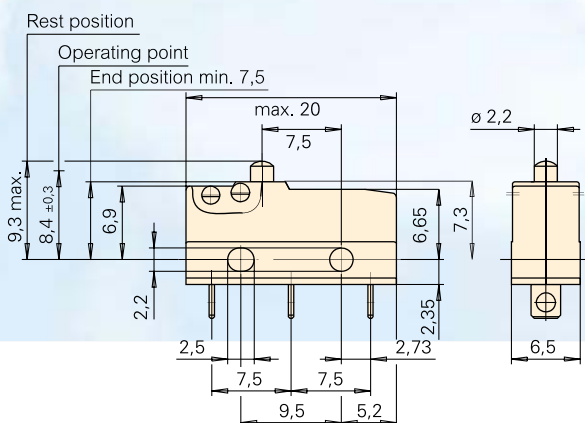


# DB subminiature switch

## Features

- Precision switch with high repeat accuracy
- Available for up to 120 °C operating temperature
- Nominal current up to 10A at 250 VAC
- Various auxiliary actuators (can also be retrofitted) two mounting positions
- Various application-specific contact materials
- Mechanical operational life up to  $15 \times 10^6$  actuations
- Wide variety of terminal types

## Dimensions in mm



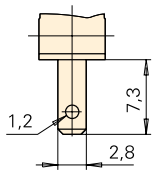
## Technical specifications

|                                        |                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contact configuration                  | S.P.D.T., S.P.S.T. - N.O., S.P.S.T. - N.C.                                                                                                                                                                                                                                                                                                                                |
| Contact gap                            | < 3 mm ( $\mu$ )                                                                                                                                                                                                                                                                                                                                                          |
| Switching voltage max.                 | 250 V AC                                                                                                                                                                                                                                                                                                                                                                  |
| Switched current                       | 0,1 to 10 A AC, dependig on model (see table)                                                                                                                                                                                                                                                                                                                             |
| Operating force                        | 70 to 280 cN without auxiliary actuator, depending on model                                                                                                                                                                                                                                                                                                               |
| Total travel                           | 1,6 mm                                                                                                                                                                                                                                                                                                                                                                    |
| Mechanical life                        | Min. $10 \times 10^6$ operations (see table)                                                                                                                                                                                                                                                                                                                              |
| Electrical life (max. load)            | Up to $10^6$ operations (see table)                                                                                                                                                                                                                                                                                                                                       |
| Ambient temperature                    | -40 to +85 °C/120 °C                                                                                                                                                                                                                                                                                                                                                      |
| Proof tracking index                   | PTI 175 (PTI 250 on request)                                                                                                                                                                                                                                                                                                                                              |
| <b>Materials</b>                       |                                                                                                                                                                                                                                                                                                                                                                           |
| Base                                   | PET (UL 94 VO)                                                                                                                                                                                                                                                                                                                                                            |
| Cover                                  | PBT (UL 94 VO)                                                                                                                                                                                                                                                                                                                                                            |
| Actuator                               | PBT (UL 94 VO) T120<br>POM (UL 94 HB) T85                                                                                                                                                                                                                                                                                                                                 |
| Contacts                               | Ag, AgNi,<br>AuAgPt (Crosspoint)                                                                                                                                                                                                                                                                                                                                          |
| Terminals                              | CuZn (silver-plated)                                                                                                                                                                                                                                                                                                                                                      |
| Auxiliary actuator                     | Stainless steel or plastic                                                                                                                                                                                                                                                                                                                                                |
| Approvals                              |     dependig on model |
| Degree of protection (switch interior) | IP50                                                                                                                                                                                                                                                                                                                                                                      |

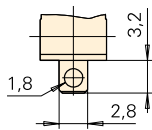
For detailed information and the layout of the details described above, please do not hesitate to ask for our technical specifications and drawing.

## Terminals

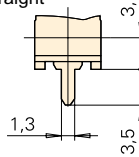
Q.C. terminal 2,8 x 0,5



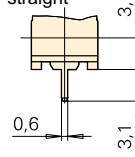
Solder terminal, short



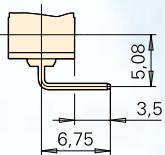
PCB terminal 1,3 x 0,5 straight



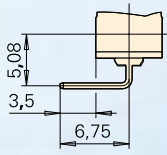
PCB terminal 0,6 x 0,5 straight



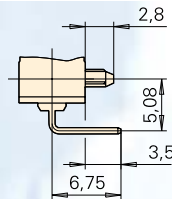
PCB terminal 0,6 x 0,5 RH-side w/o location pins



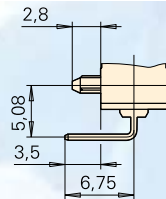
PCB terminal 0,6 x 0,5 LH-side w/o location pins



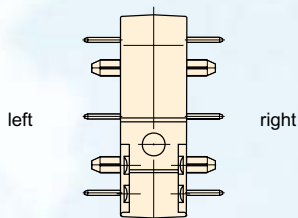
PCB terminal 0,6 x 0,5 RH-side with location pins



