

HIGEN^S AC SERVO SYSTEM

P-DORI Station For FDA6000 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 Station

1.1 Introduction of P-DORI Station

P-DORI Station is a software tool for setup of OTIS FDA6000 servo drivers. P-DORI is designed to communicate with FDA6000 servo drive through RS-232C serial port. P-DORI Station provides an easy graphical user interface for setup, monitoring and testing FDA6000 servo system.

1.2 Features of P-DORI Station

P-DORI Station provides uniform functions to help user to setup and operate FDA6000 servo system.

- Display of I/O signals and internal status of FDA6000 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 Station(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 Station is installed correctly, it creates the new directory (C:\Program Files\OTIS\P-DORI_FDA6000) and the new Icon 'P-DORI Station' in your desktop. Double-click the 'P-DORI Station_FDA6000' icon to start the P-DORI Station.

2. How to Use

2.1 Main Window.

When the P-DORI Station is initially started, the main window appears.



Picture 1. Main Window

P-DORI Station consists of two sub-programs, 'P-DORI' and 'P-SUNI'.

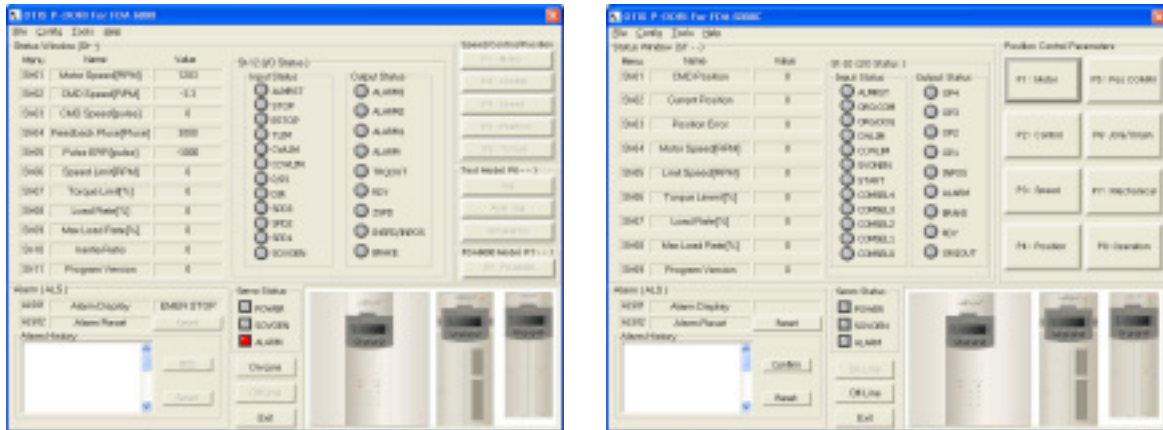
- P-DORI : Parameter Read/Write, Status Monitoring/Reporting, Parameter Downloading.
- P-SUNI : Changing Input contact status, Monitoring Status

Click the P-DORI button or P-SUNI button to start.

After finishing each sub-program, the main window appears. Click the EXIT button to finish the P-DORI Station.

2.2 P-DORI Window

When the P-DORI button is clicked and one of servo drive type is selected, the P-DORI Window appears.



Picture 2. P-DORI Window

Use the P-DORI through following steps.

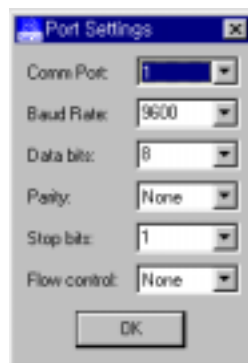
2.2.1 Serial cable connection & Serial port setting.

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 connecting of serial cable, start P-DORI or P-SUNI. Select the type of your FDA 6000 servo driver. Click the **Config Menu** to set the serial port. Default port is COM0. Choose the proper comport and click the **OK Button**.

