

PROPORTIONAL OUTPUT THUMBWHEEL

HTWS
SUBMINIATURE
THUMBWHEEL

SUBMINIATURE PROPORTIONAL OUTPUT THUMBWHEEL WITH OPTIONAL SEAL BOOT

The Hall Effect Proportional Output Thumbwheel is a smaller version of OTTO's HTW and HTWM. It is a spring return-to-center, single axis thumbwheel that provides a linear change in voltage output corresponding to actuator movement in either direction from center. Its smaller size makes it a perfect choice for use in grips or panels where space is limited. The HTWS is available with eight output options, including increasing and decreasing voltage output from the center position to the full travel position and single or dual (redundant) outputs.

The HTWS snaps into a 0.895" x 0.420" panel opening. Electronics are sealed to IP68S, and the optional sealing boot is offered for above panel mechanical protection against dust, sand, and water ingress. The HTWS offers a three million cycle rotational life, operate force options and excellent EMI/RFI immunity. It is available with flying wire leads or pin connection.

Features:

- 8 output options
- Spring return-to-center single axis actuator
- Installs into 0.895" x 0.420" panel opening
- Integrated snap-in retaining feature
- Sealing boot option
- 3 million cycle rotational life
- Electronics sealed to IP68S
- Excellent EMI/RFI immunity
- Flow through design
- RoHS compliant



Standard Characteristics/Ratings:

ELECTRICAL RATINGS: Rated at 5V @ 25°C Load = 1mA (4.7KΩ)

Electrical	Units	Min	Typ	Max
Supply Voltage	VDC	4.5	5.0	5.5
Output Voltage, Tolerance at Center	VDC @ 5V Vcc	-.25	N/A	+.25
Output Voltage, Tolerance Full Travel	VDC @ 5V Vcc	-.25	N/A	+.25
Supply Current Per Sensor B=0, Vcc=5V, Iout=0	mA	N/A	N/A	20

MECHANICAL:

Mechanical Life, Return to Center	Up to 3,000,000 full forward to full back (button styles 1, 2)			
Mechanical Life, Friction	Up to 1,000,000 full forward to full back (button styles 1, 2)			
Mechanical Life	Up to 1,000,000 full forward to full back (button styles 3, 4)			
Max Allowable Radial Load:	LBS	NA	NA	15

ENVIRONMENTAL:

Operating Temp Range:	-40°C to +85°C
Humidity:	96% RH, 70°C, 96 hours
Vibration:	Per MIL-810F minimum integrity
Electronics Enclosure:	IP58S (button styles 1, 2); IP68S (button style 3, 4)
Mechanical Enclosure:	Unsealed (button styles 1, 2)
Mechanical Enclosure (above panel)	IP68S (button styles 3, 4)
Mechanical Enclosure (below panel)	Unsealed (button styles 3, 4)
RFI:	ISO 11452-2 & ISO 11452-4 (Single Output) SAE J1113-21 & SAE J1113-22 (Dual Output)
EMI:	ISO 11452-8 (Single Output); SAE J1113-22 (Dual Output)
ESD (Powered and Un-Powered):	ISO 10605 (Single Output); SAE J1113-13 (Dual Output)

MATERIALS:

Button Top & Bezel:	Thermoplastic
Wires:	22 AWG
Boot:	Silicone Rubber, Black

HTWS PROPORTIONAL THUMBWHEEL PART NUMBER CODE

HTWS	-	X	X**	X	X	X	X****	X*****
Travel	Output 1	Output 2	Switch Action & Operate Force	Button Style	Termination	Bezel Color	Button Color	
1. +/-30°	A. 2.5 +/- 2.0VDC	NONE ①	1. 5 oz. typ.	1. Knurled Wheel	A. Wire Leads, 22 AWG UL 1569 (Single Output Only)	1. Red	1. Red	
2. +/-45°*	B. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC ②	2. 8.5 oz. typ.	2. Paddle Wheel	B. Wire Leads, 22 AWG UL 1569, (Dual Output Only)	2. Black	2. Black	
	C. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC ②	3. 12 oz. typ.*	3. Paddle Wheel with Seal Boot***		8. Gray	3. Orange	
	D. 2.5 +/- 1.5VDC	NONE ①	4. Friction-5 oz.	4. Thumb Paddle Wheel with Seal Boot***			4. Yellow	
	E. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC ②					5. Green	
	F. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC ②					6. Blue	
	G. 1.0 - 4.0VDC	1.0 - 4.0VDC ②					7. Violet	
	H. 0.5 - 4.5VDC	0.5 - 4.5VDC ②					8. Gray	
							9. White	

* Not available with Button Style "1".

