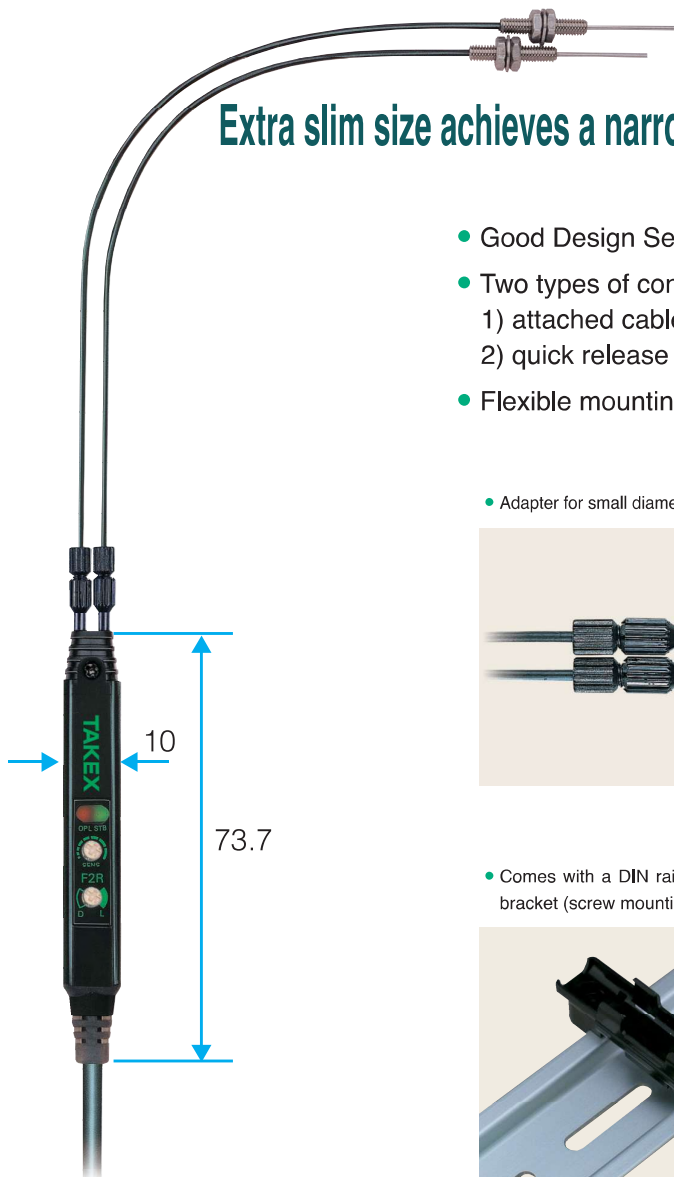




- Amazingly slim size
(8 x 10 x 73 mm)
 - Low cost
 - NPN and PNP output types are available
 - High speed response of 500 μ s
 - Set models with fiber optic cables are also available.
 - Reflective type with fiber optic cables: F2R-FR8E
 - Through beam type with fiber optic cables: F2R-FT8E
- * The fiber optic cable features 50 cm free cutting. (M3 P = 0.7 head)

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



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

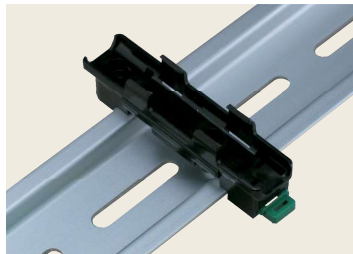
- Adapter for small diameter fiber optic cables



- 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
Dependent on fiber optic cable.	F2R	Red LED	Light ON/ Dark ON selectable (with selector switch)	NPN open collector output	
	F2R-J				Connector type
	F2RPN			PNP open collector output	
	F2RPN-J				Connector type

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

For different types of fiber optic cables, see p. 67-.

Rating/Performance/Specification

Type	NPN output		PNP output	
Model	F2R	F2R-J(Note)	F2RPN	F2RPN-J(Note)
Detection method	Through beam type, reflective type (Dependant on fiber optic cable)			
Detecting distance	Dependant on fiber optic cable			
Power supply	12 - 24VDC ±10% / Ripple 10% or less			
Current consumption	25mA or less		30mA or less	
Output mode	NPN open collector output Rating: sink current 100 mA (30 VDC) or less		PNP open collector output Rating: source current 100 mA (30 VDC) or less	
Operation mode	Light ON/Dark ON selectable (with selector switch)			
Response time	500 μs or less			
Hysteresis	Up to 10% of detecting distance			
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			
Material	Case : Noryl (filler: styrene elastomer)			
Connection	Attached cable (outer dimension: dia. 3.5) 0.2sq. 3 cores, 2m	Connector type 〔 cable with connector separately available 〕	Attached cable (outer dimension: dia. 3.5) 0.2sq. 3 cores, 2m	Connector type 〔 cable with connector separately available 〕
Weight	Approx. 40 g	Approx. 65 g	Approx. 40 g	Approx. 65 g
Accessory	Instruction manual, Screwdriver for adjustment, DIN rail mounting bracket (material: polycarbonate)			

Environmental Specification

Ambient light	3,000 lx or less
Ambient temperature	-25 - +55 °C (non-freezing) Storage: -40-+70°C (non-freezing)
Ambient humidity	35 - 85%RH (non-condensing)
Protective structure	IP65
Vibration	10 - 55 Hz / 1.5 mm double amplitude / 2 hours each in 3 direction

