HALL EFFECT SINGLE AXIS PADDLE

UP TO 5 MILLION CYCLE MECHANICAL LIFE, 14 OUTPUT OPTIONS

HPW-1
Lever Style #1
(Paddle)

HPW-2
Lever Style #2
(Standard Lever)

HPW-3
Lever Style #3
(Ergonomic Lever)

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 compliant**
- **Optional soft touch coating available**

Standard Characteristics/Ratings:

MECHANICAL:

Mechanical Life with Detent:	Up to 2,000,000 cycles full forward to full back
Mechanical Life without Detent:	Up to 5,000,000 cycles full forward to full back
Travel:	Full travel angle each direction from center to 25° typical
Operating Force:	HPW-1 is 4 oz typical @ 25° HPW-2 and HPW-3 are 3 oz typical @ 25°
Max Allowable Radial Load:	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:

Operating Temp Range:	-40°C to +85°C
Electronic Enclosure:	IP68S
Mechanical Enclosure:	Unsealed
RFI/EMI:	Withstand per SAE J1113

HPW PART NUMBER CODE

HPW – X X X X X X X X

Button Style
1. Lever Style #1 (Paddle)
2. Lever Style #2 (Standard Lever)
3. Lever Style #3 (Ergonomic Lever)

Output 1*	Output 2**
A. 2.5 +/- 2.0VDC	NONE
B. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC
C. 2.5 +/- 2.0VDC	2.5 -/+ 2.0VDC
D. 2.5 +/- 1.5VDC	NONE
E. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC
F. 2.5 +/- 1.5VDC	2.5 -/+ 1.5VDC
G. 1.0 - 4.0VDC	1.0 - 4.0VDC
H. 0.5 - 4.5VDC	0.5 - 4.5VDC
J. 2.5 +/- 2.0VDC	NONE***
K. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC***
L. 2.5 +/- 2.0VDC	2.5 -/+ 2.0VDC***
M. 2.5 +/- 1.5VDC	NONE***
N. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC***
P. 2.5 +/- 1.5VDC	2.5 -/+ 1.5VDC***

Operating Force
1. 4 oz (HPW-1) 3 oz (HPW-2 and HPW-3)
2. 5 oz (HPW-2 and HPW-3)

Termination
A. 22 AWG 18.3" Long, Stripped Ends
B. 0.025" SQ. Pins, Phosphor Bronze Alloy, Tin Plated

Bezel Color
1. Red
2. Black
3. Orange
4. Yellow
5. Green
6. Blue
7. Violet
8. Gray
9. White

Button Color
1. Red
2. Black
3. Orange
4. Yellow
5. Green
6. Blue
7. Violet
8. Gray
9. White

Detent
N. None
A. ±18°

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

* 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.

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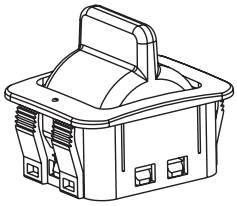
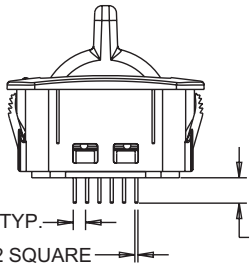
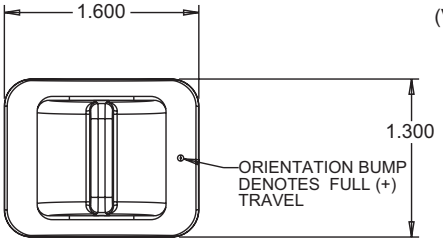
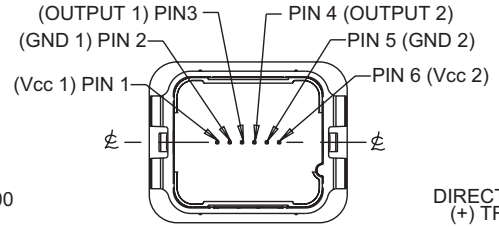


