LASER SENSORS

PHOTOELECTRIC SENSORS

AREA SENSORS

SAFETY LIGHT CURTAINS / SAFETY COMPONENTS PRESSURE /

FLOW SENSORS INDUCTIVE PROXIMITY **SENSORS**

PARTICUI AR USE SENSORS

SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS

MEASUREMENT SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

PLC

HUMAN MACHINE INTERFACES

FNFRGY MANAGEMENT SOLUTIONS

FA COMPONENTS

MACHINE VISION SYSTEMS

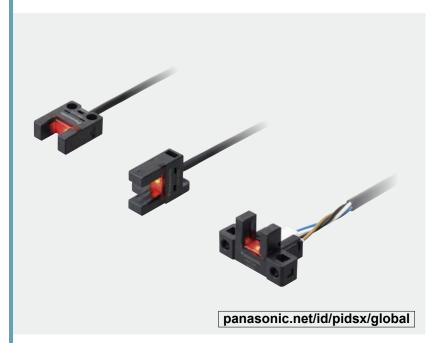
UV CURING SYSTEMS

Convergent Reflective

U-shaped Micro Photoelectric Sensor Amplifier Built-in

Related Information

- General terms and conditions F-3
- Glossary of terms / General precautions.....P.1549~ / P.1552~
- Selection guideP.393~
- Korea's S-mark......P.1602









One step ahead in performance and mounting ease

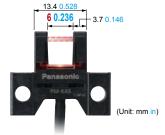
Three protection circuits standard on all models PM-25/45/65 SERIES

All models are standardly equipped with the following protection circuits in their compact bodies. These protection circuits minimize the possibility of sensor malfunctions caused by erroneous wiring.

- 1 Reverse supply polarity protection circuit
- 2 Reverse output polarity protection circuit
- 3 Output short-circuit protection circuit

Ample beam emitting / receiving distance of PM-25/45/65 SERIES 6 mm 0.236 in

The beam emitting and receiving sections are 0.5 mm 0.02 in thinner than those on our conventional models while their external dimensions are the same. As a result, the distance between the beam emitting point and receiving point increased by 1 mm 0.039 in. The wider distance means less possibility of collision between the sensing section and sensing object.



Industry's first*! IP64 rating

*As of April 2017, in-company survey.

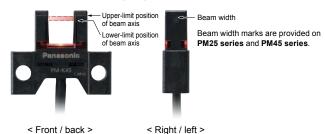
PM-25/45 SERIES

Our original integrated molding method has eliminated grooves and gaps on the sensing surface and main body, thus reducing the possibility of malfunctions caused by splashing water or dust.

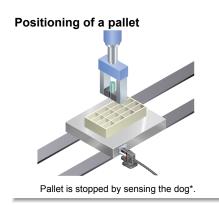


Beam marks for easy adjustment PM-25/45/65 SERIES

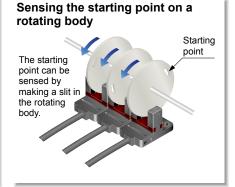
The upper-limit and lower-limit positions of beam can be visually confirmed from the front, back, right and left sides of the sensor unit. This allows easy adjustment of the position of sensing object.



APPLICATIONS



Sensing the starting point and overrun of a moving body Overrun sensing Dog Starting point sensing Starting point and overrun is sensed using the dog* on the base.



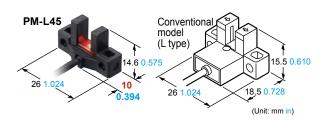
Large and easy to see Multi-angle operation indicator PM-25/45/65 SERIES

The large operation indicator (orange) lights up when the beam enters. The indicator is easy to see from above and from the sides.

Compact size

PM-45 SERIES

All new models require significantly less mounting space than our conventional models when mounted with the same pitch. What's more, the new models can directly replace our conventional models currently in use.



All models easy to mount with M3 screws

PM-25/45/65 SERIES

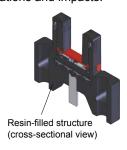
The sensor unit can be installed with one or two M3 screws. * M3 screws and washers are not included.

- Models requiring one M3 screw for installation PM-F25, PM-R25, PM-F65, PM-R65
- Models requiring two M3 screws for installation Models other than above

Resistant to vibrations and impacts

PM-25/45/65 SERIES

The sections where stress concentrates, such as the connecting section of the cable and internal circuit, are covered with a resin. This helps prevent malfunctions caused by vibrations and impacts.



VARIATION

Sensors come in various shapes to suit a wide range of mounting conditions

Ultra-small / Cable type

PM-25 SERIES

Easy mounting with M2/M3 screws!

NPN output	1 m 3.281 ft cable	3 m 9.843 ft cable	1 m 3.281 ff bending- resistant cable
PNP output	1 m 3.281 ft cable	3 m 9.843 ft cable	1 m 3.281 ft bending- resistant cable

Compact / Cable type

PM-45 SERIES

Compact size!

