

## Non-Contact Safety Switches

FF6 Series

**004745**

Issue 4

**Datasheet**



### DESCRIPTION

Honeywell FF6 Series are magnetically actuated non-contact safety limit switches for use in machine guarding applications, designed to monitor the position of a guard and provide an input to a safety relay. The rectangular design of the switch and actuator can be beneficial where a slim package size is desired. A magnetic actuator is supplied with each switch. The switch and actuator are each installed with two M4 or #8 screws. The non-contact switch design allows for flexible installations where misalignment of the machine guard may occur. Switch and actuator are sealed to IP67 for wet and dusty environmental applications.

With CE and UL certifications, the switches can be installed on machinery for global applications.

### VALUE TO CUSTOMERS

- Non-contact sensing minimizes installation and set-up
- Pre-wired cable with color-coded individual lead-wire or integral M12 connector simplifies electrical connection
- Actuator can approach switch from head-on, slide-by or rotation/hinge for flexible installation

### FEATURES

- Non-contact design requires no operating force to actuate switch
- ABS plastic housing or 316 stainless steel housing for switch and actuator
- Slim package size, 19,0 mm x 19,0 mm x 82,5 mm [0.75 in x 0.75 in x 3.25 in]
- Choice of 1NC, 1NC/1NO, 2NC, or 2NC/1NO contacts
- Pre-wired cable length of 3 meters or 6 meters or an integral M12 quick disconnect with 5 meters of mating cable
- IP67 environmentally sealed switch and actuator
- CE and UL 508 Certifications

### DIFFERENTIATION

- Non-contact sensing requires no mechanical linkage to actuate the FF Series switch
- Up to two safety contacts when actuated for inputs to safety relay
- Optional auxiliary contact closes when actuator moves out of the operating range

### POTENTIAL APPLICATIONS

Equipment and machinery guards

- Can forming and filling (aluminum, plastic, and steel)
- Packaging equipment
- Pick and place assembly equipment
- Plastic molding equipment
- Printing machinery
- Semiconductor equipment
- Textile machinery
- Woodworking equipment

### PORTFOLIO

Honeywell FF6 Series safety switches are part of a comprehensive line of Honeywell electromechanical and non-contact safety switches. For more details on the extensive line of Honeywell safety switches, click [here](#).

## Non-Contact Safety Switch, FF6 Series

**Table 1. Specifications**

Characteristic	Parameter
Description	Magnetically actuated non-contact safety switch, FF6 Series
Certifications	cULus/UL 508; File E37138, Industrial control CE; DOC A347 Reference standards; EN60947-5-1; Low voltage switchgear and controlgear EN60947-5-3; Low voltage switchgear and controlgear EN61000-6-2; Electromagnetic compatibility, Immunity EN61000-6-4; Electromagnetic compatibility, Emissions EN60204-1; Safety of machinery, General requirements EN62061; Safety of machinery, Functional safety EN ISO 13849-1; Safety of machinery, Safety-related parts of control systems EN ISO 13850; Safety of machinery, Emergency stop function
Switch and actuator housing material	FF6: ABS plastic FF6-SS: 316 stainless steel
Termination	Pre-wired color-coded cable 3 meters or 6 meters; Male M12 quick connect with 5 meter female quick connect cable
Contacts (when actuator present)	1NC, 1NC/1NO, 2NC, 2NC/1NO
Contact design	Magnetically actuated
Safety contact rating	ac style: 230 Vac/2A dc style: 24 Vdc/1A
Safety contact sensing distance*	10 mm [0.39 in] ON 28 mm [1.10 in] OFF
Auxiliary contact rating	15 W/10 VA
Auxiliary contact sensing distance*	11 mm [0.43 in] OFF 21 mm [0.83 in] ON
Internal fuse	ac: 2 A fast acting dc: 1 A fast acting
External fuse (customer supplied)	ac: 1.6 A fast acting dc: 0.8 A fast acting
Environmental sealing	IP67 for switch and actuator
Operating temperature	-25 °C to 55 °C [-13 °F to 131 °F]
Vibration	10g, 10 Hz to 50 Hz per IEC 60068-2-6
Shock	30 g, 11ms per IEC 60068-2-27

