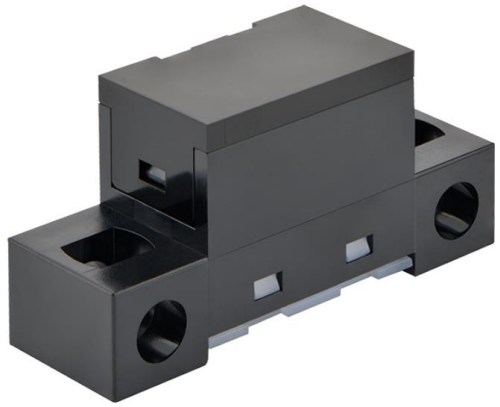
New Diffuse Reflective sensor with variable sensing distance B5W-DB11A1-A / DB11A1-A-1

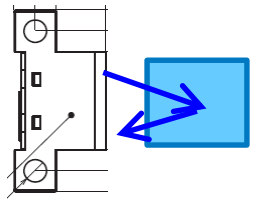


Line-up - B5W series

Launching long distance reflective sensors with variable sensing distance

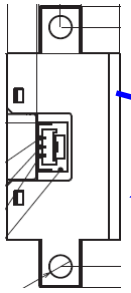
B5W-LB series

B5W-LB1112-1
B5W-LB1122-1



2-10mm

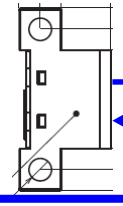
B5W-LB2101-1
B5W-LB2112-1
B5W-LB2122-1



10-55mm

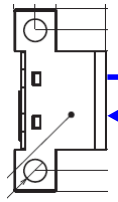
B5W-DB series

B5W-DB1452-1
B5W-DB1452-2



550mm

B5W-DB11A1-A-1
B5W-DB11A1-A
Newly launched

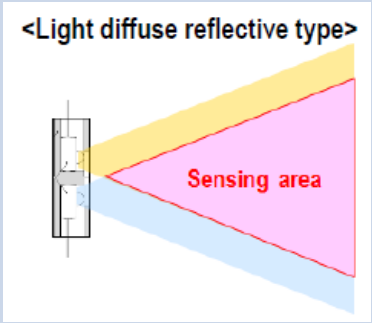
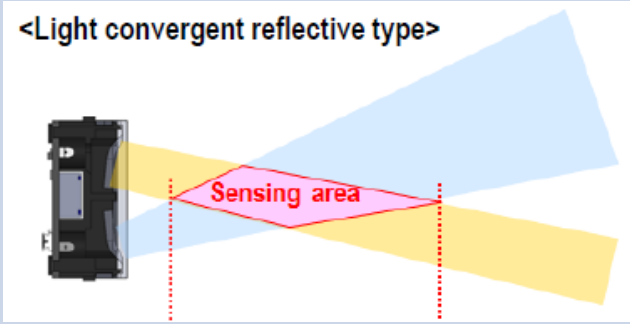


150mm

550mm

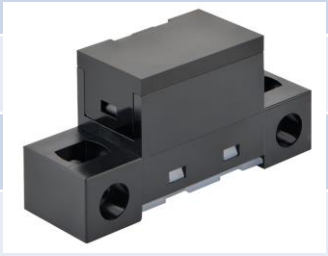
Variable sensing distance range

Differences from LCR sensors

	Diffuse reflective sensor	Light convergent sensor
Optical system	A sensor emits the light to front and the sensing area is in pink. 	Sensing area is limited, shown in pink. 
This info is from https://omronfs.omron.com/en_US/ecb/products/pdf/en-b5w_lb_series_users_manual.pdf		
Sensing distance	<Pro> Diffuse reflective sensors have a longer sensing distance than LCR sensors of the same size.	<Con> Longer sensing distances require larger sensors.
Color influence by sensing objects	<Con> Larger gap in sensing distance between white and black papers	<Pro> Smaller gap in sensing distance between white and black papers.

New Product - Main Spec

item	B5W-DB11A1-A-1	B5W-DB11A1-A	Note
Minimum number of deliverable units	10pcs	1500pcs	Only difference is packed qty.
Sensing distance	250mm *white paper *Vcc=12V & limiting resistor680Ω or Vcc=15V & limiting resistor910Ω		*when changing a limiting resistor, you can change sensing distance between 150mm and 550mm.
Differential travel	30% max.		
Sensitivity adjustment	Available in changing external limiting resistor		
Light source	Infrared LED (850nm)		
Power supply	12VDC or 15VDC		
Current consumption	20mA max. (at 13.2VDC)		
Operating mode	Light-ON		When detecting objects, the sensor has output.
Control output	NPN open collector		
Response time	Operate/ reset: 1ms max.		
Ambient illumination	Incandescent lamp: 3,000lx max. Sunlight : 10,000lx max.		
Connecting method	Connector models		D6T-HARNESS-02 is a connector with cable on sale suitable for B5W-DB11A1-A(-1).



