

# HALL EFFECT SINGLE AXIS PADDLE

UP TO 5 MILLION CYCLE MECHANICAL LIFE, 14 OUTPUT OPTIONS



The HPW series, available with 14 output options, offers a self-centering single axis actuator that provides linear change in voltage output in either direction from center. Options include increasing or decreasing voltage output in either direction (from center position to the full travel position) with single or dual outputs in either direction. The HPW series without detent provides a five million cycle, full forward to full back life, and with detent (available with HPW-3) provides a two million cycle full forward to full back life. Electronics are sealed to IP68S, while offering outstanding EMI/RFI immunity.

## Features:

- Designed for grip, armrest & panel mounting
- Proven contactless analog output Hall effect technology
- 14 output options available
- Self-centering, single axis actuator
- Up to 5,000,000 mechanical life
- Electronics sealed to IP68S
- RoHS/WEEE/Reach compliant
- Optional soft touch coating available

### Standard Characteristics/Ratings:

MECHANICAL:				
<b>Mechanical Life with Detent:</b>	Up to 2,000,000 cycles full forward to full back			
<b>Mechanical Life without Detent:</b>	Up to 5,000,000 cycles full forward to full back			
<b>Travel:</b>	Full travel angle each direction from center to 25° typical			
<b>Operating Force:</b>	HPW-1 is 4 oz typical @ 25° HPW-2 and HPW-3 are 3 oz typical @ 25°			
<b>Max Allowable Radial Load:</b>	30.0 lbs.			
ELECTRICAL RATINGS: Vcc = 5V @ 25°C Load = 1mA (4.7KΩ)				
Electrical	Units	Min	Typ	Max
Supply Voltage	VDC	4.5	5	5.5
Output Voltage Tolerance at Center (A, B, C, D, E, F, G & H)	VDC @ 5V Vcc	-0.25	N/A	+0.25
Output Voltage Tolerance at Center (J, K, L, M, N & P)	VDC @ 5V Vcc	-0.15	N/A	+0.15
Output Voltage Tolerance at Full Travel (see graph for output values)	VDC @ 5V Vcc	-0.25	N/A	+0.25
Supply Current Options A & D (B = 0, Vcc = 5V, Iout = 0)	mA	N/A	8	10
Supply Current All Other Options (B = 0, Vcc = 5V, Iout = 0)	mA	N/A	16	20
ENVIRONMENTAL:				
<b>Operating Temp Range:</b>	-40°C to +85°C			
<b>Electronic Enclosure:</b>	IP68S			
<b>Mechanical Enclosure:</b>	Unsealed			
<b>RFI/EMI:</b>	Withstand per SAE J1113			

## HPW PART NUMBER CODE

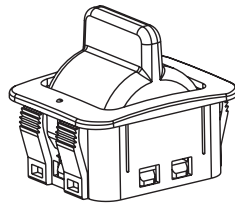
Button Style	Output 1*	Output 2**	Operating Force	Termination	Bezel Color	Button Color	Detent
1. Lever Style #1 (Paddle)	A. 2.5 +/- 2.0VDC B. 2.5 +/- 2.0VDC	NONE 2.5 +/- 2.0VDC	1.4 oz (HPW-1) 3 oz (HPW-2)	A. 22 AWG 18.3" Long, Stripped Ends B. 0.025" SQ. Pins, Phosphor Bronze Alloy, Tin Plated	1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None A. ±18°
2. Lever Style #2 (Standard Lever)	C. 2.5 +/- 2.0VDC D. 2.5 +/- 1.5VDC	2.5 +/- 2.0VDC NONE	3 oz (HPW-3)				
3. Lever Style #3 (Ergonomic Lever)	E. 2.5 +/- 1.5VDC F. 2.5 +/- 1.5VDC G. 1.0 - 4.0VDC H. 0.5 - 4.5VDC J. 2.5 +/- 2.0VDC K. 2.5 +/- 2.0VDC L. 2.5 +/- 2.0VDC M. 2.5 +/- 1.5VDC N. 2.5 +/- 1.5VDC P. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC 2.5 +/- 1.5VDC 1.0 - 4.0VDC 0.5 - 4.5VDC NONE*** 2.5 +/- 2.0VDC*** 2.5 +/- 2.0VDC*** NONE*** 2.5 +/- 1.5VDC*** 2.5 +/- 1.5VDC***					

