

Датчики триангуляционного типа MLD

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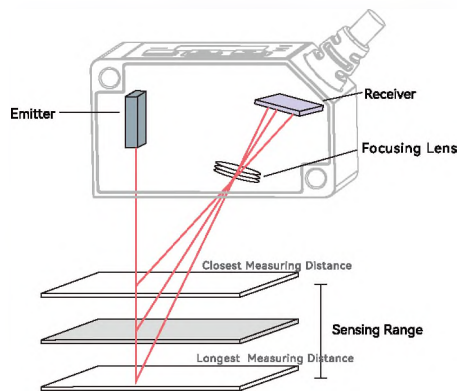
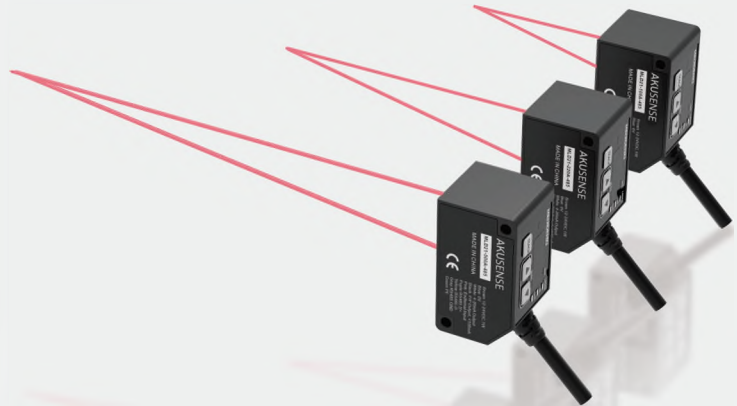
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Laser Displacement Sensor

MLD21 Series ▶



CMOS sensor element Highly accurate detection achieved by triangulation principle

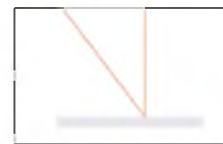
By triangulation principle, the incoming light port on the CMOS of the sensor receiver moves as the object position changes.

And the change of objects can be checked by detecting the incoming light position.

Automatic Exposure Adjustment

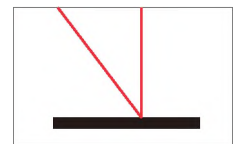
The amount of energy received can be automatically adjusted according to different applications;

Detection remains stable even the color or material of the workpiece changes.



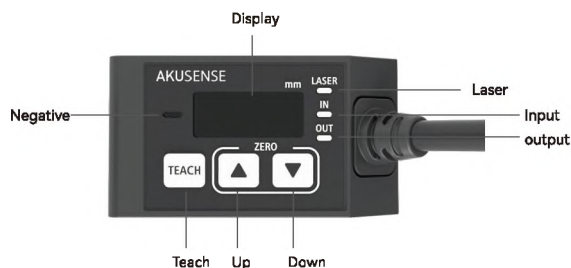
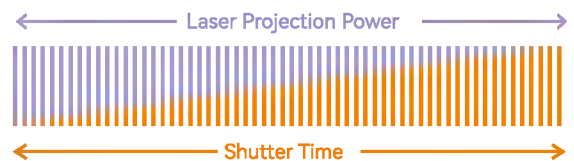
Measuring brighter objects

Laser Weakened



Measuring darker objects

Laser Enhanced



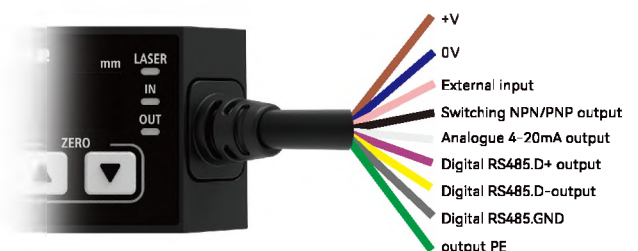
Intuitive digit display on the panel, and button function makes commissioning easy

Equipped with display and function buttons within a mini space;

The opening/closing of the laser, external trigger signal and control output signal status can be intuitively presented; most function settings can be made directly via the sensor panel.

