

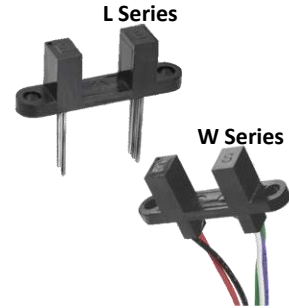
# Photologic® Slotted Optical Switch “Wide Gap” Series



## OPB900 through OPB913 Series (L, W\_Z)

### Features:

- 0.375" (9.5 mm) wide gap
- Choice of logical output configurations
- Choice of opaque or IR transmissive housing material
- Choice of PCBoard or 26 AWG, UL rated wire
- Data rates to 250 kBaud



### Description:

The **OPB900 - OPB913** series of Photologic® Integrated Circuit Switches provide optimum flexibility for the design engineer. Building from a standard housing with a 0.375" (9.5mm) wide slot, a user can specify the type and polarity of the TTL output and the type of shell material.

Electrical output can be specified as either TTL Totem Pole (buffered) or TTL Open Collector, either of which can be supplied with an inverted output polarity.

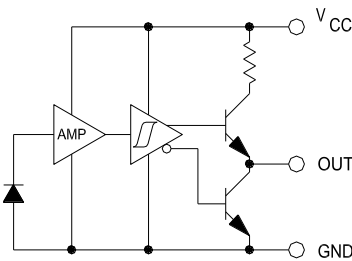
All versions have the added stability of hysteresis built into the amplification circuitry.

### Applications:

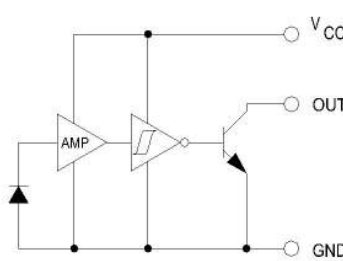
- Mechanical switch replacement
- Speed indication (tachometer)
- Mechanical limit indication
- Edge sensing
- Object sensing

Part Number Guide — OPB900 Series (L, W)	
<b>OPB9</b>	---
0 = Dust protection with apertures	L55 = Solder lead termination (PCBoard mount) or W5_Z= 26 AWG wire termination (24" [61cm] long)
1 = Open apertured	
0 = Totem Pole	Aperture sizes: 1 = 0.010" (0.25 mm) 5 = 0.050" (1.27 mm)
1 = Open Collector	
2 = Inverted Totem Pole	
3 = Inverted Open Collector	

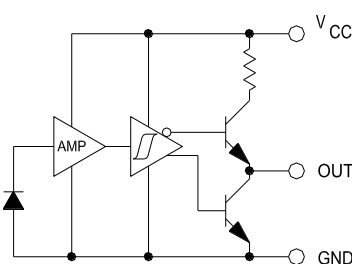
### Totem-Pole-Output



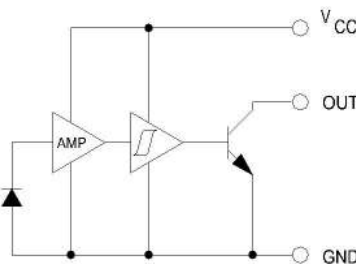
### Open-Collector-Output



### Inverted Totem-Pole



### Inverted Open Collector



RoHS

#### General Note

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## Electrical Characteristics (T<sub>A</sub> = -40°C to + 70° Unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
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### Input Diode (See OP240B for more information — for reference only)

V <sub>F</sub>	Forward Voltage	-	-	1.7	V	I <sub>F</sub> = 20 mA, T <sub>A</sub> = 25° C
I <sub>R</sub>	Reverse Current	-	-	100	µA	V <sub>R</sub> = 2 V, T <sub>A</sub> = 25° C

