



APEM's HS series is a single pole, MOM-OFF-MOM micro switching joystick. Numerous button styles are available and the HS series may be specified for 2-way, 4-way and 5-way operation. The HS series is available with a threaded case or may be configured for rear or drop-in panel mounting and is well suited for control grip integration.



#### KEY FEATURES

- 5-way with center pushbutton option**
- Positive tactile feedback**
- MOM-OFF-MOM action**
- Threaded bush mount option**
- Sealed to IP68 and IP69K**
- Connectorized housing**



# HS series

Sealed 5-way switch based miniature joystick

## OPTION SELECTION

HS						A
<b>SERIES</b>	<b>HANDLE</b>	<b>MOUNTING OPTIONS</b>	<b>TERMINATION</b>	<b>LIMITER</b>	<b>CONTACT</b>	
0 None	N None	1 1.00mm (0.039in) Pitch Molex Connector	2 2-way	S Silver Plated		
1 Castle	D Drop-in	2 1.00mm (0.039in) Pitch Molex Connector with 10" Mating Harness	4 4-way	G Gold Plated		
2 Winged Hat	R Rear Mount					
3 Conical	A Drop-in and Rear Mount					
4 Finger Tip	T Threaded Housing					
5 Round Jog						
6 Pushbutton						
7 Mushroom*						
8 Low Profile*						

\* = Not available with Threaded Housing (Mounting Option "T")

## SPECIFICATIONS

CURRENT/VOLTAGE RATING WITH RESISTIVE LOAD		
<b>CONTACT</b>	<b>RATING</b>	<b>LIFECYCLES</b>
Gold plated (G)	- 10mA @ 30VDC	- 200,000 operations
Silver plated (S)	- 100mA @ 30VDC	- 100,000 operations
Mechanical life	- 300,000 operations	
Insulation resistance	- Min 100MΩ (250VDC by insulation resistance meter)	
Voltage withstand	- 500VAC for 1 minute	
Contact resistance	- Max 200mΩ (by YHP4328A)	
Electrical function	- MOM-OFF-MOM	
MECHANICAL		
Operating Force	- 5.56N±0.53N (1.25lbf±0.12lbf) <sup>1</sup>	
Maximum Vertical Load	- 200N (45lbf) <sup>1</sup>	
Maximum Horizontal Load	- 150N (33.7lbf) <sup>1</sup>	
Lever travel	- 30° (±15°)	
Mass/weight	- 17g (0.0375lb) (Option HS1DXXXX)	
ENVIRONMENTAL		
Sealing	- IP68, IP69K <sup>2</sup>	
Operating temperature	- -25°C to +80°C (-13°F to +176°F)	
PUSHBUTTON SWITCH SPECIFICATIONS (Option 6 Handle)		
Electrical life	- 100,000 cycles	
Rating	- 50 mA, 12VDC	
Terminal	- Brass with silver plating	
Contact resistance	- 100 milliohms max.	
Insulation resistance	- 100 megohms min. 500VDC	
Dielectric strength	- 250VAC /1 minute	
Contact arrangement	- 1 pole 1 throw	
Operation force	- 1.5lbf	
Stop strength	- Max 3kgf vertical static load for 15 seconds	
Operating temperature	- -25°C to +70°C (-13°F to +158°F)	
Storage temperature	- -30°C to +85°C (-22°F to +185°F)	
TERMINATION		
Manufacturer	- Molex	
Manufacturer part number	- 501331-0607	
Product range	- Pico-Clasp™	
Circuits	- Six	
Pitch	- 1.00mm	
Mating connector	- Molex 501330-0600	

### NOTES:

- 1 Force applied to the top of the castle cap.
- 2 All options are IP68 and IP69K rated, however Drop-in mounting does not prevent panel ingress.

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## Sealed 5-way switch based miniature joystick

### SPECIFICATIONS - continued

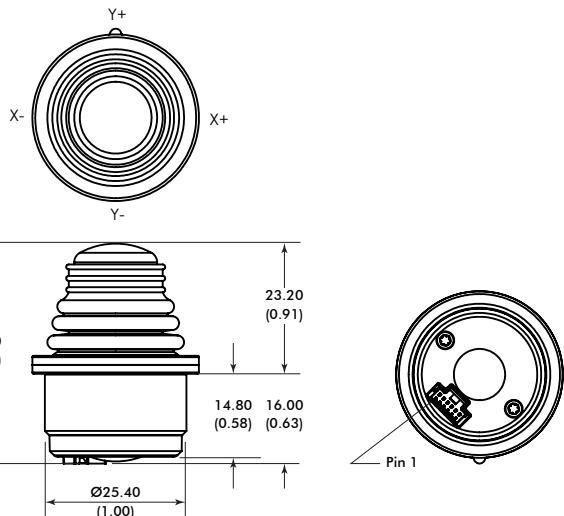
#### OPTIONAL MATING HARNESS<sup>1</sup>

Wire type	- 28AWG 25cm PTFE
Connector	- Molex 501330-0600

#### NOTE:

1 The HS Series tactile toggle switch is fitted with a six terminal Molex (501331-0607) connector. A mating harness is not included, but may be specified at the time of order for an additional charge. The 4-function harness is part number 505-508. The 5-function harness, necessary for the Option 6 Handle is part number 505-509.

