

Fan and Pump Status Monitoring

⚠ **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.

The information provided herein is intended to supplement the knowledge required of an electrician trained in high voltage installations. There is no intent to foresee all possible variables in individual situations, nor to provide all training needed to perform these tasks. The installer is ultimately responsible to assure that a particular installation will be and remain safe and operable under the specific conditions encountered.

Theory of Current Sensor Operation

In constant volume fan and pump motors, most of the energy (work) is used to move the air or liquid, with less energy (typically 40% or less) used to turn the motor itself. The difference between the current draw on an unloaded motor and one which has a load (i.e., is moving air or liquid) can be detected using a current switch, which senses the current flow in one phase of a multi-phase motor. A change in amperage in the monitored conductor which crosses the switch threshold (trip point) plus the hysteresis value will cause the resistance of the FET status output to change state, similar to the action of a mechanical switch. With an adjustable threshold, the current switch can provide different status outputs when the motor is loaded and unloaded, thus providing positive proof of flow.

