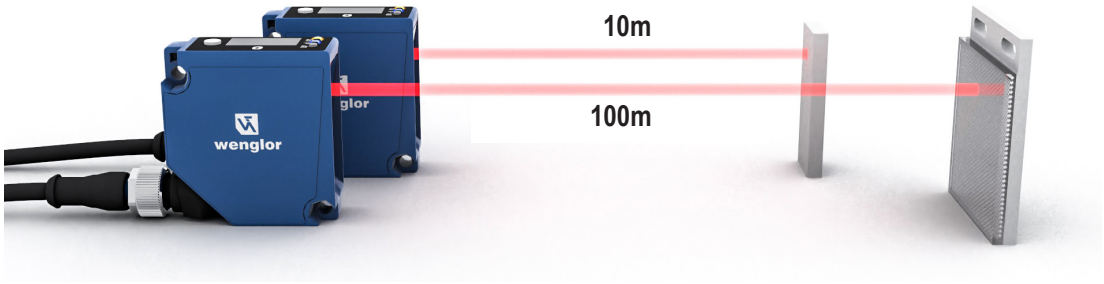
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OPT21 Series Laser Distance Measurement Photoelectric Sensors



Overview

Wenglor OPT21 Series Laser Distance Measurement Photoelectric Sensors use Time of Flight technology to deliver precise, reliable distance measurement across a wide range of industrial applications. Available in diffuse and retroreflective configurations with switching and analog outputs, these Class 1 red laser sensors accurately detect objects regardless of material, color, or surface finish — even dark or highly reflective targets at extreme angles. With a sensing range up to 100m and Dynamic Sensitivity (DS) technology for exceptional performance in challenging ambient conditions, the OPT21 Series is built for demanding environments. The rugged IP67/IP68-rated housing, IO-Link v1.1.3 connectivity, and intuitive OLED display with wireless Bluetooth configuration make installation and setup straightforward. An M12 quick-disconnect connection and compatible mounting hardware complete the package.

Features

- Diffuse and Retroreflective (Analog and switching outputs available)
- Measured value independent of material, color, and brightness
- Time of Flight technology
- Class 1 red laser
- M12 quick-disconnect (purchase cable separately)
- Mounting hardware
- IO-Link v1.1.3

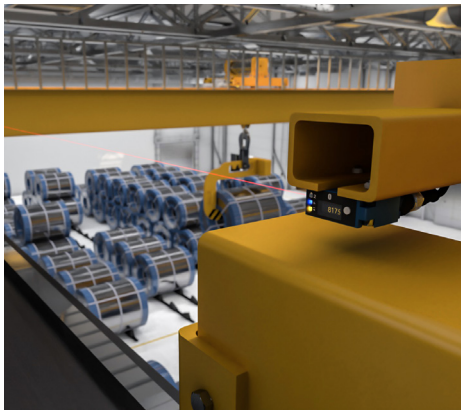
IO-Link

Download on the App Store

GET IT ON Google Play

Applications

- Woodworking industry
- Rail industry
- Battery industry
- Machinery manufacturing
- Electronics industry
- Automotive industry



Product Highlights

Detection of transparent objects

Highest accuracy in detection

Extremely high resistance to ambient light

No mutual interference

Advanced DS technology

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OPT21 Series Laser Distance Measurement Photoelectric Sensors

Display via OLED Display

The time-of-flight sensors impress with their high-quality OLED display for parameterization and display of distance values. The clear menu guidance makes it easy to adjust sensor settings, while the clearly visible, bright OLED display ensures clear readability of measurement data under various operating conditions.