# Non-Contact Safety Switch, FF6 Series

**Figure 1. FF6 Series Contacts and Connections: Pre-wired Switches**

FF6-21-ABS (ac & dc) FF6-21-SS (dc only)	FF6-20 ABS (ac & dc) FF6-20 SS (dc only)	FF6-11 ABS (ac & dc) FF6-11 (dc only)	FF6-10 ABS (ac & dc) FF6-10 SS (ac & dc)	FF6-10-03-SS
<div> <div>Red</div> <div>Black</div> <div>Green</div> </div> <div> <div>Blue</div> <div>White</div> <div>Yellow</div> </div>	<div> <div>Brown</div> <div>Black</div> </div> <div> <div>Blue</div> <div>White</div> </div>	<div> <div>Red</div> <div>Green</div> </div> <div> <div>Blue</div> <div>Yellow</div> </div>	<div> <div>Brown</div> </div> <div> <div>Blue</div> </div>	<div> <div>Brown</div> </div> <div> <div>Blue</div> </div> <div> <div>Green/Yellow</div> </div>

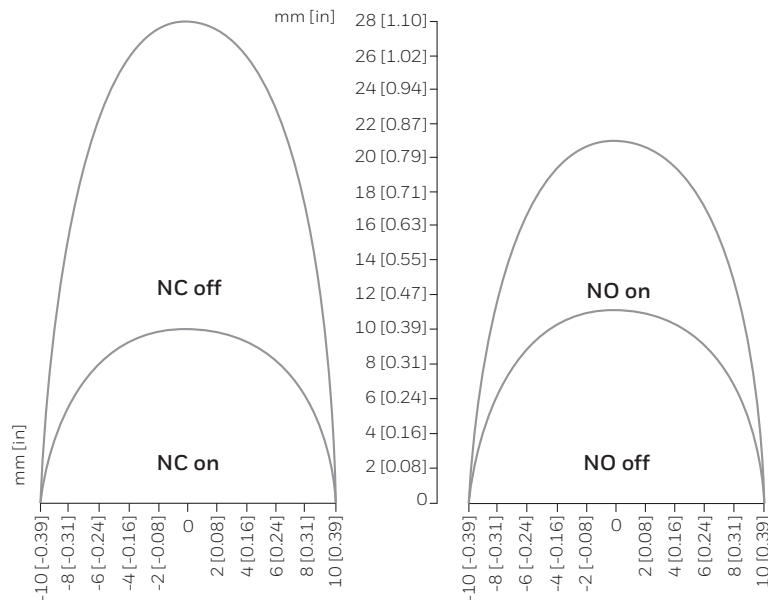
NOTE: Contact configurations show under closed condition for guard device.

**Figure 2. FF6 Series Contacts and Connections: Quick Disconnect Switches**

FF6-21-AC-QD05 FF6-21-DC-QD05	FF6-20-AC-QD05 FF6-20-DC-QD05	FF6-11-AC-QD05 FF6-11-DC-QD05	FF6-10-AC-QD05 FF6-10-DC-QD05	FF6-10-AC -QD05-SS
<div> <div>White</div> <div>Black</div> <div>Green</div> <div>Yellow</div> <div>Blue</div> <div>Red</div> </div> <div> <div>Safety</div> <div>N/C</div> <div>Aux</div> <div>N/O</div> <div>Safety</div> <div>N/C</div> </div>	<div> <div>Blue</div> <div>Brown</div> <div>White</div> <div>Black</div> </div> <div> <div>Safety</div> <div>N/C</div> <div>Safety</div> <div>N/C</div> </div>	<div> <div>Blue</div> <div>Brown</div> <div>White</div> <div>Black</div> </div> <div> <div>Safety</div> <div>N/C</div> <div>Aux</div> <div>N/O</div> </div>	<div> <div>Brown</div> <div>Blue</div> </div> <div> <div>Safety</div> <div>N/C</div> </div>	<div> <div>Brown</div> <div>Blue</div> <div>Green/Yellow</div> </div> <div> <div>Safety</div> <div>N/C</div> <div>Earth</div> </div>

NOTE: Contact configurations show under closed condition for guard device.

**Figure 3. FF6 Series Sensing Distance**



Normally closed circuit is the safety contact/switch and is closed when the actuator is sensed by the the switch.

Normally open circuit is an optional auxiliary contact which closes when the actuator is no longer sensed.

