

TB266 (Rev1) - Installing an AC Rotary table with Yaskawa Motor and Drive onto a GPIO4D system

Purpose: Outline the necessary parts needed as well as instructions on how to install and configure the rotary table to your system.

Parts List:

- AC GSA rotary table with Yaskawa motor installed
- Sigma V Yaskawa drive
- 15ft. 14AWG red, white, and black wire
- 8ft. 14AWG green wire
- 2x blue ring crimp terminals
- Rotary pigtail for Yaskawa motor and drive
- CN1 cable for Yaskawa drive
- 3kW systems and up will require an estop contactor & quencharc
- *****Optional***** Opticdirect board with fiber optic cables (replaces CN1 cable)
- which requires M3 standoffs to mount to side of Yaskawa drive

Instructions

1. Determine the location to install the Yaskawa drive. Make sure to provide enough space around the drive for air flow. Mount the drive to the panel. **Note:** If using Opticdirect board, mount the board to the drive before installing.
2. Determine the location for the rotary pigtail. Punch 2x 1-1/4" holes for the connectors and then mark and drill the 4x holes to mount the connectors to the electrical cabinet. If you are installing on an Atrump Taiwan integrated system there is a knock out plate that already has the correct sized holes for the pigtail. Simply use a hammer and a blade screw driver to knock out the blanks.
3. Remove all the necessary wire track covers.
4. Run 14AWG wire (red, white, & black) from one of the axis's estop contactor to your 4th axis drive.
5. For 200V Yaskawa drives locate 220VAC single phase and run it to the logic input on the drive at L1c and L2c. **Note:** For 400V drives they use 24VDC for logic power.
6. Crimp a ring terminal on one end of 14AWG green wire. Connect it to the drive then run it to the ground strip. Cut it to length and crimp the second blue ring terminal. Connect it to the ground strip.
7. Connect the pigtail power and encoder connections to the Yaskawa drive.
8. Connect the individual wires on the CN1 connector:
 - black to 24VDC COM
 - red to 24VDC
 - brown wire to OUT16 (drive reset).

9. If using the Opticdirect board move the fibers from the Z-axis drive to the 4th axis drive and run supplied fibers from the 4th-axis drive to the Z-axis drive and connect ribbon cable to CN1 plug on Yaskawa drive. Run 24VDC to the Opticdirect board.
10. Connect the home switch cable to IN8 on the GPIO4D and to a 24VDC power source.
11. Connect the rotary clamp to OUT6. Make sure to run 110VAC to OUT6 COM.
12. Re-install wire track covers, and connect rotary table to electrical cabinet.
13. Power up the control go to the configuration menu (**F1-Setup, F3-Config, Pw-137**).
14. Start with **F2-Machine** configuration, then **F1-Jog** to change the values according to table below. Save the changes and press **F2-Motor**. Set the axis label to A, B, or W, then set the other values according to table below.

| Rotary Table | Slow Jog | Fast Jog | Max Rate | Turns Ratio | Encoder Counts | +/- Home Switch |
|--------------|----------|----------|----------|-------------|----------------|-----------------|
| RT120 | 500 | 4000 | 8000 | 0.25 | 131072 | 8 |
| RT170 | 500 | 4000 | 8000 | 0.25 | 131072 | 8 |
| RT200 | 500 | 4000 | 8000 | 0.25 | 131072 | 8 |
| RT250 | 250 | 1000 | 4000 | 0.5 | 131072 | 8 |
| RT320 | 250 | 1000 | 4000 | 0.5 | 131072 | 8 |

15. Press **ESC** once to go back to the configuration menu and then press **F3-Params**. Set the following parameters:

P94 – 1
P303 – 12 (CN1 setup), 4

P311 – 4 (CN1 setup), 10

P360 - 3000

(Opticdirect setup)

(Opticdirect setup)

Press **F10-Save** when finished.

16. Press **F4-PID** and then **F1-PID** to set the PID settings to default Yaskawa settings as listed below.

| Kp | Ki | Kv1 |
|------|--------|-----|
| 0.04 | 0.0001 | 95 |

17. Save your PID settings. Press **ESC** until you see the main screen. Press **F7-Util, F5-File Ops**, highlight the [up] to go up a directory and press **Enter**. Highlight the cncm.hom file and press **F4-Edit**. Go to line under M26/Y and type **M92/*** (* is the axis label you chose for your 4th axis i.e. A), on the next line type **M26/***. Then save and exit from the editor window.
18. Power cycle the control to reset your drive and encoder mapping settings.
19. Take control out of incremental mode and try to jog the rotary table. If it jogs ok, home the machine. After you have homed the machine, go back to the PID menu and manually tune the table.
20. Apply air to the rotary table and verify that M10 turns the clamp on and M11 turns the clamp off.
21. Once the rotary table as been fully tested, generate a report and email it to Tech Support.

Document History