

Introduction

The series 16F AC current switches for Fastron is ideal choice for monitoring all kinds of AC current. It is safe and reliable, and the structure of solid-core or split-core makes it easy for installation. The solid-core model can accept AC current from 0.5 to 200A, and the split-core model can accept AC current from 1.5 to 200A. Both models have the ability to output a switch signal with the state of normal open or normal closed to control all kinds of automation devices, such as flash lamp, buzzer, relays, single-chip SMC and other electronic load equipments. The switch has adjustable set point and LED indication to show there is power to the unit and when the switch activates. Set points can be adjusted using the potentiometer next to the LED'S. Notice that the rated load of the switch is 0.3A @135V AC/DC.

Features

- Self-powered cuts installation and operating costs.
- Safe and reliable.
- Easy for installation.
- Solid-state switch for control circuits up to 0.3A @135 VAC/DC.
- Self-powered cuts installation and operating costs.
- Designed to meet UL, CSA, Rohs and CE approval.
- The shell is made of ABS (UL 94V-0).
- Adjustable set trip point from 0.5 to 200A.
- LED Indicators provides quick visual indication of contact status.
- Power MOS act as a switch device in the designed of the switch.
- The number of startup is not limited.
- The response time of the switch less than 200ms.
- Solid-core or split-core design, the isolation voltage up to 2000V.

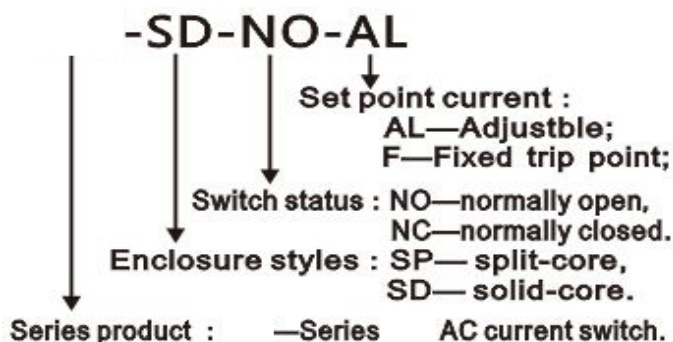
Working Principle

The switch is based on the principle of electromagnet induction. Induced current will be produced when the AC current in the circuit changes. The state of the switch is normal open or normal closed. These switches are solid-state switches that activate a contact closure whenever the monitored primary circuit current exceeds a pre-set level. The red LED will indicate that this change has occurred.

Typical Applications

- Monitor AC current.
- Motor overload protection.
- Act as an electronic switch in automatic control system.
- Apply in lighting circuits act as an electronic switch.
- Electrical heaters protection.

Naming Rules



Specifications

Power-supply	None, self-powered.
Amperage Range	0.5 to 200A continuous (solid-core model) 1.5 to 200A continuous (split-core model)
Set Point	1 to 200A continuous (solid-core adjustable model) 1.5 to 200A continuous (split-core adjustable model)
Conduct current	0.5±0.2A (solid-core adjustable model) 1.5±0.2A (split-core adjustable model)
Dimensions	(63×100×31.8)mm (solid-core model) (62×90×25.5)mm (split-core model)
Switch state:	Normal open or normal closed
Output Rating	0.3A @ 135VDC/AC
AC load frequency	10-200Hz
Hysteresis	≤1%
Accuracy	10%
Repeatability	100%
Power consumption	≤1W
Response time:	<200ms
Leakage current	≤1mA
Temperature limit	32 to 122°F (0 to 50°C)
Humidity limits	10 to 95% RH (none-condensing).
Enclosure Rating	UL 94V-0 flammability rated ABS, insulation class 600 V.
Maximum overload	200% (< 200% of the rated feedthrough current).

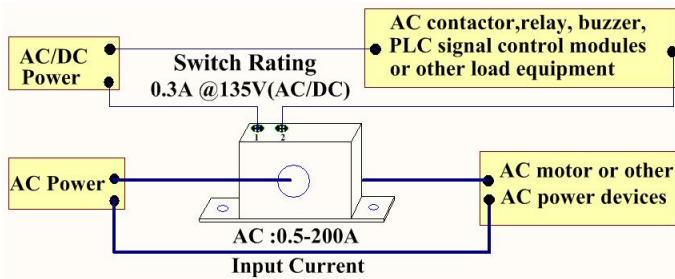
Trouble Shooting

- Question 1:** There is AC power to the unit, but neither of the LED is lighted;
Solution: Verify that the AC power to the unit is normal.
- Question 2:** It's hard to make the red led be lighted when adjust the continuously variable potentiometer.
Solution: You have turned the potentiometer clockwise. Please turn it to counterclockwise direction.
- Question 3:** The switch output does not function.
Solution: Verify that the maximum amperage range has not been exceeded and the connection of the output is well-connected. Voltages or currents above the rated levels may damage the switch.
- Question 4:** Set point potentiometer keeps turning.
Solution: Turn the potentiometer counterclockwise, to return the unit to its original setting. Start the calibration procedure again.

