

High accuracy fiber optic amplifier with twin adjuster

■ Features

- Convenient DIN rail mounting type
- Response time : Max. 1ms
- Enables to adjust sensitivity with high accuracy by dual adjuster
- Selectable Light ON/Dark ON by control wire
- Reverse power polarity and short-circuit(Overcurrent) protection circuit
- Enables to use for explosion proof(Fiber part)
- Adjustable length with free cut type fiber optic cable



⚠ Please read "Caution for your safety" in operation manual before using.

■ Specifications

Model	BF3RX	BF3RX-P
Response time	Max. 1ms	
Power supply	12-24VDC ±10%(Ripple P-P : Max. 10%)	
Current consumption	Max. 40mA	
Light source	Red LED(Modulated)	
Sensitivity adjustment	Adjustable VR(Double adjustment:Coarse adjustment, Fine adjustment)	
Operation mode	Selectable Light ON or Dark ON by control cable	
Control output	NPN or PNP open collector output ●Load voltage: Max. 30VDC ●Load current: Max. 200mA, ●Residual voltage - NPN: Max. 1V, PNP: Max. 2.5V	
Protection circuit	Reverse power polarity, output short-circuit(overcurrent) protection circuit	
Indication	Operation indicator : Red LED	
Insulation resistance	Min. 20MΩ(at 500VDC megger)	
Noise resistance	±240V the square wave noise(pulse width : 1μs)by the noise simulator	
Dielectric strength	1,000VAC 50/60Hz for 1minute	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours	
Shock	500m/s ² (50G) in each of X, Y, Z directions for 3 times	
Environment	Ambient illumination	Sunlight : Max. 11,000lx Incandescent lamp : Max. 3,000lx (Receiver illumination)
	Ambient temperature	-10 to 50°C, storage : -25 to 70°C
	Ambient humidity	35 to 85%RH, storage : 35 to 85%RH
Material	Case : ABS, Cover : PC	
Cable	ø5, 4-wire, Length : 2m (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: ø1mm)	
Accessory	VR adjustment driver, Mounting bracket, Bolts/nuts	
Unit weight	Approx. 90g	

※ The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/Socket

(H) Temp. controller

(I) SSR/Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/Speed/ Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching power supply

