

Color Sensor

P1PF001

Part Number



- Color evaluation in RGB and HSL
- Distinguishes up to eight colors
- LED bar graph for color verification
- Realistic color detection

This color sensor can distinguish up to eight colors. It works with a white light LED and can distinguish colors regardless of material and surface. The display with 9 LED segments supports commissioning by providing visual feedback on the recognized color and trained references. The signal values can be output in either RGB or HSL via the IO-Link interface.



Technical Data

Optical Data	
Working Range	30...40 mm
Working Distance	35 mm
Switching Hysteresis	< 1 %
Light Source	White Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	3 mm

Electrical Data	
Supply Voltage	18...30 V DC
Current Consumption (U _b = 24 V)	< 50 mA
Switching Frequency	8 kHz
Response Time	50 μs
Temperature Drift	< 10 %
Temperature Range	-25...60 °C
Switching Output Voltage Drop	1,5 V
PNP Switching Output/Switching Current	100 mA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Interface	IO-Link V1.1
Protection Class	III

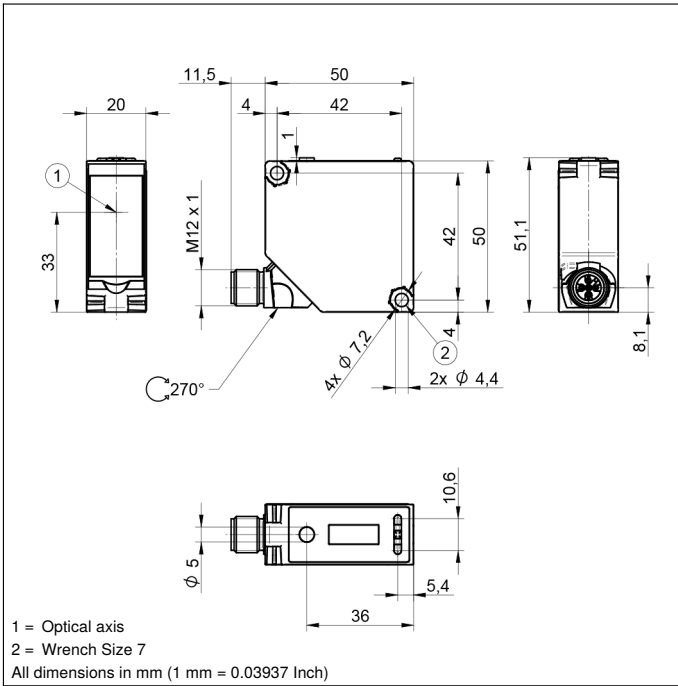
Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic, ABS
Optic Cover	Plastic, PMMA
Degree of Protection	IP67
Connection	M12 × 1; 5-pin

Safety-relevant Data	
MTTFd (EN ISO 13849-1)	719,27 a
Scope of delivery	1 × initial start-up instructions 1 × sensor 1 × Z1PE002 mounting set

External teach-in input	●
Connection Diagram No.	317
Control Panel No.	X13
Suitable Connection Equipment No.	2 35
Suitable Mounting Technology No.	380

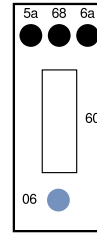
Complementary Products

IO-Link Master
Software

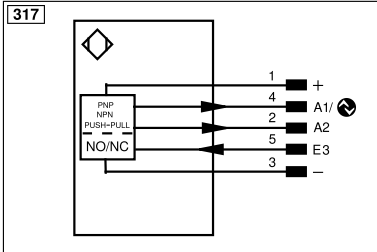


Ctrl. Panel

X13

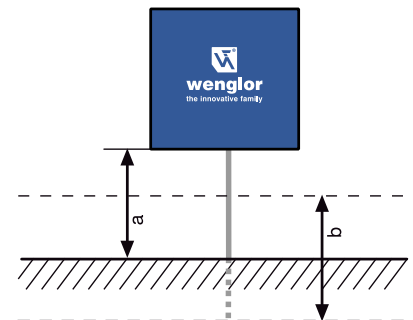


- 06 = Teach Button
- 5a = Switching Status Indicator, O1
- 60 = display
- 68 = Power LED
- 6a = Switching Status Indicator, O2



Legend					
+	Supply Voltage +	PT	Platinum measuring resistor	ENARs422	Encoder A/Ā (TTL)
-	Supply Voltage 0 V	nc	Not connected	ENBRs422	Encoder B/B̄ (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	ENA	Encoder A
A	Switching Output (NO)	Ū	Test Input inverted	ENB	Encoder B
Ā	Switching Output (NC)	W	Trigger Input	AMIN	Digital output MIN
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input	AMAX	Digital output MAX
Ū	Contamination/Error Output (NC)	O	Analog Output	Aok	Digital output OK
E	Input (analog or digital)	O-	Ground for the Analog Output	SY In	Synchronization In
T	Teach Input	BZ	Block Discharge	SY OUT	Synchronization OUT
R	Reset input	Amv	Valve Output	Out	Brightness output
Z	Time Delay (activation)	a	Valve Control Output +	M	Maintenance
S	Shielding	b	Valve Control Output 0 V	rsv	Reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Colors according to DIN IEC 60757	
TxD	Interface Send Path	SY-	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	≡	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
	IO-Link	Rx+/-	Ethernet Receive Path	GN	Green
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
QSSD	Safety Output	La	Emitted Light disengageable	GY	Grey
Signal	Signal Output	Mag	Magnet activation	WH	White
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation	PK	Pink
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contacting Monitoring	GNYE	Green/Yellow

Ideal Working Distance



a = working distance
 b = Working Range