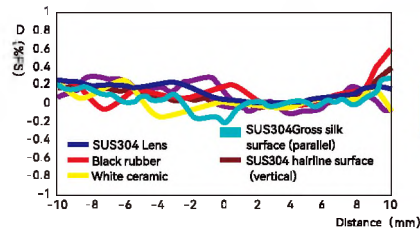
It includes parameter item setting, function item setting and threshold setting.

Integrated output methods; Switching, analogue and digital outputs all in one.

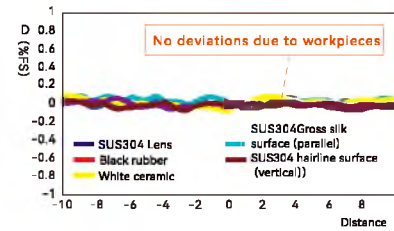


Detection remains stable even the workpiece moves

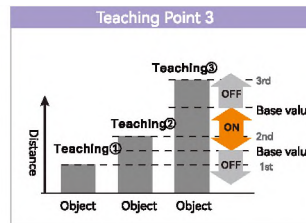
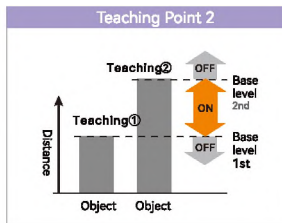
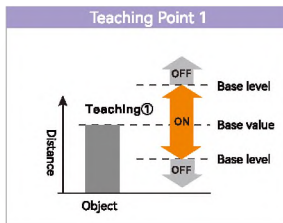
For workpieces with rough surfaces, a linear beam is used to average the amount of reflection. And the amount of light received is corrected at a highspeed of 30us for per measurement cycle to reduce the alteration of the amount of light received caused by workpiece moving. Thus the detection remains stable even when the workpiece is displaced during the pro process of measurement.



Material-based linear properties of previous products



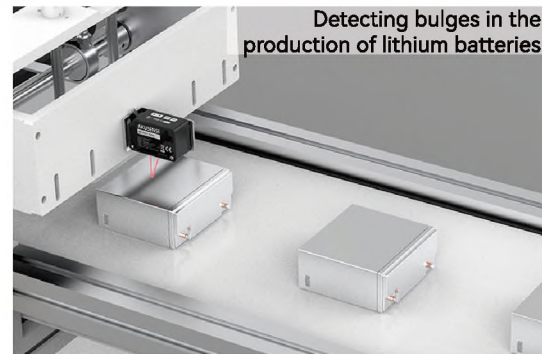
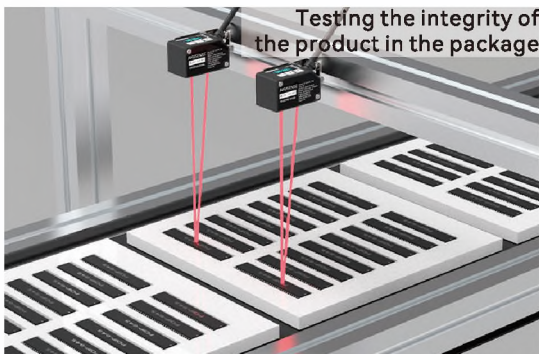
Material-based linear properties of MLD21



