

High-speed Fiber Optic: SA1C-F



Key features:

- Ideal for remote sensing applications
- Featuring quick-connect cable and easy-insert fiber optic units for simple installation
- Through-beam and reflected-light sensing available
- Sensing range up to 7.09" (180mm) for through-beam sensors
- Dual outputs: Select NPN and PNP transistor outputs or NPN transistor output combined with a self-diagnostic output
- Outputs selectable for light on or dark on
- High-speed, 50 μ s response time
- Featuring variable off-delay (0 to 100msec) and fine-tune sensitivity adjustment
- Stable LED makes alignment easy
- Red or green LEDs available for detecting color marks
- Mount on a 35mm DIN rail



The perfect fiber optic sensor for applications where you have difficulty mounting regular or miniature sensors or where accessibility is a problem.

Available in through-beam and retro-reflective models, the built-in variable off-delay (0 - 10ms) can help you bring your complete system in tune.

The 50 μ s response time ensures detection of fast moving targets in a high-speed manufacturing environment where speed counts.

Part Numbers

Function	Amplifier	Output	Light Source	Response	Through-Beam Units		Diffuse-Reflected Units	
					Part Number	Range	Part Number	Range
OI Touchscreens	SA1C-FN3E (Cable) SA1C-FN3EC (Quick-Connect)	30V DC NPN transistor: 100mA (maximum) Self-diagnostic: 50mA (maximum)	Red LED	Standard speed: 0.5 ms	SA9F-TS: ø0.16" (M4) Straight	180mm (7.09")	SA9F-DS: ø0.24" (M6) Straight	60mm (2.36")
	PLCs	SA1C-FD3F (Cable) SA1C-FD3FC (Quick-Connect)			30V DC NPN transistor: 100mA (maximum) PNP transistor: 200mA (maximum)	SA9F-TC: ø0.16" (M4) Coiled	150mm (5.91")	SA9F-DC: ø0.24" (M6) Coiled
Automation Software		SA1C-FN3EG (Cable) SA1C-FN3EGC (Quick-Connect)	30V DC NPN transistor: 100mA (maximum) Self-diagnostic: 50mA (maximum)	Green LED	Standard speed: 0.5 ms	SA9F-TT: ø0.12" (M3) Straight	50mm (1.97")	SA9F-DD: ø0.24" (M6) Coaxial
	Power Supplies	SA1C-FD3FG (Cable) SA1C-FD3FGC (Quick-Connect)	30V DC NPN transistor: 100mA (maximum) PNP transistor: 200mA (maximum)			SA9F-TM: ø0.16" (M4) Multicore	150mm (5.91")	SA9F-DT: ø0.12" (M3) Straight
Sensors		SA1C-F1N3E (Cable) SA1C-F1N3EC (Quick-Connect)	30V DC NPN transistor: 100mA (maximum) Self-diagnostic: 50mA (maximum)	Red LED	High- speed: 50 µs	SA9F-TM: ø0.16" (M4) Multicore	100mm (3.94")	SA9F-DM: ø0.01" (0.26mm) Multicore
		SA1C-F1D3F (Cable) SA1C-F1D3FC (Quick-Connect)	30V DC NPN transistor: 100mA (maximum) PNP transistor: 200mA (maximum)			SA9F-TH: Heat-resistant glass fiber	40mm (1.57")	SA9F-DH: Heat-resistant glass fiber
					SA9F-TL: Side view	40mm (1.57")	SA9F-DL: Side view	10mm (0.39")
					SA9F-TS: ø0.16" (M4) Straight	16mm (0.63")	SA9F-DS: ø0.24" (M6) Straight	7mm (0.28")
					SA9F-TC: ø0.16" (M4) Coiled	14mm (0.55")	SA9F-DC: Incompatible with green LED	N/A
					SA9F-TT: ø0.12" (M3) Straight	5mm (0.20")	SA9F-DD: ø0.24" (M6) Coaxial	7mm (0.28")
					SA9F-TM: ø0.16" (M4) Multicore	14mm (0.55")	SA9F-DT: Incompatible with green LED	N/A
					SA9F-TH: Heat-resistant glass fiber	8mm (0.31")	SA9F-DM: ø0.01" (0.26mm) Multicore	4mm (0.16")
					SA9F-TL: Incompatible with green LED	N/A	SA9F-DH: Incompatible with green LED	N/A
							SA9F-DL: Incompatible with green LED	N/A



Function is determined by the fiber optic unit used.

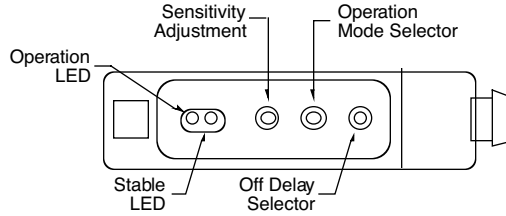
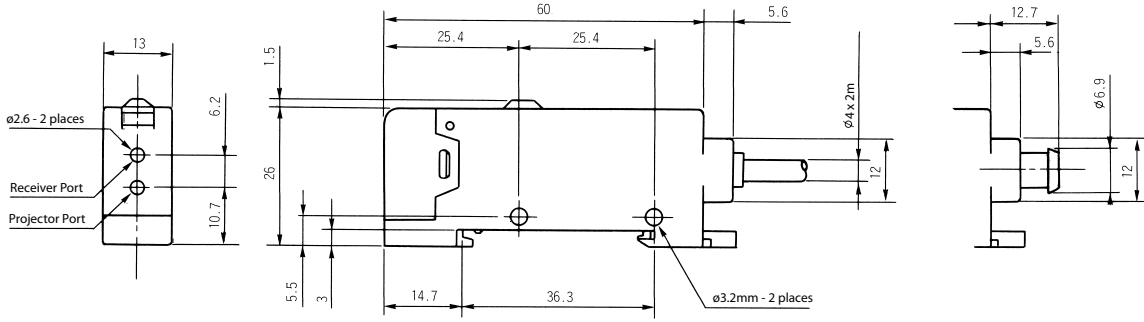
For information on accessories, see page 203.

