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Easy sensitivity adjustments without the use of tools

- Easy to turn sensitivity adjustment potentiometer
- Both standard and water detection types are available

Fiber unit

• P.28

S

NF

Amplifier separate type

J.

DS

• P.280





Detection of adhesives



Selection table

Related

products



• For the connector type, please purchase an optional JCN series connector cable.

High-speed digital

D3RF

• P.110

Options/Accessories



End plate



BEF-EB01-W190 (2 pieces)



Potentiometer type **BRF**, **BIF**_{series}

Variation

Both standard type and water detection type amplifiers are available to meet various applications. Cable types and connector types are available for both.

Standard fiber sensors: **BRF-N. BRF-CN**

Optimal long range detection

Fiber sensors which can detect water BIF-WN, BIF-CWN

Employs an LED (wavelength: 1.45 µm) for the light source that are absorbed by water. Detection of water is made possible using water detection amplifier BIF-WN and the specialized fiber unit shown below.

Through-beam type fiber units NF-TW01 (P.97) Sensing distance max. 100 mm



Detection of chemicals in transparent bottles

Diffuse type fiber units NF-DW01 (P.97) nce max, 30 mm



Detection of adhesives

Photoelectric Sensors Specialized

Photoelectric Sensors

Laser Displacement Sensors

> Fiber Amplifiers

D3RF, D3IF

UC1-CL11

D2RF

BRF. BIF

JRF

10-turn potentiometer for sensitivity adjustment that can be turned using fingers

Features a 10-turn potentiometer for sensitivity adjustments that enables adjustments to be made easily, even when fine adjustments are necessary. Also, because it can be turned by fingers, there is no need to concern about screw threads will become damaged by screwdrivers, causing sensitivity adjustments to no longer be possible.

Large indicators

Equipped with large indicators to enable easy confirmation of sensor operation status, even from far away.



Output indicator (orange) Stability indicator (green)



Low cost

A low cost option from Optex FA.

Highly water resistant: IP66

Cleared the IP66 requirements for fiber-type amplifiers. Expands the possibilities in which sensors can be used in wet environments.



