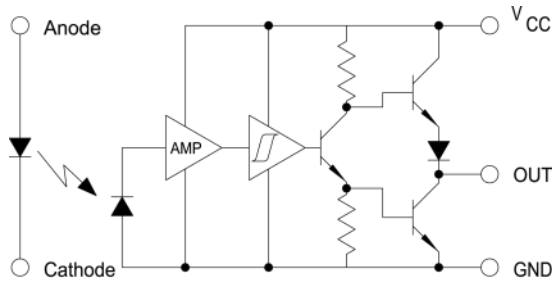


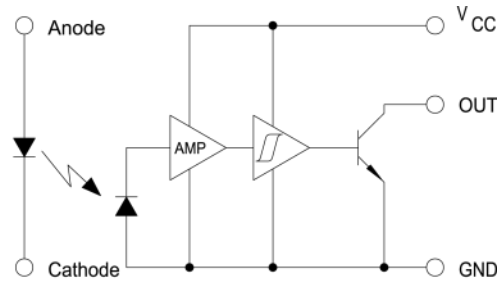
Photologic® Slotted Optical Switch



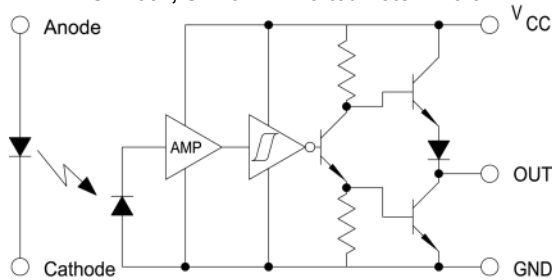
OPB930, OPB940 Buffered Totem-Pole



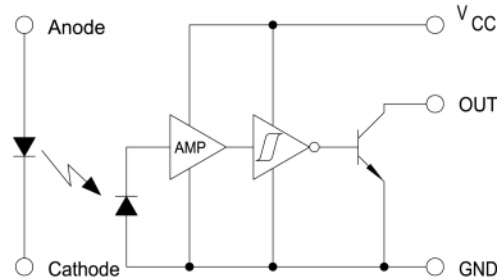
OPB931, OPB941 Buffered Open-Collector



OPB932, OPB942 Inverted Totem-Pole



OPB933 & OPB943 Inverted Open-Collector



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Supply Voltage, V_{CC} (not to exceed 3 seconds)	10 V
Operating Temperature Range	-40°C to $+70^\circ\text{C}$
Storage Temperature Range	-40°C to $+85^\circ\text{C}$
Lead Soldering Temperature (1/16 inch (1.6mm) from the case for 5 sec. with soldering iron ⁽¹⁾)	260°C
Input Infrared LED	
Input Diode Power Dissipation ⁽²⁾	100 mW
Output Photologic® Power Dissipation ⁽³⁾	200 mW
Total Device Power Dissipation ⁽⁴⁾	300 mW
Output Photologic®	
Voltage at Output Lead (Open Collector Output)	35 V
Diode Forward DC Current	40 mA
Diode Reverse DC Voltage	2 V

Notes:

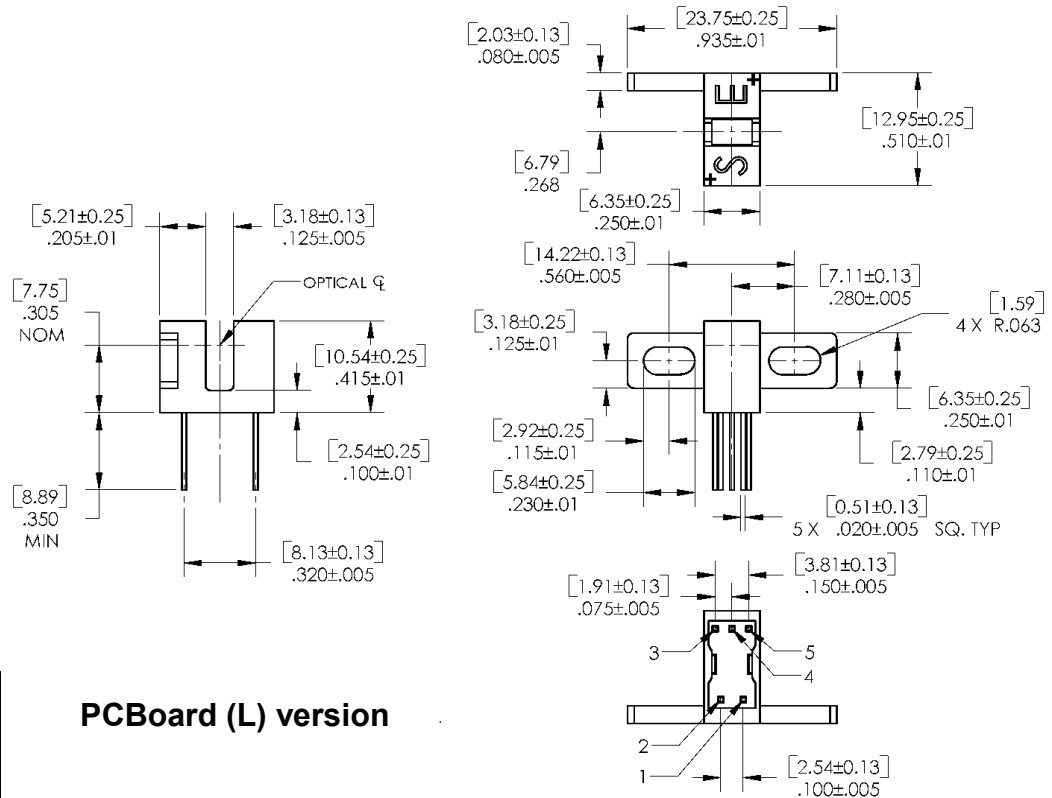
- (1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
- (2) Derate linearly 2.22 mW/ $^\circ\text{C}$ above 25° .
- (3) Derate linearly 4.44 mW/ $^\circ\text{C}$ above 25° .
- (4) Derate linearly 6.66 mW/ $^\circ\text{C}$ above 25° .
- (5) OPB930L/OPB940L series devices are terminated with 0.020" square leads designed for PCBoard mounting.
- (6) Methanol and isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (7) All parameters tested using pulse technique.

General Note

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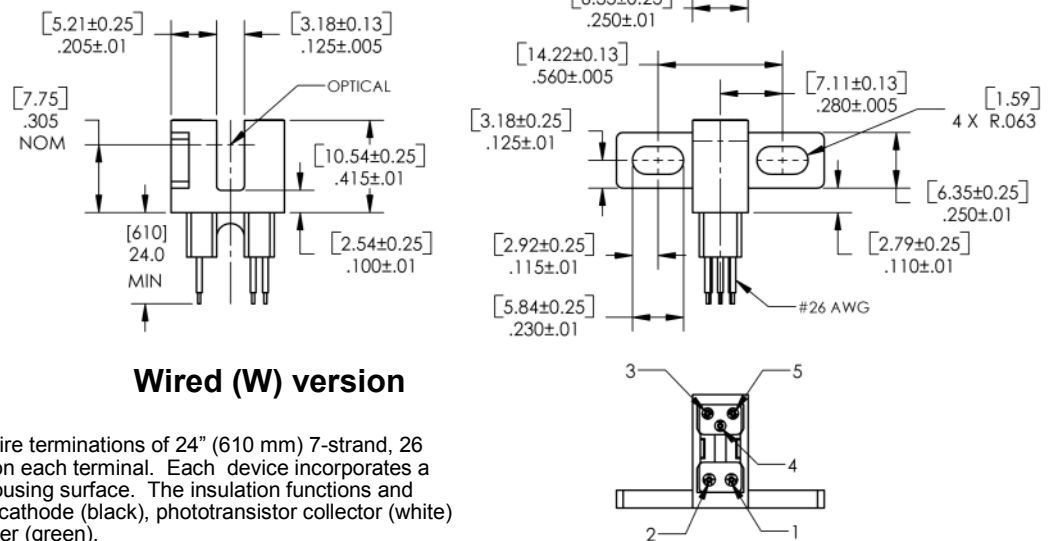
Photologic® Slotted Optical Switch



