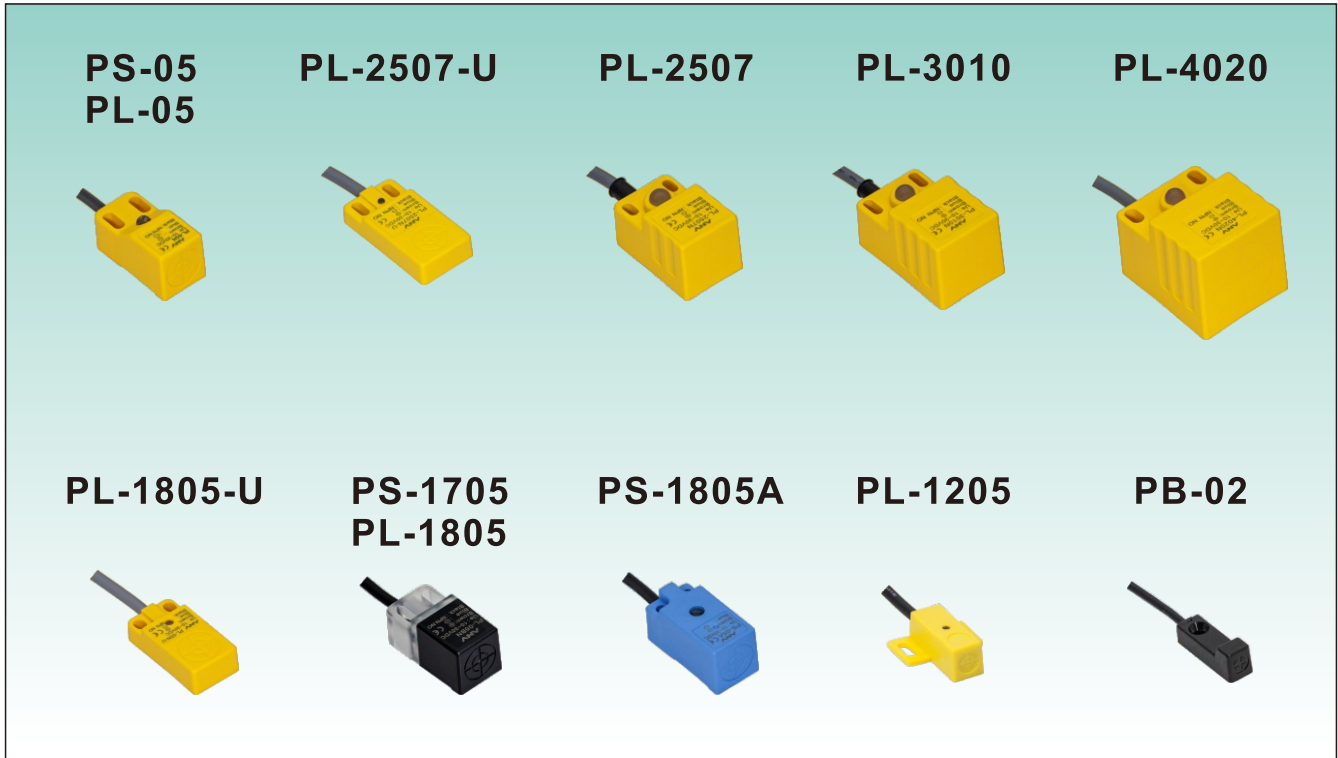




Inductive proximity sensor

PS / PL / PB Series (Square type)

- PBT plastic shell, acid and alkali resistance
- Power supply reverse polarity protection and surge suppressor
- IP67

MODEL INFORMATION

Ex. **PL - 1204 N 2 - U - M12**

① ② ③ ④ ⑤ ⑥ ⑦

① Type

PS: Square type
PL: Square type with oval hole
PB: Itsy-bitsy type

② Apperance

12: 12.0mm 25: 25.0mm
17: 17.0mm 30: 30.0mm
18: 18.0mm 40: 40.0mm

③ Sensing distance

02: 2.0mm 10: 10.0mm
04: 4.0mm 15: 15.0mm
05: 5.0mm 18: 18.0mm
06: 6.0mm 20: 20.0mm
07: 7.0mm