Wireless Configuration via App

Time-of-flight sensors can now also be set and data transferred on the go. The Bluetooth functionality allows for easy on-site configuration, which is particularly beneficial when sensors are difficult to access or installed in large numbers. This feature significantly simplifies and speeds up the parameterization of the individual distance sensors. Intuitive operating concept via two- or five-second button actuation



GET IT ON Google Play

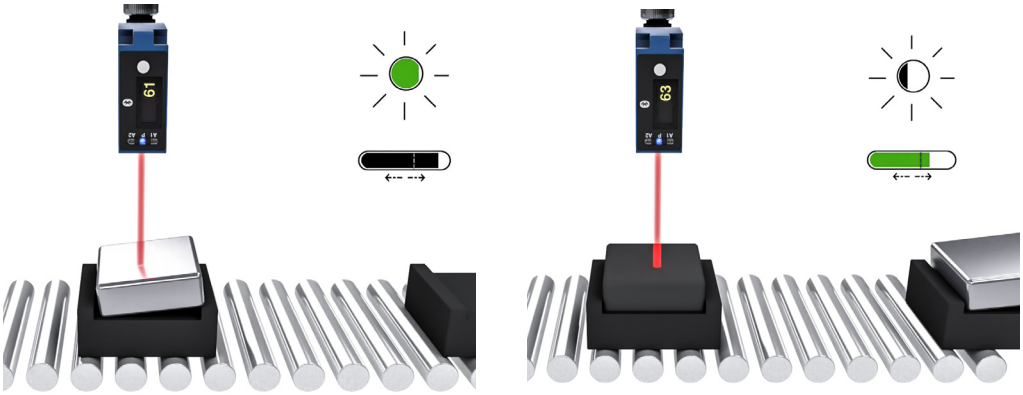
Download on the App Store

Download the weCon app now free of charge from the Apple App Store or Google Play Store.

Intensity Evaluation

In addition to the distance, Time-of-flight sensors also evaluate the light intensity reflected by the object surface. This allows them to detect the finest contrast differences, allowing for precise part control in terms of height and color. Thus, they ensure thorough fault detection for the highest product quality.

Transit time sensors also ensure that transparent objects are reliably detected even against a constant background. This versatility makes the sensor an indispensable component in various applications — from production control to object detection in complex environments.



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OPT21 Series Laser Distance Measurement Photoelectric Sensors



OPT2175



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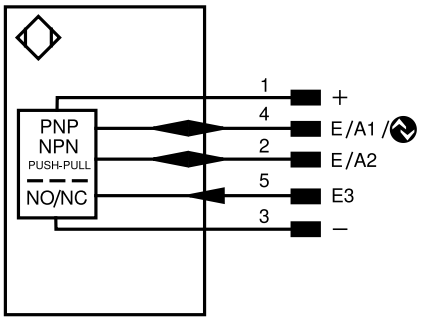
CE IO-Link

OPT21 Series Laser Distance Measurement Photoelectric Sensors Selection Chart

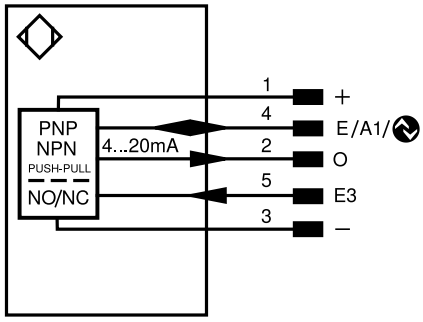
Part Number	Price	Sensing Method	User Interface	Light Emission	Sensing Range	Measuring Rate	Switching Frequency	Switching Output	Analog Output	Setting Method	Operation Mode	Connection	Drawing Link
OPT2175	$330.00	Diffuse	Pushbutton user interface with display	Class 1 red laser	0–10m [0–32.8ft]	—	250 Hz	(2) PNP	—	OLED (Bluetooth menu)	Selectable light-on/ dark-on	5-pin M12 quick-disconnect *	PDF
OPT2176	$430.00					100/s	—	PNP	4–20 mA				PDF
OPT2177	$430.00						—		0–10 VDC				PDF
OPT2178	$430.00	Retroreflective			0.2–100m [0.65–328.0ft]	—	50 Hz	(2) PNP	—				PDF

*** Purchase cable separately.**

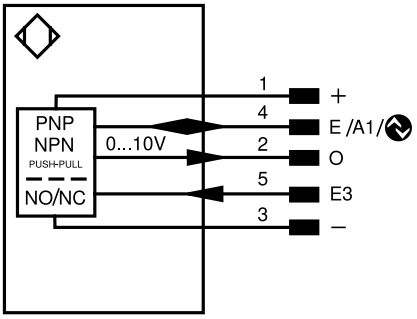
Wiring Diagrams



OPT2175 and OPT2178



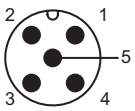
OPT2176



OPT2177

Legend	
+	Supply Voltage +
E/A	Output/Input programmable
O	Analog Output
A	Switching Output (N.O.)
IO-Link	IO-Link
-	Supply Voltage 0 V

