## Panasonic

## © CC , Min



## 1 SAFETY CAUTIONS A mays observe

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

| $\triangle$ WARNING | Risk of death or serious injury. |
| :--- | :--- |
| $\triangle$ CAUTION Risk of minor injury or property damage. |  |

## 2 TYPE



## 3 SPECIFICATIONS AND RATINGS




## Ratings approved by safety agencies

(1) TUVV rating | Main Lock Monitor |
| :---: |


Door Monition

(2) UL, cuLL rating


## 4 mounting examples

Instal the interlock switch on the immovable machine or guard, and install the ac-
tuator on the movable door. Do not install both interlock switch and actuator on the movable door, otherwise failure will occur.
See the figures below.

- See the figures below.



## 5 PRECAUTIONS FOR OPERATION

For Mounting
-
Regardless
Regardless of door types, do not use the safety switch as a door stop. Install a mechanicil door stop to the end of the door to protect the safety switch against ex-
essive force. When a higher load works on the lock portion of the safety switch,
the actuator may not unlock. Do not apply an excessive shock to the safety switch when opening or closing the
door.A shock to the safety switch exceeding $1,000 \mathrm{~m} / \mathrm{s}^{2}$ may cause failure. door. Ashock to the safety switch exceeding $1,000 \mathrm{~m} / \mathrm{s}^{2}$ may cause failure. Install a
Regardless of door types. do not use the safety switch as a door lock. Int al separate lock as shown in 3 Mounting Examples. Entry of foreign objects in the actuator entry slit may affect the mechanism of the
switch and cause a breakdown. If the operating atmosphere is contaminated, use switch and cause a breakdown. If the operating atmosphere is contaminated, use
a protective cover to prevent the entry of foreign objects into the switch through the actuator entry slots.
Whiergized, the switch temperature rises approximate-

 - When the actuator is locked or unlocked. the NC lock monitor contacts and NO Un-
lock monitor contacts cause bouncing. When designing a control circuit, take the


Do not fasten or loosen the conduit at the bottom of the safety switch.
When wiring, make sure that liquid such as water and oil does not intuit Wend of the cable, ene sure that liquid such as water and oil
When bending the cable during wiring, secure the ca-
ble radius of 30 mm at the minimum. Do not apply an
intrude from the excessive shock, such as tensile and compressing
force to the connection part of the cable and switch. force, to the connection part of the cable and switch. Use the proprietary actuators
cause damage to the switch.
Ensure that the safety suit
Ensure that the safety switch is installed on a flat
mounting surface, and provide mounting surface, and provide sufficient strength too
the mounting surface so that it will not be distorted
 during operation. Make sure that no foreign objects are
caught between the safety switch and
ed surface, or foreign objects may result in the malifurace. Uneven surface, distortcaught between the safatel switch and mounting surface. Uneven surface, distort-
ed surface, or foreign objects may result in the malfunction of safety switch.

## <circle>WARNIN G

Turn off the power to the safety switch before starting installation, removal, wir-
ing, 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 interlock switch function, otherwise a breakdown or an accident will result.

## $\triangle$ CAUTION

- Mount the actuator so that it will not hit the operator when the door is open, thervise injury may be caused.
Pay y intention to the management of actuator. Safety function of door interlock
switch will be lost in case the spare actuator is is inserted into the interlock switch. switch will be lost ti case the spare actuator is inserted into the interlock switch.
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 easily.
- Po . cut or remodel the actuator, otherwise failure will occur. Do not cut or remodel the actuator, otherwise failure will occur.
- Performance Level according to EN ISO $13849-1$ is reduced $w$.
ed safety components due to decreased fault recognition.
- The overall concent of control system int which
e overall concept of control system, into which the safety components has Magnet lock type
- This safety switch
This safety switch is designed to lock the actuator while the solenoid is energized
and to release it when deenergized When the power rot the solenoengid is is interrupted by accident, such as disconnec-
Win, Mon, the lock is released bet.
mai be exposed to hazards.
This safety switch
-This safety switch can be used only for limited applications which do not


## For Manual Unlocking

Spring lock type : The SG-B1 allows manual unlocking of the actuator to precheck
proper door operation before wiring or turning power on, as well as for emergency use such as a portion before Magnet lock type: if the actuator is not unlocked although the solenoid is deener-
gired, the actuator can be unlocked manually.

Manual Unlocks
(One each on the front and back)
(D)

Manual Unlocking Method
When using the manual unlock key
To change the normal position tot the manual unlocking position as shown above,
turn the key fully (90 degrees) using the proprietary key supplied with the switch. Using the switch witt he keys being not fulllypietred ted less
than 90 degrees) may cause damage to the switch or than 90 degrees) may cause damage to the switch or
eros When manually unlocked, the switch will keep the
main main circuit disconnected and the door unlocked.
When unlocking by pushing the plate inside the safety When ul
switch:
Remove
Remove the screw at the side of the safety switch and
insert a small screwdriver. Push the plate inside the safety
switch
insert a small screwdriver.Pust the plate inside the safety
switch toward the LED pilot light using a small screwdriver
switch howard the LD D pilot might sing a mat screwdriver
until the actuator is unlocked. See the figure on the right.

## $\triangle$ CAUTION

Before manually unlocking the safety switch, make sure the machine has come to
a complete stop. Manual unlocking during operation may unlock the switch before the machine stops, and the function of safety door switch with solenoid interlock is
lost.
While the solenoid is energized, do not unlock the actuator manually (magnet lock
type).