Travel option 2 is not available with Operate Force option 3

** Outputs are from the center position to the full travel position in each direction. Options "A" "B" "C" "D" "E" "F" provide increasing voltage in direction 1 and decreasing voltage in direction 2 from a single output. Option "G" and "H" provide increasing voltages in both directions from two separate outputs. Option "B" and "E" provide redundant output 2 which duplicates output 1. Option "C" and "F" provide redundant output 2 which is inverse of output 1.

*** Available with Operate Force selection "3" only.

**** Contact Factory for additional bezel color choices.

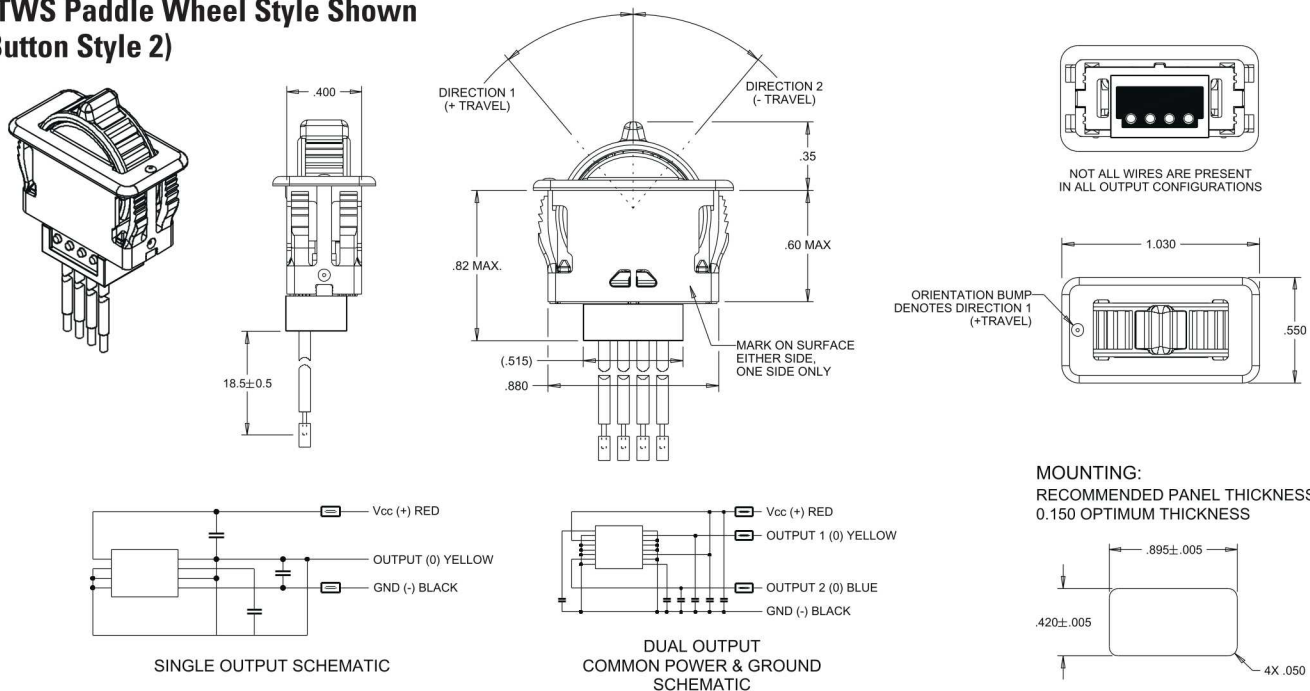
***** Minimums may apply to colors other than red and black.

① Only available with Termination Style "A".

