

# Built-in Controller

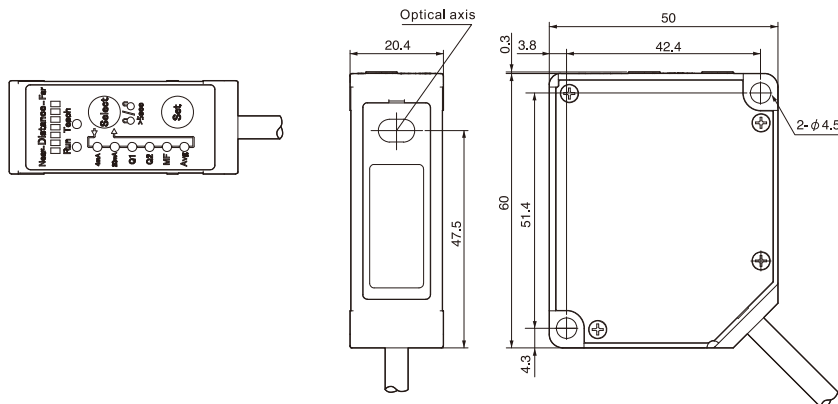
## MLD33 Series



Appearance

Sensing type		Diffuse reflection				
Center of sensing distance		30mm	50mm	85mm	120mm	250mm
Sensing distance		26~34mm	40~60mm	65~105mm	60~180mm	100~400mm
F.S		8mm	20mm	40mm	120mm	300mm
Light source	Medium Wavelength	Red laser diode wavelength: 655nm				
	Max. output	1mW max				
Laser class	IEC/JIS	Class2				
	FDA	Class2				
Beam size	Close range	0.15*0.15mm	0.6*1.2mm	0.9*1.5mm	1.2*1.8mm	1.5*2.5mm
	Center	0.1*0.1mm	0.5*1.0mm	0.75*1.25mm	1.0*1.5mm	1.75*3.5mm
	Long range	0.15*0.15mm	0.4*0.9mm	0.6*1.0mm	0.5*0.8mm	2.0*4.5mm
Linearity		±0.1% F.S.				
Repeat accuracy	Fast mode	4 μm	8 μm	15 μm	45 μm	100 μm
	Others	2 μm	5 μm	10 μm	30 μm	75 μm
Temperature drift		±0.08% F.S./°C				
Operating voltage		Switch/Current output: 12~24V DC(-5%, +10%), Voltage output: 18~24V DC(-5%, +10%)				
Current consumption		Switch/Voltage output: max.55mA(24V DC), Current output: max.85mA(24V DC)				
Output	Switch output	2 Channels output, NPN/PNP Open-connector output, ≤100/30V DC, Voltage drop≤1.8V				
	Analog output	Current output: 4~20mA; Voltage output: 0~10V				
Response time	Fast mode	max.5ms				
	Standard mode	max.12.5ms				
	High resolution mode	max.36.5ms				
	Sensitivity switch time	4ms max				
Indicator	Distance indicator	LED bar display on operation surface (25-step)				
	Output indicator	Q1 and Q2 LED lights up during output (orange)				
Ambient parameters	Degree of protection	IP67				
	Ambient temperature	-10°C~+45°C, No freezing				
	Ambient humidity	35%~85%RH, No condensation				
	Ambient brightness	Sunlight≤20000Lux, Incandescent lamp≤3000Lux				
	Vibration resistance	10~55Hz Double amplitude1.5mm, XYZ three directions, 2 hours each				
Shock resistance		500m/s <sup>2</sup> (Approx.50G), XYZ three directions 3 times each				
Housing material		Housing: PBT, Front cover: PMMA				
Cable		Switch output: φ5mm 5core 2m cable; Analog output: φ5mm 6core 2m cable; Rs422 CI: φ5mm 8core 2m cable; Max. extended length: 10m				
Weight		Approx.65G(Not Including cable)				
2CH+Analog current 4~20mA		MLD33-30NA/PA	MLD33-50NA/PA	MLD33-85NA/PA	MLD33-120NA/PA	MLD33-250NA/PA
2CH+Analog voltage 0~10V		MLD33-30NV/PV	MLD33-50NV/PV	MLD33-85NV/PV	MLD33-120NV/PV	MLD33-250NV/PV
1CH+RS422 CI		MLD33-30N/P-422	MLD33-50N/P-422	MLD33-85N/P-422	MLD33-120N/P-422	MLD33-250N/P-422
Remarks		N:NPN output; P:PNP output				

