



# 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
<a href="#">176102-1</a>	\$15.50	<a href="#">PDF</a>	Lever	(1) N.O. / (1) N.C.	4 mm [0.157 in]	1.6 mm [0.063 in]	141g [0.31 lb]
<a href="#">176102-5</a>	\$57.00	<a href="#">PDF</a>	Lever (pack of 5)				
<a href="#">176103-1</a>	\$16.00	<a href="#">PDF</a>	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]
<a href="#">176103-5</a>	\$63.00	<a href="#">PDF</a>	Lever with steel roller (pack of 5)				
<a href="#">176109-1</a>	\$16.50	<a href="#">PDF</a>	Lever hinge long	(1) N.O. / (1) N.C.	10 mm [0.394 in]	5.6 mm [0.220 in]	70g [0.15 lb]
<a href="#">176109-5</a>	\$63.00	<a href="#">PDF</a>	Lever hinge long (pack of 5)				
<a href="#">176110-1</a>	\$16.00	<a href="#">PDF</a>	Lever hinge	(1) N.O. / (1) N.C.	7 mm [0.276 in]	3.5 mm 0.138 in	90g [0.2 lb]
<a href="#">176110-5</a>	\$63.00	<a href="#">PDF</a>	Lever hinge (pack of 5)				
<a href="#">176111-1</a>	\$17.00	<a href="#">PDF</a>	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]
<a href="#">176111-5</a>	\$66.00	<a href="#">PDF</a>	Lever hinge long with steel roller (pack of 5)				
<a href="#">176112-1</a>	\$17.00	<a href="#">PDF</a>	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]
<a href="#">176112-5</a>	\$65.00	<a href="#">PDF</a>	Lever hinge with steel roller (pack of 5)				
<a href="#">176113-1</a>	\$19.50	<a href="#">PDF</a>	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]
<a href="#">176113-5</a>	\$74.00	<a href="#">PDF</a>	One-way horizontal hinge lever with steel roller (pack of 5)				

<a href="#">176000-1</a>	\$2.25	<a href="#">PDF</a>	IDEM terminal enclosure, PVC. For use with IDEM micro limit switches.
<a href="#">176000-5</a>	\$10.00	<a href="#">PDF</a>	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	
<b>Operating Force</b>	141g [0.31 lb]
<b>Release Force (min)</b>	14g [0.03 lb]
<b>Pre-Travel (max)</b>	4 mm [0.157 in]
<b>Over-Travel (min)</b>	1.6 mm [0.063 in]
<b>MD (max)</b>	1.3 mm [0.051 in]
<b>FP (max)</b>	20.8 mm [0.819 in]
<b>Operating Position</b>	17.4 ± 0.8mm [0.685 ± 0.031 in]

**Lever With Steel Roller (176103)**

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

**Lever Hinge Long (176109)**

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

**Lever Hinge (176110)**

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

**Lever Hinge Long With Steel Roller (176111)**

Operating Characteristics	
<b>Operating Force</b>	100g [0.22 lb]
<b>Release Force (min)</b>	22g [0.05 lb]
<b>Pre-Travel (max)</b>	7.1 mm [0.280 in]
<b>Over-Travel (min)</b>	4 mm [0.157 in]
<b>MD (max)</b>	1.02 mm [0.040 in]
<b>FP (max)</b>	36.5 mm [1.437 in]
<b>Operating Position</b>	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	
<b>Operating Force</b>	160g [0.35 lb]
<b>Release Force (min)</b>	42g [0.09 lb]
<b>Pre-Travel (max)</b>	2.7 mm [0.106 in]
<b>Over-Travel (min)</b>	2.4 mm [0.094 in]
<b>MD (max)</b>	0.5 mm [0.020 in]
<b>FP (max)</b>	32.5 mm [1.280 in]
<b>Operating Position</b>	30.2 ± 0.4 mm [1.189 ± 0.016 in]

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

Operating Characteristics	
<b>Operating Force</b>	170g [0.37 lb]
<b>Release Force (min)</b>	42g [0.09 lb]
<b>Pre-Travel (max)</b>	2.7 mm [0.106 in]
<b>Over-Travel (min)</b>	2.4 mm [0.094 in]
<b>MD (max)</b>	0.51 mm [0.020 in]
<b>FP (max)</b>	43.6 mm [1.717 in]
<b>Operating Position</b>	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	
<b>Environmental</b>	
<b>Degree of Protection</b>	None
<b>Temperature Range</b>	-25 to 80°C [-13 to 176°F]
<b>Mechanical Ratings</b>	
<b>Mechanical Life</b>	1,000,000 operations minimum
<b>Switch Body</b>	Phenolic (composite resin)
<b>Enclosure (Part Number 176000)</b>	Polyvinyl chloride (PVC)
<b>Contact Blocks Rating</b>	
<b>Contact Resistance</b>	15m Ohms max (initial)
<b>Electrical Ratings</b>	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
<b>Dielectric Strength</b>	Between terminals of same polarity 100VAC (50/60 Hz for 1 minute)
<b>Electrical Life</b>	100,000 operations at full load
<b>Wiring Connections</b>	M4x5.5 terminal screw
<b>Torque Requirements</b>	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]
<b>Agency Approvals *</b>	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.