Honeywell

FF-SNC

Safety Non Contact Switch
Instructions for use

Suitable for interfaces up to CATEGORY 3 per EN 954-1

C UL US LISTED

⚠ WARNING

IMPROPER INSTALLATION

- Consult with US and/or European safety agencies and their requirements when designing a machine control, interface and all control elements that affect safety.
- Strictly adhere to all installation instructions.

Failure to comply with these instructions could result in death or serious injury.

PRODUCT DESCRIPTION

The FF-SNC Honeywell safety non contact switch is a tamper resistant safety system for monitoring machine guards. The actuator being a passive component, the safety switch is the only component that needs to be wired to the control unit and cannot be defeated by a regular magnet.

Each system is made up of one or several safety switches, actuators and a control unit. The Honeywell FF-SNC safety non contact switches are designed in compliance with the requirements of the EN 954-1 European Standard for Category 3 Protective Devices.

The FF-SNC is especially suited for applications where perfect door alignment can not be attained. The FF-SNC Series can be mounted on sliding, hinged or removable machine guards. The output of the control unit is triggered as soon as the distance between the safety switch and the actuator is greater or equal to 8 mm / 0.32 in. This switching distance compensates for the machine vibration or a minor issue with the installation alignment. The sensor and actuator small size makes it usable under tight space requirements. The safety switches and the actuators provide excellent chemical and mechanical resistance. Stainless steel housing versions fulfil the requirements of the Food and Beverage industry.

The FF-SNC400 safety control unit comes in a 75 mm / 2.95 in package and can monitor up to 4 sensors.

The FF-SNC200 safety control unit with its 22,5 mm / 0.89 in width will easily find a place in the electrical cabinet and can monitor 2 sensors. Both control units can be placed up to 100 m / 328 ft away from the safety non contact switches. The indicators located on the front cover of both control units provide individual door status information.

The FF-SNC1EXT extension module can be added to the FF-SNC400 or FF-SNC200 control unit and allows the connection of 5 additional sensors.

APPROVALS

CE	The product, packaging and documentation of FF-SNC Series products is CE mark following an examination by TÜV.
cULus	This product is pending approval at Underwriters Laboratories Inc. According to Canadian and U.S. safety requirements.

DIRECTIVES COMPLIANCE

Machinery Directive 98/37/EC
Low Voltage Directive 73/23/EC
Electromagnetic Compatibility Directive 89/336/EC

REGULATIONS COMPLIANCE

Regulation	Title
OSHA 29 CFR 1910.212	General Requirements for (guarding of) all Machines
OSHA 29 CFR 1910.217	Requirements and Safeguarding of Mechanical Power Presses

STANDARDS COMPLIANCE

Standard	Title
EN 292	Safety of Machinery – Basic Concepts, General Principles for Design
EN 60204	Safety of Machinery – Electrical Equipment of Machines
EN 954-1	Safety of Machinery – Safety related parts of control system
EN 1088	Interlocking Devices associated with Guards
EN 60947-5-3	Safety of Machinery – Specification for low voltage switchgear and control gear
ANSI B11.1	Construction, Care and Use of Mechanical Power Presses
ANSI B11.2	Construction, Care and Use of Hydraulic Power Presses
ANSI B11.19	Safeguarding Performance Criteria for the Design, Construction, Care and Use
ANSI/RIA R15.06	Safety Requirements for Industrial Robots and Robot Systems
UL 508	Industrial Control Equipment
UL 991	Test for Safety related Controls employing solid state devices
NFPA79	Electrical Standard for Industrial Machinery

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SPECIFICATIONS

Switch	
Material	ABS (FF-SNC1SA□□PA-□) or Stainless Steel 316 and Resin filled (FF-SNC1SA□□PS)
Sensing range	5-7 mm / 0.20-0.27 in On; 8-12 mm / 0.32- 0.47 in Off; allowable misalignment: ±4mm / ±1/6 in.
Minimum gap	1 mm
Standard cable length	Prewired 3 m / 9.84 ft or 5 m / 16.4 ft (ABS only) - M8 plug: 5 m / 16.4 ft (ABS only)
Temperature	-10 °C to +55 °C / 14 °F to 131°F (operating), -20 °C to + 60 °C / -4 °F to 140 °F (storage)
Connection to the control unit	Max. Cable length: 100 m / 328 ft*
Sealing	IP 67 prewired or M8 plug
Fixing	2 x (M4x20 mm) Tamper proof screws (supplied with the product)
Control unit / Extension module	
Category	Category 3 according to EN 954-1
Supply voltage	24 Vdc/Vac ±15 % / 110 Vac ±15 % (FF-SNC400RE only)
Internal fuse	500 mA resetable
Internal fuse recovery time	> 2 seconds
Response time of the control unit	15 ms (with or without extension module)
Power consumption (including sensors)	6 VA (with or without extension module): FF-SNC400 3 VA (with or without extension module): FF-SNC200
Operating temperature	-10 °C to + 55 °C / 14 °F to 131 °F
Storage temperature	-20 °C to 60 °C / -4 °F to 140 °F
Output	2 NO + 1 NC contacts
Output contact rating (max.)	4 A/230 Vac; 2 A / 24 Vdc (Res.) @Cos=1
Output contact rating (min.)	10 V / 10 mA
Restart	Manual or automatic
Sealing	IP 40 Housing, Terminals IP 20
Mounting	35 mm / 1.37 in DIN rail
Max. conductor size	1 x 2.5 mm stranded with sleeves, 1 x 4 mm solid
Installation group (control unit)	C in accordance with VDE0110
Contamination level	III
Vibration resistance	Amplitude 2 mm, frequency 10 to 55 Hz
Material	Polycarbonate, red

