HNC CANOPEN CONFIGURATION

Contents

1.Download and install driver
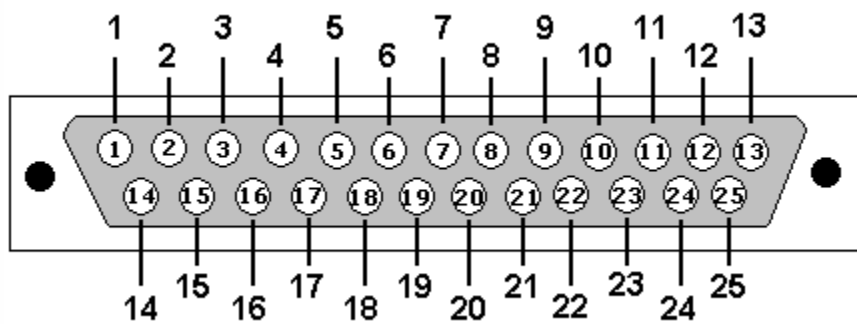
there is a document too

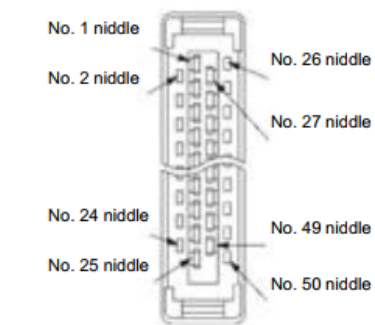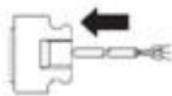| Servo Drive | HSD7-E Servo Drive User Manual V0.3_202104 | ⬇ |
| Servo Drive | HSD7 Commisioning Software-iWatch for 64bit OS | ⬇ |
| Servo Drive | HSD7 Commisioning Software-iWatch for 32bit OS | ⬇ |

2. Wiring

LAN Connector
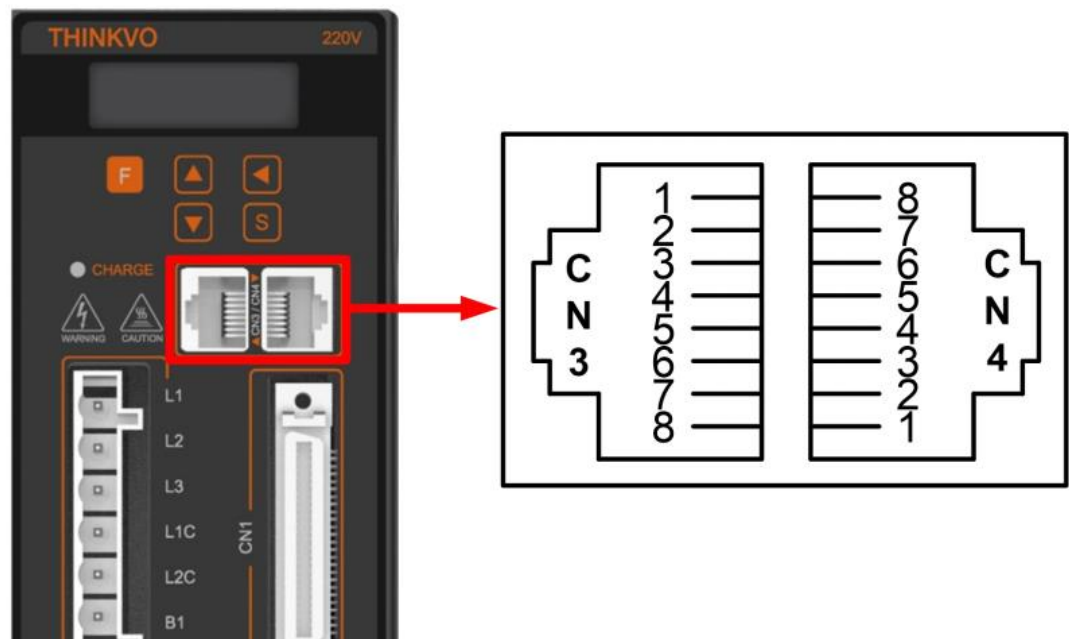
DB25 connector

CN1 Connector

No. 1 niddle
No. 2 niddle
No. 26 niddle
No. 27 niddle
No. 24 niddle
No. 49 niddle
No. 25 niddle
No. 50 niddle

The appearance when the connector housing is not installed as seen from the arrow direction is as follows.

