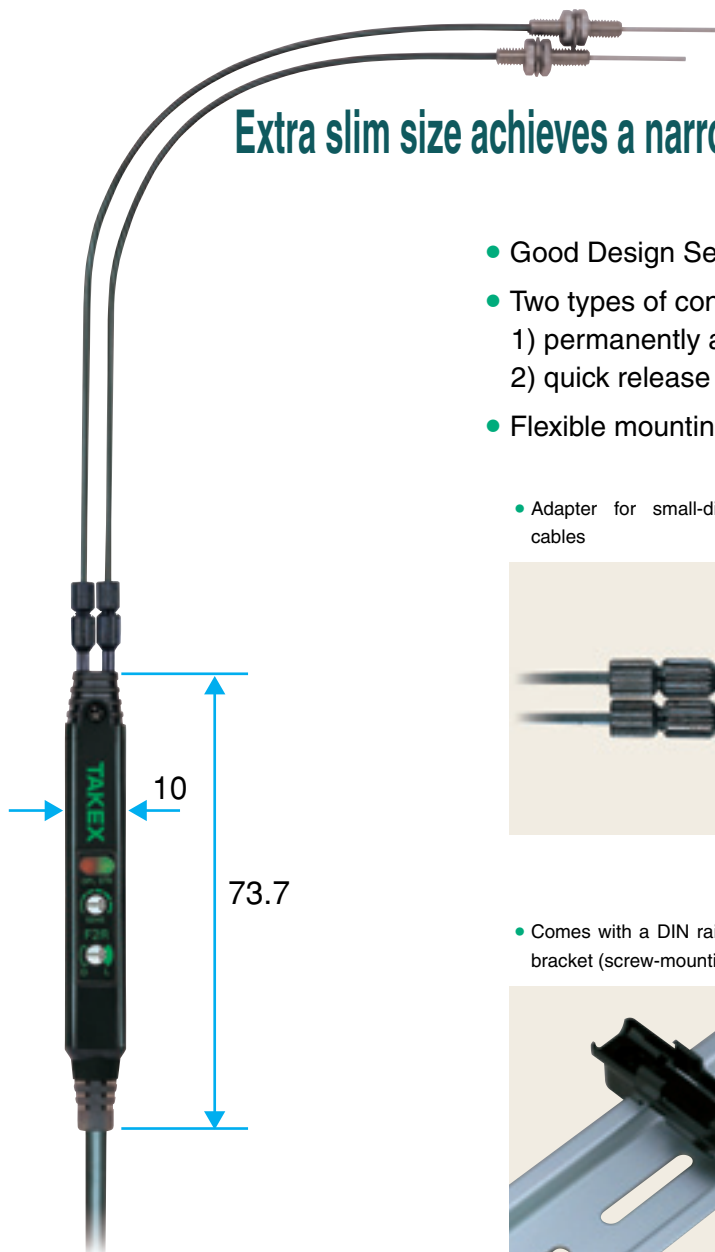




- Amazingly slim size
(8 x 10 x 73 mm)
- Low cost
 - NPN and PNP output types are available
 - High-speed response of 500 μ s

Extra slim size achieves a narrow appearance and provides ease of use



- Good Design Selection
- Two types of connections available:
 - 1) permanently attached cord and
 - 2) quick release connector
- Flexible mounting

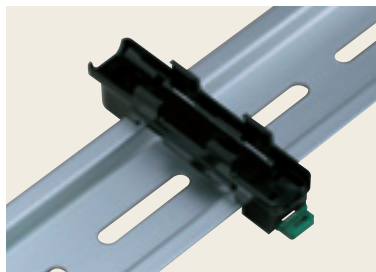
- Adapter for small-diameter fiber optic cables



- Also allows mounting with zip-tie bands



- Comes with a DIN rail (35 mm) mounting bracket (screw-mounting also available)



- Connector type (DIN compatible) available for single-touch replacement of amplifier



Type

Detection method / detecting distance	Model	Light source	Operation mode	Output mode	Remarks
Dependant on fiber optic cable.	F2R	Red LED	Light-ON/ Dark-ON selectable [with selector switch]	NPN open collector	Connector type
	F2R-J				
	F2RPN			PNP open collector	Connector type
	F2RPN-J				

- Connector-type set models F2R-JC3 and F2RPN-JC3 come with a cord with connector model F2-C3.
- For details, see "Connector type models" below.