\* Outputs are from the center position to the full travel position in each direction. Options A-F provide increasing voltage in Direction 1 and decreasing voltage in Direction 2 from a single output. Options G and H provide increasing voltages in both directions from two separate outputs.  
 \*\* Options B and E provide redundant output 2 which duplicates output 1. Options C and F provide redundant output 2 which is inverse of output 1.  
 \*\*\* Options J, K, L, M, N and P are identical to Options A, B, C, D, E and F respectively, except with a tighter center tolerance.

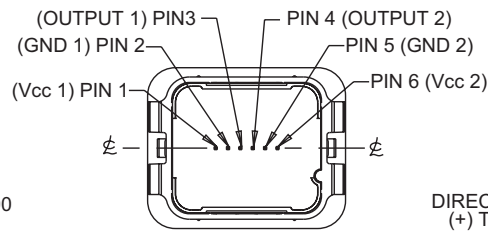
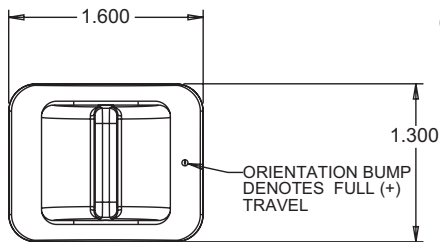
**STOP HERE** for HPW-1 and HPW-2 switches.

# HALL EFFECT SINGLE AXIS PADDLE

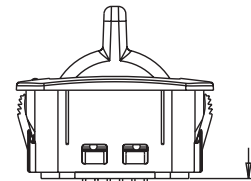
UP TO 5 MILLION CYCLE MECHANICAL LIFE, 14 OUTPUT OPTIONS



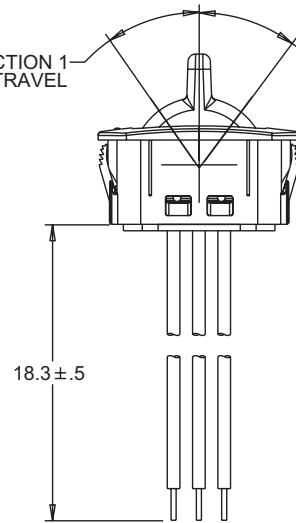
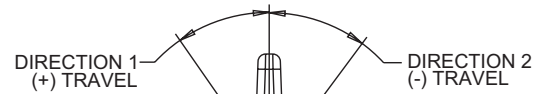
**LEVER STYLE #1  
(Paddle)**



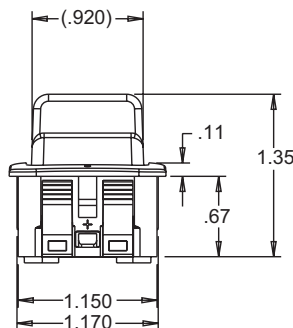
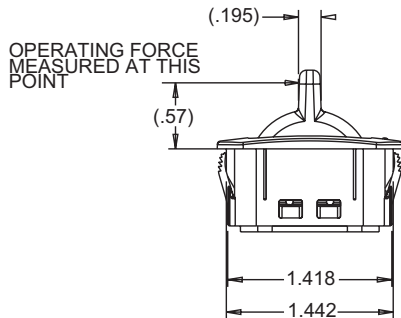
PINNED TERMINATION  
NOT ALL PINS ARE PRESENT  
IN ALL OUTPUT CONFIGURATIONS



