

HIGEN^S AC SERVO SYSTEM

P-DORI For FDA5000 Series User Manual (Ver 1.3)

Otis Elevator Korea

< CAUTION >.

1. **Insertion and Removal of communication cable should be done with the power off in both the servo drive and PC. If not, it may result in damage to both the servo driver's CN3 connector and PC's serial port.**
2. **Don't connect the body of 15pin connector and 9pin connector. It can cause problem because of noise. (Refer to Chapter 4.)**

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1. INSTALLING P-DORI

1.1 Introduction of P-DORI

P-DORI is a software tool for setup of OTIS FDA5000 servo drivers. P-DORI is designed to communicate with FDA5000 servo drive through RS-232C serial port. P-DORI provides an easy graphical user interface for setup, monitoring and testing FDA5000 servo system.

1.2 Features of P-DORI

P-DORI provides uniform functions to help user to setup and operate FDA5000 servo system.

- Display of I/O signals and internal status of FDA5000 servo driver.
- Parameter editing
- Jog and Auto-jog Operation.
- Downloading all parameters, which is saved by user, to servo driver at once.

1.3 Program Setup

1.3.1 Installing from CD-ROM

1. Insert CD-ROM into the CD-ROM drive (e.g., E:\).
2. Type E:\Setup.exe or double-click the E:\Setup.exe file.

1.3.2 Installing from Internet

1. Download the '**P-DORI(Ver1.3).zip**' from **OTIS Motor Website**
(<http://www.higenmotor.com/eng/info>)
2. Extract the zip file to hard disk(e.g., D:\).
3. Type D:\Setup.exe or double-click the D:\Setup.exe file.

If the P-DORI is installed correctly, it creates the new directory (C:\Program Files\OTIS\P-DORI_FDA5000) and the new Icon in your desktop. Double-click the icon to start the P-DORI.

2. How to Use

2.1 Serial cable connection & Serial port setting.

After installing the P-DORI properly, prepare the serial cable to connect the PC (Personal Computer) and the servo driver. Refer to **Chapter 4** for the serial cable.

Connect the servo driver and PC with the serial cable. Any serial comport is available.

After proper connection of serial cable, start P-DORI. Select the type of your FDA 5000 servo driver. Click the **Config Menu** to set the serial port. Default port is COM0. Choose the proper comport and click the **OK Button**.



Picture 1. Serial Port Setting Window.

2.2 ON-Line & Parameters (P1 ~ P5) Setting.

After setting the serial port properly, click the **On-Line Button** to start serial communication. If the communication works properly, state values and I/O status of the servo driver are displayed in the window. If not, the error message ‘ **Please, check Comport Connection**’ appears. In this case, check the RS-232C connection.

Click the P1~P5 Buttons to edit the parameters. When the each button is clicked, present parameters in the servo driver are displayed in Value Box. To change the parameter value, write the new value in EDIT Box and click the **SET Button**. If the new value is written properly, the new value will be displayed in Value Box. If not, click the **Read Again Button** and try again.

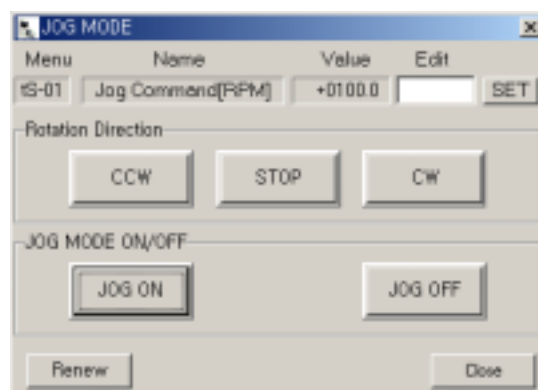
Check the limitation of the values before editing the parameters. If abnormal value is written, errors will occur. Refer to the **Operation Manual of FDA 5000 servo driver**.

2.3 Test Mode (P6--)

There are three test modes, **Jog**, **Auto-Jog** and **Simulation mode**. In Jog and Auto-Jog mode, the motor can be test-run with the only servo driver loader without positioning system or separate operation panel. In Simulation mode, the status of the servo system can be simulated without motor.

2.3.1 JOG Mode

In Jog mode window, click the JOG ON button to stand-by the servo system.