Pin	Signal	Pin	Signal	Pin	Signal
1	PULS+			26	-
2	PULS-	27	-		
3	SIGN+			28	-
4	SIGN-	29	-		
5	VREF+			30	TREF+
6	VREF-	31	TREF-		
7	ALM+			32	OUT3+
8	ALM-	33	OUT3-		
9	OUT1+			34	OUT4+
10	OUT1-	35	OUT4-		
11	OUT2+			36	OUT5+
12	OUT2-	37	OUT5-		
13	DICOM			38	-
14	IN0	39	IN4		
15	IN1			40	IN5
16	IN2	41	IN6		
17	IN3			42	IN7
18	-	43	-		
19	PAO+			44	-
20	PAO-	45	-		
21	PBO+			46	-
22	PBO-	47	-		
23	PCO+			48	-
24	PCO-	49	-		
25	GND			50	-

2.1. Connect CAN

Use LAN cable (20NM use CN3, 30 NM use CN4, can test which port can use)

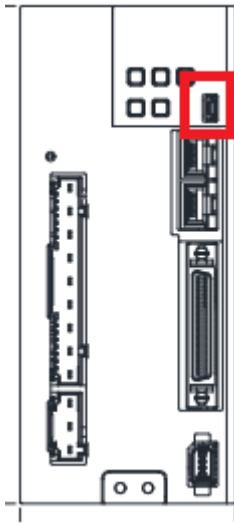| CN3 or CN4	Description	DB25
1	CAN H	18
2	CAN L	6
3	GND	14

2.2. Connect CN1

Use at least 7 wires cable

CN1	Description	DB25
13	24V	1
14	Servo On	2
15	Force stop (E-Stop)	15
16	P-OT	8
17	N-OT	8
23	Z+	13
24	Z-	25

3. Configuration

- Use mini usb to USB connect servo driver to PC

- Open iwatch -> choose serial port (not port 1) -> seach -> choose device -> connect
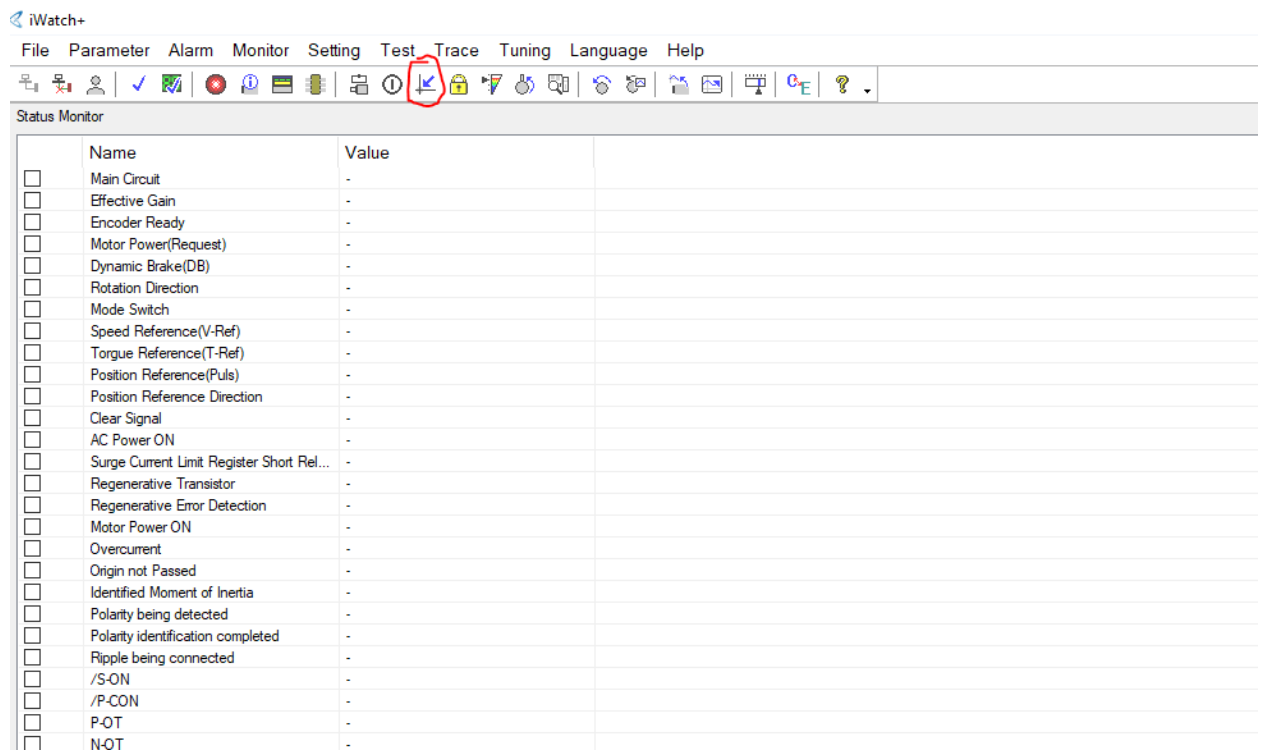