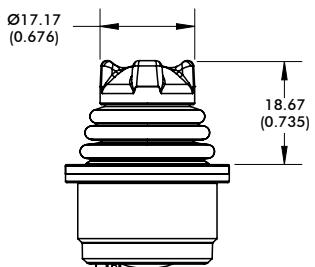
#### DIMENSIONAL DRAWINGS



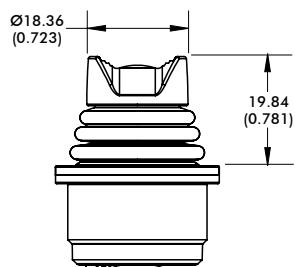
WIRING	
CONNECTOR POSITION	FUNCTION
1	Top Switch*
2	X+ Switch
3	Y+ Switch
4	X- Switch
5	Y- Switch
6	Common
* = Optional	

#### HANDLE OPTIONS

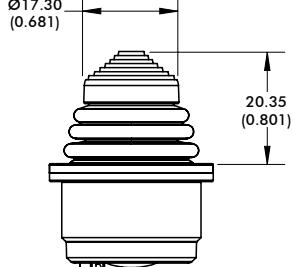
1. CASTLE



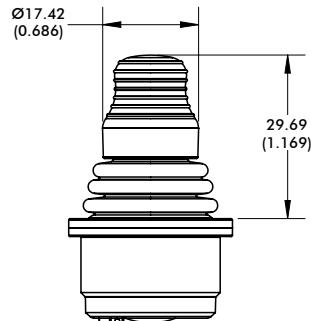
2. WINGED HAT



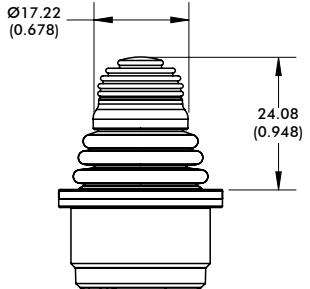
3. CONICAL



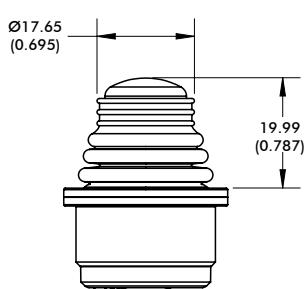
4. FINGER TIP



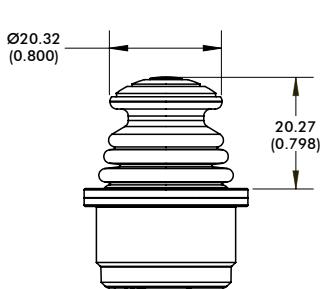
5. ROUND JOG



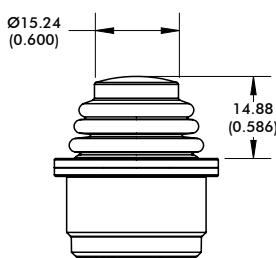
6. PUSHBUTTON



7. MUSHROOM



8. LOW PROFILE



NOTE: Dimensions are in mm/(inch)

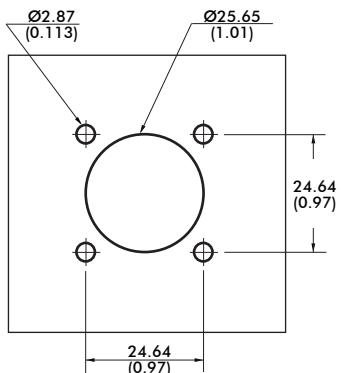
Note: The company reserves the right to change specifications without notice.

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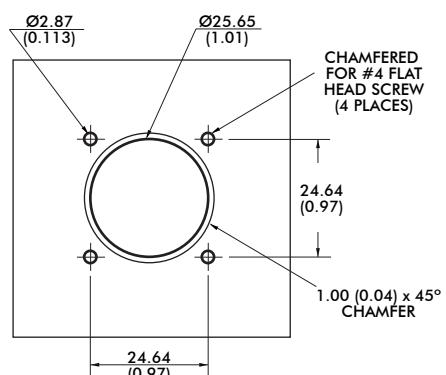
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## MOUNTING OPTIONS AND MOUNTING ACCESSORIES

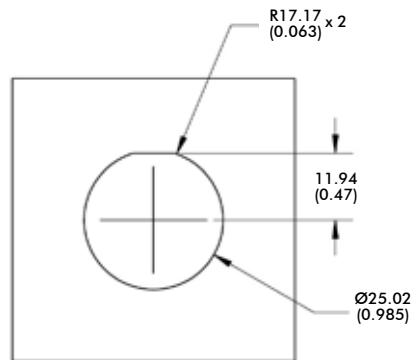
### PLASTIC HOUSING – DROP-IN OPTION CUTOUT DIMENSIONS



### PLASTIC HOUSING – REAR MOUNT OPTION CUTOUT DIMENSIONS



### METAL THREADED HOUSING – DROP-IN OPTION CUTOUT DIMENSIONS



#### NOTES:

- 1 The maximum panel thickness for the Rear Mount configuration is 2.032mm (0.08in).
- 2 The under panel depth for the Drop-in configuration is 16.02mm/(0.631in).
- 3 The under panel depth for the Metal Threaded Housing configuration is 14.55mm/(0.573in).
- 4 Dimensions are in mm/(inch).