Powering Up the Quantum III in your Office

This application note is pertinent to all sizes the Quantum III drives.

Background

Many times you might say, it would be nice if I could power a drive up from the comforts of the office. There are several good reasons to want to do this:

1) to work in a quite environment
2) to extract the program from the drive to a desktop
3) to program the drive perhaps from a file sent to you via email
4) to set the drive back to complete Quantum III factory settings

This application note will discuss how to do this.

Material/Equipment

<table>
<thead>
<tr>
<th>Three Prong Power Cord</th>
<th>Multipurpose Wire strippers</th>
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<tr>
<td>Small Flat headed screw driver</td>
<td>Utility Knife</td>
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Theory of Operation

The Quantum III has an internal control transformer that is used to Step-down the incoming supply voltage to a value of 120Vac. This is used for your start/stop logic. The way that Step-down transformer is used to “step-down” the incoming voltage we will use it to “Step-up” the incoming voltage. This will all be accomplished by using our 120Vac supply voltage from our wall outlet.

Safety

It should go without saying that all safety precautions should be taken. The following steps should be followed very closely and should not stray from the following procedure.

When using the Utility Knife one should always cut away from the body and keep in mind where all of your appendages are at all times.

Emerson Control Techniques accepts no responsibility or is liable for any damage that may occur to the drive or to the person or persons in question for improper assembly or negligence.
Power Connections & Setup

Using any old 3-prong power cord and cut off the end that does not plug into a wall outlet.

Strip back insulated casing to reveal the 3 individual internal wires. Then strip back the 3 newly exposed wires about ¼ of an inch. Connect wires to the drive as shown below.

Drive Viewed from the bottom

“Hot” – Black Wire
Terminal 1

“Neutral” – White Wire
Terminal 25

“Ground” – Green Wire
Grounding Lug
**Et (External) trip**

To avoid a nuisance $E_t$ trip while powering up, jumper terminals 1 - 4 on the AC interface board (shown to the right).

**Test your Work**

To ensure that your wiring and configuration changes have been done correctly you should always test your work. Power the unit up/plug in your power cord. When you power the unit up, it should not come up with any trips and the display LED’s should indicate “Drive Ready” and “Zero Speed”.

If at this point if you have blown the breaker, most likely you have one of two issues.

- A wiring mis-configuration. Check the out wiring from your outlet as well as the wiring to the drive for the likely culprit.

- An issue with the drive itself. Disconnect the power cord and check for a short to ground using an ohm meter. If all checks out, please contact Technical Support at (800)367-8067 for further examination.

**Communications**

To communicate to the drive a special cable must be implemented. This cable’s part number is **CTD-PC-485-XXX**. (XXX represents the length desired) This can be ordered by calling (800)367-8067 and asking for parts.

For further information on “**How to Establish Communications**” and to use MentorSoft, reference the application note **CTAN 193**

**Restoring a Quantum III back for Factory Default Settings** consult [CTAN157](#).

**Side Note**

The Mentor II Drive can be powered up in the same way but, this will take a step-up transformer to accomplish. The transformer can be 2:1 – 4:1 ratio. The current draw is only about 300mA, so the size of the transformer would want to be around 250VA minimum.

Connect the primary side to your 120Vac supply and the secondary side of the transformer connects to the Black terminals E1 and E3 of the power board.

**Questions:** Ask the author ??

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