

BRF-T SERIES

BRF-T□
Standard
BRF-HT□ High Speed

INSTRUCTION MANUAL

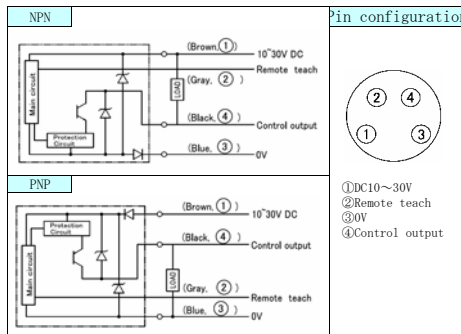
- Confirm if the item meets your needs.
- Before the use, you should first thoroughly read this manual and operate correctly as mentioned.
- You should keep this manual at hand for proper use.

Carefully read and understand the safety precautions before operation.
The important information is provided to protect your health and property.
Do not modify or alter installing or operating procedure other than as instructed.

Safety Precautions

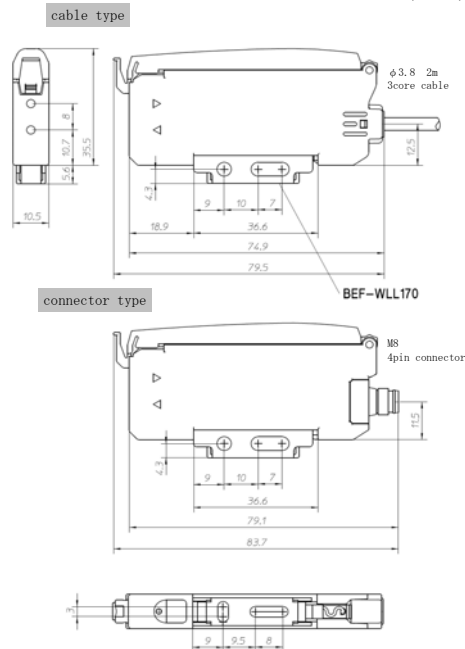
- It is dangerous to wire or attach/remove the connector with the power on. Make sure to turn off the power before operation.
 - Make sure to use the product with the protective cover attached and closed.
 - Installing in the following places may result in malfunction:
 1. A dusty or steamy place
 2. A place generating corrosive gas
 3. A place directly receiving scattering water or oil.
 4. A place suffered from heavy vibration or impact.
 - The product is not designed for outdoor use.
 - Do not use the sensor in transient state after power on (approx. 300 ms).
 - Do not wire with the high voltage cable or the power line.
- Failure to do this will cause malfunction by induction or damage.
- The sensor performance or digital display values may depend on the individual units or the condition of detected product.
 - This product is not an explosion-proof construction. Do not use the product under flammable, explosive gas or liquid environment.
- ⚠ This product cannot be used as a safety device to protect human body.

Input/ Output circuit design



Dimensions

(unit: mm)

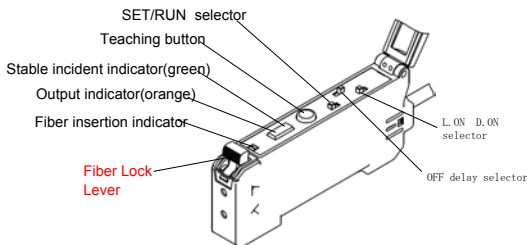


Specification

Type	Standard	High Speed	Mark sensing
Cable type	BRF-T(N,P)	BRF-HT(N,P)	BGF-T(N,P)
Connector type	BRF-TC(N,P)	BRF-HTC(N,P)	BGF-TC(N,P)
Light source	Red LED		Green LED
Supply voltage	DC10 ~ 30V including 10% ripple (P-P)		
Current consumption	30mA max.		
Response time	250 μs	50 μs	250 μs
Timer function	40ms Off delay timer		
Sensitivity adjustment	Teaching button		
Indicator	Input indicator (orange LED) / Stable incident indicator (Green LED)		
Control output	NPN/PNP open collector DC30V 100mA max.		
Operation mode	Light ON / Dark ON switch selectable		
Remote teach	NPN: connect to 0V PNP: connect to +V		
Circuit protection	Reverse polarity / output over current / short circuit protection		
Ambient temp/ humid	-25~55°C *1/ 35~85%		
Ambient illuminance	Sunlight: 10,000 lx max. incandescent light: 3,000 lx max		
Protection category/material	IEC Standard IP66 / housing: ABS+PC cover: PC		
Weight	Cable type: about 70g / connector type: about 25g		

*1	extension	ambient temp
	2pcs	+55° max.
	3~10pcs	+50° max.
	11~16pcs	+45° max.

