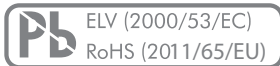


Product description

MAIN FEATURES

1/2" SELECTOR SWITCH

- > Dimensions Ø 1/2"
- > Switching mode: Shorting or non-shorting
- > 10, 12 and 16 selector switch positions
- > Switching torque: Up to 6 Ncm
- > Gold plated contacts
- > Rugged design
- > Sealing up to IP68
- > Operating temperature range: -45 to +85 °C
- > Not ITAR related
- > Various options and customizations

**MR50**

PRODUCT VARIETY

- Number of selector positions | indexing angles
- Shaft styles
- Shorting or non-shorting
- Switching torque with 3 or 6 Ncm
- Front panel sealing IP60 and IP68

POSSIBLE CUSTOMIZATIONS

- Shaft style and material
- Bushing style
- Switching torque
- Number of poles
- Customizable end position
- Interface solutions (socket plug)
- Shaft diameter

TYPICAL APPLICATIONS

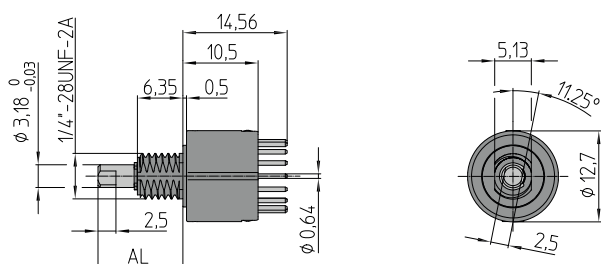
- Target aiming devices
- Night vision devices
- Two way radios
- Cockpit applications (aircraft, automotive, construction machines, military vehicles)
- Portable devices (communication, medical, rescue, sports, transportation, measuring, photo / video)
- Test equipment

Dimensions and pin assignment

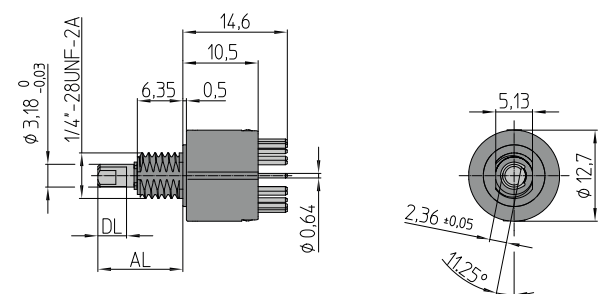
SWITCH DESIGN

| | DL | |
|-----------|------------------|---------|
| | 11.85 mm ±0.3 mm | 4 mm |
| AL | 16.35 mm ±0.3 mm | 8.5 mm |
| | 21.35 mm ±0.3 mm | 13.5 mm |

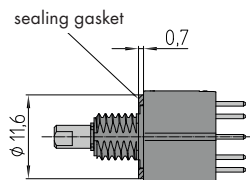
ROUND SHAFT



D-SHAFT



FRONT PANEL SEALING IP68



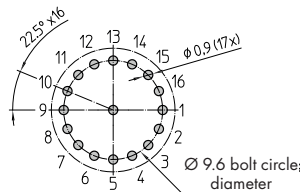
Dimensions in mm
Tolerances according to DIN ISO 2768-1 (m), unless otherwise specified