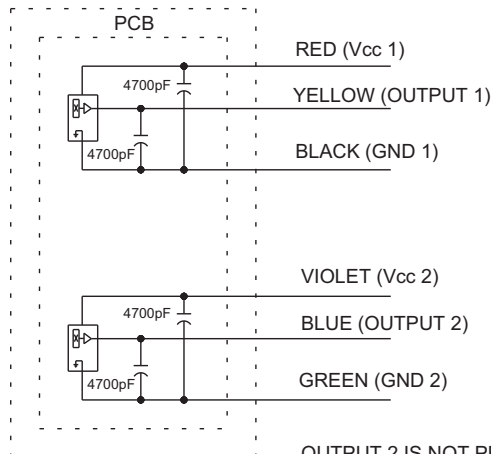
(.100) TYP. →  
← (.20) TYP.  
.025 ± .002 SQUARE



WIRED TERMINATION  
NOT ALL WIRES ARE PRESENT  
IN ALL OUTPUT CONFIGURATIONS



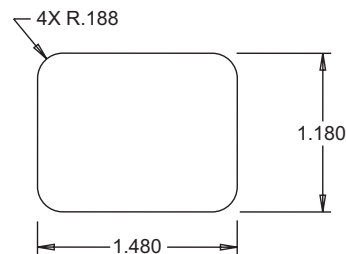
**ROCKER SWITCH**



OUTPUT 2 IS NOT PRESENT  
IN ALL CONFIGURATIONS

RECOMMENDED PANEL THICKNESS: 0.100 OPTIMUM THICKNESS  
(0.065 MIN. - 0.175 MAX.)

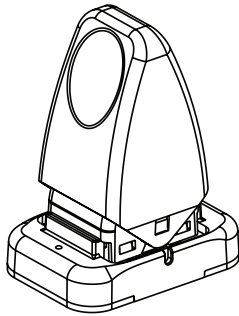
RECOMMENDED PANEL OPENING: 1.180 X 1.480 OPTIMUM  
(1.175/1.185 X 1.475/1.485)



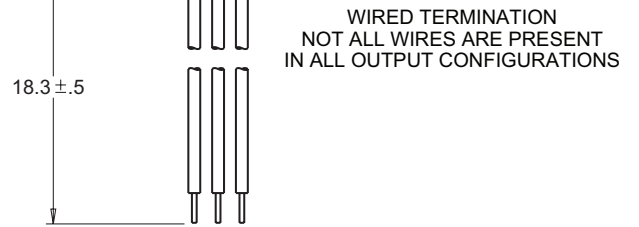
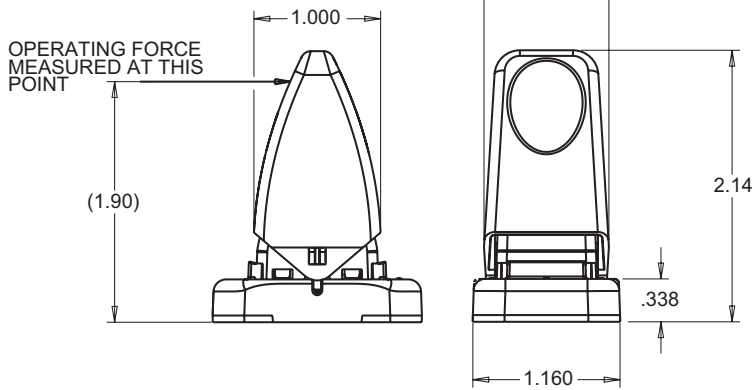
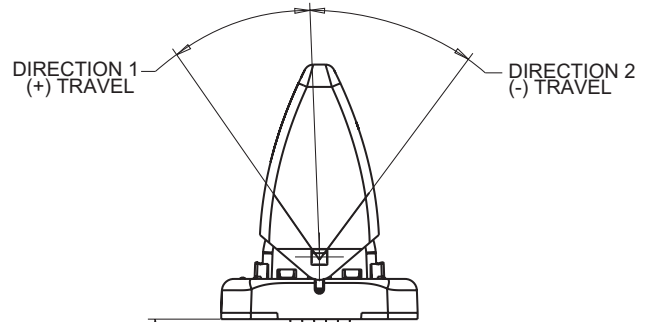
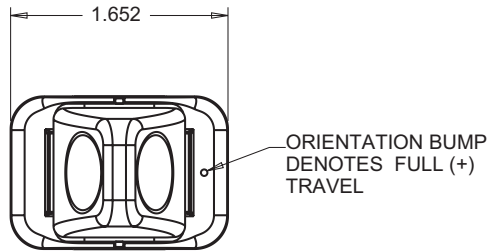
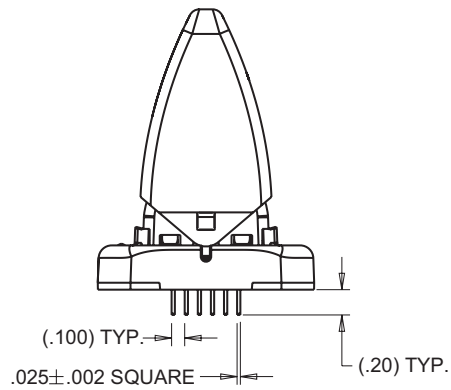
HALL EFFECT