Notice

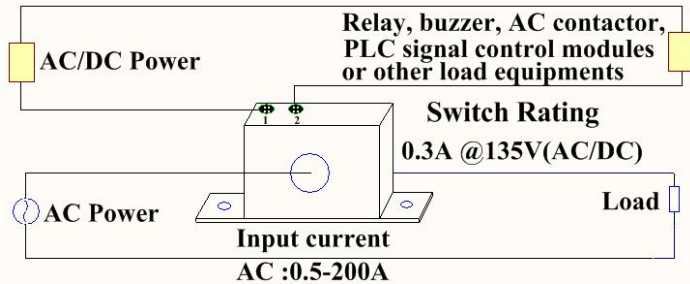
The Series 16F AC Current Switch is intended to provide an input signal to equipment under normal operating conditions. Where failure or malfunction of the current switch could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control systems. Incorporate and maintain other devices such as supervisory or alarm systems or safety or limit controls intended to warn of, or protect against, failure or malfunction of the 16F. The adjustment should be turned slightly clockwise past a certain point to ensure normal line current variations do not cause false conditions. All power sources should be cut off before any installation and electricity connection.

Typical Wiring

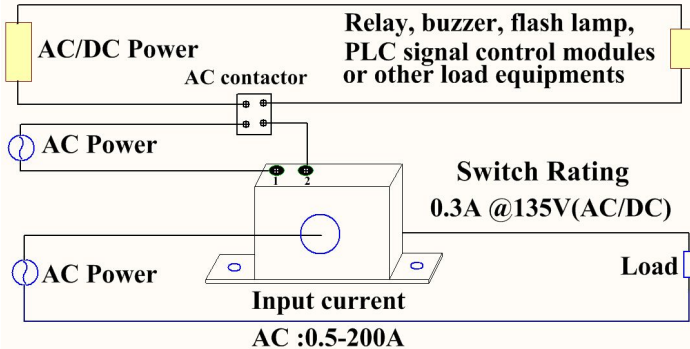


Application Examples

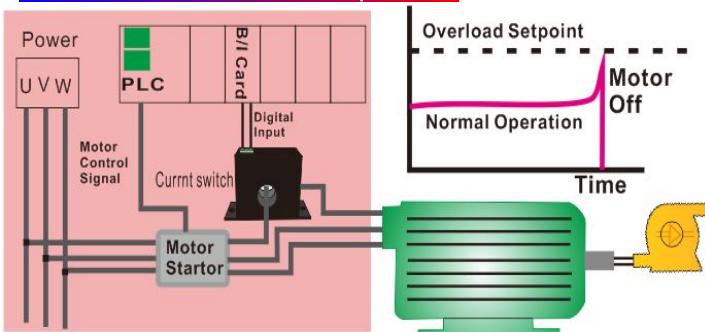
Control AC load directly



Control AC/DC load indirectly



Control AC motor with the help of PLC



Installation

- Mount the switch in a suitable location using the two mounting holes in the base of the unit. If using ties, make sure ties are securely fastened and that the unit is stable. If using screws, tightly screw in one screw at a time into each hole.
- Ensure that the power supply to the circuit is off.
- For solid-core model, disconnect the circuit line, slide the power conductor cable through the sensing hole of the current switch, and reconnect the circuit line. For split-core model, press the tab with your finger to open the switch. After placing the wire in the opening, press the hinged portion firmly downward until a definite click is heard and the tab pops out fully.
- Connect the switch circuit to the terminal block for the load.
- Turn circuit back on.
- If the green LED is on and the red LED is off, you should adjust the potentiometer to the low direction until the red LED is just lighted. If the red LED is on and the green is off, you should adjust the potentiometer to the high direction until the green LED is on, and then adjust the potentiometer to the low direction until the red LED is just on.
- The AC Current switch is working now.

LED indicators

- Green LED:** indicates that current is passing through the core, but the set point has not been reached and contacts are open.
- Red LED:** indicates that the set point has been reached and contacts are now closed.

Increasing measured current

If measured current is too low to be detected:

Wrap the conductor (wire through the sensing hole and around the body of the switch to produce multiple turns to increase the measured current. Use the below equation to determine how many wraps are necessary:

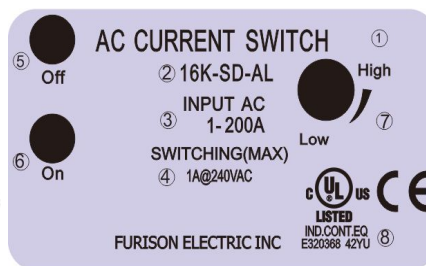
$$\text{Measured current} = \text{actual current} \times \text{the number of turns.}$$

Notice: Failure to reduce the current capacity could result in damage to the switch when using multiple turns to increase the measured current. Use the following formula to determine the new maximum current:

$$\text{New maximum current} = \text{rating current of the switch} / \text{number of turns.}$$

For example, with 2 turns and a maximum current rating of 50A: New maximum current = 50A/2=25A.

Label Introduction



- Switch style.
- Switch model.
- Input AC current.
- Rated load of the switch.
- Red LED indicator.
- Green LED indicator.
- Adjustable potentiometer.
- Product UL certification.

Ordering Information

Product model	Input current	Switch rating	Setting value	LED status
16F-SD-NO-AL	1-200A	0.3A @135V AC/DC	adjustable	Green(off)/Red(on)
16F-SD-NC-AL	1-200A	0.3A@ 135V AC/DC	adjustable	Green(off)/Red(on)
16F-SD-NO-F	0.5-200A	0.3A @135V AC/DC	nonadjustable	Red(on)
16F-SP-NO-AL	1.5-200A	0.3A @135V AC/DC	adjustable	Green(off)/Red(on)
16F-SP-NC-AL	1.5-200A	0.3A @135V AC/DC	adjustable	Red(on)
16F-SP-NO-F	1.5-200A	0.3A @135V AC/DC	nonadjustable	Green(off)/Red(on)