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***	***Actuator Type***	***Snap Action Contacts***	***Pretravel (max)***	***Over Travel***	***Force to Operate Contacts***
176102-1	$9.00	Lever	1 N.O., 1 N.C.	4 mm (0.157 in)	1.6 mm (0.063 in)	141g (0.31 lb)
176102-5	$42.00	Lever (pack of 5)				
176103-1	$9.75	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	$46.00	Lever with steel roller (pack of 5)				
176109-1	$9.75	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	$46.00	Lever hinge long (pack of 5)				
176110-1	$9.75	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	$46.00	Lever hinge (pack of 5)				
176111-1	$10.50	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	$49.00	Lever hinge long with steel roller (pack of 5)				
176112-1	$10.00	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	$48.00	Lever hinge with steel roller (pack of 5)				
176113-1	$11.50	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	$54.00	One-way horizontal hinge lever with steel roller (pack of 5)				

176000-1	$1.50	Terminal enclosure for IDEM micro limit switches. Polyvinyl chloride (PVC).
176000-5	$7.50	Terminal enclosure for IDEM micro limit switches (pack of 5). Polyvinyl chloride (PVC).

176102-1

176103-1

176109-1

176110-1

176111-1

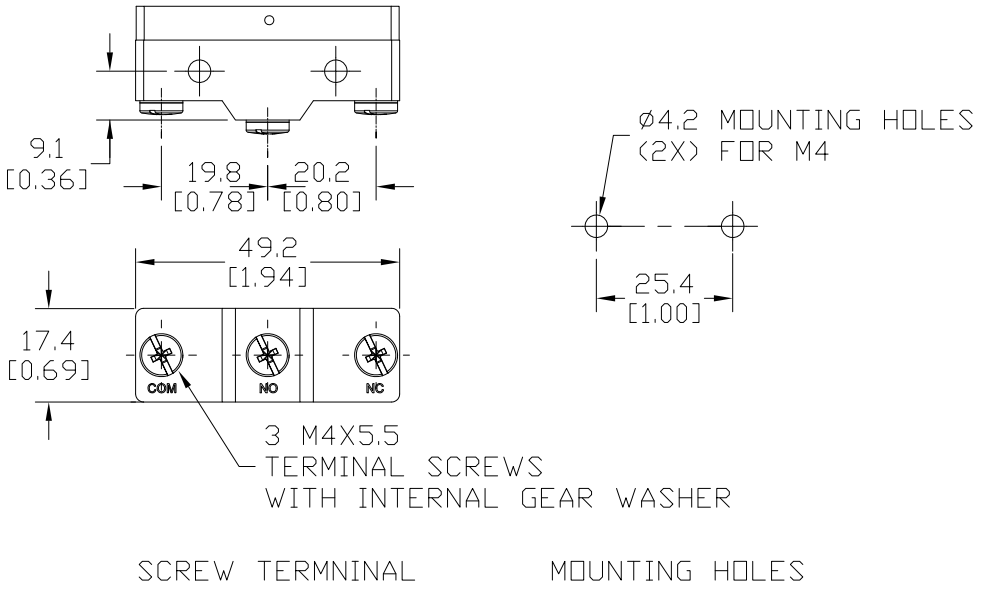
176112-1

176113-1

176000-1

IDEM Micro Switches, Lever Series

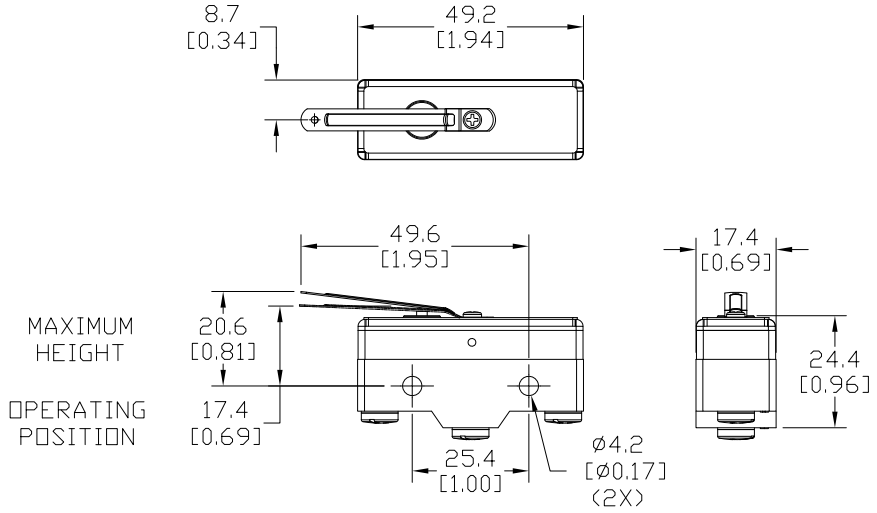
Screw Terminal and Mounting Holes Dimensions (mm [inches])



Operating Characteristics and Dimensions (mm [inches])

Micro Switch – 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)



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.