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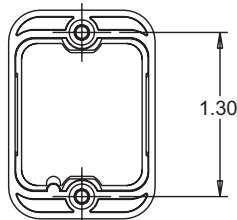
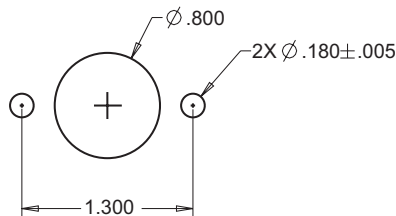
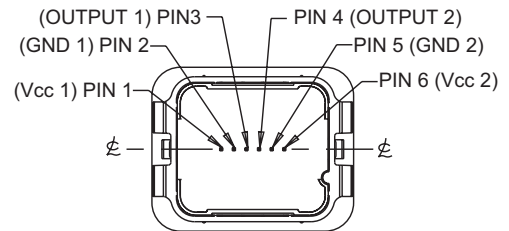


**LEVER STYLE #2**  
**(Standard Lever)**



RECOMMENDED PANEL THICKNESS: 0.130 OPTIMUM THICKNESS  
(0.125 MIN. - 0.135 MAX.)

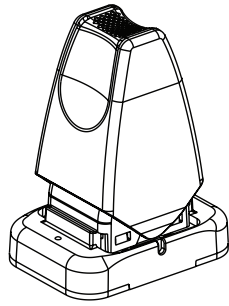
RECOMMENDED PANEL OPENING:  $\varnothing$  0.800 OPTIMUM  
(0.750 MIN. - 0.850 MAX)



