HTWS Mini Thumbwheel

The HTWS 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 IP6K8S, and the optional sealing boot is offered for above panel mechanical protection against dust, sand, and water ingress. The HTWS offers up to 3 million cycle rotational life, operate force options and excellent EMI/RFI immunity. It is available with flying wire leads or pin connection.

FEATURES:

- Eight 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
- Up to 3 million cycle rotational life
- Electronics sealed to IP6K8S
- Excellent EMI/RFI immunity
- Flow through design
- RoHS compliant



Knurled Wheel



Paddle Wheel with Seal Boot



Thumb Paddle Wheel with Seal Boot

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)*; IP6K8S *(button style 3, 4)*			
Mechanical Enclosure:	Unsealed *(button styles 1, 2)*			
Mechanical Enclosure *(above panel)*	IP6K8S *(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			

Your official representative

ALDERS® Indicate. Control. Connect.

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HTWS Thumbwheel
Part Number Code

HTWS - X X** X X X X**** X*****

Travel
- **1.** +/-30°
- **2.** +/-45°**

Output 1
- **A.** 2.5 +/- 2.0VDC
- **B.** 2.5 +/- 2.0VDC
- **C.** 2.5 +/- 2.0VDC
- **D.** 2.5 +/- 1.5VDC
- **E.** 2.5 +/- 1.5VDC
- **F.** 2.5 +/- 1.5VDC
- **G.** 1.0 - 4.0VDC
- **H.** 0.5 - 4.5VDC

Output 2
- NONE ①
- 2.5 +/- 2.0VDC ②
- 2.5 -/+ 2.0VDC ②
- NONE ①
- 2.5 +/- 1.5VDC ②
- 2.5 -/+ 1.5VDC ②
- 1.0 - 4.0VDC ②
- 0.5 - 4.5VDC ②

Switch Action and Operate Force
- **1.** 5 oz. typ.
- **2.** 8.5 oz. typ.
- **3.** 12 oz. typ.*
- **4.** Friction -5 oz.

Button Style
- **1.** Knurled Wheel
- **2.** Paddle Wheel
- **3.** Paddle Wheel with Seal Boot***
- **4.** Thumb Paddle Wheel with Seal Boot***

Termination
- **A.** Wire Leads, 22 AWG UL 1569 *(Single Output Only)*
- **B.** Wire Leads, 22 AWG UL 1569, *(Dual Output Only)*

Bezel Color
- **1.** Red
- **2.** Black
- **8.** Gray

Button Color
- **1.** Red
- **2.** Black
- **3.** Orange
- **4.** Yellow
- **5.** Green
- **6.** Blue
- **7.** Violet
- **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.

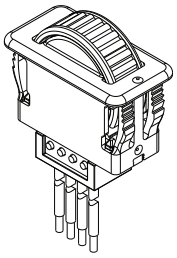
***** Minimums may apply to colors other than red and black.

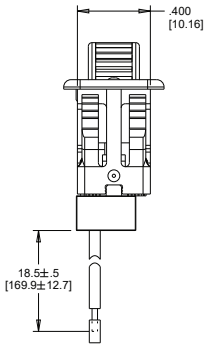
① Only available with Termination Style "A".

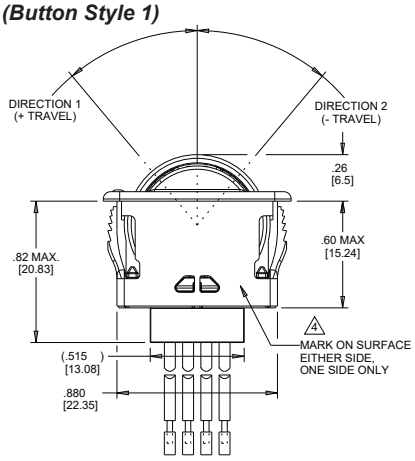
② Only available with Termination Style "B".

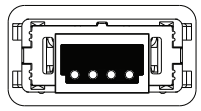
Specifications Subject To Change Without Notice

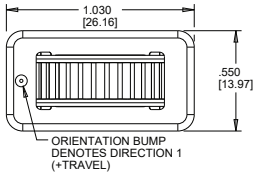
KNURLED WHEEL
(Button Style 1)