Changing sensing distance

1) Variable sensing distance between 150 mm to 550 mm when external limiting resistor is changed.

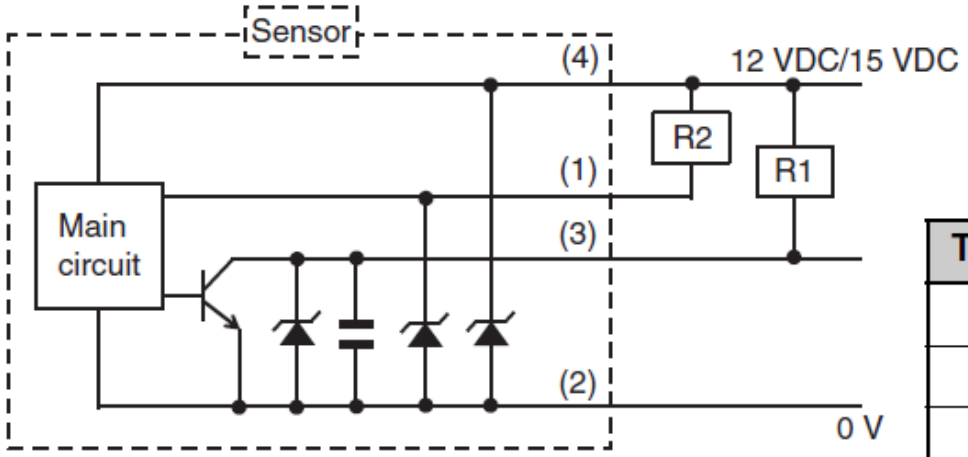
* When the limiting resistor value increases, the current applied to LED decreases; consequently, the sensing distance becomes shorter.

*When the limiting resistor value decreases, the current applied to LED increases; consequently, the sensing distance becomes longer.

2) Limiting resistor range

*when 12VDC, the limiting resistor is between 0 and 5,100 ohm.

*when 15VDC, the limiting resistor is between 100 and 5,100 ohm.



R1: Load resistor
R2: Limiting resistor (possible to change sensing distance by changing resistor value.)

Terminal No.	Name
(1)	V_{LED}
(2)	GND
(3)	Vout
(4)	Vcc

Changing sensing distance based on resistance value (R2)

External Limiting Resistance Value (R2)	Sensing Distance
0 Ω	775 mm
100 Ω	615 mm
680 Ω	345 mm
5100 Ω	125mm

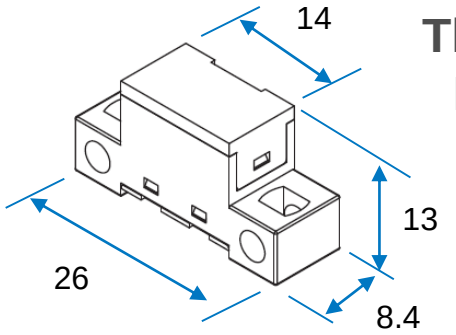
Differences between the two diffuse type sensors

Item	B5W-DB11A1-A-1 (New Model)	B5W-DB1452-1 (Existing Model)
Sensing method	Diffuse reflective type	Diffuse reflective type
Minimum order quantity	1 piece	1 piece
Sensing distance	White pater: 150-550 mm （**Variable sensing distance**）	White paper: 550mm （Fixed sensing distance）
Hysteresis	30% max.	30% max.
Sensitivity adjustment volume	Possible to adjust the sensitivity with external limiting resistance value	N/A
Light source (wavelength)	Infrared LED (850 nm)	Infared LED (850 nm)
Power supply voltage	12VDC/15VDC	12VDC
Current consumption	20mA max.	20mA max.
Operating mode	Light-ON	Light-ON
Control output	NPN Open collector	NPN Open collector
Response time	Operate/reset: 1 ms max.	Operate/reset: 1 ms max.
Ambient illumination	Incandescent lamp: 3,000lx max. Sunlight: 10,000lx max.	Incandescent lamp: 3,000lx max. Sunlight: 10,000lx max.
Degree of protection	N/A	IEC IP50 (Except for terminals)