***** *Use single core shielded cable to lengthen connections between the sensors and the control unit (0,65 to 0,75 mm diameter or 22 AWG)*

MOUNTING DIMENSIONS (mm/in) for reference only

Figure 1: FF-SNC Control unit

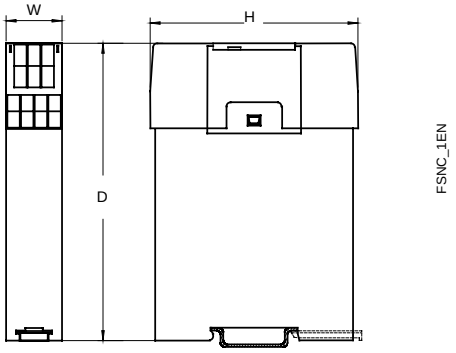
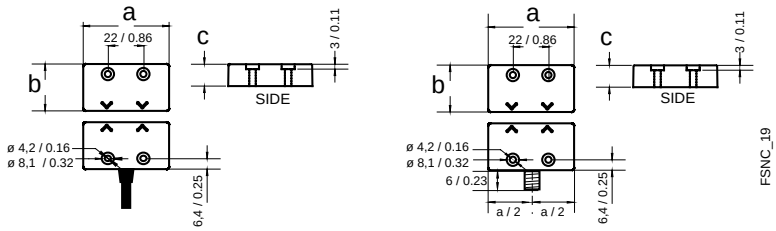
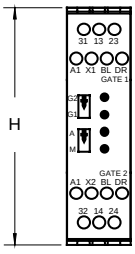


Figure 2: Prewired M8 plug



In mm/in



	FF-SNC200R2 / FF-SNC1EXT	FF-SNC400R2 / FF-SNC400RE
W	22,5 / 0.88	75 / 2.95
H	84 / 3.30	74 / 2.91
D	119 / 4.68	119 / 4.68

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	a	b	c
ABS	52 / 2.04	28 / 1.10	14 / 0.55
SS316	53 / 2.8	29 / 1.14	13.5 / 0.53

AUTONUM

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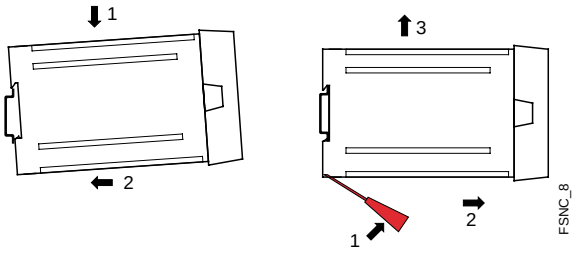
MECHANICAL INSTALLATION

The FF-SNC Control unit must be installed inside a NEMA 3 (IEC IP 54) rated enclosure or better. The module can be clipped easily onto a 35 mm (1.38 in) width DIN rail (see figure 3 for installation and removal).

Figure 3 - installation diagram

Installation: **Removal:**



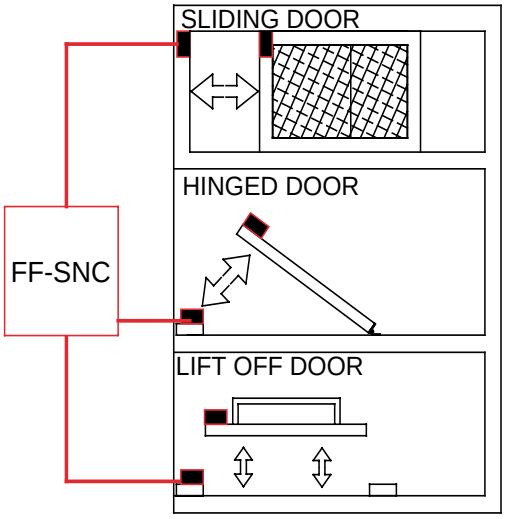
The FF-SNC control unit is designed to fit standard 35 mm/ 1.37 in symmetric DIN rail.

To remove: Place the tip of a small screwdriver into the white catch at the bottom of the box (1) and gently lever out.
This releases the retaining clip and allows the unit to be tilted (2) and removed (3).

MOUNTING SAFETY SWITCH SENSORS

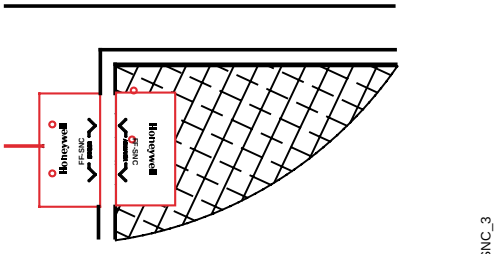
The FF-SNC safety swiches can be fitted to sliding, hinged or removable machine guards. Mount the fixed part of the safety switch to the machine frame and the actuator on to the opening edge of the door ensuring that the targets on the printed faces of the switches are aligned (see Fig. 4).