Parts name



Amplifier

■ Attaching amplifier to DIN rail

- ① Attach the front of the amplifier to bracket or DIN rail
- ② Press down on the back of the amplifier until it snaps

■ Removing amplifier from DIN rail

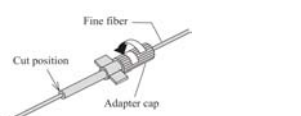
- ① Push the amplifier forward as shown by the arrow and lift the front to release.

■ Inserting and Removing fiber cables

- ① Open the protective cover
 - ② Open the fiber lock by moving the lever forward
 - ③ Insert the fibers into the amplifier until the Fiber insertion indicator pops up.
 - ④ Lock the cables in place by moving the lever back to the lock position.
- To remove the fiber cables, unlock the lever and pull the fiber cables out.

*Coaxial type—the fiber with the white-line or the single-core is used as the emitter, the multi-core cable is the receiver.

■ Using the Fine fiber adapter



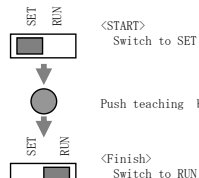
- ① Turn the fiber adapter cap fully counter-clockwise, insert the fiber cable to the desired position. Turn the fiber adapter clockwise to lock.
 - ② Cut the fiber cable to length with the fiber cutter.
- Caution: The Fiber cutter will lose its performance by repeated use and the quality of the cut will deteriorate.

TEACHING PROCEDURE (SENS. ADJUSTMENT)

- 1) Depending upon the time that the teaching button is pressed, the teaching mode can be changed.

	Flash 1-time (Green)	Flash 2-times (Green)	Flash 3-times (Green)
Max./1-point teaching	→		
First pulse for 2-point teaching		→	
Position teaching			→
Teaching with a moving object			→
Short sampling mode	→		
Long sampling mode		→	
	Approx. 1.3sec	Approx. 3.3sec	Approx. 6sec

2) Sensitivity adjustment



※ Remote teaching

To use the Remote Teach input connect the gray lead to 0V for NPN models (PNP to +V). Remote teach can be done without pressing the button on the amplifier. This input functions the same as the Teach button, the teaching mode is determined by the length of time the input is ON. Remote Teaching is performed without changing the SET/RUN selector.

■ MAX. TEACHING (Max. sensitivity adjustment)

- ① Press the button without a target or background present (Diffuse Reflective type).
- ② Release the button after the Green indicator flashes 1 time.
- ③ Teaching is complete.

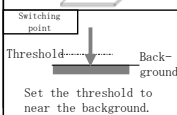
Through beam type: Adjustment with object.

Reflection type: Adjustment without object/background

■ ONE-POINT TEACHING (Diffuse reflective type)

- ① Press the button onto the background (Without object present).
- ② Release the button after the Green indicator flashes 1 time.
- ③ Teaching is complete.

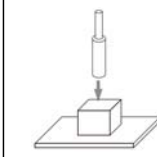
Reflection type: Adjustment without object.



■ TWO-POINT TEACHING (Diffuse reflective type)

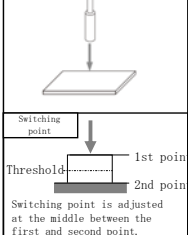
- First point
 - ① Press and hold the button until the green indicator flashes 2 times. Once it has flashed twice, release the button.
 - The first point is stored, and the sensor is ready for the second point (The green indicator starts flashing.)

Reflective type: Adjustment with object.



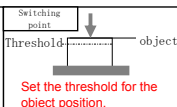
- Second point
 - A press and hold the button (Approx. 3 sec).
 - The green indicator on steady → Complete.
 - The green indicator flashes 4 times → Teaching error. Restart from step ①.

Reflective type Adjustment without object.



■ POSITION TEACHING (Diffuse reflective type)

- ① Set the object at the position where the sensor should be ON, press and hold the button.
- ② Release the button after the green indicator flashes 3 times.
- ③ Teaching is complete.

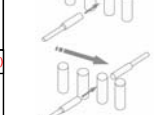


■ TEACHING WITH A MOVING OBJECT

Short sampling mode (sampling time Approx. 1.3 sec)

- ① Press and hold the button while the objects are moving past the sensing heads.
- ② Release the button after the green indicator flashes 1 time.
- ③ Teaching is complete.

Adjustment: the object is running.



Long sampling mode (sampling time Approx. 6 sec)

- ① Press and hold the button while the objects are moving past the sensing heads
- ② Release the button after the green indicator flashes 3 times.
- ③ Teaching is complete.

Switching point is adjusted at the middle between the object and no object

※Notice: If you release the button after the green indicator flashes 2 times, the mode is set to the two-point teaching mode.

Options

End Unit
BEF-BE01-W190 (2 pcs)

- Specifications and equipment are subject to change without any obligations on the part of manufacture.
- For more information, questions and comments regarding products, please contact us below.

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