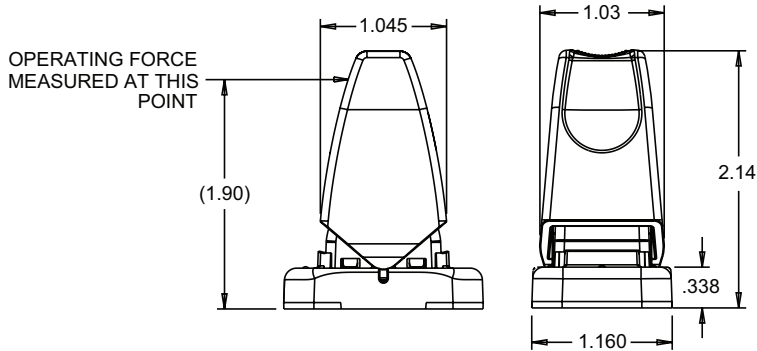
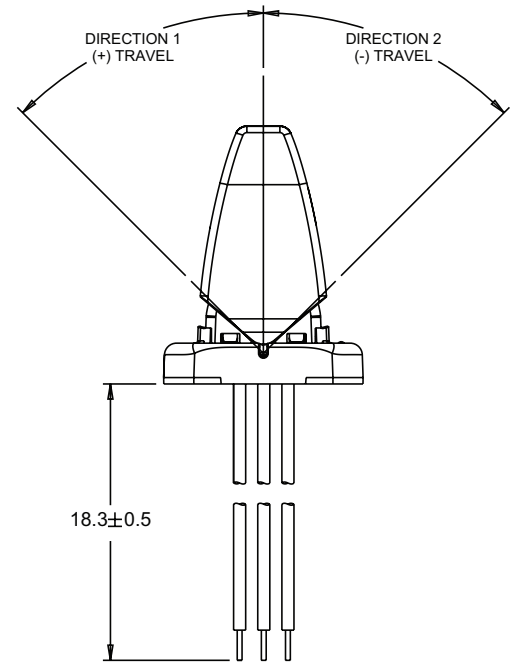
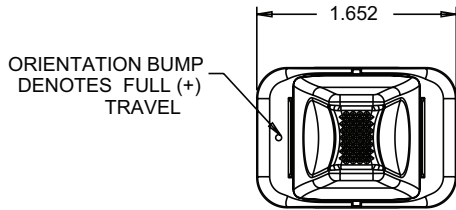
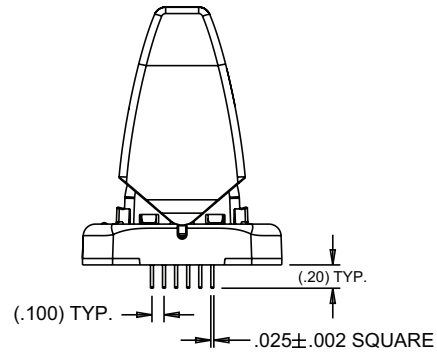
PINNED TERMINATION  
NOT ALL PINS ARE PRESENT  
IN ALL OUTPUT CONFIGURATIONS

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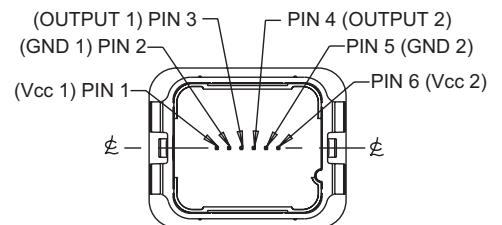
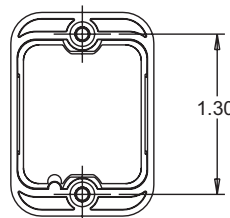
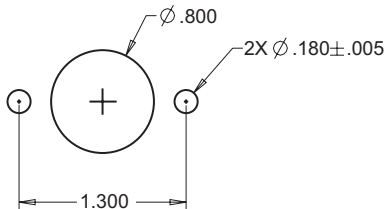
**LEVER STYLE #3**  
**(Ergonomic Lever)**



WIRED TERMINATION  
NOT ALL WIRES ARE PRESENT  
IN ALL OUTPUT CONFIGURATIONS

RECOMMENDED PANEL THICKNESS: 0.130 OPTIMUM THICKNESS  
(0.125 MIN. - 0.135 MAX.)

RECOMMENDED PANEL OPENING:  $\varnothing 0.800$  OPTIMUM  
(0.750 MIN. - 0.850 MAX)