NPN output	1 m 3.281 ft cable	3 m 9.843 ft cable	1 m 3.281 ft bending- resistant cable
PNP output	1 m 3.281 ft cable	3 m 9.843 ft cable	1 m 3.281 ft bending- resistant cable

Compact / Connector built-in type PM-65 SERIES

Easy connection with a single touch using commercially-available connectors

NPN output	Connector attached cable 1 m 3.281 ll, 2 m 6.562 ll, 3 m 9.843 ft, 5 m 16.404 ft	Connector attached bending-resistant cable 1 m 328111, 2 m 338211, 3 m 3883 ft, 5 m 18 404 ft
PNP output	Connector attached cable 1 m 3 .281 ft, 2 m 6,552 ft, 3 m 9.843 ft, 5 m 16,494 ft	Connector attached bending-resistant cable 1 m 1981 (, 2 m 1982), 3 m 1988 (, 5 m 1989)

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FA COMPONENTS

> MACHINE VISION SYSTEMS

CURING SYSTEMS

Selection Guide J-shaped

^{*&}quot;Dog" refers to the sensing object for activating the sensor's detecting operation.

PM-F25

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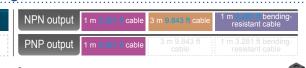
FA COMPONENTS MACHINE VISION SYSTEMS

UV CURING SYSTEMS

Ultra-small / Cable type PM-25 SERIES

Easy mounting with M2/M3 screws!

PM-L25





PM-R25





* NPN output / 1 m 3.281 ft cable length type only (Excluding bending-resistant cable type)



PM-U25

ORDER GUIDE

PM-K25

Tv	200	Appearance (mm in)	Sensing range	Model No.	Cable length	Output	Output operation
Ту —	pe	Appearance (mm m)	Sensing range	wodel No.	Cable length	Output	Output operation
				PM-K25	1 m 3.281 ft		
	K type			PM-K25-R	1 m 3.281 ft, bending-resistant cable	NPN open-collector transistor	
	X t	23.9 0.941 0.484 0.484		PM-K25-C3	3 m 9.843 ft		
				PM-K25-P	1 m 3.281 ft	PNP open-collector transistor	
		^		PM-L25	1 m 3.281 ft		
	be	12 0,472		PM-L25-R	1 m 3.281 ft, bending-resistant cable	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
	13.4			PM-L25-C3	3 m 9.843 ft		
		0.528 0.472		PM-L25-P	1 m 3.281 ft	PNP open-collector transistor	
type			6 mm 0.236 in (fixed)	PM-U25	1 m 3.281 ft		
Ultra-small / Cable type	U type	13.4 0.528 0.630		PM-U25-R	1 m 3.281 ft, bending-resistant cable	NPN open-collector transistor	
small /	U.			PM-U25-C3	3 m 9.843 ft		
Ultra-				PM-U25-P	1 m 3.281 ft	PNP open-collector transistor	
		11.7 0.461		PM-F25	1 m 3.281 ft		
	be			PM-F25-R	1 m 3.281 ft, bending-resistant cable	NPN open-collector transistor	
	F type	13.4 0.528 12.5 0.492		PM-F25-C3	3 m 9.843 ft		
		0.025		PM-F25-P	1 m 3.281 ft	PNP open-collector transistor	
				PM-R25	1 m 3.281 ft		
	be	11.7 0.461		PM-R25-R	1 m 3.281 ft, bending-resistant cable	NPN open-collector transistor	
	R type	13.4 0.528 12.5 0.492		PM-R25-C3	3 m 9.843 ft		
				PM-R25-P	1 m 3.281 ft	PNP open-collector transistor	

Note: The suffix "-R" in the model No. indicates a bending-resistant cable type. The suffix "-C3" indicates a 3 m 9.843 ft cable length type.

OPTIONS

Designation	Model No.	Description
Mounting screw	MS-M2	Mounting screw with washers for the ultra-small type sensor (50 pcs. lot). It can mount securely as it is spring washer attached.

Mounting screw

• MS-M2



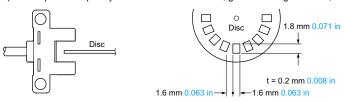
M2 (length 10 mm 0.394 in) screw with a spring washer

SPECIFICATIONS

		T			Ultra-small /	Cable type	
		Туре			Bending-res	istant cable	3 m 9.843 ft cable
	\ <u>8</u>	NPN output	PM- □2 5		PM-¤	25-R	PM-□25-C3
Iten	Nodel No	PNP output	PM-□25-P				
CE marking directive compliance					EMC Directive, I	RoHS Directive	
Sen	sing range				6 mm 0.236	in (fixed)	
Mini	mum sensi	ng object			0.8 × 1.2 mm 0.031 × 0	0.047 in opaque obje	ct
Hyst	teresis				0.05 mm 0.00	02 in or less	
Rep	eatability				0.01 mm 0.00	04 in or less	
Sup	ply voltage				5 to 24 V DC ±10 % Ri	pple P-P 10 % or les	s
Curr	ent consun	nption			15 mA	or less	
Output			<npn output="" type=""> NPN open-collector transistor Maximum sink current: 50 mA Applied voltage: 30 V DC or less (between output and 0 V) Residual voltage: 2 V or less (at 50 mA sink current) 1 V or less (at 16 mA sink current) 1 V or less (at 16 mA source current) <pnp output="" type=""> Maximum source current: 50 mA Applied voltage: 30 V DC or less (between output and +V) Residual voltage: 2 V or less (at 50 mA source current) 1 V or less (at 16 mA source current) </pnp></npn>				
Output operation			Incorporated with 2 outputs: Light-ON/Dark-ON				
	Short-circ	uit protection	Incorporated				
Res	Response time		Under light received condition: 20 µs or less Under light interrupted condition: 80 µs or less (Maximum response frequency: 3 kHz) (Note 2)				
Оре	ration indic	ator	Orange LED (lights up under light received condition)				
Pollu	ution degre	e	3				
	Protection	1	IP64 (IEC)				
Environmental resistance	Ambient to (Note 3, 4	emperature)	-25 to +55 °C −13 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +80 °C −22 to +176 °F				
esist	Ambient h	numidity	5 to 85 % RH, Storage: 5 to 95 % RH				
ıtal	Ambient il	luminance	F	luores	scent light: 1,000 (x or le	ess at the light-receiv	ving face
mer	Voltage w	ithstandability	1,000 V AC for	one m	in. between all supply t	erminals connected	together and enclosure
viror	Insulation	resistance	20 M Ω , or more, with 2	50 V E	C megger between all	supply terminals con	nected together and enclosure
ш	Vibration	resistance	10 to 2,000 Hz frequency, 1.5 mm 0.059 in double amplitude (maximum acceleration 196 m/s²) in X, Y and Z directions for two hours each				
	Shock res	sistance	15,000 m/s² acceleration (1,500 G approx.) in X, Y and Z directions three times each				
Emit	tting elemei	nt	Infrared LED (Peak emission wavelength: 855 nm 0.034 mil, non-modulated)				
Mate	erial			Е	nclosure: PBT, Display	section: Polycarbon	ate
Cab	le		0.09 mm ² 4-core cabtyre cable, P 1 m 3.281 ft long	VC,	0.1 mm² 4-core bendi cable, PVC, 1 m 3.28		0.09 mm² 4-core cabtyre cable, PVC, 3 m 9.843 ft long
Cab	le extensio	n	Extension up to	total 1	100 m 328.084 ft is pos	sible with 0.3 mm², o	r more, cable. (Note 7)
Weight			Net weight: 10 g ap	prox.,	Gross weight: 15 g app	prox.	Net weight: 30 g approx., Gross weight: 35 g approx.

