

Hawkeye™ 709HV

Adjustable Solid-Core Current Switch with 250 VAC/DC Output



DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment before working on or inside the equipment.
- Use a properly rated voltage sensing device to confirm power is off.
DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION
- Only install this product on insulated conductors.

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

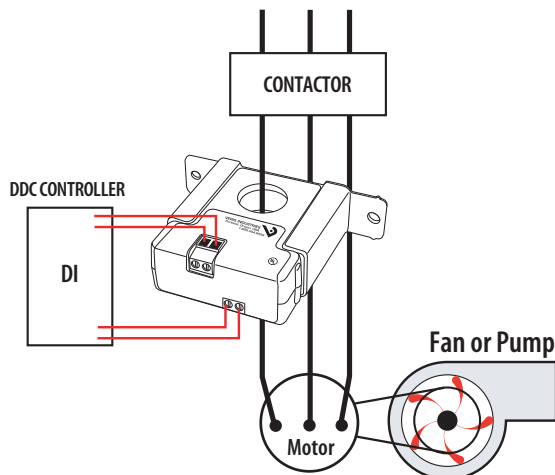
A qualified person is one who has skills and knowledge related to the construction and operation of this electrical equipment and the installation, and has received safety training to recognize and avoid the hazards involved. NEC2009 Article 100

No responsibility is assumed by Veris Industries for any consequences arising out of the use of this material.

NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- The installer is responsible for conformance to all applicable codes.
- Mount this product inside a suitable fire and electrical enclosure.

WIRING EXAMPLE



Two pairs of terminals are used for the switched output. Each pair is one connection, and both terminals in that pair are internally connected together. The connections are not polarity sensitive.

SPECIFICATIONS

Sensor Power	Induced from monitored conductor
Amperage Range	1 to 135A Continuous
Status Output Ratings	N.O. 1.0A@250VAC/DC, not polarity sensitive
Insulation Class	600VAC RMS
Frequency	50/60 Hz
Hysteresis	10% typical
Temperature Range	-15° to 60° C (5° to 140° F)
Humidity Range	10-90% RH non-condensing
Off State Resistance	Open switch represents 1+ MΩ
On State Resistance	Closed switch represents <200 mΩ
Terminal Block Wire Size	24 to 14 AWG (0.2 to 2.1 mm ²)
Terminal Block Torque	3.5 to 4.4 in-lbs (0.4 to 0.5 N-m)
Agency Approvals	CE EN 61010-1
Installation Category	Cat III, pollution degree 2

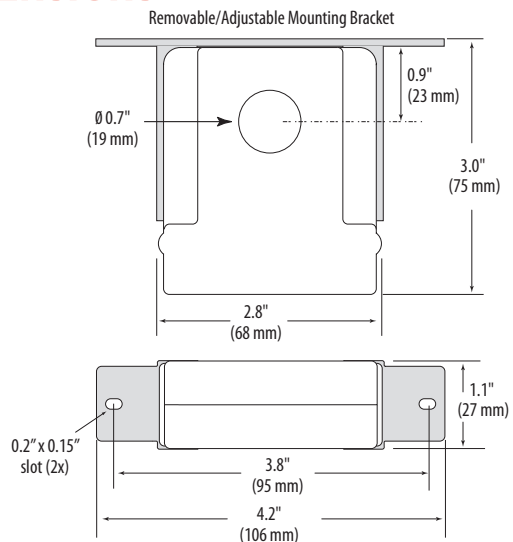
The product design provides for basic insulation only.

INSTALLATION

Disconnect and lock out power to the enclosure containing the conductor to be monitored.

1. Locate a mounting surface for the removable mounting bracket that will allow the monitored conductor to pass through the center window when it is installed and that will keep the device at least 1/2" (13 mm) from any uninsulated conductors. Determine cable routing for the controller connection, allowing wiring to reach the mounting location.
2. Drill holes to mount the bracket to the chosen surface using the included screws.
3. Wire the output connections between the sensor and the controller (solid-state contact).
4. Route the conductor through the sensor's center window and slip the assembly into the mounting bracket.
5. Secure the enclosure and reconnect power.
6. Calibrate the sensor (see page 2) with the load running normally.

DIMENSIONS



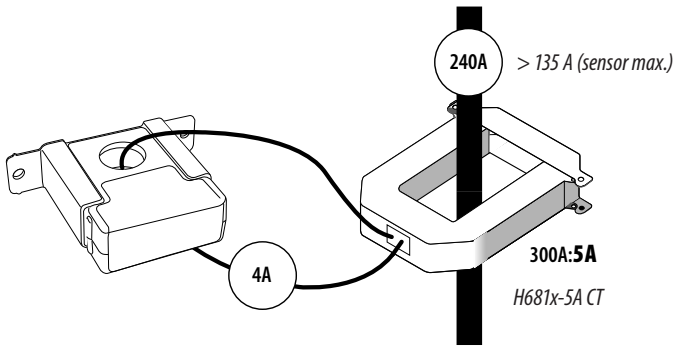
PRODUCT OVERVIEW

The H709HV is a current-sensitive switching device that monitors current (amperage) in the conductor passing through it. A change in amperage in the monitored conductor that crosses the switch threshold (trip point) plus the hysteresis value causes the resistance of the status output to change state, similar to the action of a mechanical switch. In this model, the trip point is adjustable through the action of a twenty (20) turn potentiometer (see the Calibration section). The status output is suitable for connection to building controllers or other appropriate data acquisition equipment operating at up to 250 volts. The H709HV requires no external power supply to generate its output.