Picture 2. JOG mode window

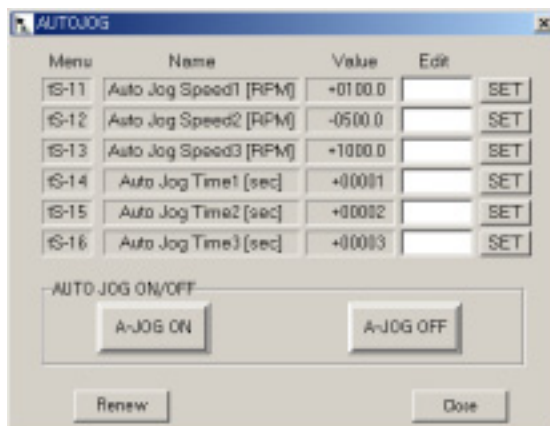
To change the motor speed, edit the Jog Command Speed and click the SET button. After setting the Jog Command Speed, click the one of the direction buttons, the same direction of command or the opposite direction of command. Click the JOG OFF button to return the servo function to normal.

※ Caution!

Without clicking the JOG OFF button, the servo system keeps the JOG operation mode ON after clicking the JOG ON Button.

2.3.2 Auto JOG Mode

Auto-Jog mode provides three speed patterns and three periods of time.

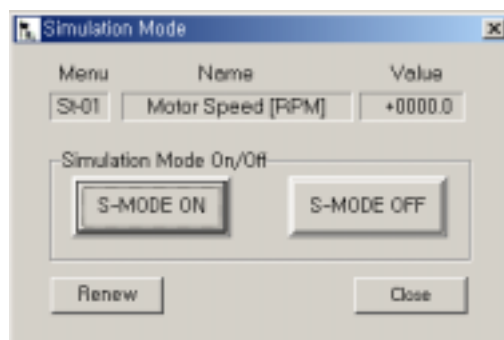


Picture 3. Auto JOG mode window

After editing the Speed and Time values, click the A-JOG ON button to operate with three speed and time patterns. Please, click the A-JOG OFF button before returning the servo function to normal or exiting from A-JOG window. Without clicking the A-JOG OFF button, the servo system keeps the Auto-Jog operation mode. In case of exiting from A-JOG window without clicking the A-JOG OFF button, reopen the Auto-Jog window and click the A-JOG OFF button,

2.3.3 Simulation Mode

In this mode, the servo driver can simulate its own operation status without motor. Simulated operation is a condition under which, while the connector CN1 is connected in normal state, the state data of the servo driver are displayed just as the motor is running when the motor wire and encoder are separated. Click the Simulation Button to operate simulation mode.



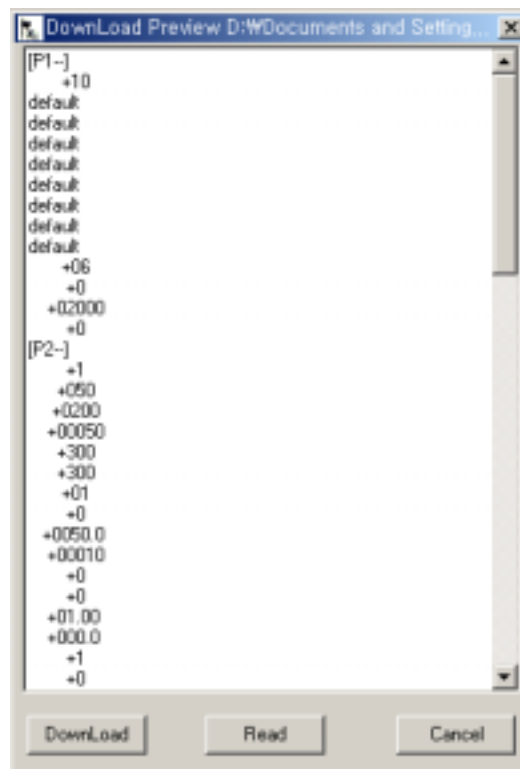
Picture 4. Simulation mode window

Click the S-MODE ON button and activate the SVONEN contacts. The motor speed displayed when you activate one of SPD CMD contacts.

2.4 PARAMETHER SAVE and DOWNLOAD

P-DORI provides the download function. This function is useful to apply the same parameters to several servo drivers. Download the parameters using following method.

1. Edit & Write the parameters.
2. Click the File/Save menu to save the parameters to a file. The parameter save file has '*.lpa' form.
3. Set another drive to download the parameters.
4. Click the Tools/Download to load the parameter save file.
5. Click the Downlaod button to start downloading the parameters.
6. After downloading, click Read button to check the values of the parameters.

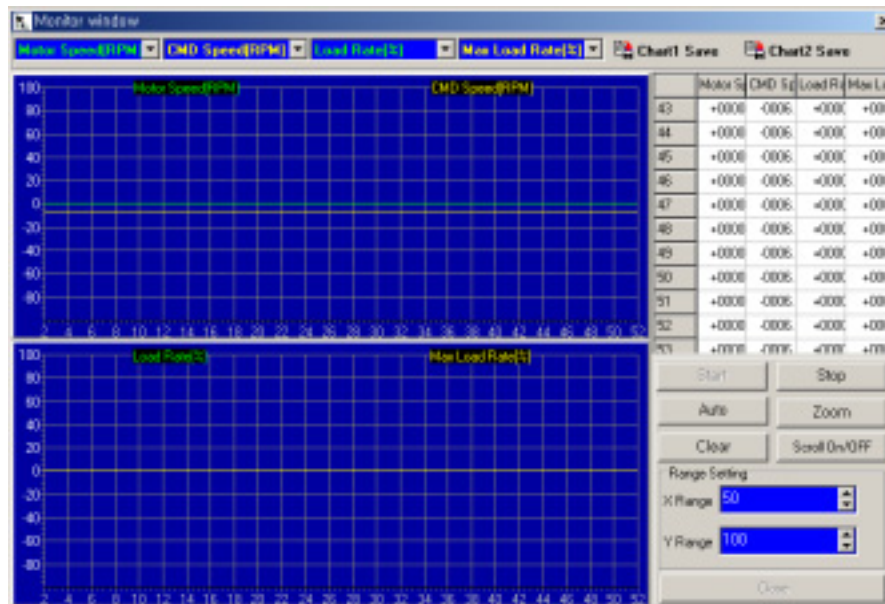


Picture 5. Download window

2.5 Monitor Window

Monitoring window provides real-time chart for the status of servo driver.

Click the Tools/Monitor to use the Monitoring function.



Picture 6. Monitor window

See the real-time chart using following method.

1. Choose the status which you want to display. Sampling Rate is in inverse proportion to number of parameters selected. For example, in case only one parameter, the sampling rate is 50ms/S. in case four parameters, the sampling rate is 200ms/S. Additionally, the sampling rate is concerned with PC's performance.
2. Click the Start button to get the sampling data from servo driver.
3. Click the Auto button to set the Y-axis range as auto-scale. Or, edit the value of Range Setting, and then click the Zoom button to change the x-y axis range.
4. Click the Stop button to pause the charts. Click the Chart Save Icons to save the chart as BMP files.
5. Click the Clear button to initialize the chart.
6. Click the Exit button to close the Monitoring window.

2.6 Report Window

Report window provides the report sheet to view all of the parameters in one page.

Click the Tools/Report Menu to use the Report function.