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.

2) The response frequency is the value when the disc, given in the figure below, is rotated.



- 3) In case the PM-25 series is used at an ambient temperature of +50 °C +122 °F, or more, make sure to mount it on a metal body.
- 4) Note that the cable of **PM**-□25-R loses its flexibility when the ambient temperature decreases to about -10 °C +14 F°.
- 5) The cable of **PM**-□**25-R** is a bending-resistant cable usable on a moving base. When the sensor is mounted on a moving base, secure the sensor cable joint at the unit in place so that stress is not applied to it.
- 6) When storing PM-a25-R, make sure that the cable does not come into contact with the sensing section or operation indicator.
- 7) If the cable is extended to 20 m 65.617 ft or longer, confirm that the supply voltage at the end of the cable attached to the sensor is 4.5 V or higher.

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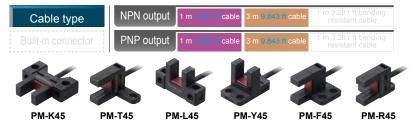
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MACHINE VISION SYSTEMS UV CURING SYSTEMS

PM-25/PM-45/ PM-65

Compact / Cable type PM-45 SERIES

Compact size!







* NPN output / 1 m 3.281 ft cable length type only

ORDER GUIDE

Ту	ре	Appearance (mm in)	Sensing range	Model No.	Cable length	Output	Output operation
		+		PM-K45	1 m 3.281 ft	NPN open-collector	
	K type	7 0.276		PM-K45-C3	3 m 9.843 ft	transistor	
	X	25.4 1.000 21.3 0.839		PM-K45-P	1 m 3.281 ft	PNP open-collector	
		V 0.639		PM-K45-P-C3	3 m 9.843 ft	transistor	
				PM-T45	1 m 3.281 ft	NPN open-collector	
	T type	13.7 0.539		PM-T45-C3	3 m 9.843 ft	transistor	
	⊢ ټ.	26 0.713		PM-T45-P	1 m 3.281 ft	PNP open-collector	
		1.024		PM-T45-P-C3	3 m 9.843 ft	transistor	
			6 mm 0.236 in (fixed)	PM-L45	1 m 3.281 ft	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
	L type			PM-L45-C3	3 m 9.843 ft		
Compact / Cable type	٦	26 1.024 7 0.276		PM-L45-P	1 m 3.281 ft	PNP open-collector transistor	
Cable		1.024 >7 0.276		PM-L45-P-C3	3 m 9.843 ft		
pact /		14.6 0.575		PM-Y45	1 m 3.281 ft	NPN open-collector transistor	
Com	Y type			PM-Y45-C3	3 m 9.843 ft		
	Υ	13.4 0.528 20.6 0.811		PM-Y45-P	1 m 3.281 ft		
		0.528		PM-Y45-P-C3	3 m 9.843 ft	transistor	
		<i>6</i> 00		PM-F45	1 m 3.281 ft	NPN open-collector	
	F type	13 0.512		PM-F45-C3	3 m 9.843 ft	transistor	
	Ft	13.7 0.539 21.3 0.839		PM-F45-P	1 m 3.281 ft	PNP open-collector	
				PM-F45-P-C3	3 m 9.843 ft	transistor	
		A (20 540		PM-R45	1 m 3.281 ft	NPN open-collector	
	R type	13 0.512		PM-R45-C3	3 m 9.843 ft	transistor	
	R T	13.7 0.539 0.839		PM-R45-P	1 m 3.281 ft	PNP open-collector	
				PM-R45-P-C3	3 m 9.843 ft	transistor	

