

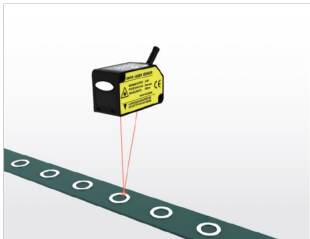
CMOS Type Micro Laser Distance Sensor

[CL Series]

- Selectable detection range
- Compact size with precise light spot
- Durable aluminum housing



Applications



Absence and presence detection on flat mat



Rolling sheet usage detection



Detection on sheet layer bending

Overview

Code Reader

Handheld Reader

Vision Sensor

Vision System

Fiberoptic Sensor

Photoelectric Sensor

RGB Colour Sensor

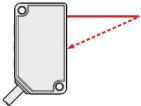
Proximity Sensor

Ultrasonic Sensor

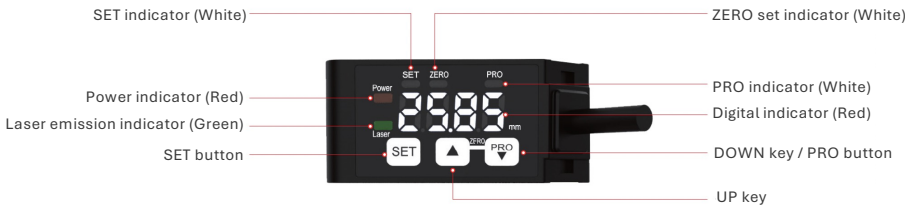
Safety Curtain

Ionizer

Sensor Variant

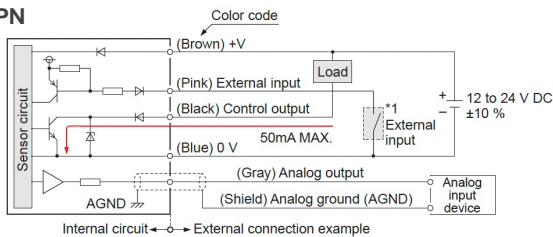
Type	Appearance	Detecting range	Output mode	Repeatability	Model	
					NPN	PNP
Short range		30 ± 5 mm	Analogue	10 μm	CL-30N	CL-30P
		50 ± 15 mm		50 μm	CL-50N	CL-50P
Medium range		100 ± 35 mm		100 μm	CL-100N	CL-100P
		200 ± 80 mm		200 μm	CL-200N	CL-200P
Long range		400 ± 200 mm		<400 μm> (Measuring distance 200 to 400 mm) <800 μm> (Measuring distance 400 to 600 mm)	CL-400N	CL-400P
		700 ± 500 mm		<300 μm> (Measuring distance 200 to 400 mm) <800 μm> (Measuring distance 400 to 600 mm) <1000 μm> (Measuring distance 600 to 1200 mm)	CL-700N	CL-700P

Part description

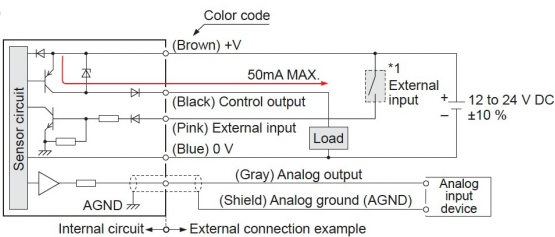


Wiring Diagram

NPN



PNP



Specifications

Type		Short range		Medium range		Long range	
Model	NPN	CL-30N	CL-50N	CL-100N	CL-200N	CL-400N	CL-700N
	PNP	CL-30P	CL-50P	CL-100P	CL-200P	CL-400P	CL-700P
Measurement centre distance		30 mm	50 mm	100 mm	200 mm	400 mm	700 mm
Measurement range		± 5 mm	± 15 mm	± 35 mm	± 80 mm	± 200 mm	± 500 mm
Repeatability		10 μm	50 μm	100 μm	200 μm	400 μm	700 μm
Linearity		± 0.2 % F.S.			± 0.3 % F.S.		<±0.3 % F.S.> (Measuring distance 200 to 600 mm) <±0.5 % F.S.> (Measuring distance 600 to 1000 mm) <±0.8 % F.S.> (Measuring distance 1000 to 1200 mm)
Temperature characteristic		0.03 % F.S. / °C					
Light source		Red semiconductor laser Class 2 [IEC/EN/JIS/GB/KS/FDA] Max. output: 1 mW, emission peak wavelength: 655 nm					
Beam diameter		Approx. ø 50 μm	Approx. ø 150 μm	Approx. ø 150 μm	Approx. ø 150 μm	Approx. ø 50 μm	Approx. ø 1000 μm
Power supply		12 to 24 V DC ±10 %, Ripple P-P 10 % or less					
Current consumption		40 mA or less (at 24 V DC supply voltage), 60 mA or less (at 12 V DC supply voltage)					
Control output		<NPN output type> NPN open-collector transistor • Maximum sink current: 50 mA • Applied voltage: 30 V DC or less (Between control output to 0V) • Residual voltage: 1.5 V or less (At 50 mA sink current) • Leakage current: 0.1 mA or less			<PNP output type> PNP open-collector transistor • Maximum source current: 50 mA • Applied voltage: 30 V DC or less (Between control output to +V) • Residual voltage: 1.5 V or less (At 50 mA source current) • Leakage current: 0.1 mA or less		
Operation mode		LIGHT-ON / DARK-ON switch selectable					
Short circuit		Incorporated (Auto reset type)					
Analog output		Analog voltage output • Output range: 0 to +5 V (at alarm: +5.2 V) • Output impedance: 100 Ω			Analog current output • Output range: 4 to 20 mA (at alarm: 0 mA) • Load impedance: 300 Ω or less		
Response time		1.5 ms / 5 ms / 10 ms selectable					
External input		<NPN output type> NPN non-contact input • Input conditions Invalid: +8 to +V DC or Open Valid: 0 to +1.2 V DC • Input impedance:10 kΩ approx.			<PNP output type> PNP non-contact input • Input conditions Invalid: 0 to +0.6 V DC or Open Valid: +4 to +V DC • Input impedance: 10 kΩ approx.		
Pollution degree		2					
Operating altitude		2,000 m or less					
Enclosure rating		IP65					
Ambient temperature		-10 to +45 °C (No freezing)					
Relative humidity		35 to 85% RH (No condensation)					
Ambient light		Incandescent lamp: 3,000 lux or less					
Vibration resistance		10 to 55 Hz (period: 1 min.) frequency, 1.5 mm in double amplitude in X, Y and Z directions for two hours each					
Shock resistance		500 m/s ² 3 times in the X and Y direction					
Cable		5-core composite cable, 2 m					
Material		Housing: Aluminum die-cast, Front cover: Acrylic					
Weight		Approx. 35 g (without cable), Approx. 85 g (including cable)					

Dimensions

CL Series