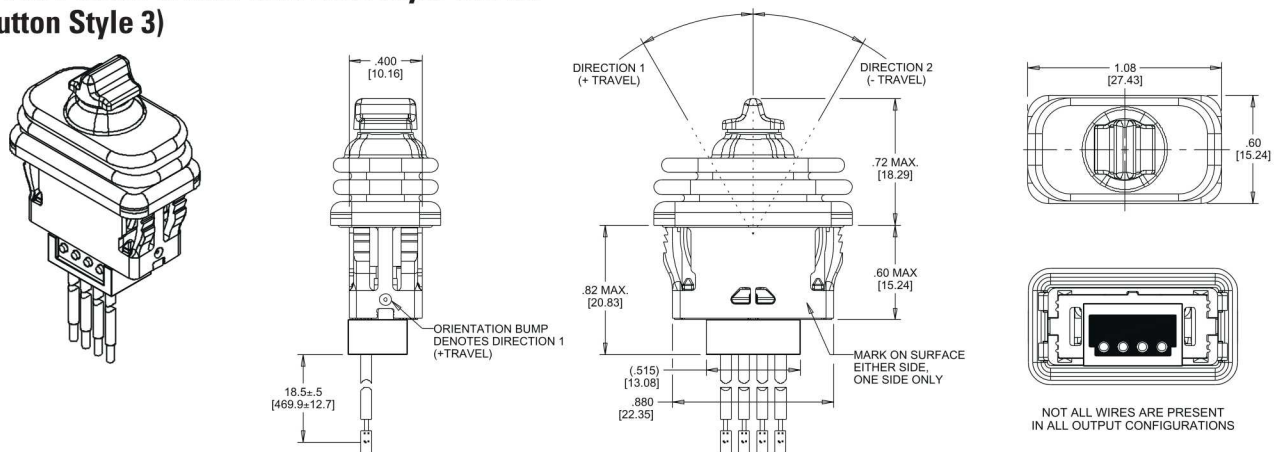
② Only available with Termination Style "B".

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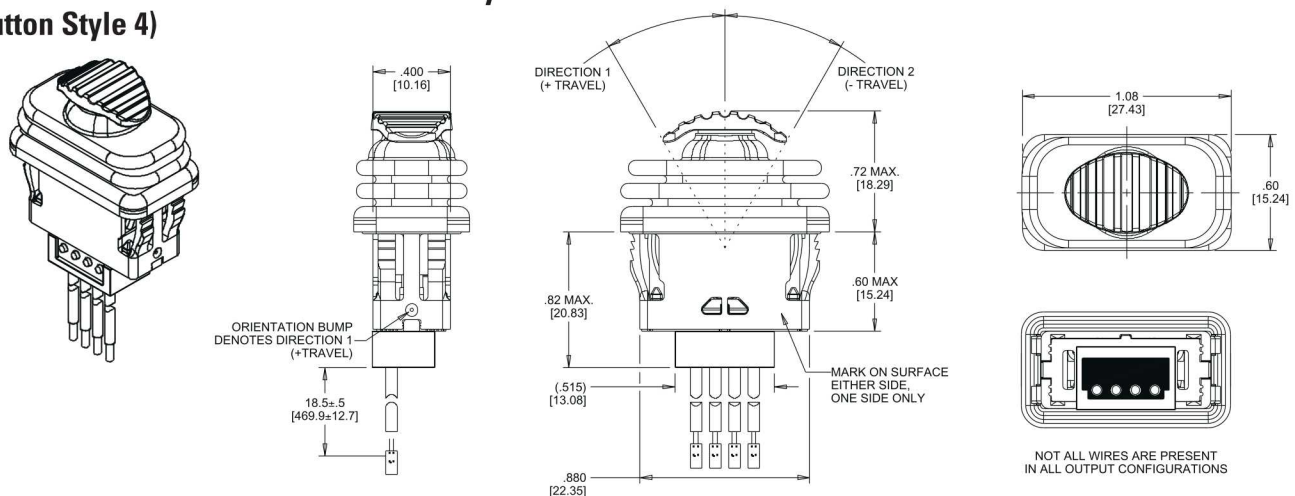
HTWS Paddle Wheel Style Shown (Button Style 2)



HTWS Paddle Wheel with Boot Style Shown (Button Style 3)



