**Problem:** Quantum III will not run when the command to do so is given.

**DIGITAL INPUTS**

The QIII has digital inputs that need to be activated to allow the drive to run. The inputs are located on the MDA2(B) interface board. This board can be found under the access cover on the front panel of the drive. The AC Interface board and the Logic board control these inputs on QIII drives.

Remove the access cover and measure the voltage on pins 21, 25, and 31 with respect to common at pin 40. If the drive is disabled these pins should read about 13.5VDC. When the run command is given the voltage on pins 21 and 31 should drop to 0vdc. When a run forward command is given the voltage on pin 25 should drop to 0vdc.
If these inputs are working properly and the drive is ready to run in the forward direction the following LED’s on the display should light up.

- Drive Ready
- Zero Speed
- Run Forward
- Bridge 1
- At Speed

If the inputs do not drop to 0vdc and the drive does not go into run you can simulate the run input with wire jumpers. **Make sure your speed reference is at 0 and the motor is clear to run. The speed reference is displayed at #1.01.**

Connect wire jumpers from 25 to 21 to 31 to 40. This will make the drive run. The contactor will not close and you could get an **ROP (Armature OPen)** trip. If the standard run command does not work but the wire jumpers do then you could have a problem with the start/stop logic. The problem could be in the Tachometer Board (9500-4030) or AC Interface Board (9500-4025) PCB’s.

The QIII drive relies on the inputs to the AC Interface PCB to activate the drive. There must always be 120VAC between pin 1 and 25. If not, check the fusing on the Control Transformer. When the run command is given there must be 120VAC on pins 4 and 6 on the AC interface board. If you are using two-wire start/stop there needs to be a closure between pins 6 and 7. If you are using three-wire start/stop the closure on pin 7 will be momentary. (All measurements are with respect to pin 25.)

---

**Diagram:**

- **Size 1**
- **Size 2**
- **Control Transformer**
- **AC Interface Board**
The 120VAC on a QIII must be present for the stop/start logic to operate. If the voltage is not present on pin 1 on the AC interface check the fuses on the transformer. The transformer is located in the mid-section of the drive. Any open fuses could indicate a problem with the AC interface bridge rectifier or a bad transformer. The 120VAC will not get to the AC Interface board if the fuses are open.

The following parameters should go to a 1 when the corresponding digital input is activated.

- **F2** = Terminal 22 = Run Permit = #1.11
- **F3** = Terminal 23 = Inch/Jog = #1.13
- **F4** = Terminal 24 = Reverse = #1.12
- **F5** = Terminal 25 = Ref #3 = #1.15
- **F6** = Terminal 26 = Ext Trip = #10.34
- **Enable** = Terminal 31 = #8.11

### SPEED REFERENCE

The digital inputs could all test good and the drive still may not run. This could mean there is a problem with the speed reference. The speed reference could be supplied by an analog signal or thru field buss communications. This section will cover using an analog input as a speed reference.

There are 5 possible inputs that could be used as a speed input seen in yellow below. They are Pins 3-7 and are labeled Speed, GP1, GP2, GP3, and GP4. Find the input you are using as a speed reference and measure the voltage or current (4-20ma) into the terminal. If the voltage looks good check the digital representation in the drive to make sure the drive recognizes the voltage. If you have MentorSoft you can look at the parameters online with the drive. Otherwise scroll on the drive's keypad to display the parameter.

**Example:** If the speed reference was coming in on pin 3 and it was a 0-10VDC signal than #7.05 would be 0 at 0VDC and 1000 at 10VDC.
After confirming the drive is reading the analog input you should then check the destination seen in blue above. Follow the destination parameter to the menu it points to. We will use #7.15 = 117 as our example. You can see on the next page that #1.14 and #1.15 must have the correct values to allow the reference at #1.17 to get through. The red line is the path the speed reference would take if the drive had default parameters.

If the speed reference is making it through menu 1 go directly to #3.01 and see if the reference is making it there. If it is there is a good chance the speed reference is working properly.

**NOTE:** If your speed reference is coming from a field buss module or is a torque reference it could take a different route through the drive.

Information on MentorSoft can be found at:


Once the operation of the digital inputs and speed reference have been verified and the drive still will not run contact the Americas’ Service Center for technical support.

For questions call Control Techniques Technical Support-USA at 716-774-1193
Grand Island, NY 14072