

- Employs red semiconductor laser (class 2)
- Visible small spot allows confirmation of detecting position
- Small object of 0.1 mm can be detected
- Ideal for detecting end of thin object such as wafer mapping, etc.
- Light emission stop function is convenient as a safety measure and inspection at start of operation

Take safety measures according to the operation manual

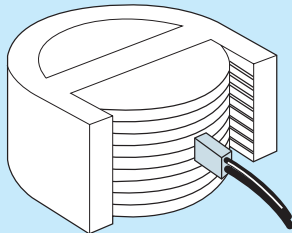
Type

Detection method	Detecting distance	Model	Light source	Operation mode	Output mode
Reflective	 20~120mm	Amplifier FLD1R	Red semiconductor laser (class 2)	Light-ON/ Dark-ON selectable	NPN, PNP open collector
		Fiber optic cable FR720LD			

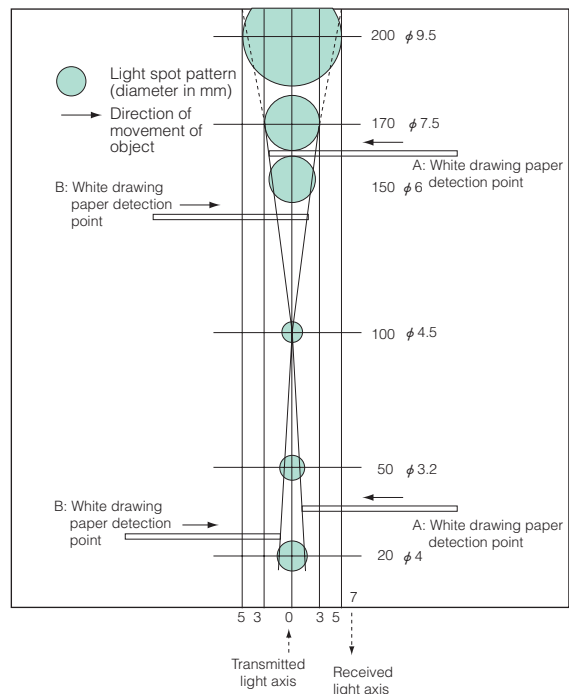
Applications

Wafer detection

Carrier movement is controlled by the detection of wafers.
The small spot of the laser beam achieves reliable detection.



Directional Characteristics (Typical Example)



Rating/Performance/Specification

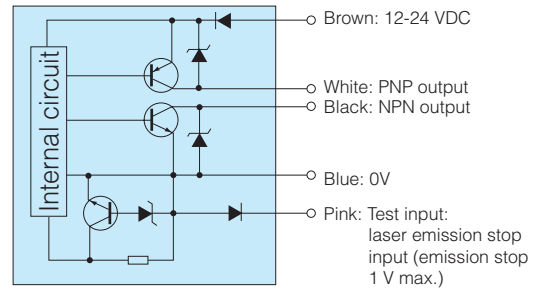
Amplifier

Rating/performance	Type	Laser type fiber optic sensor
	Model	FLD1R
	Power supply	12~24 VDC \pm 10 % / Ripple: 10% max.
	Current consumption	38 mA
	Output mode	NPN/PNP open collector 100 mA (30 VDC) max.
	Operation mode	Light-ON/Dark-ON selectable
	Laser light emission stop input	Closed: stopped / Open: emitted / Contact: open collector input (Closed: L = 1 V max.)
	Response time	0.5 ms max.
Specification	Light source	Red semiconductor laser (650 nm) class 2
	Indicator	OP.L: operation indicator (red) / STB: stability indicator (green)
	Volume	Sensitivity adjustment volume provided (8-turn without stopper)
	Switch	Light-ON/Dark-ON selector switch provided
	Short circuit protection	Provided
	Material	Case: heat-resistant ABS / Cover: polycarbonate
	Connection	Permanently attached cord (outer dimension: dia. 4.5) 0.2sq. 5 core 2 m length
Mass	Approx. 90 g (including cord and mounting bracket)	

Fiber optic cable

Model	FR720LD
Type	Reflective type
Detecting distance	20 ~ 120mm
Spot diameter	About ϕ 5 (at distance of 100 mm)
Smallest allowable detection object	ϕ 0.1 (Detecting distance: 30~60 mm / Sample: copper wire)
Allowable bending radius	R30
Fiber optic cable length	2 m (uncuttable)
Material	Plastic fiber optic cable (polyethylene-covered)
Applicable amplifier	FLD1R
Mass	About 45 g

Input/Output Circuit and Connection



- Slow starting is employed for laser emission and illumination can be confirmed about 0.5 seconds after power-up or emission stop reset.
- The output transistor turns off when the load short circuits or an overload occurs. Eliminate any short circuit or overload state and then turn the power back on for reset
- Short-circuiting the pink and blue leads (no-voltage contact or NPN open collector) stops the laser beam.

For Correct Use

- The semiconductor laser falls under Class 2 as defined in JIS C 6802 "Safety of Laser Products." Never look straight into the illuminated laser beam, which may damage the eye. This laser does not affect human skin.
- Use correctly and safely according to the operation manual provided.

For Correct Use

Ambient light	3,000 lx max.
Ambient temperature	-10 - +40 °C (non-freezing)
Ambient humidity	35-85%RH (non-condensing)
Protective structure	IP 66 (with protective cover attached)
Vibration	10-55 Hz / 1.5 mm amplitude / 3 times each in 3 direction

Dimensions (in mm)

