



SA1E-X Photoelectric Transparent Sensor

Features

- Sub-miniature photoelectric sensor
- Quick response speed - 500µs
- Long sensing range - up to 2m
- Cable and M8 connector models
- IP67 rated housing provides water and dust resistance
- CE Marked, UL Listed
- Other models in the SA1E Series include through-beam, polarized retro-reflective, background suppression, convergent, diffuse-reflective, and small-beam reflective



Specifications

Coaxial Polarized Retro-reflective		
Voltage	12 to 24V DC (Operating range: 10 to 30V DC; reverse-polarity protected)	
Power Consumption	20mA maximum	
Sensing Range	2m (when using IAC-R9)	
Detectable Object	Opaque, transparent and mirror-like objects	
Response Time	500µs maximum	
Sensitivity Adjustment	Adjustable using a potentiometer (approx. 240°)	
Light Source Element	Red LED	
Operation Mode	Light ON/Dark ON	
Control Output	NPN/PNP open collector (30V DC, 100 mA maximum; short-circuit protection) Voltage drop: 2V maximum	
LED Indicators	Operation LED: Yellow	
Interference Prevention	Two units can be mounted close to each other	
Degree of Protection	IP67 (IEC60529)	
Extraneous Light Immunity (at receiver)	Sunlight: 10,000 lux maximum, Incandescent lamp: 5,000 lux maximum	
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: 20MΩ minimum (500V DC Megger)	
Dielectric Strength	Between live part and mounting bracket: 1,000V AC, 50/60Hz, 1 minute	
Vibration Resistance	Damage limits: 10 to 55Hz, Amplitude 0.75mm, 20 cycles in each of 3 axes	
Shock Resistance	Damage limits: 500m/s ² , 10 shocks in each of 3 axes	
Material	Housing: PBT, Lens: PMMA, Indicator cover: PC	
Weight (approx.)	Cable	55g*
	Connector	20g
Connection Method	Cable	ø3.5mm, 3-core, 0.2 mm ² , vinyl cabtyre cable
	Connector	M8 connector (4-pin)

*Cable length: 2m (35g when the cable length is 1m and 120g when 5m)

Accessories

Reflectors (used only for transparent-object sensing)		
Item		Part Number
Reflector	Standard	IAC-R9
	Small	IAC-R10
	Extra-small	IAC-R11
Reflector Mounting Bracket	For IAC-R9	IAC-L3

Sensor Mounting Brackets		
Item		Part Number
Main Unit Mounting Brackets	Vertical Mounting	SA9Z-K01
	Horizontal Mounting	SA9Z-K02
	Cover type	SA9Z-K03
	Back Mounting	SA9Z-K04

Connector Cable (for connector model)		
Number of Core Wires	Type and Length	Part Number
4	Straight, 2m	SA9Z-CM8K-4S2
	Straight, 5m	SA9Z-CM8K-4S5
	Right angle, 2m	SA9Z-CM8K-4L2
	Right angle, 5m	SA9Z-CM8K-4L5

Air Blower Mounting Block		
Item		Part Number
Air Blower Mounting Block	Notes 1 & 2	SA9Z-A02

Slits		
Item	Slit Size	Part Number
Vertical Slit ^{Note 3}	0.5 mm × 18 mm	SA9Z-S06PN02
	1.0 mm × 18 mm	SA9Z-S07PN02
	2.0 mm × 18 mm	SA9Z-S08PN02

1. Two mounting screws (M3 × 20 mm sems screw), one M5 × 6 mm screw for plugging the air supply port, and one gasket (0.5 mm thick) are supplied. Air tube fitting and mounting bracket are not supplied and must be ordered separately (recommended mounting bracket: SA9Z-K01).
2. Material: Anodized aluminum
3. Horizontal or round slits cannot be used.

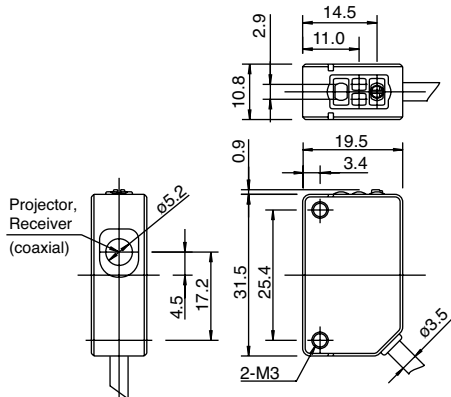
Sensor Part Numbers

Sensing Method		Sensing Range	Connection	Cable Length	Operation Mode	Part Number	
						NPN Output	PNP Output
Coaxial Polarized Retro-reflective	Red LED	2.0m (when using IAC-R9)	Cable*	2m	Light ON	SA1E-XN1-2M	SA1E-XP1-2M
		1.0m [100 mm] (when using IAC-R10)	Connector		Dark ON	SA1E-XN2-2M	SA1E-XP2-2M
	With Sensitivity Adjustment	1.0m [100 mm] (when using IAC-R11)		Light ON	SA1E-XN1C	SA1E-XP1C	
		Note: Reflector is not supplied and must be ordered separately. See characteristics diagrams below.	1.0m [100 mm] (when using IAC-R11)	Dark ON	SA1E-XN2C	SA1E-XP2C	