Dimensions and pin assignment

DRILLING DIAGRAM AND FOOTPRINT

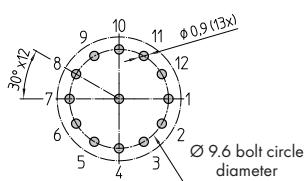
16 POSITIONS | 1 POLE

View from the PCB



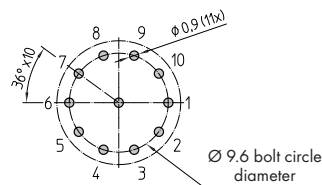
12 POSITIONS | 1 POLE

View from the PCB



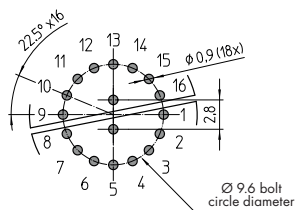
10 POSITIONS | 1 POLE

View from the PCB



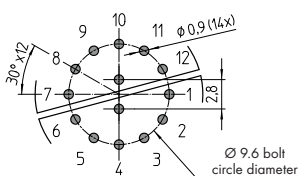
8 POSITIONS | 2 POLE

View from the PCB



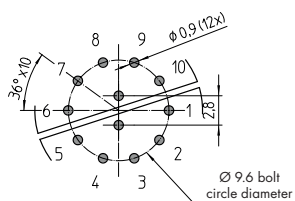
6 POSITIONS | 2 POLE

View from the PCB



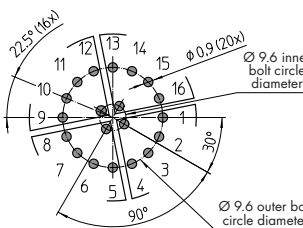
5 POSITIONS | 2 POLE

View from the PCB



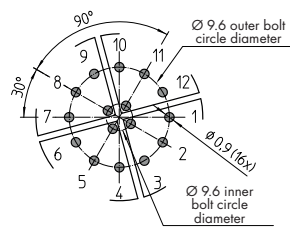
4 POSITIONS | 4 POLE

View from the PCB



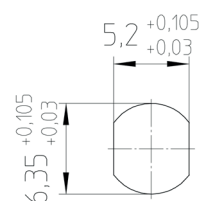
3 POSITIONS | 4 POLE

View from the PCB



FRONT PANEL CUT OUT

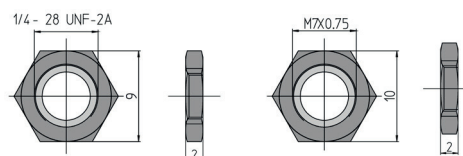
FOR BUSHING 1/4"-28 UNF-2A



Dimensions in mm
Tolerances according to DIN ISO 2768-1 (m), unless otherwise specified

NUT

HEX NUT (SUPPLIED)



Ordering information

ORDERING CODE

| | | | | | | | | | |
|------|---|---|---|---|---|---|---|---|---|
| MR50 | - | - | - | - | - | - | - | - | - |
|------|---|---|---|---|---|---|---|---|---|

DETENT ANGLE | POLE | SWITCHING MODE

| | | | |
|-----------|-------|--------|--------------|
| A1 | 22.5° | 1 pole | shorting |
| A2 | 22.5° | 1 pole | non-shorting |
| A3 | 22.5° | 2 pole | shorting |
| A4 | 22.5° | 2 pole | non-shorting |
| A5 | 22.5° | 4 pole | shorting |
| A6 | 22.5° | 4 pole | non-shorting |

| | | | |
|-----------|-----|--------|--------------|
| B1 | 30° | 1 pole | shorting |
| B2 | 30° | 1 pole | non-shorting |
| B3 | 30° | 2 pole | shorting |
| B4 | 30° | 2 pole | non-shorting |
| B5 | 30° | 4 pole | shorting |
| B6 | 30° | 4 pole | non-shorting |

| | | | |
|-----------|-----|--------|--------------|
| C1 | 36° | 1 pole | shorting |
| C2 | 36° | 1 pole | non-shorting |
| C3 | 36° | 2 pole | shorting |
| C4 | 36° | 2 pole | non-shorting |

Explanation see chapter «Technical explanations»

NUMBER OF POSITIONS

| | |
|----------|---|
| 0 | No end position (endless rotation) |
| 1 | End position between position 1 and last position |
| 2 | Positions |
| 3 | Positions |
| 4 | Positions |
| 5 | Positions |
| 6 | Positions |
| 7 | Positions |
| 8 | Positions |
| 9 | Positions |
| A | 10 Positions |
| B | 11 Positions |
| C | 12 Positions |
| D | 13 Positions |
| E | 14 Positions |
| F | 15 Positions |

MOUNTING | SWITCH ORIENTATION | STOP CONTACTS | IP-SEALING

Hex nut (supplied)

| | |
|----------|---|
| A | 1/4"-28 UNF-2A x 6.35 mm vertical THT PCB assembly IP60 |
| B | 1/4"-28 UNF-2A x 6.35 mm vertical THT PCB assembly IP68 |

X Customized solutions on request

Central mounting dimension and shape see drawing
1/4" = 6.35 mm

SHAFT STYLE (AL) AND MATERIAL

| | | | |
|-----------|-------------------|---------|-----------------|
| 12 | Ø 1/8" x 11.85 mm | round | stainless steel |
| 13 | Ø 1/8" x 11.85 mm | D-shaft | stainless steel |
| 16 | Ø 1/8" x 16.35 mm | round | stainless steel |
| 17 | Ø 1/8" x 16.35 mm | D-shaft | stainless steel |
| 21 | Ø 1/8" x 21.35 mm | round | stainless steel |
| 22 | Ø 1/8" x 21.35 mm | D-shaft | stainless steel |