Figure 4



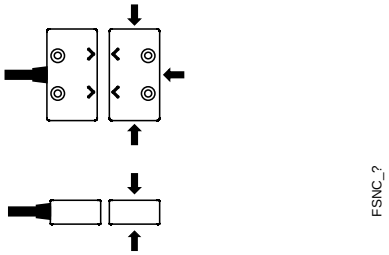
GUARD SWITCHES

Figure 5



GUARD DOOR

Figure 6



The gate switches can approach each other from any angle (Fig. 6), but must end up with the arrows on the printed face pointing towards each other. Mount the fixed part of the safety switch to the machine frame and the actuator onto the opening edge of the door (Fig. 5).

The FF-SNC safety switch sensors have 2 fixing holes and are supplied with M4x20 mm Torx Proof screws to be specified.

Figure 7

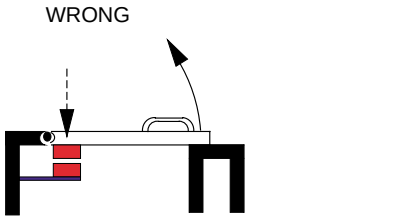
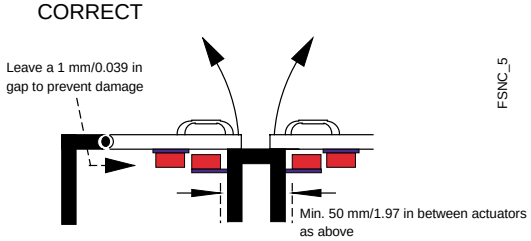


Figure 8



CAUTION

DO NOT enlarge the fixing holes!

Failure to comply with these instructions will result in product damage.

⚠ WARNING

SAFETY DISTANCES

- The product “off” sensing range may delay the detection of the guard opening
- Always design and install the guard at a safe distance from the point of operation. Refer to proper standard for calculating safety distances.

Failure to comply with these instructions could result in death or serious injury.

NOTICE

- Always try to mount the switch and actuator on non-ferrous material. Ferrous materials will reduce the switching distance.
- The sensors should be mounted with a gap of approximately 1 mm/0.039 in (Fig. 8). When the guard is closed, this gives a good level of lateral tolerance to allow for "gate sag" and freedom from nuisance tripping due to machine / guard vibration.
- Leave a minimum gap of 50 mm/1.97 in between actuators as above (Fig. 8).

⚠ DANGER

IMPROPER HINGED DOOR INSTALLATION

On a hinged door, do not mount the switch and actuator close to the hinge (Fig. 7) in order to prevent the door from being opened while the switch is still in the scanning range specifications (State ON).

Failure to comply with these instructions will result in death or serious injury.

⚠ WARNING

IMPROPER SWITCH INSTALLATION

EN 1088 provides some mounting suggestions, see examples below.
When fixing the switches to a sliding door (see Fig. 9), ensure that when the door is opened (see Fig. 10), the switch is not easily accessible, helping prevent the system from being overridden.

Failure to comply with these instructions will result in death or serious injury.

Figure 9

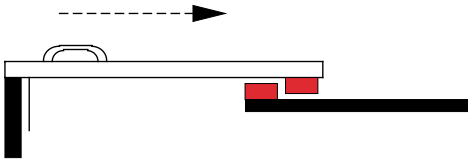
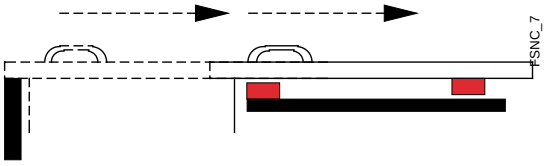


Figure 10



Refer to the European standards EN 811, EN 953, EN 294

LID REMOVAL AND SWITCH SELECTION

⚠ WARNING

ELECTRICAL SHOCK

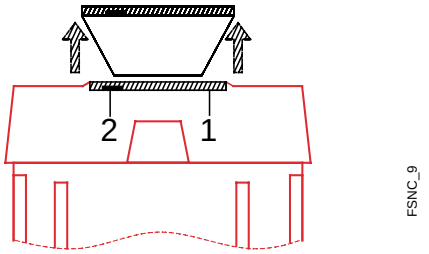
Remove power from FF-SNC switches and before setup. Ensure that installation is performed by qualified personnel.

Failure to comply with these instructions could result in death or serious injury.

LID REMOVAL

The central part of the FF-SNC lid (1) is removable. Using a small screwdriver in the recess (2) gently prise the lid upwards.
This allows access to the Guard Selector Switch and to the automatic and restart mode selector switch.

Figure 11



SWITCH SELECTION

Using the GATE SWITCH SELECTOR Switch, set the FF-SNC to the required number of inputs.

NOTICE

The number of inputs (safety switches) must match the gate selector setting. Any difference will prevent the system from operating.

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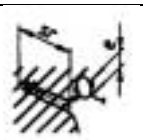
❒ Safety Distance Calculations per European EN 294 standard

The dimensions of openings correspond to the narrowest dimension of a slot opening (for openings greater than 120 mm/ 4.72 in, refer to the EN 294 standard).

