Expandable Area Sensor

PJ Series



Cost-effective and easily expandable

By adding only the required number of expansion units, you can easily build an area sensor system (4 to 28 optical axes). Connect expansion units easily by hand; no tools are required. The entire unit is also splash proof, meeting IEC standard IP64.



Built-in interference suppression function

The built-in interference suppression function enables various sensor configurations such as a parallel or L-shaped assembly. This enables simultaneous detection to be performed in vertical and horizontal directions.

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Specifications

Model	**PJ-50A** (Basic unit)	**PJ-55A** (Expansion unit)
Appearance		
Number of optical axes	4	2
Optical axis pitch	40 mm	
Maximum optical axis number	28 optical axes (**PJ-50A** x 1) + (**PJ-55A** x 12)	
Detecting area	120 mm (4 optical axes) to 1080 mm (28 optical axes)	
Detecting distance	5 m	
Smallest detectable object	Opaque materials (50 mm dia. min.)	
Response time	15 ms max.	
Light source	Infrared LED	
Operation mode	LIGHT-ON/DARK-ON (switch-selectable)	
Indicator	Output (**PJ-50AR**)/Power (**PJ-50AT**): Red LED, Stable operation (**PJ-50AR**): Green LED	
Control output [1]	NPN: 100 mA max. (40 V max.), Residual voltage: 1 V max.	
Protection circuit	Reversed polarity, short-circuit protection, surge absorber	
Power supply	12 to 24 VDC ±10%, Ripple (P-P): 10% max.	
Current consumption (total of T and R) [2]	90 mA (**PJ-50AT**: 35 mA, **PJ-50AR**: 55 mA)	25 mA (**PJ-55AT**: 5 mA, **PJ-55AR**: 20 mA)
Enclosure rating	IP64	
Ambient light	Incandescent lamp: 3500 lux max., Sunlight: 12000 lux max.	
Ambient temperature	-20 to +50°C, No freezing	
Relative humidity	35 to 85%, No condensation	
Vibration resistance	10 to 55 Hz, 1.5 mm double-amplitude in X, Y, and Z directions, 2 hours respectively	
Shock resistance	100 m/s^2 (approx. 10G) in X, Y, and Z directions, 3 times respectively	
Noise immunity	350 V, 1 µs (noise simulator)	
Material	Housing: Glass-fibre reinforced plastic, Lens cover: PFA	
Weight (including 5 m cable) [3]	**PJ-50AT**: Approx. 390 g **PJ-50AR**: Approx. 395 g	**PJ-55AT**: Approx. 60 g **PJ-55AR**: Approx. 65 g

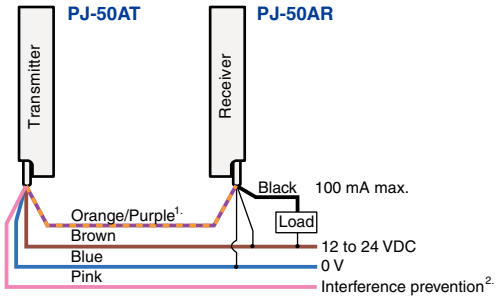
1. NPN output can easily be converted to PNP output by connecting the optional **OP-5148** PNP Output Converter.
2. When supply voltage is 24 VDC. (When supply voltage is 12 VDC: 80 mA with **PJ-50A**, 20 mA with **PJ-55A**)
3. For models **PJ-50AT** and **50AR**, the weight of the 5-m cable is included.

Various combinations of basic and expansion units, and current consumption (when **PJ-55A** is used as expansion unit)

Number of optical axes		4	6	8	10	12	14	16
Detecting area		120 mm	200 mm	280 mm	360 mm	440 mm	520 mm	600 mm
Number of units	Basic units	1	1	1	1	1	1	1
	Expansion units	0	1	2	3	4	5	6
Current consumption	at 12 VDC	80 mA	100 mA	120 mA	140 mA	160 mA	180 mA	200 mA
	at 24 VDC	90 mA	115 mA	140 mA	165 mA	190 mA	215 mA	240 mA