HTWS Thumbwheel Paddle with Boot Style Shown (Button Style 4)

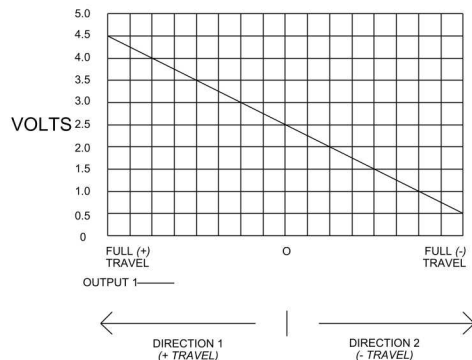


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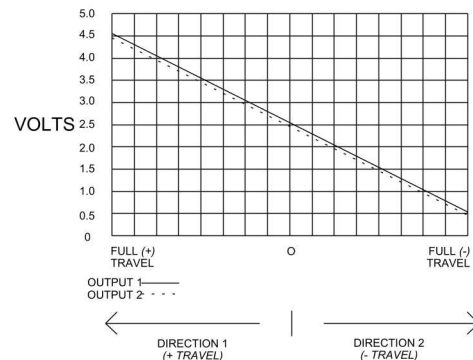
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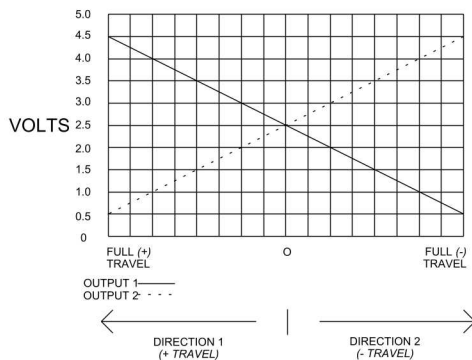
OPTION A



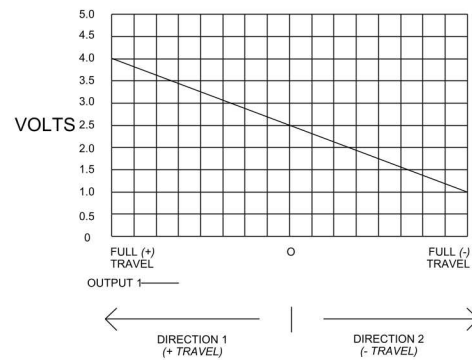
OPTION B



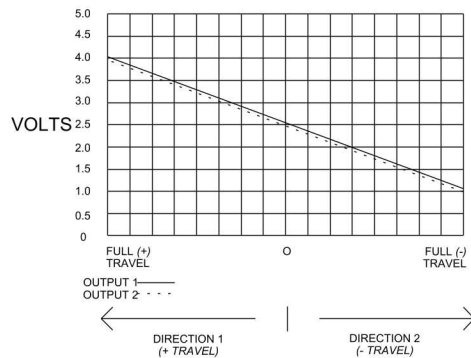
OPTION C



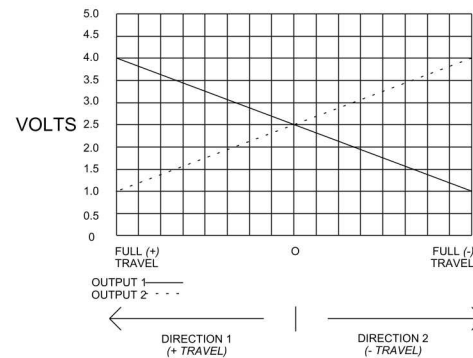
OPTION D



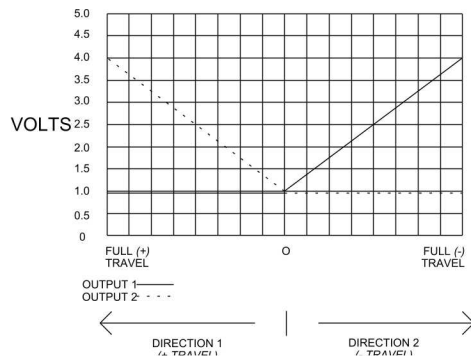
OPTION E



OPTION F



OPTION G



OPTION H

