Firmware update software

FirmwareWriter
Specification

Updated firmware version 01.033


```
FirmwareWriter                                    —    □    ×
Help(H)
The version upgrade to the firmware "01.03*" will start. Follow the steps below.

■ Step 1 Transition to firmware update mode
    Hold down the "F1" key on the stage controller and press the "Restart" key, and check
    that the LEDs on the front panel have the specified pattern.

■ Step 2 Firmware update connection destination setting
    Please select a connection destination. (Example: COM1) * In the firmware update mode,
    the connection destination name is the same as the normal mode (LOCAL, REMOTE,
    TEACH, parameter mode), but the port number is different.

    access point: [                                              ⌄ ]

■ Step 3 Firmware update
    Click the firmware update button to upgrade the version.
    [                   Firmware update                   ]

■ Step 4 Stage controller Restart execution
    After the update is complete, press the Restart key to restart the controller. If the
    Initializatoon display is displayed after restarting, perform steps 5 and 6.

■ Step 5 Change version registration Connection destination setting
    Please select a connection destination. The port number is entered in * of "(COM *)".
    (Example: COM1)
    access point: [                                              ⌄ ]

■ Step 6 Change version registration
    Please execute the version registration change button.
    [             Version registration change             ]

    [                                                      ]

    [                       Exit                           ]
```

目次

1. Overview

Software for updating the firmware of the stage controller manufactured by SIGMA KOKI Co., Ltd. to the FV01.033 version.

2. Stage controller to be updated

The stage controller whose firmware can be updated is described.

Product name	Model
Sun μ m Feedback Stage Controller	FC-111
Sun μ m Feedback Stage Controller	FC-114
Sun μ m Feedback Stage Controller	FC-411
Sun μ m Feedback Stage Controller	FC-414
10nm Feedback Stage Controller	FC-511
10nm Feedback Stage Controller	FC-514
5nm Feedback Stage Controller	FC-611
1nm Feedback Stage Controller	FC-911
Open Stage Controller	SC-111
Open Stage Controller	SC-114

* It is possible to update even the same model made by Sigma Tech.

3. Target firmware version

The firmware version that can be updated is described.

Target firmware version			
01.000	01.020	01.021	01.022
01.023	01.025	01.026	01.027
01.029	01.030	01.032	

4. Update firmware version

Update to the following version. At the same time, the necessary version information change processing will be performed after the update.

Updated firmware version
01.033

5. Communication interface information

Only the USB interface can be used. It cannot be used with GP-IB and Ethernet interfaces.

A USB cable with an A-type-B-type connector is required to connect the computer to the controller. After connecting, it will be recognized as a virtual COM port.

For Windows 10, it will be recognized automatically without installing the driver. For other Windows 8.1, 8 and 7, you need to install the USB driver. If the USB driver is not installed, please download it from our website.

* If the Windows OS is the Embedded version, it is necessary to install the USB interface virtual COM port component.

6. Distribution file structure

The file structure is as follows.

File name	Description
FirmwareWriterFV01.033.exe	exe file
FirmwareWriterFV01.033.fwu	setting file
FirmwareWriterFV01.033.ini	setting file
This specification	Instructions on how to use

7. About installation

There is no particular installation work. Please copy the distribution file to any location and use it.

8. About uninstall

Please delete the distribution file.

9. How to start the application

Execute "FirmwareWriterFV01.033.exe".

10. How to exit the application

Click the close button on the upper right of the application or the application exit button to exit.

11. Notes

Please read the following items and carry out the work.

Be sure to read this before updating the firmware
i. If you have multiple target stage controllers, please do so one by one. Remove the USB cable of the other target stage controller.
ii. The memory switch (parameter) does not change even if the firmware is updated.
iii. If you want to revert to the previous version after updating the firmware, please contact us.
iv. If the power of the stage controller is turned off or the upgrade is stopped by pressing the cancel button during the firmware update, or if the update fails, the existing firmware in the stage controller is deleted and the power is turned on or the Restart key is pressed. Even if you press it to restart, it will start in firmware update mode. In that case, close this application and turn off the power of the stage controller. After that, restart the stage controller and execute the firmware update again with this application.

12. Control panel

This section describes the operation panel. The operation panel is divided into step sections for each operation procedure. The operation procedure is from step 1 to step 6 on the operation screen, to step 8 from confirmation to the end of the application, and the firmware update is completed by executing in order. Details will be explained in the operating procedure section.

