC side
190.372.041




L41: adjustable plastic lever
190.075.013




L43: adjustable roller lever
190.072.013




L45: adjustable simulated roller
190.074.013

Further information under

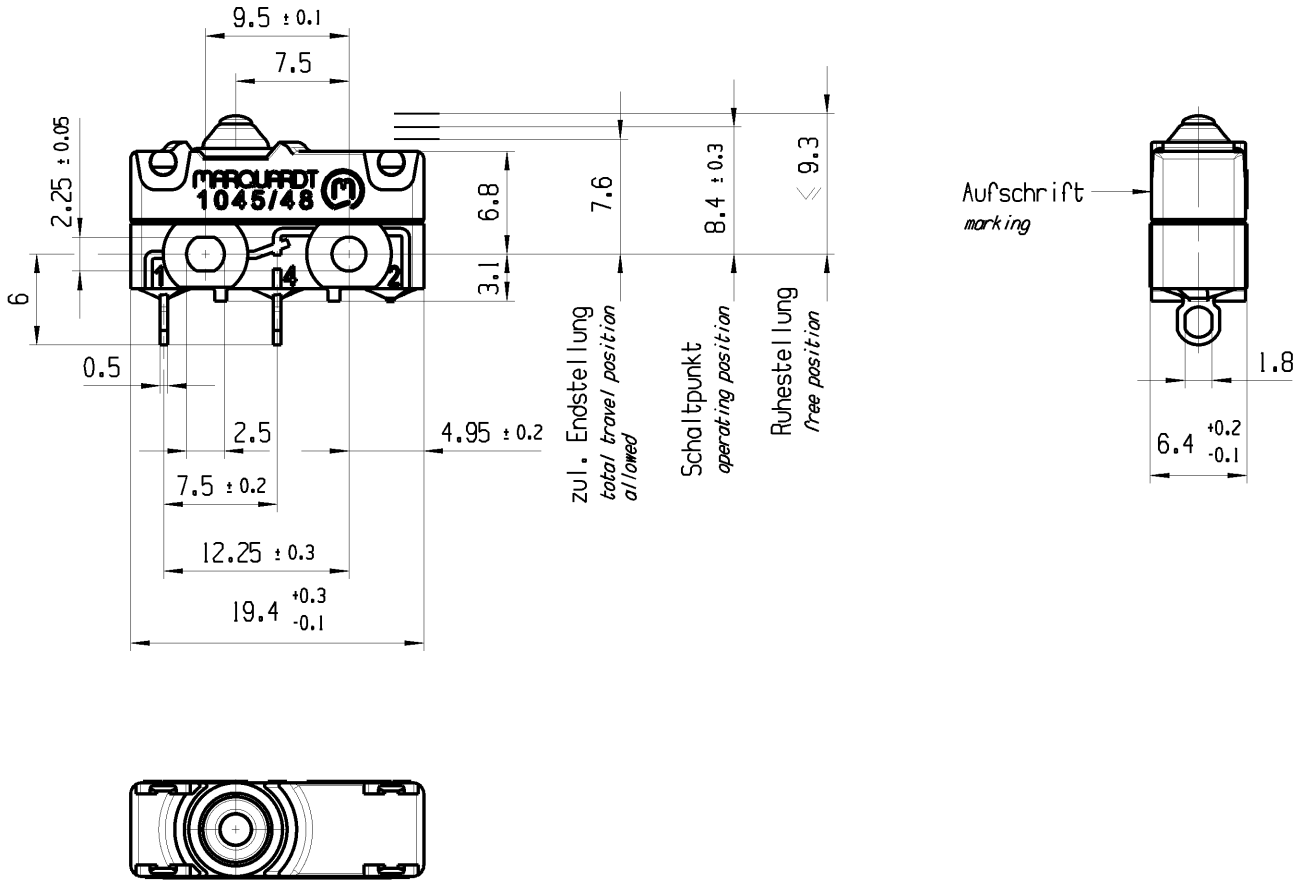
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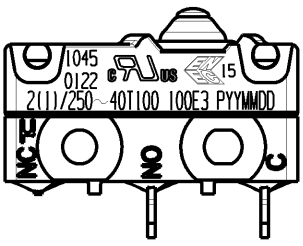
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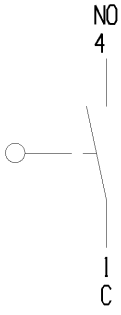
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Aufschrift
*Marking*




Schliesser 1-polig
*single pole normally open*

| | |
|---|---|
| Schaltbetaetigungskraft<br>*actuating force* | ⩽ 2.6 N |
| Rueckschaltkraft<br>*release force* | ⩾ 0.7 N |
| Differenzweg<br>*movement differential* | ⩽ 0.2 mm |
| IP Schutzklasse nach EN 60529<br>*protection class acc to EN 60529* | IP 67<br>*IP 67* |

G: Konform nach IEC 60335-1:2001 Kap. 30
*G: matching IEC 60335-1_2001 clause 30*

| | | |