## Non-Contact Safety Switch, FF6 Series

**Table 2. FF6 Series Order Guide: ABS Plastic Housing**

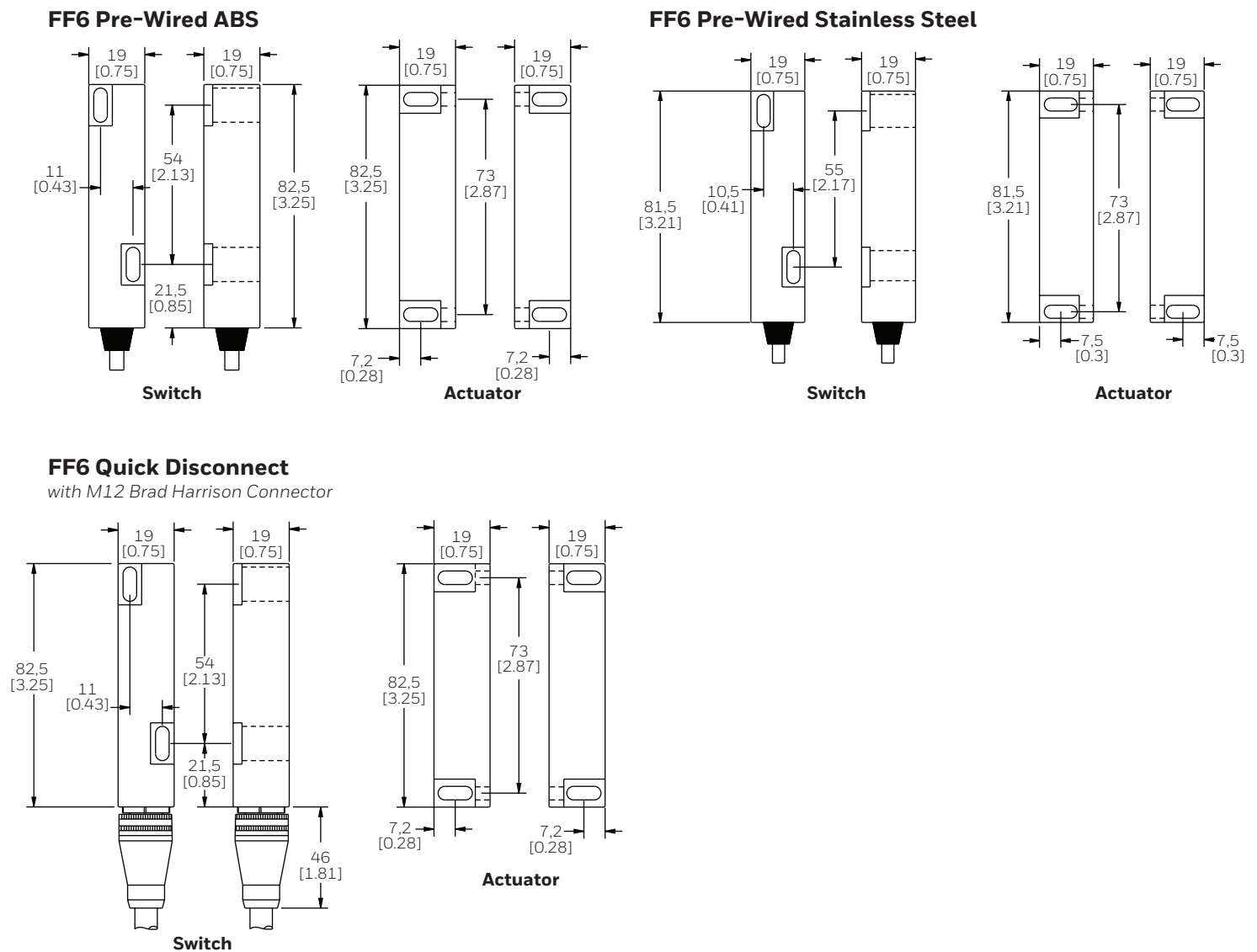
Catalog Listing	Description
<b>FF6-10-AC-03</b>	Switch and actuator, 1NC safety contact for ac applications, 3 meters pre-wired cable
<b>FF6-10-AC-06</b>	Switch and actuator, 1NC safety contact for ac applications, 6 meters pre-wired cable
<b>FF6-10-AC-QD05</b>	Switch and actuator, 1NC safety contact for ac applications, M12 male 4-pin integral connector, 5 meters cable with integral 4-pin female connector
<b>FF6-10-DC-03</b>	Switch and actuator, 1NC safety contact for dc applications, 3 meters pre-wired cable
<b>FF6-10-DC-06</b>	Switch and actuator, 1NC safety contact for dc applications, 6 meters pre-wired cable
<b>FF6-10-DC-QD05</b>	Switch and actuator, 1NC safety contact for dc applications, M12 male 4-pin integral connector, 5 meters cable with integral 4-pin female connector
<b>FF6-11-AC-03</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for ac applications, 3 meters pre-wired cable
<b>FF6-11-AC-06</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for ac applications, 6 meters pre-wired cable
<b>FF6-11-AC-QD05</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for ac applications, M12 male 4-pin integral connector, 5 meters cable with integral 4-pin female connector
<b>FF6-11-DC-03</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for dc applications, 3 meters pre-wired cable
<b>FF6-11-DC-06</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for dc applications, 6 meters pre-wired cable
<b>FF6-11-DC-QD05</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for dc applications, M12 male 4-pin integral connector, 5 meters cable with integral 4-pin female connector
<b>FF6-20-AC-03</b>	Switch and actuator, 2NC safety contacts for ac applications, 3 meters pre-wired cable
<b>FF6-20-AC-06</b>	Switch and actuator, 2NC safety contacts for ac applications, 6 meters pre-wired cable
<b>FF6-20-AC-QD05</b>	Switch and actuator, 2NC safety contacts for ac applications, M12 male 4-pin integral connector, 5 meters cable with integral 4-pin female connector
<b>FF6-20-DC-03</b>	Switch and actuator, 2NC safety contacts for dc applications, 3 meters pre-wired cable
<b>FF6-20-DC-06</b>	Switch and actuator, 2NC safety contacts for dc applications, 3 meters pre-wired cable
<b>FF6-20-DC-QD05</b>	Switch and actuator, 2NC safety contacts for dc applications, M12 male 4-pin integral connector, 5 meters cable with integral 4-pin female connector
<b>FF6-21-AC-06</b>	Switch and actuator, 2NC safety and 1NO auxiliary contacts for ac applications, 6 meters pre-wired cable
<b>FF6-21-AC-QD05</b>	Switch and actuator, 2NC safety and 1NO auxiliary contacts for ac applications, M12 male 6-pin integral connector, 5 meters cable with integral 6-pin female connector
<b>FF6-21-DC-03</b>	Switch and actuator, 2NC safety and 1NO auxiliary contacts for dc applications, 3 meters pre-wired cable
<b>FF6-21-DC-06</b>	Switch and actuator, 2NC safety and 1NO auxiliary contacts for dc applications, 6 meters pre-wired cable
<b>FF6-21-DC-QD05</b>	Switch and actuator, 2NC safety and 1NO auxiliary contacts for ac applications, M12 male 6-pin integral connector, 5 meters cable with integral 6-pin female connector

