ELTA

VARIABLE SPEED DRIVES

(Frequency Inverters) with Fans for HVAC Applications

Information Centre

VARIABLE SPEED DRIVES

With Fans for HVAC Applications

Eltadrive Variable Speed Drive IP66

IP66 Variable Speed Drive

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VARIABLE SPEED DRIVES

With Fans for HVAC Applications

The preferred method of controlling our fans is to use the controls options listed within our product literature as these models have been fully tested to ensure longevity of product life and satisfactory operation.

Where an existing controller is being utilised the following precautions should be taken.

Motor Types

The use of frequency inverters should be restricted to three phase AC induction motors, for other motor types contact Elta.

Frequency Inverter Types

The frequency inverter used to drive motors up to 690 V must be fitted with Pulse Width Modulation (PWM) with vector control.

Installation

Manufacturer's instructions for fan and frequency inverter must be adhered to.

dV/dT Filters

Motors designed for rated voltages up to 690 V, when driven by frequency inverter, do not require the use of dV/dT filters, provided they comply with the following criteria.

Motor rated voltage: Vnom <460V

Peak voltage at the motor terminals (max):
≤1600V

dV/dt inverter output (max):
≤5200V/µs

Inverter Rise Time (min.):
≤0.1µs

MTBP Time between pulses (min):
≤6µs

Cable Sizing

Frequency Inverter manufacturer recommendations must be adhered to.

Drive output cables should always be multicore types, and the use of single core cables is to be avoided. Where a single cable is inadequate for the current rating, parallel multicore cables should always be used. The maximum cable length will vary with the drive rating, whether input or output filtering is installed, and will generally increase with increasing power.

Cable Capacitance is an important factor due to the nature of output signal created by PWM outputs which can lead to excessive temperatures and reduced operational life as well as nuisance tripping. The type of cable recommended by the frequency Inverter manufacturer must be adhered to.

Cable screening

It is strongly recommended that the cable be screened. This is essential to meet many of the relevant EMC standards. Refer to Frequency Inverter Manufacturer instructions.

Programming Considerations

The following are key recommendations when using Frequency Inverters with our products designed for frequency inverter use.

Maximum Speed: 50Hz
Minimum Speed: 20Hz
Switching Frequency: >2kHz & <5kHz
Acceleration Time: 30s
Deceleration method: Coast to stop

Further Information

Contact Elta for any queries regarding the use of Variable Speed Drives.

ELTA

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