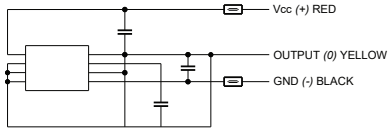




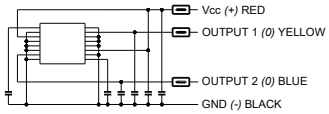




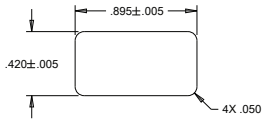




SINGLE OUTPUT SCHEMATIC

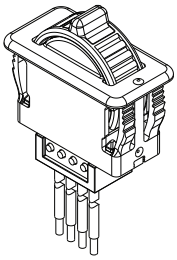


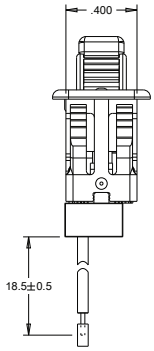
DUAL OUTPUT
COMMON POWER & GROUND
SCHEMATIC

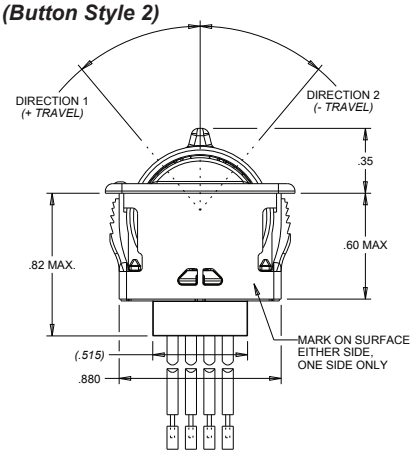


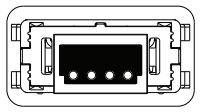
MOUNTING:
RECOMMENDED PANEL THICKNESS:
0.150 OPTIMUM THICKNESS

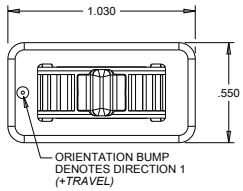
PADDLE WHEEL
(Button Style 2)



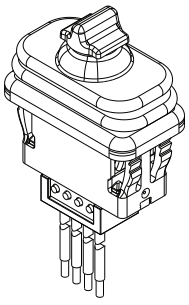


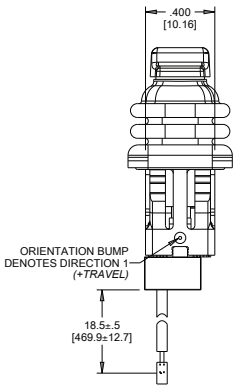


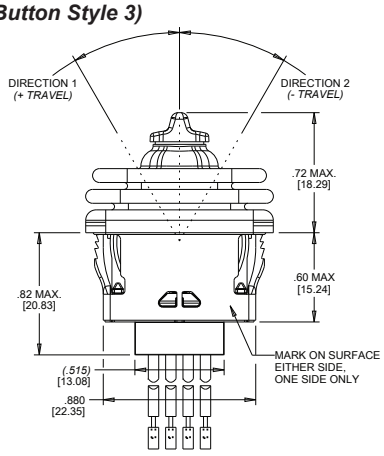


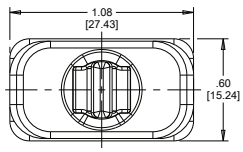


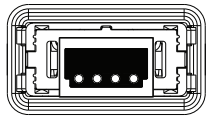
PADDLE WHEEL WITH BOOT
(Button Style 3)





