

2CV Series for 230 Vac Capacitor Start Motors and 2VR Series for 230 Vac Capacitor Start/Capacitor Run Motors

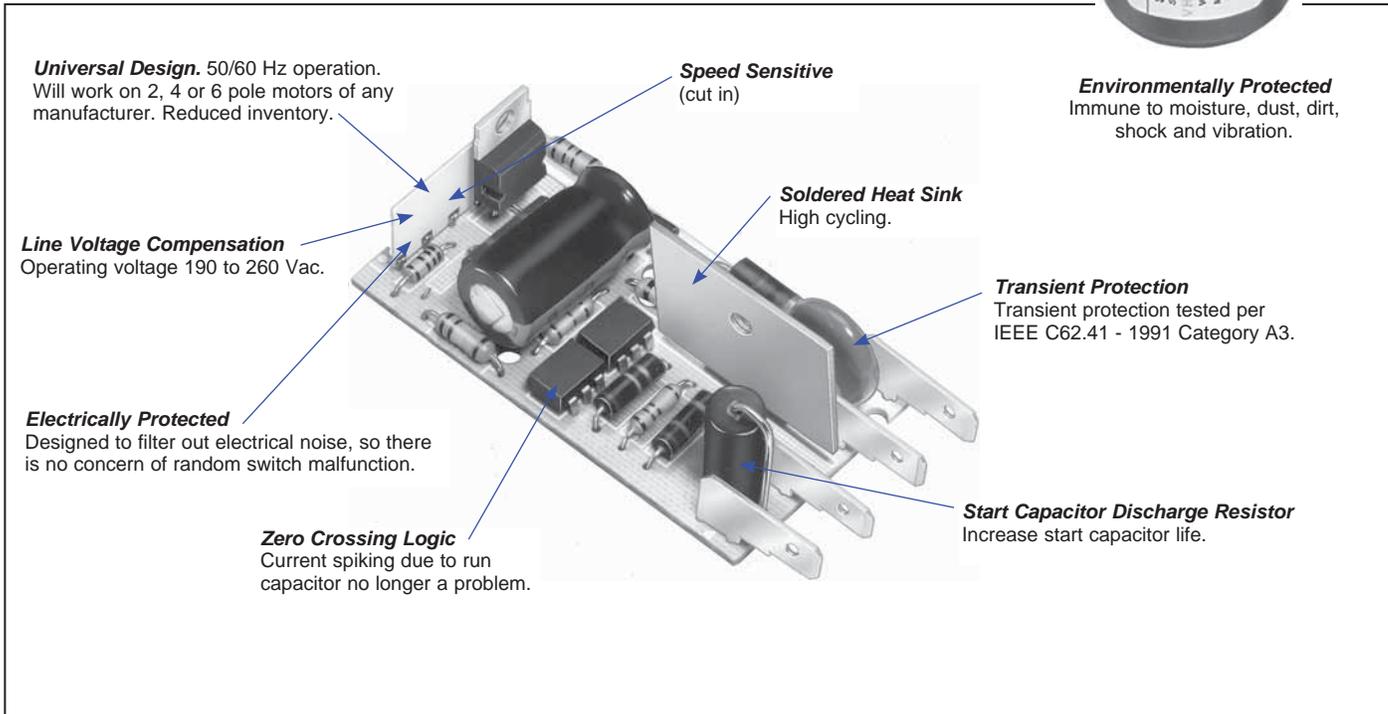
Basic Operation

Capacitor start/capacitor run motors and capacitor start motors provide continuous voltage sensing information which can be used to extract speed data from the voltage across the motor start (auxiliary) winding. By comparing this start (auxiliary) winding RPM-sensitive voltage to the main AC input voltage (which serves as a reference voltage), the switch determines when the start circuit should be de-energized. The electronic switch interrupts the start circuit current after the motor has accelerated to the cut out speed, and reconnects the start circuit whenever the motor speed has decreased to a preselected cut in RPM level.

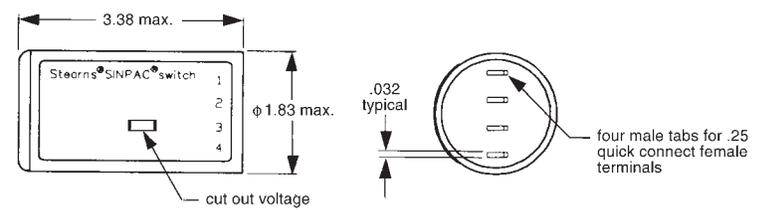
Capacitor start/capacitor run motors exhibit current transients and higher voltages across the start switch. This electrical stress is due to the voltage differential which may exist between the start and run capacitors at the instant of switch closure. This stress phenomenon occurs with both mechanical and electronic type start switches. SINPAC Switches have voltage detection circuitry to minimize the effects of these conditions.



