

TH series

Proportional single axis throttle controllers •
non-contacting Hall effect technology



DISTINCTIVE FEATURES

Friction hold

Single or redundant outputs



ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature: -25 °C to +70 °C (-13 °F to +158 °F)
- Storage Temperature: -40 °C to +70 °C (-40 °F to +158 °F)
- Above Panel Sealing: Up to IP63 (subject to handle configuration)
- EMC Immunity Level: EN61000-4-3: 2006
- EMC Emissions Level: EN61000-4-8: 2009
- ESD: EN61000-4-2: 2008



ELECTRICAL SPECIFICATIONS

- Supply Voltage range: 5.00 VDC ± 0.01 VDC
- Reverse Polarity Max: -14.5 VDC
- Ratiometric Output Voltage: See options
- Transient Overvoltage max: 18 V
- Output Impedance: 6 Ω
- Return to Center Voltage Tolerance: ± 200 mV initial
- Current Consumption Max: 10 mA



MECHANICAL SPECIFICATIONS

- Operating Force: 7.7 N (1.70 lbf)
- Break Out Force: 6.6 N (1.50 lbf)
- Mechanical Angle of Movement: 70°
- Expected Life: 10 million lifecycles
- Mass /weight: Varies
- Lever Action (centering): Friction

The company reserves the right to change specifications without notice.



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MATERIALS

- Body: Glass Filled Nylon
- Handles: Glass Filled Nylon

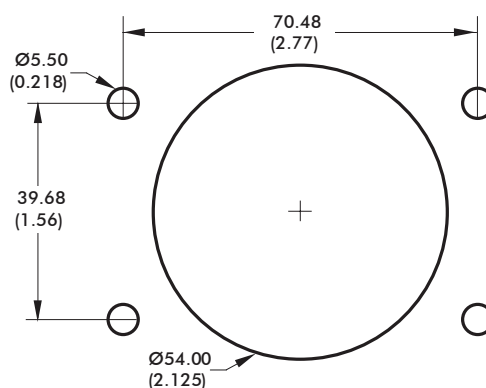


ELECTRICAL MICROSWITCH

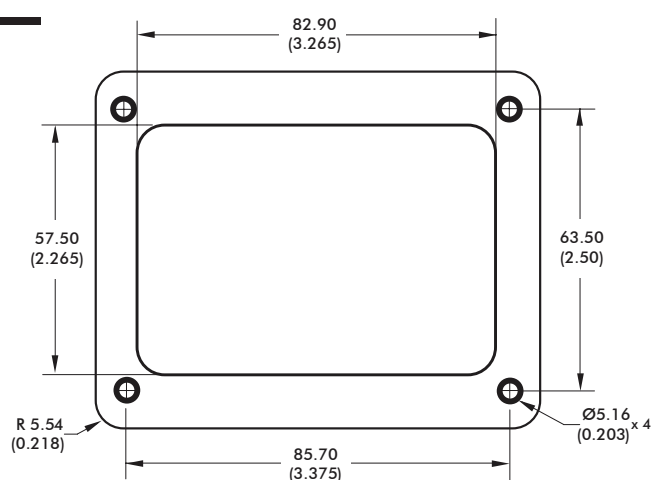
- Electrical rating: 0.1A at 30VDC (resistive load)
- Insulation resistance: 100 MΩ min (at 500VDC)
- Contact resistance: 100 MΩ max
- Dielectric strength: 600VAC, 50/60 Hz for 1 min between terminals of the same polarity; 1,000VAC, 50/60 Hz for 1 min between current-carrying metal parts and ground and between each terminal and non current-carrying metal parts
- Vibration resistance: Malfunction 10 to 55Hz, 1.5mm double amplitude
- Shock resistance: Destruction 1,000 m/s² (approx. 100G) max
Malfunction 200 m/s² (approx. 20G) max
- Durability: Mechanical 1,000,000 operations min. (60 operations/min)
Electrical 100,000 operations min. (30 operations/min)



REAR MOUNT CUT-OUT DIMENSIONS



DROP-IN MOUNTING CUT-OUT DIMENSIONS



* Operating force: configuration option «L»

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BUILD YOUR PART NUMBER

SERIES	HANDLE ¹	FRONT BUTTONS	TOP BUTTONS	SIDE BUTTONS	MICROSWITCHES
TH					
0	Ball Tip	0 None	0 None	0 None	0 None
1	Stock Grip	1 One	1 One	U One - upper position	1 -35°
2	Short Stock Grip		2 Two	L One - lower position	2 0°
5	Palm Grip ²			T Two	3 +35°
				D Operator presence paddle	4 -35° and 0°
				P Palm Grip (with 3 side buttons)	5 -35° and +35°
					6 0° and +35°
					7 -35°, 0 and +35°

