

Specifications

			SA1C-FN, -FD (Standard Speed)	SA1C-F1N, -F1D (High-speed)
General Specifications	Power Voltage	12V to 24V DC	√	√
	Operating Voltage	10V to 30V DC, ripple 10% (maximum)	√	√
	Current Draw	30mA (maximum)	√	—
		40mA (maximum)	—	√
	Operating Temperature	Amplifier only: -25° to +55°C Fiber optic cords (except heat-resistant types): -40° to +70°C Heat-resistant fiber optic cords: -40°C to +350°C (avoid ice coating)	√	√
	Operating Humidity	35 to 85% RH (avoid condensation)	√	√
	Extraneous Light Immunity	Sunlight: 10,000 lux (maximum); Incandescent light: 3,000 lux (maximum) on receiver surface— defined as incident or unwanted light received by a sensor, unrelated to the presence or absence of the intended object	√	√
	Material	Amplifier only: PBT resin (housing) with polycarbonate lens Fiber optic cords (except heat-resistant types): Nickel-plated brass (sensing head), polyethylene-covered PMMA (cord), and SUS304 stainless (sleeve) Heat-resistant fiber optic cords: SUS 304 stainless (sensing head) and SUS spiral tube around glass fiber cord	√	√
	Degree of Protection	IP66 — IEC Pub 529, sensors rated IP66 are dust-tight, water-resistant, and perform best when not subjected to heavy particle or water blasts	√	√
	Connection	Cable type: 0.2mm ² ; Vinyl cabtyre cable #24 AWG, 6'–6-3/4' (2m) long Connector type: Ø 0.31" (8mm) 3- or 4-pin connector (cable ordered separately for quick connect sensors)	√	√
	Light Source	Red or green LED (pulse-modulated)	√	√
	Output	NPN transistor: 30V DC (1.2V residual), 100mA (maximum) PNP transistor: 30V DC (2.0V residual), 200mA (maximum) Self-diagnostic: 30V DC (1.2V residual), 50mA (maximum)	√	√
	Response	0.5ms (maximum)	√	—
		50µs (maximum)	—	√
Function Specifications	Off Delay	0 to 100 ms (adjustable)	√	√
	Sensitivity	4-turn adjustment	√	√
	Minimum Bending Radius	Fiber optic cord (except SA9F-TT, -DT, -TL, and -DL): 1"R (25mm); Sleeve: 0.39"R (10mm) SA9F-TT and -DT: 0.59"R (15mm); Sleeve: 0.39"R (10mm) SA9F-TL and DL: 0.59"R (15mm); Sleeve: Unbendable	√	√
	Operation Mode	Light on or dark on (selectable by switch on amplifier)	√	√
	Indicator	Operation indicator: Red LED (out)	√	√
		Stable level indicator: Green LED (stable)	√	√
	Noise Resistance	Normal Mode		
		500V	√	—
		300V	—	√
		Common Mode		
		300V	√	—
		150V	—	√
		Pulse Width		
		50ns –1µs, 100Hz (using a noise simulator)	√	√
	Storage Temperature	-30 to +70°C (avoid freezing)	√	√
	Insulation Resistance	20M minimum with 500V DC megger (between live & dead parts)	√	√
	Dielectric Strength	1000V, 1 minute (between live & dead parts)	√	√
	Vibration Resistance	Damage limits: 10 – 55Hz Amplitude: 1.5mm p-p, 20 cycles in each of 3 axes crossed (one cycle = 5 minutes)	√	√
	Shock Resistance	Damage limits: 500m/s ² (approximately 49G), 10 shocks in each of 3 axes	√	√
	Weight	Cable type: Approximately 75g Quick-connect type: Approximately 30g	√	√



OI Touchscreens

PLCs

Automation Software

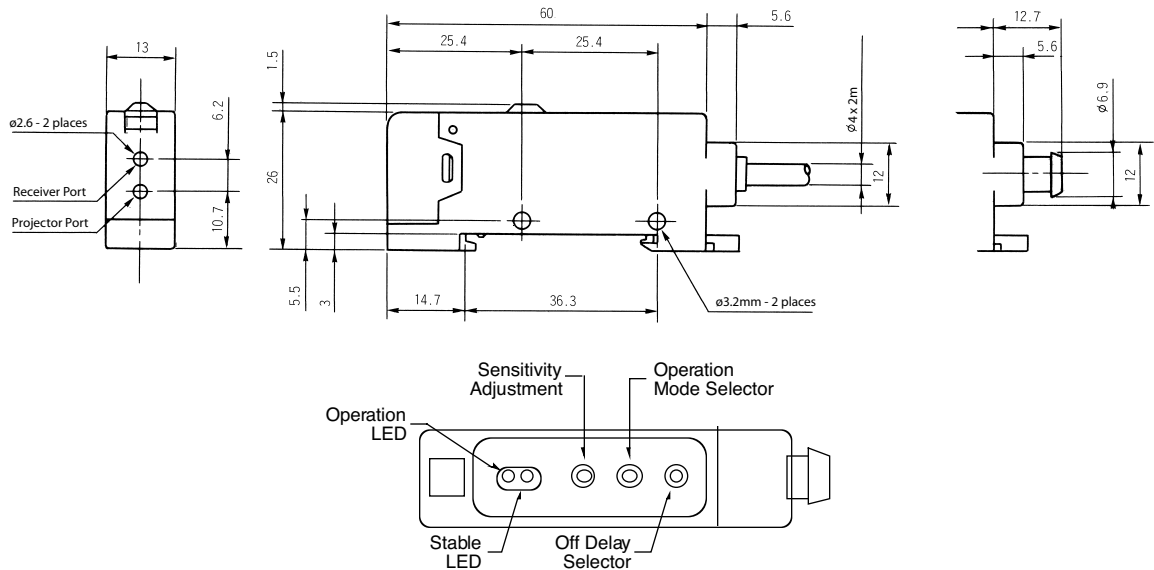
Power Supplies

Sensors

Communication

Barriers

Dimensions (mm)



Detecting Color Marks

Color of Mark	Background Color										
	White	Yellow	Chartreuse	Orange	Red	Magenta	Turquoise	Blue	Violet	Green	Black
White	—	❖	◆	❖	❖	◆	◆	◆	◆	◆	◆
Yellow	❖	—	◆	❖	❖	❖	◆	◆	◆	◆	◆
Chartreuse	◆	◆	—	□	□	❖	□	◆	❖	◆	◆
Orange	❖	❖	□	—	—	❖	□	◆	◆	◆	◆
Red	❖	❖	□	—	—	□	□	◆	◆	◆	◆
Magenta	◆	❖	❖	❖	□	—	□	□	—	□	◆
Turquoise	◆	◆	□	□	□	□	—	□	◆	❖	◆
Blue	◆	◆	◆	◆	◆	□	□	—	□	□	□
Violet	◆	◆	❖	◆	◆	—	◆	□	—	□	□
Green	◆	◆	◆	◆	◆	□	❖	□	□	—	□
Black	◆	◆	◆	◆	◆	◆	◆	□	□	□	—

□ = Use Red LED
❖ = Use Green LED
◆ = Use Red or Green LED
— = Not Detectable