- Click C/E to choose English
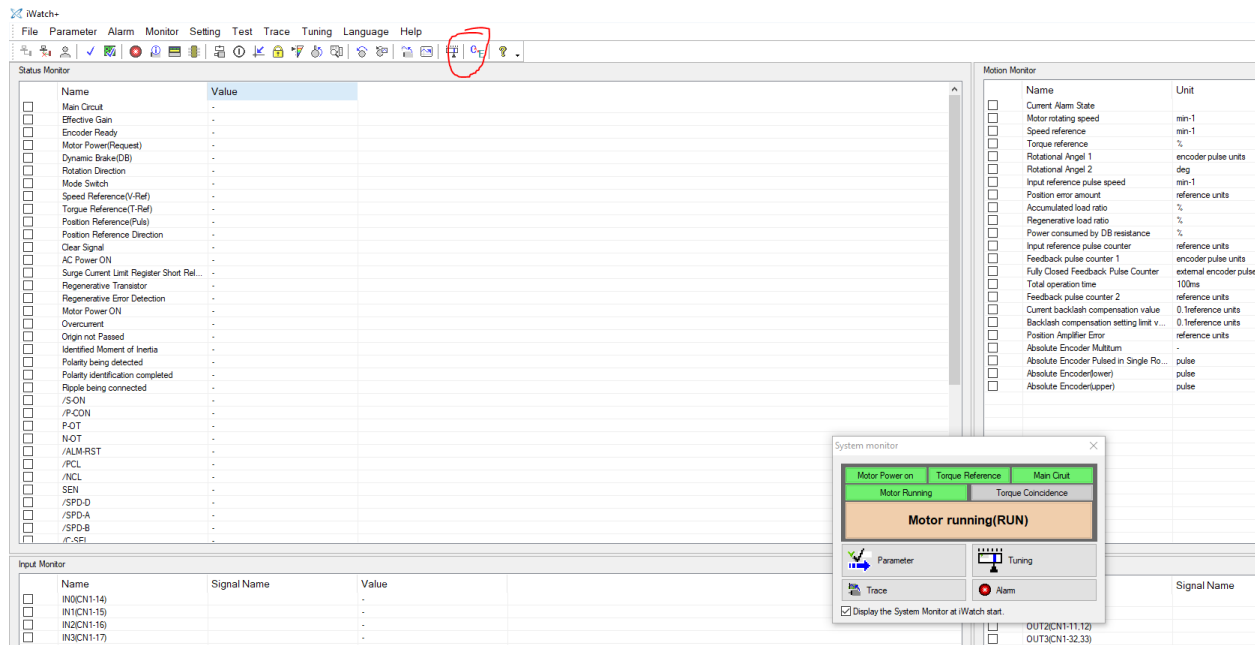