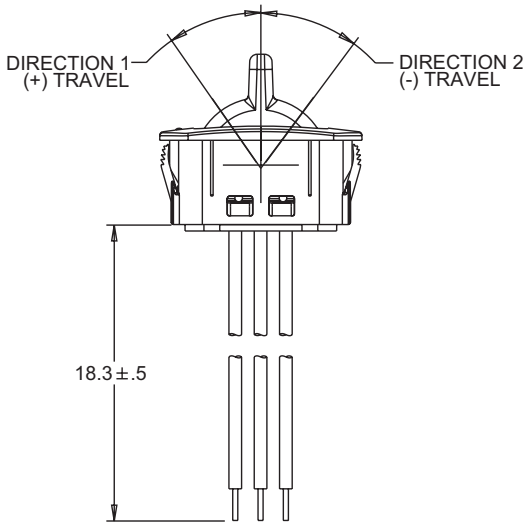
LEVER STYLE #1
(Paddle)



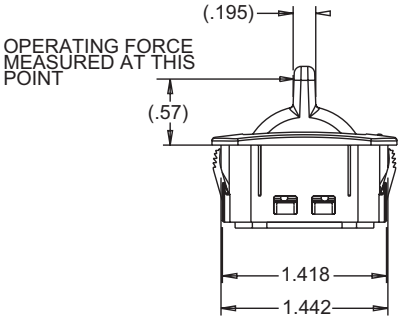


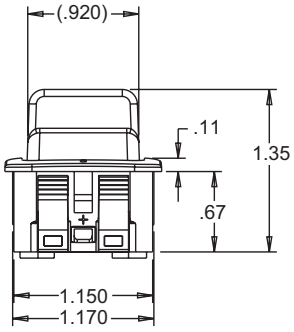


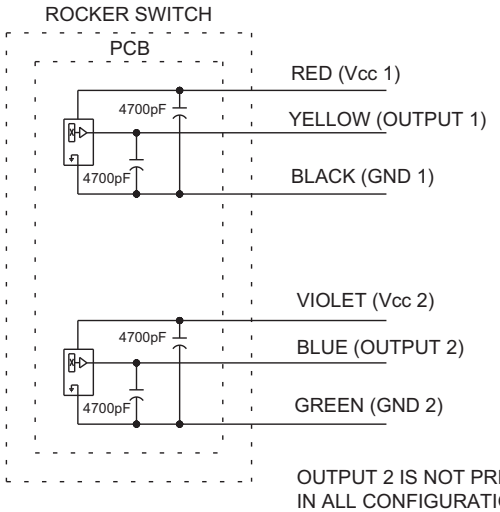
PINNED TERMINATION
NOT ALL PINS ARE PRESENT
IN ALL OUTPUT CONFIGURATIONS



WIRED TERMINATION
NOT ALL WIRES ARE PRESENT
IN ALL OUTPUT CONFIGURATIONS



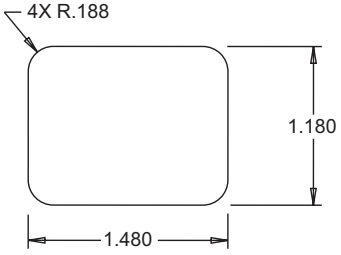




OUTPUT 2 IS NOT PRESENT
IN ALL CONFIGURATIONS

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)