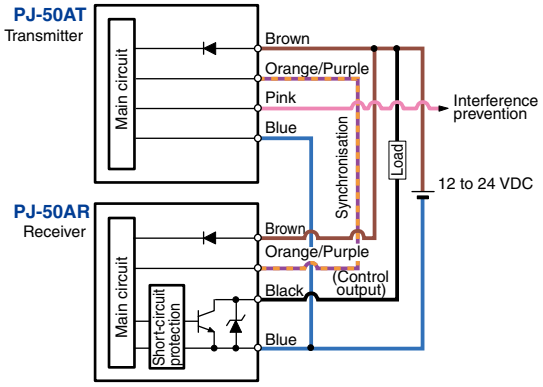
Number of optical axes		18	20	22	24	26	28
Detecting area		680 mm	760 mm	840 mm	920 mm	1000 mm	1080 mm
Number of units	Basic units	1	1	1	1	1	1
	Expansion units	7	8	9	10	11	12
Current consumption	at 12 VDC	220 mA	240 mA	260 mA	280 mA	300 mA	320 mA
	at 24 VDC	265 mA	290 mA	315 mA	340 mA	365 mA	390 mA

Connections



1. The orange/purple cable must be connected carefully in order to ensure correct synchronisation between the transmitter and receiver.
2. When two sensor systems are installed together, the pink cable is connected to activate the interference prevention function.

Input/Output Circuits



Dimensions

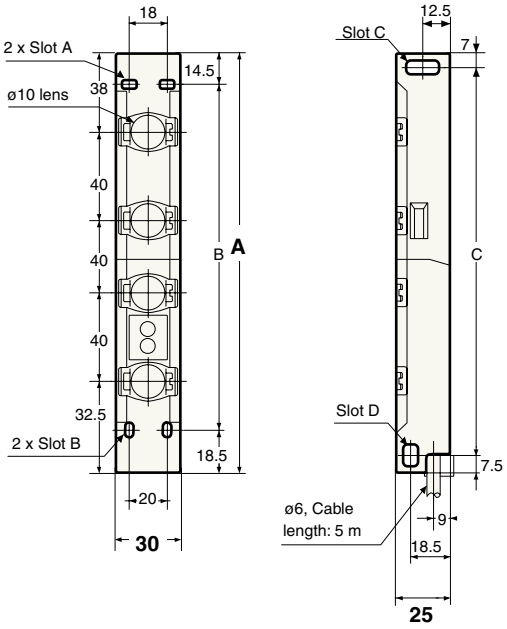
Unit: mm

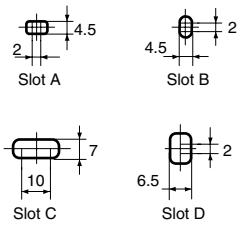
PJ-50A



PJ-55A

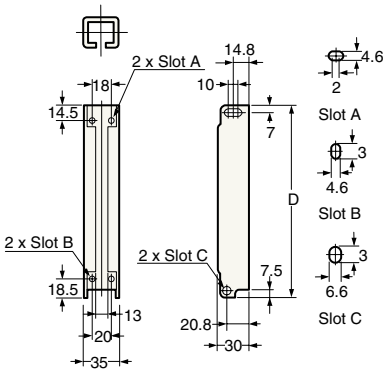






Number of optical axes \ Mark	A	B	C
4	191	157.5	176
6	271	237.5	256
8	351.5	318	336.5
10	431.5	398	416.5
12	511.5	478	496.5
14	592	558.5	577
16	672	638.5	657
18	752.5	719	737.5
20	832.5	799	817.5
22	913	879.5	898
24	993	959.5	978
26	1073.5	1040	1058.5
28	1153.5	1120	1138.5

Protective cover for **PJ-50A/55A**



Model	Optical axis	Dimension D	Tolerance for Dimension D
PJ-B04	4	190.5	±1
PJ-B06	6	271	
PJ-B08	8	351.5	
PJ-B10	10	432	±1 -2
PJ-B12	12	512.5	
PJ-B14	14	593	
PJ-B16	16	673.5	±1 -2.5
PJ-B20	20	834.5	
PJ-B24	24	995.5	±1 -3.5
PJ-B28	28	1153.5	—

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