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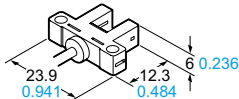
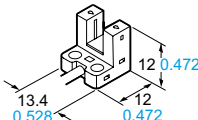
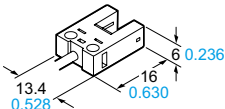
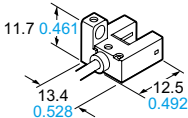
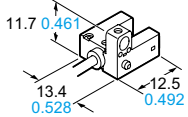
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GuideU-shaped
Convergent
ReflectivePM-25/PM-45/
PM-65**Ultra-small / Cable type PM-25 SERIES****Easy mounting with M2/M3 screws!**

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



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

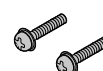
**PM-K25****PM-L25****PM-U25****PM-F25****PM-R25****ORDER GUIDE**

Type	Appearance (mm in)	Sensing range	Model No.	Cable length	Output	Output operation
Ultra-small / Cable type	 23.9 0.941, 12.3 0.484, 6 0.236	6 mm 0.236 in (fixed)	PM-K25	1 m 3.281 ft	NPN open-collector transistor	Incorporated with 2 outputs: Light-ON/Dark-ON
			PM-K25-R	1 m 3.281 ft, bending-resistant cable		
			PM-K25-C3	3 m 9.843 ft		
			PM-K25-P	1 m 3.281 ft	PNP open-collector transistor	
	 13.4 0.528, 12 0.472, 12 0.472		PM-L25	1 m 3.281 ft	NPN open-collector transistor	
			PM-L25-R	1 m 3.281 ft, bending-resistant cable		
			PM-L25-C3	3 m 9.843 ft		
			PM-L25-P	1 m 3.281 ft	PNP open-collector transistor	
	 13.4 0.528, 16 0.630, 6 0.236		PM-U25	1 m 3.281 ft	NPN open-collector transistor	
			PM-U25-R	1 m 3.281 ft, bending-resistant cable		
			PM-U25-C3	3 m 9.843 ft		
			PM-U25-P	1 m 3.281 ft	PNP open-collector transistor	
	 11.7 0.461, 13.4 0.528, 12.5 0.492		PM-F25	1 m 3.281 ft	NPN open-collector transistor	
			PM-F25-R	1 m 3.281 ft, bending-resistant cable		
			PM-F25-C3	3 m 9.843 ft		
			PM-F25-P	1 m 3.281 ft	PNP open-collector transistor	
	 11.7 0.461, 13.4 0.528, 12.5 0.492		PM-R25	1 m 3.281 ft	NPN open-collector transistor	
			PM-R25-R	1 m 3.281 ft, bending-resistant cable		
			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**

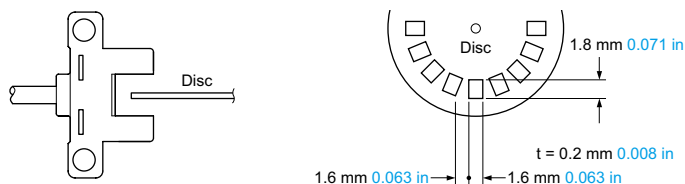
M2 (length 10 mm 0.394 in) screw
with a spring washer

SPECIFICATIONS

		Type	Ultra-small / Cable type		
				Bending-resistant cable	3 m 9.843 ft cable
Item	Model No.	NPN output	PM-□25	PM-□25-R	PM-□25-C3
		PNP output	PM-□25-P		
CE marking directive compliance			EMC Directive, RoHS Directive		
Sensing range			6 mm 0.236 in (fixed)		
Minimum sensing object			0.8 × 1.2 mm 0.031 × 0.047 in opaque object		
Hysteresis			0.05 mm 0.002 in or less		
Repeatability			0.01 mm 0.0004 in or less		
Supply voltage			5 to 24 V DC ±10 % Ripple P-P 10 % or less		
Current consumption			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)			
		<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)			
	Output operation	Incorporated with 2 outputs: Light-ON/Dark-ON			
	Short-circuit protection	Incorporated			
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)			
Operation indicator		Orange LED (lights up under light received condition)			
Pollution degree		3			
Environmental resistance	Protection	IP64 (IEC)			
	Ambient temperature (Note 3, 4)	−25 to +55 °C −13 to +131 °F (No dew condensation or icing allowed), Storage: −30 to +80 °C −22 to +176 °F			
	Ambient humidity	5 to 85 % RH, Storage: 5 to 95 % RH			
	Ambient illuminance	Fluorescent light: 1,000 lx or less at the light-receiving face			
	Voltage withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure			
	Insulation resistance	20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure			
	Vibration resistance	10 to 2,000 Hz frequency, 1.5 mm 0.059 in double amplitude (maximum acceleration 196 m/s ²) in X, Y and Z directions for two hours each			
	Shock resistance	15,000 m/s ² acceleration (1,500 G approx.) in X, Y and Z directions three times each			
Emitting element		Infrared LED (Peak emission wavelength: 855 nm 0.034 mil, non-modulated)			
Material		Enclosure: PBT, Display section: Polycarbonate			
Cable		0.09 mm ² 4-core cabtyre cable, PVC, 1 m 3.281 ft long	0.1 mm ² 4-core bending-resistant cabtyre cable, PVC, 1 m 3.281 ft long (Note 5, 6)	0.09 mm ² 4-core cabtyre cable, PVC, 3 m 9.843 ft long	
Cable extension		Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , or more, cable. (Note 7)			
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) 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-□25-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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PM-65