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)	–	√
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	√	√	
Function Specifications	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	√		



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

OT Touchscreens

PLCs

Automation Software

Power Supplies












Sensors

Communication











Barriers

Accessories


Reflectors

Appearance	Item	Use with	Part Number	
	Standard reflector	SA1E	IAC-R5	
	Small reflector		IAC-R6	
	Large reflector		IAC-R8	
	Narrow (rear/side mounting)		IAC-R7M	
	Narrow (side mounting)		IAC-R7S	
	Narrow (rear mounting)		IAC-R7B	
	Tape (35 x 40mm)		IAC-RS1	
	Tape (70 x 80mm)		IAC-RS2	
	Standard		SA1E-X	IAC-R9
	Small			IAC-R10
	Ultra-small	IAC-R11		









Brackets

Appearance	Item	Use with	Part Number	
	Vertical mounting bracket	SA1E	SA9Z-K01	
	Horizontal mounting bracket		SA9Z-K02	
	Cover mounting bracket		SA9Z-K03	
	Back mounting bracket		SA9Z-K04	
	Reflector mounting bracket		IAC-L2	
	Reflector mounting bracket		IAC-L3	
	Reflector mounting bracket		IAC-L5	
	Reflector mounting bracket			
	Reflector mounting bracket			
	Reflector mounting bracket			


Slits

Appearance	Item	Slit Size	Use with	Part Number	Min. Order Qty
	Vertical slit	0.5mm x 18mm	SA1E	SA9Z-S06	2
		1.0mm x 18mm		SA9Z-S07	
		2.0mm x 18mm		SA9Z-S08	
	Horizontal slit	0.5mm x 6.5mm		SA9Z-S09	
		1.0mm x 6.5mm		SA9Z-S10	
		2.0mm x 6.5mm		SA9Z-S11	
		ø0.5mm		SA9Z-S12	
	Round slit	ø1.0mm		SA9Z-S13	
		ø2.0mm		SA9Z-S14	


Connector Cables (for connector model sensors)

Appearance	Number of Core Wires	Type & Length	Use with	Part No.
	4	Straight, 2m	SA1E	SA9Z-CM8K-4S2
		Straight, 5m		SA9Z-CM8K-4S5
		Right angle, 2m		SA9Z-CM8K-4L2
		Right angle, 5m		SA9Z-CM8K-4L5
	4	2m		SA1C-F
		5m	SA9C-CA4D5	
		2m	SA9C-CA4D2S	
		5m	SA9C-CA4D5S	

Air Blower Mounting Blocks

Appearance	Item	Use with	Part Number
	Air blower mounting block	SA1E	SA9Z-A02

Sensitivity Control Screwdriver

Item	Part No.	Package Quantity
	SA9Z-AD01	1

Diffuse-Reflected Light Fiber Optic Units - SA9F

Appearance	Part Number	Description	Use with	Range
	SA9F-DS31 No sleeve SA9F-DS32 3.54" (90mm) sleeve SA9F-DS33 1.77" (45mm) sleeve	Straight: Two fibers $\phi 1\text{mm}$ (0.04") Threaded mount: $\phi 6\text{mm}$ (M6) Detects: $\phi 0.03\text{mm}$ (0.0012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	60mm (2.36") 7mm (0.28")
	SA9F-DC31 No sleeve SA9F-DC32 3.54" (90mm) sleeve SA9F-DC33 1.77" (45mm) sleeve (All three not compatible with green LED)	Coiled: Two fibers $\phi 1\text{mm}$ (0.04") Threaded mount: $\phi 6\text{mm}$ (M6) Detects: $\phi 0.03\text{mm}$ (0.0012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	25mm (0.98") —
	SA9F-DT11 No sleeve SA9F-DT12 3.54" (90mm) sleeve SA9F-DT13 1.77" (45mm) sleeve (All three not compatible with green LED)	Straight: Two fibers $\phi 0.5\text{mm}$ (0.02") Threaded mount: $\phi 3\text{mm}$ (M3) Detects: $\phi 0.03\text{mm}$ (0.0012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	20mm (0.78") —
	SA9F-DD31	Coaxial: Core $\phi 1\text{mm}$ (0.04") + 16 fibers: $\phi 0.26\text{mm}$ (0.01") Threaded mount: $\phi 6\text{mm}$ (M6) Detects: $\phi 0.03\text{mm}$ (0.0012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	60mm (2.36") 7mm (0.28")
	SA9F-DM74 1 row = 32 fibers SA9F-DM75 2 rows = 16 each (Not compatible with green LED)	Multicore: 32 fibers $\phi 0.26\text{mm}$ (0.010") Detects: $\phi 0.06\text{mm}$ (0.0024") minimum object	SA1C-FK SA1C-FK3G SA1C-F (not compatible with SA9F-DM75, SA9F-DM76)	60mm (2.36") 4mm (0.16")
	SA9F-DH21 No sleeve SA9F-DH22 3.54" (90mm) sleeve (Both not compatible with green LED)	Heat-resistant glass: Two fibers $\phi 0.7\text{mm}$ (0.03") Threaded mount: $\phi 4\text{mm}$ (M4) Detects: $\phi 0.03\text{mm}$ (0.0012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	27mm (1.06") —