PCBoard (L) version

Color- Pin #	Description
Red—1	Anode
Black—2	Cathode
White—3	V _{CC}
Blue—4	Output
Green—5	Ground

DIMENSIONS ARE IN: [MILLIMETERS] INCHES



Wired (W) version

The W Series includes wire terminations of 24" (610 mm) 7-strand, 26 AWG UL insulated wire on each terminal. Each device incorporates a wire strain relief at the housing surface. The insulation functions and colors are: anode (red), cathode (black), phototransistor collector (white) and phototransistor emitter (green).

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Electrical Characteristics ($T_A = 25^\circ \text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage	-	-	1.7	V	$I_F = 20 \text{ mA}$
I_R	Reverse Current	-	-	100	μA	$V_R = 2.0 \text{ V}$
Output Photologic® Sensor						
V_{CC}	Operating D.C. Supply Voltage	4.75	-	5.25	V	-
I_{CCL}	Low Level Supply Current: Totem Pole & Open-Collector	-	-	15	mA	$V_{CC} = 5.25, I_F = 0 \text{ mA}^{(1)}$
	Inverted Totem-Pole & Inverted Open-Collector	-	-	15	mA	$V_{CC} = 5.25, I_F = 15 \text{ mA}$
I_{CCH}	High Level Supply Current: Totem Pole & Open-Collector	-	-	15	mA	$V_{CC} = 5.25, I_F = 15 \text{ mA}$
	Inverted Totem-Pole & Inverted Open-Collector	-	-	15	mA	$V_{CC} = 5.25, I_F = 0 \text{ mA}^{(1)}$
V_{OL}	Low Level Output Voltage: Totem Pole & Open-Collector	-	-	0.4	V	$V_{CC} = 4.75, I_{OL} = 12.8 \text{ mA}, I_F = 0 \text{ mA}^{(1)}$
	Inverted Totem-Pole & Inverted Open-Collector	-	-	0.4	V	$V_{CC} = 4.75, I_{OL} = 12.8 \text{ mA}, I_F = 15 \text{ mA}$
V_{OH}	High Level Output Voltage: Totem-Pole & Open-Collector	2.4	-	-	V	$V_{CC} = 4.75, I_{OH} = -800 \mu\text{A}, I_F = 15 \text{ mA}$
	Inverted Totem-Pole & Inverted Open-Collector	2.4	-	-	V	$V_{CC} = 4.75, I_{OH} = -800 \mu\text{A}, I_F = 0 \text{ mA}^{(1)}$
I_{OH}	High Level Output Current: Totem Pole & Open-Collector	-	-	100	μA	$V_{CC} = 4.75, V_{OH} = 30 \text{ V}, I_F = 15 \text{ mA},$
	Inverted Totem-Pole & Inverted Open-Collector	-	-	100	μA	$V_{CC} = 4.75, V_{OH} = 30 \text{ V}, I_F = 0 \text{ mA}^{(1)}$
$I_F(+)$	LED Positive-Going Threshold Current	-	-	15	mA	$V_{CC} = 5.0 \text{ V}$
$I_F(+), I_F(-)$	Hysteresis	-	2.0	-	V	$V_{CC} = 5.0 \text{ V}$
I_{OS}	Short Circuit Output Current: Totem Pole & Open-Collector	-15	-	-60	mA	$V_{CC} = 5.25 \text{ V}, I_F = 15 \text{ mA}, \text{Output} = \text{GND}$
	Inverted Totem-Pole & Inverted Open-Collector	-15	-	-60	mA	$V_{CC} = 5.25 \text{ V}, I_F = 0 \text{ mA}^{(1)}, \text{Output} = \text{GND}$

General Note

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Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
t_r, t_f	Output Rise Time, Output Fall Time	-	70	-	ns	$V_{CC} = 5\text{ V}$, $I_F = 0$ or 15 mA
T_{PLH}	Propagation Delay Low-High	-	5.0	-	μs	$R_L = 8\text{TTL loads (Totem Pole)}$
T_{PHL}	Propagation Delay High-Low	-	5.0	-	μs	$R_L = 360\ \Omega$ (Open-Collector)