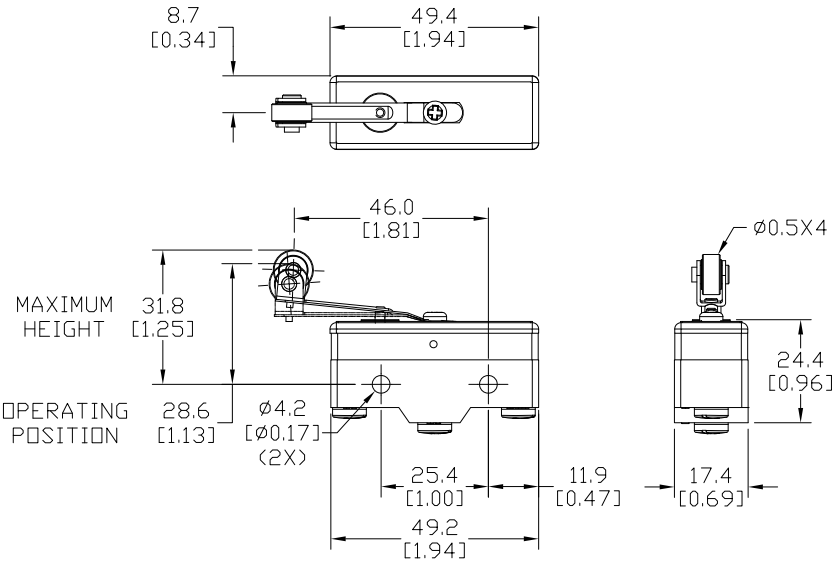
See our website www.AutomationDirect.com for complete engineering drawings.

IDEM Micro Switches, Lever Series

Operating Characteristics and Dimensions (mm [inches]), continued

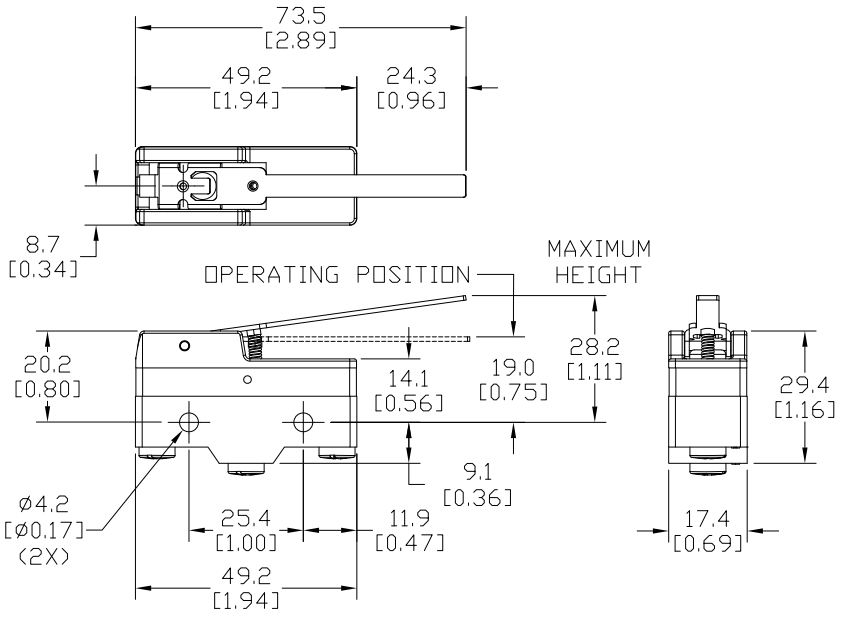
Micro Switch – Lever With Steel Roller (176103)

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)



Micro Switch – 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)



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.