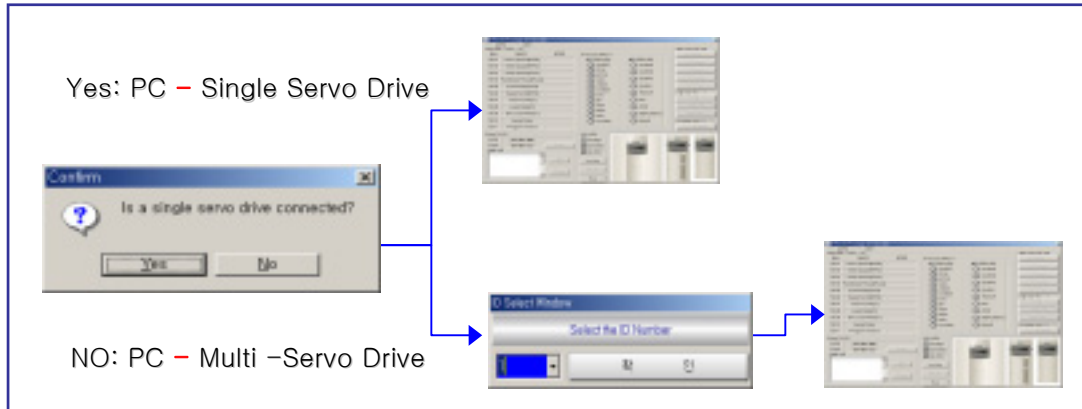


Picture 3. Port Setting Window

To use 'Auto port setting function', select COM0. In this case, when the 'ON-LINE' button is clicked, the available port list is displayed.

2.2.2 Select the Servo Drive ID.

Select the each servo drive's ID. Refer the picture 4.



Picture 4. Selecting Servo Drive ID

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.

2.2.3 Parameters Setting.

Click the P1~P5 Buttons (FDA6000C Model: 'P1~P8') 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**.

2.2.4 Test Mode (P6--) for FDA6000 Standard type.

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.

2.2.4.1 JOG Mode

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



Picture 5. JOG mode window

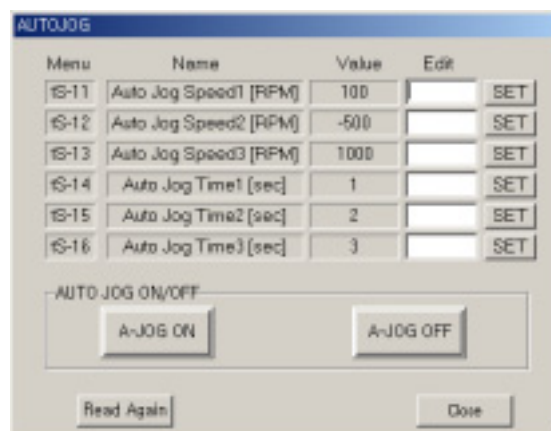
To change the motor speed, edit the Jog Command Speed and click the SET button. After setting the Jog Command Speed, click the one of the direction buttons, the same direction of command or the opposite direction of command. Click the JOG OFF button to return the servo function to normal.

※ Caution!

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

2.2.4.2 Auto JOG Mode

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

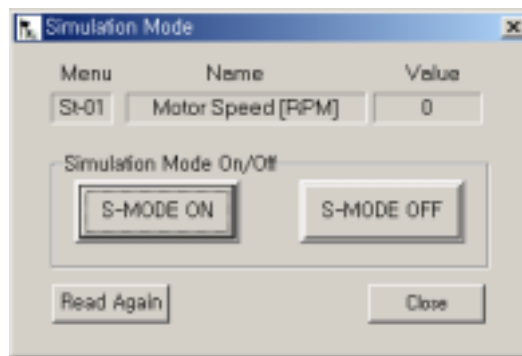


Picture 6. Auto JOG mode window

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,

2.2.4.3 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.