Notes:

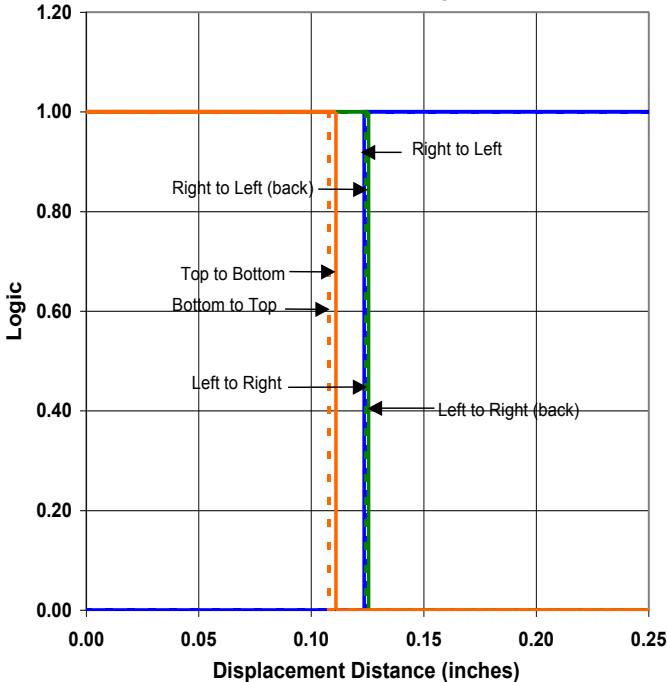
- (1) Normal application would be with light source blocked, simulated by $I_F = 0$ mA.
- (2) All parameters are tested using pulse techniques.

General Note

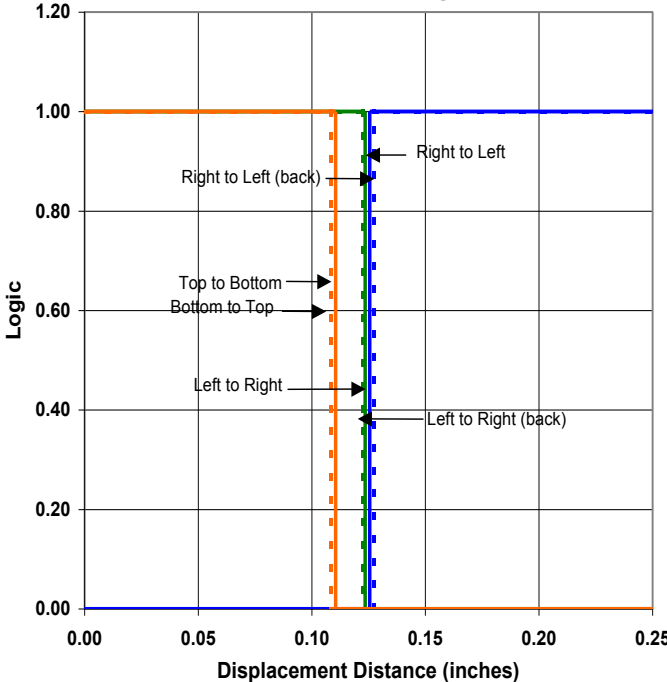
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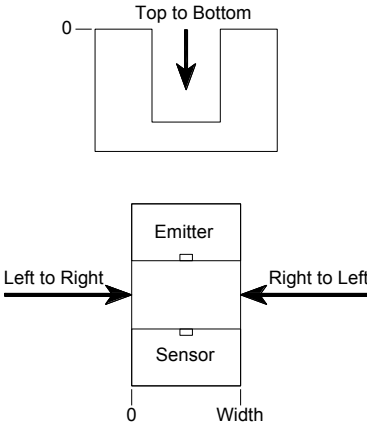
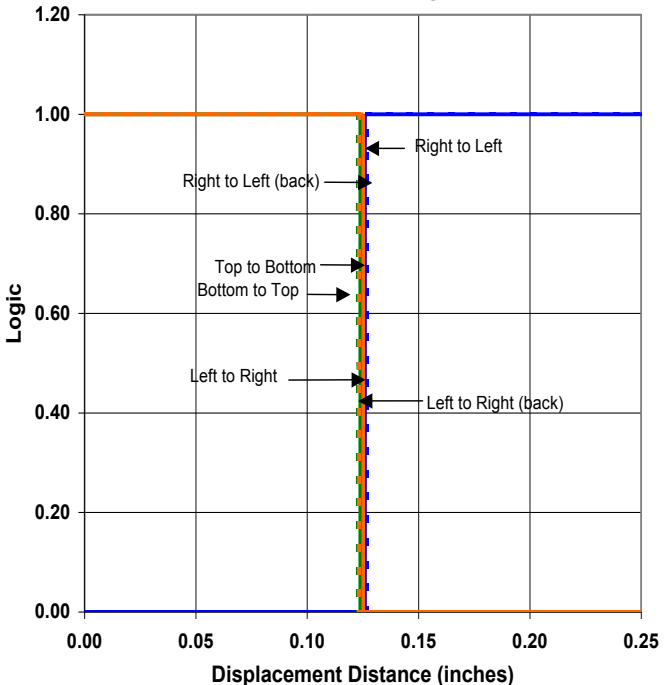
OPB930_11, OPB940_11 - Flag Next to Emitter



