

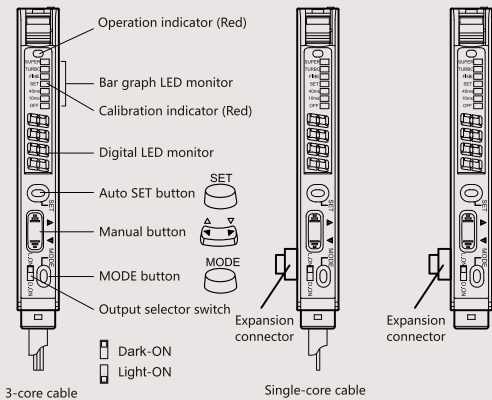
Digital display optical fiber Sensors

- Leading dual monitor mode.
- Build-in high-speed digital processing chip.
- Automatic and manual correction and calibration optional.



Item code

FD2-NB11R
FD2-PB11R

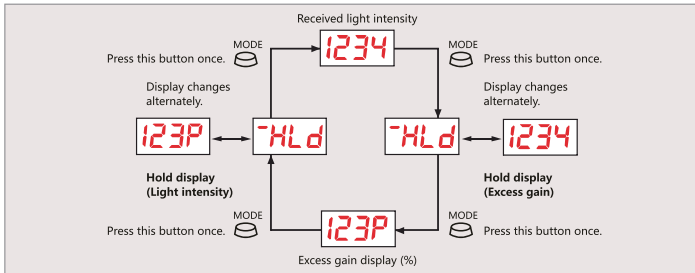


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Operating instructions

- Selecting displayed date

The display changes every time the MODE button is pressed.



Displaying the setting value

Press or once while the received light intensity is displayed. The setting value flashes for 3 seconds, and then the received light intensity appears once more.

Note: To change the setting value, press or while the setting value is flashing.

Displaying received light intensity

Received light intensity is displayed approximately 4095 is the maximum setting. Note: The MAX and MIN values vary depending on the fiber unit connected.

Displaying excess gain

Received light intensity is converted by defining the setting value as 100 P (%).

Displaying the hold value

Received light intensity or excess gain is displayed. The setting of the output selector switch determines whether the value is displayed.

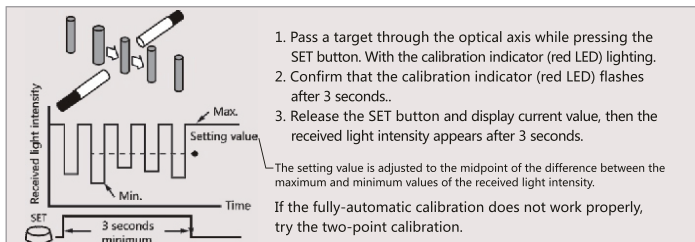
Output selector switch	Display	Hold value
Light-ON	~HLd	Peak-hold value
Dark-ON	~HLd	Bottom-hold value

- Setting the sensitivity (setting value: 10~4095)

Automatic calibration

Select the sensitivity setting procedure according to the target condition. When the setting is completed, the setting value flashes 3 second.

1. For sensitivity adjustment using a moving target (Fully-automatic Calibration)

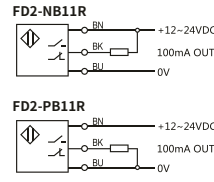


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Specification

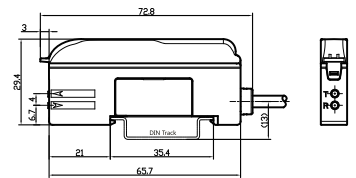
Item Code	NPN NO/NC PNP NO/NC	Main unit FD2-NB11R FD2-PB11R
Power supply		12~24VDC
Current consumption		< 60mA
Voltage drop		< 1V
Load current		< 100mA
Response time		<200us(FINE), <400us(TURBO), <800us(SUPER) 410us~1.7ms
Detection accuracy		> 0.01mm (Depends on specific)
Light source		660nm red visible light
Ambient light		Incandescent lamp 3000lux, sunlight 10000lux
Circuit protection		Surge, reverse polarity and overload protection
Output indicate		4 LED digital display, LED bar display
Function		Emitter power optional FINE/TURBO/SUPER, output time delay optional 0ms/10ms/40ms
Ambient temperature		-10°C~+50°C (Does not freeze)
High voltage resistance		1000V/AC 50/60Hz 60s
Insulation resistance		≥50MΩ(500VDC)
Anti-vibration		Amplitude 0.5mm, frequency 10~50Hz
Anti-shock		500m/s ² (50G) for 3 times of X,Y,Z direction
Protection degree		IP54
Housing material		PC+ABS
Connection		2m RVV cable