OI Touchscreens

PLCs

Automation Software

Power Supplies

Sensors

Communication

Barriers

Through-Beam Fiber Optic Units - SA9F

Appearance	Part Number	Description	Amplifier	Range
	SA9F-TS21 No sleeve SA9F-TS23 1.77" (45mm) sleeve	Straight fiber: ø1mm (0.04") Threaded mount: ø4mm (M4) Detects: ø0.3mm (0.012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	180mm (7.09") 16mm (0.63")
	SA9F-TC21 No sleeve	Coiled fiber: ø1mm (0.04") Threaded mount: ø4mm (M4) Detects: ø0.3mm (0.012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	150mm (5.91") 14mm (0.55")
	SA9F-TT11 No sleeve	Straight fiber: ø0.5mm (0.02") Threaded mount: ø3mm (M3) Detects: ø0.15mm (0.006") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	50mm (1.97") 5mm (0.2")
	SA9F-TM21 No sleeve SA9F-TM22 3.54" (90mm) sleeve SA9F-TM23 1.77" (45mm) sleeve 16 fibers (cluster)	Multicore: ø0.26mm (0.010") Threaded mount: ø4mm (M4) Detects: ø0.3mm (0.012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	150mm (5.91") 14mm (0.55")
	SA9F-TM74 16 fibers in one row	Multicore: 16 fibers (one row) ø0.26mm (0.010") Detects: ø0.06mm (0.0024") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	150mm (5.91") 14mm (0.55")
	SA9F-TH21 No sleeve SA9F-TH22 3.54" (90mm) sleeve	Heat-resistant glass fiber: ø1mm (0.04") Threaded mount: ø4mm (M4) Detects: ø0.3mm (0.012") minimum object	SA1C-FK3 SA1C-FK3G SA1C-F	100mm (3.94") 8mm (0.31")

Miscellaneous Accessories

Description	Use with		Part Number
Fiber cutter	All fiber units except heat resistant	HxLxD: 23x 45 x 8mm (0.91" x 1.77" x 0.31") Included with fiber units; order replacement only	SA9Z-F01
Set of 2 easy-insert adaptors	SA9F-TT, SA9F-TL, SA9F-DT, and SA9F-DL	ø2.2 x 24mm long (ø0.087" (OD) x 0.945") Included with applicable fiber optic units; order replacement set only	SA9Z-F02
Lens attachment for long-range detection of opaque objects, minimum size: Ø 0.14" (3.5mm)	SA1C-F through-beam fiber unit only	Sensing ranges: Standard speed red LED: SA9F-TS21: 1.3m (4' - 3-3/16") SA9F-TC21: 1m (3' - 3-3/8") 0.1m (3.94") SA9F-TM21: 1.05m (3' - 5-3/8")	SA9Z-F11
		Sensing ranges: Standard speed green LED: SA9F-TS21: 0.135m (5.31") SA9F-TC21: 0.1m (3.94") SA9F-TM21: 0.13m (5.12")	
		Sensing ranges: High-speed red LED: SA9F-TS21: 0.4m (5.75") SA9F-TC21: 0.3m (1.81") SA9F-TM21: 0.38m (4.96")	
Side view attachment to rotate axis by 90° for detection of opaque objects, minimum size: Ø 0.14" (3.5mm)	SA1C-F through-beam fiber unit only	Sensing ranges: Standard speed red LED: SA9F-TS21: 200mm (7.87") SA9F-TC21: 130mm (5.12") SA9F-TM21: 160mm (6.30")	SA9Z-F12
		Sensing ranges: High-speed red LED: SA9F-TS21: 50mm (1.97") SA9F-TC21: 35mm (1.38") SA9F-TM21: 40mm (1.57")	
Side-on attachment for narrow clearance, Range: 1.26" (32mm), for detection of transparent or opaque objects	SA1C-F diffuse-reflected light fiber unit only	Sensing ranges: Standard speed red LED: SA9F-TS21: 35mm (1.38") SA9F-TC21: 30mm (1.81") SA9F-TM21: 35mm (1.38")	SA9Z-F13
Attachment for high-accuracy: Range: 0.4" ± 0.04" (10mm ± 1mm), for detection of transparent or opaque objects	SA1C-F through-beam fiber unit only	Sensing ranges: Standard speed red LED:	SA9Z-F14
		SA9F-TS21: 10mm ± 1mm	
		SA9F-TC21: (0.394" ± 0.039") SA9F-TM21:	

OI Touchscreens

PLCs

Automation Software

Automation Software

Power Supplies

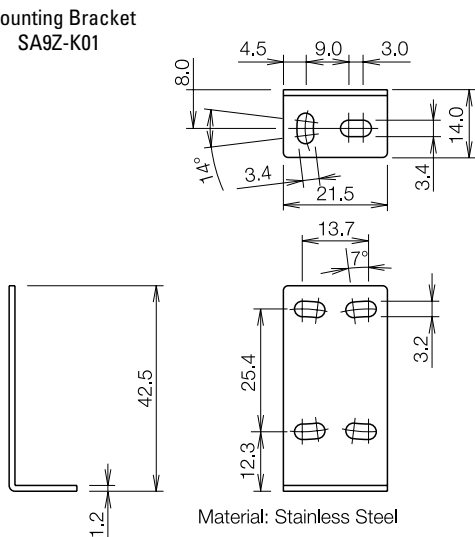
Sensors

Communication

Barriers

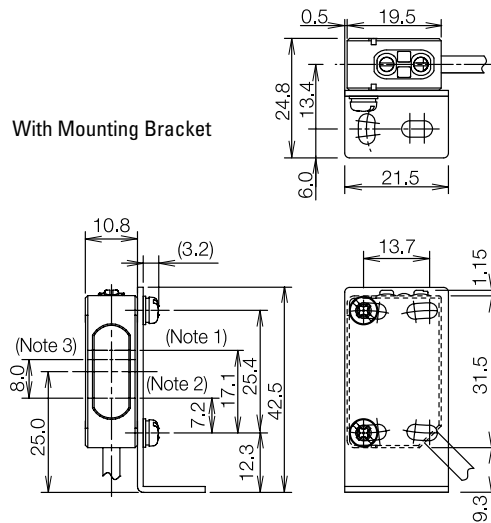
Accessory Dimensions (mm)

Mounting Bracket
SA9Z-K01



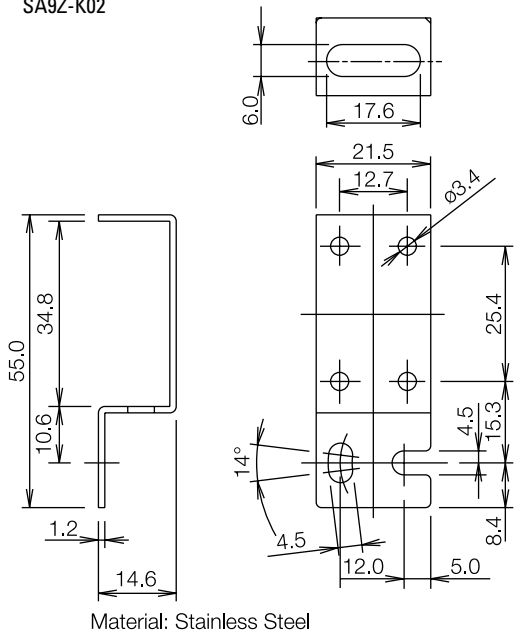
Material: Stainless Steel

With Mounting Bracket



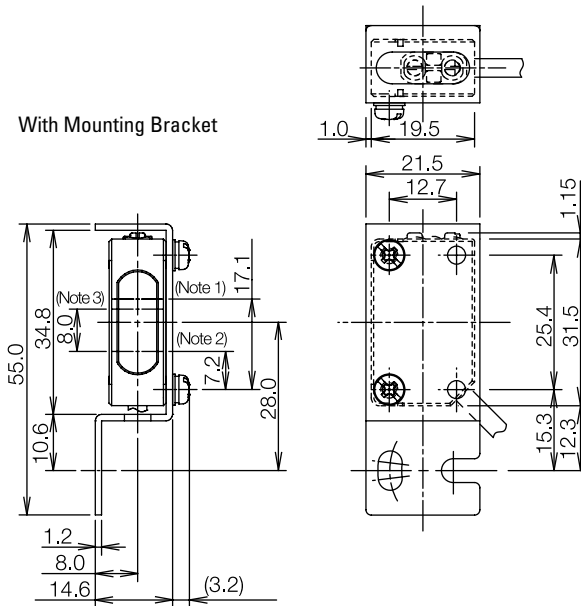
Note 1: Projector (through-beam)Receiver (through-beam)
 Note 2: Projector (polarized retroreflective, background suppression)
 Note 3: Receiver (polarized retroreflective)

SA9Z-K02



Material: Stainless Steel

With Mounting Bracket



Note 1: Projector (through-beam)Receiver (through-beam)
 Note 2: Projector (polarized retroreflective, background suppression)
 Note 3: Receiver (polarized retroreflective)

OT Touchscreens

PLCs

Automation Software

Power Supplies

Sensors

Communication

Barriers

OI Touchscreens

PLCs

Automation Software

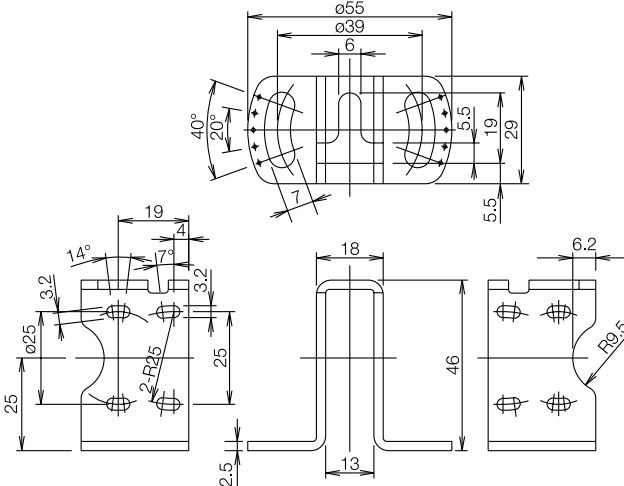
Power Supplies

Sensors

Communication

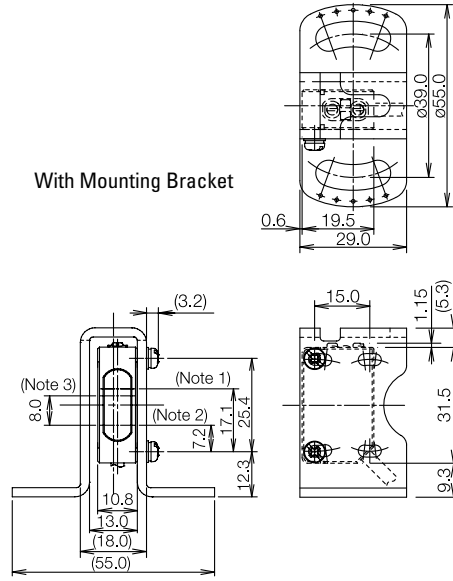
Barriers

SA9Z-K03



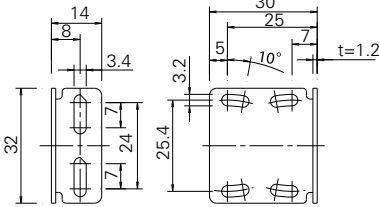
Material: Stainless Steel

With Mounting Bracket



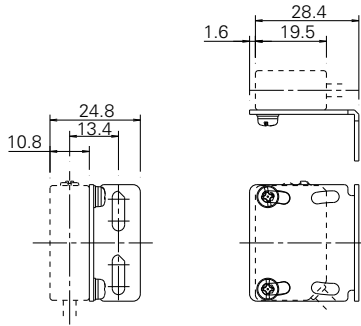
Note 1: Projector (through-beam) Receiver (through-beam)
 Note 2: Projector (polarized retroreflective, background suppression)
 Note 3: Receiver (polarized retroreflective)

SA9Z-K04

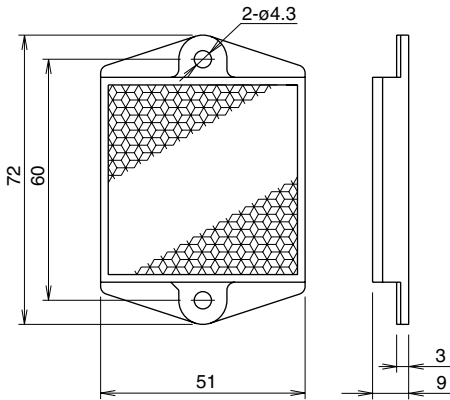


Material: Stainless Steel

With Mounting Bracket



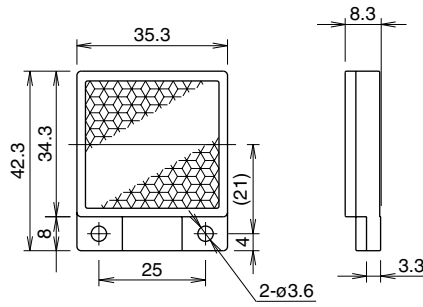
Reflector
IAC-R5



(Effective reflecting area: 47.2 x 47.2)

Material: PMMA (reflector), ABS (base)

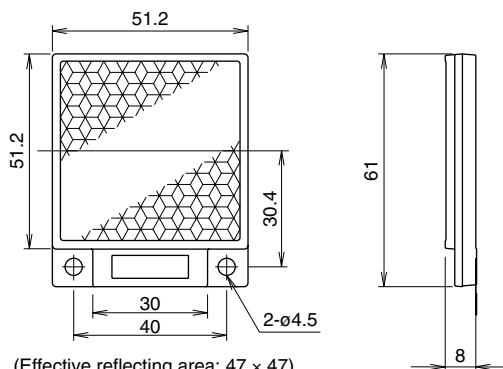
IAC-R6



(Effective reflecting area: 30 x 31)

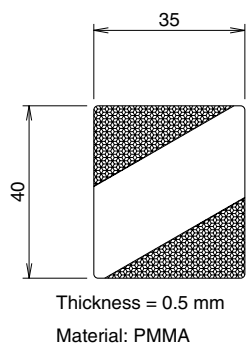
Material: PMMA (reflector), ABS (base)

Reflector
IAC-R8

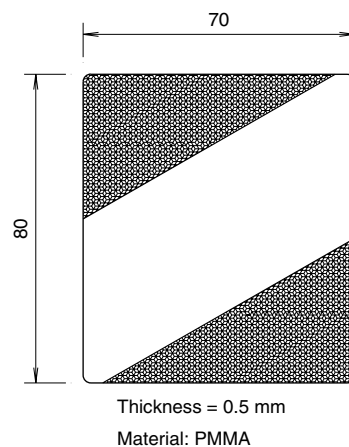


(Effective reflecting area: 47 × 47)
Material: PMMA (reflector), ABS (base)

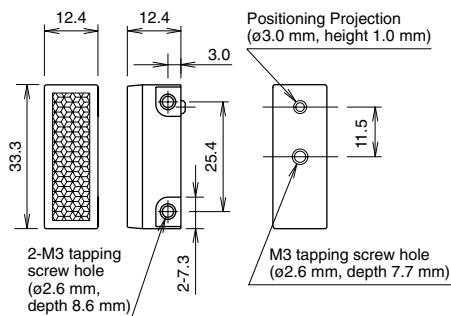
IAC-RS1



IAC-RS2



IAC-R7M (rear/side mounting)

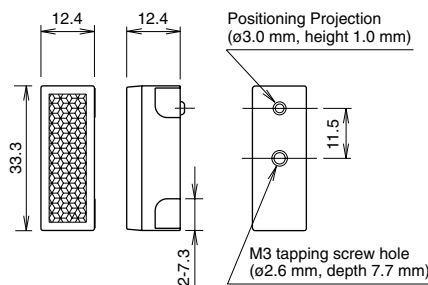


Material: PMMA (reflector), ABS (base)

Effective reflecting area: 8.6 × 29.5

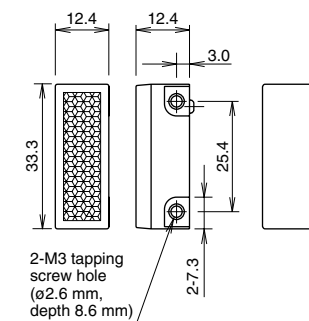
The mounting plate for reflector must be 0.8 to 2.5 mm in thickness.

IAC-R7B (rear mounting)



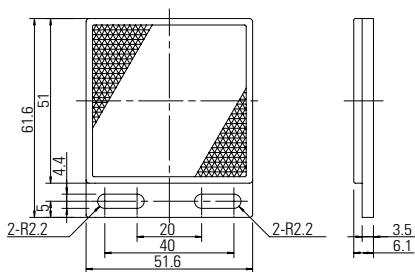
Material: PMMA (reflector), ABS (base)

IAC-R7S (side mounting)



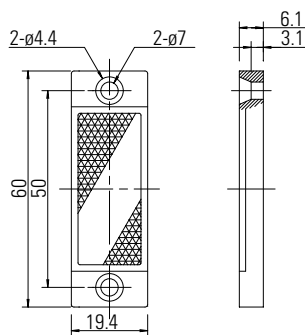
Material: PMMA (reflector), ABS (base)

IAC-R9

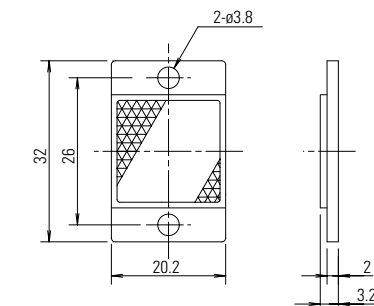


(Reflecting surface 47×47.6)
Material: PMMA (reflector), ABS (base)

IAC-R10



IAC-R11



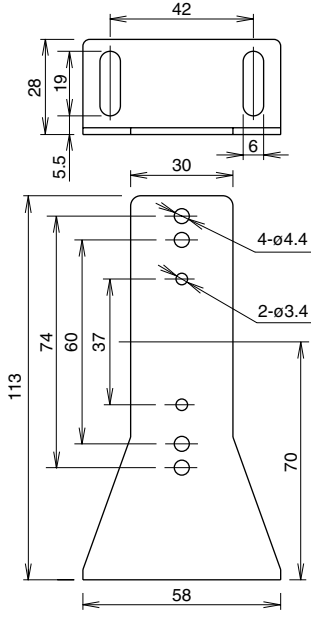
(Reflecting surface 18×18.2)
Material: PMMA (reflector), ABS (base)

01 Touchscreens

PLCs

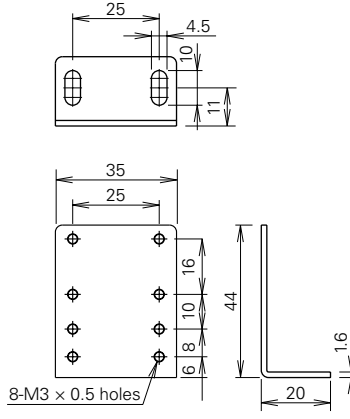
Automation Software

Reflector Mounting Bracket
IAC-L2 (for IAC-R5)



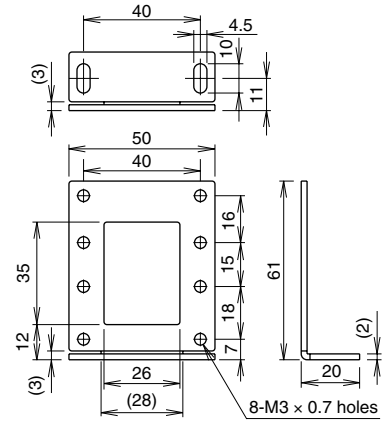
Material: SPCC (zinc chromate plating, black)

IAC-L3 (for IAC-R6)



Material: SPCC (zinc plating)

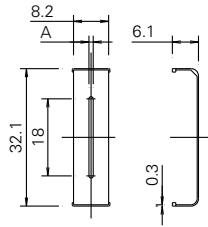
IAC-L5 (for IAC-R8)



Material: SPCC (zinc plating)

Power Supplies

Slit (Vertical Slit)
SA9ZS06, -S07, -S08

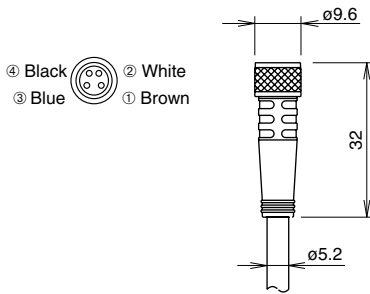


Material: Stainless Steel

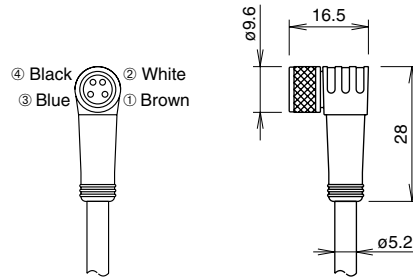
Slit	
Part No.	Slit Width: A
SA9Z-S06	0.5 mm
SA9Z-S07	1.0 mm
SA9Z-S08	2.0 mm

Sensors

Connector Cable (connector on one end)
Straight (SA9Z-CM8K-4S□)



Right-angle (SA9Z-CM8K-4L□)

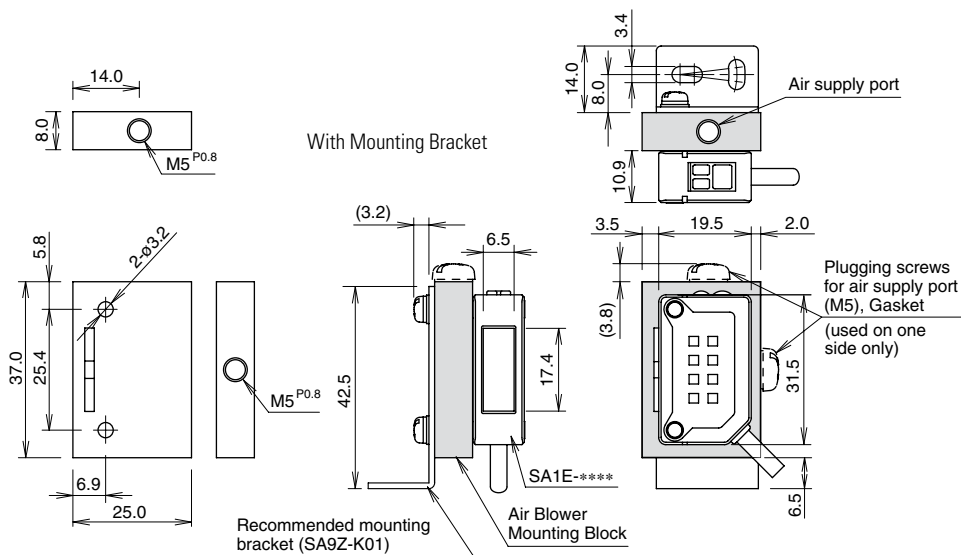


Dielectric strength when installed on the SA1E: 1000V AC (between live part and mounting bracket, except between live part and tightening ring)

Communication

Barriers

Air Blower Mounting Block

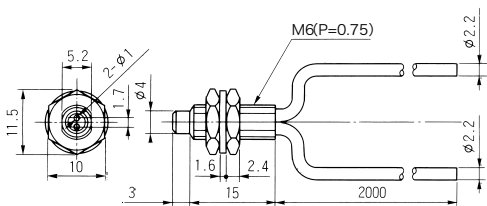


- The SA9Z-A02 air blower mounting block is supplied with two mounting screws (M3 × 20 mm sems screws), one screw for plugging the air supply port (M5 × 6 mm), and one gasket for plugging the air supply port.
- An air tube fitting (M5) can be installed to either the top or side. Tighten the fitting to a torque of 0.5 N·m maximum.
- The air tube fitting and mounting bracket are not supplied and must be ordered separately (recommended mounting bracket: SA9Z-K01).

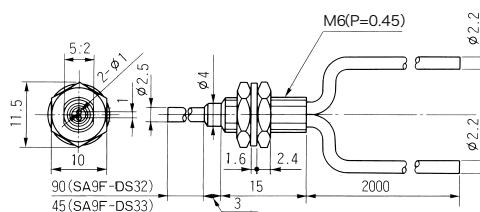
(Material: Anodized aluminum surface)