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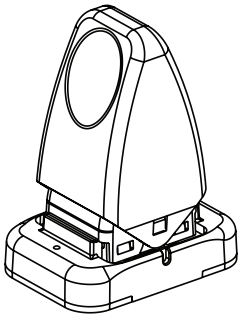
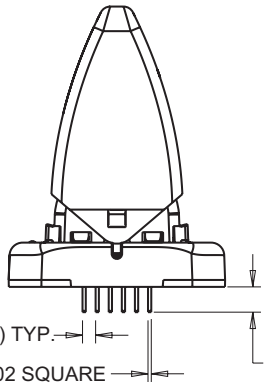
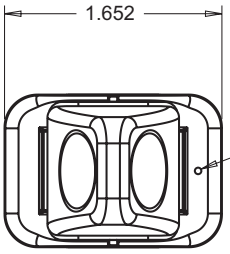
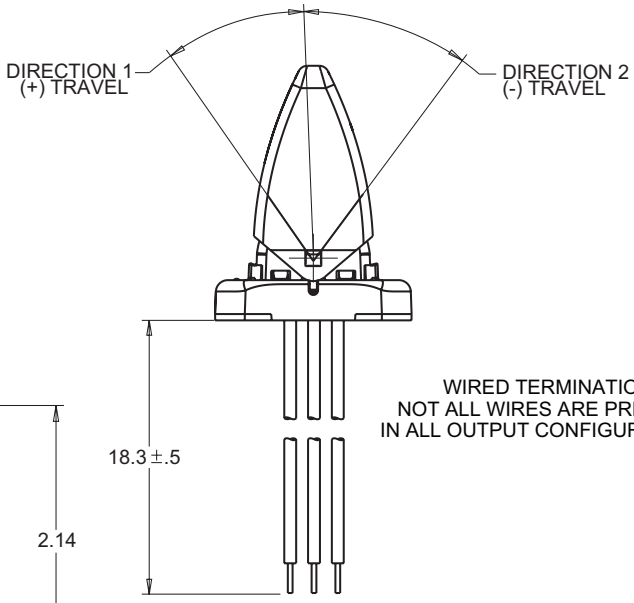
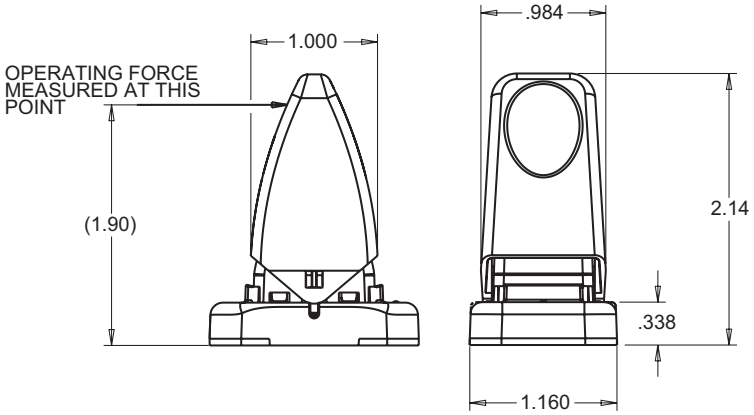


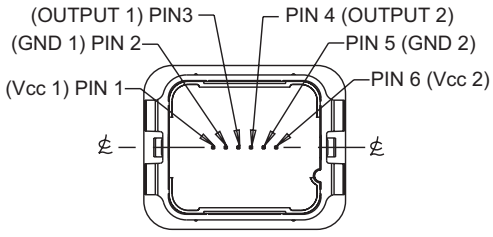
LEVER STYLE #2
(Standard Lever)







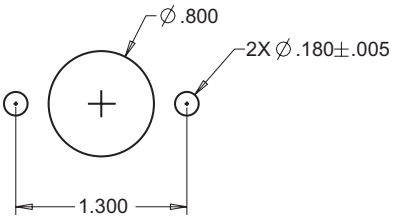


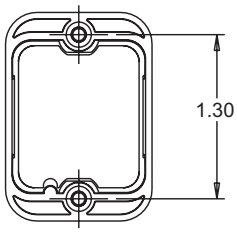


PINNED TERMINATION
NOT ALL PINS ARE PRESENT
IN ALL OUTPUT CONFIGURATIONS

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

RECOMMENDED PANEL OPENING: ∅0.800 OPTIMUM
(0.750 MIN. - 0.850 MAX)