PCB terminal 0,6 x 0,5 LH-side with location pins

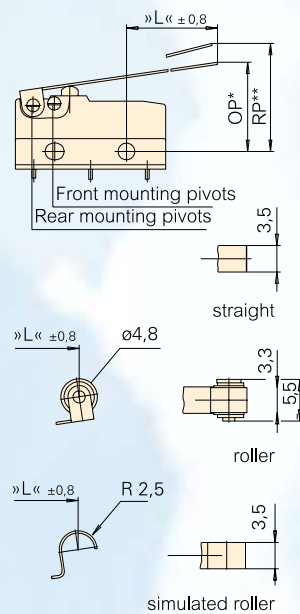


Side definition with terminals and location pins

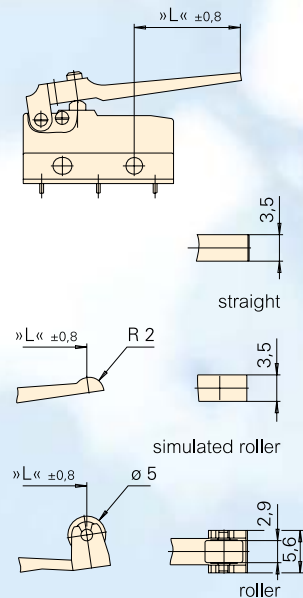


## Auxiliary actuator options

Steel auxiliary actuator



Plastic auxiliary actuator with/without adjusting screw



## Electrical rating and operating life (2)

| Electrical rating according to<br>EN 61058                      | UL 1054                                   | Electrical life at rated load for 40T85*<br>acc. to EN<br>(Operations) | acc. to UL | Mechanical life      | Max. operating<br>force (cN) | Code      |
|-----------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------|------------|----------------------|------------------------------|-----------|
| 6A 250 V AC                                                     | 5 A 125–250 V AC                          | 10.000                                                                 | 6.000      | 15 x 10 <sup>6</sup> | 150                          | 1         |
| 10 (1,5) A, 250 V AC                                            | 10,1 A, 125–250 AC,<br>1/4 HP, 125 V AC   | 10.000                                                                 | 6.000      | 10 x 10 <sup>6</sup> | 250                          | 2         |
| 0.1 A, 250 V AC                                                 | 0,1 A 125–250 V AC                        | 50.000                                                                 | 100.000    | 15 x 10 <sup>6</sup> | 150                          | 3         |
| 4 A, 250 V~                                                     | 4 A, 125–250 V AC                         | 50.000                                                                 | 6.000      | 15 x 10 <sup>6</sup> | 90                           | 4         |
| 1 A, 250 V AC                                                   | 1 A, 125–250 V AC                         | 50.000                                                                 | 6.000      | 15 x 10 <sup>6</sup> | 70                           | 5*        |
| 6 A, 250 V AC                                                   | 5 A, 125–250 V AC                         | 50.000                                                                 | 6.000      | 15 x 10 <sup>6</sup> | 150                          | 6*        |
| 10 (1,5) A, 250 V AC                                            | 10,1 A, 125–250 V AC,<br>1/4 HP, 125 V AC | 50.000                                                                 | 6.000      | 10 x 10 <sup>6</sup> | 280                          | 7*        |
| 10 (3) A, 250 V~                                                | 10,1 A, 125–250 V AC,<br>1/4 HP, 125 V AC | 10.000                                                                 | 6.000      | 10 x 10 <sup>6</sup> | 280                          | L         |
| 3 A, 250 V~                                                     | 3 A, 125–250 V AC                         | 50.000                                                                 | 6.000      | 15 x 10 <sup>6</sup> | 90                           | M         |
| 6 (2) A, 250 V~                                                 | 5 A, 125–250 V AC                         | 25.000                                                                 | 6.000      | 15 x 10 <sup>6</sup> | 150                          | O         |
| Special models designed for very low switching loads on request |                                           |                                                                        |            |                      |                              | *only T85 |

## Contact configuration (3)

| Contact configuration      |      |
|----------------------------|------|
| Ambient temperature 40T85  | Code |
| S.P.S.T. - N.O.            | E    |
| S.P.S.T. - N.C.            | F    |
| S.P.D.T.                   | G    |
| Ambient temperature 40T120 | Code |
| S.P.S.T. - N.O.            | A    |
| S.P.S.T. - N.C.            | B    |
| S.P.D.T.                   | C    |

## Terminals (4)

| Type of terminal                                | Code |
|-------------------------------------------------|------|
| Q.C. terminal 2.8 x 0.5 mm, straight            | B1   |
| Solder terminal, short                          | A1   |
| PCB terminal 1.3 x 0.5, straight                | C1   |
| PCB terminal 0.6 x 0.5, straight                | D1   |
| PCB terminal 0.6 x 0.5, right-hand side*        | D2   |
| PCB terminal 0.6 x 0.5, left-hand side*         | D3   |
| PCB terminal 0.6 x 0.5, right-hand side**       | D4   |
| PCB terminal 0.6 x 0.5, left-hand side**        | D5   |
| *with location pins    ** without location pins |      |

