B-1587(2)

INSTRUCTION SHEET

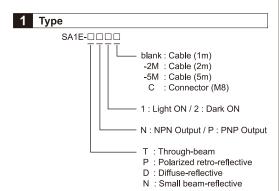
Photoelectric Sensor **SA1E Series**

Confirm that the delivered product is what you have ordered. Read this instruction sheet to make sure of correct operation. Make sure that the instruction sheet is kept by the end user.

SAFETY PRECAUTIONS

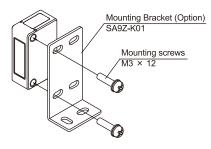
↑ CAUTION

Caution notices are used where inattention might cause personal injury or damage to equipment.



2 Installation

- · Do not apply excessive impact on the sensor during the installation process, so as to prevent damage or deterioration in the degree of protection.
- · To install the sensor, tighten the mounting screws to a torque of 0.4 to 0.5N · m .



Specifications

Detection System		em	Through-beam	Polarized retro-reflective	Diffuse-reflective	Small beam-reflective
TYPE	NPN	Light ON	SA1E-TN1	SA1E-PN1	SA1E-DN1	SA1E-NN1
No.	Output	Dark ON	SA1E-TN2	SA1E-PN2	SA1E-DN2	SA1E-NN2
	PNP	Light ON	SA1E-TP1	SA1E-PP1	SA1E-DP1	SA1E-NP1
	Output	Dark ON	SA1E-TP2	SA1E-PP2	SA1E-DP2	SA1E-NP2
Light Source			Infrared LED	Red LED	Infrared LED	Red LED
Power Voltage			12 to 24V DC Ripple p-p 10% maximum (Operationg range 10 to 30V DC(including lipple))			
Current Consumption		mption	Emitter: 15mA maximum 30mA maximum			
i			Receiver : 20mA maximum			
Sensing Range		е	20m	5m	700mm	50 to 150mm
				(Reflector : IAC-R5/R8)*1	(White paper : 200×200mm)	(White paper 100×100mm)
						Spot diameter approx.10mm
						(Detection distance 100mm)
Control Output			Open collector output (NPN / PNP output selectable)			
			Load voltage : 30V DC maximum, Load current : 100mA maximum			
			Voltage drop : 1.2V maximum (Load current : 10mA maximum)			
			Voltage drop : 2V maximum (Load current : 100mA maximum)			
Protection Circuit		uit	Reverse polarity protection,	Reverse polarity protection, Load short circuit protection,		
			Load short circuit protection,	Reverse output polarity curcuit, Interference prevention		
			Reverse output polarity curcuit			
Response Time		е	1 ms maxium			
Ambient Temperature		erature	Operating : -25 to +55 °C, Storage : -40 to +70 °C (no freezing and condensation)			
Ambient Humidity		dity	Operating: 35 to 85% RH, Storage: 35 to 85% RH (no condensation)			
Degree of protection		ection	IP67 (IEC60529)			
Material		·	Housing : PBT, Lens : PMMA, Display : PC			
Cable			ϕ 3.5mm, 3-core (2-core for emitter of through-beam type), 0.2mm ² , 1m/2m/5m cabtyre cable			

*1) Maintain at least the following distance between the sensor and reflector. IAC-R5/R6/R8: 50 mm, IAC-R7: 100 mm, IAC-RS1/RS2: 150 mm

4 Notes for Operation

- · Do not use the sensor during the transient time of 100 ms after turning on the power supply.
- · If the sensor and the load are connected to different power supplies, the sensor must always be turned on first.
- · Do not install the sensor outdoors, nearby induction device, or heat source. Choose locations free from frequent vibrations, shocks, dust, toxic gases, water, oil, and chemicals, so as to prevent malfunctions and damage.
- · Do not expose the sensor to sunlight or other direct light projections.
- Do not use the sensor with drops of water remaining on the lens or aperture of slits. To remove dust and moisture build-up, use soft dry cloth. PMMA is used for optical elements. Do not use organic solvents such as ammonia, caustic soda, alcohol or thinner for cleaning.

↑ CAUTION

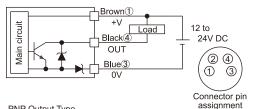
· Do not apply the voltage over the rated range or AC voltage, otherwise the switch may blow out or burn.

5 Wiring

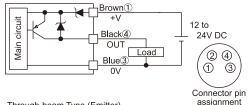
- · Turn off the power supply before wiring.
- · Connect correctly to prevent damage.
- · The power voltage must not exceed the rated range.
- · When using a switching power supply, be sure to ground the FG (frame ground) terminal.
- · Do not install the sensor wiring in the same conduit with high-voltage lines and power lines.
- · Cable extension is allowed up to 100m using a cabtyre cable with core wires of 0.3 mm² or more.
- · To connect the sensor with connector cable, tighten connector to a torque of 0.2 to 0.4N · m.

□WIRING DIAGRAM

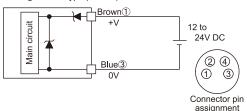
NPN Output Type



PNP Output Type

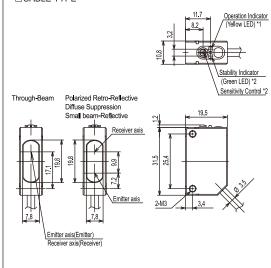


Through-beam Type (Emitter)

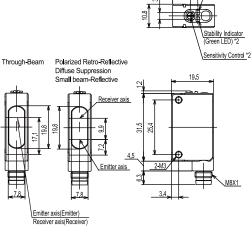


6 Dimensions

□CABLE TYPE



□CONNECTOR TYPE



- *1 Power LED for the through-beam type emitter.
- *2 Not incorporated on the through-beam type emitter.

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