Safety distances *sr* for regular openings for persons of 14 years of age and above:

Part of body	Illustration	Opening size	Safety distance *sr*
			Slot
Fingertip		$e \leq 4$	**≥** 2
		$4 < e \leq 6$	**≥** 10
Finger up to knuckle joint		$6 < e \leq 8$	**≥** 20
		$8 < e \leq 10$	≥ 80
Or		$10 < e \leq 12$	**≥** 100
		$12 < e \leq 20$	**≥** 120
hand		$20 < e \leq 30$	**≥** 850[a]
Arm up to junction with shoulder		$30 < e \leq 40$	**≥** 850
		$40 < e \leq 120$	≥ 850

[a] If the length of the slot opening is ≤ 65 mm /2.56 in, the thumb will act as a stop and the safety distance can be reduced to 200 mm/7.88 in.

❒ Safety Distance Calculations per US ANSI / OSHA standard

$$Ds = K(Ts + Tc + Tr) + Dpf$$

With:

Ds = minimum safe distance between safeguarding device and hazard

K = speed constant: 1,6 m/sec (63 in/sec) minimum based on the movement being the hand/arm only and the body being stationary (a greater value may be required in specific applications and when body motion must also be considered)

Ts = worst stopping time of the machine/equipment

Tc = worst stopping time of the control system

Tr = response time of the safeguarding device including its interface (Tr for interlocked barrier may include a delay due to actuation. This delay may result in Tr being a deduct– negative value).

Dpf = the "Depth penetration factor" is the maximum travel towards the hazard if the guard can be opened a certain width or amount before a stop is signaled.

Dpf values from OSHA O-10 Table:

If the maximum width or diameter of the opening is less than or equal to (mm/in):	Dpf equals (mm/in.)
6,4 / 0.25	12,7 / 0.5
9,5 / 0.375	38,1 / 1.5
12,7 / 0.5	63,5 / 2.5
15,9 / 0.625	88,9 / 3.5
19,1 / 0.75	139,7 / 5.5
22,2 / 0.875	165,1 / 6.5
31,8 / 1.25	190,5 / 7.5
38,1 / 1.5	317,5 / 12.5
47,6 / 1.875	393,7 / 15.5
54,0 / 2.125	444,5 / 17.5
152,4 / 6	800 / 31.5
Above 152,4 / 6	Not allowed

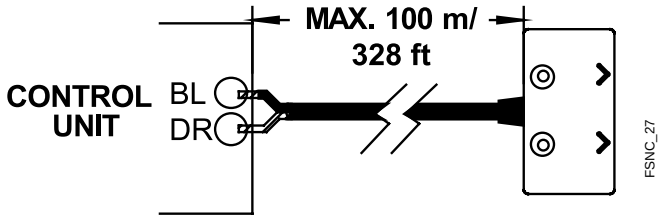
Example: Dpf = 0,5 when the guard can be opened up to, but less than 6,4 mm / 0.25 in before issuing a stop command. Dpf = 444,5 mm / 17.5 in if the guard can be opened 54 mm / 2.125 in. At no time can the opening be greater than 152,4mm / 6 in before issuing a stop command.

For more information, refer to the US regulations and standards (OSHA 29 CFR 1910.212 & 1910.217, ANSI B11.19 and ANSI/RIA R15.06).

Connecting switches to the control unit:

The safety switches are supplied with 3 or 5 metres of cable encapsulated into the fixed switch. This ensures a completely water-tight connection at the switch. Cables can be extended using the same type of screened cable.
Run the cable back to the control unit through cable protection (if required) and terminate into the appropriate control unit input channel.
Follow the colour coding of the wires to the labels on the control unit input terminals.
i.e. BLUE wire to BL and DRAIN wire to DR.

Figure 12



NOTICE

USE THE GATE INPUTS IN SEQUENCE. EXAMPLES:
One Guard System – Use input 1 on the FF-SNC200 (or input 1 on the FF-SNC400 if E-Stop function required);
Three Guard System – Use inputs 1, 2 & 3 on the FF-SNC400.
Seven Guard System – Use inputs 1, 2 & 3 for Guard Switches on the FF-SNC400 and Input 4 to connect to the FF-SNC1EXT Extender module Bus connection. Then use inputs 1, 2, 3 & 4 on the FF-SNC1EXT.

CAUTION

When connecting switches to the control unit, always remove power from the control unit to avoid short-circuits between the switches screened cables DRAIN and power.

Failure to comply with these instructions will result in product damage.

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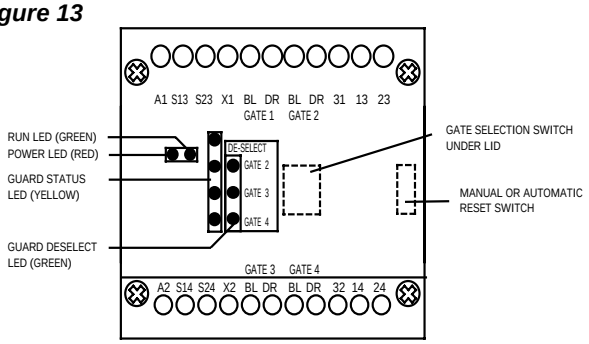
WIRING DIAGRAMS

1/ FF-SNC400 Connections

Power supply: 24 Vac/dc; 110 Vac
Power supply fusing: Internal resetable fuse with 2 second delay after fault removal.