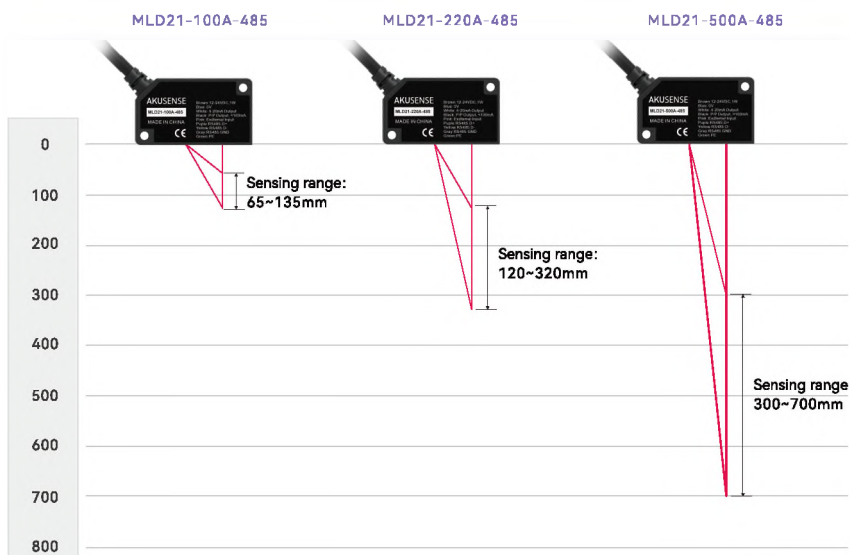
Built-in rich detection mode for greater functionality

In addition to the basic teaching settings, the following three modes have been implement Basic teaching mode for simple setting of the presence or absence of the object to be mea A single-point serial comparison mode for deviati from the reference measurement surface; A two-point teaching serial comparison mode fo precise range control.

Applicatio



Selection tabl



Model	MLD21-100A-485
Repeat accuracy	70μm
Linearity	±0.1%
Base distance	100mm

Model	MLD21-220A-485
Repeat accuracy	200μm
Linearity	±0.2%
Base distance	220mm

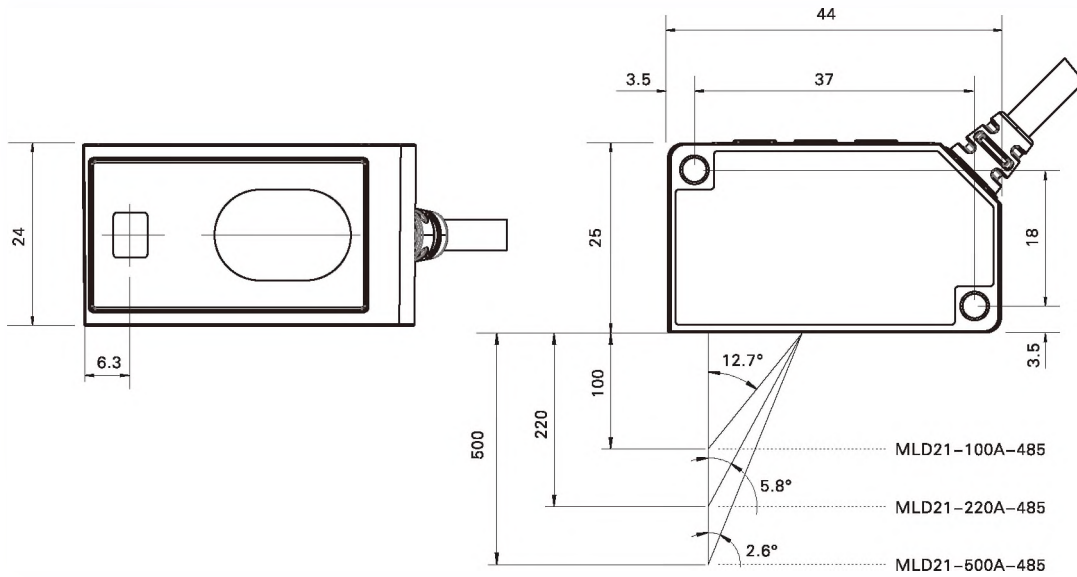
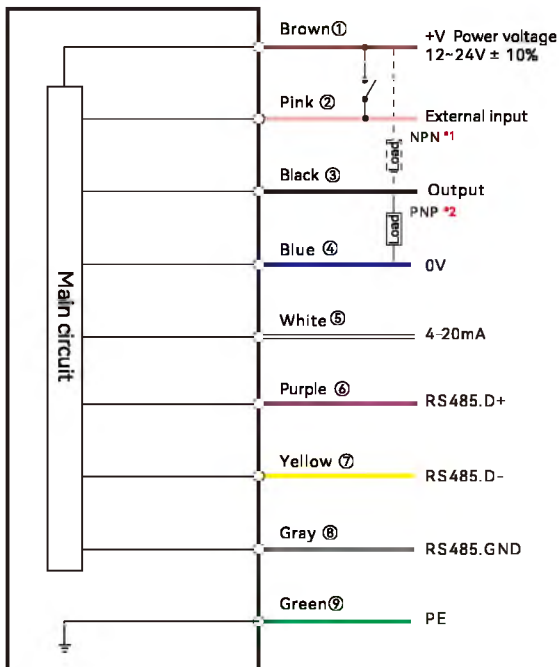
Model	MLD21-500A-485
Repeat accuracy	(300~500mm)300μm (500~700mm)600μm
Linearity	(300~500mm) ±0.2% (500~700mm) ±0.3%
Base distance	500mm