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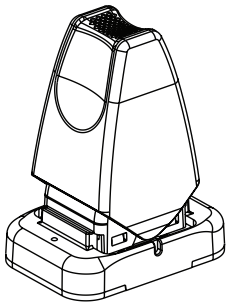
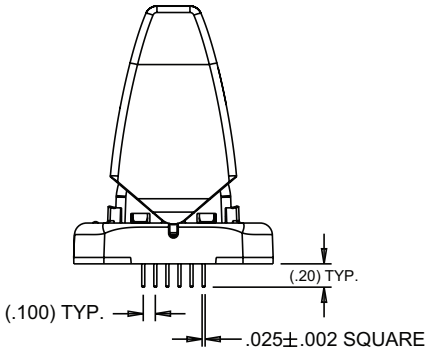
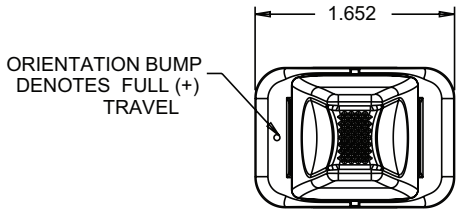
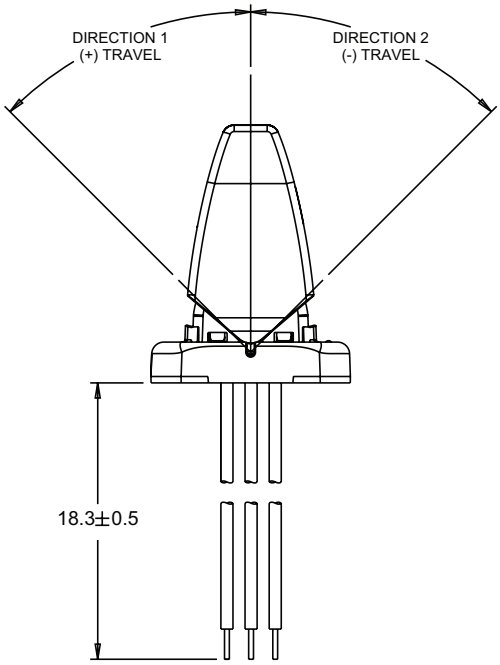


LEVER STYLE #3
(Ergonomic Lever)







WIRED TERMINATION
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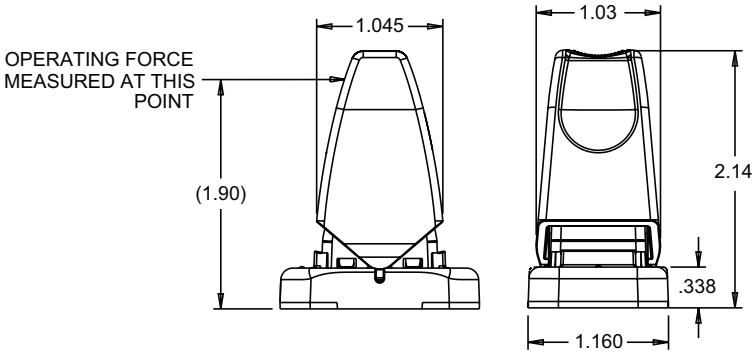
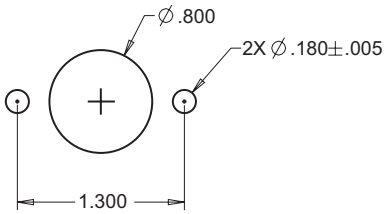
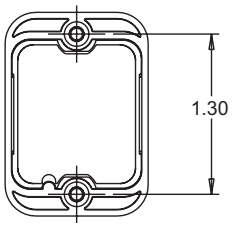
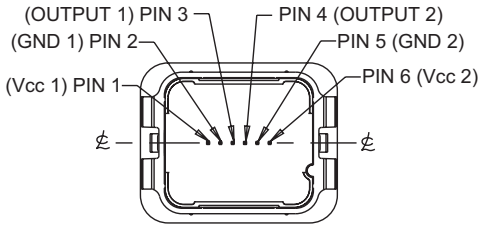


RECOMMENDED PANEL THICKNESS: 0.130 OPTIMUM THICKNESS
(0.125 MIN. - 0.135 MAX.)