④ Output method

N: NPN A : AC 2wire
P: PNP D : DC 2wire

⑤ Operating mode

Non: NO(Normal open)
2: NC(Normal close)

⑥ Sensing direction

Non: Standard type
U: Upper sensing type

⑦ Connection method

Non: 2M Cable
P: Quick plug connector
M12: M12 connector

MODEL LIST

Appearance	Model	Control Method	Sensing Surface	Sensing Distance	Operating Voltage	Leakage/load Current	Response Frequency
	PB-02N	NPN, NO	8mm	2mm	10~30VDC 3wire	20mA / 150mA	1KHz
	PB-02N2	NPN, NC					
	PB-02P	PNP, NO					
	PB-02P2	PNP, NC					
	PL-1202N	NPN, NO	12mm	2mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1202N2	NPN, NC					
	PL-1202P	PNP, NO					
	PL-1202P2	PNP, NC					
	PL-1204N	NPN, NO	12mm	4mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1204N2	NPN, NC					
	PL-1204P	PNP, NO					
	PL-1204P2	PNP, NC					
	PL-1206N	NPN, NO	12mm	6mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1206N2	NPN, NC					
	PL-1206P	PNP, NO					
	PL-1206P2	PNP, NC					
	PS-1805A	NO	18mm	5mm	24~260VAC 2wire	1.7mA / 5~100mA	30Hz
	PS-1805A2	NC					
	PS-05N	NPN, NO	17mm	5mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PS-05N2	NPN, NC					
	PS-05P	PNP, NO					
	PS-05P2	PNP, NC					
	PS-05D	NO	17mm	5mm	10~30VDC 2wire	0.8mA / 3~150mA	800Hz
	PS-05D2	NC					
	PS-07N	NPN, NO	17mm	7mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PS-07N2	NPN, NC					
	PS-07P	PNP, NO					
	PS-07P2	PNP, NC					

Appearance	Model	Control Method	Sensing Surface	Sensing Distance	Operating Voltage	Leakage/load Current	Response Frequency
	PL-05N	NPN, NO	18mm	5mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-05N2	NPN, NC					
	PL-05P	PNP, NO					
	PL-05P2	PNP, NC					
	PL-05D	NO	18mm	5mm	10~30VDC 2wire	0.8mA / 3~150mA	800Hz
	PL-05D2	NC					
	PL-07N	NPN, NO	18mm	7mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-07N2	NPN, NC					
	PL-07P	PNP, NO					
	PL-07P2	PNP, NC					
	PL-2507N	NPN, NO	25mm	7mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-2507N2	NPN, NC					
	PL-2507P	PNP, NO					
	PL-2507P2	PNP, NC					
	PL-2507D	NO	25mm	7mm	10~30VDC 2wire	0.8mA / 3~150mA	400Hz
	PL-2507D2	NC					
	PL-2507A	NO	25mm	7mm	24~260VAC 2wire	1.7mA / 5~300mA	25Hz
	PL-2507A2	NC					
	PL-2510N	NPN, NO	25mm	10mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-2510N2	NPN, NC					
	PL-2510P	PNP, NO					
	PL-2510P2	PNP, NC					
	PL-3010N	NPN, NO	30mm	10mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-3010N2	NPN, NC					
	PL-3010P	PNP, NO					
	PL-3010P2	PNP, NC					
	PL-3010D	NO	30mm	10mm	10~30VDC 2wire	0.8mA / 3~150mA	400Hz
	PL-3010D2	NC					
	PL-3010A	NO	30mm	10mm	24~260VAC 2wire	1.7mA / 5~300mA	25Hz
	PL-3010A2	NC					