MLD21 Series



Basic Features	Working principle	Triangulation		
	Housing	Rectangular		
	Optical working principle	Diffuse reflection		
	Reference distance	100mm	220mm	500mm
	Measuring range	65~135mm	120~320mm	300~700mm
	Light source	Red laser, Class 2		
	Spot size	0.14x0.11mm	0.29x0.24mm	0.54x0.33mm
Electrical data	Switching mode	L.on/D.on		
	Output mode	NPN or PNP collector open		
	Response time	1.5ms/ 3ms/5ms (default v: ms)		
	Linearity	± 0.1%	± 0.2%	(300~500mm) ± 0.2% (500~700mm) ± 0.3%
	Repeatability	70μm	200μm	(300~500mm)300μm (500~700mm)600μm
	Temperature drift characteristics	-		
	Operating voltage	12~24VDC ± 10%		
	Current consumption	-		
	Load current	<100mA		
	Insulation resistance	≥ 20MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	500 VAC, 50/60 Hz for 1 min between power terminals and enclosure		
Environmental conditions	Protection circuit	Reverse Polarity Protection/surge protection		
	Operating temperature	-10~50℃		
	Operating humidity	35~85%RH		
	Ambient illumination	Incandescent≤3000 Lux		
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Enclosure rating	IP67		
Mechanical data	Connection type	2m, 9 core cable		
	Dimension	24,0x44,0x25,0mm		
	Material	Aluminum		
	Weight	0.065kg		
	Accessories	Cable		
	Model	MLD21-100A-485	MLD21-220A-485	MLD21-500A-485

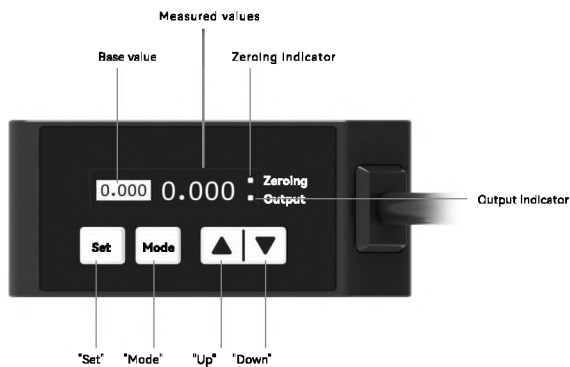
Unit:mm

Dimensions**Circuit diagram****Remark :**

- 1.NPN output connection : Connect Black with Brown (+V)
- 2.PNP output connection: Connect Black with Blue (0V)