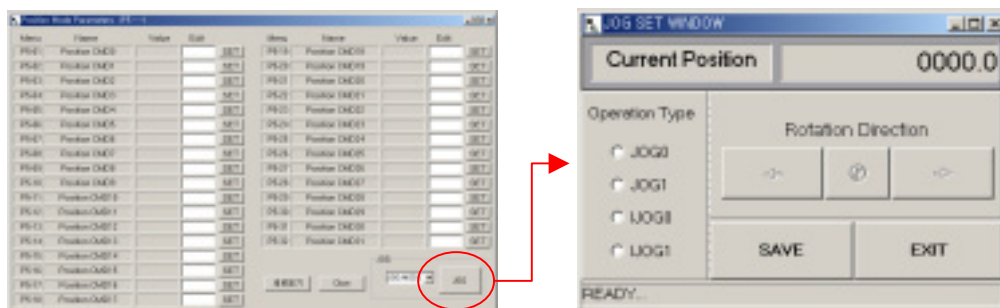


Picture 7. Simulation mode window

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

2.2.5 JOG Mode (P6--) for FDA6000C type.

In case of FDA6000C type, Jog mode is comprised of subordinate menu of position coordinates input(position command mode P5--).



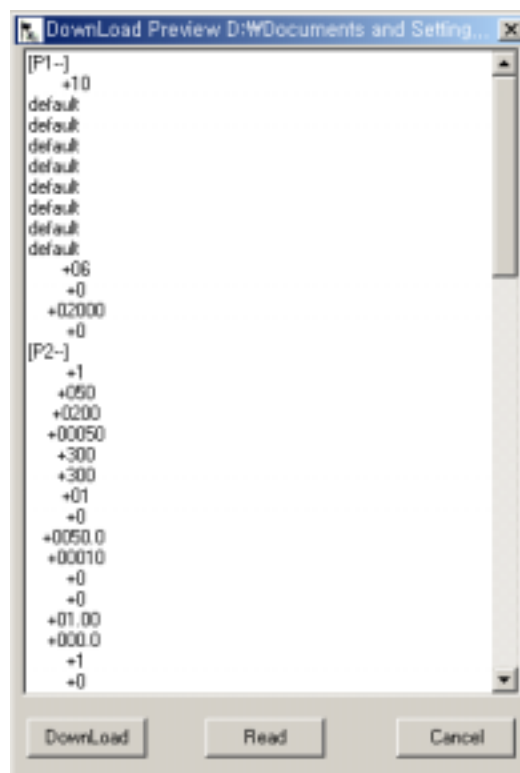
Picture 8. Selecting Servo Drive ID

Select parameter to save the position data. Click the JOG button, and the JOG SET WINDOW appears. Select one of the Jog operation type, and change the position with direction buttons. Click the SAVE button to save the position data.

2.2.6 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.

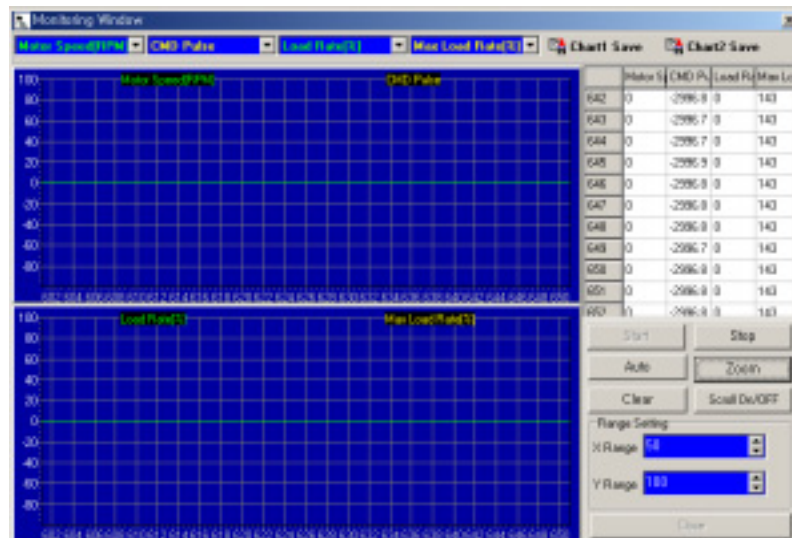


Picture 9. Download window

2.2.7 Monitor Window

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

Click the Tools/Monitor to use the Monitoring function.



Picture 9. Monitor window

See the real-time chart using following method.

