Panasonic[®]

INSTRUCTION MANUAL

Safety Door Switch / Ultra-slim SG-A1 Series



MJE-SGA1 No.0078-94V

Thank you very much for purchasing Panasonic products. Read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference.

1 SAFETY CAUTIONS (Always observe)

In this operating instruction sheet, safety precautions are categorized to Warning and Caution:

MARNING Risk of death or serious injury.

5 : 5m

2 TYPE

Model No. : SG-A1-03-1

Door monitor __ L -Cable length contacts

03: 3NC **12**: 2NC+1NO

02:2NC

3 SPECIFICATIONS AND RATINGS

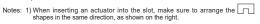
Applicable Standards		EN 60947-5-1:2017, GS-ET-15:2019				
Standards for Use		IEC 60204-1 / EN 60204-1, ISO 14119, EN ISO 14119, IEC 60947-5-1, UL 508, CSA C22.2 No.14				
Interlocking device Type / the level of coded		Type 2 Interlocking device / low level coded actuator (EN ISO / ISO 14119)				
Conformity Directive(s)		Machinery Directive (2006/42/EC) , Supply of Machinery (Safety) Regulations (2008/1597)				
Operating Condition	Operating Temperature	-25 to +70°C (no freezing)				
	Operating Humidity	45 to 85%RH (no condensation)				
	Storage Temperature	-40 to +80°C (no freezing)				
	Pollution Degree	3 (Inside2)				
	Altitude	2000m maximum				
Impulse withstand voltage <uimp></uimp>		4kV				
Rated Insulation voltage <ui></ui>		300V				
Thermal Current < Ith>		2.5A				
Contact Ratings				30V	125V	250V
(Reference Values) < Ue . le >			Resistive load(AC-12)	-	2.5A	1.5A
< Ue , le >		AC	Inductive load(AC-15)	-	1.5A	0.75/
		DC	Resistive load(DC-12)	2.5A	1.1A	0.55A
			Inductive load(DC-13)	2.3A	0.55A	0.27
Electric Shock Protection Class		Class II (IEC61140) 🗖				
Degree of Protection		IP67 (IEC60529)				
Vibration Resistance	Operating Extremes	300m/s ²				
	Damage Limits	1000m/s ²				
Shock Resistance	Operating Extremes	5 to 55 Hz, half amplitude 0.5 mm				
	Damage Limits	30 Hz, half amplitude 1.5 mm				
Operating Frequency		1200 operations/hour				
Operating Speed		0.05 to 1.0 m/s				
B _{10d}		2,000,000 (EN ISO 13849-1)				
Mechanical Durability		1,000,000 operations minimum (GS-ET-15)				
Direct Opening Travel		8 mm minimum				
Direct Opening Force		60 N minimum				
Contact Resistance		300 mΩ maximum (Initial value, at cable length 1m)				
Short-Circuit Protective Device		250V AC,10A Fuse				
Weight		Approx. 120g (at SG-A1-03-1)				

Ratings approved by safety agencies

(2) UL , c-UL rating C300 240 V AC, 0.75 A : Pilot duty AC15: 0.75A, 240 V AC DC13: 0.27A, 250 V DC Q300 250 V DC. 0.27 A : Pilot duty

4 MOUNTING

· Install the safety switch on the immovable machine or guard, and install the actuator on the movable door. Do not install both safety switch and actuator on the movable door, otherwise failure will occur.

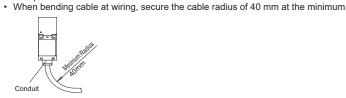




5 PRECAUTIONS FOR OPERATION

- Regardless of door types, do not use the safety switch as a door stop.

 Install a mechanical door stop at the end of the door to protect the safety switch against an excessive force.
- Do not apply an excessive shock to the safety switch when opening or closing the door. A shock to the safety switch exceeding 1,000 m/s² may cause failure.
- Do not fasten and loosen the conduit at the bottom of the safety switch.
- When wiring, make sure that liquid such as water and oil dose not intrude from



· Be sure to use the dedicated actuator only, and do not operate the SG-A1 series. Otherwise, the safety of the system may not be maintained.

∴WARNING

Turn off the power to the safety switch before starting installation, removal, wiring, maintenance, and inspection on the safety switch. Failure to turn power off may cause electrical shocks or fire hazard.