Laser Displacement Sensor

MLD23 Series ▶



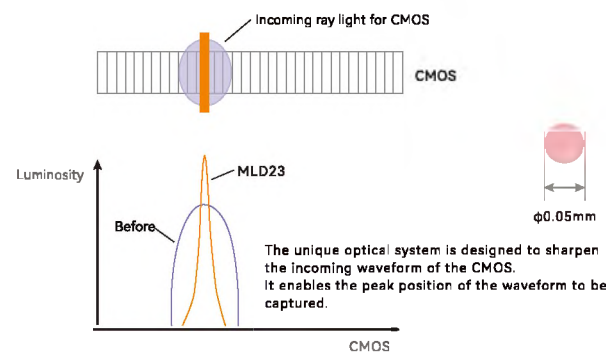
Mini Chinese Display

More Intuitive and Simple for Commissioning

Convergent harnesses for more accurate detection

AkuseNSE has developed its own optical system to significantly converge and improve the beam to 50µm;

An ultra-small spot size of 0.05mm formed, which detects objects with stability and accuracy.

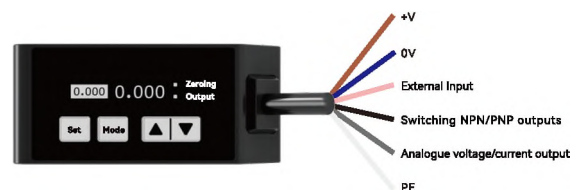


Micron-level linear accuracy

Linear accuracy reaches to 0.01mm for easy inspection with high accuracy

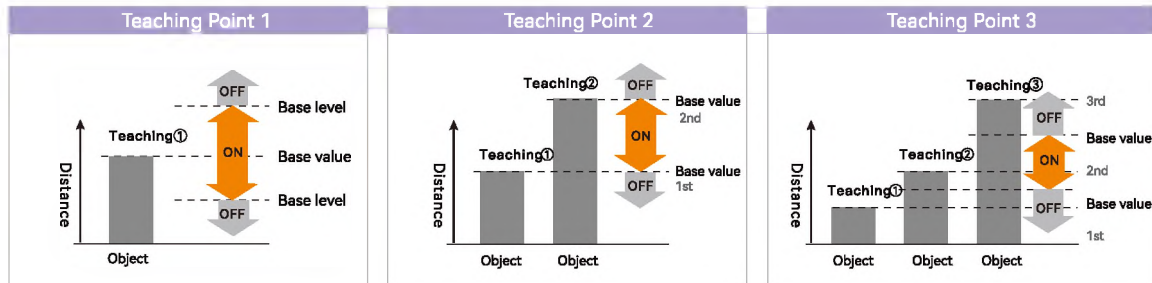
Convenient Installation

Integration of analogue voltage, analogue current and switching



Simple and flexible test patterns

Multiple teaching modes to make testing easier



Faster, more stable, more accurate

Three test modes are for option:
standard, high speed and high accuracy

① Ultra-high speed computing and processing

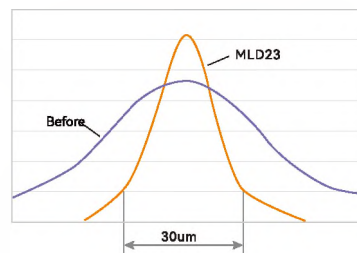
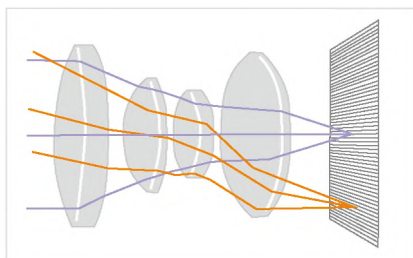
The application of Akusense's advanced IC and algorithm technology has greatly improved the sensor's detection rate and data accuracy, allowing for both high speed transmission and stable detection of measured values.