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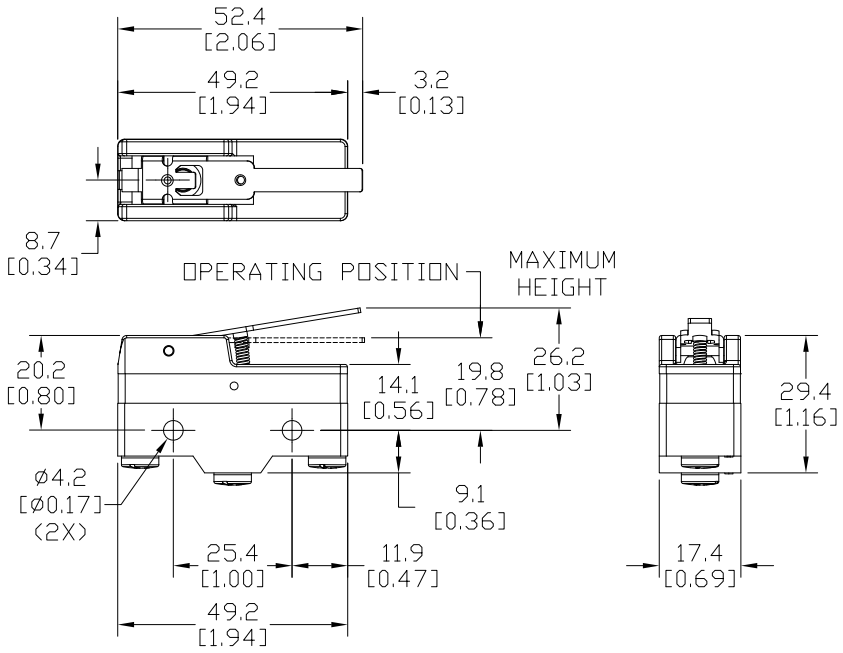
IDEM Micro Switches, Lever Series

Operating Characteristics and Dimensions (mm [inches]), continued

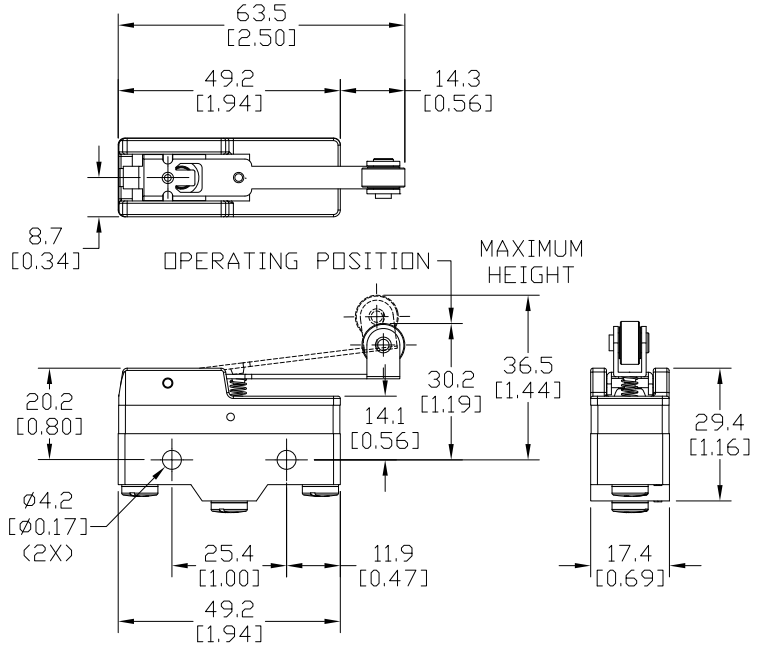
Micro Switch – Lever Hinge (176110)

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)



Micro Switch – 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.

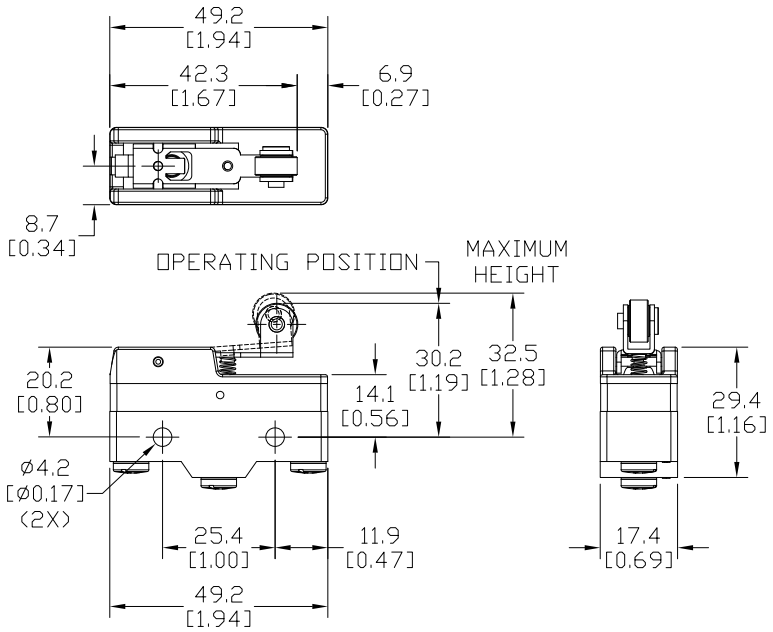
See our website www.AutomationDirect.com for complete engineering drawings.

