

# TL Series Contrast Sensors



## Contrast Sensor

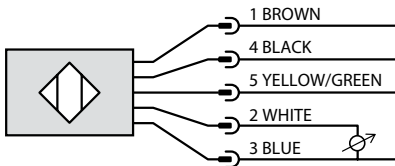
- Datalogic contrast print mark sensor
- RGB light emission
- Vertical or horizontal spot orientation
- 6-12mm sensing distance
- 10 to 30 VDC operating voltage
- Selectable light-on / dark-on
- NPN / PNP
- 0 – 5 VDC analog output models
- 15, 20, or 50kHz switching frequency
- Aluminum housing
- Teach-in sensitivity adjustment
- 5-pin M12 quick-disconnect with adjustable exit angle
- Purchase cable separately
- IP67



TL Series Contrast Sensors Selection Chart									
Part Number	Price	Sensing Range	Spot Orientation	Switching Frequency	Output State	Logic	Connection	Wiring	Dimensions
TL46-W-815	\$132.00	6–12 mm [0.2–0.5 in]	Vertical	15kHz	Selectable Light-on/Dark-on plus analog output 0–5 VDC	NPN / PNP	M12 connector	Diagram 1	Figure 1
TL46-W-815L	\$132.00		Horizontal						
TL46-WL-815	\$154.00		Vertical	20kHz				Diagram 2	
TL46-WL-815L	\$154.00		Horizontal						
TL46-WJ-815	\$335.00		Vertical	50kHz	Diagram 3				
TL46-WJ-815L	\$335.00		Horizontal						

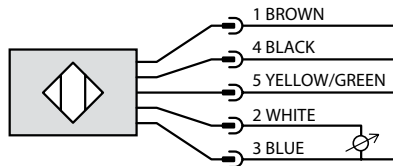
## Wiring diagrams

Diagram 1



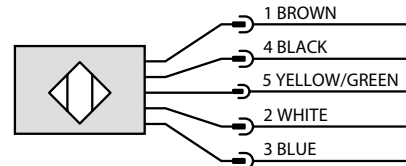
- Pin 1 – Supply Voltage
- Pin 4 – NPN/PNP Output
- Pin 5 – Delay Setting Input
- Pin 2 – Analog Output
- Pin 3 – 0 VDC

Diagram 2



- Pin 1 – Supply Voltage
- Pin 4 – NPN/PNP Output
- Pin 5 – Remote Acquisition
- Pin 2 – Analog Output
- Pin 3 – 0 VDC

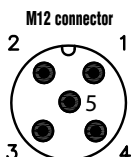
Diagram 3



- Pin 1 – Supply Voltage
- Pin 4 – PNP Output
- Pin 5 – Remote Acquisition
- Pin 2 – Light/Dark Input
- Pin 3 – 0 VDC

**NOTE: WIRING OBJECTS ARE BASED ON AUTOMATONDIRECT 5-POLE CABLE ASSEMBLIES.**

## Connectors



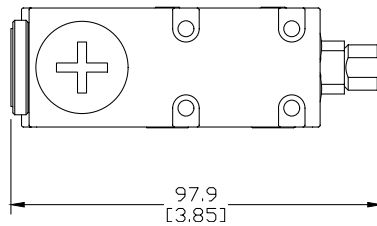
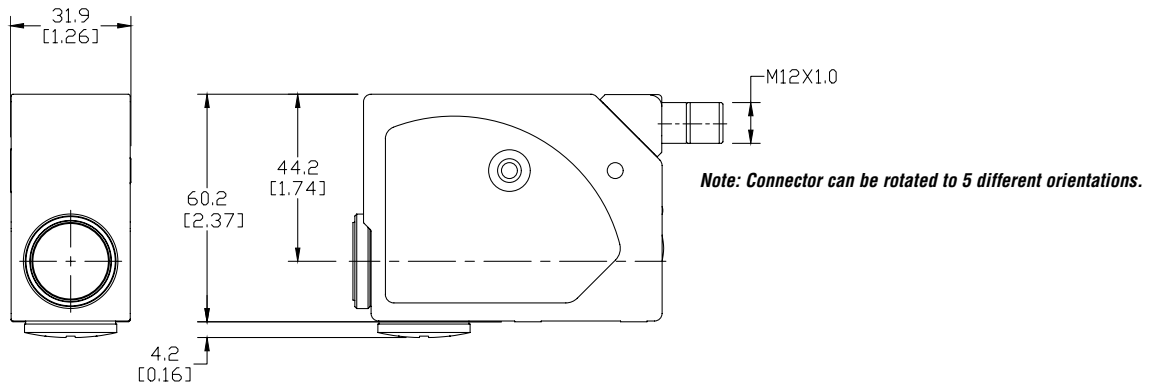
**NOTE: CLASS 2 POWER SUPPLY REQUIRED**

# TL Series Contrast Sensors

## Dimensions

mm [inch]

**Figure 1**



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# TL Series Contrast Sensors

Specifications			
TL Series	TL46-W	TL46-WL	TL46-WJ
<b>Sensing Distance</b>	6–12 mm [0.2–0.5 in]		
<b>Spot Dimension</b>	1.5 x 5 mm		0.8 x 4 mm
<b>Spot Orientation</b>	815 - Vertical and 815L - Horizontal		
<b>Emission</b>	RGB LEDs: Blue (465nm)/ Green (520nm)/Red (630nm) with automatic selection		
<b>Sensitivity</b>	Yes via teach-in button/remote signal		No
<b>Output Type</b>	NPN or PNP; Light On/Dark On selectable		PNP Light On/Dark On Selectable
<b>Delay</b>	0 – 20ms selectable via delay input		NA
<b>Operating Voltage</b>	10 – 30 VDC		
<b>No-load Supply Current</b>	≤ 50 mA	≤ 85 mA (bargraph on) ≤ 55 mA (bargraph off)	≤ 50 mA
<b>Operating (Load) Current</b>	≤ 100 mA		
<b>Off-state (Leakage) Current</b>	< 5 µA		
<b>Voltage Drop</b>	≤ 2 V		
<b>Switching Frequency</b>	15 kHz	20 kHz	50 kHz
<b>Response Time</b>	33 µs	25 µs	10 µs
<b>Differential Travel</b>	< 20 mV		
<b>Jitter</b>	< = 33 µs	< = 25 µs	< 7µs
<b>Ripple</b>	≤ 2 Vpp		
<b>Time Delay Before Availability (tv)</b>	N/A		
<b>Reverse Polarity Protection</b>	Yes		
<b>Short-Circuit Protection</b>	Yes		
<b>Operating Temperature</b>	-10–55 °C [14–131 °F]		
<b>Protection Degree (DIN 40050)</b>	IP67		
<b>Indication/Switch Status</b>	Output LED (yellow) / Ready LED (green)	Out LED (yellow) Ready LED (green) Delay and Keylock LED (orange) 5-segment Bar graph	Output LED (yellow) / Ready LED (green)
<b>Housing Material</b>	Aluminum		
<b>Sensing Face Material</b>	PMMA	Glass	PMMA
<b>Shock</b>	EN60068-2-27		
<b>Vibration</b>	EN60068-2-6		
<b>Weight</b>	170g (5.99 oz)		
<b>Connectors</b>	M12 5-pole connector		
<b>Agency Approvals</b>	CE cULus E227487		

Note: To obtain the most current agency approval information— see the Agency Approval Checklist section on the specific part number's web page.