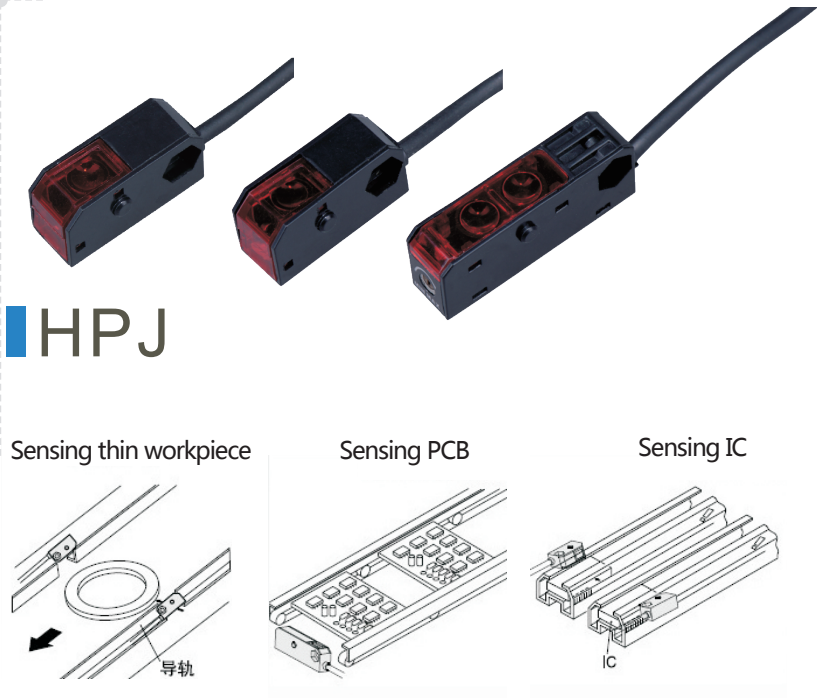


# Ultraminiature Photoelectric Switch with Self-contained Amplifier

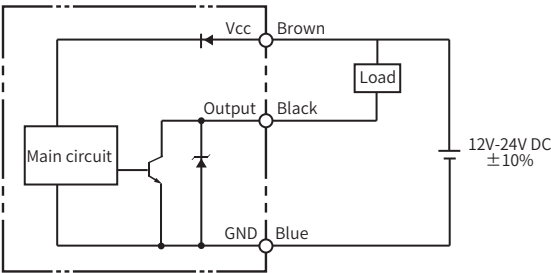
- Fingertip-size  
22x11.2x8.3 mm (thru scan model)  
33.5x12x8 mm (diffuse scan model)
- Long distance scanning  
1.5 m or 2.5m (thru scan model)
- Mounting brackets provided



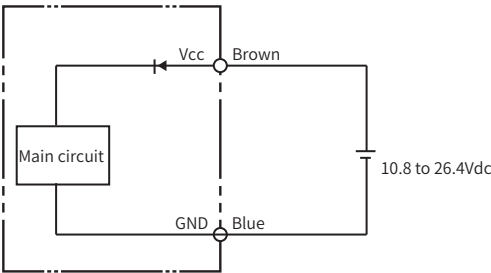
Category						
Sensing method	Appearance	Connection method	Sensing distance	Operation mode	NPN output	PNP output
Through beam		Prewired (2m)	1.5m	Dark-ON	HPJ-T21	HPJ-T21P
				Light-ON	HPJ-T22	HPJ-T22P
				Dark-ON	HPJ-T31	HPJ-T31P
				Light-ON	HPJ-T32	HPJ-T32P
			2.5m	Dark-ON	HPJ-T41	HPJ-T41P
				Light-ON	HPJ-T42	HPJ-T42P
Diffuse reflective			150mm	Light-ON	HPJ-A21	HPJ-A21P

## I/O Circuit Diagram

●Thru-scan receiver/Limited diffuse scan  
NPN open collector type



●Thru-scan emitter



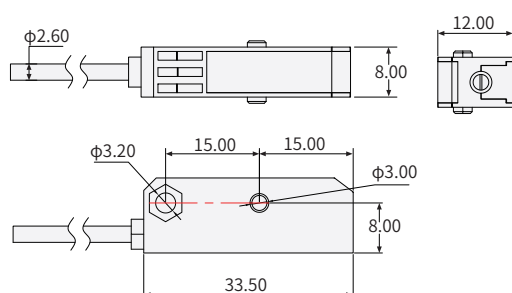
## Ratings and Specifications

Model	HPJ-T21	HPJ-T21P	HPJ-T31	HPJ-T31P	HPJ-T41	HPJ-T41P	HPJ-A21	HPJ-A21P
	HPJ-T22	HPJ-T22P	HPJ-T32	HPJ-T32P	HPJ-T42	HPJ-T42P		
Sensing distance	1.5m		1.5m		2.5m		150mm±5mm	
Sensing object	Opaque object: 6 mm dia. min.							
Differential travel							25% of sensing distance, max.	
Sensing angle	2-20°		2-10°					
Sensitivity adjustment							1-turn control	
Light source	Infrared LED							
Power supply voltage	12 to 24V DC, (ripple ±10% max.)							
Current consumption	Emitter: 20 mA max., Receiver: 20 mA max.						20 mA max.	
Response time	Operate or reset: 1 ms max.							
Control output	Load power supply voltage: 26.4 VDC max., Load current: 100 mA max. (residual voltage: 1 V max.)						Load power supply voltage: 26.4 VDC max., Load current: 80 mA max. (residual voltage: 1 V max.)	
Protection circuits	Output short-circuit protection							
Ambient illumination (Receiver side)	Sunlight: 10,000 lx max. ; Incandescent lamp: 3,000 lx max.							
Ambient temperature	Operating: -25 to 55℃ (with no icing or condensation) Storage: -40 to 70℃ (with no icing or condensation)							
Ambient humidity	Operating: 35% to 85% (with no condensation) Storage: 35% to 85% (with no condensation)							
Insulation resistance	20 MΩ min. (at 500 VDC)							
Dielectric strength	1,000 VAC at 50/60 Hz for 1 minute							
Vibration resistance (destruction)	10 to 55 Hz, 1.5 mm double amplitude for 2 h each in X, Y and Z directions							
Shock resistance (destruction)	500 m/s <sup>2</sup> , for 3 times each in X, Y and Z directions							
Degree of protection	IEC IP40							
Circuit protection	Reverse connection protection circuit							
Wiring method	Pre-wired (2m standard length, connectors are customizable)							
Weight	Approx. 20 g for both emitter and receiver						Approx. 20 g	
Accessories	Mounting screws, bracket.							

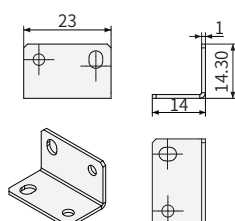
## Dimensions

Unit:mm

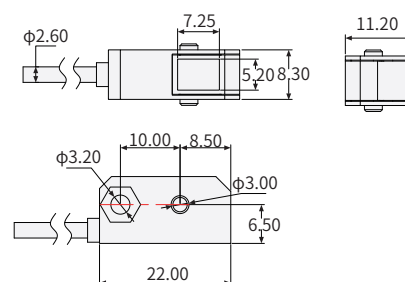
HPJ-A2□, HPJ-A2□P



Mounting bracket:



HPJ-T2□/P, HPJ-T3□/P, HPJ-T4□/P



Mounting bracket:

