TB239 (Rev1) - Sanyo Denki Drive Setup for CNC11 Systems

This Tech. Bulletin explains the setup and wiring when using a Sanyo Denki 3rd party drive for motor control on a CNC11 control running at least 3.00 rev53 software. Like all 3rd party drives, it should be setup in Velocity Mode.

Modifying Drive Parameters

- Press the **MODE** key to enter different parameter modes. Keep pushing this key until the correct mode is displayed. Status Display is the default Mode. Gr contains many general parameters. Sy contains the motor/drive combination specific parameters.
- Use the **WR/RIGHT** arrow key to move the cursor to the correct digit with the number to modify.
- Press the **UP** and **DOWN** arrows to change the page number which contains the parameter to be changed and the parameter number as well.
- Press the **WR/RIGHT** arrow key for more than a second to display the value stored in the parameter.
- Press the **WR/RIGHT** arrow key for less than a second to move the cursor.
- Press the **UP** and **DOWN** arrows to change the value stored in the parameter.
- Press the **WR/RIGHT** arrow key for more than a second to save the parameter. The display will blink 3 times to indicate success.
- Push the **MODE** key twice to back out to the status display.

Default Drive Parameters

The Sanyo Denki drive uses separate inputs for Torque Mode and Velocity Mode command. The default inputs and outputs are used so that no changing of drive parameters is required. They are listed here for reference.

Parameter Number	Value	Description
Gr 8.25	500	Analog Velocity command scaling. Increasing this causes smaller Kv1
Gr 9.00	0	Disable positive over-travel input
Gr 9.01	0	Disable negative over-travel input
Gr 9.02	10	Reset Alarms when CONT8 (input 8) SET on drive by PLC
Gr 9.05	2	Enable drive when CONT1 (input 1) SET on drive by PLC
Gr A.07	39	Output 8 SET to PLC when no errors, RST to PLC when errors occured
Gr C.00	1	00 = Absolute Encoder, 01 = Incremental Encoder

Gr C.05	1/1	No encoder division should be done, set to fraction that evaluates to 1
Gr C.06	0	Standard encoder polarity
Gr C.07	0	Binary Encoder counting
Sy 00	0	3 phase AC power
Sy 01	00, 01	00 = Incremental encoder, 01 = Absolute Encoder
Sy 02	00	00 = 4 pair wire saving encoder
Sy 03	500-65535	Encoder counts per revolution of motor
Sy 08	1	Set the drive in velocity Mode
Sy 0B	00, 01	Use 01 for Internal brake resistory if available, otherwise use 00.

Jog Trial Run

Once the drive is setup correctly, it should be jogged before connecting to the CNC11 system.

- Press the **Mode** key until "Ad 0" is displayed.
- Press the **UP** arrow key to set the jog speed to 5.
- Press the **WR/RIGHT**arrow key for more than 1 second to see "y_n" displayed.
- Press the**UP**arrow key to display "rdy" and accept confirmation.
- Press the **WR/RIGHT** arrow key for more than 1 second to set Servo On status.
- Press the **UP** arrow key to rotate the motor shaft 50 RPM CCW looking at the shaft.
- Press the **DOWN** arrow key to rotate the motor shaft 50 RPM CW looking at the shaft.
- Press the Mode key to terminate the jog trial. Reset power to the drive to continue installation.

CNC11 Setup

Now that the drive has been confirmed to work, the CNC11 side must be setup.

- Enter the correct values for motor revs/inch or mm/rev, encoder counts/rev, and jog rates.
- Check the encoder counts/rev match what is expected by going to the PID screen and turning the shaft once by hand.

- Set the PID values according to the following table.

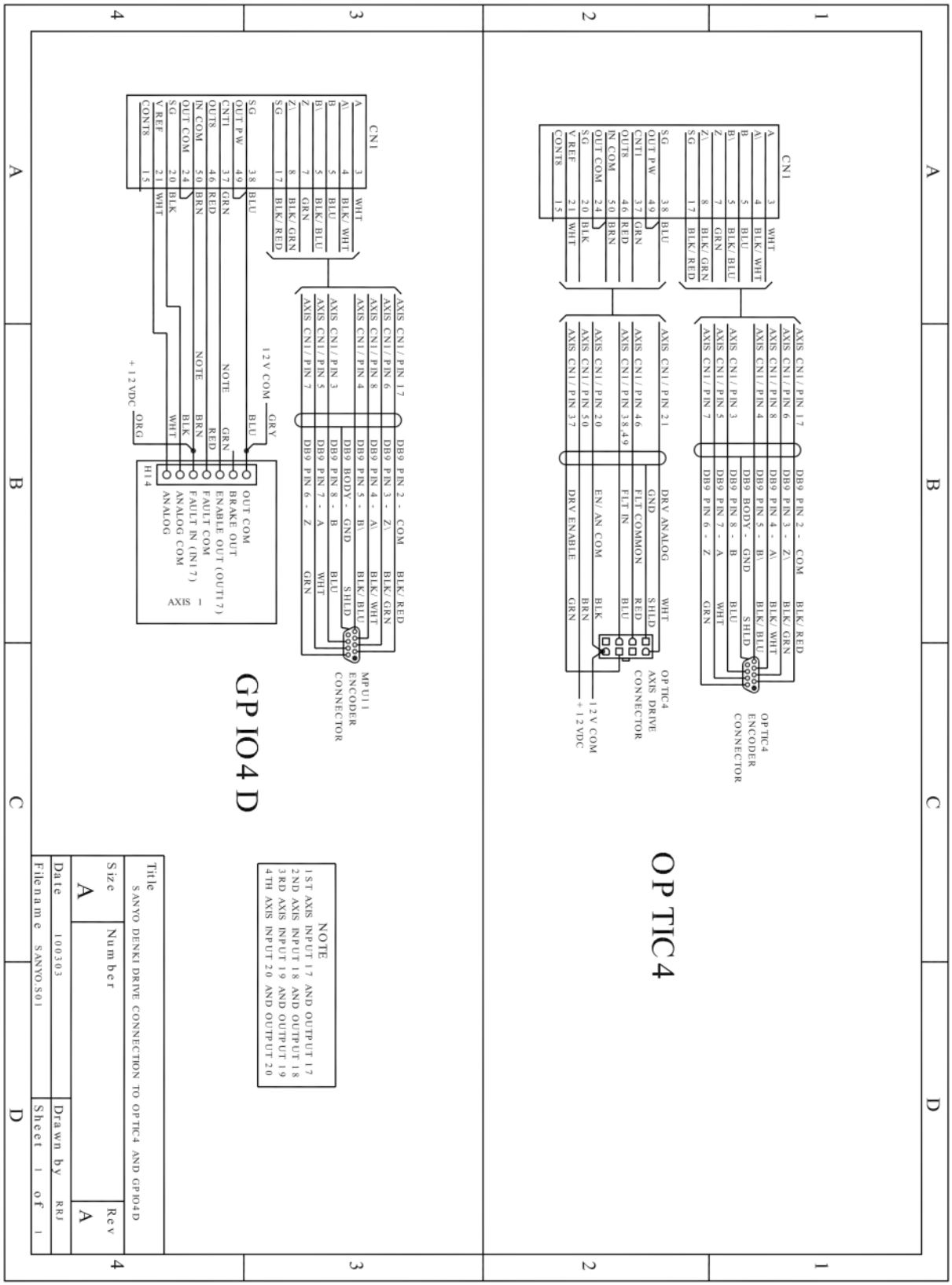
Parameter	Value
Kp	0.02
Ki	0.00004
Kd	0
Limit	2560000
Kg	0
Kv1	50
Ka	0

- Centroid does not recommend connecting or using the Alarm Reset signal to the drive. Drive faults should be investigated immediately. Information about connection is given for informational purposes.

- Continue to Tech. Bulletin 234 for tuning the drives in velocity Mode.

Optic4 and GPIO4D to Sanyo Denki Drive Wiring

This is for the typical wiring of a Sanyo Denki drive. Click here to see the full size drawing.



Document History

Rev1 Created on ***2010-07-19*** by ***#297***