- type). - Do notion leave the manual unlock key attached to the swift Do not leave the manual unlock key attached to the switch during operation. This
is dangerous because the switch can always be unlocked while the machine is is dangerous because hes switch can always se unlocked while the e machine
in operation. Do not attach the key to to the switch
intentionally (the key is designed to fall of when the operator's hand is off the key)
Unlocking by pushing the plate inside the safety switch $m$ emergency only. After unlocking, make sure to to tighten the M4 st screw to the in tightening torque of of 0.3 to 0.5 N . m. Do on ot apply excessive force to the M4
screw. Otherwise the safety switch is damaged. Make sure that all screws are


## 6 ADJUSTMENTS

- When using the safety switch for a hinged door, the minimum radius of the applica






## - The values shown above are based on the condition that the actuator enters and exits the actuator entry slot smoothy and When the door aid closets the a actuator) entry slot smoothly ton or dislocation of the the hay bed elia operation in the actual application before e installation. When inserting an actuator int tithe slot, make sure to arrange the in shape

Mounting SG-K12A actuator



## $\triangle$ CAUTION

The above recommended tightening torques of the mounting screws are the
values confirmed with hex socket head bolts. When other screws are used values conf med wile fer soche, make sure that the screws do dot come loose a after
tightened to a smaller tor tightened to
mounting.
or the Adjustable (vertical/horizontal) Actuator
Using the angle adjustment screw (M3 hexagon socket set screw), the actuator
angle can be adjusted up to $200^{\circ}$ (refer to dimensions). The larger the actuator angle, the smaller the applicable radius of the door swing
 After adjusting the actuator angle, apply loctite or the like on the adjustment
screw to prevent loosening. Use screw locking agent that is compatible with the base material.
Base: PA 66
base material.
Base: PAA66 ( 66 nylon) of glass reinforced grade
Angle adjustment screws: stainless steel

Installing the Safety Switch and Actuator

and the safety switch surface ( $\because 3$ )
SG-K11
SGG-K12
SG -Ki
SG-K14. 1.9mm or shorter
SG-K12A: 1.3 .mm or shorter
To ensure correct operation, it is recommended to fasten the door using a latch to achieve the above tolerance values.
Perform
operationeration test before starting operation in order to confirm the open/close operation of contacts and locking/unlocking operation.
When the actuator is pulled while locked in the safety switch, the actuator moves

The open/close status of the contacts are maintained within the range. When a gap
is cussed because of actuator relocation, make sure that the gap does not lead to
new risks new risks.


## 

 When installing the actuator, positionthe actuator
 when inserted in the safety switch is where the actuator stop touches the Install a ad
right top protect the safety switch and actuator against excessive force. Do
not use the safety switch as a door stop, otherwise the safety switch will
be damaged. After removing the actuator stop,
ensure that the actuator is installed


## 7 CONTACT OPERATION AND WIRING

| Type | Contact Configuration |
| :---: | :---: |
| SG-B1-A |  |
| SG-81--B |  |



Contact operation is based on the condition that the actuator is inserted into the
center of the safety switch slot Contact operation show sthth sG-K11, SG-K12, SG-K13, SG-K14 actuator
 circuit inputs. Indicator turns on when solenoid is energize
Operation Cycle

- Spring Lock Typ

- Magnet Lock Type (SG-B1-Ma)

$\triangle$ CAUTION
( 1 )Do not attempt manual unlocking when the solenoid is energized.
(2))Do not energize the solenoid for a long time while the door is open or when the door is unlocked manually.

Wiring


Terrminal number identification

- When wiring, the terminal num
The following the terminal number on each contact is identified by wire color. When wiring, cut unnecessary wires such as unused wires to
When wiring, cut unnecessary wires such as unused wires to avoid incorrect wir-
ing.

| Circuit No . | Insulator Col | Circuit No . | sulator Col |
| :---: | :---: | :---: | :---: |
| 11 | Bue | 31 | Orange |
| 42 | Blue /White | 32 | Orange / White |
| 21 | Brown | ${ }^{51,53}$ | Pink |
| 22 | BrownWhite | 52.54 | Pink/ White |
|  |  | A1(-) | Black |

## 8 DIMENSIONS (mm)

Dimensions
Straight (


L-shaped Actuator(SG-K12A)


Manual unlock key (supplied)
Manua unock erey

Mounting Hole Layout
( when mounted on the front side) (Note1)
mounting mounting holes as specified, and instal the safety switch using three mounting screws. Do not instal the switch using only one or two mounting screws,
otherwise the safety switch will hot be fixated properly, resulting in the malfunction of safety switch.


Actuator(Sold separately)


Type: sG-K12

(Verical Adjustment)


Type : SG-K1
(Horizontal Adjustment)

(Vertical Adjustment)
-

The direction of adjustable angle can be changed (vertical or horizontal) by chang-
 (䇾

## 9 PRECAUTION FOR DISPOSAL

## Dispose of SG-B1ם 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.

EU Representative's Address: Winsbergring 15, 22525 Hamburg, Germany
Product: Safety Door Switc with Solenoid Interlock
Model Name: SG-B1 Series

Applicable standards: EN 60947-5-1/1/65/EU RoHS Directive
EN 6097-5-1
GS.ET-19
EN IEC 63000
GS-ET-19
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 Europe GmbH
Maxis 2 , Western Road, Bracknell, Berkshire, RG12 Product Name: Safety Doo Trade Name. Per:
Model Number
Statury
Statutory Instruments: 2008 No. 1597 Supply of Machinery (Safety) Regulations 2008 2012 No. 3032 RoHS Regulations 2012
Designated Standards EN $60947-5-1$
GS-ET-1.
EN IEC 63000

Panasonic Industry Co., Ltd.

