1 MILLION LINEAR OUTPUT CYCLES USING CONTACTLESS HALL EFFECT TECHNOLOGY

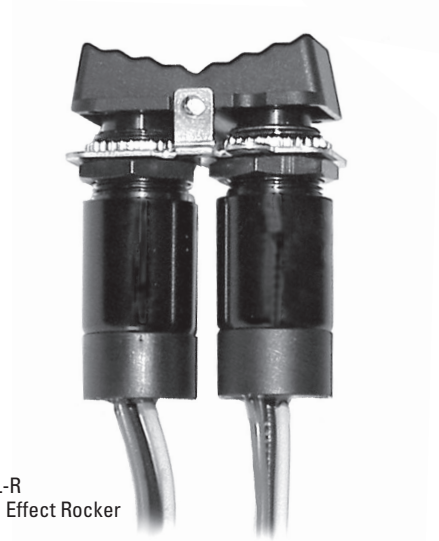
The HPL Hall Effect Linear Output Pushbutton Switch utilizes Hall effect technology to provide the user an output proportional to the travel of the button. The HPL delivers up to 1 million cycles. This rugged switch is ideal for applications where a simple on/off control is insufficient and a linear 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.

HPL-4
15/32" – 32 Thread
Rear Mount

Features:

- **Programmable outputs of 0.5 to 4.5 volts**
- **1 million cycles**
- **Hall effect for reliable contactless switching**
- **Watertight per IP68S available**
- **Front or behind panel mounting**
- **Wire or pinned termination options**
- **Rocker version available**
- **RoHS compliant**



HPL-R
Hall Effect Rocker

HPL-3
5/8" Front Mount

HPL PART NUMBER CODE

HPL – X X X X X X X

Case Style
- **1.** Press Fit
- **3.** Front Mount 5/8" Thread
- **4.** Rear Mount 15/32" Thread
- **6.** Rear Mount 5/8" Thread
- **R.** Rocker Assembly

Output
- **1.** 1.0 - 4.0VDC
- **2.** 4.0 - 1.0VDC
- **3.** 0.5 - 4.5VDC
- **4.** 4.5 - 0.5VDC

Terminal Style
- **1.** 3 Straight Pins, 0.100" Centers
- **2.** 18" Potted 22 AWG Wire Leads

Seal Level
- **1.** IP65 Splashproof
- **2.** IP68S Watertight

Case Color
- **1.** Clear Anodized
- **2.** Black Anodized

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

Button Style*
- **1.** 0.375" OD (Case Styles 1, 3, 4 & 6)
- **2.** 0.500" OD Domed (Case Styles 1, 3 & 6)
- **R.** Rocker Assembly (Case Style R)

* For availability of larger button diameters, contact factory.

HALL EFFECT LINEAR OUTPUT PUSHBUTTONS

1 MILLION LINEAR OUTPUT CYCLES USING CONTACTLESS HALL EFFECT TECHNOLOGY

Standard Characteristics/Ratings:

MECHANICAL:

Mechanical Life:	1,000,000 cycles full stroke per button
Button Travel:	0.135 inches min to 0.160 inches max
Full Travel Force:	0.15 inches, 3.0 lbs. typical to 3.8 lbs. max @ 25°C
Reset Force:	5 oz min @ 25°C
Electrical Life:	1,000,000 cycles

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

Electrical		**1 - 4 Volts**			**4 - 1 Volts**			**0.5 - 4.5 Volts**			**4.5 - 0.5 Volts**		
	Units	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**
Supply Voltage	VDC	4.5	5	5.5	4.5	5	5.5	4.5	5	5.5	4.5	5	5.5
Output Voltage (Button Up)	VDC @ 5V Vcc	0.85	1	1.15	3.85	4	4.15	0.35	0.5	0.65	4.35	4.5	4.85
Output Voltage (Button Down)	VDC @ 5V Vcc	3.85	4	4.15	0.85	1	1.15	4.35	4.5	4.65	0.35	0.5	0.65
Supply Current	mA	N/A	8	10	N/A	8	10	N/A	8	10	N/A	8	10
Continuous Output Current	mA	-1	N/A	1	-1	N/A	1	-1	N/A	1	-1	N/A	1
Output Resistance (Io ≤ -2mA)	Ω	N/A	1	10	N/A	1	10	N/A	1	10	N/A	1	10