5-Pin M12 connector



1 Brown
2 White
3 Blue
4 Black
5 Gray

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OPT21 Series Laser Distance Measurement Photoelectric Sensors

OPT21 Series Laser Distance Measurement Photoelectric Sensors Specifications				
Part Number	***OPT2175***	***OPT2176***	***OPT2177***	***OPT2178***
Type	***Diffuse (Transit time)***			***Retroreflective***
Reproducibility Maximum	3mm			20mm
Linearity Deviation	10mm			50mm
Switching Hysteresis	<15mm	—		<50mm
Laser Class (EN 60825-1)	Class 1 red laser			
Wavelength	660 nm			
Beam Divergence	<2 mrad			
Maximum Ambient Light	100,000 Lux			25,000 Lux
Light Spot Diameter	See Light Spot Diameter Table			
Operating Voltage	18–30 VDC			
Current Consumption (Ub = 24 VDC)	<60 mA			
Response Time	4.7–15 ms	—		15–30 ms
Measuring Rate	—	100/s		—
Temperature Drift	<0.4 mm/K			
Operating Temperature	-40 to +50 °C [-40 to +122 °F]			
Switching Output Voltage Drop	<2.5V	—		<2.5V
Short Circuit Protection	Yes			
Reverse Polarity Protection	Yes			
Overload Protection	Yes			
Protection Degree	IP67 IP68			
Protection Class	III			
LED Indicators - switching status	P= Blue LED = Power on A1 = Yellow LED = Switching output 1 A2 = Yellow LED = Switching output 2	P= Blue LED = Power on A1 = Yellow LED = Switching output 1 O= Yellow LED = Analog Output		P= Blue LED = Power on A1 = Yellow LED = Switching output 1 A2 = Yellow LED = Switching output 2
Housing Material	Plastic (ABS)			
Lens Material	PMMA (Polymethyl methacrylate)			
Shock/Vibration	Tested according to EN 60068-2-6 / EN 60068-2-27			
Tightening Torque	M4 screw 0.5 N·m			
Weight (lb [g])	0.12 [55]			
Connectors	5-pin M12			
Agency Approvals *	CE, cULus E189727, UKCA			

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

Light Spot Diameter				
OPT2175 ***OPT2176*** ***OPT2177***	Working Distance	0m	5m	10m
	Light Spot Diameter	5mm	10mm	15mm
OPT2178	Working Distance	0m	50m	100m
	Light Spot Diameter	5mm	<100mm	<200mm

IMPORTANT NOTE
The Laser Classification Systems for the IEC standard (EN 60825-1) defines the following safety classes:

Class 1
This class is eye-safe under all operating conditions.

Accessories for OPT Series 50 x 50mm Photoelectric Sensors

Right-angle Brackets

Mounting bracket, right-angle, nickel-plated steel or 304 stainless steel.
For use with OPT series 50 x 50mm photoelectric sensors.

Accessories for OPT Series 50 x 50mm Photoelectric Sensors				
Part Number	***Price***	***Description***	***Drawing Link***	***Weight lb***
OPT2031	$11.00	Wenglor mounting bracket, right-angle, nickel-plated brass. For use with OPT series 50x50mm photoelectric sensors.	PDF	0.24
OPT2038	$15.00	Wenglor mounting bracket, right-angle, vertical and horizontal adjustment, 304 stainless steel. For use with OPT series 50x50mm photoelectric sensors.	PDF	0.19



OPT2031



OPT2038

Accessories for OPT Series 50 x 50mm Photoelectric Sensors

Right-angle Swivel Mounting Systems

Mounting bracket, right-angle swivel, 360-degree vertical and horizontal adjustment, 12mm rod mount. For use with OPT series 50 x 50mm photoelectric sensors. Available in all stainless steel or with an aluminum head with a stainless steel mounting plate.