(Q) Stepping motor& Driver&Controller

(R) Graphic/ Logic panel

(S) Field network device

(T) Software

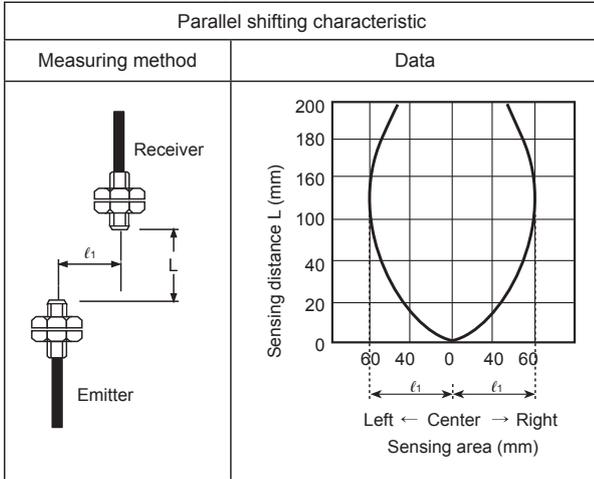
(U) Other

BF3RX Series

Feature data

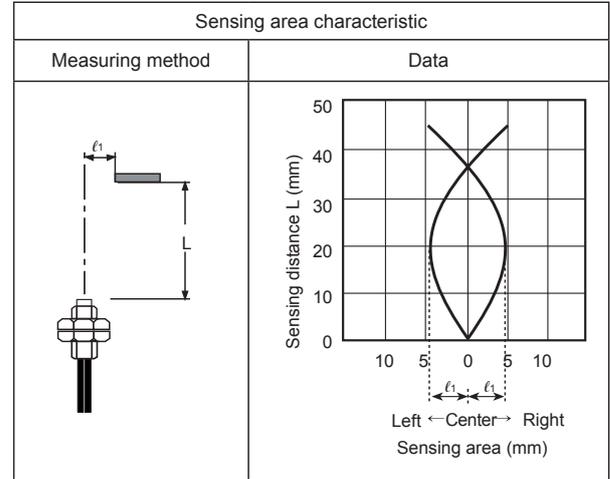
Through-beam type

- Measurement : BF3RX + FT-420-10



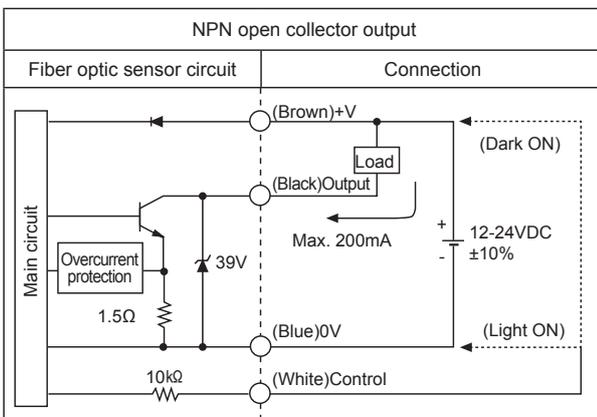
Diffuse reflective type

- Measurement : BF3RX + FD-620-10

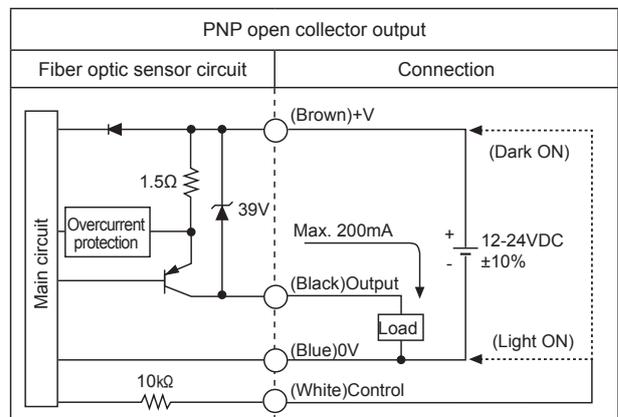


Control output diagram

- BF3RX

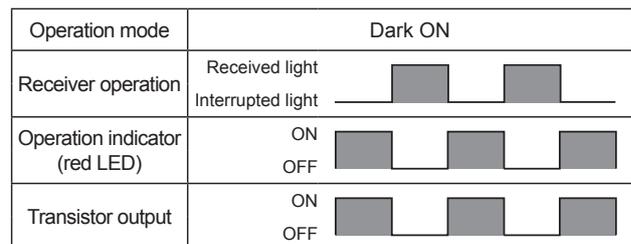
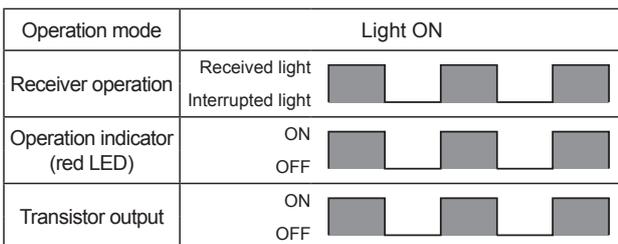


- BF3RX-P



※When select Dark ON or Light ON, please use control wire(White)
 Light ON : Connect control wire to 0V
 Dark ON : Connect control wire to +V