For different types of fiber optic cables, see pp. 59-.

Rating/Performance/Specification

	Type	NPN output type		PNP output type	
	Model	F2R	F2R-J(Note)	F2RPN	F2RPN-J(Note)
Rating/performance	Detection method	Through-beam type, reflective type (Dependant on fiber optic cable)			
	Detecting distance	Dependant on fiber optic cable			
	Power supply	12~24V DC ±10% / Ripple 10% max.			
	Current consumption	25mA max.			
	Output mode	NPN open collector output Rating: sink current 100 mA (30 VDC max.)		PNP open collector output Rating: source current 100 mA max.	
	Operation mode	Light-ON/Dark-ON selectable (with selector switch)			
	Response time	500 ms max.			
	Hysteresis	Up to 10% of detecting distance			
Specification	Light source (wavelength)	Red LED (660nm)			
	Indicator	OP.L: operation indicator (red LED) STB: stability indicator (green LED)			
	Volume (VR)	SENS : Sensitivity adjustment volume provided			
	Switch (SW)	Light-ON/Dark-ON selector switch; L: Light-ON/D: Dark-ON			
	Short circuit protection	Provided			
	Case Material	Noryl (filler: styrene elastomer)			
	Connection	Permanently attached cord (outer dimension: dia. 3.5) 0.2sq. 3 core 2 m length	Connector type [cord with connector] [separately available]	Permanently attached cord (outer dimension: dia. 3.5) 0.2sq. 3 core 2 m length	Connector type [cord with connector] [separately available]
	Mass	Approx. 40 g	Approx. 65 g	Approx. 40 g	Approx. 65 g
Accessory	Screwdriver for operating sensitivity adjustment volume and Light-ON/Dark-ON switch, DIN rail mounting bracket (material: polycarbonate)				

Environmental Specification

Environment	Ambient light	3,000 lx max.
	Ambient temperature	-25 ~ +55 °C (non-freezing)
	Ambient humidity	35~85%RH (non-condensing)
	Protective structure	IP65
	Vibration	10~55 Hz / 1.5 mm amplitude / 2 hours each in 3 direction

《Connector type models》

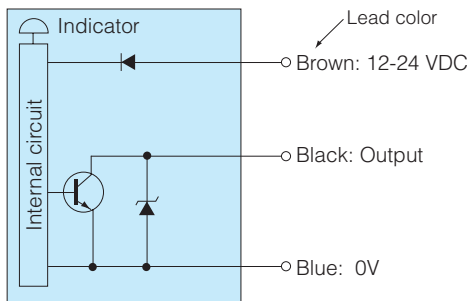
Type		Amplifier only	Amplifier and cord with connector	Cord with connector only
Model	NPN type	F2R-J	F2R-JC3	F2-C3
	PNP type	F2RPN-J	F2RPN-JC3	

The cord with connector contains 0.2sq. 3 core 2.5 m length

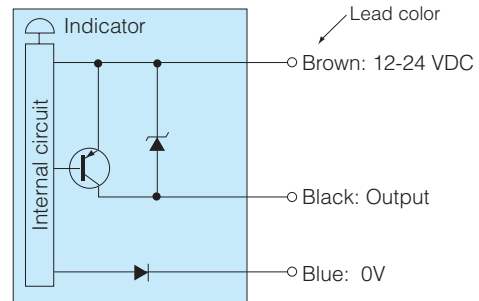
F2R

Input/Output Circuit and Connection

- NPN output

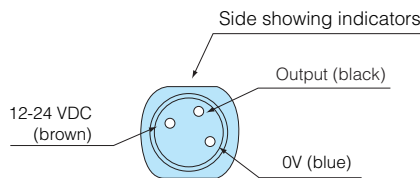


- PNP output



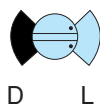
The output transistor turns off when load short circuit or overload occurs. Check the load and turn the power back on.

