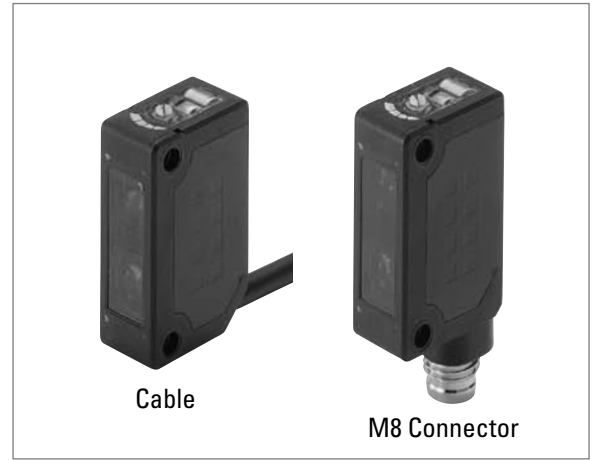


# Background Suppression Sensor - SA1E

- Features**
- Background suppression (BGS) detects targeted objects only
  - Sensing range can be setup to ignore the background
  - Maximum sensing range for target object is 20 to 200 mm
  - Two connection styles: 2 meter cable or M8 connector
  - NPN output, PNP output, light ON, and dark ON are available
  - Red LED is used for easy optical adjustment
  - UL/c-UL Listed (File No. E222927)
  - CE marked



## Part Numbers

Sensing Method	Sensing Range	Connection	Cable Length	Operation Mode	Part Number	
					NPN Output	PNP Output
Background Suppression Red LED w/Sensing Range Adjustment	20 to 200 mm 40 to 200 mm Adjustable Sensing Range	Cable	2m*	Light ON	SA1E-BN1-2M	SA1E-BP1-2M
				Dark ON	SA1E-BN2-2M	SA1E-BP2-2M
		M8 Connector	2m or 5m (purchase separately)	Light ON	SA1E-BN1C	SA1E-BP1C
				Dark ON	SA1E-BN2C	SA1E-BP2C

\*Other cable lengths available. Contact IDEC for more information.

## Specifications

<b>Power Voltage</b>	12 to 24V DC (operating range: 10 to 30V DC) (with reverse-polarity protection)	
<b>Power Consumption</b>	30 mA	
<b>Sensing Range</b>	20 mm to the selected distance (200 mm maximum) (using 200 x 200 mm white mat paper)	
<b>Detectable Object</b>	Opaque	
<b>Hysteresis</b>	20% maximum	
<b>Response Time</b>	1 ms maximum	
<b>Sensing Range Adjustment</b>	6-turn control knob	
<b>Light Source Element</b>	Red LED	
<b>Operation Mode</b>	Light ON/Dark ON	
<b>Control Output</b>	NPN open collector or PNP open collector, 30V DC, 100 mA maximum Voltage drop: 1.2V maximum, With short-circuit protection	
<b>LED Indicator</b>	Operation LED: Yellow (stable LED is not provided)	
<b>Interference Prevention</b>	Two units can be mounted in close proximity.	
<b>Degree of Protection</b>	IP67 (IEC60529)	
<b>Extraneous Light Immunity</b>	Sunlight: 10,000 lux maximum, Incandescent lamp: 3,000 lux maximum (at receiver)	
<b>Operating Temperature</b>	-25 to +55°C (no freezing)	
<b>Operating Humidity</b>	35 to 85% RH (no condensation)	
<b>Storage Temperature</b>	-40 to +70°C (no freezing)	
<b>Insulation Resistance</b>	Between live part and mounting bracket: 20 MΩ maximum (500V DC megger)	
<b>Dielectric Strength</b>	Between live part and mounting bracket: 1000V AC, 50/60 Hz, 1 minute	
<b>Vibration Resistance</b>	Damage limits: 10 to 55 Hz, Amplitude 0.75 mm, 20 cycles in each of 3 axes	
<b>Shock Resistance</b>	Damage limits: 500 m/s <sup>2</sup> (50G), 10 shocks in each of 3 axes	
<b>Material</b>	Housing: PC/PBT, Lens: PC, Indicator cover: PC	
<b>Weight (approx.)</b>	Cable Type	55g (cable length 2m)
	Connector Type	20g
<b>Connection Method</b>	Cable Type	ø3.5 mm, 3-core, 0.2 mm <sup>2</sup> , vinyl cabtyre cable
	Connector Type	M8 connector (4-pin)