PINNED TERMINATION  
NOT ALL PINS ARE PRESENT  
IN ALL OUTPUT CONFIGURATIONS

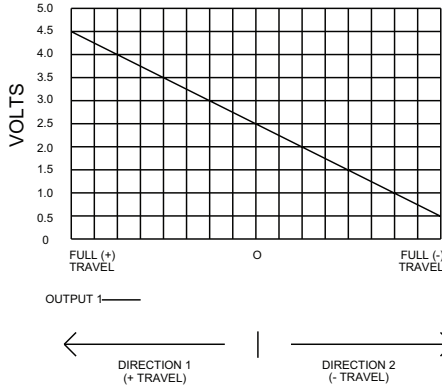
HALL EFFECT



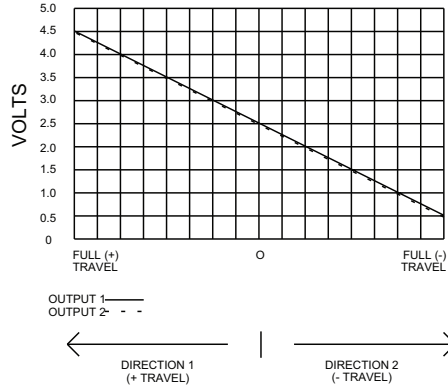
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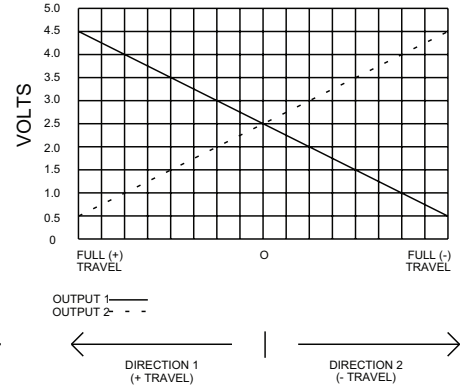
**OPTION A & J**



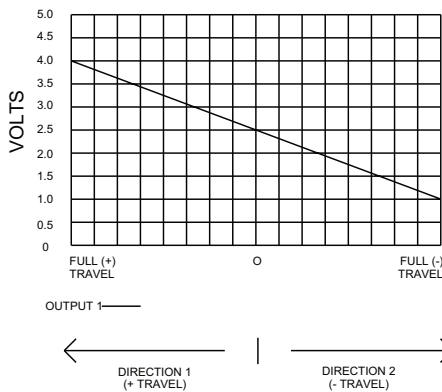
**OPTION B & K**



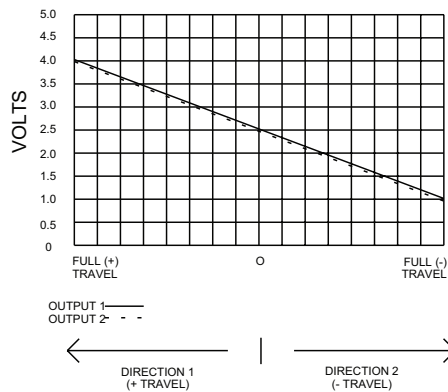
**OPTION C & L**



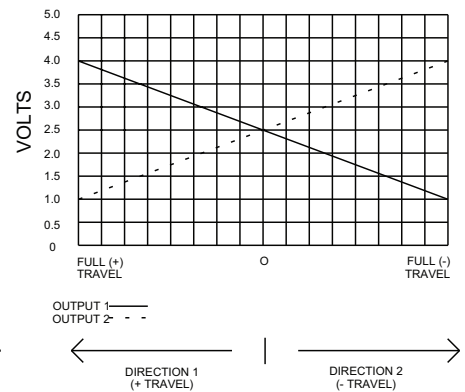
**OPTION D & M**



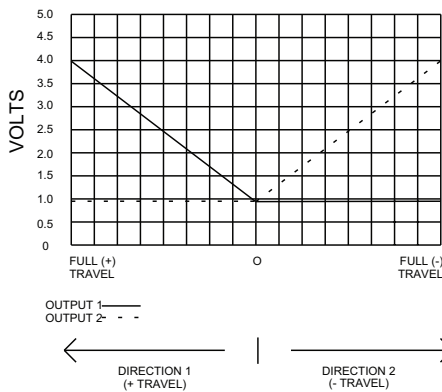
**OPTION E & N**



**OPTION F & P**



**OPTION G**



**OPTION H**