Sensing di

Photoelectric

131

Sensors

132

Potentiometer type **BRF**, **BIF**_{series}

Specifications

Photoelectric Sensors

Specialized Photoelectric Sensors

Laser Displacement Sensors

D3RF, D3IF

UC1-CL11

D2RF

BRF, BIF

JRF

NPN Cable type BRF-N BIF-WN PNP Cable type BRF-CN BIF-CWN Cable type Cable type BRF-P BIF-WP Light source Red LED infrared LED (1.45 µm) Response time 250 µs 1 ms Distance adjustment 10-turn potentiometer Indicator (green LED) Indicators Output indicator (orange LED), stable indicator (green LED) Control output NPN/PNP type open collector Max. 100 mA/30 VDC Timer function OFF delay 40 ms fixed (can be released) Output mode Light ON / Dark ON selectable Connection type Cable type: Cable length: 2 m, ø3.8 mm / Connector type: M8, 4-pin Insulation resistance 20 MΩ or more (with 500 VDC) Supply voltage 10 to 30 VDC, including 10% ripple (p-p) Current consumption 25 mA or less (with 12 VDC) Applicable regulations EMC directive (2004/108/EC) Applicable standards ENC directive (2004/108/EC) Applicable standards Noise resistance: Feilen Level 3 cleared Vibration resistance 10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z d	Туре			Standard type	Water detection type
Model NPN Connector type BRF-CN BIF-CWN PNP Cable type Gable type BRF-P BIF-CWP Light source Red LED infrared LED (1.45 µm) Response time 250 µs 1 ms Distance adjustment 10-turn potentiometer Indicators Indicators Output indicator (orange LED), stable indicator (green LED) Control output Control output NPN/PNP type open collector Max. 100 mA/30 VDC Timer function Output mode Light ON / Dark ON selectable Connector type: M8, 4-pin Insulation resistance 20 MΩ or more (with 500 VDC) Current consumption 25 mA or less (with 12 VDC) Applicable regulations EMC directive (2004/108/EC) Applicable standards EN 60947-5-2 Company standards Noise resistance: Fellen Level 3 cleared Ambient illuminance Sunlight: 10,000 lx Incandescent lamp: 3,000 lx Material Hobit to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions Shock resistance Approx. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directions	Мо	NPN	Cable type	BRF-N	BIF-WN
Model PNP Cable type BRF-P BIF-WP Light source Red LED infrared LED (1.45 µm) Response time 250 µs 1 ms Distance adjustment 10-turn potentiometer 1 Indicators Output indicator (orange LED), stable indicator (green LED) Control output Control output NPN/PNP type open collector Max. 100 mA/30 VDC Timer function Output mode Light ON / Dark ON selectable Connector type: M8, 4-pin Insulation resistance 20 MΩ or more (with 500 VDC) Supply voltage Supply voltage 10 to 30 VDC, including 10% ripple (p-p) Current consumption Q5 MA or less (with 12 VDC) Applicable regulations EMC directive (2004/108/EC) Applicable standards Noise resistance: Fellen Level 3 cleared Motient temperature/humidity -25 to +55°C (no freezing) / 35 to 85% RH (no condensation) Ambient illuminance Sunlight: 10,000 lx Incandescent lamp: 3,000 lx Wibration resistance Approx. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directions Shock resistance Approx. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directions Shock resistance			Connector type	BRF-CN	BIF-CWN
PNPConnector typeBRF-CPBIF-CWPLight sourceRed LEDinfrared LED (1.45 µm)Response time250 µs1 msDistance adjustment10-turn potentiometerIndicatorsOutput indicator (orange LED), stable indicator (green LED)Control outputNPN/PNP type open collector Max. 100 mA/30 VDCTimer functionOFF delay 40 ms fixed (can be released)Output modeLight ON / Dark ON selectableConnection typeCable type: Cable length: 2 m, ø3.8 mm / Connector type: M8, 4-pinInsulation resistance20 MΩ or more (with 500 VDC)Supply voltage10 to 30 VDC, including 10% ripple (p-p)Current consumption25 mA or less (with 12 VDC)Applicable regulationsEMC directive (2004/108/EC)Applicable standardsEN 60947-5-2Company standardsNoise resistance: Feilen Level 3 clearedMaterial10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directionsMaterialHousing: PBT cover: PolycarbonateWeight without cableCable type: Approx. 20 g / Connector type: Approx. 20 gIncluded accessoriesMounting bracket		PNP	Cable type	BRF-P	BIF-WP
Light sourceRed LEDinfrared LED (1.45 µm)Response time250 µs1 msDistance adjustment10-turn potentiometerIndicatorsOutput indicator (orange LED), stable indicator (green LED)Control outputNPN/PNP type open collectorTimer functionOFF delay 40 ms fixed (can be released)Output modeLight ON / Dark ON selectableConnection typeCable type: Cable length: 2 m, ø3.8 mm / Connector type: M8, 4-pinInsulation resistance20 MΩ or more (with 500 VDC)Supply voltage10 to 30 VDC, including 10% ripple (p-p)Current consumption25 mA or less (with 12 VDC)Applicable standardsENK Gør-7-2Company standardsENK Gør-7-2Ambient temperature/humidity-25 to +55°C (no freezing) / 35 to 85% RH (no condensation)Ambient illuminanceSunlight: 10,000 k k noralescent lamp: 3,000 kVibration resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsShock resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsVibration resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsVibration resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsBock resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsVibration resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsBock resistanceApprox. 50 G (500 m/s²), 3 times in each of the X, Y, and Z directionsBock resistanceApprox. 50 G (500 m/s²), 3 tim			Connector type	BRF-CP	BIF-CWP
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Image: SubstanceSubstan	Environmental resistance	Ambient temperature/humidity		-25 to +55°C (no freezing) / 35 to 85% RH (no condensation)	
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Weight without cable Cable type: Approx. 20 g / Connector type: Approx. 20 g Included accessories Mounting bracket	Material			Housing: PBT cover: Polycarbonate	
Included accessories Mounting bracket	Weight without cable		ut cable	Cable type: Approx. 20 g / Connector type: Approx. 20 g	
	Included accessories			Mounting bracket	

• Specifications are subject to change without prior notice for product improvement purposes.

Dimensions



Potentiometer type BRF, BIF series

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Photoelectric Sensors

(Unit: mm)

10 to 30 VDC

Control output

0 V

Photoelectric Sensors

Specialized Photoelectric Sensors

Laser Displacement Sensors

Fiber Amplifiers

D3RF, D3IF

UC1-CL11

- D2RF
- BRF, BIF

JRF

Dimensions

Connector cable (optional)

JCN-S, JCN-5S, JCN-10S









Brown: 1

Black: ④

Blue: ③

Load

Ю

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Output circuit diagram



Connector type

(Pin configuration) Sensor side







Connecting ■ ① to ④ are connector pin No.

circuit

Main

PNP output type

Protection

circuit

Notes

When using a switching regulator for the power supply, be sure to ground the frame ground terminal.

X

- Because wiring sensor wires with high-voltage wires or power supply wires can result in malfunctions due to noise, which can cause damage, make sure to wire separately.
- Avoid using the transient state while the power is on (approx. 100 ms).
- The connector direction is fixed as the drawing below when you use L-shaped connector cable. Be aware that rotation is not possible.