SPECIFICATIONS

Type		-	Compact /	Cable type			
	Type			3 m 9.843 ft cable			
	No.	NPN output	PM- □ 45	PM-□45-C3			
Item	Model 1	PNP output	PM-□45-P	PM-□45-P-C3			
CE n	CE marking directive compliance		EMC Directive,	RoHS Directive			
Sens	sing range		6 mm 0.23	6 in (fixed)			
Mini	mum sensir	ng object	0.8 × 1.2 mm 0.031 ×	0.047 in opaque object			
Hyst	eresis		0.05 mm 0.0	002 in or less			
Rep	eatability		0.01 mm 0.0	004 in or less			
Supp	ply voltage		5 to 24 V DC ±10 % R	tipple P-P 10 % or less			
Curr	ent consum	ption	15 mA	or less			
Outp	Output		<npn output="" type=""> NPN open-collector transistor Maximum sink current: 50 mA Applied voltage: 30 V DC or less (between output and 0 V) Residual voltage: 2 V or less (at 50 mA sink current) 1 V or less (at 16 mA sink current) 1 V or less (at 16 mA source current) <pnp output="" type=""> Maximum source current: 50 mA Applied voltage: 30 V DC or less (between output and +V) Residual voltage: 2 V or less (at 50 mA source current) 1 V or less (at 16 mA source current) </pnp></npn>				
	Output operation		Incorporated with 2 outputs: Light-ON/Dark-ON				
	Short-circu	uit protection	Incorp	orated			
Res	ponse time		Under light received condition: 20 μs or less Under light interrupted condition: 80 μs or less (Maximum response frequency: 3 kHz) (Note 2)				
Ope	ration indica	ator	Orange LED (lights up und	der light received condition)			
Pollu	ution degree	e	3				
	Protection		IP64 (IEC)				
nce	Ambient te	emperature	-25 to +55 °C -13 to +131 °F (No dew condensation o	r icing allowed), Storage: -30 to +80 °C -22 to +176 °F			
Environmental resistance	Ambient h	umidity	5 to 85 % RH, Sto	rage: 5 to 95 % RH			
talre	Ambient ill	luminance	Fluorescent light: 1,000 &x or	less at the light-receiving face			
men	Voltage w	ithstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure				
viron	Insulation	resistance	20 MΩ, or more, with 250 V DC megger between all	supply terminals connected together and enclosure			
Ē	Vibration resistance		10 to 2,000 Hz frequency, 1.5 mm 0.059 in double amplitude (maxim	um acceleration 196 m/s²) in X, Y and Z directions for two hours each			
	Shock resistance		15,000 m/s² acceleration (1,500 G approx.	.) in X, Y and Z directions three times each			
Emit	Emitting element		Infrared LED (Peak emission waveleng	gth: 855 nm 0.034 mil, non-modulated)			
Mate	erial		Enclosure: PBT, Display	y section: Polycarbonate			
Cab	le		0.09 mm² 4-core cabtyre cable, PVC, 1 m 3.281 ft long	0.09 mm² 4-core cabtyre cable, PVC, 3 m 9.843 ft long			
Cab	le extensior	1	Extension up to total 100 m 328.084 ft is pos	ssible with 0.3 mm², or more, cable. (Note 3)			
Weig	Weight		Net weight: 10 g approx., Gross weight: 15 g approx.	Net weight: 30 g approx., Gross weight: 35 g approx.			

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F.

2) The response frequency is the value when the disc, given in the figure below, is rotated.



3) If the cable is extended to 20 m 65.617 ft or longer, confirm that the supply voltage at the end of the cable attached to the sensor is 4.5 V or higher.

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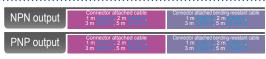
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UV CURING SYSTEMS

Compact / Connector built-in type PM-65 SERIES

Easy connection with a single touch using commercially-available connectors









* NPN output type only



















ORDER GUIDE

Built-in connector

PM-K65

Ту	ре	Appearance (mm in)	Sensing range	Model No.	Output	Output operation
	K type	7 0.276		PM-K65	NPN open-collector transistor	
	Х	26 1.024 22.4 0.882		PM-K65-P	PNP open-collector transistor	
		13.7 0.539		PM-T65	NPN open-collector transistor	
	T type	26 1.024 22.4 0.882		PM-T65-P	PNP open-collector transistor	
	⊢ ئ	22.4		PM-T65W	NPN open-collector transistor	
		26		PM-T65W-P	PNP open-collector transistor	
	L type	14.9 0.587	6 mm 0.236 in (fixed)	PM-L65	NPN open-collector transistor	
t-in type	Lt	26.2 1.031 15.7 0.618		PM-L65-P	PNP open-collector transistor	
Compact / Connector built-in type	Y type	14.9 0.587		PM-Y65	NPN open-collector transistor	Incorporated with 2 outputs:
ct / Conn	۲.	13.4 0.528 22.7 0.894		PM-Y65-P	PNP open-collector transistor	Light-ON/Dark-ON
Compa		13.5 0.531 13.4 0.528 22.4 0.882		PM-F65	NPN open-collector transistor	
	F type			PM-F65-P	PNP open-collector transistor	
	Ft	13 0.512		PM-F65W	NPN open-collector transistor	
		22.4 13.4 0.528		PM-F65W-P	PNP open-collector transistor	
		13.5 0.531		PM-R65	NPN open-collector transistor	
	R type	13.4 0.528 22.4 0.882	_	PM-R65-P	PNP open-collector transistor	
	R	13 0.512		PM-R65W	NPN open-collector transistor	
		13.4 0.528 22.4 0.882		PM-R65W-P	PNP open-collector transistor	

Note: PM-T65W is mounting-compatible with our conventional model "PM-T64W". PM-F65W(-P) is mounting-compatible with our conventional model "PM-F54(P)". PM-R65W(-P) is mounting-compatible with our conventional model "PM-R54(P)".

