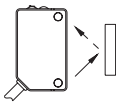
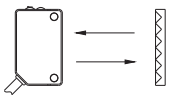
Photoelectric Switches

Sensing Method				Sensing Range	Connection	Cable Length	Operation Mode	Part No.	
								NPN Output	PNP Output
Convergent Reflective	Infrared LED	w/Sensitivity Adjustment		5 to 35 mm	Cable	2m	Light ON	SA1E-GN1-2M	SA1E-GP1-2M
							Dark ON	SA1E-GN2-2M	SA1E-GP2-2M
					Connector	–	Light ON	SA1E-GN1C	SA1E-GP1C
							Dark ON	SA1E-GN2C	SA1E-GP2C
Coaxial Polarized Retro-reflective	Red LED	w/Sensitivity Adjustment	 Note: Reflector is not supplied and must be ordered separately. See characteristics diagrams on page 219.	2.0m (when using IAC-R9) 1.0m [100 mm] (when using IAC-R10) 1.0m [100 mm] (when using IAC-R11)	Cable	2m	Light ON	SA1E-XN1-2M	SA1E-XP1-2M
							Dark ON	SA1E-XN2-2M	SA1E-XP2-2M
					Connector	–	Light ON	SA1E-XN1C	SA1E-XP1C
							Dark ON	SA1E-XN2C	SA1E-XP2C

For more information, visit www.IDEC.com/sensors

Specifications

Sensing Method	Through-beam	Polarized Retroreflective	Diffuse-reflective	Small-beam Reflective	Background Suppression (BGS)	Convergent Reflective	Transparent
Part No.	SA1E-☐T	SA1E-☐P	SA1E-D	SA1E-N	SA1E-☐B	SA1E-G	SA1E-X
Power Voltage	12 to 24V DC (Operating range: 10 to 30V DC) Equipped with reverse-polarity protection						
Current Draw	Projector: 15 mA Receiver: 20 mA Laser Receiver: 30 mA	30 mA with laser: 35 mA					20 mA maximum
Sensing Range	With sensitivity adjustment: 10m Laser models: 30m	With sensitivity adjustment: 2.5m (IAC-R5/R8) 1.5m (IAC-R6) 1.3m (IAC-RS2) 1.0m (IAC-RS1) 0.8m (IAC-R7☐) [1] Laser models 0.3-10m	700 mm (using 200 × 200 mm white mat paper)	50 to 150 mm (using 100 × 100 mm white mat paper)	20 mm to preset (using 200 × 200 mm white mat paper) with laser: 20 - 300mm	5 to 35 mm (using 100 × 100 mm white mat paper)	2m (when using IAC-R9)
	Without sensitivity adjustment: 15m	Without sensitivity adjustment: 3.0m (IAC-R5/R8) 2.0m (IAC-R6) 1.4m (IAC-RS2) 1.1m (IAC-RS1) 1.0m (IAC-R7☐) [1]					
Adjustable Sensing Range	—				40 to 200 mm with laser: 40-300mm	—	—
Detectable Object	Opaque		Opaque/Transparent		Opaque	Opaque/ Transparent	Opaque, transparent and mirror-like objects
Hysteresis	—		20% maximum		10% maximum	20% maximum	—
Response Time	1 ms maximum with laser: 250us						500 µs maximum
Sensitivity Adjustment	Adjustable using a potentiometer (approx. 260°) Through-beam type and polarized retroreflective type are also available without sensitivity adjustment. Laser models: 2 turn adjustment				—	Adjustable using a potentiometer (approx. 260°)	Adjustable using a potentiometer (approx. 240°)
Sensing Range Adjustment	—				6-turn control knob	—	—
Light Source Element	Infrared LED Red LED Red laser diode	Red LED Red laser diode	Infrared LED	Red LED	Red LED Red laser diode	Infrared LED	Red LED
Operation Mode	Light ON/Dark ON						
Control Output	NPN open collector or PNP open collector 30V DC, 100 mA maximum Voltage drop: 1.2V maximum (BGS type: 2V maximum) Short-circuit protection						
LED Indicators	Operation LED: Yellow Stable LED: Green Power LED: Green (Through-beam type projector)				Operation LED: Yellow Stable LED: None	Operation LED: Yellow Stable LED: Green	Operation LED: Yellow Stable LED: None
Interference Prevention	—	Two units can be mounted in close proximity.					
Degree of Protection	IP67 (IEC 60529)						
Extraneous Light Immunity	Sunlight: 10,000 lux maximum, Incandescent lamp: 5,000 lux maximum (at receiver)						
Operating Temperature	–25 to +55°C (no freezing)						
Operating Humidity	35 to 85% RH (no condensation)						
Storage Temperature	–40 to +70°C (no freezing)						
Insulation Resistance	Between live part and mounting bracket: 20 MΩ maximum (500V DC megger)						