ELECTRONICS:

Seal Integrity:	IP65 or IP68S

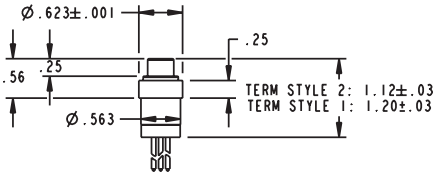
ENVIRONMENTAL:

Operating Temp Range:	-40°C to +85°C
Humidity:	96% RH, 70°C, 96 hours

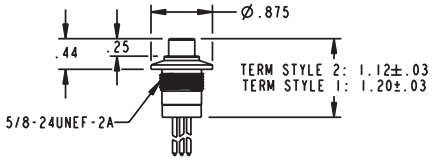
MATERIALS:

Housing:	Anodized Aluminum alloy
Button Cap:	Thermoplastic
Mounting Hardware:	Lockwasher, hex nut, washer when applicable

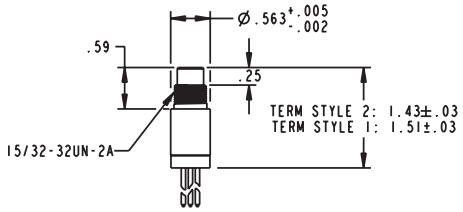
.375" O.D. Button Style



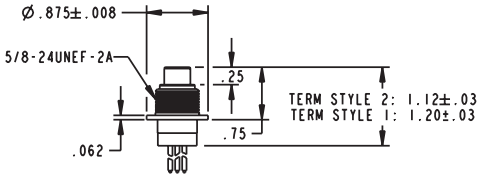
HPL-1XXXXXI
PRESS FIT



HPL-3XXXXXI
5/8" THREAD
FRONT MOUNT



HPL-4XXXXXI
15/32" THREAD
REAR MOUNT

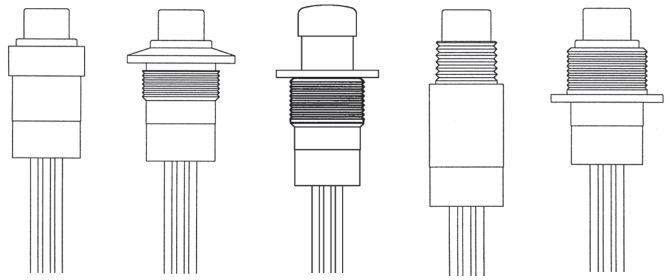


HPL-6XXXXXI
5/8" THREAD
REAR MOUNT

Specifications Subject To Change Without Notice

1 MILLION LINEAR OUTPUT CYCLES USING CONTACTLESS HALL EFFECT TECHNOLOGY

Case Styles



HPL-1
Press Fit

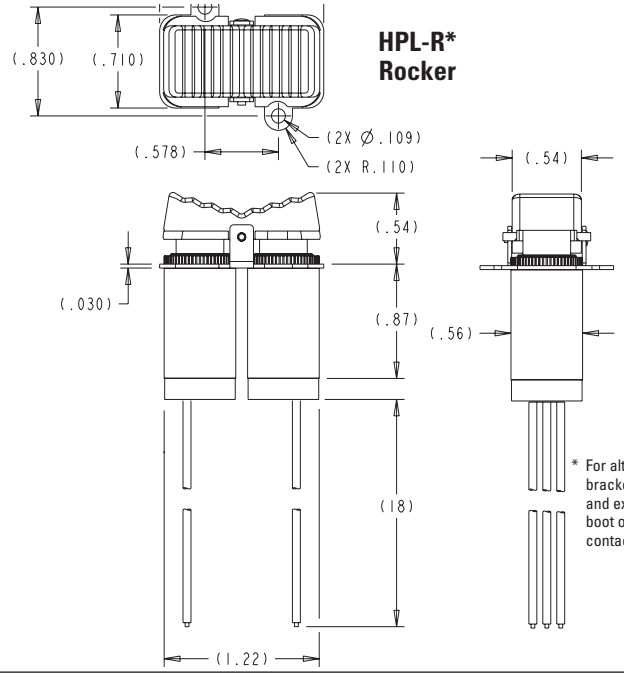
HPL-3
5/8" Thread
Front Mount
Button Style 1

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

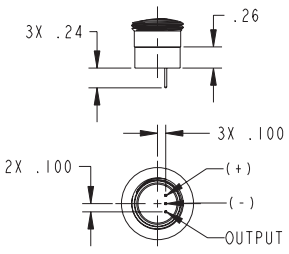
HPL dimensions are equivalent to standard OTTO P1 Pushbutton dimensions as shown in the catalog except for overall length. Total button height is 0.25" on standard 0.375" OD buttons. Overall length from button top to rear of potting is 1.26" nominal, except for the HPL-4 and 0.500" OD button styles which 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.



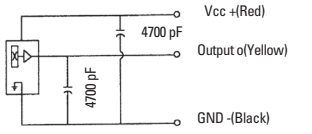
HPL-R*
Rocker

* For alternative bracket styles and external boot options, contact factory.

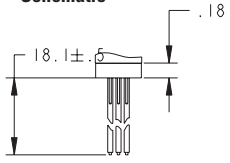
Terminal Styles



TERMINAL STYLE 1
3 STRAIGHT PINS
.100 CENTERS

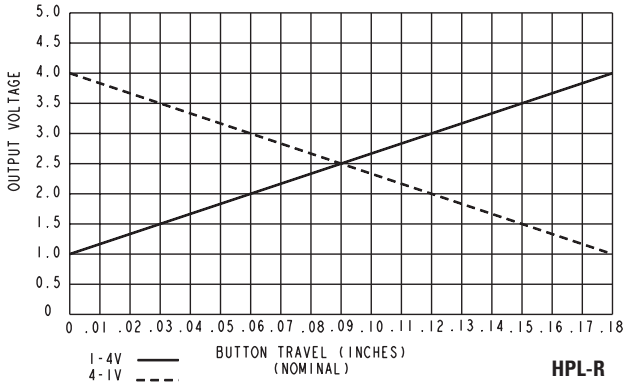


Schematic

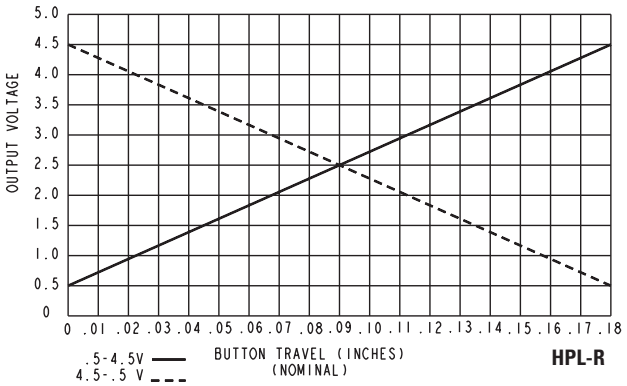


TERMINAL STYLE 2
18" POTTED
22 AWG, UL 1569
WIRE LEADS

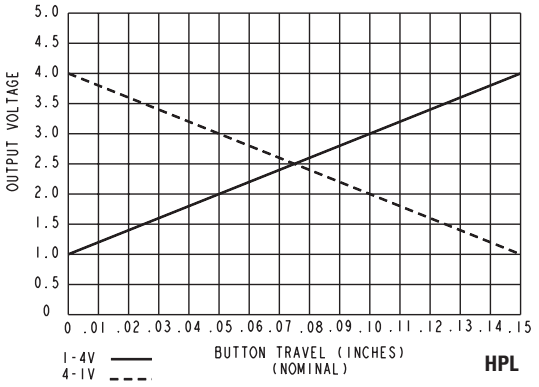
Linear Output Graphs (Vcc = 5V @ 20°C)



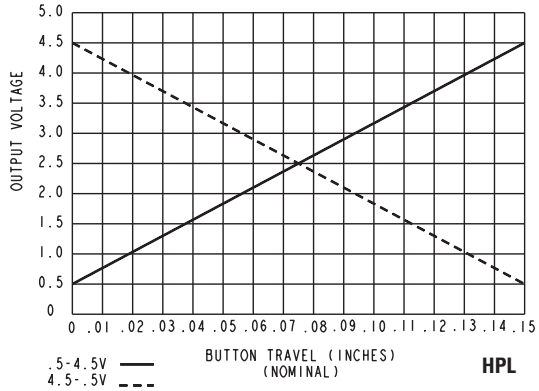
HPL-R



HPL-R



HPL



HPL