XX Customized solutions on request

Shaft dimensions and shape see drawing
Ø 1/8" = Ø 3.18 mm

FACTORY SET CHARACTER

1

SWITCHING TORQUE

| | |
|----------|-------|
| B | 3 Ncm |
| D | 6 Ncm |

X Customized solutions on request

PACKAGING

- Antistatic tray (50 pieces)

Ordering information

PREFERENCE TYPES SELECTION CHART¹

| IP-SEALING | SWITCHING MODE | DETENT ANGLE POSITIONS | SWITCHING TORQUE | PART NUMBER |
|------------|----------------|--------------------------|------------------|----------------|
| IP68 | Shorting | 22.5° 16 | 3 Ncm | MR50-A11B-B113 |
| | | | 6 Ncm | MR50-A11B-D113 |
| | | 30° 12 | 3 Ncm | MR50-B11B-B113 |
| | | | 6 Ncm | MR50-B11B-D113 |
| | | 36° 10 | 3 Ncm | MR50-C11B-B113 |
| | | | 6 Ncm | MR50-C11B-D113 |
| | Non-shorting | 22.5° 16 | 3 Ncm | MR50-A21B-B113 |
| | | | 6 Ncm | MR50-A21B-D113 |
| | | 30° 12 | 3 Ncm | MR50-B21B-B113 |
| | | | 6 Ncm | MR50-B21B-D113 |
| | | 36° 10 | 3 Ncm | MR50-C21B-B113 |
| | | | 6 Ncm | MR50-C21B-D113 |

PACKAGING

Antistatic blister box: 50 pieces

ACCESSORIES AND SPARE PARTS

Hex nut: 1/4"-28 UNF-2A
Part number 4516-50 (50 pieces / bag), brass, nickel plated

¹ For other types | options see ordering code

Specifications

MECHANICAL DATA

| | |
|---|---|
| Detent angle positions: | 22.5° detent angle 16 positions 30° detent angle 12 positions 36° detent angle 10 positions |
| Rotary limitation end stop: | Configurable |
| Switching torque: | 3 or 6 Ncm (±30 % over life time) |
| Rotational life: | > 20'000 cycles (tested at room temperature) |
| Allowed shaft load: | 400 N push, 400 N pull and 200 N side force (static at 10 mm from supporting surface) |
| Rotational stop strength: | > 85 Ncm |
| Fastening torque of nut (front panel mounting): | 1/4"-28 UNF-2A: < 170 Ncm |

ELECTRICAL DATA

| | |
|------------------------|--|
| Electrical connection: | Pins Ø 0.9 mm |
| Switching voltage: | < 28 VDC (resistive load) |
| Switching current: | < 200 mA (resistive load) |
| Contact resistance: | < 50 mΩ (in new condition) |
| Switching mode: | Shorting or non-shorting |
| Dielectric strength: | 500 VDC during 60 s (pin-to-pin, pin-to-housing) |
| Insulation resistance: | > 1 GΩ at 500 VDC (pin-to-pin, pin-to-housing, in new condition) |

MATERIALS

| | |
|----------------------|----------------------------------|
| Shaft: | Stainless steel 1.4305 |
| Bushing housing: | Zinc die casting (nickel plated) |
| Contact surface: | Cu alloy (Au plated) |
| Soldering leads: | Cu alloy (nickel and tin plated) |
| Hex nut: | Brass (nickel plated) |
| Snap ring: | Spring steel (nickel plated) |
| O-rings: | FPM (Viton), 70 shore A |
| Front panel sealing: | MVQ (silicone), 60 shore A |

ENVIRONMENTAL DATA

| | |
|---------------------------------|--|
| Operating temperature: | -45 to +85 °C (IEC 60068-2-14) |
| Storage temperature: | -50 to +125 °C (IEC 60068-2-14) |
| Humidity: | < 93 % relative humidity (MIL-STD-202G, method 103B, condition B) |
| IP sealing against front panel: | IP60 without sealing IP68 with shaft and front panel sealing (2 bar, 1 h) |
| Vibration: | 10 G _{RMS} at 10 to 2'000 Hz (MIL-STD-202G, method 214A, condition 1/C) |
| Shock: | 100 G (MIL-STD-202G, method 213B, condition C) |
| Flammability: | UL94-V0 Gaskets UL94-HB |

SOLDERING CONDITIONS

| | |
|-----------------|---------------------|
| Hand soldering: | < 300 °C during 3 s |
| Wave soldering: | < 280 °C during 5 s |

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