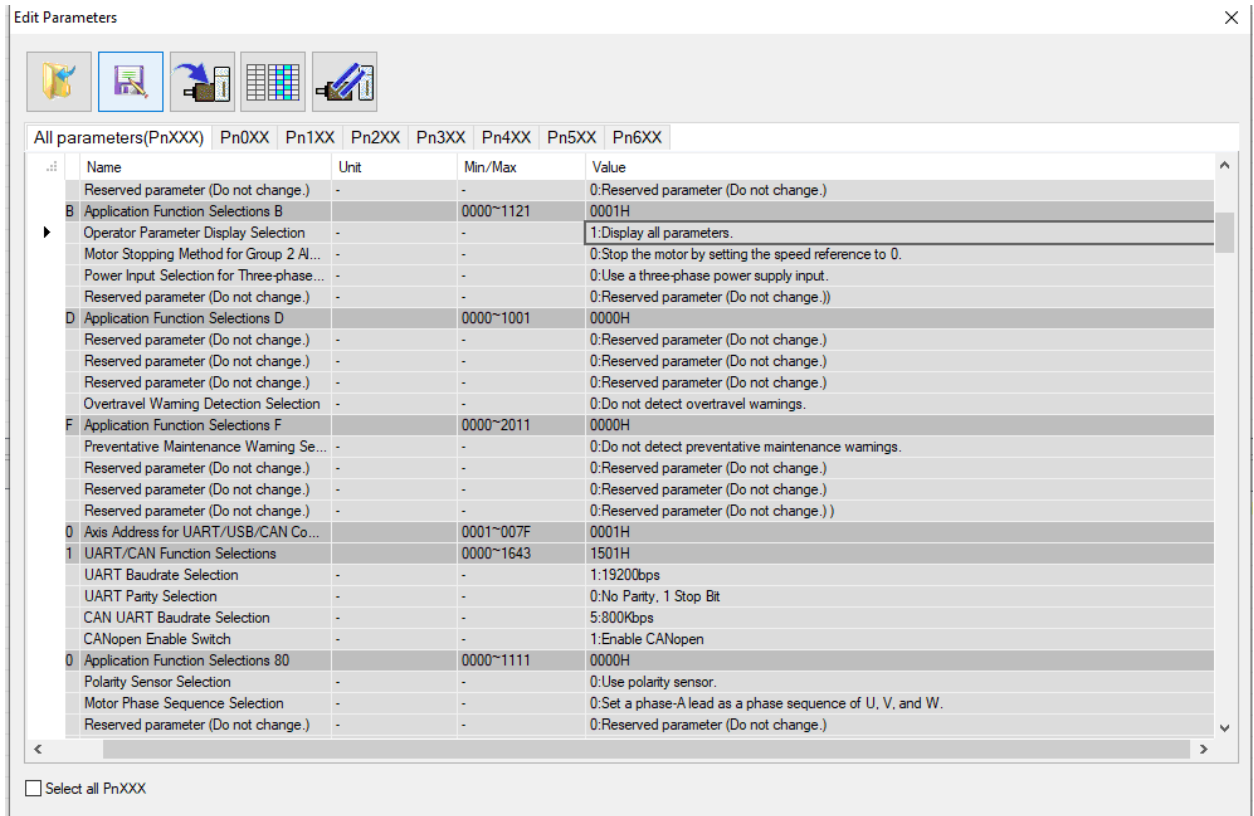
3.1. Reset encoder