OPB930_11, OPB940_11 - Flag Next to Sensor



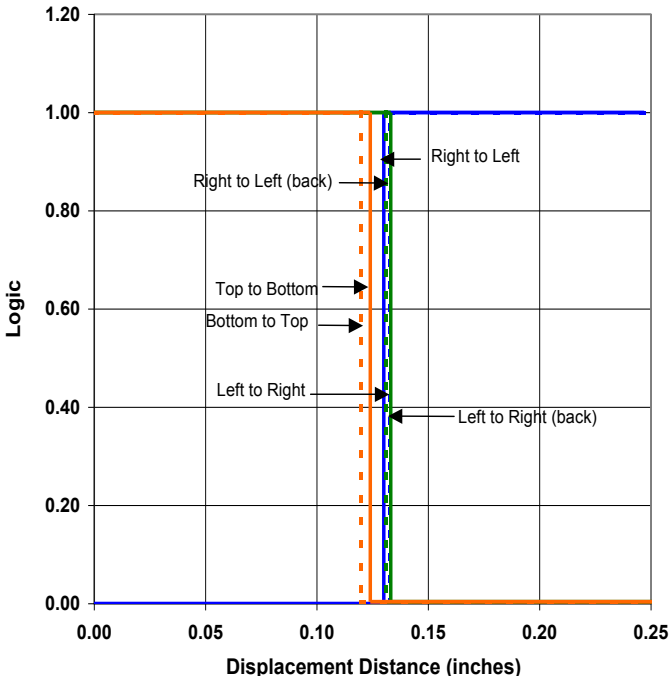
OPB930_11, OPB940_11 - Flag in Middle of Slot



