TB205 (Rev1) - Direction Reversal on Paired Axis

Overview

Parameter 64 enables the 4th and 5th axes to be paired together or individually be run in a slaved state with any of the other axes. This is intended to drive 2 screws on opposite sides of a table (probably a router table or gantry system). In the motor configuration screen, the direction reversal has to match the paired axis. For example if the 4th axis is paired with the Y-axis and the Y-axis has direction reversal turned off, then the 4th axis needs direction reversal turned off as well. If you need the 4th axis to move in the opposite direction of it's paired counter part, you must follow theses steps to modify the 4th axis motor wiring.

DC Systems

Procedure

1. Swap the motor power leads. The Black wire will go to the "Motor +" terminal on the DC single and the Red wire will go to the "Motor -" terminal on the DC single.
2. Swap the A and B encoder channels. The Black\White wire from "A\" will go to Pin 5 on the DB9 connector. The Black\Blue wire from "B\" will go to Pin 4 on the DB9 connector. The White wire from "A" will go to Pin 8 on the DB9 connector. The Blue wire from "B" will go to Pin 7 on the DB9 connector.

Encoder Cable Connections

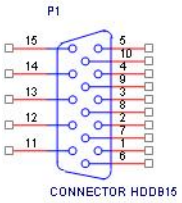
	Standard	**For Direction Reversal**
Pin	Wire Color	Wire Color
1	N/C	N/C
2	BLK\RED (GND)	BLK\RED (GND)
3	BLK\GRN (Z\ )	BLK\GRN (Z\ )
4	BLK\WHT (A\ )	BLK\BLU (B\ )
5	BLK\BLU (B\ )	BLK\WHT (A\ )
6	GRN (Z)	GRN (Z)
7	WHT (A)	BLU (B)
8	BLU (B)	WHT (A)
9	RED (+5)	RED (+5)

AC Systems

Procedure

When slaving an AC motor equipped with a Dynapar encoder the following chart should be used. The motor connections on the SD drive must have **Phase U** and **Phase W** swapped. The Direction Reversal must be set to Yes.

	Original		Modified	
COLOR	**FUNCTION**	**CONN PIN**	**FUNCTION**	**CONN PIN**
BLUE	A	1	A	**2**
WHITE	W	10	W	**14**
BLUE/BLACK	A\	6	A\	**7**
WHITE/BLACK	W\	15	W\	**4**
GREEN	B	2	B	**1**
GREEN/BLACK	B\	7	B\	**6**
ORANGE	Z	3	Z	3
ORANGE/BLACK	Z\	8	Z\	8
BLACK	0V	11	0V	11
BLACK/WHITE	U\	13	U\	**9**
BLUE/WHITE	V	4	V	**15**
GREEN/WHITE	U	9	U	**13**
RED	+5V	12	+5V	12
RED/BLACK	V\	14	V\	**10**
RED/WHITE	K	5	K	5



Before running the motor, it may have to be re-aligned. Please follow the following procedure when aligning an encoder or read TB166.

1. Remove motor from machine, if not already removed.

2. Remove back end cap on the motor.

3. Connect power cable and encoder cable from drive to the motor with drive off.

4. Connect encoder leads to the end cap connector. (If encoder is mounted to the motor, remove encoder)

5. Power control and pull out E-stop.

6. Go to the PID then to the DRIVE MENU. Then MOVE SYNC several times by pressing F2 ?MOVE SYNC?

and then F10 ?GO?. You should see the shaft rotate. The first rotation may have a jerk to it but after that the shaft should rotate smoothly.

7. Rotate the encoder shaft until the encoder reading is Zero. Mount the encoder on the rear motor shaft in this position. Snug up the mounting ears screws and fine adjust to within +/- 10 counts of zero. (When the encoder count rolls over it reads the max per rotation, ex 8192). In this zone a red message should appear on the control ?Tighten Encoder Now?.

8. Tighten encoder-mounting screws.

9. Hit MOVE SYNC as many times as needed to return to the zero position and verify the zero reading. Observe the commutation count goes 1 through six consecutively. Adjust and retry if necessary. At a rest position the commutation zone should be either a 1 or a 6 only. If not, reboot the machine and start again.

10. Replace end cap and apply ?index set? sticker on motor. This motor is ready for operation AFTER THE SYSTEM HAS BEEN REBOOTED.

11. Install motor on machine.

Document History

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