Diffuse-Reflective Light Fiber Optic Units

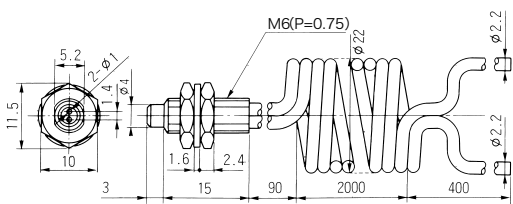
SA9F-DS31



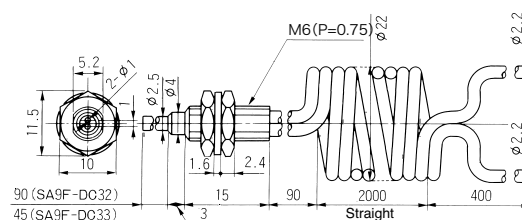
SA9F-DS32, SA9F-DS33



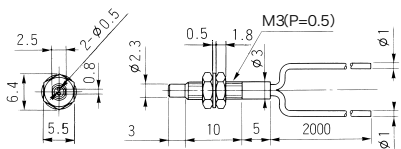
SA9F-DC31



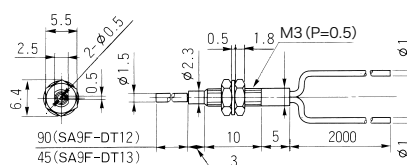
SA9F-DC32, SA9F-DC33



SA9F-DT11



SA9F-DT12, SA9F-DT13



01 Touchscreens

PLCs

Automation Software

Power Supplies

Sensors

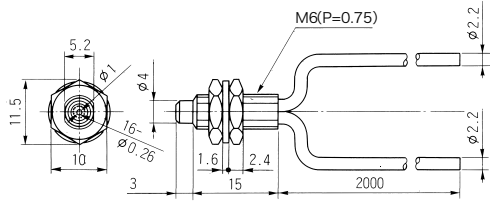
Communication

Barriers

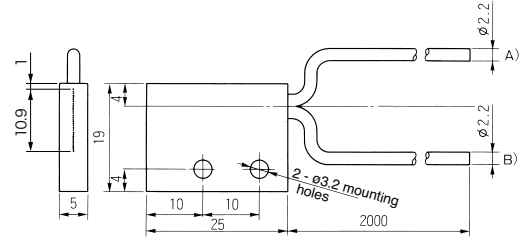
01 Touchscreens

Diffuse-Reflective Light Fiber Optic Units con't

SA9F-DD31

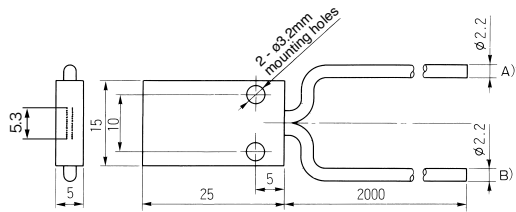


SA9F-DM74



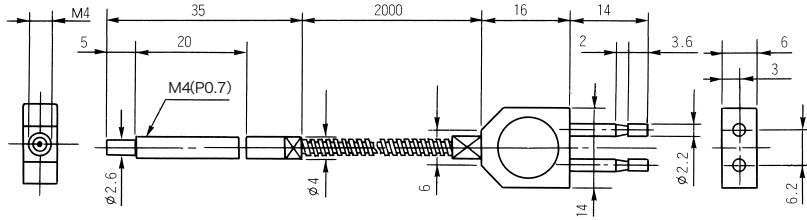
PLCs

SA9F-DM75



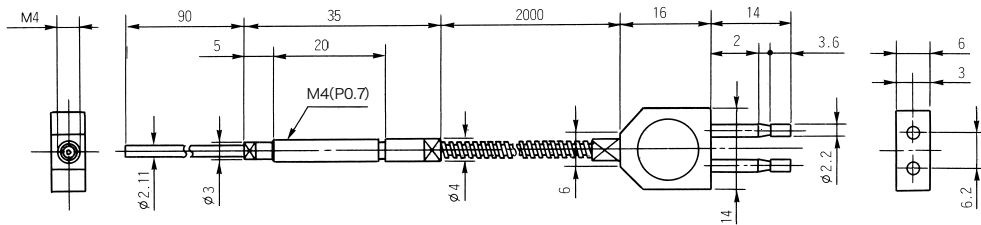
Automation Software

SA9F-DH21



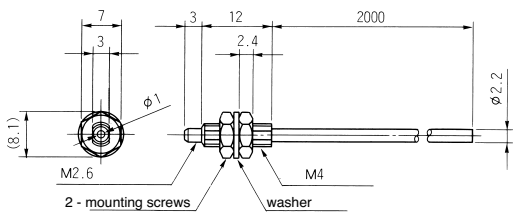
Power Supplies

SA9F-DH22



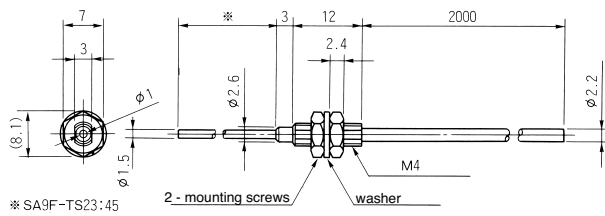
Sensors

SA9F-TS21



Communication

SA9F-TS23

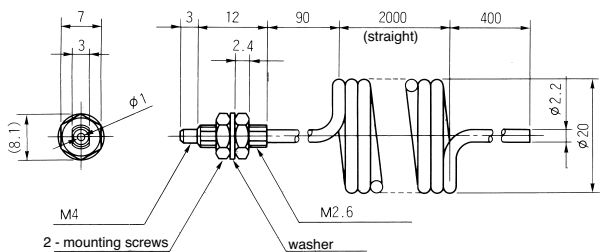


Barriers

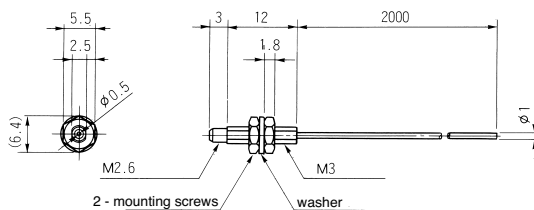
Diffuse-Reflective Light Fiber Optic Units con't

Dimensions (mm)

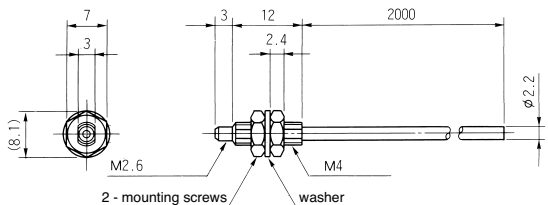
SA9F-TG21



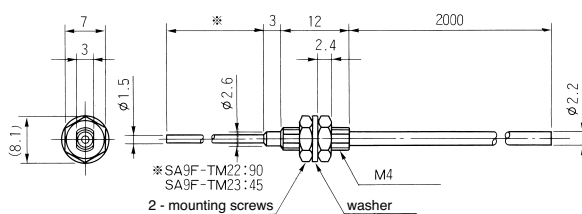
SA9F-TT11



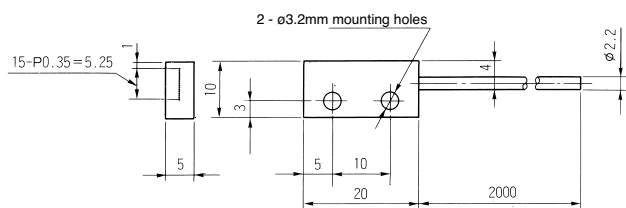
SA9F-TM21



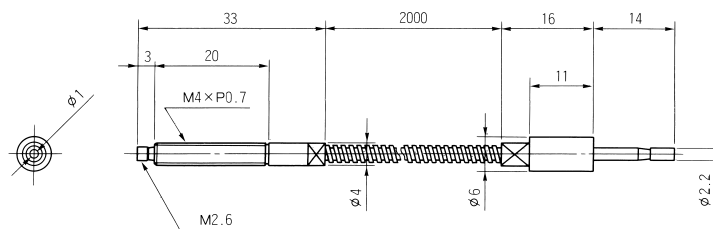
SA9F-TM22, SA9F-TM23



SA9F-TM74



SA9F-TH21



IO Touchscreens

PLCs

Automation Software

Power Supplies

Sensors

Communication

Barriers