Appearance	Model	Control Method	Sensing Surface	Sensing Distance	Operating Voltage	Leakage/load Current	Response Frequency
	PL-3015N	NPN, NO	30mm	15mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-3015N2	NPN, NC					
	PL-3015P	PNP, NO					
	PL-3015P2	PNP, NC					
	PL-3015D	NO	30mm	15mm	10~30VDC 2wire	0.8mA / 3~150mA	400Hz
	PL-3015D2	NC					
	PL-3015A	NO	30mm	15mm	24~260VAC 2wire	1.7mA / 5~300mA	25Hz
	PL-3015A2	NC					
	PL-3018N	NPN, NO	30mm	18mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-3018N2	NPN, NC					
	PL-3018P	PNP, NO					
	PL-3018P2	PNP, NC					
	PL-4020N	NPN, NO	40mm	20mm	10~30VDC 3wire	13mA / 200mA	200Hz
	PL-4020N2	NPN, NC					
	PL-4020P	PNP, NO					
	PL-4020P2	PNP, NC					
	PL-4020D	NO	40mm	20mm	10~30VDC 2wire	0.8mA / 3~150mA	200Hz
	PL-4020D2	NC					
	PL-4020A	NO	40mm	20mm	24~260VAC 2wire	1.7mA / 5~100mA	30Hz
	PL-4020A2	NC					
	PS-1705N	NPN, NO	17mm	5mm	10~30VDC 3wire	10mA / 200mA	600Hz (1KHz)
	PS-1705N2	NPN, NC					
	PS-1705P	PNP, NO					
	PS-1705P2	PNP, NC					
	PS-1707N	NPN, NO	17mm	7mm	10~30VDC 3wire	10mA / 200mA	600Hz (1KHz)
	PS-1707N2	NPN, NC					
	PS-1707P	PNP, NO					
	PS-1707P2	PNP, NC					

Appearance	Model	Control Method	Sensing Surface	Sensing Distance	Operating Voltage	Leakage/load Current	Response Frequency
	PL-1805N	NPN, NO	18mm	5mm	10~30VDC 3wire	10mA / 200mA	600Hz (1KHz)
	PL-1805N2	NPN, NC					
	PL-1805P	PNP, NO					
	PL-1805P2	PNP, NC					
	PL-1807N	NPN, NO	18mm	7mm	10~30VDC 3wire	10mA / 200mA	600Hz (1KHz)
	PL-1807N2	NPN, NC					
	PL-1807P	PNP, NO					
	PL-1807P2	PNP, NC					
	PB-02N-U	NPN, NO	8mm	2mm	10~30VDC 3wire	20mA / 150mA	1KHz
	PB-02N2-U	NPN, NC					
	PB-02P-U	PNP, NO					
	PB-02P2-U	PNP, NC					
	PL-1202N-U	NPN, NO	12mm	2mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1202N2-U	NPN, NC					
	PL-1202P-U	PNP, NO					
	PL-1202P2-U	PNP, NC					
	PL-1204N-U	NPN, NO	12mm	4mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1204N2-U	NPN, NC					
	PL-1204P-U	PNP, NO					
	PL-1204P2-U	PNP, NC					
	PL-1206N-U	NPN, NO	12mm	6mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1206N2-U	NPN, NC					
	PL-1206P-U	PNP, NO					
	PL-1206P2-U	PNP, NC					
	PL-1805N-U	NPN, NO	18mm	5mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1805N2-U	NPN, NC					
	PL-1805P-U	PNP, NO					
	PL-1805P2-U	PNP, NC					
	PL-1805D-U	NO	18mm	5mm	10~30VDC 2wire	0.8mA / 3~150mA	600Hz
	PL-1805D2-U	NC					
	PL-1807N-U	NPN, NO	18mm	7mm	10~30VDC 3wire	20mA / 200mA	800Hz
	PL-1807N2-U	NPN, NC					
	PL-1807P-U	PNP, NO					
	PL-1807P2-U	PNP, NC					

Appearance	Model	Control Method	Sensing Surface	Sensing Distance	Operating Voltage	Leakage/load Current	Response Frequency
	PL-2507N-U	NPN, NO	25mm	7mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-2507N2-U	NPN, NC					
	PL-2507P-U	PNP, NO					
	PL-2507P2-U	PNP, NC					
	PL-2507D-U	NO	25mm	7mm	10~30VDC 2wire	0.8mA / 3~150mA	400Hz
	PL-2507D2-U	NC					
	PL-2510N-U	NPN, NO	25mm	10mm	10~30VDC 3wire	20mA / 200mA	400Hz
	PL-2510N2-U	NPN, NC					
	PL-2510P-U	PNP, NO					
	PL-2510P2-U	PNP, NC					