## Dimensions



Unit: mm



### Appearance

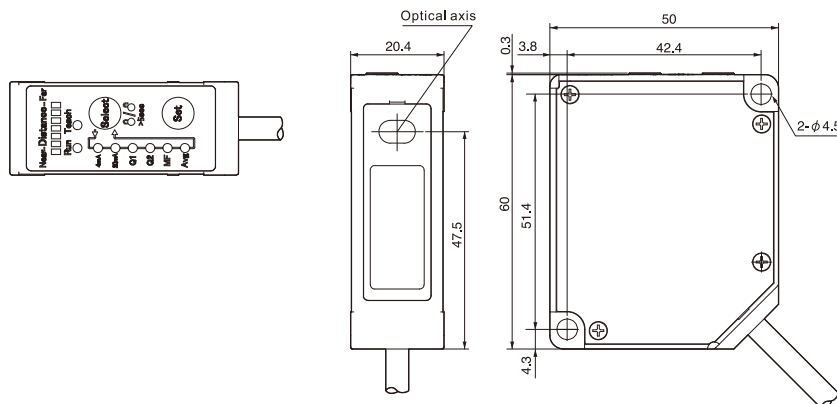
Sensing type		Regular Reflection		
Center of sensing distance		26.3mm	47.3mm	82.9mm
Sensing distance		24.3~28.3mm	42.3~52.3mm	72.9~92.9mm
F.S		4mm	10mm	20mm
Light source	Medium Wavelength	Red laser diode wavelength: 655nm		
	Max. output	1mW max		
Laser class	IEC/JIS	Class 2		
	FDA	Class 2		
Beam size	Close range	0.15*0.15mm		
	Center	0.1*0.1mm		
	Long range	0.15*0.15mm		
Linearity		±0.2% F.S		
Repeat accuracy	Fast mode	.....		
	Others	1 μm	2.5 μm	5 μm
Temperature drift		±0.08% F.S./°C		
Operating		Switch/Current output: 12~24V DC(-5%, +10%), Voltage output: 18~24V DC(-5%, +10%)		
Current consumption		Switch/Voltage output: max.55mA(24V DC), Current output: max.85mA(24V DC)		
Output	Switch output	Dual outputs, NPN/PNP Open–connector output, ≤100/30V DC, Voltage drop≤1.8V		
	Analog output	Current output: 4~20mA; Voltage output: 0~10V		
Response time	Fast mode	max.5ms		
	Standard mode	max.12.5ms		
	High resolution mode	max.36.5ms		
	Sensitivity switch time	4ms max		
Indicator	Distance indicator	Strip shaped LED display (7 units)		
	Output indicator	ON state: Orange Q1/Q2 indicator(Orange)on		
Ambient parameters	Degree of protection	IP67		
	Ambient temperature	-10°C~+45°C, No freezing		
	Ambient humidity	35%~85% RH, No condensation		
	Ambient brightness	Sunlight≤20000Lux, Incandescent lamp≤3000Lux		
	Vibration resistance	10~55Hz Double amplitude1.5mm, XYZ three directions, 2 hours each		
	Shock resistance	500m/s <sup>2</sup> (Approx.50G), XYZ three directions 3 times each		
Housing material		Housing: PBT,Front cover: PMMA		
Cable		Switch output: φ5mm 5core 2m cable; Analog output: φ5mm 6core 2m cable; Rs422 CI: φ5mm 8core 2m cable; Max.extended length:10m		
Weight		Approx.65g ( Including cable )		
2CH+Analog current 4~20mA		MLD33-L30NA/PA	MLD33-L50NA/PA	MLD33-L85NA/PA
2CH+Analog voltage 0~10V		MLD33-L30NV/PV	MLD33-L50NV/PV	MLD33-L85NV/PV
1CH+RS422 CI		MLD33-L30N/P-422	MLD33-L50N/P-422	MLD33-L85N/P-422
Remarks		N: NPN output P: PNP output		

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- Vibration
- Temperature
- Cables
- Tester

### Guidance

- Displacement**
- TOF measurement
- Mini digital display
- Built-in controller**
- Linear measurement
- Magnetic displacement
- LIDAR Scanner
- Color confocal