Do not disassemble or modify the switch. Also do not attempt to disable the safety switch function, otherwise a breakdown or an accident will result.

⚠CAUTION

- Mount the actuator so that it will not hit the operator when the door is open,
- Pay attention to the management of spare actuator. Safety function of door safety switch will be lost in case the spare actuator is inserted into the safety

Ensure that the actuator is firmly fastened to the door (welding, rivet, special screw) in the appropriate location, so that the actuator cannot be removed

- Do not cut or remodel the actuator otherwise failure will occur
- Performance Level according to EN ISO 13849-1 is reduced with series connected safety components due to decreased fault recognition.
- The overall concept of control system, into which the safety components has been integrated, must be validated in accordance with EN ISO 13849-2.

6 ADJUSTMENTS

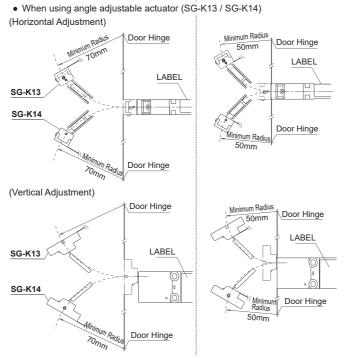
Minimum Radius of Hinged Door

When using the safety switch for a hinged door, the minimum radius of the applicable door is shown in the following figures.

When the center of the hinged door is on the extension line of the actuator mounting surface.

on the extension line of the contact surface of actuator and safety switch. • When using L-shaped actuator (SG-K12)



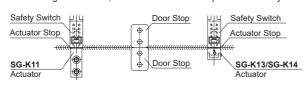


Notes: 1) The figures shown above are based on the condition that the actuator enters and exits the actuator entry slot smoothly when the door is closed or opened.

Since there may be deviation or dislocation of the hinged door, make sure of correct operation in the actual

Actuator Mounting Reference Position

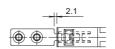
 As shown below, the mounting reference position of the actuator inserted into the safety switch is: The actuator stop touches the safety switch lightly. (After mounting the actuator, remove the actuator stop from the safety switch.)



Actuator Mounting Tolerance

Mounting tolerance of the actuator is 1.0mm from the center of the actuator to ±1.0mm up, down, right, and, left. ±1.0mm Center

Actuator can move 2.1mm from the mounting position without affecting the (Deviation of actuator position)+(Deviation of door position)≦2.1mm



nended Screw Tightening Torque

Name or Use	Recommended Screw Tightening Torque
For mounting the safety switch (M4 screw) (Note1)	1.0 to1.5N • m
For mounting the actuator (M4 screw) (Note1)	1.0 to1.5N • m

Adjusting the Angle Adjustable (vertical/horizontal) Actuator

- Using the angle adjustment screw (M3 hexagon socket set screw), the actuator angle can be adjusted up to 20° (refer to dimensions).
 The larger the actuator angle, the smaller the applicable radius of the door swing. After installing the actuator, open the door. Then adjust the actuator angle so that the actuator enters the entry slot of the safety switch properly.
 After adjusting the actuator angle, apply loctite or the like on the adjustment account to properly less report to prove the properly.
- screw to prevent loosening. Use screw locking agent that is compatible with the

base material.

Base : PA66 (66 nylon) of glass reinforced grade

7 WIRING

SG-A1-03-

Contact Configuration and Operation

: Contact closed : Contact oper

Contact Configuration 0.8 (Actuator Mounting Reference Position) O Approx. Approx 0 5.5 5.8 (Travel:mm) Approx.28.2 31 32 31-32 — 12 ⊝ 11-12 —22 ⊝ 21-22 SG-A1-12-33— _____34 33-34 21-22

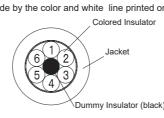
Specifications of cable UL style 2464, 6c×No.20AWG, (80°C 300V)

Identification of wire The identification of wire is made by the color and white line printed on the wire.

31-32

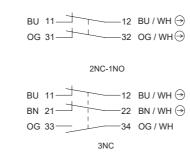
Actuator Completely Inserted)

No.	Color of Insulator			
1	Orange / White			
2	Blue / White			
3	Brown / White			
4	Brown			
5	Blue			
6	Orange			



Identification of terminal numbers

- . When wiring, the identification of terminal number on each contact is made by
- The following shows a safety (main) contact and an auxiliary contact for three contacts and two contacts types.