OPTIONS

Designation	Model No.	Description			
	CN-14A-C1	Length: 1m 3.281 ft	0.2 mm² 4 core cobture coble with		
Connector	CN-14A-C2	Length: 2m 6.562 ft	0.2 mm ² 4-core cabtyre cable with connector on one end		
attached cable	CN-14A-C3	Length: 3m 9.843 ft	Cable outer diameter: ø3.7 mm ø0.146 in		
	CN-14A-C5	Length: 5m 16.404 ft	Ø0.146 III		
Connector	CN-14A-R-C1	Length: 1m 3.281 ft	0.2 mm² 4 core cobture coble with		
attached cable	CN-14A-R-C2	Length: 2m 6.562 ft	0.2 mm ² 4-core cabtyre cable with connector on one end		
(Bending- resistant)	CN-14A-R-C3	Length: 3m 9.843 ft	Cable outer diameter: ø3.7 mm		
	CN-14A-R-C5	Length: 5m 16.404 ft	ø0.146 in		
Connector	CN-14A	Set of 10 housings and 40 contacts			

Connector attached cable • CN-14A(-R)-C□

Connector

• CN-14A

Housing

SPECIFICATIONS

			Compact / Conn	ector built-in type			
		Туре	Gompact / Gom	Mounting-compatible with conventional model (Note 2)			
\	\ o	NDN / /	Du 0-	<u> </u>			
	Model No.	NPN output	PM-□65	PM-□65W			
Iten	າ \ §	PNP output	PM-□65-P	PM-□65W-P			
CE r	narking direc	ctive compliance	EMC Directive,	RoHS Directive			
Sen	sing range		6 mm 0.23	36 in (fixed)			
Mini	mum sensii	ng object	0.8 × 1.2 mm 0.031 ×	0.047 in opaque object			
Hyst	eresis		0.05 mm 0.0	002 in or less			
Rep	eatability		0.01 mm 0.0	004 in or less			
Sup	oly voltage			Ripple P-P 10 % or less			
Curr	ent consum	nption	15 mA	or less			
Output			<npn output="" type=""> NPN open-collector transistor Maximum sink current: 50 mA Applied voltage: 30 V DC or less (between output and 0 V) Residual voltage: 2 V or less (at 50 mA sink current) 1 V or less (at 16 mA sink current) </npn>	<pnp output="" type=""> PNP open-collector transistor • Maximum source current: 50 mA • Applied voltage: 30 V DC or less (between output and +V) • Residual voltage: 2 V or less (at 50 mA source current) 1 V or less (at 16 mA source current)</pnp>			
	Output op	eration	Incorporated with 2 outputs: Light-ON/Dark-ON				
	Short-circ	uit protection	Incorporated				
Res	oonse time		Under light received condition: 20 µs or less, Under light interrupted condition: 80 µs or less (Maximum response frequency: 3 kHz) (Note 3)				
Ope	ration indica	ator	Orange LED (lights up under light received condition)				
Pollu	ution degree	е	3				
e	Protection	1	IP40 (IEC)				
tan	Ambient to	emperature	−25 to +55 °C −13 to +131 °F (No dew condensation of the conde	or icing allowed), Storage: -30 to +80 °C -22 to +176 °F			
esis	Ambient h	umidity	5 to 85 % RH, Storage: 5 to 95 % RH				
ם	Ambient il	luminance	Fluorescent light: 1,000 ℓx or less at the light-receiving face				
nen	Voltage w	ithstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure				
onr	Insulation	resistance	20 MΩ, or more, with 250 V DC megger between al	I supply terminals connected together and enclosure			
Environmental resistance	Vibration r	resistance	10 to 2,000 Hz frequency, 1.5 mm 0.059 in double amplitude (maximum acceleration 196 m/s²) in X, Y and Z directions for two hours each				
Shock resistance			15,000 m/s ² acceleration (1,500 G approx	15,000 m/s ² acceleration (1,500 G approx.) in X, Y and Z directions three times each			
Emitting element Infrared LED			`	D (Peak emission wavelength: 855 nm 0.034 mil, non-modulated)			
Mate	erial		Enclosure: PBT, Display section: Polycarbonate				
Cable length			Extension up to total 100 m 328.084 ft is possible with 0.3 mm², or more, cable. (Note 4)				

Notes: 1)Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73.4 °F

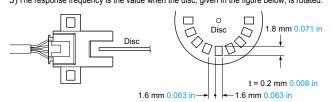
Weight

2) PM-T65W is mounting-compatible with our conventional model "PM-T64W".

PM-F65W(-P) is mounting-compatible with our conventional model "PM-F54(P)".

PM-R65W(-P) is mounting-compatible with our conventional model "PM-R54(P)".

3) The response frequency is the value when the disc, given in the figure below, is rotated.



4)If the cable is extended to 20 m 65.617 ft or longer, confirm that the supply voltage at the end of the cable attached to the sensor is 4.5 V or higher.

Net weight: 3 g approx., Gross weight: 3 g approx. Recommended connector

Contact: SPHD-001T-P0.5, Housing: PAP-04V-S (Manufactured by J.S.T. Mfg. Co., Ltd.)
Note: Contact the manufacturer for details of the recommended products.