REPORT

Read				Clear		Save		Quit			
	A	B	C	D	E	F	G	H	I	J	K
		Menu	Name	Value		Menu	Name	Value		Menu	
1		P1-01	Motor ID	+21		P1-01	Speed CMV/PPM	+8110.0		1	LINE 1
2		P1-02	AM (mm/s)	default		P1-02	Speed CMV/PPM	+8200.0		2	LINE 1
3		P1-03	RT (mm/s)	default		P1-03	Speed CMV/PPM	+8300.0		3	LINE 1
4		P1-04	LT (mm/s)	default		P1-04	Speed CMV/PPM	+8400.0		4	LINE 1
5		P1-05	TS (mm/s)	default		P1-05	Speed CMV/PPM	+8500.0		5	Normal
6		P1-06	TS (mm/s)	default		P1-06	Speed CMV/PPM	+8600.0		6	Normal
7		P1-07	SP (Max) PPM	default		P1-07	Speed CMV/PPM	+8700.0		7	Normal
8		P1-08	SP (Min) PPM	default		P1-08	Speed CMV/PPM	+8800.0		8	Normal
9		P1-09	SP (Max) PPM	default		P1-09	Speed CMV/PPM	+8900.0		9	Normal
10		P1-10	SP (Min) PPM	default		P1-10	Speed CMV/PPM	+9000.0		10	Normal
11		P1-11	Free Amp Type	+15		P1-11	SP TYPE ON	+0		10	Normal
12		P1-12	Encoder Type	+0		P1-12	Zero Speed PPM	+8100.0		10	Normal
13		P1-13	Encoder P1/PPM	+01000		P1-13	Speed Range	+8100.0		10	Normal
14		P1-14	Parameter Lock	+0		P1-14	Thrust Speed PPM	+8200.0		10	Normal
15		P2-01	Controller Type	+1		P2-01	SPD CMD OFF (mm)	+8300.0		SPD0	0
16		P2-02	FCF Gain	+950		P2-02	Zero Clamp Mode	+0		SPD0	0
17		P2-03	FCF LAMP Gain	+0000		P2-03	Clamp CLT Limit	+8400.0		SPD0	0
18		P2-04	FCF TC (ms)	+0000		P2-04	DISPLAY	+8500.0		ON	0
19		P2-05	TRQ LMT (+) (%)	+340		P2-05	Overload Clmp Off	+0		OFF	0
20		P2-06	TRQ LMT (-) (%)	+340		P2-06	Feedforward PPM	+8600.0		CLWLM	0
21		P2-07	False Out Rate	+01		P2-07	FF FLY TC (ms)	+8700.0		CCLWLM	0
22		P2-08	Current Offset	+0		P2-08	CMV FLY TC (ms)	+8800.0		FLM	0
23		P2-09	Ratio SP/PPM	+0000		P2-09	In Position PPM	+8900.0		CLSTOP	1
24		P2-10	Stable Time (ms)	+0010		P2-10	FLW FLY PPM (Pulse)	+9000.0		STOP	0
25		P2-11	Monitor1 Select	+0		P2-11	SLCTR Gear1 NUM	+8000.0		ALMST0	0
26		P2-12	Monitor1 AGO	+0		P2-12	SLCTR Gear2 DEN	+8000.0		Normal	
27		P2-13	Monitor1 Scale	+01.00		P2-13	SLCTR Gear2 NUM	+8000.0		SPD0	0
28		P2-14	Monitor1 Offset	+000.0		P2-14	SLCTR Gear3 DEN	+8000.0		SPD0	1
29		P2-15	Monitor2 Select	+1		P2-15	SLCTR Gear3 NUM	+8000.0		SPD0	1
30		P2-16	Monitor2 AGO	+0		P2-16	SLCTR Gear4 DEN	+8000.0		SPD0	1
31		P2-17	Monitor2 Scale	+01.00		P2-17	SLCTR Gear4 NUM	+8000.0		TRQSTOP	0
32		P2-18	Monitor2 Offset	+000.0		P2-18	SLCTR Gear5 DEN	+8000.0		ALARM0	0
33		P2-19	Resonant FREQ (Hz)	+0300		P2-19	Phase Logic	+1		ALARM1	0
34		P2-20	Resonant Amp (Hz)	+0100		P2-20	Radiality (Pulse)	+8000.0		ALARM1	1
35		P2-21	De-Resonant Scale	+0		P2-21	TRQ CMD TC (ms)	+8000.0		ALARM2	0
36		P2-22	torque Ratio	+001.0		P2-22	TRQ Torque	+100			
37		P2-23	Autokill Range	+0		P2-23	Torque OFF	+8000.0			
38		P2-24	Autokill Clmp Off	+0							
39		P2-25	Parameter Init	+0							
40		P2-26	SPDn Delay	+000.0							
41		P2-27	CLT Control	+1							

41 / 41 Sheet

Picture 7. Report window

Make report sheet using following method.

1. Click the Read button to read all parameters from servo driver.
2. Click the Save button to save the parameters as a file. The Report file has “*.vts” form and it can be read with MS-Excel.
3. Click the Clear button to initialize the sheet..
4. Click the Quit button to close the Report window.

3. Troubleshooting

3.1 In case of Communication Problems.

1. Confirm that the servo drive power has been turned on.
2. Check the serial cable connection.
3. Check the serial port setting.

3.2 In case of Downloading Error.

1. Don't click any button until finishing downloading.
2. Check the values of the parameters whether it go out of its limitation.