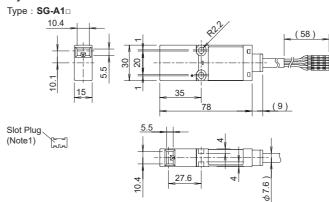
BU 11 — 12 BU / WH → BN 21 ______22 BN/WH 🗇 OG 31 ______32 OG/WH⊖

2NC

· When wiring, cut unnecessary wires such as dummy insulator (black) and / or unused wire to avoid incorrect wiring.

8 DIMENSIONS (mm)

Safety switch

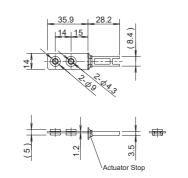


Safety Switch Mounting Hole Layout (Can be installed either frontwards or backwards)

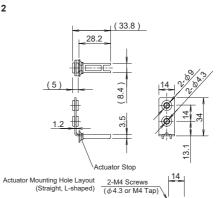


Actuator

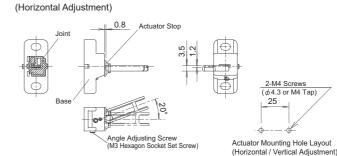
Type : SG-K11



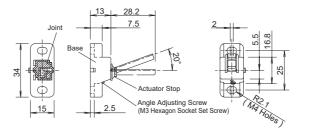
Type : SG-K12



Type : SG-K13

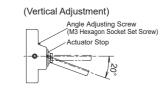


(Vertical Adjustment)



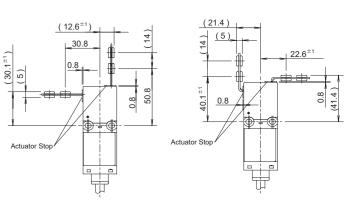
Type: SG-K14 (Horizontal Adjustment)





Notes: 1) SG-K13 and SG-K14 are different in the insertion direction of the metal key (180° Notes: 2) The direction of adjustable angle can be changed (vertical or horizontal) by changing the insertion direction of the joint (white plastic part). See the figures below.Do not lose the joints. Actuators do not operate normally

Actuator Mounting Reference Position



9 PRECAUTION FOR DISPOSAL

Dispose of SG-A1□ as an industrial waste

10 CE MARKING DECLARATION OF CONFORMITY

Itemized Essentials of EU Declaration of Conformity

Manufacturer's Name: Panasonic Industrial Devices SUNX Co., Ltd. Manufacturer's Address: 2431-1, Ushiyama-cho, Kasugai, Aichi 486-0901,

EU Representative's Name: Panasonic Marketing Europe GmbH Panasonic Testing Centre

EU Representative's Address: Winsbergring 15, 22525 Hamburg, Germany Product: Safety Door Interlock Switch Model Name: SG-A1 Series

Trade Name: Panasonio Application of Council Directive: 2006/42/EC Machinery Directive 2011/65/EU RoHS Directive

Applicable standards: EN 60947-5-1

GS-ET-15 EN IEC 63000

11 UKCA MARKING DECLARATION OF CONFORMITY

Itemized Essentials of UK Declaration of Conformity

Manufacturer's Name: Panasonic Industrial Devices SUNX Co. Ltd. Manufacturer's Address: 2431-1, Ushiyama-cho, Kasugai, Aichi 486-0901,

Authorized Representative: Panasonic Testing Centre on behalf of Panasonic

Panasonic UK, a branch of Panasonic Marketing Furone GmbH Maxis 2, Western Road, Bracknell, Berkshire, RG12 1RT

Product Name: Safety Door Interlock Switch

Trade Name: Panasonic
Model Number: SG-A1 Series

Statutory Instruments: 2008 No.1597 Supply of Machinery (Safety) Regula-

tions 2008

2012 No.3032 RoHS Regulations 2012

Designated Standards: EN 60947-5-1

GS-ET-15 EN IEC 63000

Panasonic Industry Co., Ltd. Panasonic Industrial Devices SUNX Co., Ltd.

Please visit our website for inquiries and about our sales network Panasonic Industrial Devices SUNX Co., Ltd. 2023 April, 2023

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