### Output Photologic® Sensor (See OPL560 for more information — for reference only)

V <sub>CC</sub>	Operating D.C. Supply Voltage	4.75	-	5.25	V	
I <sub>CCL</sub>	Low Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output	-	-	15	mA	V <sub>CC</sub> = 5.25 V, I <sub>F</sub> = 0 mA <sup>(1)</sup>
	Inverted Totem-Pole Output Inverted Open-Collector Output	-	-	15	mA	V <sub>CC</sub> = 5.25 V, I <sub>F</sub> = 20 mA <sup>(1)</sup>
I <sub>CCH</sub>	High Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output	-	-	15	mA	V <sub>CC</sub> = 5.25 V, I <sub>F</sub> = 20 mA <sup>(1)</sup>
	Inverted Totem-Pole Output Inverted Open-Collector Output	-	-	15	mA	V <sub>CC</sub> = 5.25 V, I <sub>F</sub> = 0 mA <sup>(1)</sup>
V <sub>OL</sub>	Low Level Supply Current: Buffered Totem-Pole Output Buffered Open-Collector Output	-	-	0.4	V	V <sub>CC</sub> = 4.75 V, I <sub>OL</sub> = 12.8 mA, I <sub>F</sub> = 0 mA <sup>(1)</sup>
	Inverted Totem-Pole Output Inverted Open-Collector Output	-	-	0.4	V	V <sub>CC</sub> = 4.75 V, I <sub>OL</sub> = 12.8 mA, I <sub>F</sub> = 20 mA <sup>(1)</sup>
V <sub>OH</sub>	High Level Output Voltage: Buffered Totem-Pole Output	2.4	-	-	V	V <sub>CC</sub> = 4.75 V, I <sub>OH</sub> = -800 µA, I <sub>F</sub> = 20 mA <sup>(1)</sup>
	Inverted Totem-Pole Output	2.4	-	-	V	V <sub>CC</sub> = 4.75 V, I <sub>OH</sub> = -800 µA, I <sub>F</sub> = 0 mA <sup>(1)</sup>
I <sub>OH</sub>	High Level Output Current: Buffered Open-Collector Output	-	-	100	µA	V <sub>CC</sub> = 4.75 V, V <sub>OH</sub> = 30 V, T <sub>A</sub> = 25° C
	Inverted Open-Collector Output	-	-	100	µA	V <sub>CC</sub> = 4.75 V, V <sub>OH</sub> = 30 V, T <sub>A</sub> = 25° C
I <sub>F</sub> (+)	LED Positive-Going Threshold Current	-	-	20	mA	V <sub>CC</sub> = 5 V, T <sub>A</sub> = 25° C
I <sub>F</sub> (+)/I <sub>F</sub> (-)	Hysteresis	-	2	-	-	V <sub>CC</sub> = 5 V
I <sub>OS</sub>	Short Circuit Output Current: Buffered Totem-Pole Output	-30	-	-100	mA	V <sub>CC</sub> = 5.25 V, I <sub>F</sub> = 20 mA Output = GND
	Inverted Totem-Pole Output	-30	-	-100	mA	V <sub>CC</sub> = 5.25 V, I <sub>F</sub> = 0 mA Output = GND
t <sub>r</sub> , t <sub>f</sub>	Output Rise Time, Output Fall Time	-	70	-	ns	V <sub>CC</sub> = 5 V, T <sub>A</sub> = 25° C I <sub>F</sub> = 0 or 20 mA
t <sub>PLH</sub> , t <sub>PHL</sub>	Propagation Delay Low-High and High-Low	-	5	-	µs	R <sub>L</sub> = 8 TTL Loads (Totem-Pole) R <sub>L</sub> = 360 Ω (Open-Collector)

#### Notes:

(1) Normal application would be with light source blocked, simulated by I<sub>F</sub> = 0 mA.

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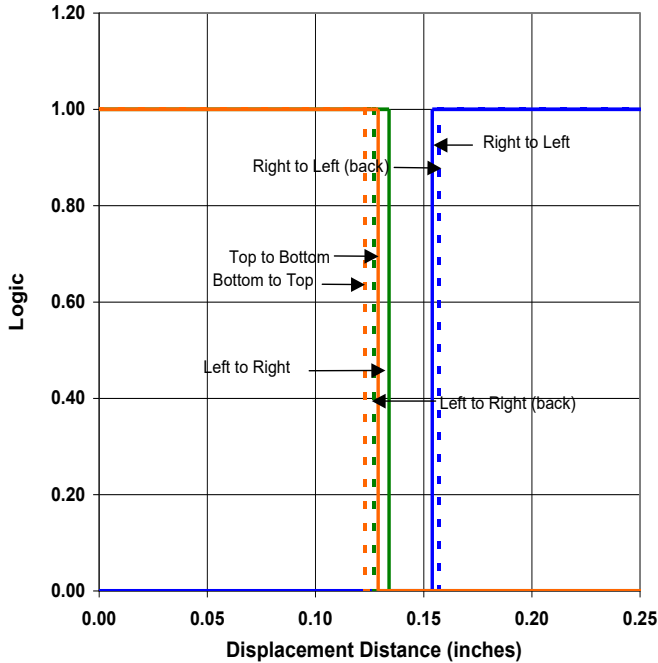
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# Photologic<sup>®</sup> Slotted Optical Switch “Wide Gap” Series

