

# Safety Non Contact Switch

## Based on Magnetic Coded Technology

FF-SNC Series



### FEATURES

- Meets applicable parts of European EN 1088 standard for Interlocking devices associated with guards
- Permanent self-checking electronic designed in compliance with the requirements of the EN 954-1 standard for **Category 3 protective Devices**
- Operating range:  
5 mm - 7 mm / 0.20 in - 0.27 in ON,  
8 mm - 12 mm / 0.32 in - 0.47 in OFF
- High resistance to environmental influences
- ABS and Stainless Steel housings sensors available
- Sensors sealing: IP 67
- Prewired or M8 plug termination
- Supply voltage: 24 Vdc/Vac  $\pm 15\%$ ;  
110 Vac  $\pm 15\%$  (only available for the 4-sensor control unit)
- Response time of the control unit:  
15 ms
- Manual or automatic restart
- LED status indicator
- 2-sensor control unit: (DIN rail mount 22,5 mm / 0.89 in width)
- 4-sensor control unit: (DIN rail mount 75 mm / 2.95 in width)
- 5-sensor extension module: (DIN rail mount 22,5 / 0.89 in width)

### TYPICAL APPLICATIONS

Interlocking guard for non locked mechanical screens offering free access (machines must achieve instant stop):

- Machine door or casting "open/closed" detection
- Guard-in-place detection, gate/access door detection
- Control of mechanical screens used in addition to a safety light curtain
- Food & Beverage, Packaging, Machine Tool, Automotive and Textile.



\*New: M8 plug model now available

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 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 obtained. 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 any 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-SNC200R2 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.

### WARNING

#### MISUSE OF DOCUMENTATION

- The information presented in this product sheet (or catalogue) is for reference only. DO NOT USE this document as system installation information.
- Complete installation, operation and maintenance information is to be referenced for each product.

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

## Safety Non Contact Switch FF-SNC

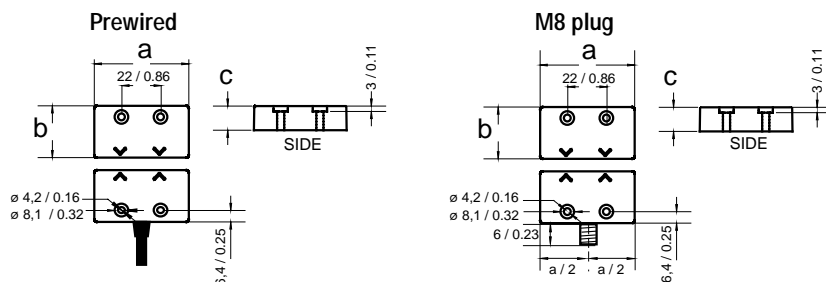
- Complies with the requirements of the EN 954-1 for Category 3 equipment
- Meets applicable parts of ANSI/RIA/OSHA regulations



Dimensions in millimeters / inches, meters / feet, weights in kg / lbs

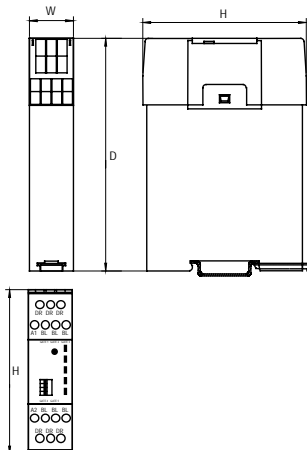
Features	
Switch	
Material	ABS (FF-SNC1SA□□PA-□) or Stainless Steel 316 and Resin filled (FF-SNC1SA□□PS)
Sensing range	5 mm - 7 mm / 0.20 in - 0.27 in ON • 8 mm - 12 mm / 0.32 in - 0.47 in OFF allowable misalignment: ±4mm / ±1/6 in
Minimum gap	1 mm
Standard cable length	Prewired 3 m / 9.84 ft or 5 m / 16.4 ft (ABS only) - M8 plug: 5 mm / 16.4 ft (ABS only)
Temperature	Operating: -10 °C to +55 °C / 14 °F to 131 °F • Storage: -20 °C to +60 °C / -4 °F to 140 °F
Connection to the control unit	Max. cable length: 100 m / 328 ft
Sealing	IP 67 prewired or M8 plug
Fixing	2 x (M4 x 20 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)
Response time of the control unit	15 ms (with or without extension module)
Power consumption (including sensors)	6 VA (with or without ext. module): FF-SNC400 • 3 VA (with or without ext. module) : FF-SNC200
Temperature	Operating: -10 °C to +55 °C / 14 °F to 131 °F • Storage: -20 °C to 60 °C / -4 °F to 140 °F
Output	2 NO + 1 NC relay contact
Output Contact Rating	Max.: 4 A / 230 Vac; 2 A / 24 Vdc (Res.) @Cos = 1 • Min.: 10 V / 10 mA
Restart	Manual or automatic
Sealing	IP 40 Housing, Terminals IP 20
Mounting	35 mm / 1.37 in DIN rail
LED indicators	FF-SNC200R2 control unit: Power, Run and 2 guard status indicators FF-SNC400RE control unit: 4 guard status indicators and deselect indicators
Material	Polycarbonate, red