1. Choose the status which you want to display. Sampling Rate is 40ms/S. However, 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.

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.

2.3 P-SUNI Window

When the P-SUNI button is clicked and one of servo drive type is selected, the P-SUNI Window appears.

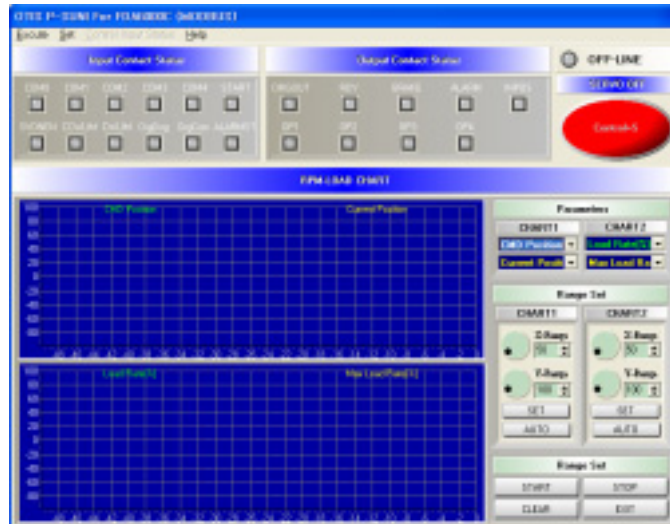


그림 11. P-SUNI Window

Use the P-SUNI through following steps.

※ Notice

Refer the Chapter 2.2.1 and 2.2.2 for Serial cable connection, Serial port and Servo Drive ID.

2.3.1 Program Start & Status Monitoring.

Click the START button to run the P-SUNI. 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.

Change the Parameter items to display different status. 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.

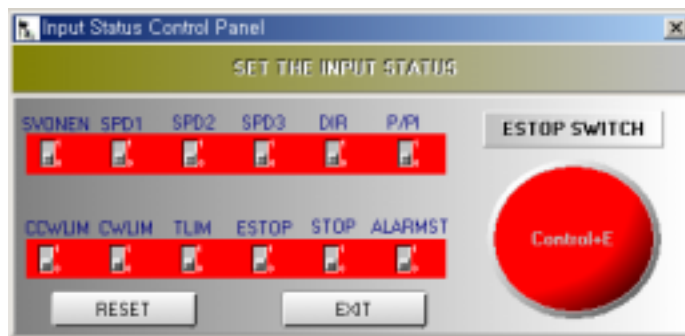
● Function of each button.

- 1) SET : Change the X-Y range of chart.
- 2) AUTO : Set the Y range of chart automatically.
- 3) START : Run the P-SUNI program and display the status.
- 4) STOP : Pause the program.
- 5) CLEAR : Initialize the chart.
- 6) EXIT : Stop the P-SUNI program and return to Main window.

2.3.2 Input Contact Status window.

Click the CONTROLL INPUT STATUS in menu, and the INPUT CONTACT STATUS WINDOW appears. Function of each input contact button is same as that of each input contact signal. Refer the Operation Manual Chapter 3. for the input contact signal.

The function of ESTOP SWITCH is the same as that of EMERGENCY STOP, and its hot-key is 'Control+E'. (In case of FDA6000C Model, the ESTOP SWITCH button is replaced with SERVO OFF.)



Picture 12. Input Contacts Status Window

※ Caution

To use this function, IO Input Type(P1-15) should be set to '1'.

2.3.3 Digital Speed Window

Click the SET DIGITAL SPEED in menu, and the DIGITAL SPEED WINDOW appears.



Picture 13. Digital Speed Window

Write the new value and click the SET button. If the new value is written properly, the new value will be displayed in Gauge.

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 Station program.

