

Monitoring Variable Frequency Drive Status



HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

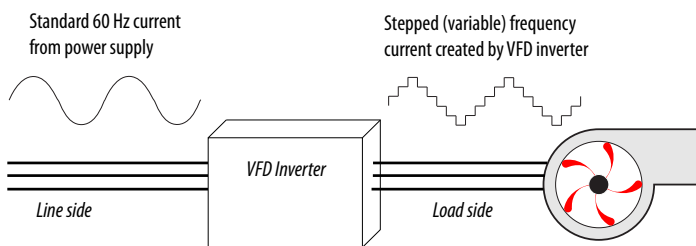
- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment 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.

Introduction

Unlike constant volume fans and pumps, motors with variable frequency drives (VFD) generate stepped waveform outputs designed to appear as sinusoidal waveforms to the motor. These stepped outputs are generated by high frequency (6kHz or more) signals switching on and off.

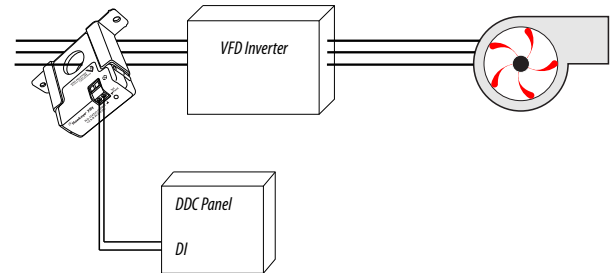


Since most current sensors are designed to operate at 60Hz, the VFD presents special challenges to the installer. There are two different installation options for getting reliable positive status indication on fans and pumps:

1. Mount a standard current switch on the line side of the VFD.
2. Mount an auto-calibrating current switch designed specifically for use with VFDs.

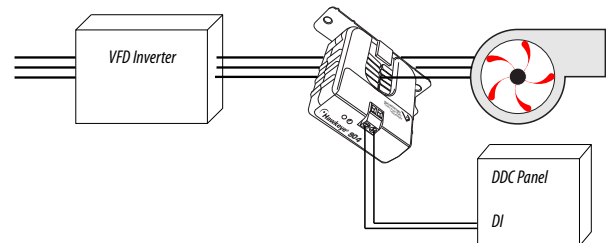
Line Side Current Sensing

If the motor speed will be greater than 25 Hz, a standard split- or solid-core current switch can be installed on the line side of the VFD. This will provide indication of status, but it will not provide information about the load on the motor.



Load Side Current Sensing

To obtain information about the load side of a VFD inverter, a microprocessor-based current switch compatible with VFDs can be installed. These devices learn the system amperage curve by storing the sensed values for normal operation at various frequency levels (e.g. 40, 50, 60 Hz), allowing the sensor to distinguish between a reduced amp draw due to normal changes in the frequency and an abnormal amperage drop due to belt loss or other mechanical failure.



Both the Veris standard and the Veris VFD-compatible current switches are available with a patented integral relay for start/stop control.