



IDEM Micro Switches

Lever Series Limit Switches

- A high-precision, 15A-rated micro switch available in a wide variety of styles
- Lever Series models are available with a choice of actuator types including lever, hinge lever, and roller lever
- Screw terminals for easy connection
- Suitable for a wide range of operating conditions
- Terminal enclosure available



IDEM Lever Series Micro Switches

| Part Number | Price | Drawing Link | Actuator Type | Snap Action Contacts | Pretravel (max) | Over Travel | Force to Operate Contacts |
|--------------------------|---------|---------------------|--|----------------------|----------------------|----------------------|---------------------------|
| 176102-1 | \$42xl: | PDF | Lever | (1) N.O. / (1) N.C. | 4 mm [0.157 in] | 1.6 mm [0.063 in] | 141g [0.31 lb] |
| 176102-5 | \$42y7: | PDF | Lever (pack of 5) | | | | |
| 176103-1 | \$42x?: | PDF | Lever with steel roller | (1) N.O. / (1) N.C. | 4 mm [0.157 in] | 1.6 mm [0.063 in] | 141g [0.31 lb] |
| 176103-5 | \$42y8: | PDF | Lever with steel roller (pack of 5) | | | | |
| 176109-1 | \$42xl: | PDF | Lever hinge long | (1) N.O. / (1) N.C. | 10 mm [0.394 in] | 5.6 mm [0.220 in] | 70g [0.15 lb] |
| 176109-5 | \$42ye: | PDF | Lever hinge long (pack of 5) | | | | |
| 176110-1 | \$42y0: | PDF | Lever hinge | (1) N.O. / (1) N.C. | 7 mm [0.276 in] | 3.5 mm [0.138 in] | 90g [0.2 lb] |
| 176110-5 | \$42yf: | PDF | Lever hinge (pack of 5) | | | | |
| 176111-1 | \$42y1: | PDF | Lever hinge long with steel roller | (1) N.O. / (1) N.C. | 7.1 mm [0.280 in] | 4 mm [0.157 in] | 100g [0.22 lb] |
| 176111-5 | \$42yg: | PDF | Lever hinge long with steel roller (pack of 5) | | | | |
| 176112-1 | \$42y2: | PDF | Lever hinge with steel roller | (1) N.O. / (1) N.C. | 2.7 mm [0.106 in] | 2.4 mm [0.094 in] | 160g [0.35 lb] |
| 176112-5 | \$42yh: | PDF | Lever hinge with steel roller (pack of 5) | | | | |
| 176113-1 | \$42y3: | PDF | One-way horizontal hinge lever with steel roller | (1) N.O. / (1) N.C. | 2.7 mm [0.106 in] | 2.4 mm [0.094 in] | 170g [0.37 lb] |
| 176113-5 | \$42yi: | PDF | One-way horizontal hinge lever with steel roller (pack of 5) | | | | |

| | | | | | | | |
|--------------------------|---------|---------------------|---|--|--|--|--|
| 176000-1 | \$42x: | PDF | IDEM terminal enclosure, PVC. For use with IDEM micro limit switches. | | | | |
| 176000-5 | \$42y5: | PDF | IDEM terminal enclosure, PVC. Package of 5. For use with IDEM micro limit switches. | | | | |



[176102-1](#)



[176103-1](#)



[176109-1](#)



[176110-1](#)



[176111-1](#)



[176112-1](#)



[176113-1](#)



[176000-1](#)

IDEM Micro Switches, Lever Series

Operating Characteristics

Lever (176102)



| Operating Characteristics | |
|----------------------------|---------------------------------|
| Operating Force | 141g [0.31 lb] |
| Release Force (min) | 14g [0.03 lb] |
| Pre-Travel (max) | 4 mm [0.157 in] |
| Over-Travel (min) | 1.6 mm [0.063 in] |
| MD (max) | 1.3 mm [0.051 in] |
| FP (max) | 20.8 mm [0.819 in] |
| Operating Position | 17.4 ± 0.8mm [0.685 ± 0.031 in] |

Lever With Steel Roller (176103)



| Operating Characteristics | |
|----------------------------|----------------------------------|
| Operating Force | 141g [0.31 lb] |
| Release Force (min) | 14g [0.03 lb] |
| Pre-Travel (max) | 4 mm [0.157 in] |
| Over-Travel (min) | 1.6 mm [0.063 in] |
| MD (max) | 1.3 mm [0.051 in] |
| FP (max) | 31.8 mm [1.252 in] |
| Operating Position | 28.6 ± 0.8 mm [1.126 ± 0.031 in] |

Lever Hinge Long (176109)



| Operating Characteristics | |
|----------------------------|--------------------------------|
| Operating Force | 70g [0.15 lb] |
| Release Force (min) | 14g [0.03 lb] |
| Pre-Travel (max) | 10 mm [0.394 in] |
| Over-Travel (min) | 5.6 mm [0.220 in] |
| MD (max) | 1.27 mm [0.050 in] |
| FP (max) | 28.2 mm [1.110 in] |
| Operating Position | 19 ± 0.8 mm [0.748 ± 0.031 in] |