MECHANICAL DETENTS	MOUNTING OPTIONS	OUTPUT OPTIONS	ADDITIONAL OPTIONS
0 None	R Rear mount	0 0V to 5V	E Environmental sealing ³
1 -35°	D Drop-in	1 0.5V to 4.5V	
2 0°		2 0.25V to 4.75V	
3 +35°		3 0V to 5V Sensor 1 0V to 5V Sensor 2	
4 -35° and 0°		4 0.5V to 4.5V Sensor 1 0.5V to 4.5V Sensor 2	
5 -35° and +35°			
6 0° and +35°			
7 -35°, 0 and +35°			

NOTES

¹ See information on standard configurations for throttle handles

² Palm Grip handle requires drop-in mounting

³ Environmental sealing level available up to IP63 and dependant on handle configuration



ABOUT THIS SERIES

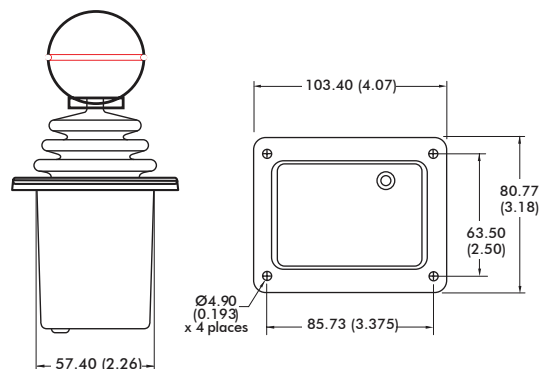
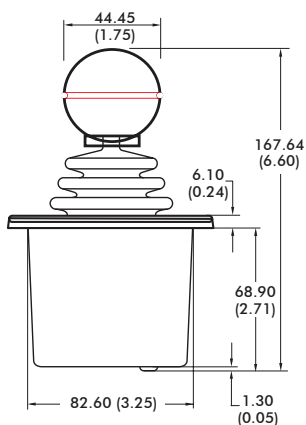


Mounting accessories : standard hardware includes: 1 gasket, 4 screws (10-32x3/4 Phillips flat head), 4 washers (#10 split lock), 4 nuts (10-332 hex). The gasket and mounting hardware are shipped off the throttle, in a separate bag.

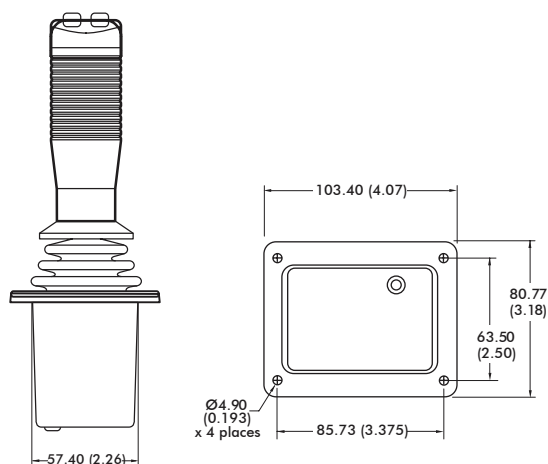
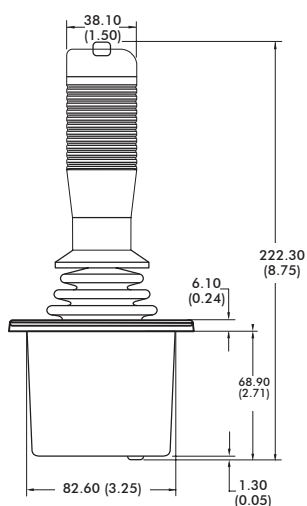
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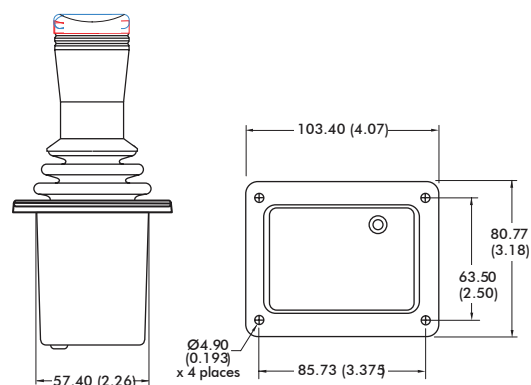
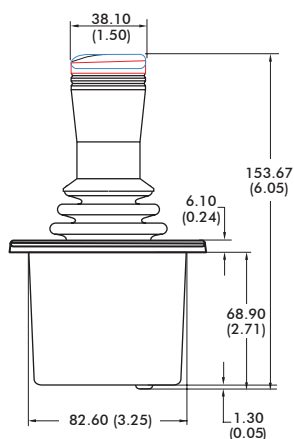
HANDLE 0 - BALL TIP