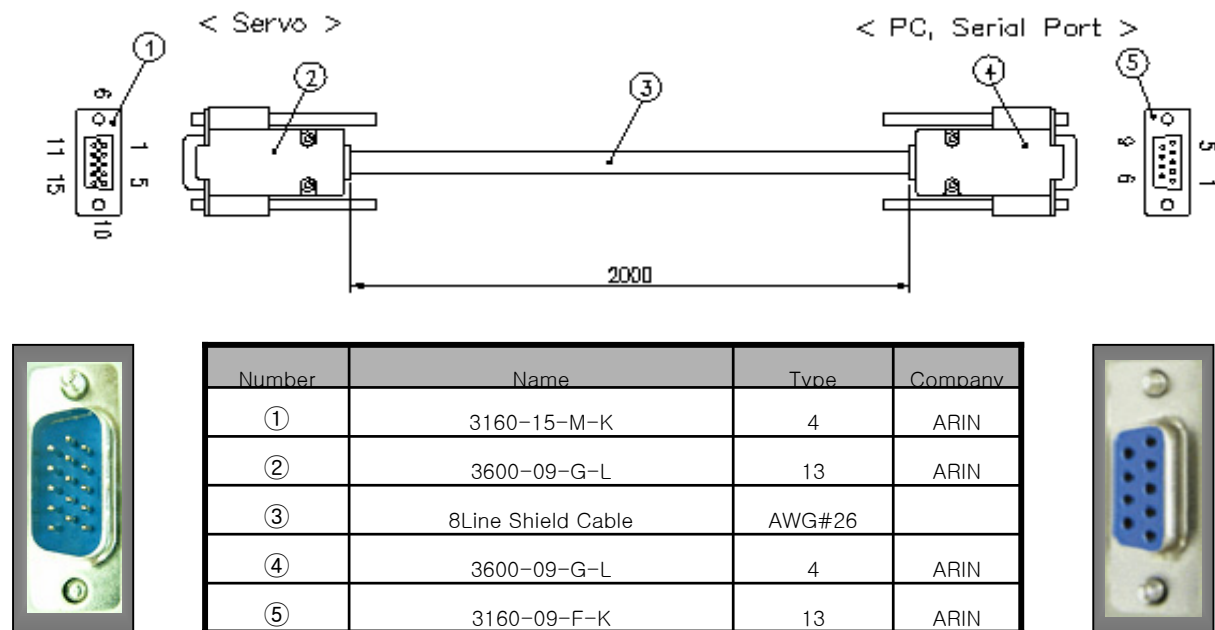
Contact with technical supports when you can not find out the solution.

※ *Caution*

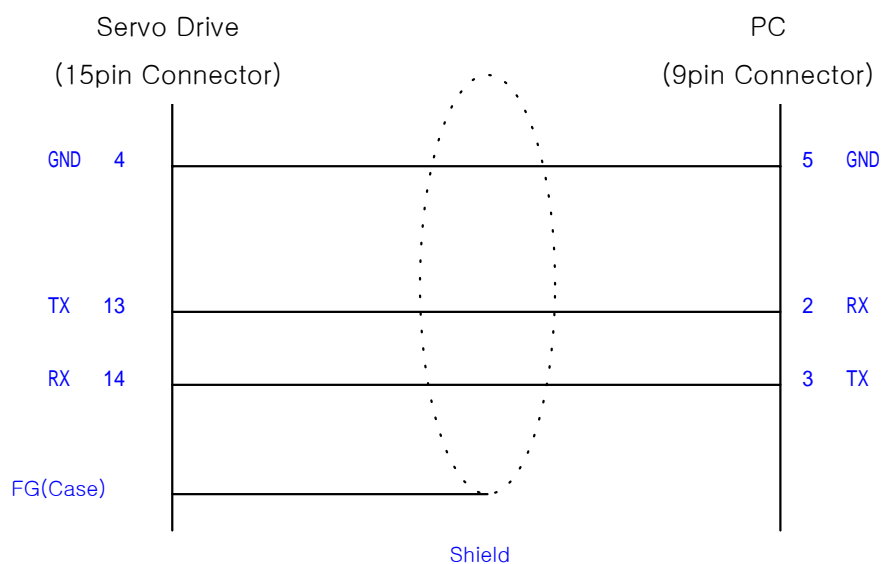
Insertion and Removal of communication cable should be done with the power off in both the servo drive and PC. If not, it may result in damage to both the servo driver's CN3 connector and PC's serial port.

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).