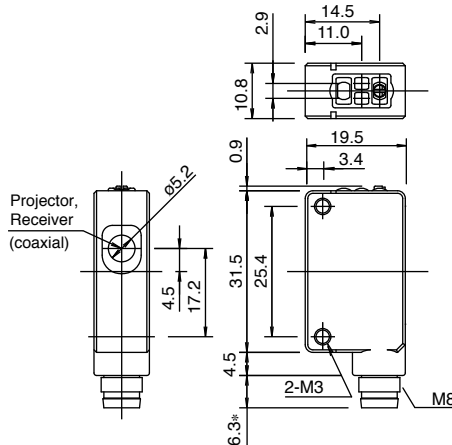
*Also available with 1 or 5m cables. Please contact IDEC for more details.

Dimensions

Cable Model

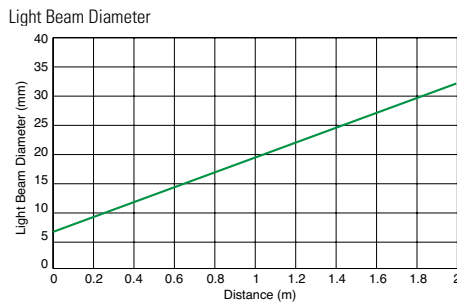
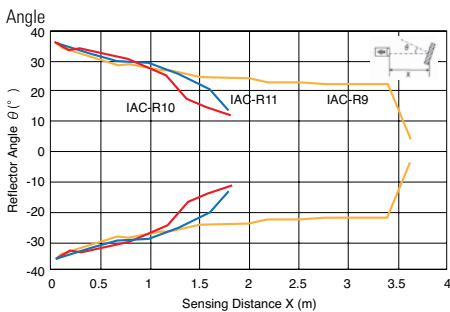
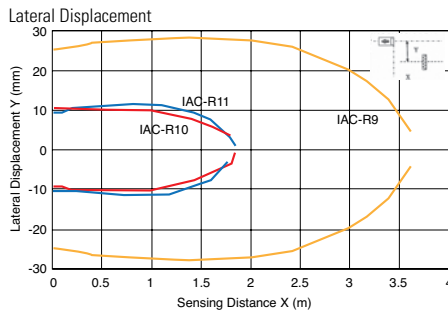
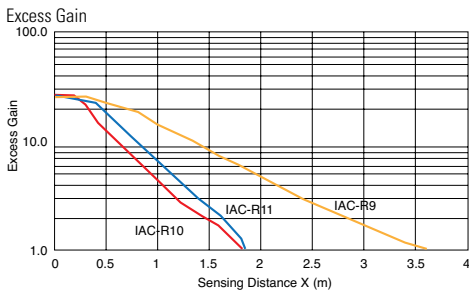


Connector Model



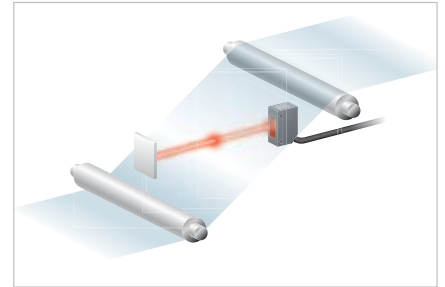
*The connector length is 18 mm when a right-angle connector cable (SA9Z-CMBK-4L □) is attached.

Characteristics

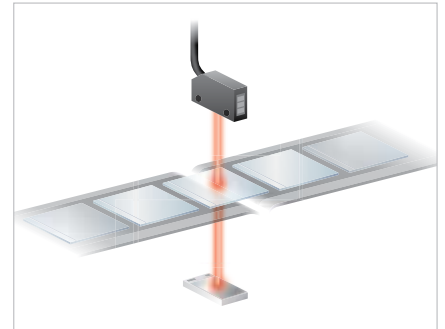


Application Examples

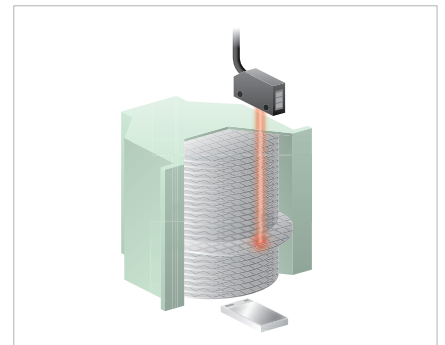
Transparent Film



Transparent Case Packaging

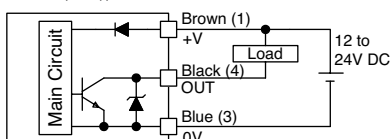


Wafer Displacement

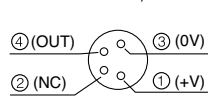


Output Circuit Wiring

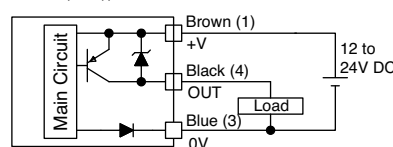
NPN Output Type



Connector Pin Layout



PNP Output Type



Connector Pin Layout