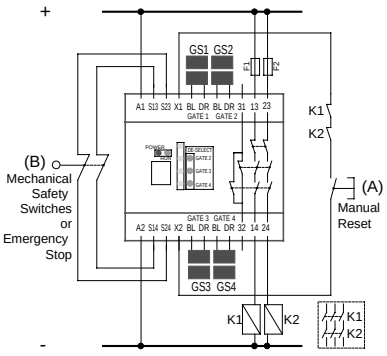
Figure 13



FSNC_12

FF-SNC400R2

Figure 14



FSNC_17

(A): if the automatic restart is set, X1 and X2 must be jumpered for correct operation.
(B): If a mechanical safety switch or an Emergency stop is not used, S13/S14 and S23/S24 must be jumpered for correct operation.

Reset and Monitoring: The X1, X2 circuit is for reset buttons and/or monitoring external contactors.
Set to Manual Reset (see table) a normally open momentary push-button must be pressed and released as it is monitored for short-circuit faults.
Set to Automatic Reset, link X1, X2 and the system will reset when all active guards are closed.
To Monitor External Contactors (K1 & K2), place a normally closed contact off each contactor in series with X1 & X2 (with or without a reset button as required). If either K1 or K2 welds during operation, the other contactor will operate correctly and on the next demand on the safety system, the X1 & X2 circuit will prevent a restart. Use Positively Guided Contact relays for K1 & K2 if monitoring required.

Control contacts: Two sets of positively guided N/O safety contacts on terminals 13,14; and 23,24 (rating 4 Amps). One auxiliary NC contact, (31-32). External fusing is recommended.

Emergency stop monitoring: Dual channel emergency stop buttons and/or mechanical safety switches can be monitored using the S13/S14 & S23/S24 circuits. It this feature is not used, link terminals S13 to S14 and S23 to S24.

Operation: When power is applied to the control module, the RED “Power Led” will illuminate. The GREEN “De-select” indicators will show how many guard switch inputs are activated. NOTE: The number of inputs selected must match the number of guard switches, or the system will not operate. The YELLOW “Guard status” indicators will be illuminated if the guard is closed or be permanently on if the guard is de-selected.
If all the monitored machine guards are closed, the EMERGENCY STOP buttons (when used – jumper S13 with S14 and S23 with S24 if NOT used) are re-set and the RE-SET button is pressed and released (Manual Re-set Option), the control relays will energize, closing the normally open safety contacts on terminals 13,14 / 23, 24 and opening the normally closed auxiliary contact 31 & 32. The GREEN Run LED will illuminate. If set to automatic re-set (i.e. link in X1 & X2), the control relays will energize when all active guards are closed and the emergency stop button(s) are re-set. Faults on the safety switch cables, either open or short-circuit will be detected immediately causing the control relays to de-energize.
Single faults on the Emergency stop contacts will be detected upon the next demand and will prevent a restart.

Figure 15

FF-SNC400 Guard Selection Switch & indication

Guard Indication (Yellow)	De-Select Indicator (Green)	Channel Selector Switch	Operation
1 ☼ 2 ○ 3 ○ 4 ○	○ ○ ○	2 3 4	1-gate operation - Yellow LED No. 1 active (off when corresponding gate is opened). All other yellow gate indicators will remain illuminated. No green LED's illuminated.
1 ☼ 2 ☼ 3 ○ 4 ○	● ○ ○	2 3 4	2-gate operation - Yellow LED's No. 1 and 2 active (off when corresponding gate is opened). All other yellow gate indicators will remain illuminated. Top green LED illuminated.
1 ☼ 2 ☼ 3 ☼ 4 ○	● ● ○	2 3 4	3-gate operation - Yellow LED's No. 1, 2 and 3 active (off when corresponding gate is opened). All other yellow gate indicators will remain illuminated. Top two green LED's illuminated.
1 ☼ 2 ☼ 3 ☼ 4 ☼	● ● ●	2 3 4	4-gate operation - Yellow LED's No. 1, 2, 3 and 4 active (off when corresponding gate is opened). All three green LED's illuminated.

FF-SNC400 Reset and Monitoring Switch

Reset Switch Position	Operation
up / down	Automatic Reset Link required between terminal X1 & X2. FF-SNC400 will reset when all active guards are closed.
up / down	Manual/Monitored Reset requires a reset button in the X1-X2 connection. The system will reset when all guards are closed and the reset button is pressed and released. The reset button is monitored for faults.

FSNC_13b

○ = LED off ● = GREEN LED on ○ = YELLOW LED on ☼ = LED active (off when corresponding gate is opened)

Note: the yellow LED is permanently off if the corresponding gate is selected and corresponding switch is disconnected or vice versa.

2/ FF-SNC200 Connections

Power supply: 24 Vac/dc

Power supply fusing: Internal resetable fuse with 2 second delay after fault removal.