### ■ Dimensions (mm/in)



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

M4 x 20 mm Torx screws are supplied with the switches.







	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		

(mm/in)

## ■ Safety Distance Calculations per EN 294 European 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  $s_r$  for regular openings for persons of 14 years of age and above:

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

\* If the length of the slot opening is  $\leq 65$  mm / 2.56 in, the thumb will act as a stop and the safety distance can be reduced to 200 mm / 7.88 in).

For more information on the guards installation, refer to the European standards: EN 811, EN 953, EN 294

## ■ Safety Distance Calculations per US ANSI / OSHA standard

$$Ds = K(T_s + T_c + T_r) + D_{pf}$$

With:

$D_s$  = 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)

$T_s$  = worst stopping time of the machine/equipment

$T_c$  = worst stopping time of the control system

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

$D_{pf}$  = 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.

$D_{pf}$  values from OSHA O-10 Table:

If the maximum width or diameter of the opening is less than or equal to (mm/in)	$D_{pf}$ 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 / 2.125	444,5 / 17.5

Note: Over 54 mm / 2.125 in, the  $D_{pf}$  equals 800 mm / 31.5 in, with a maximum allowable opening of 152,4 mm / 6 in.

Example:  $D_{pf} = 0$  when the guard can be opened up to, but less than 6,4 mm / 0.25 in before issuing a stop command.

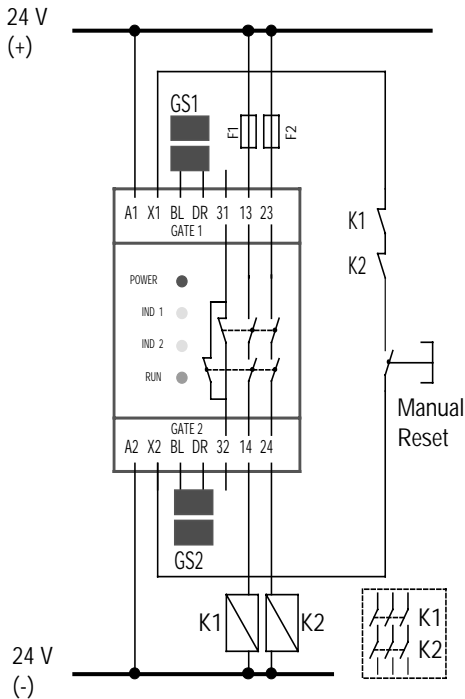
$D_{pf} = 444,5$  mm / 17.5 in if the guard can be opened 54,0 mm / 2.125 in.

At no time can the opening be greater than 152,4 mm / 6 in before issuing a stop command.