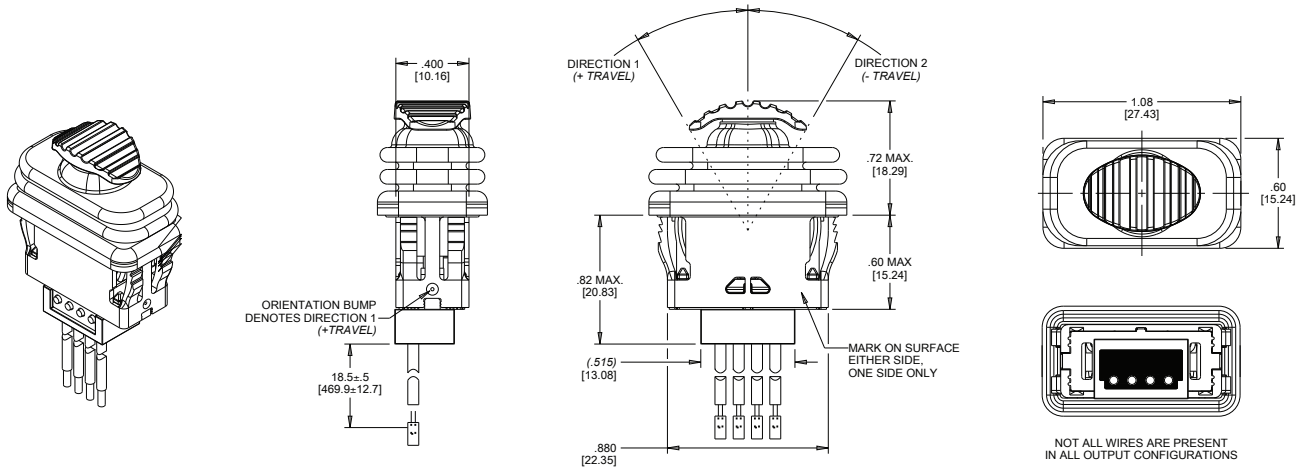




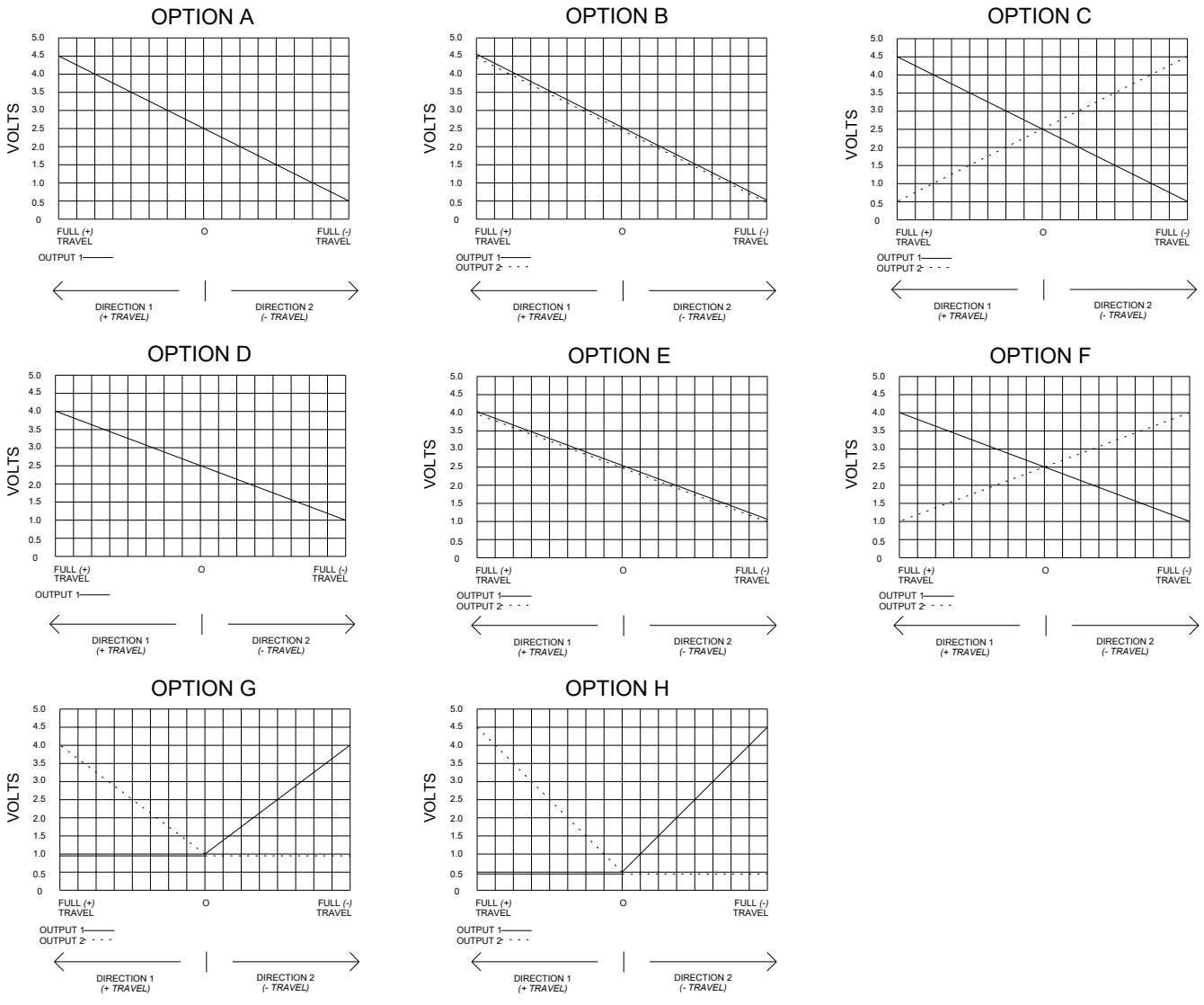


HTWS **Drawings**

THUMBWHEEL PADDLE WITH BOOT
(Button Style 4)



HTWS **Outputs**



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