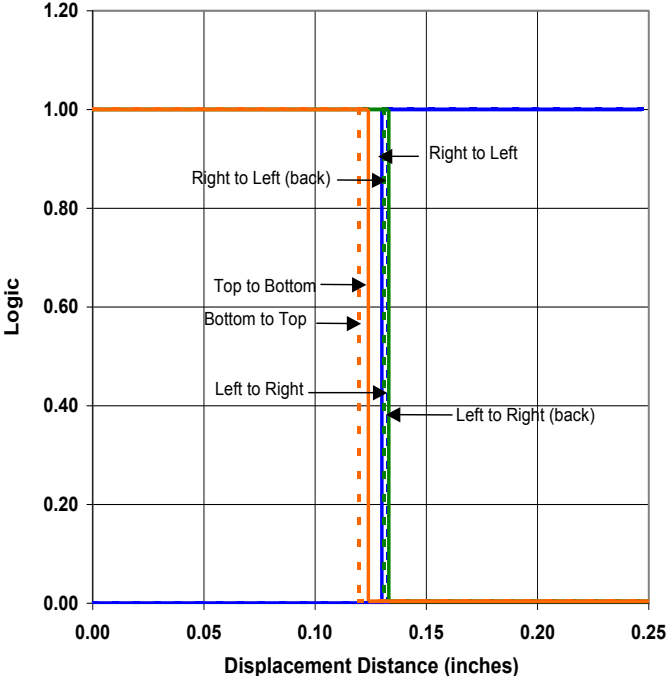
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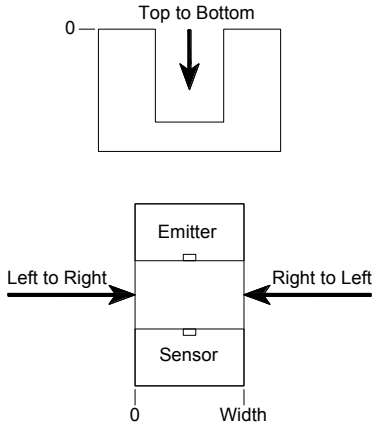
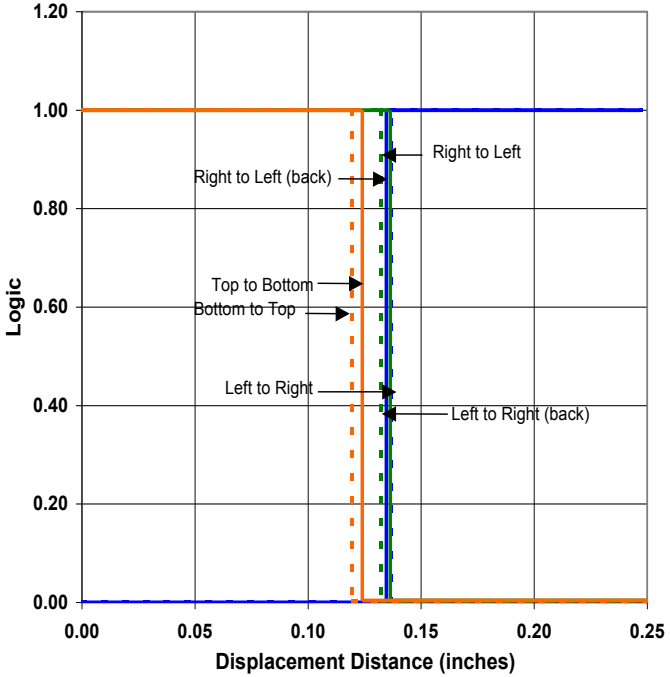
OPB930_51, OPB940_51 - Flag Next to Emitter