Environmentally Protected
Immune to moisture, dust, dirt,
shock and vibration.



- ADDITIONAL FEATURES**
- **Silent Operation** - no switch noise
 - **Completely Solid-State with No Moving Parts.** SINPAC Switches have no physical constraints to affect their operation. No wearing parts mean high cycling, no arcing contact.
 - **Optional inductor for heavy duty operation.**
 - **Ambient 40° to 65°C.**
 - **Operating Temperature:** -40°C to 65 °C (-40 °F to 149°F) [for operation between 65°C and 85°C (149°F and 185°F), consult factory.]
 - **Operating Voltage:** 230 Vac SINPAC Switch: 190-255 Vac.
 - **UL Recognition E71115 and CSA Certification.**



Dimensions are for estimating only. Drawings for customer reference are available upon request.

Typical Maximum Motor hp	Typical Full Load Motor Nameplate Current Rating (amps)		Switch Rating and Permissible Maximum Start Capacitor Current (amps)	Start Circuit Voltage	Catalog Number	Part Number	Cut Out Voltage Typical	Cut In Voltage Typical	Package Style
	115 Volts	230 Volts							
3	–	17	35	230	2CV-35-260	4-7-22035-15-UC1	260	70	15
3	–	17	35	230	2CV-35-310	4-7-22035-15-U01	310	70	15
5	–	25	50	230	2CV-50-260	4-7-22050-15-UC1	260	70	15
5	–	25	50	230	2CV-50-310	4-7-22050-15-U01	310	70	15
3	–	17	35	230	2VR-35-260	4-7-72035-15-UC1	260	70	15
3	–	17	35	230	2VR-35-310	4-7-72035-15-U01	310	70	15
5	–	25	50	230	2VR-50-260	4-7-72050-15-UC1	260	70	15
5	–	25	50	230	2VR-50-310	4-7-72050-15-U01	310	70	15

Selection

Motor hp ratings are typical. For an accurate selection procedure, measure start capacitor current during a normal start or at locked rotor and select a SINPAC Switch with higher maximum current rating than that measured.

1. Be sure switch series matches motor type.
2. Be sure switch voltage rating matches auxiliary (start) circuit voltage rating.
3. Selection can be based on actual measurement of start capacitor current or two times the motor nameplate FLA rating.
4. Switch current rating must match or exceed the motor start capacitor current requirements. Always select a SINPAC Switch with the next higher current rating for:
 - a) High cycling applications.
 - b) Long acceleration time.
 - c) High ambients: Greater than 55° C.

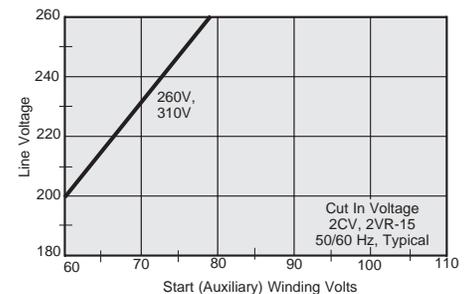
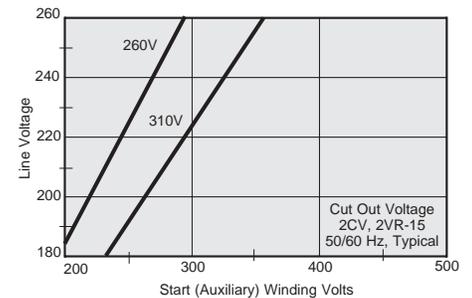
5. To assure proper motor operation, the voltage across the start winding must reach the SINPAC Switch cut out reference voltage between 70% to 85% of motors synchronous speed.

Caution: SINPAC Switches are line voltage compensated. Changes in the line voltage will not effect system operation unless an overload condition causes reduced running speed, along with reduced voltage on the start winding.

6. Higher current switches can be used in place of lower rated switches of the same series.

Line Voltage Compensation Charts

Induced voltage across the start winding is directly proportional to motor speed and line voltage. All SINPAC Switches use this voltage to switch the start capacitor out of the circuit. Your motor with a SINPAC Switch must generate a voltage greater than the switch cut out voltage to assure cut out of the start capacitor. Refer to charts below.



Wiring Diagram

Catalog Number	SINPAC Switch Rating	115 Volt 50/60 Hz Motor Operation	230 Volt 50/60 Hz Motor Operation
2CV-35 2CV-50 <i>Connect to Capacitor Start Motors</i>	230 Volts 	<i>Not Applicable</i>	
2VR-35 2VR-50 <i>Connect to Capacitor Start/ Capacitor Run Motors</i>		<i>Not Applicable</i>	

C_S– Start capacitor, **M** – Motor main winding, **C_R** – Run capacitor, **ST** – Motor start winding