## Accessories (Optional)

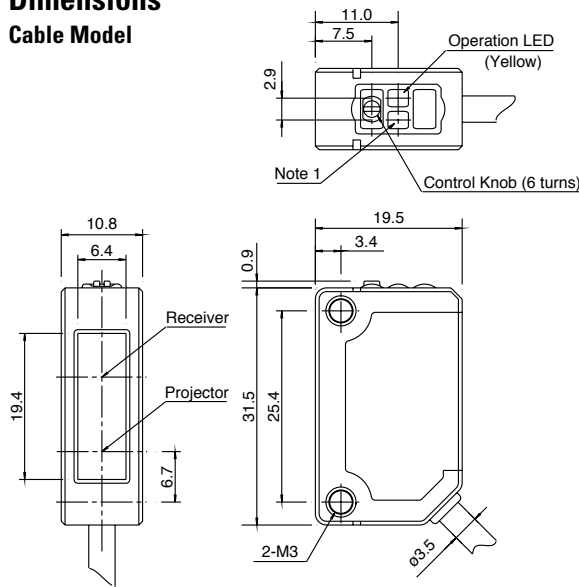
Mounting Brackets			
Item		Part Number	Package Quantity
Mounting Bracket	Vertical Mounting	SA9Z-K01	1
	Horizontal Mounting	SA9Z-K02	

- Two mounting screws (M3 x 12 mm sems screw) are attached to the SA9Z-K01 and SA9Z-K02.
- The SA9Z-K02 cannot be used with the connector type.

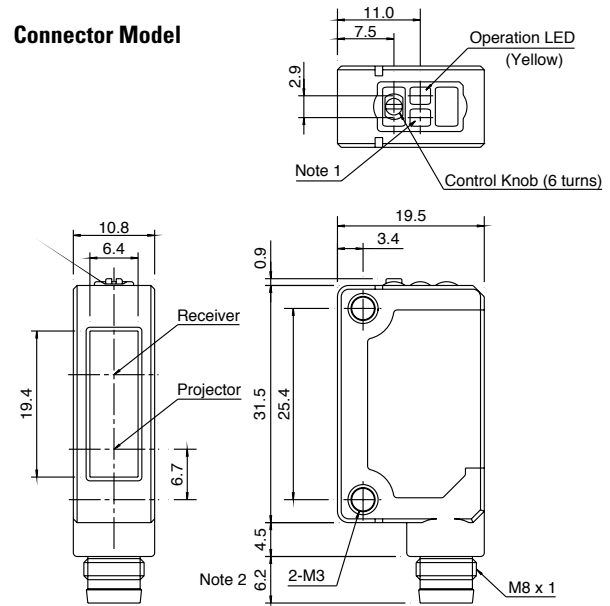
Connector Cable (for M8 connector type)			
Number of Core Wires	Type & Length	Part Number	Package Quantity
4	Straight, 2m	SA9Z-CM8K-4S2	1
	Straight, 5m	SA9Z-CM8K-4S5	
	Right angle, 2m	SA9Z-CM8K-4L2*	
	Right angle, 5m	SA9Z-CM8K-4L5*	

## Dimensions

### Cable Model



### Connector Model



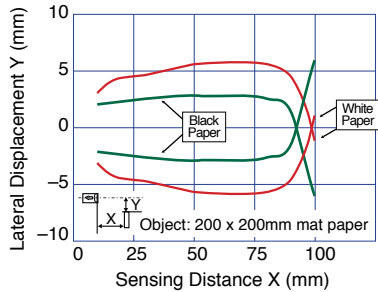
Note 1: Stable LED is not provided on the background suppression type.

Note 2: The connector length is 18 mm when a right-angle connector cable (SA9Z-CM8K-4L\*) is attached.

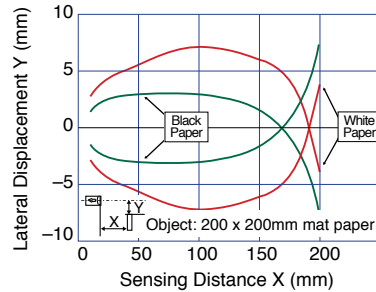
All dimensions in mm.

## Characteristics (Typical)

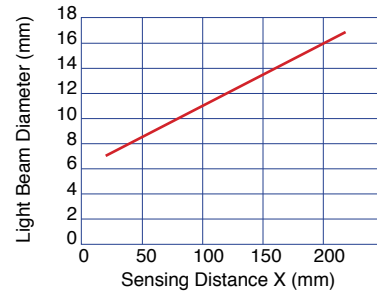
### • Lateral Displacement (Preset 100 mm)



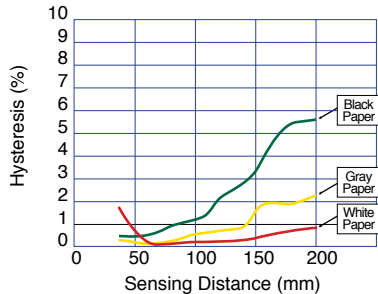
### • Lateral Displacement (Preset 200 mm)



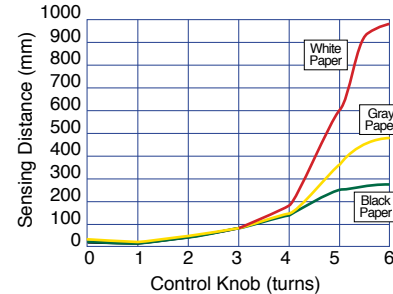
### • Light Beam Diameter



### • Sensing Distance vs. Hysteresis



### • Control Knob vs. Sensing Distance



### • Color Mat Paper and Other Materials