RECOMMENDED PANEL OPENING: ∅0.800 OPTIMUM
(0.750 MIN. - 0.850 MAX)







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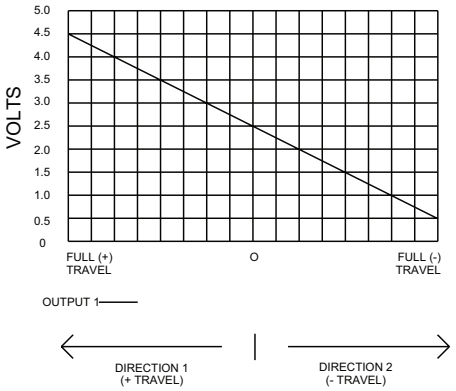
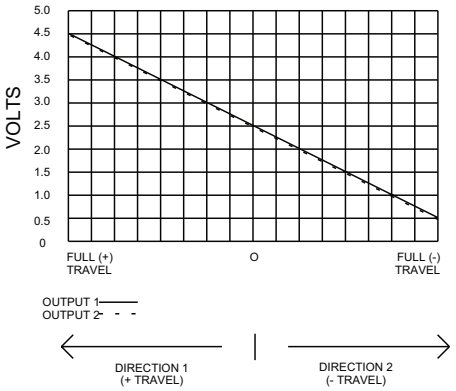
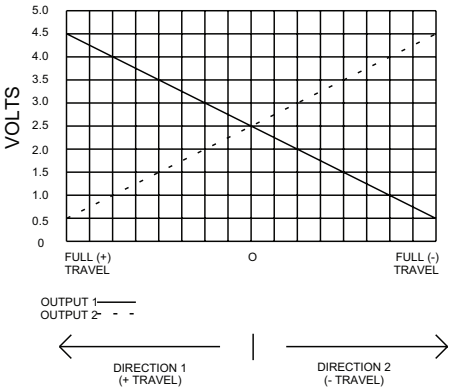
OPTION A & J



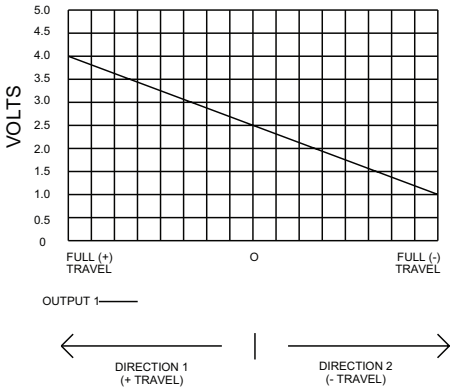
OPTION B & K



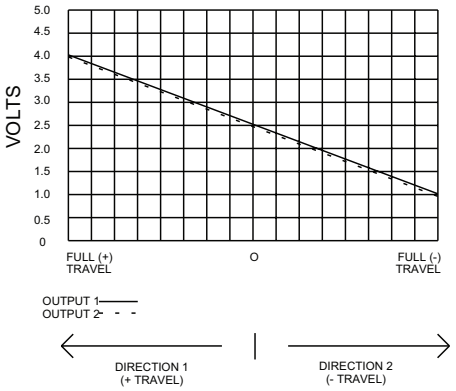
OPTION C & L



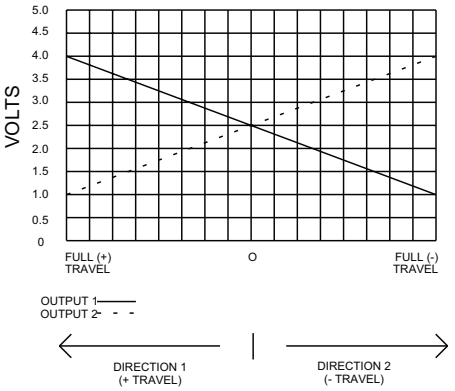
OPTION D & M



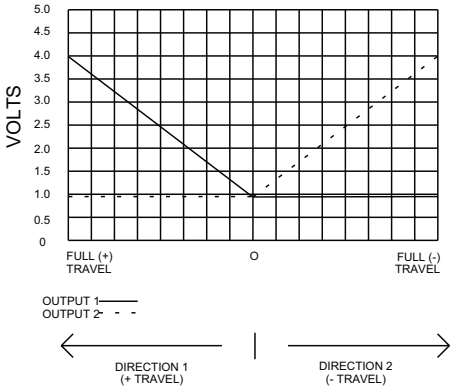
OPTION E & N



OPTION F & P



OPTION G



OPTION H