HANDLE 1 - STOCK GRIP



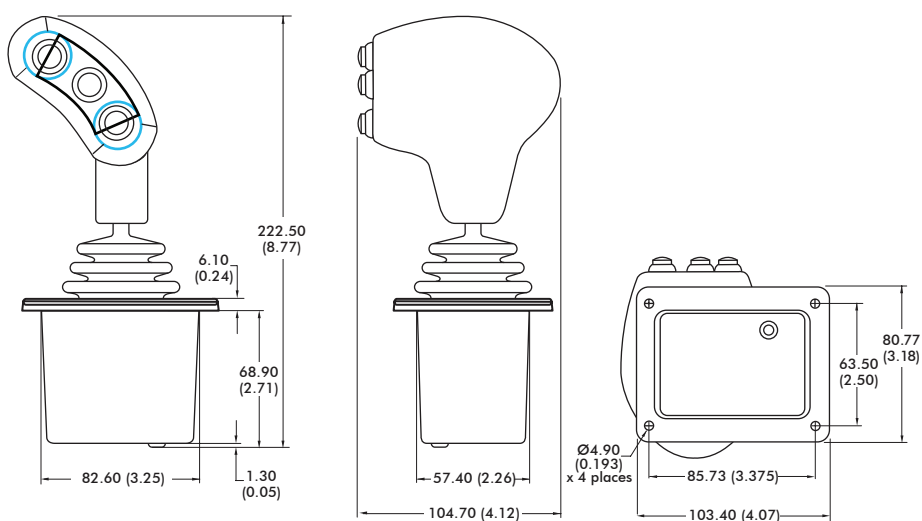
HANDLE 2 - SHORT STOCK GRIP



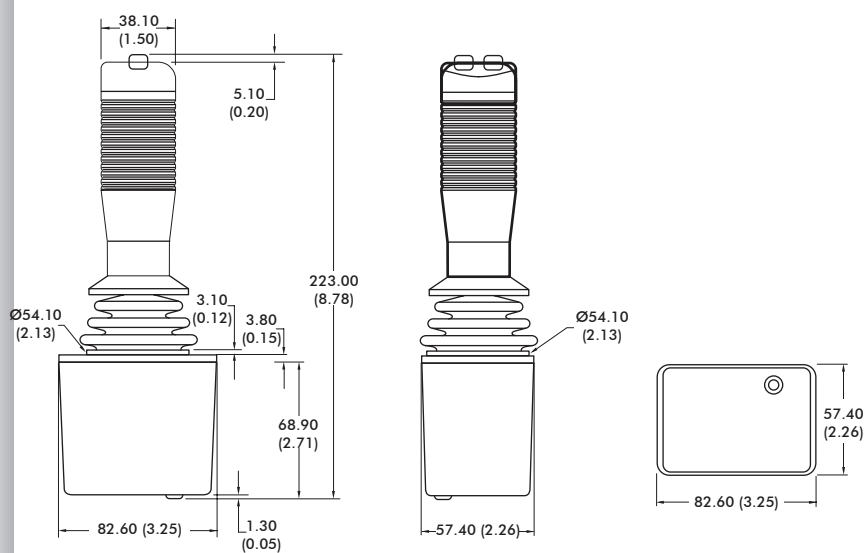
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HANDLE 5 - PALM GRIP



REAR MOUNT

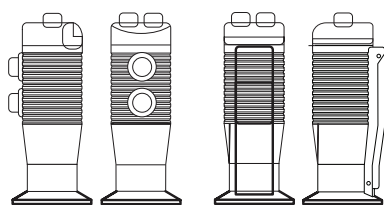


BOTTOM VIEW



HANDLE OPTIONS

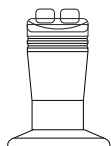
STOCK GRIP HANDLE (1)



Top & Side Buttons

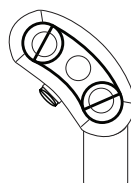
Operator Presence Paddle

SHORT STOCK GRIP HANDLE (2)



Top Buttons

PALM GRIP HANDLE



Front Button and Side Buttons

AVAILABLE BUTTON COLORS



White, Gray, Black, Red (4),
Orange, Yellow, Green, Blue,
Purple

- 1 The maximum possible configuration for the Stock Grip handle is up to 2 Top Buttons and 2 Side Buttons.
- 2 The maximum possible configuration for the Short Stock Grip handle is up to 2 Top Buttons. Operator Presence Paddle, Index Trigger & Side buttons not available with this handle.
- 3 For non-standard configurations, contact APEM's Product Support Team
- 4 If unspecified, the pushbuttons will have snap action momentary switches with red button caps.