Accessories for OPT Series 50 x 50mm Photoelectric Sensors						
Part Number	***Price***	***Description***	***Mounting Head***	***Mounting Plate***	***Drawing Link***	***Weight lb***
OPT2122	$17.50	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, aluminum, 12mm rod mount. For use with OPT series 50x50mm photoelectric sensors.	Aluminum	304 Stainless Steel	PDF	0.19
OPT2123	$27.50	Wenglor mounting bracket, right-angle swivel, 360 degree vertical and horizontal adjustment, 304 stainless steel, 12mm rod mount. For use with OPT series 50x50mm photoelectric sensors.	304 Stainless Steel	304 Stainless Steel	PDF	0.31

NOTE: 304 Stainless steel mounting rods sold separately: OPT2109 (200mm length), OPT2110 (300mm length), and OPT2111 (500mm length).



OPT2122, OPT2123

Reflectors

Reflectors for Photoelectric Laser Sensors

Reflectors for OPT Series Photoelectric Sensors				
Part Number	*Price*	*Description*	*Drawing Link*	*Weight lb [g]*
OPT2030	$15.50	Reflector, square, 100 x 100mm. For use with photoelectric laser sensors.	PDF	0.20 [90.71]
OPT2167	$15.00	Wenglor reflector, rectangular, 61 x 51.5mm. For use with OPT2137 & OPT2138.	PDF	0.03 [13.60]

Note: OPT2015 requires purchase of OPT2030 reflector. <50m sensing distance requires 1 reflector. 50–100m sensing distance requires 4 reflectors.



OPT2167



OPT2030

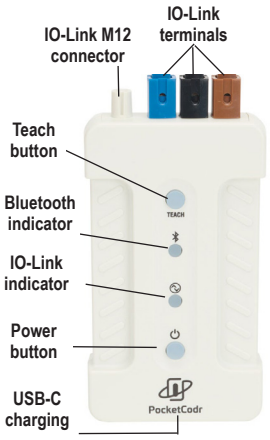
PocketCodr Tool

Overview

The PocketCodr Tool provides an easy way to configure any IO-Link device. The PocketCodr companion app allows you to see live device data and read parameters menu.

Features

- No-code IO-link sensor/device configuration
- Companion app for intuitive and easy status and live data viewing
- IO-Link v1.1
- Includes (1) USB-A to USB-C cable 500mm [0.5m], (1) 4-pin M12 male to female cable 600mm [0.6m] length, and a 30 day trial activation of Contrinex Suite Plan CTXSUITE



PocketCodr Tool				
Part Number	***Price***	***Description***	***Weight***	***Drawing Link***
POC-CDR-M12	$195.00	PocketCodr programming tool, 24 VDC output. USB-A to USB-C cable and 4-pin M12 male to female cable, 30 day trial activation of Contrinex Suite Plan CTXSUITE included.	0.95 lbs (including carrying case)	PDF

Specifications	
Sensor Supply Voltage	24 VDC
Max. Sensors Supply Current	100 mA continuous, 500 mA for wake-up (Built-in current limit)
Output Types	PNP
Connection	M12 female connector without thread or 3 spring post terminals
Power Button	LED Green: System ON LED OFF: System OFF LED Green blinking 1 Hz - Low battery (<15%) LED Yellow Charging (while turned on)
IO-Link Indicator	LED yellow OFF - no IO-Link communication LED yellow ON - IO-Link sensor recognized
Bluetooth Indicator	LED Blue blinking 1 Hz - Bluetooth communication active, watiing for a connection (discoverable) LED Blue OFF - Bluetooth device connected
Battery	LiPo 7.4V 650 mAh > 2hours for 50 mA sensors
Operating Temperature	-10 to +40 °C [+14 to +104 °F]
Charging Interface	USB-A to USB-C (included)
Buttons	Digital teach (requires the PocketCodr app and a compatiable sensor) Power short press: Turn ON Power long press: Turn OFF
Automatic Switch OFF-10	After 2 minutes of non-use (no Bluetooth device connected)
Degree of Protection	IP40
Bluetooth Version	v4.2 and v5.0 compatible
Operating System Requirements	Google Android 7.0 or later Apple iOS 13.1 or later
IO-Link Version	v1.1
Agency Approval	CE, UKCA