LED type

Obstacle Detection Sensor
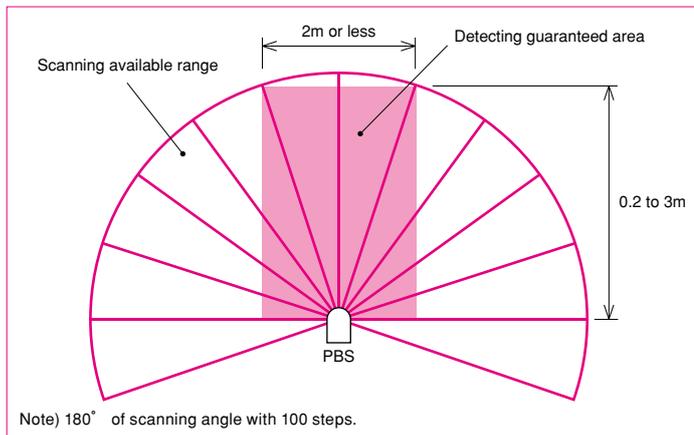
PBS SERIES

Wide scanning angle, Super small size!

- This is 60% smaller than PB9 about cubic volume. Scanning angle (Detection area) is increased to 180° and detectable dead zone is smaller.

- Operation principle is that semicircular field is scanned by LED (lambda=880nm) and the coordinates are calculated by measuring distance to object and its step angle and then it detects obstacle in setting area.

- Detection area can be set by PC (RS-232C). Detection distance with 3 steps output for each area can be set.

- Changeover for Max. 15 kinds of detection area set by PC can be made by outer bit input.

■ System structure

2m or less — Detecting guaranteed area

Scanning available range

0.2 to 3m

PBS

Note) 180° of scanning angle with 100 steps.

Max.15 kinds of area can be registered by PC

■ Specifications

Kinds		Detection area setting type (parallel type)
Model No.		**PBS-03JN**
Power source		24VDC (Allowable range 18 to 30VDC including ripple)
Current consumption		250mA or less (100mA or less when emission stops)[Note1]
Light source		Infra-red LED (wave length 880nm)
Detectable object		300✕300mm white sheet (Placed in parallel with sensor projecting/receiving surface)
Detecting range		0.2 to 3✕2m (Origin point is scanning center position) but within scanning angle,180°
Beam diameter		Approx. ϕ100mm (at 3m)
Area setting	Output 1	Free to set with pointer (Max. 7 points) (Possible to set from 0 to 6m for optical axis direction)
	Output 2, 3	Linear setting to progressive direction, Fan-shaped setting to optical axis direction, Percentage (%) setting against output 1 pointer
Hysteresis		10% or less of detecting distance (Not smaller than 60mm)
Output		Photo-coupler/open-collector output (30VDC, 50mA) Output1・2・3: OFF when detected in area, Trouble output: ON during normal operation*
Output response time		180msec or less (Scanning speed: 1rev./100msec) 2-scanning operation mode: 280msec or less (Excluding for 100msec, area changeover time)
Input		Photo-coupler input (Anode common, each input current 4mA or more), Changeover of setting area
Input response time		Input taking-in cycle: 1 scanning time (100msec)
Detecting area setting		Set area No. by Input 1, Input 2, Input 3 and Input 4 Stop emission by getting all Input 1, Input 2, Input 3 and Input 4 to ON (OFF: H level input, ON: L level input)
Indication lamps		Power lamp (green): Flickered when troubles, output1・2・3 lamp (orange): Lights up when detected in area
Connection		Cable 1m
Ambient illuminance [note2]		Halogen/mercury lamp: 10,000lux or less, incandescent lamp: 6,000lux or less
Ambient temperature/ humidity		-10 to +50℃, 85%RH or less, not icing, not condensing
Vibration resistance		Double amplitude 1.5mm, 10 to 55Hz, each 2 hour in X, Y and Z directions

Impact resistance	490m/s², each 10 time in X, Y and Z directions
Protective structure	IP64 (IEC standard)
Life	5 years (motor life, vary depending on use conditions)
Case materials	Front case: Polycarbonate, rear case: ABS resin
Weight	Approx. 500g