Figure 16

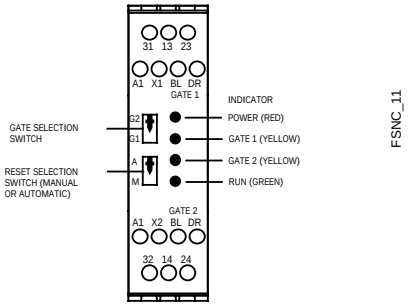
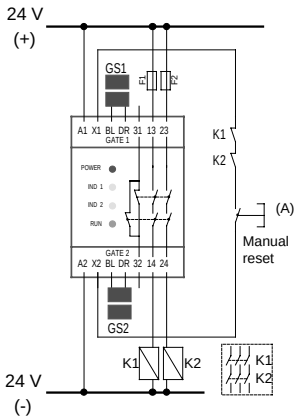


Figure 17

FF-SNC200R2



(A): if the automatic restart is set, X1 and X2 must be jumpered for correct operation.

Reset and Monitoring: The X1, X2 circuit is for reset buttons and/or monitoring external contactors.
Set to Manual Reset (see table) a normally open momentary push-button must be pressed and released as it is monitored for short-circuit faults.
Set to Automatic Reset, link X1, X2 and the system will reset when all active guards are closed.
To Monitor External Contactors (K1 & K2), place a normally closed contact off each contactor in series with X1 & X2 (with or without a reset button as required). If either K1 or K2 welds during operation, the other contactor will operate correctly and on the next demand on the safety system, the X1 & X2 circuit will prevent a restart. Use Positively Guided Contact relays for K1 & K2 if monitoring required.

Control contacts: Two sets of positively guided N/O safety contacts on terminals 13,14; and 23,24 (rating 4 Amps). One auxiliary NC contact, (31-32). External fusing is recommended.

Operation: When power is applied to the control module, the RED “Power Led” will illuminate. The number of inputs selected must match the number of guard switches, or the system will not operate. The YELLOW “Guard status” indicators will only be illuminated if the selected guard is closed or be permanently on if the guard is de-selected.
If all the monitored machine guards are closed and the RESET button is pressed and released (Manual Reset Option), the control relays will energize, closing the normally open safety contacts on terminals 13,14 / 23, 24 and opening the normally closed auxiliary contact 31 & 32. The GREEN Run LED will illuminate.
If set to automatic reset (i.e. link in X1 & X2), the control relays will energize when all active guards are closed. Faults on the safety switch cables, either open or short-circuit will be detected immediately causing the control relays to de-energize.

Figure 18

FF-SNC200 Guard Selection Switch & indication

Gate Indication (Yellow)	Gate Selector Switch	Operation
red 1 yel 2 yel gr	up down	1-gate operation - Yellow LED No. 1 active (off when gate 1 is opened). Yellow LED No.2 will remain illuminated.
red 1 yel 2 yel gr	up down	2-gate operation - Yellow LED's 1 & 2 active (off when corresponding gate is opened).

FF-SNC200 Reset and Monitoring Switch

Reset Switch Position	Operation
up down	Automatic Reset Link required between terminal X1 & X2. FF-SNC200 will reset when all active guards are closed.
up down	Manual/Monitored Reset requires a reset button in the X1-X2 connection. The system will reset when all guards are closed and the reset button is pressed and released. The reset button is monitored for faults.

FSNC_13c

= LED on = LED active (off when corresponding gate is opened)

Note: the yellow LED is off if the corresponding gate is selected and the corresponding switch is disconnected or vice versa.

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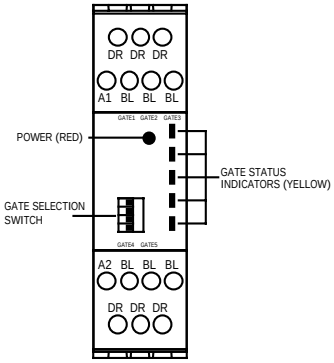
3/ FF-SNC1EXT Connections

Power supply: 24 Vac/dc

Power supply fusing: Internal resetable fuse with 2 second delay after fault removal.

Figure 19

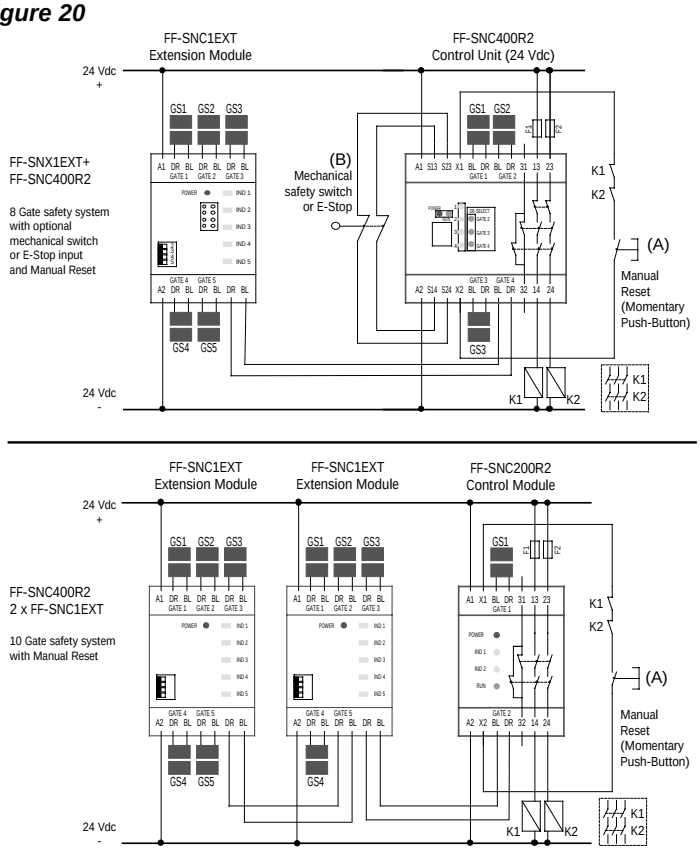


Application notes:

Up to 28 gates can be protected, using 6 extension modules with the FF-SNC400. The FF-SNC1EXT extension modules can only be used with control units.

FF-SNC1EXT

Figure 20



(A): if the automatic restart is set, X1 and X2 must be jumpered for correct operation.

Connection to main control unit: The FF-SNC1EXT can be connected to any active guard switch input on an FF-SNC200R2 or FF-SNC400R2. Connect the 2-wire BUS (BL DR) terminals on the FF-SNC1EXT module to any activated guard input on the main control module. (Max. distance: 100 metres / 328 ft).

NOTICE

When connecting the 2-wire bus between units, comply with the “BL DR” polarity.

Operation: When power is applied to the control module, the RED “Power Led” will illuminate. The number of inputs selected must match the number of guard switches, or the system will not operate. The YELLOW “Guard Status” indicators will only be illuminated if the selected guard is closed or be permanently on if the guard is de-selected.

⚠ DANGER

IMPROPER EXTENSION MODULE WIRING AND SET UP

- NEVER use the FF-SNC1EXT extension module as a stand alone module. It must be connected to the FF-SNC400R2, or FF-SNC200R2 master module, to operate correctly.
- Generally speaking, do NOT use the FF-SNC1EXT extension module if the master module (FF-SNC400R2, or FF-SNC200R2) can support all sensors needed in the application.
- When use of the FF-SNC1EXT extension module is required, it should be connected to the last input available on the master module, ie "gate 4" for the FF-SNC400R2 or "gate 2" on the FF-SNC200R2.
- If exceptionally the FF-SNC1EXT extension had to be used although inputs available on the master module are not all used, make sure the extension module is connected to the next available input. For example, if only 2 sensors are connected on the FF-SNC400R2 4-gate master module, the sensors would have to be connected to "gate 1" and "gate 2" inputs and the extension module would have to be connected to "gate 3".
- Selector switches on the extension module and on the master module should always be positioned to reflect and match the exact number of inputs in use, whatever is connected to these inputs (a sensor or an extension module).
- When installing or modifying an FF-SNC system, ALWAYS test correct operation by opening and closing each gate separately. When all gates are closed and the master module reset, the master module safety outputs 13-14 & 23-24 should be ON. When any of the gates is opened, the safety outputs 13-14 & 23-24 should go OFF.

Failure to comply with these instructions will result in death or serious injury.

Figure 21

FF-SNC1EXT Guard Selector Switch & indication

Guard Indication (Yellow)	Channel Selector Switch	Operation
IND 1 (on), IND 2, IND 3, IND 4, IND 5	G2, G3, G4, G5	1-gate operation - Yellow LED No. 1 active (off when gate 1 is opened). All other gate indicators remain illuminated.
IND 1 (on), IND 2 (on), IND 3, IND 4, IND 5	G2, G3, G4, G5	2-gate operation - Yellow LED No. 1 & 2 active (off when corresponding gate is opened). IND 3, 4 & 5 remain illuminated.
IND 1 (on), IND 2 (on), IND 3 (on), IND 4, IND 5	G2, G3, G4, G5	3-gate operation - Yellow LED No. 1, 2 & 3 active (off when corresponding gate is opened). IND 4 & 5 remain illuminated.
IND 1 (on), IND 2 (on), IND 3 (on), IND 4 (on), IND 5	G2, G3, G4, G5	4-gate operation - Yellow LED's No. 1, 2, 3 & 4 active (off when corresponding gate is opened). IND 5 remain illuminated.
IND 1 (on), IND 2 (on), IND 3 (on), IND 4 (on), IND 5 (on)	G2, G3, G4, G5	5-gate operation - Yellow LED's No. 1,2,3,4,& 5 active (off when corresponding gate is opened).

= LED on = LED active (off when corresponding guard is open) = Switch on the left = Switch on the right

FSNC_13d

Note: the yellow LED is off if the corresponding gate is selected, and the corresponding switch is disconnected or vice versa.