3.3 In case of Reading / Writing Parameter Error.

1. Check the serial cable and port.
2. Restart the P-DORI program.

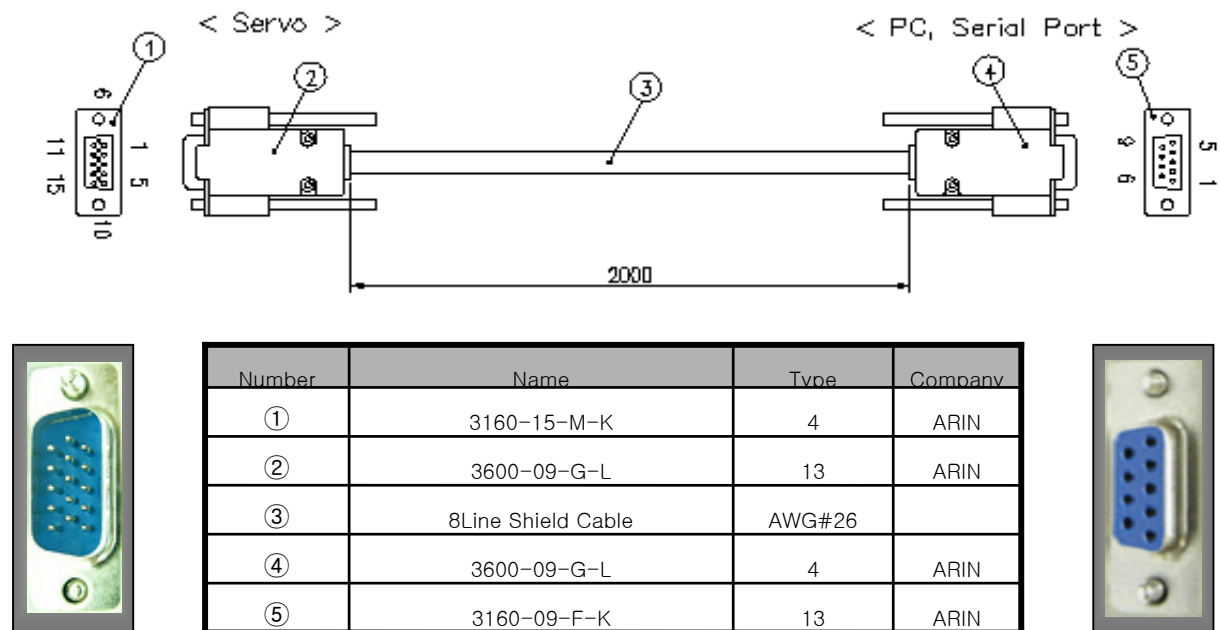
Contact with technical supports when you can not find out the solution.

※ *Caution*

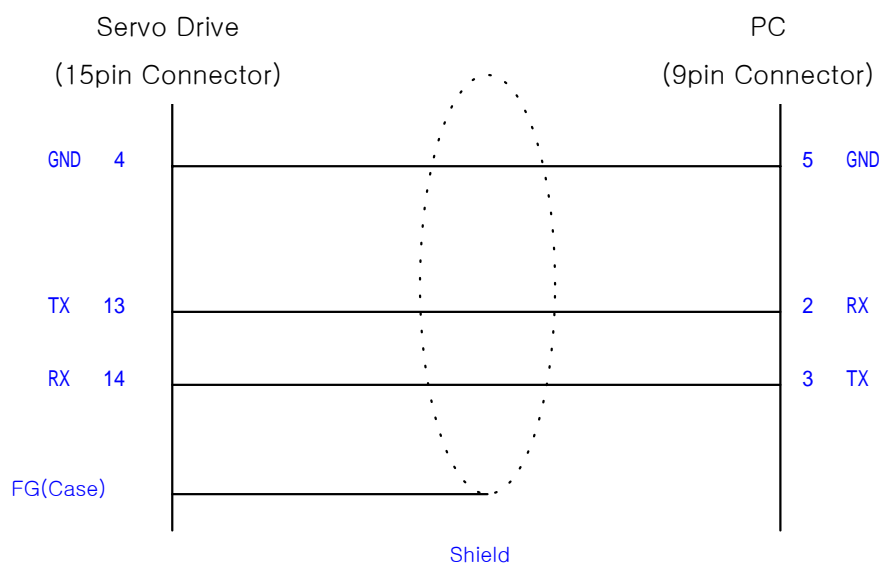
Insertion and Removal of communication cable should be done with the power off in both the servo drive and PC. If not, it may result in damage to both the servo driver's CN3 connector and PC's serial port.

4. Option

4.1 Connection of Serial Cable for P-DORI



4.2 Connection Circuit



※ Caution

Connect the Shield line of the cable③ to body of only connector①. Don't connect with the body of connector⑤. (Affix the other Shield line with a clamp).