

TB149 (Rev1) - Troubleshooting Motor/Encoder Problems

Overview:

This document will help you in the process of troubleshooting motor/encoder problems. It can sometimes be quite difficult to troubleshoot both motors and encoders, because it can be tricky to pinpoint the exact source of the problem.

Troubleshooting:

The following table is the suggested procedure for troubleshooting motors and encoders. The suspect motor in each case is called motor/axis "X" and a known good motor/axis is called "Y".

Problem	Suggested Test	Result	Next Step
1.) Getting position errors on axis/motor X	Go to PID screen, and test for encoder feedback for axis/motor X . If your absolute position changes when you turn the motor shaft, then you have encoder feedback.	Encoder feedback? Yes: Encoder for motor X is giving feedback.	Go to step 2
		No: Encoder not working or bad cable/connection.	Go to step 3
2.) Getting position errors on axis/motor X , getting encoder feedback	Test for accurate encoder feedback: At the PID screen, turn motor X one complete resolution. The absolute position should change by the number of counts listed in the motor config menu.	Correct Encoder feedback? Yes: Encoder working correctly.	Check PID configuration, Do Autotune. If MaxVel value is abnormal then replace drive. If AC motor System then go to Step 4 .
		No: Encoder bad, or bad cable/connection or bad CPU card.	Examine Encoder cable. Replace Encoder. Replace CPU card.
3.) Getting position errors on axis/motor X , no encoder feedback	Examine Encoder cable, cable connections to the motor and CPU card	All Connections correct.	Replace Encoder. Replace CPU card. If AC motor system replace drive.
4) If Getting position errors on AC motor system, getting encoder feedback.	Go to PID and then DRIVE screen. Perform a MOVE SYNC ON THE AXIS AT LEAST FOUR TIMES.	At some point did the screen read: TIGHTEN ENCODER NOW.	Yes: Check power cables and drive. No: Power off control and repeat. If Message appears then the Check motor cables for grounding or miss wire. Replace Encoder. If message does not appear then Align the encoder. Refer to TB166.

Document History

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