Ordering information:

Part number	Description	Weight
FF-SNC200R2	24 Vdc/Vac Control unit for monitoring up to 2 gates:	Max. 183 g / 0.403 lb
FF-SNC400R2	24 Vdc/Vac Control unit for monitoring up to 4 gates:	Max. 575 g / 1.26 lb
FF-SNC400RE	110 Vac Control Unit for monitoring up to 4 gates:	Max. 575 g / 1.26 lb
FF-SNC1EXT	Extension Module	Max. 135 g / 0.297 lb
FF-SNC1SA03PA	Safety switch + actuator, 3 m / 9.84 ft cable, ABS housing	Max. 150 g / 0.330 lb
FF-SNC1SA05PA	Safety switch + actuator, 5 m / 16.40 ft cable, ABS housing	Max. 200 g / 0.441 lb
FF-SNC1SA03PS	Safety switch + actuator, 3 m / 9.84 ft cable, stainless steel 316 housing	Max. 250 g / 0.551 lb
FF-SNC1SA05PS	Safety switch + actuator, 5 m / 16.40 ft cable, stainless steel 316 housing	Max. 300 g / 0.662 lb
FF-SNC1SA05PA-QD	Safety switch + actuator + M8 cordset, 5 m / 16.40 ft cable, ABS housing	Max. 350 g / 0.771 lb
FF-SNC1SA05PS-QD	Safety switch + actuactor + M8 cordset, 5 m / 16.40 ft cable, stainless steel 316 housing	Max. 450 g / 0.992 lb
FF-SNC1ACS	Actuator Only: Stainless Steel Housing	Max. 265 gr / 0.584 lb
FF-SNC1ACA	Actuator Only: ABS Housing	Max. 207 gr / 0.456 lb
FF-SNC1SA-050-CBL	Single core shielded cable – 50 m/164 ft roll	Max. 1,5 kg / 3.307 lb
FF-SNC1SA-05-QD	M8 cordset, 5 m/16.40 ft cable*	Max. 170 g / 0.375 lb

*PVC sheath, 22 AWG, -10 °C to +80 °C (14 °F to 176 °F)

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WARRANTY AND REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is **in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

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For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact a nearby sales office or call:

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+ 1-815-235-6847	International
+ 44 (0) 1698 481 481	UK
+ 1-800-537-6945	USA and Canada

FAX

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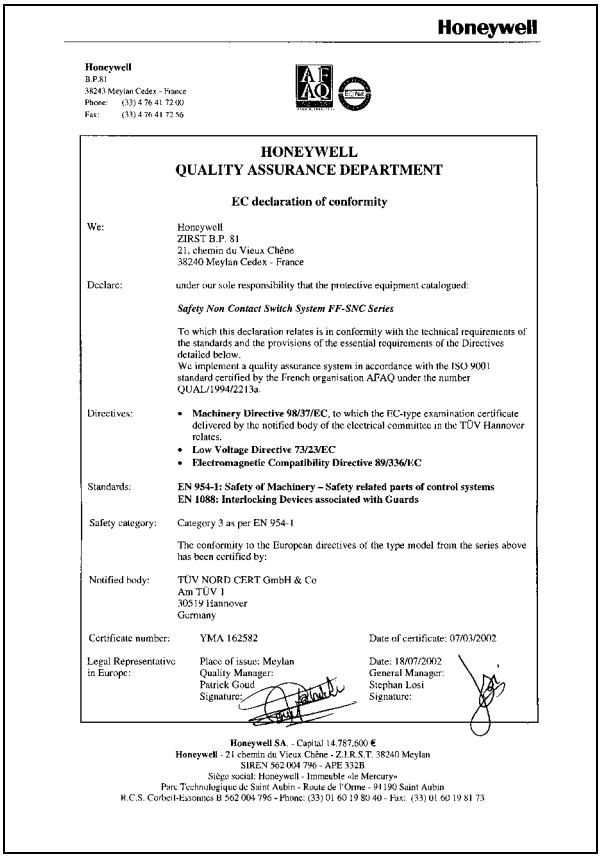
+ 1-815-235-6545	USA and Canada

INTERNET

http://www.honeywell.com/sensing/
info.sc@honeywell.com

EC DECLARATION OF CONFORMITY



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HONEYWELL
QUALITY ASSURANCE DEPARTMENT

EC declaration of conformity

We: Honeywell
ZIRST B.P. 81
21, chemin du Vieux Chêne
38240 Meylan Cedex - France

Declare: under our sole responsibility that the protective equipment catalogued:

Safety Non Contact Switch System FF-SNC Series

To which this declaration relates is in conformity with the technical requirements of the standards and the provisions of the essential requirements of the Directives detailed below.
We implement a quality assurance system in accordance with the ISO 9001 standard certified by the French organisation AFAQ under the number QUAL/1994/2213a.

Directives:
- **Machinery Directive 98/37/EC**, to which the EC-type examination certificate delivered by the notified body of the electrical committee in the TÜV Hannover relates.
- **Low Voltage Directive 73/23/EC**
- **Electromagnetic Compatibility Directive 89/336/EC**

Standards: **EN 954-1: Safety of Machinery – Safety related parts of control systems**
EN 1088: Interlocking Devices associated with Guards

Safety category: Category 3 as per EN 954-1

The conformity to the European directives of the type model from the series above has been certified by:

Notified body: TÜV NORD CERT GmbH & Co
Am TÜV 1
30519 Hannover
Germany

Certificate number: YMA 162582 Date of certificate: 07/03/2002

Legal Representative in Europe: Place of issue: Meylan Date: 18/07/2002
Quality Manager: Patrick Goud Signature: General Manager: Stephan Losi Signature:

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