Lever Hinge (176110)



| Operating Characteristics | |
|----------------------------|----------------------------------|
| Operating Force | 90g [0.2 lb] |
| Release Force (min) | 18g [0.04 lb] |
| Pre-Travel (max) | 7 mm [0.276 in] |
| Over-Travel (min) | 3.5 mm [0.138 in] |
| MD (max) | 1 mm [0.039 in] |
| FP (max) | 26.2 mm [1.031 in] |
| Operating Position | 19.8 ± 0.8 mm [0.780 ± 0.032 in] |

Lever Hinge Long With Steel Roller (176111)



| Operating Characteristics | |
|----------------------------|----------------------------------|
| Operating Force | 100g [0.22 lb] |
| Release Force (min) | 22g [0.05 lb] |
| Pre-Travel (max) | 7.1 mm [0.280 in] |
| Over-Travel (min) | 4 mm [0.157 in] |
| MD (max) | 1.02 mm [0.040 in] |
| FP (max) | 36.5 mm [1.437 in] |
| Operating Position | 30.2 ± 0.4 mm [1.189 ± 0.016 in] |

Operating Characteristics definitions:

- Operating Force: Force required to cause "snap."
- Release Force: Force still applied to plunger or lever when the contacts snap back from the operated position.
- Pre-Travel: Distance from free position to operating position.
- Over-Travel: The extra travel for the plunger or lever to travel safely beyond the operating position.
- MD (Max): Maximum differential (plunger or lever travel from the point where the contacts snap to the point where they snap back).
- FP (max): Extra distance relative to mounting holes that the plunger or lever travels to the snap position, including loose flex.
- Operating Position: Distance relative to mounting holes that the plunger or lever travels to the snap position.

IDEM Micro Switches, Lever Series

Operating Characteristics (continued)

Lever Hinge With Steel Roller (176112)



| Operating Characteristics | |
|----------------------------|----------------------------------|
| Operating Force | 160g [0.35 lb] |
| Release Force (min) | 42g [0.09 lb] |
| Pre-Travel (max) | 2.7 mm [0.106 in] |
| Over-Travel (min) | 2.4 mm [0.094 in] |
| MD (max) | 0.5 mm [0.020 in] |
| FP (max) | 32.5 mm [1.280 in] |
| Operating Position | 30.2 ± 0.4 mm [1.189 ± 0.016 in] |

One-way Horizontal Hinge Lever With Steel Roller (176113)



| Operating Characteristics | |
|----------------------------|----------------------------------|
| Operating Force | 170g [0.37 lb] |
| Release Force (min) | 42g [0.09 lb] |
| Pre-Travel (max) | 2.7 mm [0.106 in] |
| Over-Travel (min) | 2.4 mm [0.094 in] |
| MD (max) | 0.51 mm [0.020 in] |
| FP (max) | 43.6 mm [1.717 in] |
| Operating Position | 41.3 ± 0.8 mm [1.626 ± 0.031 in] |

Terminal Enclosure for IDEM Micro Limit Switches (176000)



| Operating Characteristics |
|--|
| Designed to cover and protect all varieties of IDEM Micro Switches |

Operating Characteristics definitions:

- Operating Force: Force required to cause "snap."
- Release Force: Force still applied to plunger or lever when the contacts snap back from the operated position.
- Pre-Travel: Distance from free position to operating position.
- Over-Travel: The extra travel for the plunger or lever to travel safely beyond the operating position.
- MD (Max): Maximum differential (plunger or lever travel from the point where the contacts snap to the point where they snap back).
- FP (max): Extra distance relative to mounting holes that the plunger or lever travels to the snap position, including loose flex.
- Operating Position: Distance relative to mounting holes that the plunger or lever travels to the snap position.

IDEM Micro Switches General Specifications

| IDEM Micro Switches General Specifications | |
|--|---|
| Environmental | |
| Degree of Protection | None |
| Temperature Range | -25 to 80°C [-13 to 176°F] |
| Mechanical Ratings | |
| Mechanical Life | 1,000,000 operations minimum |
| Switch Body | Phenolic (composite resin) |
| Enclosure (Part Number 176000) | Polyvinyl chloride (PVC) |
| Contact Blocks Rating | |
| Contact Resistance | 15m Ohms max (initial) |
| Electrical Ratings | 0.5 A 125VDC 0.25 A 250VDC 0.125 hp 125VDC 0.25 hp 250VDC 20A @ 250VAC EN61058-1 and 15A @ 125VAC or 250VAC UL61058-1 |
| | Make: 0.25 A at 120VDC; 0.125 A at 240VDC |
| Dielectric Strength | Between terminals of same polarity 100VAC (50/60 Hz for 1 minute) |
| Electrical Life | 100,000 operations at full load |
| Wiring Connections | M4x5.5 terminal screw |
| Torque Requirements | Mounting screws: 1.5 N•m [1.11 lb•ft] Connector screws: 1.0 to 1.2 N•m [0.74 to 0.89 lb•ft] |
| Agency Approvals * | cULus E482215 (Exception: 176000 not UL listed) CE/Reach compliant |

*To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.