NOTES

For load currents greater than sensor maximum rating:

Use a 5 Amp (H68xx series) current transformer (CT) as shown. This technique can be combined with wrapping (see below) to add range for a low current load on a high current source.



DANGER: 5A CTs can present hazardous voltages. Install CTs in accordance with manufacturer's instructions. Terminate the CT secondary before applying current.

CAUTION

RISK OF EQUIPMENT DAMAGE

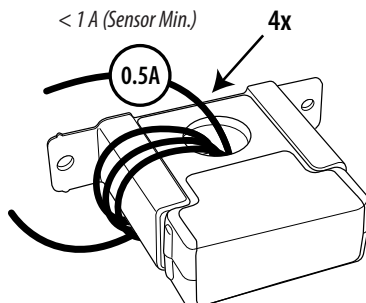
- Derate the product's maximum current for the number of turns through the sensing window using the following formula.

$$\text{Rated Max. Amps} \div \text{Number of Turns} = \text{Max. monitored Amps}$$
 e.g. : $100\text{A} \div 4 \text{ Turns} = 25 \text{ Amps max. in monitored conductor}$
- Failure to follow these instructions can result in overheating and permanent equipment damage.

For load currents less than sensor minimum rating:

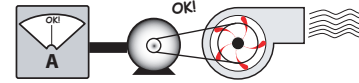
Wrap the monitored conductor through the center window and around the sensor body to produce multiple turns. This increases the current measured by the transducer.

Program the controller to account for the extra turns, e.g., if four turns pass through the sensor (as shown), then divide the normal controller reading by 4.



CALIBRATION

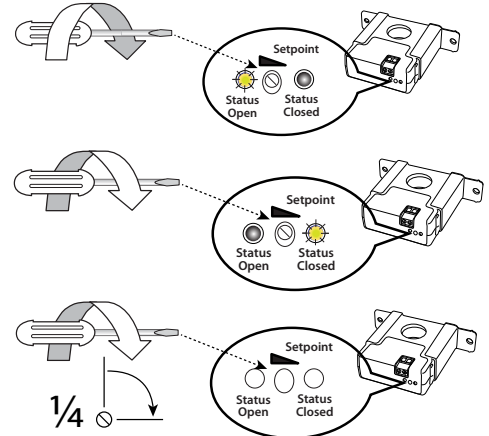
Before beginning calibration, establish normal load conditions.



Then choose either A or B below.

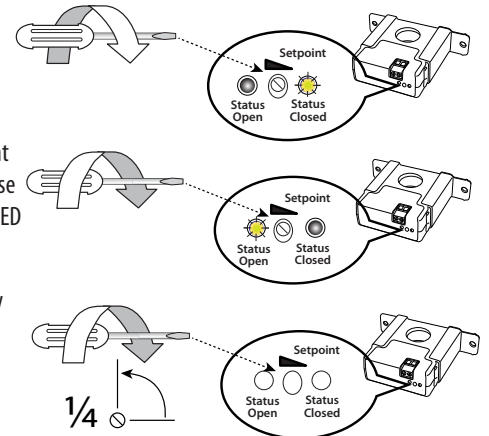
A. To monitor under-current (belt loss, coupling shear, status)

1. Turn setpoint screw counter-clockwise until Status Open LED turns on.
2. Slowly turn the screw clockwise until the Status Closed LED just turns on.
3. Turn the screw an additional 1/4 turn clockwise for operational margin.



B. To monitor over-current (mechanical problems, seized impeller)

1. Turn setpoint screw clockwise until Status Closed LED turns on.
2. Slowly turn the setpoint screw counter-clockwise until the Status Open LED just turns on.
3. Turn the setpoint screw an additional 1/4 turn counter-clockwise for operational margin.



TROUBLESHOOTING

Problem	Solution
No reading at controller	<ul style="list-style-type: none"> • Check for control voltage at sensor (<250 VAC, <1.0 A) • Check for amperage in monitored conductor (>1 A) • Verify that the setpoint is not above operating amps by turning the setpoint screw counter-clockwise (up to 20 turns) until the contacts close (Status Closed LED turns on). Resume calibration from the beginning.
Setpoint screw has no stops	The setpoint screw has a slip-clutch at both ends of its travel to avoid damage. Turn the setpoint screw twenty full turns counter-clockwise Repeat calibration.
Both LEDs are lit	Setpoint screw is too far clockwise. Turn the setpoint screw twenty full turns counter-clockwise Repeat calibration.
Output always appears to be shorted	Verify that output is measured between the two pairs of terminals, rather than across one pair.