Recommended crimping tool

Model No.: YC-610R (Manufactured by J.S.T. Mfg. Co., Ltd.) Note: Contact the manufacturer for details of the recommended products.

FIBER

LASER SENSORS

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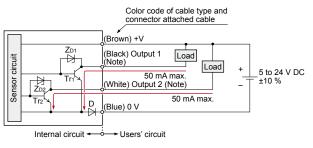
Selection Guide

Convergent Reflective PM-25/PM-45/ PM-65

I/O CIRCUIT AND WIRING DIAGRAMS

NPN output type

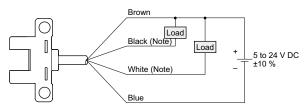
I/O circuit diagram



Note: Ensure to insulate the unused output wire.

Symbols...D: Reverse supply polarity protection diode ZD1, ZD2: Surge absorption zener diode Tr1, Tr2: NPN output transistor

Wiring diagram (PM-25 series / PM-45 series)

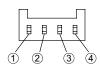


Note: Ensure to insulate the unused output wire.

Output operation

	Color code	Output operation
Output 1	Black	Light-ON
Output 2	White	Dark-ON

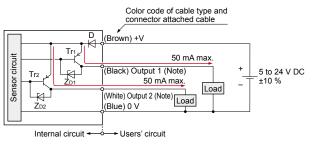
Terminal arrangement diagram (PM-65 series)



Terminal No.	Designation
1	+V
2	Output 1: Light-ON
3	Output 2: Dark-ON
4	0 V

PNP output type

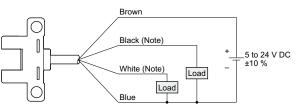
I/O circuit diagram



Note: Ensure to insulate the unused output wire.

Symbols...D: Reverse supply polarity protection diode ZD1, ZD2: Surge absorption zener diode Tr1, Tr2: PNP output transistor

Wiring diagram (PM-25 series / PM-45 series)



Note: Ensure to insulate the unused output wire.

Output operation

	Color code	Output operation
Output 1	Black	Light-ON
Output 2	White	Dark-ON

Terminal arrangement diagram (PM-65 series)

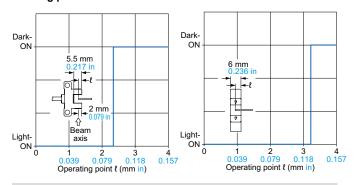


Terminal No.	Designation
1	+V
2	Output 1: Light-ON
3	Output 2: Dark-ON
4	0 V

SENSING CHARACTERISTICS (TYPICAL)

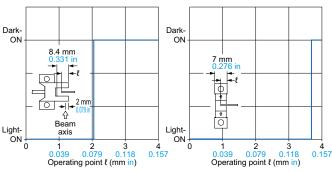
PM-25 series

Sensing position



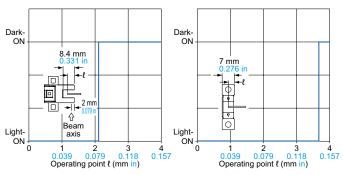
PM-45 series

Sensing position



PM-65 series

Sensing position



LIMI-02 SELIE

PRECAUTIONS FOR PROPER USE

Refer to p.1552~ for general precautions.

<u>^</u>

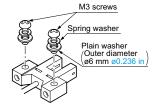
 Never use this product as a sensing device for personnel protection.

 In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

PM-45 series • The following

• The following conditions must be observed when using screws to mount the sensor unit.

Screw	Spring washer	Flat washer	Tightening torque
M3 screw 1 pc.		ø6 mm ø0.236 in (small round washer)	0.5 N·m



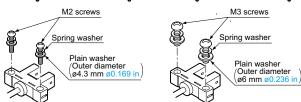
Mounting

PM-25 series

 The following conditions must be observed when using screws to mount the sensor unit.

	Screw	Spring washer	Flat washer	Tightening torque
N	M2 screw	1 pc.	ø4.3 mm ø0.169 in (small round washer)	0.15 N·m
N	M3 screw	1 pc.	ø6 mm ø0.236 in (small round washer)	0.5 N·m

< When using M2 screws for mounting > < When using M3 screws for mounting >



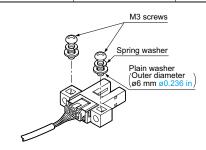
When using the optional mounting screw set **MS-M2**, a spring washer is included.

 In case the PM-25 series is used at an ambient temperature of +50 °C +122 °F, or more, make sure to mount it on a metal body.

PM-65 series

 The following conditions must be observed when using screws to mount the sensor unit.

Screw	Spring washer	Flat washer	Tightening torque
M3 screw	1 pc.	ø6 mm ø0.236 in (small round washer)	0.5 N·m



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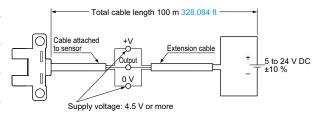
PRECAUTIONS FOR PROPER USE

Refer to p.1552~ for general precautions.

Cable extension

PM-25 series / PM-45 series

 Cable extension is possible up to an overall length of 100 m 328.084 ft with a 0.3 mm², or more, cable.
 However, since a voltage drop shall occur due to the cable extension, ensure that the power supply voltage at the end of the cable attached to the sensor is within the rating.

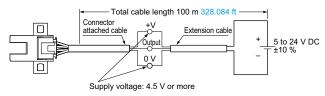


But, when the overall cable length, including the cable attached to the sensor, is as given below, there is no need to confirm the voltage.