## Dimensions



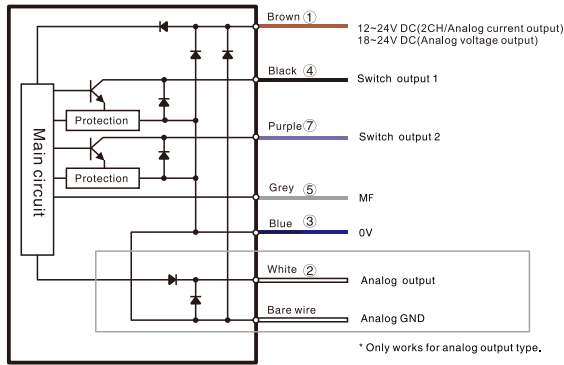
Unit: mm

# Built-in Controller

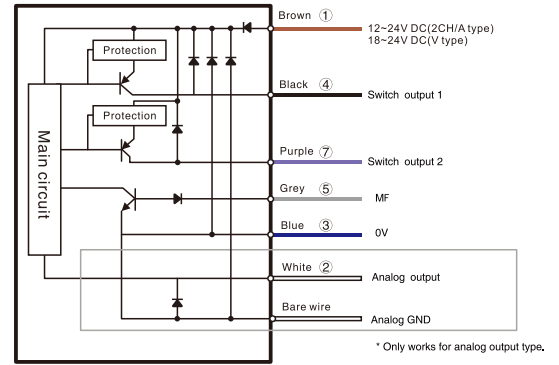
## Circuit Diagram

### ■ Switch output/Analog output

#### ■ NPN

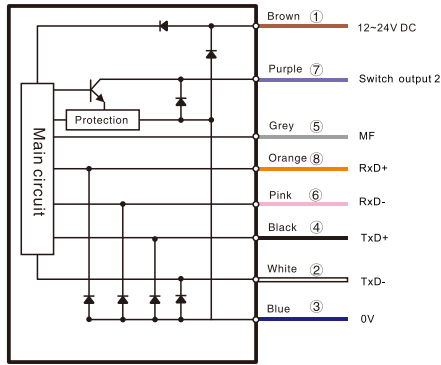


#### ■ PNP

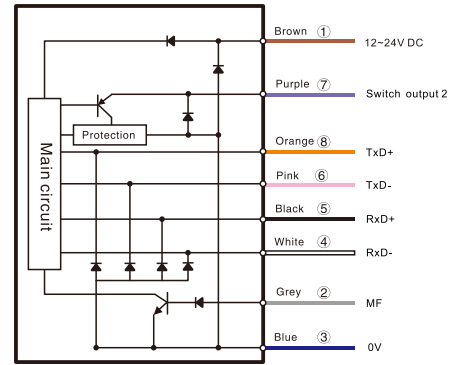


### ■ RS422

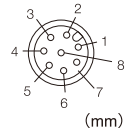
#### ■ NPN



#### ■ PNP



Connector pin line



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Slot Sensors

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Guidance

Displacement

TOF measurement

Mini digital display

Built-in controller

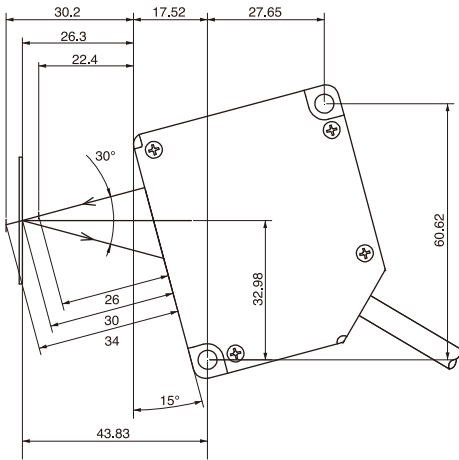
Linear measurement

Magnetic displacement

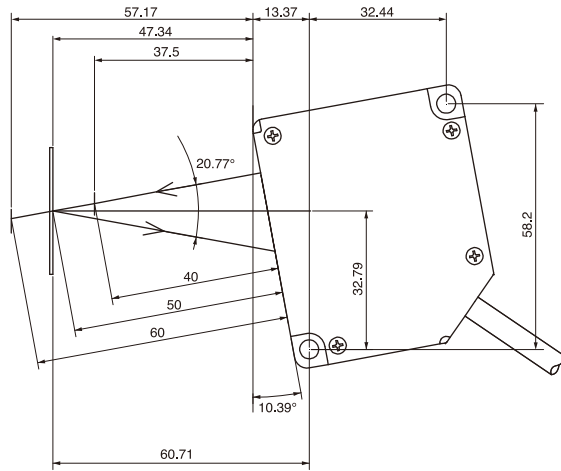
LIDAR Scanner

Color confocal

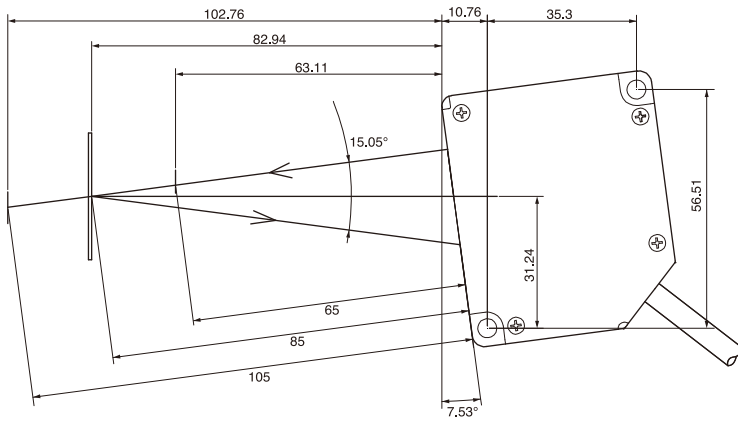
MLD33-L30



MLD33-L50



MLD33-L85



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