Max 1.5ms response time

Repeat accuracy up to 10um

Min ±0.1% F.S linearity

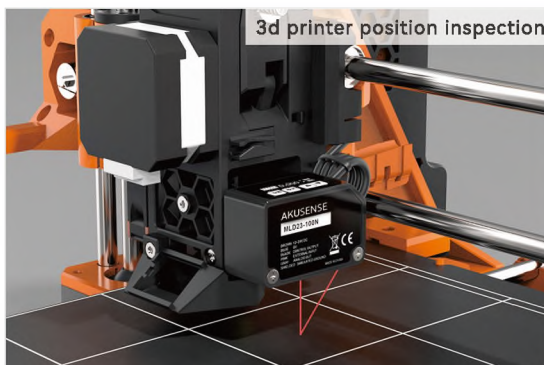


② Achieving greater precision

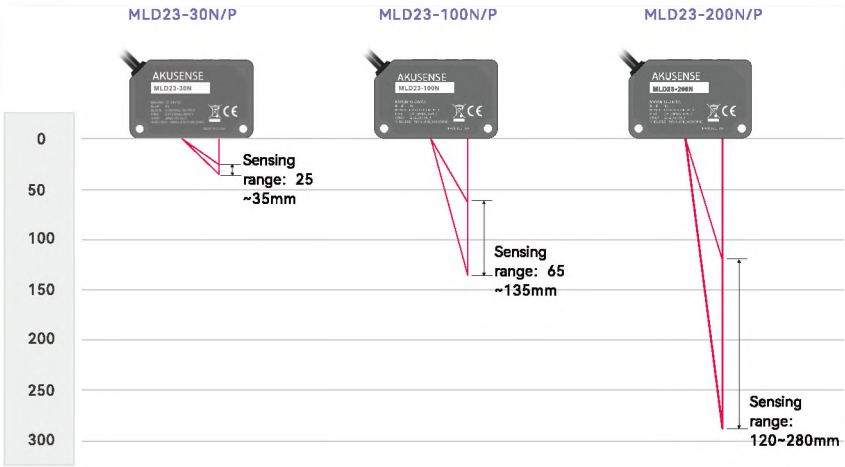
The new Akusense high-resolution lens design reduces pixel aberration and is assembled with precision.

The small spot of light at any angle can be imaged at the receiving section, resulting in a smaller waveform and higher measurement accuracy.

Application



Selection table



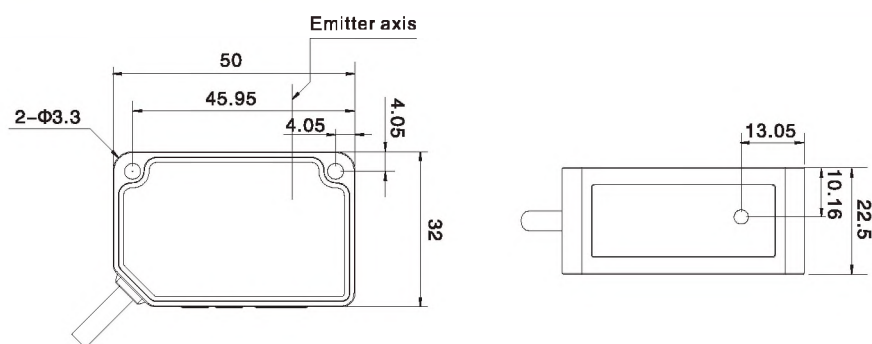
Model	MLD23-30N/P
Repeat accuracy	10μm
Linear accuracy	±0.1% F.S.
Base distance	30mm

Model	MLD23-100N/P
Repeat accuracy	70μm
Linear accuracy	±0.1% F.S.
Base distance	100mm

Model	MLD23-200N/P
Repeat accuracy	200μm
Linear accuracy	±0.2% F.S.
Base distance	200mm