## Auxiliary actuator options (5)

| Model                                                | Mounting point | Length      | Code     |
|------------------------------------------------------|----------------|-------------|----------|
| Without lever, spherical head<br>lever, radius shape | —              | —           | AA       |
|                                                      | —              | —           | BA       |
| Straight                                             | RM rear        | 4,8         | LB       |
|                                                      |                | 7           | LC       |
|                                                      | FM front       | 42          | LD       |
|                                                      |                | 7           | MB       |
|                                                      |                | 9,4<br>43,5 | MC<br>MD |
| Roller                                               | RM rear        | 2,5         | RB       |
|                                                      |                | 4,7         | RC       |
|                                                      |                | 39,7        | RD       |
|                                                      | FM front       | 4,7         | TB       |
|                                                      |                | 7,1         | TC       |
|                                                      |                | 41,2        | TD       |
| Simulated roller                                     | RM rear        | 2,5         | SB       |
|                                                      |                | 4,7         | SC       |
|                                                      |                | 39,7        | SD       |
|                                                      | FM front       | 4,7         | UB       |
|                                                      |                | 7,1<br>41,2 | UC<br>UD |
| Plastic straight                                     | RM rear        | 7           | WB       |
|                                                      |                | 14          | WC       |
|                                                      | FM front       | 9,4<br>16,2 | GB<br>GC |
| Plastic roller                                       | RM rear        | 5,2         | ZB       |
|                                                      | FM front       | 7,3         | OB       |
| Plastic simulated roller                             | RM rear        | 5,6         | VB       |
|                                                      | FM front       | 7,9         | HB       |

## Switching parameters

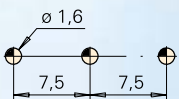
| Option                                          | Type  | Max. operating force (cN) | Max. pretravel (mm) | Min. overtravel (mm) | Max. movement differential (mm) | Max. rest position (mm) | Operating point (mm) | Length actuator (mm) $\pm 0,8$ |
|-------------------------------------------------|-------|---------------------------|---------------------|----------------------|---------------------------------|-------------------------|----------------------|--------------------------------|
| Spherical-head actuator, w/o auxiliary actuator | DB5   | 70                        | 1,0                 | 0,6                  | 0,1                             | 9,3                     | 8,4 $\pm 0,3$        | —                              |
|                                                 | DB1/O | 150                       | 1,0                 | 0,6                  | 0,1                             | 9,3                     | 8,4 $\pm 0,3$        |                                |
|                                                 | DB6   | 150                       | 1,0                 | 0,6                  | 0,15                            | 9,3                     | 8,4 $\pm 0,3$        |                                |
|                                                 | DB2   | 250                       | 1,0                 | 0,6                  | 0,1                             | 9,3                     | 8,4 $\pm 0,3$        |                                |
|                                                 | DB7   | 280                       | 1,0                 | 0,6                  | 0,15                            | 9,3                     | 8,4 $\pm 0,3$        |                                |
| Actuator with radius, w/o auxiliary actuator    | DB5   | 70                        | 1,0                 | 0,6                  | 0,1                             | 9,3                     | 8,4 $\pm 0,3$        | —                              |
|                                                 | DB1/O | 150                       | 1,0                 | 0,6                  | 0,1                             | 9,3                     | 8,4 $\pm 0,3$        |                                |
|                                                 | DB6   | 250                       | 1,0                 | 0,6                  | 0,15                            | 9,3                     | 8,4 $\pm 0,3$        |                                |
|                                                 | DB2   | 250                       | 1,0                 | 0,6                  | 0,1                             | 9,3                     | 8,4 $\pm 0,3$        |                                |
|                                                 | DB7   | 280                       | 1,0                 | 0,6                  | 0,15                            | 9,3                     | 8,4 $\pm 0,3$        |                                |

## Contact rating at direct voltage

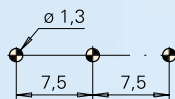
| Switching voltage | Switched current, resistive load |        | Inductive load (L/R = 3 ms) |       |
|-------------------|----------------------------------|--------|-----------------------------|-------|
|                   | DB 1                             | DB 2   | DB 1                        | DB 2  |
| 12 V              | 6 A                              | 10 A   | 6 A                         | 10 A  |
| 24 V              | 3 A                              | 5 A    | 2 A                         | 4 A   |
| 60 V              | 1 A                              | 1 A    | 0,5 A                       | 0,5 A |
| 110 V             | 0,5 A                            | 0,5 A  | 0,2 A                       | 0,2 A |
| 220 V             | 0,25 A                           | 0,25 A | 0,1 A                       | 0,1 A |

## Drilling patterns

drilling pattern for PCB terminal 1,3 x 0,5 mm



drilling pattern for PCB terminal 0,6 x 0,5 mm straight/lateral



drilling pattern for PCB terminal 0,6 x 0,5 mm lateral with location pins