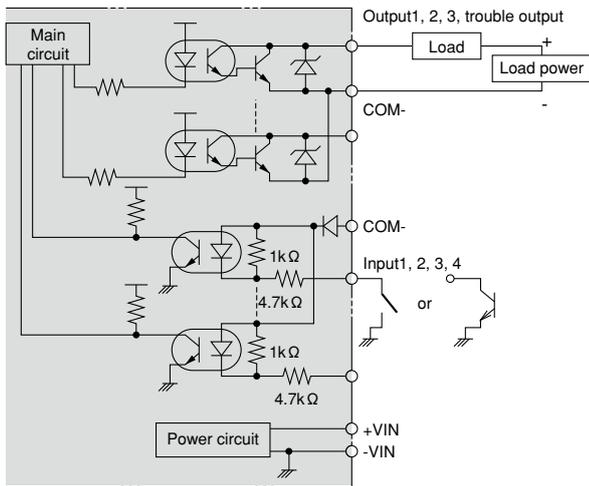*When trouble output was executed, all output 1 to 3 is indicating detection state.
Note1) Excluding I/O terminal current and rush current (500mA).
Note2) It may cause malfunctions if strong light such as sunlight etc. entered.
★Area setting software (RPAR027) (with RS-232C cable (UZ00002) is available as an option. Purchase separately.

■ Connection

Input/output circuit

Wiring table

| Cable colors	Signals
Black	Output 1
White	Output 2
White (blue)	Output 3
Orange	Malfunction output
Gray	Output common minus
Red	Input common plus
Green	Input 1
Yellow	Input 2
Purple	Input 3
White (yellow)	Input 4
Brown	+VIN (24VDC)
Blue	-VIN
Yellow (red)	Serial input (RXD)
Yellow (green)	Serial output (TXD)
Yellow (black)	Serial GND

Note1) Colors in parenthesis indicate ink color of both sides line printing.
Note2) Connect unused input cable to input common +(Red) or open it.
Connect unused output cable to output common -(Gray) or open it.
Note3) Input/output direction is based on PB9.

■ External dimension
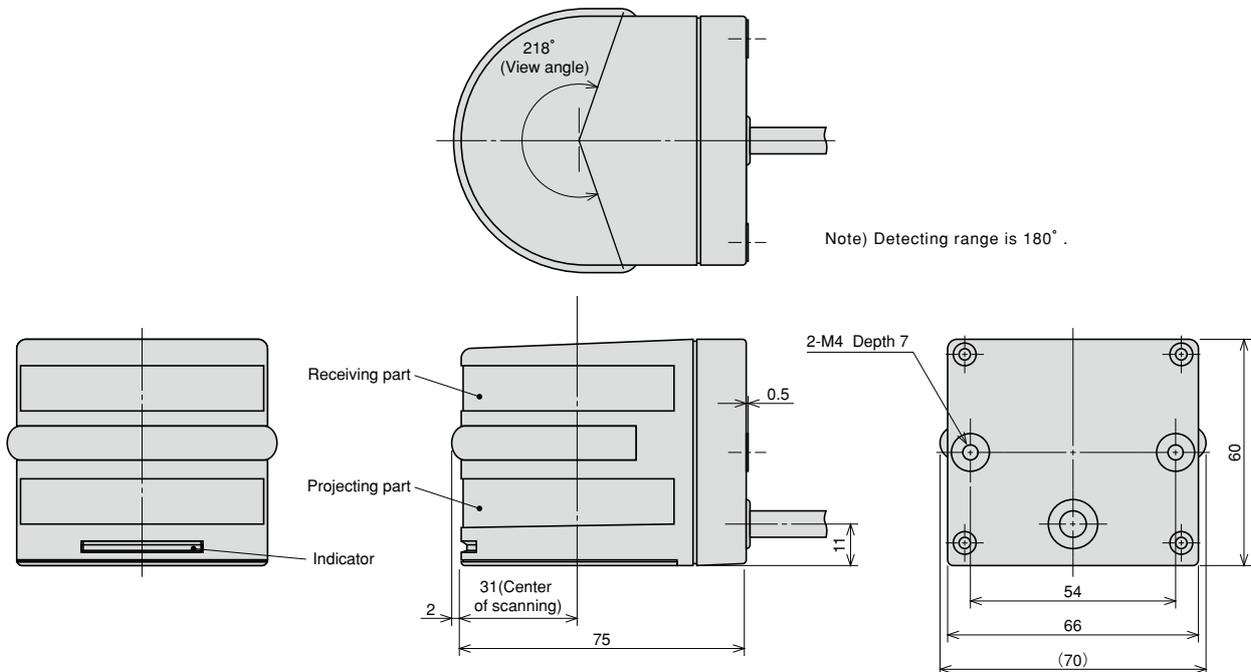
Note) Detecting range is 180˚ .

■ Caution

(1) It may cause malfunction when there are any mirrors or reflective plates at 19m or more ahead. In case that, install the sensor in 6 degrees upward or downward.
(2) Don't close light-projecting/receiving window or interrupt area when installation
(3) Wiring should be kept away from power line or high voltage line or load line as far as possible because of affection of noise or surge induction.