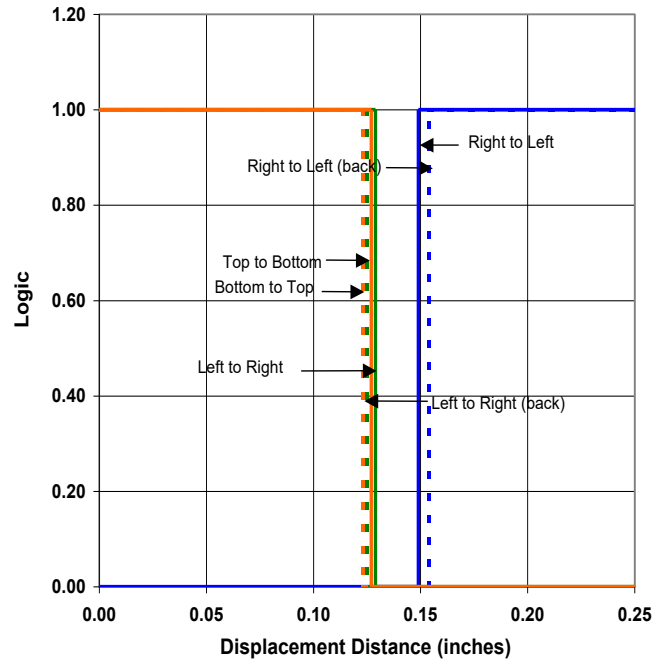
OPB900 through OPB913 Series (L, W\_Z)



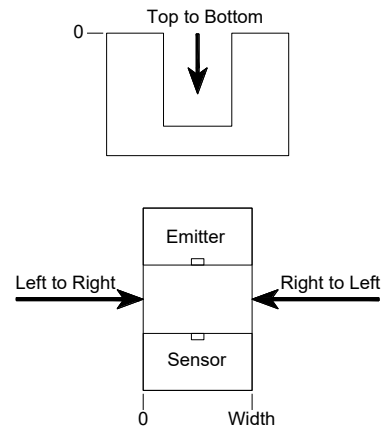
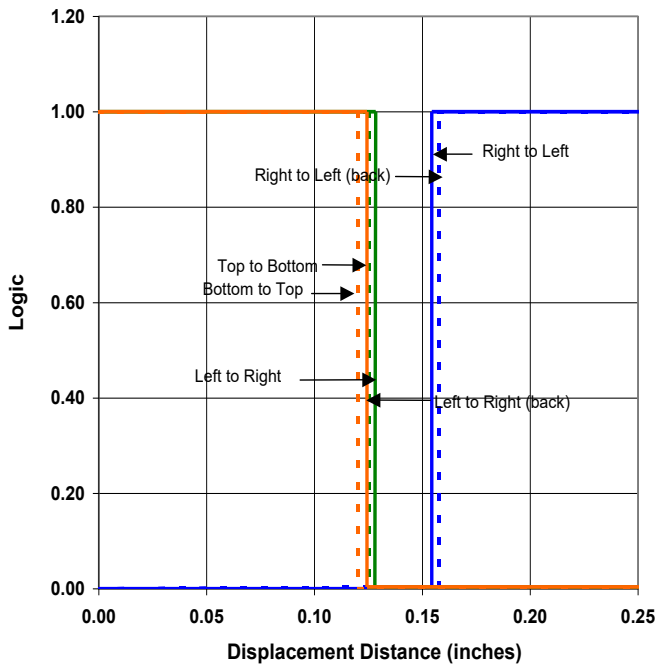
**OPB900 - Flag Next to Emitter**



**OPB900 - Flag Next to Sensor**



**OPB900 - Flag in Middle of Slot**



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