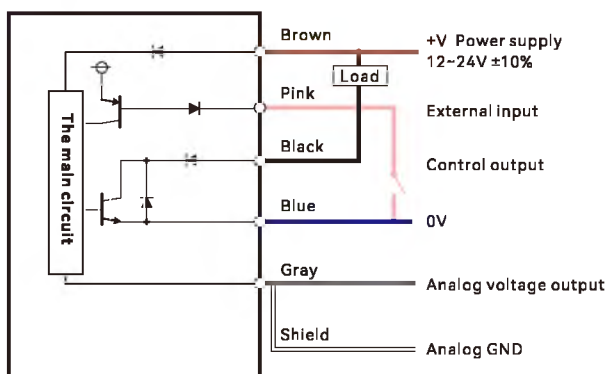


Basic Features	Working principle	Triangulation		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Reference distance	30mm	100mm	200mm
	Measuring range	25~35mm	65~135mm	120~280mm
	Light source	Red laser, 655nm, Class 2		
	Spot Size	about Φ0.05mm	about Φ0.15mm	about Φ0.3mm
Electrical data	Switching mode	L.on/D.on		
	Output mode	NPN or PNP collector open		
	Response time	1.5ms/5ms/50ms switchable		
	Linearity	± 0.1% F.S.		± 0.2% F.S.
	Repeatability	10μm	70μm	200μm
	Temperature drift characteristics	± 0.03%/°C		
	Operating voltage	12~24VDC ± 10%		
	Current consumption	<60mA(24VDC); <100mA(12VDC)		
	Load current	<50mA		
	Insulation resistance	≥20MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	< 0.1mA(1000V AC)		
	Protection circuit	Surge protection		
Environmental conditions	Operating temperature	-10~45°C(No Freezing)		
	Operating humidity	35~85%RH(No Condensation)		
	Ambient illumination	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 3000 Lux		
	Vibration resistance	10 to 50 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Enclosure rating	IP66		
Mechanical data	Connection type	2m, 9 core cable		
	Dimension	22.5x50.0x32.0mm		
	Material	Acrylic-based, Aluminum		
	Weight	0.065kg		
	Accessories	Cable		
Model	NPN	MLD23-30N	MLD23-100N	MLD23-200N
	NPN+PNP	MLD23-30NP	MLD23-100NP	MLD23-200NP