IDEM Micro Switches, Lever Series

Operating Characteristics and Dimensions (mm [inches]), continued

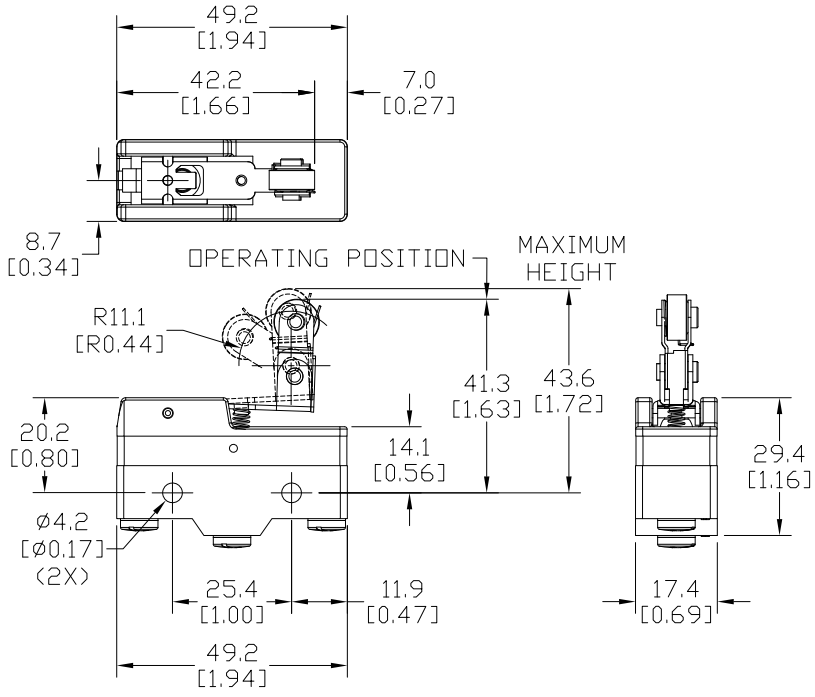
Micro Switch – Lever Hinge With Steel Roller (176112)

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)



Micro Switch – 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)



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.

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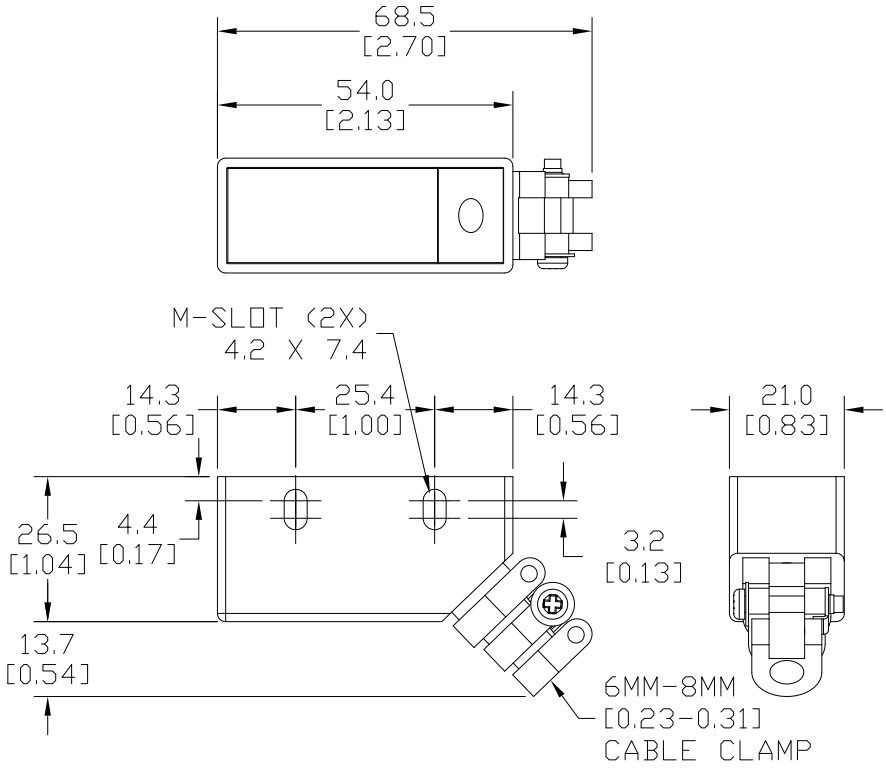
IDEM Micro Switches, Lever Series

Operating Characteristics and Dimensions (mm [inches]), continued

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.

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IDEM Micro Switches General Specifications

Environmental	
Degree of Protection	None
Temperature Range	-25°C to 80°C (-13°F 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 482215 (Exception: 176000 not UL listed)	
CE/Reach compliant	