SPECIFICATIONS

DETECTABLE OBJECT	Ferrous metals
DIFFERENTIAL TRAVEL	10% max. of sensing distance
INDICATOR	Operation indicator(red)
PROTECTION CIRCUITS	DC 3wire: Reverse polarity and Load short-circuit protection, AC 2wire: Surge suppressor
CONTROL OUTPUT	NO(Normal open), NC(Normal close)
AMBIENT TEMPERATURE	-25°C to 70°C
AMBIENT HUMIDITY	35 to 90%RH
INSULATION RESISTANCE	50MΩ or more between input terminals and case(ground) at DC 500V
VIBRATION RESISTANCE	Destruction: 10 to 55 Hz, 1.5mm double amplitude for 2 hours each in X,Y and Z directions
SHOCK RESISTANCE	Destruction: 500 m/S ² 3 time each in X,Y and Z directions
DEGREE OF PROTECTION	IP67 / Oil resistant
DIELECTRIC STRENGTH	1000VAC at 50/60Hz for 1 min between charged parts and noncharged parts
CONNECTION METHOD	Pre-wired 2m × 3wire(AC 2wire/ DC 2wire) PVC, Quick plug connector, M12 connector
MATERIALS	PBT(Yellow/Blue) , PC(Black)

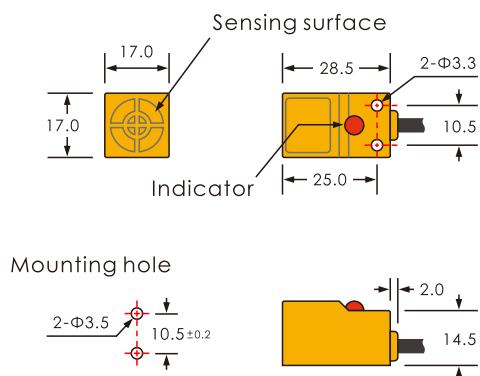
OTHER PARAMETERS

Model	Connection method	Weight	Standard Sensing object	Accessories	Mounting
PB-02 Series PB-02-U Series	Pre-wired $\Phi 2.5 \times 2\text{m}$	Approx. 25g	$08 \times 08 \times 1\text{mm}$	Screws	Non-flush
PL-1204 Series PL-1204-U Series	Pre-wired $\Phi 3.8 \times 2\text{m}$	Approx. 50g	$12 \times 12 \times 1\text{mm}$	Screws	
	Quick plug connector	Approx. 50g			
	M12 connector	Approx. 50g			
PS-05 Series PL-05 Series	Pre-wired $\Phi 3.8 \times 2\text{m}$	Approx. 65g	$18 \times 18 \times 1\text{mm}$	Screws, Mounting bracket	
	Quick plug connector	Approx. 65g			
PS-1705 Series PL-1805 Series	Pre-wired $\Phi 3.8 \times 2\text{m}$	Approx. 55g	$18 \times 18 \times 1\text{mm}$		
PL-1805-U Series	Pre-wired $\Phi 3.8 \times 2\text{m}$	Approx. 55g	$18 \times 18 \times 1\text{mm}$		
	Quick plug connector	Approx. 55g			
PL-2510 Series	Pre-wired $\Phi 3.8 \times 2\text{m}$	Approx. 100g	$25 \times 25 \times 1\text{mm}$		
	Quick plug connector	Approx. 100g			
PL-2510-U Series	Pre-wired $\Phi 3.8 \times 2\text{m}$	Approx. 100g	$25 \times 25 \times 1\text{mm}$		
	Quick plug connector	Approx. 80g			
PL-3015 Series	Pre-wired $\Phi 4.8 \times 2\text{m}$	Approx. 120g	$30 \times 30 \times 1\text{mm}$		
	Quick plug connector	Approx. 120g			
PL-4020 Series	Pre-wired $\Phi 4.8 \times 2\text{m}$	Approx. 175g	$40 \times 40 \times 1\text{mm}$		
	Quick plug connector	Approx. 175g			