If driver has alarm A.810 reset encoder.

➔ Click "excecute" ➔ power off driver ➔ power on again.

3.2. Display all parameter

PN00B-> set "operator parameter display selection" too "display all parameters"

Edit Parameters

	Name	Unit	Min/Max	Value
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
B	Application Function Selections B		0000~1121	0001H
▶	Operator Parameter Display Selection	-	-	1:Display all parameters.
	Motor Stopping Method for Group 2 Al...	-	-	0:Stop the motor by setting the speed reference to 0.
	Power Input Selection for Three-phase...	-	-	0:Use a three-phase power supply input.
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.))
D	Application Function Selections D		0000~1001	0000H
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
	Overtravel Warning Detection Selection	-	-	0:Do not detect overtravel warnings.
F	Application Function Selections F		0000~2011	0000H
	Preventative Maintenance Warning Se...	-	-	0:Do not detect preventative maintenance warnings.
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.))
0	Axis Address for UART/USB/CAN Co...		0001~007F	0001H
1	UART/CAN Function Selections		0000~1643	1501H
	UART Baudrate Selection	-	-	1:19200bps
	UART Parity Selection	-	-	0:No Parity, 1 Stop Bit
	CAN UART Baudrate Selection	-	-	5:800Kbps
	CANopen Enable Switch	-	-	1:Enable CANopen
0	Application Function Selections 80		0000~1111	0000H
	Polarity Sensor Selection	-	-	0:Use polarity sensor.
	Motor Phase Sequence Selection	-	-	0:Set a phase-A lead as a phase sequence of U, V, and W.
	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)

All parameters(PnXXX) Pn0XX Pn1XX Pn2XX Pn3XX Pn4XX Pn5XX Pn6XX

☐ Select all PnXXX

3.3. Set max speed during torque control

PN407 (here I set 150 rpm, you can choose from 120-200, depend on you :D)

No.	Name	Unit	Min/Max	Value
Pn403	Reverse Torque Limit	1%*2	0~800	800
Pn404	Forward External Torque Limit	1%*2	0~800	100
Pn405	Reverse External Torque Limit	1%*2	0~800	100
Pn406	Emergency Stop Torque	1%*2	0~800	800
Pn407	Speed Limit during Torque Control	1 min-1	0~10000	150
Pn408	Torque-Related Function Selections		0000~1111	0000H
Hex0	Notch Filter Selection 1	-	-	0:Disable first stage notch filter.
Hex1	Speed Limit Selection	-	-	0:Use the smaller of the maximum motor speed and the setting of Pn407/Pn480 as the speed lim
Hex2	Notch Filter Selection 2	-	-	0:Disable second stage notch filter.
Hex3	Friction Compensation Function Selecti...	-	-	0:Disable friction compensation.
Pn409	First Stage Notch Filter Frequency	1 Hz	50~5000	5000
Pn40A	First Stage Notch Filter Q Value	0.01	50~1000	70
Pn40B	First Stage Notch Filter Depth	0.001	0~1000	0
Pn40C	Second Stage Notch Filter Frequency	1 Hz	50~5000	5000
Pn40D	Second Stage Notch Filter Q Value	0.01	50~1000	70
Pn40E	Second Stage Notch Filter Depth	0.001	0~1000	0
Pn40F	Second Stage Second Torque Refere...	1 Hz	100~5000	5000
Pn410	Second Stage Second Torque Refere...	0.01	50~100	50
Pn412	First Stage Second Torque Reference ...	0.01 ms	0~65535	100
Pn415	T-REF Filter Time Constant	0.01 ms	0~65535	0
Pn416	Torque-Related Function Selections 2		0000~1111	0000H
Hex0	Notch Filter Selection 3	-	-	0:Disable third stage notch filter.
Hex1	Notch Filter Selection 4	-	-	0:Disable fourth stage notch filter.
Hex2	Notch Filter Selection 5	-	-	0:Disable fifth stage notch filter.
Hex3	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
Pn417	Third Stage Notch Filter Frequency	1 Hz	50~5000	5000

