

10 MILLION LINEAR OUTPUT CYCLES USING CONTACTLESS HALL EFFECT TECHNOLOGY

The HPL Hall Effect Linear Output Pushbutton Switch is a revolutionary switch utilizing Hall Effect technology to provide the user an output proportional to the travel of the button. The HPL delivers up to 10 million cycles. This rugged switch is ideal for applications where a simple on/off control is insufficient and a linear output is desired. Using the HPL, an operator can control the motion of a device as well as the speed of the movement. The HPL switch is an ideal control device for valves and variable speed drives, and can be used in industrial control, heavy equipment and material handling applications.

The HPL is offered as a stand-alone switch and in a dual HPL rocker assembly. As with all OTTO switches, a wide variety of case and button styles and colors are offered, along with various termination styles and two levels of sealing. OTTO can provide custom configurations as well as provide the HPL switches installed in a control grip.

## Features:

- Programmable outputs of 0.5 to 4.5 volts
- 10 million cycle life
- Hall Effect for reliable contactless switching
- Watertight per IP68S available
- Front or behind panel mounting
- Choice of termination styles
- Rocker version available

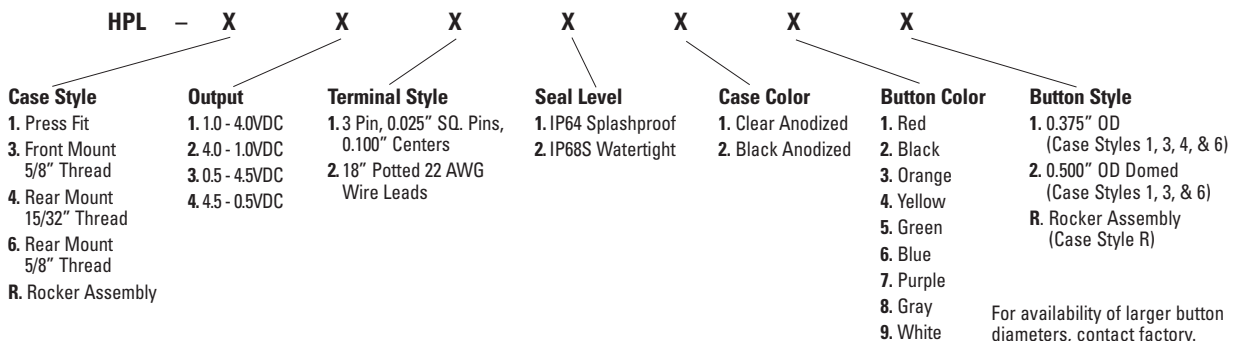


HPL4-4 15/32" Thread Rear Mount shown with Wire Leads



HPL-R Hall Effect Rocker

## HPL PART NUMBER CODE



# HALL EFFECT LINEAR OUTPUT PUSHBUTTONS

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<b>Standard Characteristics/Ratings:</b>													
<b>MECHANICAL:</b>													
<b>Mechanical Life:</b>	1,000,000 cycles full stroke per button, IP68S rated 10,000,000 cycles full stroke per button, IP64 rated												
<b>Button Travel:</b>	0.135 inches min to 0.160 inches max												
<b>Full Travel Force:</b>	25°C @ 0.15 inches, 3lbs. typical to 3.8lbs. max												
<b>Reset Force:</b>	@ 25°C 5oz. min												
<b>Drop:</b>	3 feet max to concrete												
<b>Electrical Life:</b>	10,000,000 cycles												
<b>ELECTRICAL RATINGS: Rated at Vcc = 5V @ 25°C Load = 1mA (4-7kΩ)</b>													
Electrical	Units	1.0 - 4.0 Volts			4.0 - 1.0 Volts			0.5 - 4.5 Volts			4.5 - 0.5 Volts		
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max
Supply Voltage	VDC	4.5	5.0	5.5	4.5	5.0	5.5	4.5	5.0	5.5	4.5	5.0	5.5
Output Voltage (Button Up)	VDC @ 5V Vcc	0.85	1.0	1.15	3.85	4.0	4.15	0.35	0.5	0.65	4.35	4.5	4.85
Output Voltage (Button Down)	VDC @ 5V Vcc	3.85	4.0	4.15	0.85	1.0	1.15	4.35	4.5	4.65	0.35	0.5	0.65
Supply Current	mA	N/A	8.0	10.0	N/A	8.0	10.0	N/A	8.0	10.0	N/A	8.0	10.0
Continuous Output Current	mA	-1.0	N/A	1.0	-1.0	N/A	1.0	-1.0	N/A	1.0	-1.0	N/A	1.0
Output Resistance (Io ≤ -2mA)	Ω	N/A	1.0	10.0	N/A	1.0	10.0	N/A	1.0	10.0	N/A	1.0	10.0
<b>ELECTRONICS:</b>													
<b>Seal Integrity:</b>	IP64 or IP68S												
<b>ENVIRONMENTAL:</b>													
<b>Operating Temp Range:</b>	-40°C to +85°C												
<b>Storage Temp Range:</b>	-55°C to +105°C												
<b>Humidity:</b>	96% RH, 70°C, 96 hours												
<b>MATERIALS:</b>													
<b>Housing:</b>	Aluminum alloy												
<b>Button Cap:</b>	Thermoplastic												
<b>Mounting Hardware:</b>	Lockwasher, hexnut, washer when applicable												

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### Case Styles

**HPL-1**  
Press Fit

**HPL-3**  
5/8" Thread  
Front Mount  
Button Style 1

**HPL-3**  
5/8" Thread  
Front Mount  
Dome Button  
Button Style 2

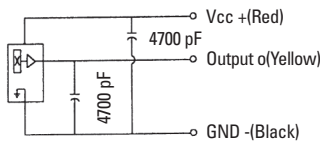
**HPL-4**  
15/32" Thread  
Rear Mount

**HPL-6**  
5/8" Thread  
Rear Mount

HPL dimensions are equivalent to standard OTTO P1 Pushbutton dimensions as shown in the catalog except for overall length. Total button height is 0.25" on standard 0.375" OD buttons. Overall length from button top to rear of potting is 1.26" nominal, except for the HPL-4 and 0.500" OD button styles which measure 1.56". Panel mounting hardware is included, except with the HPL-1 which is meant to press-fit into mounting hole in a control grip. Refer to the dimensions shown or consult OTTO to design the control grip to meet your specifications.

**HPL-R\***  
Rocker

\* Contact factory for alternative bracket styles & external boot options.



**Schematic**

**Linear Output Graphs (Vcc = 5V @ 25°C)**