New Product Features & Benefits

Features

1) Small size and a sensing distance of 550mm



The same size as B5W-LB1112-1

2) Variable sensing distance when external limiting resistor is changed

3) Possible to mount from 4 directions

4) Enhanced disturbance light resistance

Benefits

1) Smaller size to mount in a variety of places model and long sensing distance

2) Ability to change to suitable sensing distance

3) Easy to mount

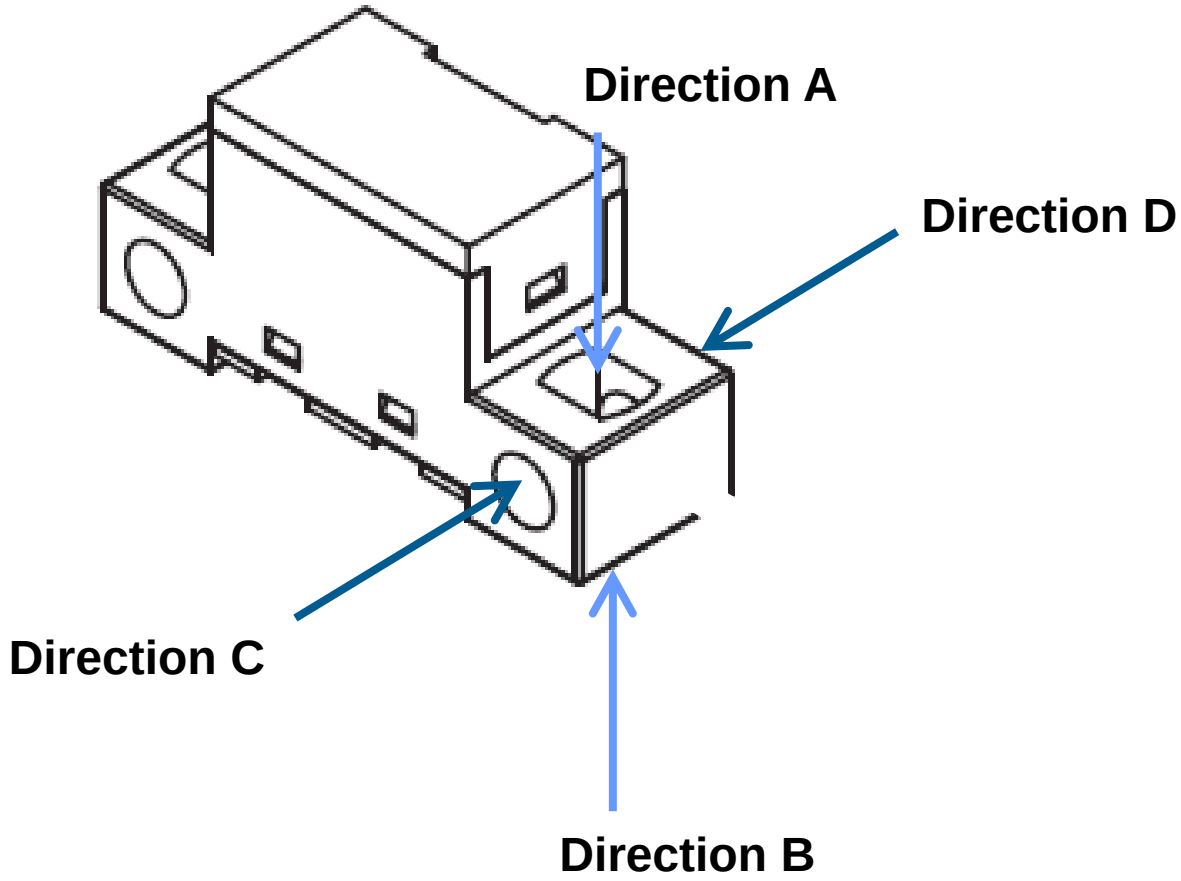
4) Less susceptible to sunlight

OMRON

Mounting method of B5W-DB11A1-A(-1)

The same as current B5W-DB1452

Mounted in M3 screws from 4 possible directions



Market Trends

The same as current B5W-DB1452

Our life style is changing due to the influence of Covid-19.

1) Bigger demand of touch-less sensors because we do not want to touch the switches which an unspecified number of persons push.

2) Less infection risk by installing sterilization equipment in public spaces.

3) Safe and secure confirmations during fever checks when entering stores

Markets & Customers

The same as current B5W-DB1452

＊common

Manufacturers do not feel FA sensors are worth the cost due to excessive demand levels and are not satisfied with environmental resistance to current embedded sensors.

1) Sanitary equipment

Manufacturers have changed to touchless sensors due the influence of Covid-19. They are appealing to those who are require safer and more secure sanitary measures.

2) Sterilization equipment

Manufacturers who aim to improve customer value with sterilization of equipment that use ON/OFF switching in detecting human bodies to reduce infection risk of Covid-19 in public places.

3) Entry/ exit management equipment

Manufacturers who aim to improve customer value of products in reducing the risk that employees and customers in stores that are infected by taking temperatures before entering

Details of Target Application

The same as current B5W-DB1452

Hand detection for sanitary equipment

1) Alcohol sprayed when hands are detected
2) Pouring sterilized water in hands when detected

Hands detection

Human body detection in sterilization equipment

1) Stop emitting sterilized gas when human body is detected

Human body detection in temperature measurement equipment

1) Start temperature measurement by thermal sensors when human body is detected

Human body detection

Thank You