OPB930_51, OPB940_51 - Flag Next to Sensor

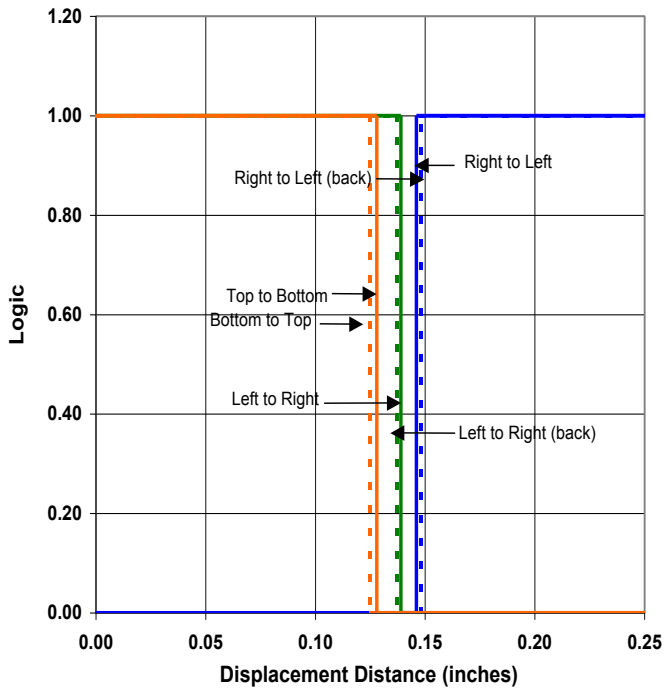


OPB930_51, OPB940_51 - Flag in Middle of Slot

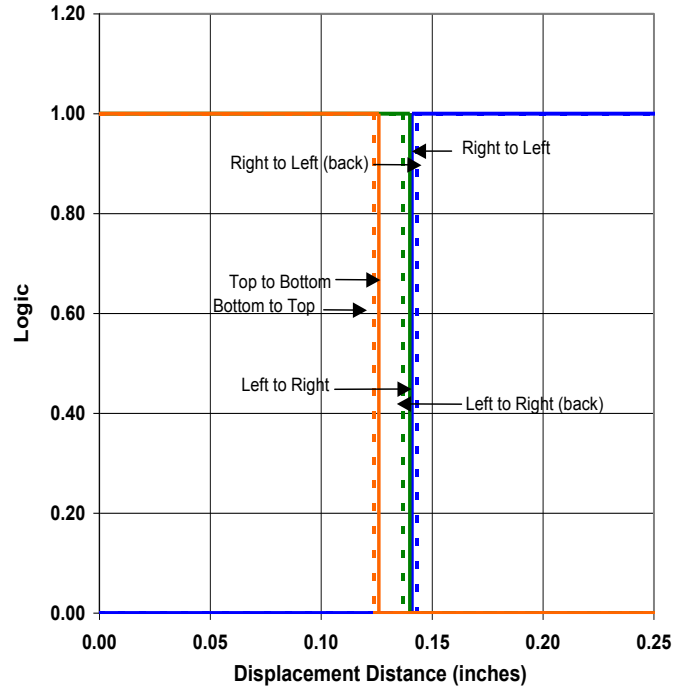


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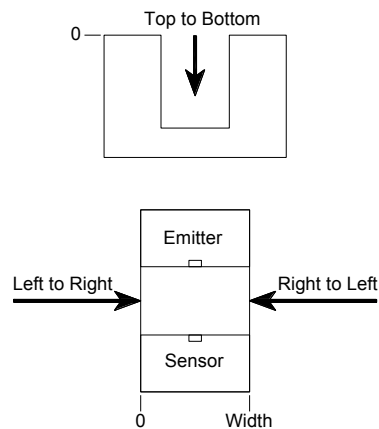
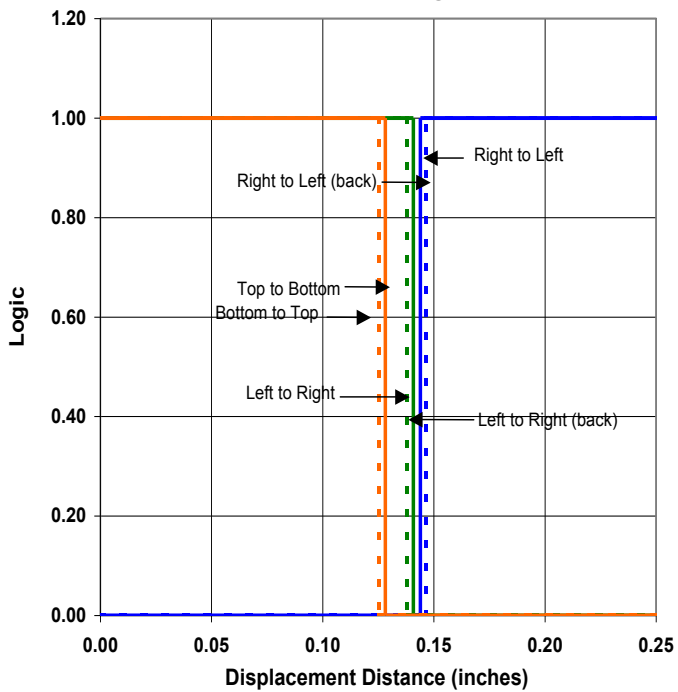
OPB930_55, OPB940_55 - Flag Next to Emitter



OPB930_55, OPB940_55 - Flag Next to Sensor



OPB930_55, OPB940_55 - Flag in Middle of Slot



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