Conductor cross-section area of extension cable	Total cable length
0.08 to 0.1 mm ²	Up to 5 m 16.404 ft
0.2 mm ²	Up to 10 m 32.808 ft
0.3 mm ²	Up to 20 m 65.617 ft

PM-65 series

 Cable extension is possible up to an overall length of 100 m 328.084 ft with a 0.3 mm², or more, cable.
 However, since a voltage drop shall occur due to the cable extension, ensure that the power supply voltage at the end of the connector attached cable of the sensor or at the sensor terminals is within the rating.



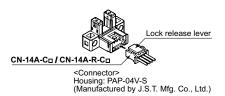
But, when the overall cable length, including the cable attached to the sensor, is as given below, there is no need to confirm the voltage.

Conductor cross-section area of extension cable	Total cable length
0.08 to 0.1 mm ²	Up to 5 m 16.404 ft
0.2 mm ²	Up to 10 m 32.808 ft
0.3 mm ²	Up to 20 m 65.617 ft

Wiring (PM-65 series)

Connection method

 Insert the connector attached cable CN-14A-C□ / CN-14A-R-C□ in the connector part of this product as shown in the figure below.



<Connector pin position>



Connector pin No.	1	2	3	4
Terminal designation	+V	Output 1	Output 2	0 V

Disconnection method

 Press and hold the lock release lever to disconnect the cable connector.

Note: Pulling the cable without pressing the lock release lever in an attempt to disconnect the connector can cause wire breakage in the cable or damage to the connector.

When using the product as an S-mark compatible product in Korea

• The power supply cable and output cable connected to the product must be less than 10 m 32.808 ft.

Others

- This device has been developed / produced for industrial use only.
- Since the sensor is intended for use inside machines, no special countermeasures have been taken against extraneous light. Take care that extraneous light is not directly incident on the beam receiving section.



- Do not use during the initial transient time (50 ms) after the power supply is switched on.
- Note that the cable of PM-□25-R loses its flexibility when the ambient temperature decreases to about -10 °C +14 °F.
- The cable of PM-□25-R is a bending-resistant cable usable on a moving base. When the sensor is mounted on a moving base, secure the sensor cable joint at the unit in place so that stress is not applied to it.
- When storing PM-□25-R, make sure that the cable does not come into contact with the sensing section or operation indicator.
- If the sensor is used in a place having excessive dust, periodically clean the emitting and receiving sections with a dry, soft cloth.
- If there is a large surge generating equipment, such as, motor, solenoid, electromagnetic valve, etc., in the vicinity of the sensor, use a surge absorber on that equipment.
 Further, do not run the sensor cables along power lines and use a capacitor between +V and 0 V, if required.
 Use the sensor after confirming that the surge has been eliminated.

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UV CURING SYSTEMS

PLC

Sensor

PM-F25_□

DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

Operation indicator (Orange)

1.75
0.472 0.236
0.689
0.069
0.069
0.063
0.126
0.0528
0.126
0.315

Operation indicator (Orange)
1.6
0.063
0.126
0.315

Operation indicator (Orange)
1.6
0.063
0.126
0.315

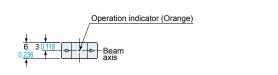
Operation indicator (Orange)
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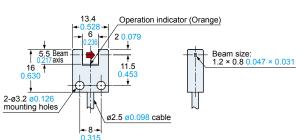
PM-U25□ Sensor

mounting holes

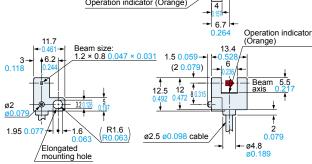
ø2.5 ø0.098 cable

ø6 | ø0.236

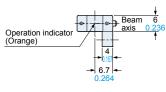


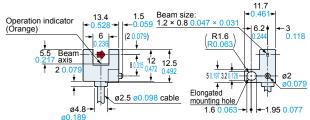


Operation indicator (Orange)



PM-R25□ Sensor





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PM-L45_□

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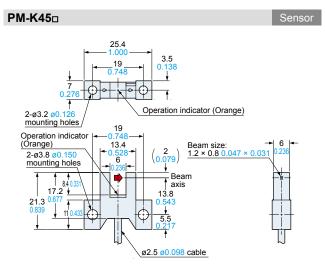
CURING

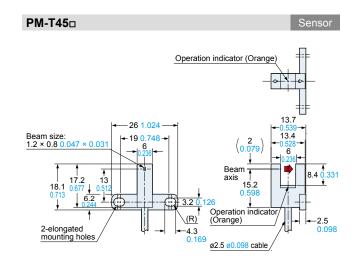
Selection

PM-25/PM-45/ PM-65

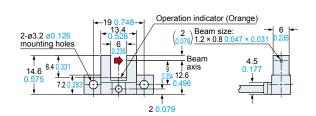
DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.





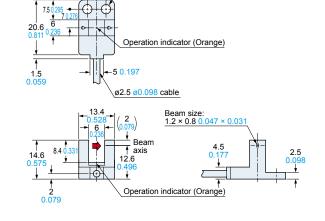
26 1.024 Operation indicator (Orange)
10 70276 32028 Operation indicator (Orange)



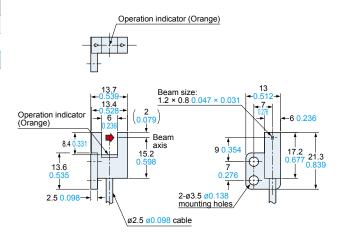
ø2.5 ø0.098 cable

PM-Y45□ Sensor

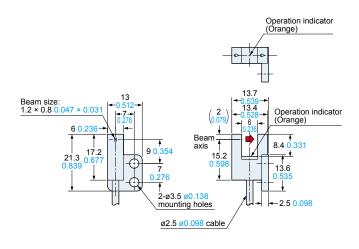
2-ø3.5 ø0.138 mounting holes











DIMENSIONS (Unit: mm in)

The CAD data can be downloaded from our website.

