WHAT IS THE BEST WAY TO GROUND VFD CABLES?

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One of the most common questions we are asked is, what is the best way to ground VFD cables? Do I ground at the motor side or do I ground at the drive side?

Q. What is the best way to ground a VFD cable?

A. The best way is to ground at both sides of the cable connection, at the drive and at the motor.

Q. Why both sides?

A. In theory, the increases in voltages/currents will go back towards the drive, however, common mode current (CMC) can go towards the motor and through the stator. If it is not grounded properly, CMC can cause failure at the ball bearing on the stator called bearing fluting or EDM (electro-discharge machining.)

Q. How do I ground the increased voltage and CMC?

A. Some VFD cables will have a drain that can be terminated to the 2nd PE terminal on the drive and motor. However, the copper mass in the drain may not be sufficient to properly drain all the noise. Pig-tailing the tinned copper braid shield gives much more copper mass to properly drain the noise and bring to earth ground.

Q. Is grounding the shield at the motor and drive all that is needed to protect surrounding circuits from EMI?

A. No. It is recommended to also ground the shield at the drive enclosure and motor housing. You can do this with an EMC gland. By doing this, you have, in essence, created a faraday cage that will block external static and non-static electric fields by channeling electricity through the enclosure to ground protecting surrounding circuits.

Additional information available from SAB North America:

VFD White Paper | VFD Cable and Gland Brochure | VFD Grounding Solution

For more information, contact us at 866-722-2974
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