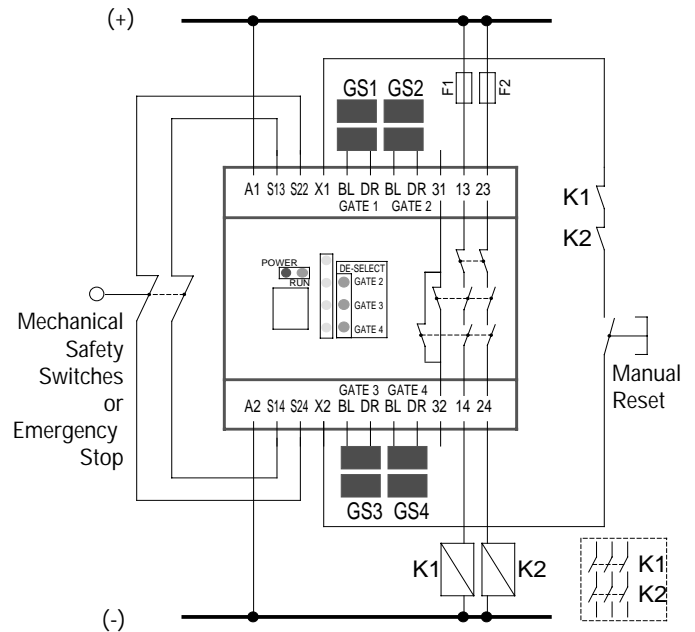
For more information, refer to the US regulations and standards (OSHA 29 CFR 1910.212 & 1910.217, ANSI B11.19 and ANSI/RIA R15.06).

## ■ Connection diagram:

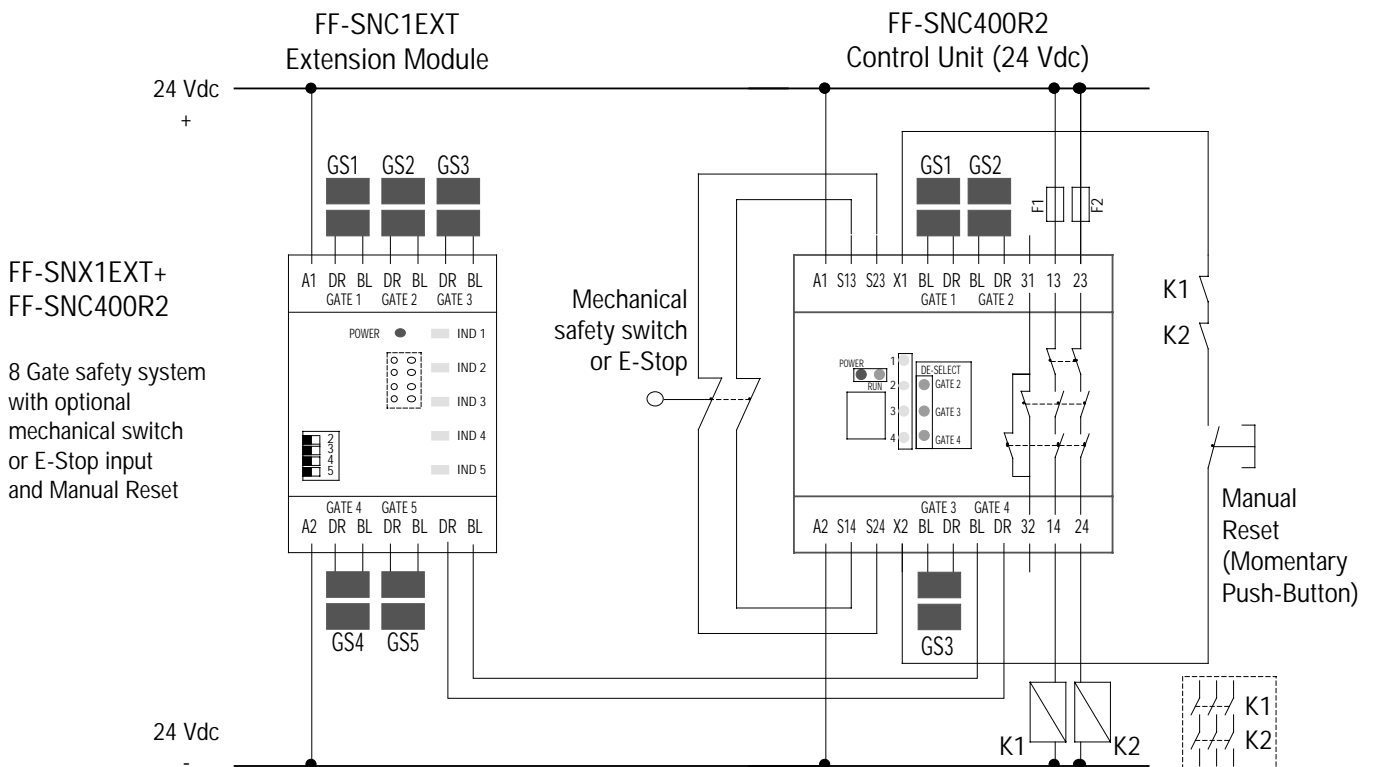
**FF-SNC200R2 Control Unit**  
(Manual reset option)