7.4

13 0.5

3 0.118

Operation indicator (Orange)

Beam axis

2-mounting

Beam size: 1.2 × 0.8 0.047 × 0.031

6.5

Operation indicator (Orange)

2-ø3.2 ø0.126 mounting holes

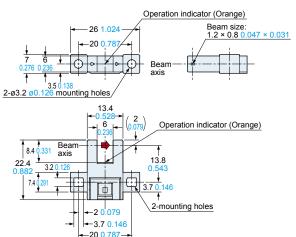
-20 0.787

6

Ream

<u>→</u> 6.5 _|

PM-K65 PM-K65-P



PM-T65 PM-T65-P

2.244 3.2 v

1.6 0.063

Operation indicator (Orange)

2-elongated mounting holes

Beam size: 1.2 × 0.8 0.047 × 0.031

Operation indicator (Orange)

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PHOTO-ELECTRIC SENSORS

AREA SENSORS

SAFETY LIGHT CURTAINS / SAFETY COMPONENTS

PRESSURE / FLOW SENSORS

PARTICULAR USE SENSORS

SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

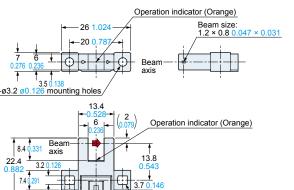
MEASURE-MENT SENSORS

CONTROL DEVICES LASER MARKERS

PLC

ENERGY MANAGEMENT SOLUTIONS

MACHINE



26 1.024

-20 0.787-

→| 6.5 |

6

Beam axis

PM-L65 PM-L65-P

Beam

axis

-26.2 1.031

•

13.4

-| 6 |-

-200.787

-26.2 1.031

Beam axis

-20 <mark>0.787</mark>

3.9 0.154 -1 7 0 06

22.4

8.3

HUMAN MACHINE INTERFACES

FA COMPONENTS

VISION SYSTEMS

PM-Y65 PM-Y65-P

8.3

16.7

8.4

Beam axis Operation indicator (Orange)

PM-T65W

PM-T65W-P

4.1 0.161

1.6 0.063

-(2 <mark>0.079</mark>)

2-elongated mounting holes

13 0.512

Beam size: 1.2 × 0.8 0.047 × 0.031

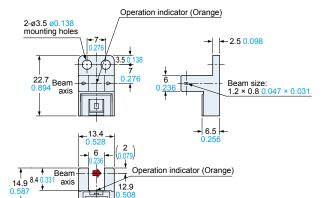
Operation indicator (Orange)

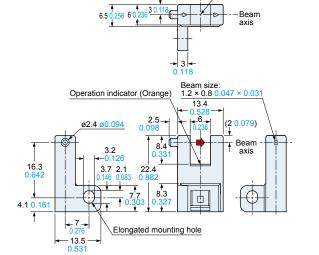
PM-F65 PM-F65-P

(2 0.079)

12.9 0.508

Operation indicator (Orange)





LASER SENSORS PHOTO-ELECTRIC SENSORS

AREA SENSORS SAFETY LIGHT CURTAINS / SAFETY

PRESSURE / FLOW SENSORS

INDUCTIVE PROXIMITY SENSORS

PARTICULAR USE SENSORS

SENSOR OPTIONS SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS MEASURE-MENT SENSORS

SENSORS STATIC CONTROL DEVICES

LASER MARKERS PLC

HUMAN MACHINE INTERFACES ENERGY MANAGEMENT SOLUTIONS

MACHINE VISION SYSTEMS

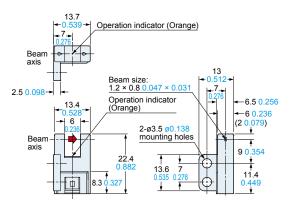
CURING SYSTEMS

Selection Guide U-shaped Convergent Reflective

DIMENSIONS (Unit: mm in)

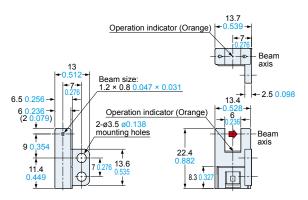
The CAD data can be downloaded from our website.

PM-F65W PM-F65W-P Sensor

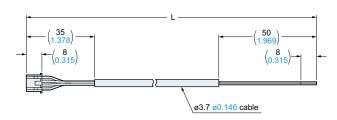


PM-R65 PM-R65-P Operation indicator (Orange) 0. Beam size: 1.2 × 0.8 0. .047 × 0.031 Operation indicator (Orange) 13.4 6 236 **←** 2.5 0.098 16.3 0.642 3.7 0.14 + + + 8.3 0.327 2.1 0.083 Elongated mounting hole 0.276 -13.5 -0.531

PM-R65W PM-R65W-P Sensor



CN-14A-C□ CN-14A-R-C□ Connector attached cable (Optional)



• Length L

Model No.	Length L
CN-14A(-R)-C1	1,000 39.370
CN-14A(-R)-C2	2,000 78.740
CN-14A(-R)-C3	3,000 118.110
CN-14A(-R)-C5	5,000 196.850