3.4. set encoder to maximum resolution
      PN20E and PN210

Config encoder as single turn

3.5. Enable CanOpen

PN011: Hex 2 choose 800kbps, hex3 enable can open
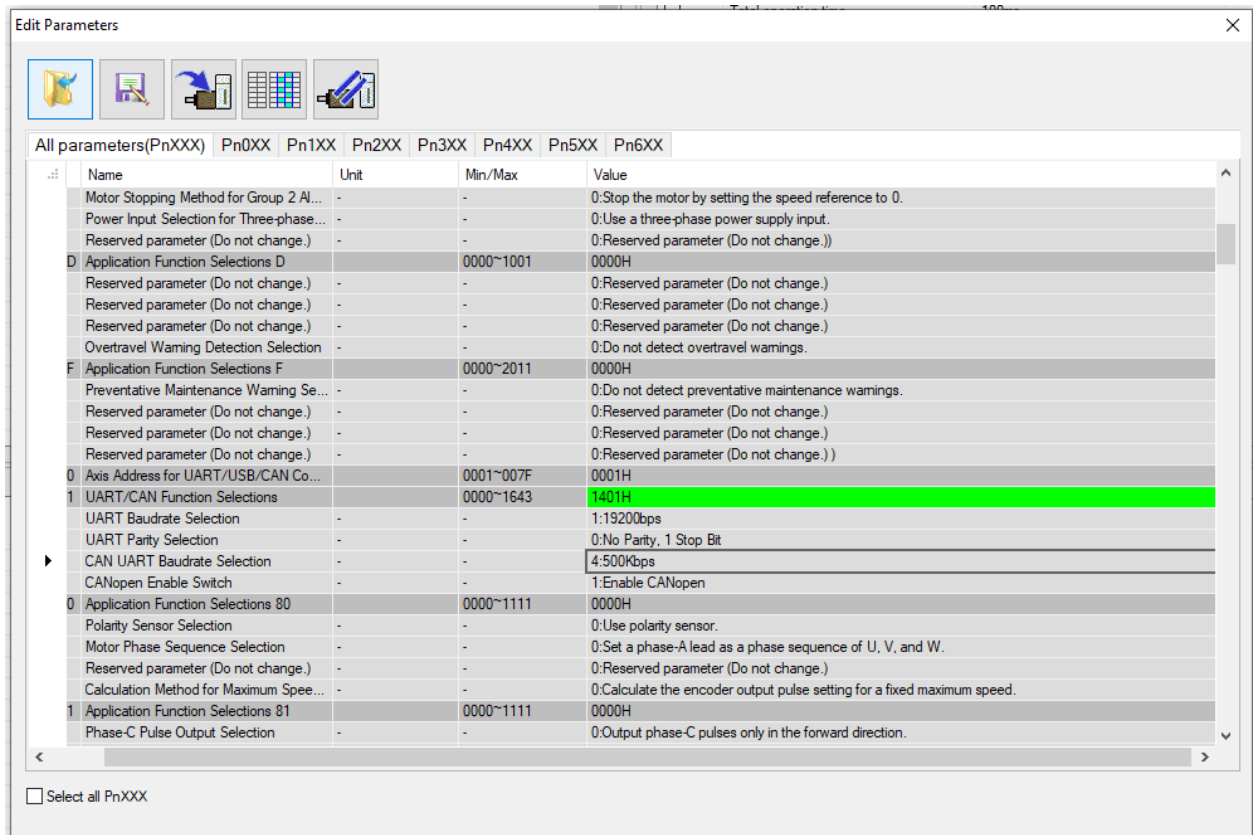
3.6. Config filter

Enable filter and cutoff freq to 200hz

3.7. enable Force stop

3.8. disable prohibit for testing

No.	Name	Unit	Min/Max	Value
Pn501	Zero Clamping Level	1 min-1	0~10000	10
Pn502	Rotation Detection Level	1 min-1	1~10000	20
Pn503	Speed Coincidence Detection Signal Output Width	1 min-1	0~100	10
Pn506	Brake Reference-Servo OFF Delay Time	10 ms	0~50	0
Pn507	Brake Reference Output Speed Level	1 min-1	0~10000	100
Pn508	Servo OFF-Brake Command Waiting Time	10 ms	10~100	50
Pn509	Momentary Power Interruption Hold Time	1 ms	20~50000	20
Pn50A	Input Signal Selections 1		0000~9991	8801H
Hex0	Input Signal Allocation Mode	-	-	1:Change the sequence input signal allocations.
Hex1	/S-ON (Servo ON) Signal Allocation	-	-	0:Active when CN1-IN0 input signal is ON (closed).
Hex2	/P-CON (Proportional Control) Signal Allocation			8:The signal is always inactive.
Hex3	P-OT (Forward Drive Prohibit) Signal Allocation	-	-	8:Set the signal to always enable forward drive.
Pn50B	Input Signal Selections 2		0000~9999	8888H
Hex0	N-OT (Reverse Drive Prohibit) Signal Allocation	-	-	8:Set the signal to always enable reverse drive.
Hex1	/ALM-RST (Alarm Reset) Signal Allocation	-	-	8:The signal is always inactive.
Hex2	/P-CL (Forward External Torque Limit Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex3	/N-CL (Reverse External Torque Limit Input) Signal Allocation	-	-	8:The signal is always inactive.
Pn50C	Input Signal Selections 3		0000~9999	8888H
Hex0	/SPD-D (Motor Direction) Signal Allocation	-	-	8:The signal is always inactive.
Hex1	/SPD-A (Internal Set Speed Selection Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex2	/SPD-B (Internal Set Speed Selection Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex3	/C-SEL (Control Selection Input) Signal Allocation	-	-	8:The signal is always inactive.
Pn50D	Input Signal Selections 4		0000~9999	8888H
Hex0	/ZCLAMP (Zero Clamping Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex1	/INHIBIT (Reference Pulse Inhibit Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex2	/G-SEL (Gain Selection Input) Signal Allocation	-	-	8:The signal is always inactive.