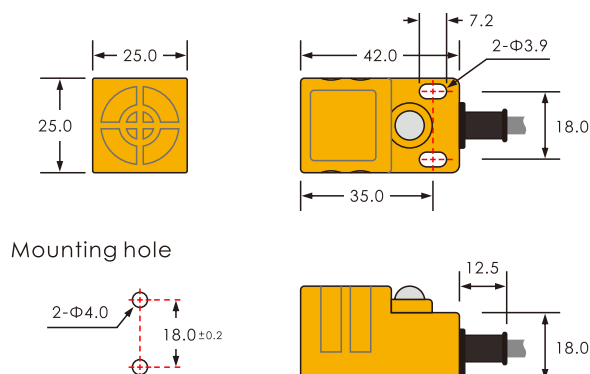
DIMENSIONS

(Units: mm)

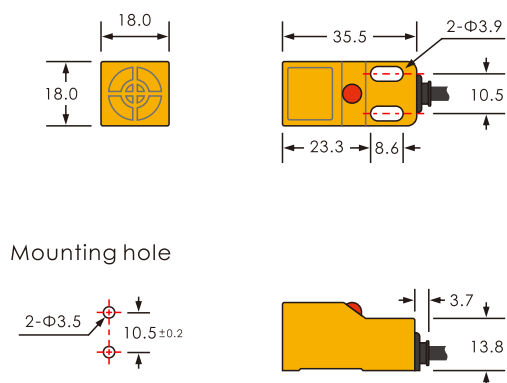
PS-05 Series



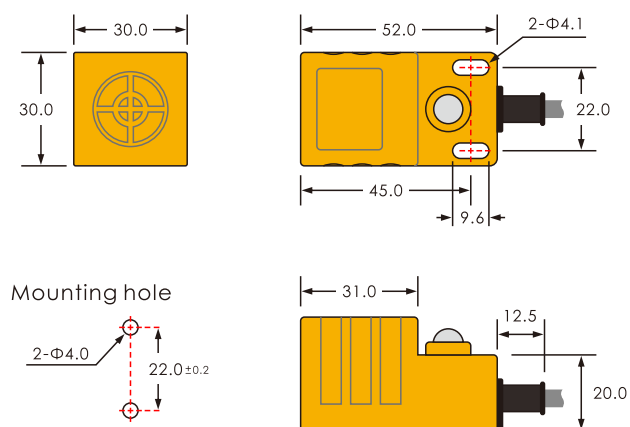
PL-2507 Series



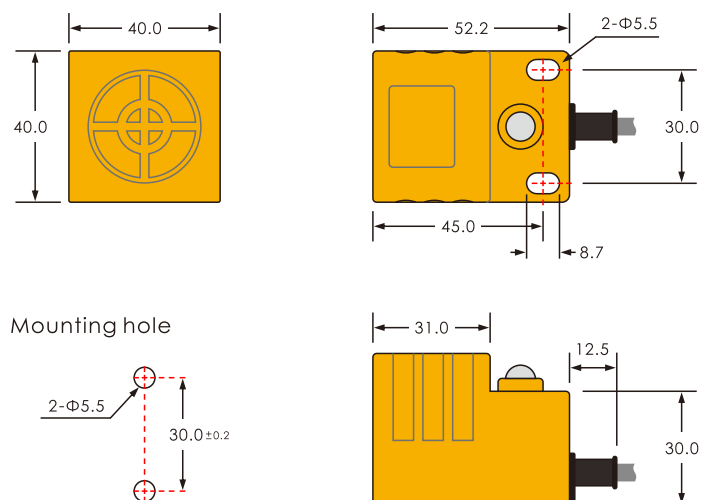
PL-05 Series



PL-3010 Series



PL-4020 Series



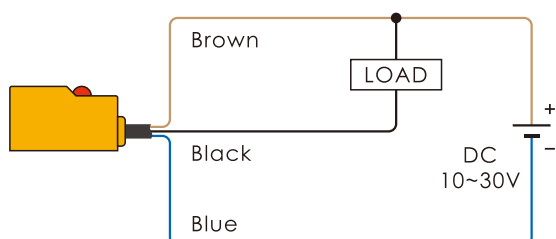
DIMENSIONS

(Units: mm)