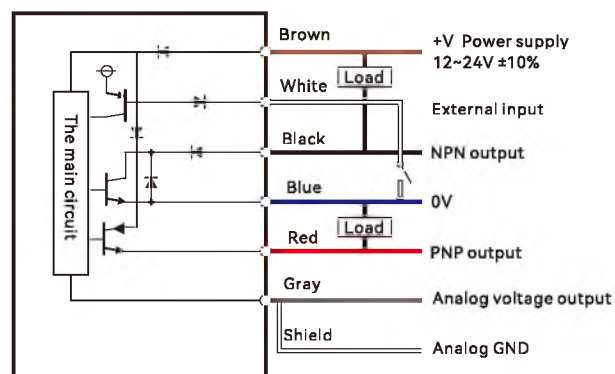


Circuit diagram

■ NPN

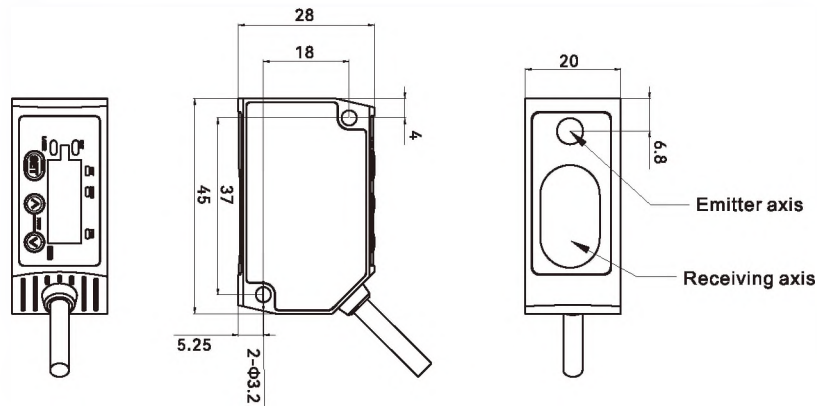


■ NPN+PNP



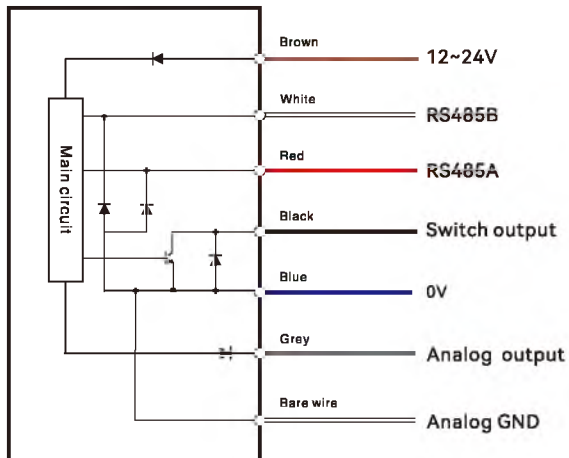

NEW!
CE

Basic Features	Working principle	Triangulation			
	Housing	Retangular			
	Optical working principle	Diffuse reflection			
	Reference distance	30mm	50mm	100mm	200mm
	Measuring range	25-35mm	35-65mm	65-135mm	120-280mm
	Light source	Red laser, wavelength:655nm 1mW Class2			
	Spot Size	φ40μm	φ50μm	φ80μm	φ140μm
Electrical data	Switching mode	L.on/D.on/Botton/RS-485 switch			
	Output mode	Switching output (NPN/PNP) / Analog output (Voltage 0-5V / Current 4-20mA)			
	Response time	< 10ms/5ms/1.5ms			
	Linearity	± 0.1% F.S.			± 0.2% F.S.
	Repeatability	10μm	30μm	70μm	200μm
	Temperature drift characteristics	0.03%/°C F.S.			
	Operating voltage	12~24V DC ± 10%			
	Current consumption	< 65mA(12V), < 40mA(24V)			< 40mA(24V), < 80mA(12V)
	Load current	≤100mA			
	Insulation sesistance	> 500MΩ(500V DC)			
	Dielectric strength	< 0.1mA(1000V AC)			
	Protection circuit	Reverse polarity protection / short circuit protection / overload protection / surge protection			
Environmental conditions	Operating temperature	-10~+45℃(No freezing)			
	Operating humidity	35~85%RH(no condensation)			
	Ambient illumination	Ambient light: ≤10000 lux without interference; incandescent lamp: ≤3000 lux			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m 7-pin composite cable			
	Dimension	20x28x45mm			
	Material	Body: die-cast aluminum; Front cover: acrylic-based			
	Weight	90g			
	Accessories	Cable			
Model	NPN	MLD25-30NV	MLD25-50NV	MLD25-100NV	MLD25-200NV
	PNP	MLD25-30PV	MLD25-50PV	MLD25-100PV	MLD25-200PV

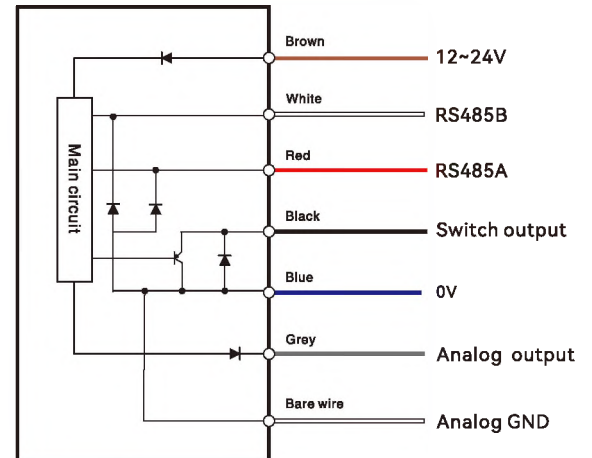


Circuit diagram

NPN Output



PNP Output



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