**FF-SNC400R2/FF-SNC400RE Control Unit**  
(Manual reset option)



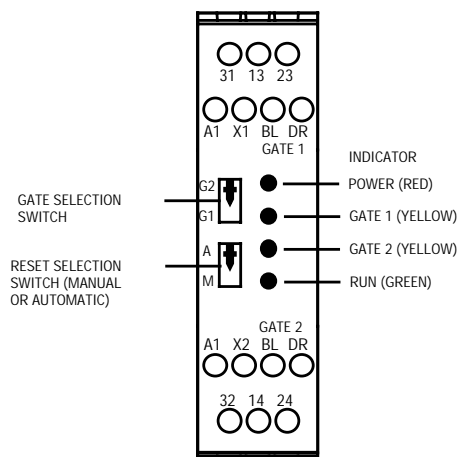
**FF-SNC1EXT Extension Module**  
(can be used with FF-SNC400 or FF-SNC200 Series, 24 Vac/dc only)



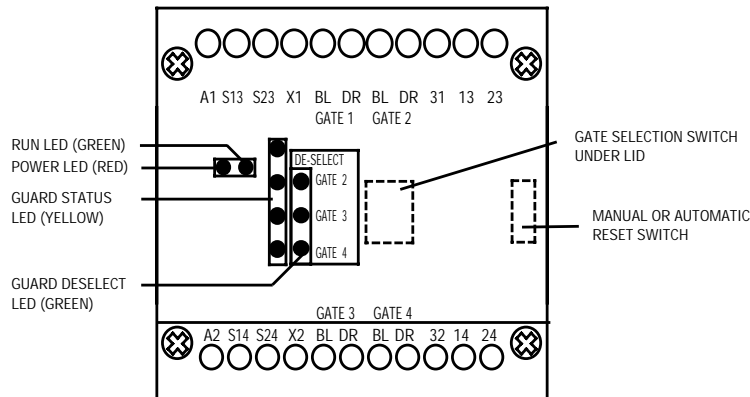
Up to 28 gates can be monitored using 6 extension modules with the FF-SNC400R2. The extension module can only be used with the 24 Vac/dc control units.

## LED indicators:

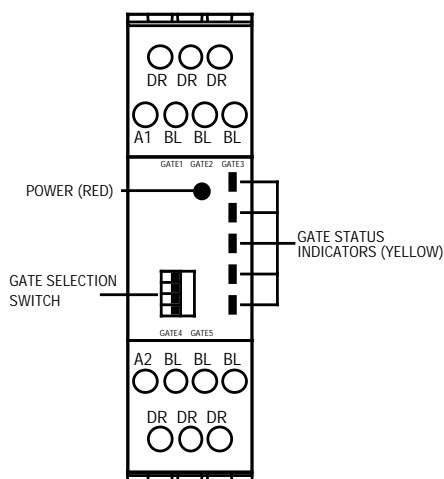
**FF-SNC200R2 Control Unit**



**FF-SNC400R2/FF-SNC400RE Control Unit**



**FF-SNC1EXT Control Unit**



## 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 + actuator + M8 cordset, 5 m / 16.40 ft cable, stainless steel 316 housing	Max. 450 g / 0.992 lb
FF-SNC1SA-050-CBL	Single core cable, 50 m / 164 ft roll	Max. 1.5 kg / 3.307 lbs

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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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