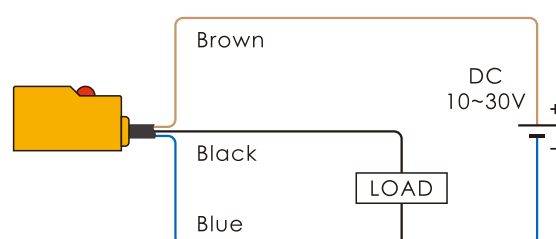
PB-02 Sensing surface Indicator Mounting hole $\Phi 3.0$	PB-02-U Indicator Sensing surface Mounting hole $\Phi 3.0$
PS-1705 Series Mounting hole $2-\Phi 3.5$	PL-1805 Series Mounting hole $2-\Phi 3.5$
PS-1805A Mounting hole $2-\Phi 3.5$	PL-1805-U Series Mounting hole $2-\Phi 3.5$
PL-1204/PL-1204-U Series Mounting hole $2-\Phi 4.0$	PL-2507-U Series Mounting hole $2-\Phi 4.0$

CONNECTION DIAGRAMS

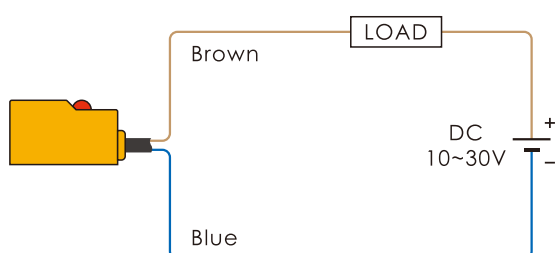
DC 3wire **NPN NO or NPN NC**



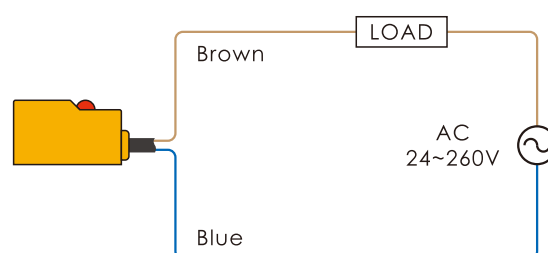
DC 3wire **PNP NO or PNP NC**



DC 2wire **NO or NC**



AC 2wire **NO or NC**

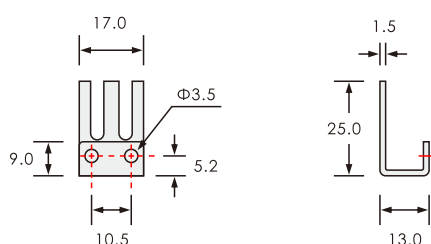


ACCESSORIES

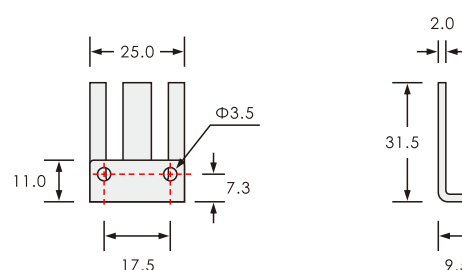
(Units: mm)

Mounting Bracket

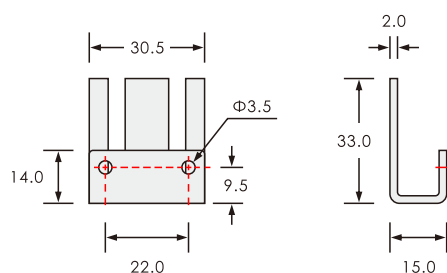
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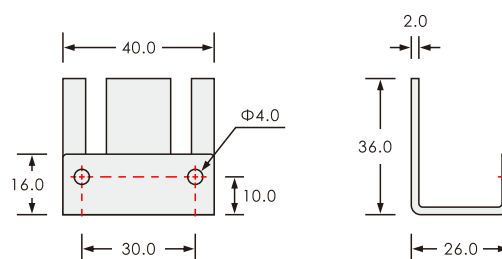
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Type: MB-L30