**Table 3. FF6 Series Order Guide: Stainless Steel Housing**

Catalog Listing	Description
<b>FF6-10-AC-03-SS</b>	Switch and actuator, 1NC safety contact for AC applications, 3 meters pre-wired cable
<b>FF6-10-DC-03-SS</b>	Switch and actuator, 1NC safety contact for DC applications, 3 meters pre-wired cable
<b>FF6-11-DC-03-SS</b>	Switch and actuator, 1NC safety and 1NO auxiliary contacts for DC applications, 3 meters pre-wired cable
<b>FF6-20-DC-03-SS</b>	Switch and actuator, 2NC safety contacts for DC applications, 3 meters pre-wired cable
<b>FF6-21-DC-03-SS</b>	Switch and actuator, 2NC safety and 1NO auxiliary contacts for DC applications, 3 meters pre-wired cable

# Non-Contact Safety Switch, FF6 Series

Figure 4. FF6 Series Dimensions



## ADDITIONAL MATERIALS

The following associated literature is available on the Honeywell website at [sensing.honeywell.com](https://sensing.honeywell.com):

- Product installation guide
- Product range guide

### **WARNING** **RISK TO LIFE OR PROPERTY**

Never use this product for an application involving serious risk to life or property without ensuring that the system as a whole has been designed to address the risks, and that this product is properly rated and installed for the intended use within the overall system.

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

### **WARNING** **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

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

### **Warranty/Remedy**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, 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. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

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Asia Pacific	+65 6355-2828
Europe	+44 1698 481481
USA/Canada	+1-800-537-6945

### **Honeywell Sensing and Internet of Things**

9680 Old Bailes Road  
Fort Mill, SC 29707  
[www.honeywell.com](https://www.honeywell.com)

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[FF6-11-DC-03](#) [FF6-20-DC-03](#) [FF6-21-DC-03](#) [FF6-10-AC-03](#) [FF6-20-AC-03](#) [FF6-21-AC-03](#) [FF6-10-DC-QD05](#) [FF6-](#)  
[20-DC-QD05](#) [FF6-20-AC-QD05](#) [FF6-11-AC-QD05](#) [FF6-11-DC-QD05](#) [FF6-21-AC-QD05](#) [FF6-21-DC-QD05](#)