Wiring diagram



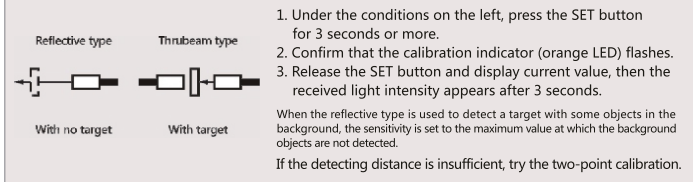
* Open-collector output

Dimensions

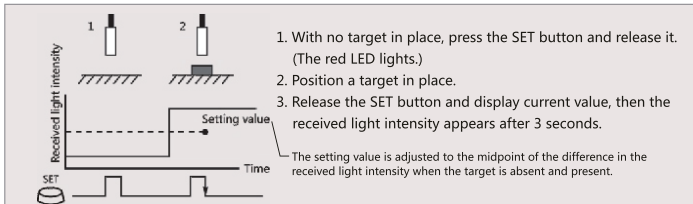


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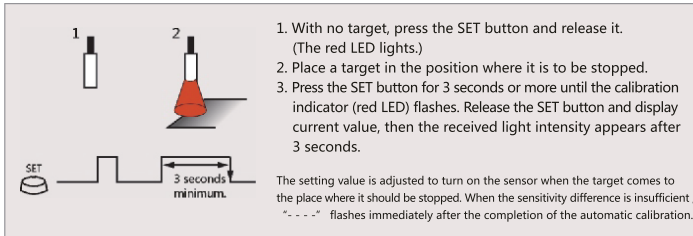
2. Maximum sensitivity setting



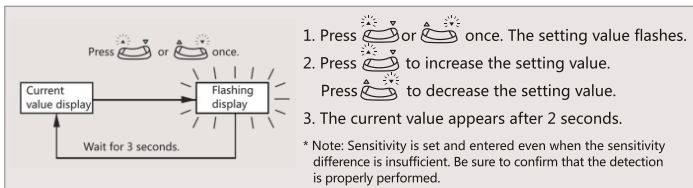
3. For sensitivity adjustment using a stationary target (Two-point Calibration)



4. Positioning calibration (Two-point Calibration)



Manual calibration



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● Selecting mode (power/timer)

Current value

MODE

Press this button for 2 seconds or more.

turb

MODE

Press this button once.

dly

MODE

Press this button once.

Power selection

Press "MODE" button for 2 seconds or more, one lamp in the bar graph LED monitor lights to show the currently selected power mode. Press or to choose the desired power mode.

FINE

TURBO

SUPER

When detecting a minute difference in a short detecting distance.

When the detecting distance of FINE mode is insufficient.

When the environment is hostile, such as dusty.

Timer selection

Press "MODE" button again, One lamp in the bar graph LED monitor lights to show the currently selected output timer mode. Press or to choose the desired timer mode.

Note: Be sure to readjust the sensitivity after the power mode is changed.

OFF

10ms

40ms

Output timer OFF

Output delay for 10 ms

Output delay for 40 ms

● Bar graph LED monitor in normal operation

The light is steadily received.

The light is irregularly received.

The light is irregularly interrupted.

The light is steadily interrupted.

When the detection becomes unstable due to the change in surrounding environment or targets, readjust sensitivity.

+15% or more

+10% or more

+5% or more

Setting value

-5% or less

-10% or less

-15% or less

The LEDs show the received light intensity with respect to the setting value.

The monitor shows the stability level of the current detection.

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Installation instructions

Lower the quick-release lever, insert the fiber unit about 14 mm until it reaches the end, and then lift the quick-release lever.

To connect a fiber unit with a small diameter, use the adaptor included.

1. Attach the adaptor to the fiber unit.
2. Fully insert the adaptor into the mounting holes of the amplifier, and then lift the quick-release lever.

Note: If the fiber unit is improperly connected, the sensor cannot meet the specifications.

Outer dia.	Appearance
Φ1.3	
Φ1.0	

Mounting/Detaching the unit to/from a DIN rail or the mounting bracket.

Hook the claw located at the unit cable side onto the DIN rail, and then hook the front side claw to the rail while pressing the amplifier forward. To detach the unit, unhook the front claw by lifting the unit front side while pressing it forward.

Mounting expansion units

1. Detach the protective cover from the unit's side panel.
2. Mount units to a DIN rail one by one. Slide one expansion unit toward another.
4. Fix the units together by pushing an end unit onto each end.

1MC10010-0/A

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