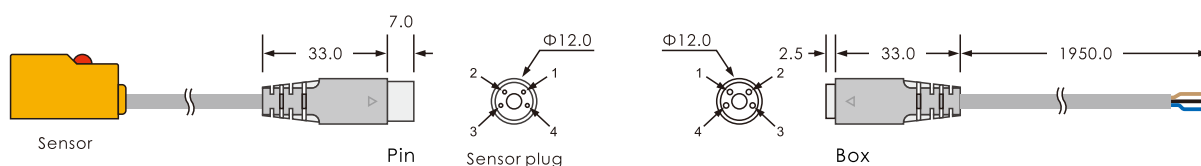
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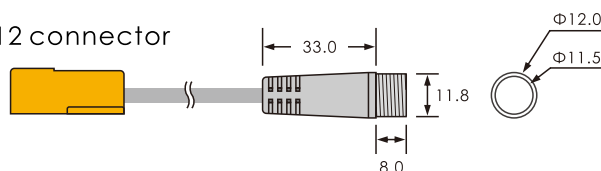
CONNECTORS

(Units: mm)

Quick plug connector



M12 connector



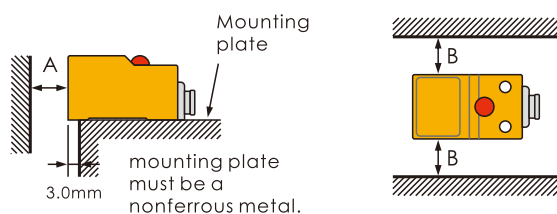
Pin No.	1	2	3	4
Pinout	10~30VDC	---	0V	Output
Wire color	Brown	White	Blue	Black

Model for I/O Connector

M12 - S 2M
① ②

- ① Connect method:
S: Straight
A: Angle
- ② Cable length:
Customized
Unit: meter

INFLUENCE OF SURROUNDING METAL

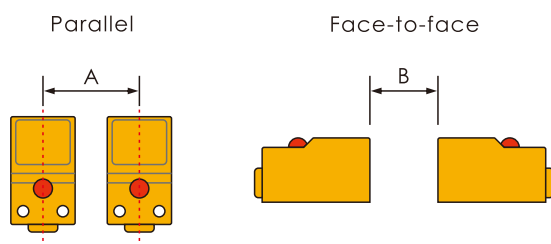


When mounting the Sensor within a metal panel, ensure that the clearances given in the following table are maintained.

MODEL	A	B
PS- [S] [D]	D×3	S×1

S=Side length of Sensing surface (mm)
D=Detecting distance (mm)

MUTUAL INTERFERENCE

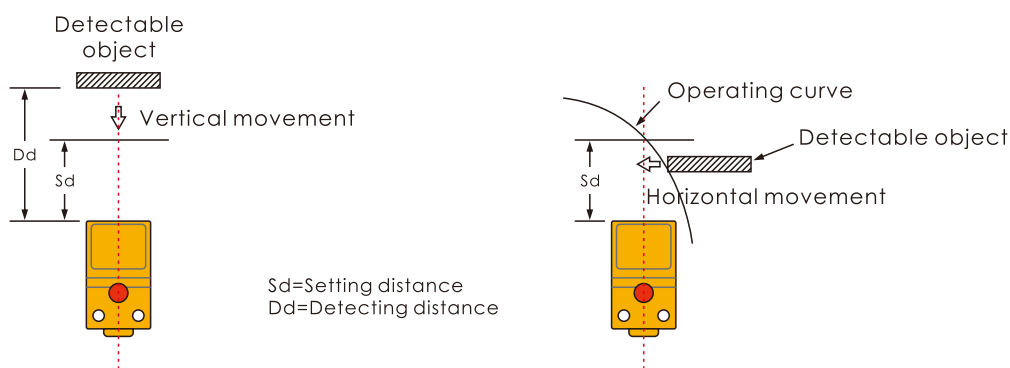


When installing Sensors face-to-face or side-by-side, ensure that the minimum distances given in the following table are maintained.

MODEL	A	B
PS- [S] [D]	> S×2	> D×2

S=Side length of Sensing surface (mm)
D=Detecting distance (mm)

HOW TO DETERMINE SETTING DISTANCE



The detecting distance and setting distance of the proximity switch will vary depending on the shape size and material of a object to be detected. therefore confirm the proper detecting and setting distance beforehand.

When a detectable object is smaller than the standard detectable object(iron), the detecting distance will become shorter.

However the detection distance will not become longer even if an object larger than the standard detectable object is used.



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