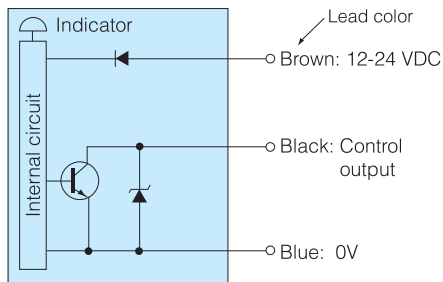
(Note) 《Connector type models》

Type	Amplifier only	Amplifier and cable with connector	Cable with connector only
Model	NPN	F2R-J	F2R-JC3
	PNP	F2RPN-J	F2RPN-JC3
			F2-C3

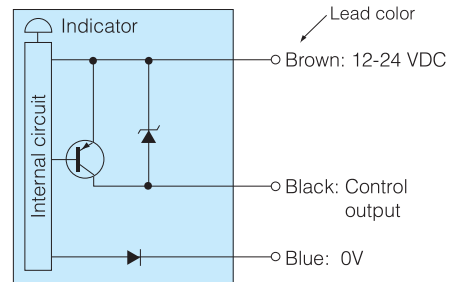
The cable with connector contains 0.2sq. 3 cores 2 m

Input/Output Circuit and Connection

• NPN output

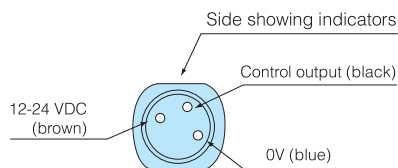


• PNP output



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



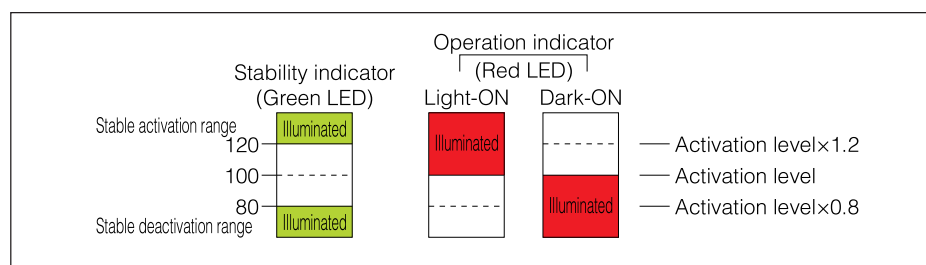
Dark ON



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

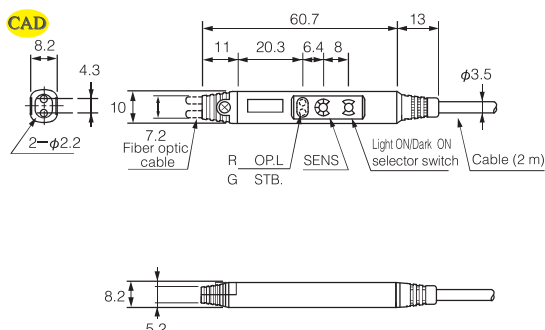
About Indicators

- 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 within the stable activation/deactivation range.
- Setting within the stable range increases reliability against variations in the environment after setting.

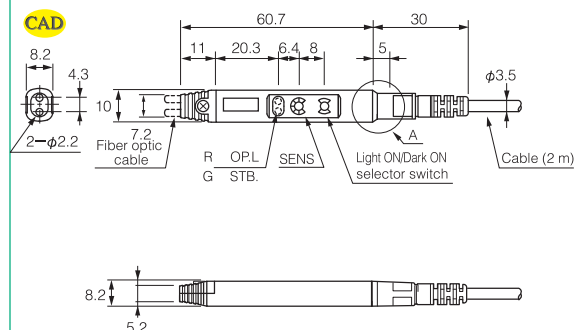


Dimensions (in mm)

F2R, F2RPN (attached cable)

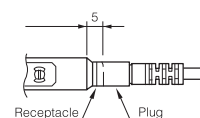


F2R-J, F2RPN-J (connector type)

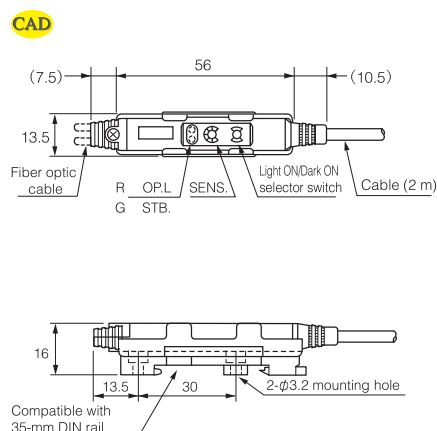


(With separately available cable with connector model F2-C3 attached)

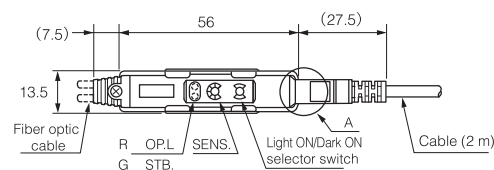
Detail of A



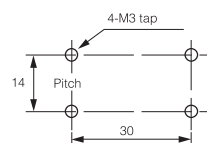
- With DIN rail mounting bracket attached(F2R, F2RPN)



- With DIN rail mounting bracket attached(F2R-J, F2RPN-J)



- 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 0.25 N·m.
- When using a small diameter fiber optic cable, attach the provided adapter first.