- Connector type (-J) pin assignment

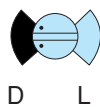


Operation Mode Switching

Light-ON



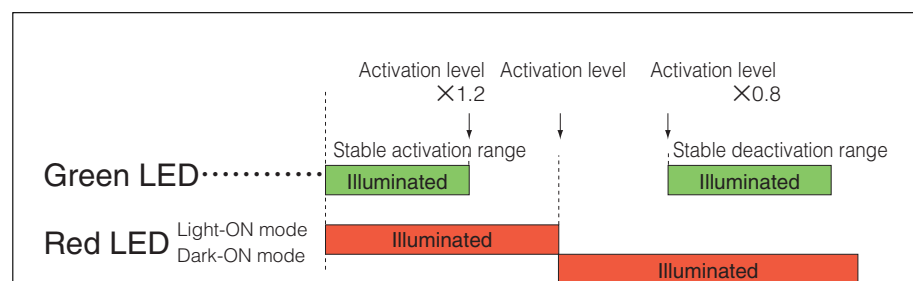
Dark-ON



For Light-ON mode: Set the switch to L (Light).
For Dark-ON mode: Set the switch to D (Dark)

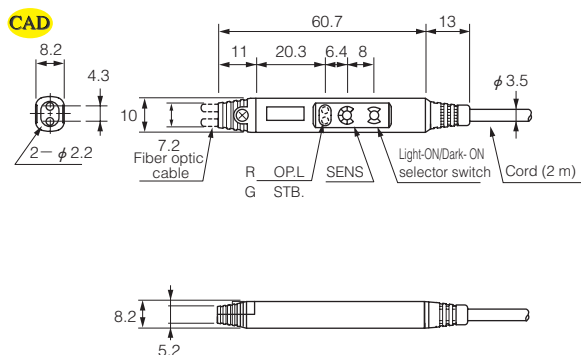
About Indicators

- The operation indicator (red LED) and stability indicator (green LED) show the light intensity levels described in the figure below.
- After light axis and sensitivity adjustments have been completed, repeat activation and deactivation by placing and removing the detectable object to make sure that the sensitivity is in the stable activation/deactivation range.
- Setting within the stable range increases reliability against variations in the environment after setting.

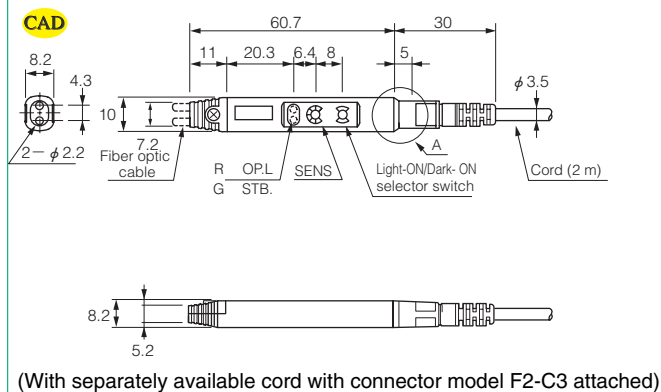


Dimensions (in mm)

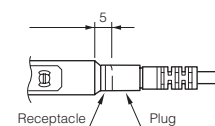
F2R, F2R-PN (permanently attached cord)



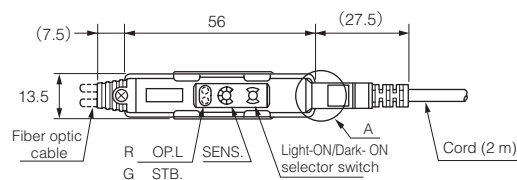
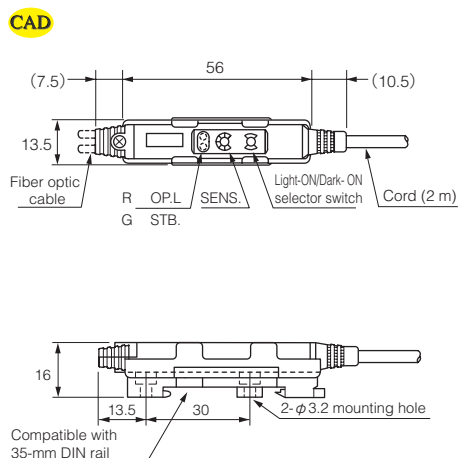
F2R-J, F2RPN-J (connector type)



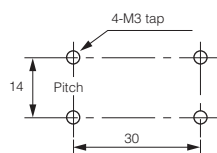
Detail of A



• With DIN rail mounting bracket attached



• Pitch for adjacent screw mounting (14 mm)



Attaching fiber optic cables

- Loosen the upper screw and insert a fiber optic cable. The insertion may feel stiff at some point, which is due to the packing material the fiber optic cable needs to pass through. Be sure to insert all the way until it stops and then tighten the screw. The tightening torque should not exceed 0.3 N·m.
- When using a small-diameter fiber optic cable, attach the provided adapter first.