After testing work change like this

No.	Name	Unit	Min/Max	Value
Pn501	Zero Clamping Level	1 min-1	0~10000	10
Pn502	Rotation Detection Level	1 min-1	1~10000	20
Pn503	Speed Coincidence Detection Signal Output Width	1 min-1	0~100	10
Pn506	Brake Reference-Servo OFF Delay Time	10 ms	0~50	0
Pn507	Brake Reference Output Speed Level	1 min-1	0~10000	100
Pn508	Servo OFF-Brake Command Waiting Time	10 ms	10~100	50
Pn509	Momentary Power Interruption Hold Time	1 ms	20~50000	20
Pn50A	Input Signal Selections 1		0000~9991	2801H
Hex0	Input Signal Allocation Mode	-	-	1:Change the sequence input signal allocations.
Hex1	/S-ON (Servo ON) Signal Allocation	-	-	0:Active when CN1-IN0 input signal is ON (closed).
Hex2	/P-CON (Proportional Control) Signal Allocation			8:The signal is always inactive.
Hex3	P-OT (Forward Drive Prohibit) Signal Allocation	-	-	2:Enable forward drive prohibit when CN1-IN2 input signal is ON (closed
Pn50B	Input Signal Selections 2		0000~9999	8883H
Hex0	N-OT (Reverse Drive Prohibit) Signal Allocation	-	-	3:Enable reverse drive prohibit when CN1-IN3 input signal is ON (closed
Hex1	/ALM-RST (Alarm Reset) Signal Allocation	-	-	8:The signal is always inactive.
Hex2	/P-CL (Forward External Torque Limit Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex3	/N-CL (Reverse External Torque Limit Input) Signal Allocation	-	-	8:The signal is always inactive.
Pn50C	Input Signal Selections 3		0000~9999	8888H
Hex0	/SPD-D (Motor Direction) Signal Allocation	-	-	8:The signal is always inactive.
Hex1	/SPD-A (Internal Set Speed Selection Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex2	/SPD-B (Internal Set Speed Selection Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex3	/C-SEL (Control Selection Input) Signal Allocation	-	-	8:The signal is always inactive.
Pn50D	Input Signal Selections 4		0000~9999	8888H
Hex0	/ZCLAMP (Zero Clamping Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex1	/INHIBIT (Reference Pulse Inhibit Input) Signal Allocation	-	-	8:The signal is always inactive.
Hex2	/G-SEL (Gain Selection Input) Signal Allocation	-	-	8:The signal is always inactive.

3.9. Save paramters to Servo Driver

Edit Parameters

All parameters(PnXXX) Pn0XX Pn1XX Pn2XX Pn3XX Pn4XX Pn5XX Pn6XX

No.	Name	Unit	Min/Max	Value
Pn00D	Application Function Selections D		0000~1001	0000H
Hex0	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
Hex1	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
Hex2	Reserved parameter (Do not change.)	-	-	0:Reserved parameter (Do not change.)
Hex3	Overtravel Warning Detection Selection	-	-	0:Do not detect overtravel warnings.
Pn00F	Application Function Selections F		0000~2011	0000H

3.10. Restart servo