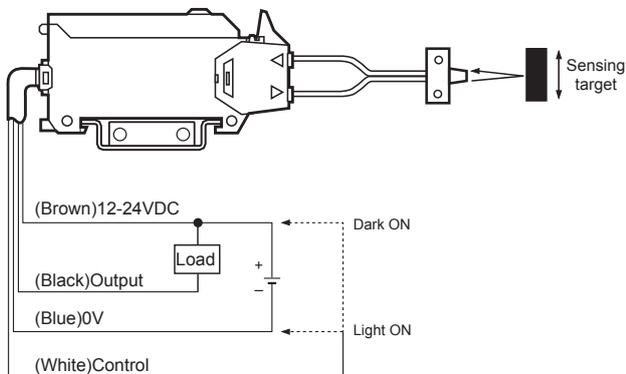
Operation mode



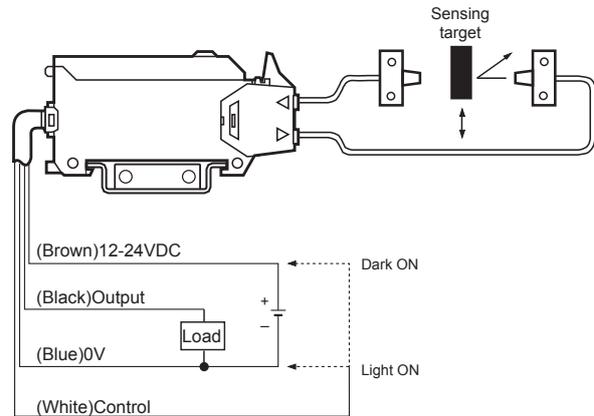
Fiber Optic Amplifier

■ Connections

● BF3RX



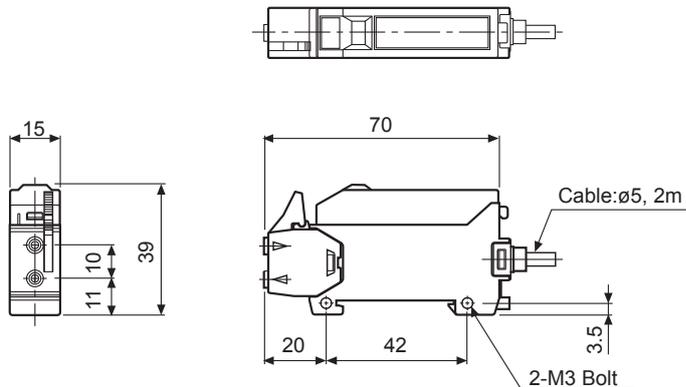
● BF3RX-P



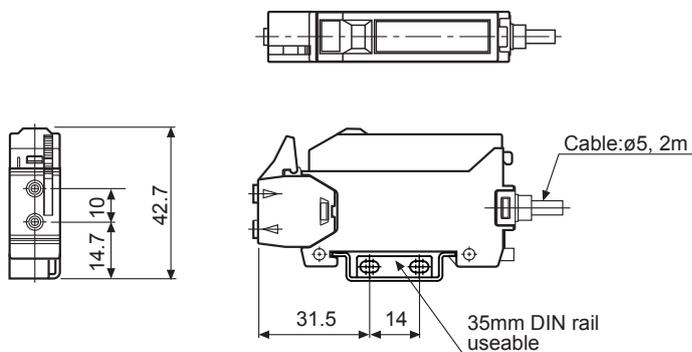
- ※ Enables to use as diffuse reflective type or through-beam type according to the fiber optic cable.
- ※ **Adapter** marked fiber optic cable should be used with adapter().
- ※ GT-420-13H2 cannot be used because the length inserted into amp is too short.

■ Dimensions

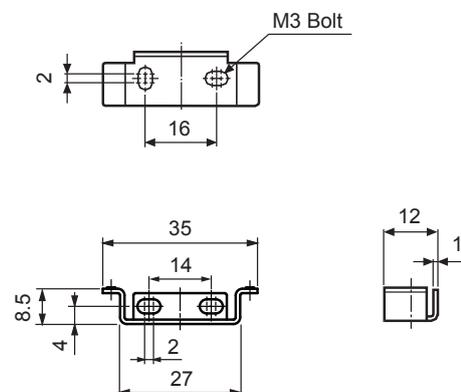
(unit: mm)



● Connect the bracket



● Bracket



(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/Socket

(H) Temp. controller

(I) SSR/ Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/ Speed/ Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching power supply

(Q) Stepping motor& Driver&Controller

(R) Graphic/ Logic panel

(S) Field network device

(T) Software

(U) Other

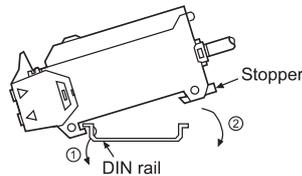
BF3RX Series

■ Installations

◎ Mounting amplifier unit

● When mounting the amplifier

- ① Hook the front part of the amplifier on DIN rail(or bracket).
- ② Press the rear part of the amplifier on DIN rail(or bracket).

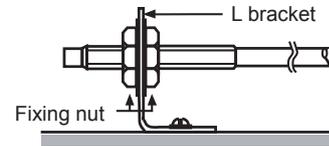


● When releasing the amplifier

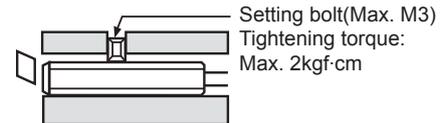
Use screwdriver to move the stopper on rear of the amplifier backward.

◎ Installation of fiber optic cable

● In case of using L bracket

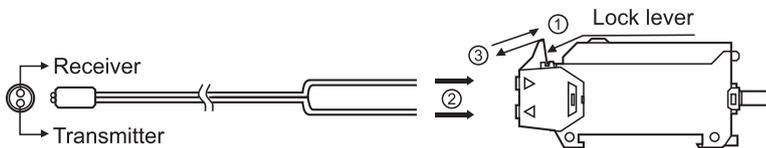


● In case of using screw



※Notice: If setting bolt is tightened with over specified tightening torque, hood of fiber optic cable may be damaged.

◎ Connection of fiber optic cable & amplifier



- ① Open the lock lever to "↙" direction.
- ② Insert the fiber optic cable in the amplifier slowly. (Depth: 21mm)
- ③ Close the lock lever to "↘" direction.

■ Sensitivity adjustment

◎ Adjustment by the sensitivity setting button(Common)

- Adjust as the optimum sensitivity according to the order as shown below.
- Please observe below chart because operation lamp will be changed by sensing method.

Order	Sensing type		Adjustment	Adjuster	
	Reflective	Through-beam		COARSE	FINE
1	Initial setting		Adjuster(Coarse) should be fixed at min. and fixed at center (▼) for Fine adjustment.		
2	Light ON 	Light ON 	Fix adjuster(Coarse) to ON position by turning clockwise slowly when light is being received.		
3	Light ON 	Light ON 	Turn adjuster(Fine) until it is OFF toward(-), and turn until it is ON toward(+) again, then confirm that this will be A position.		
4	Dark ON 	Dark ON 	And then turn adjuster(Fine) until it is ON toward(+), and turning until it is OFF toward(-) again when light is not received. Then confirm that this position will be B position. (When it will not be ON, max. position will be B.)	Adjuster() is not required to set afterwards.	
5	—	—	Fix it at middle of A and B position. This will be the best position to set.		
6	Light ON 	Light ON 	If you cannot adjust as above method, set adjuster(Fine) at max. position toward(+), then execute again.		