- Control panel
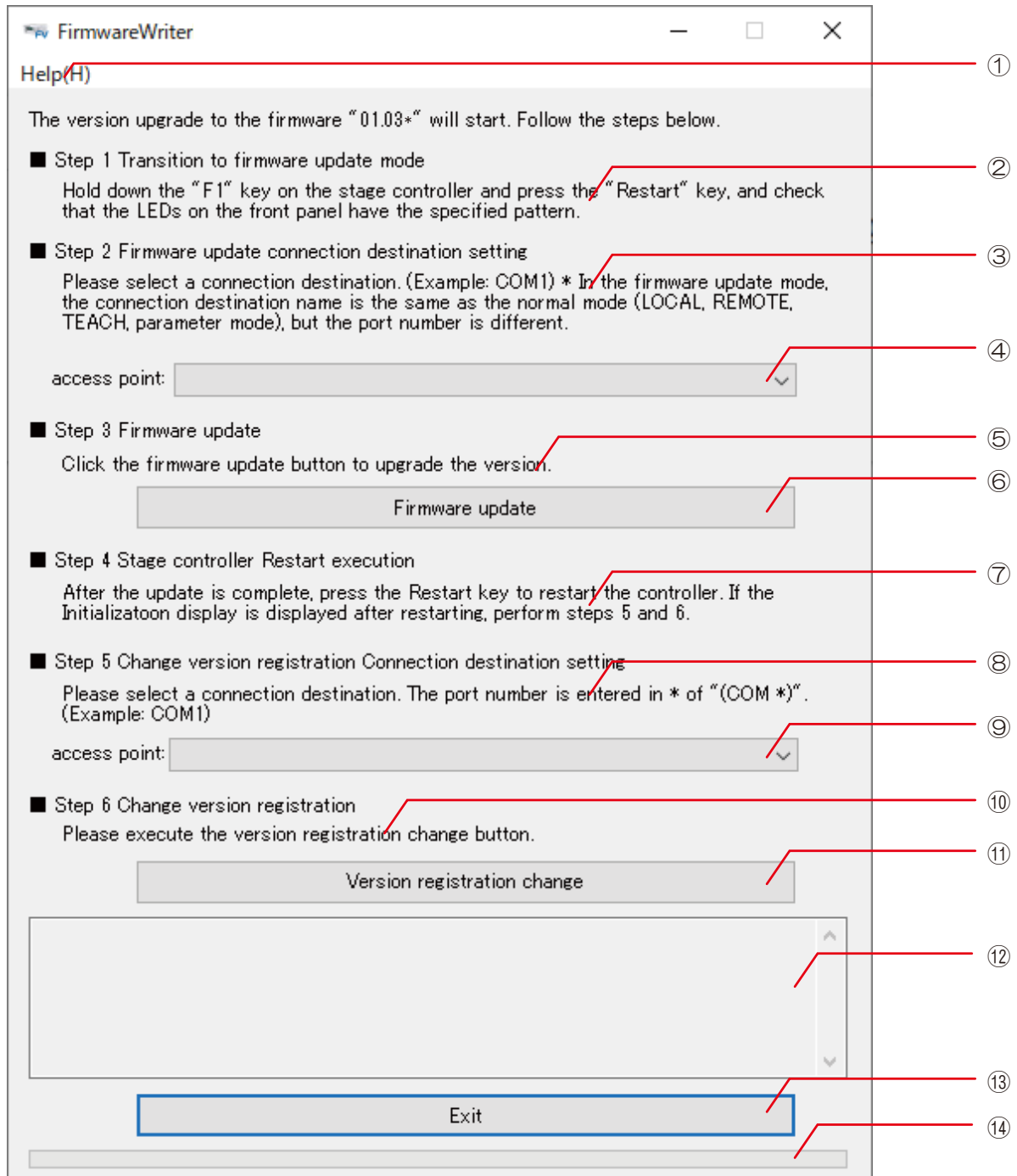
- Description

No	Name	Description
①	Version information menu	The version information screen is displayed.
②	Description of step 1	A description of step 1.
③	Description of step 2	A description of step 2.
④	Connection destination setting	Set the connection destination when executing the firmware update.
⑤	Description of step 3	A description of step 3.

No	Name	Description
⑥	Firmware update button	Perform a firmware update.
⑦	Description of step 4	A description of step 4.
⑧	Description of step 5	A description of step 5.
⑨	Version registration change Connection destination setting	Set the connection destination when executing the version registration change.
⑩	Description of step 6	A description of step 6.
⑪	Version registration change button	Perform the version registration change.
⑫	Status	Shows the status that is currently running.
⑬	Application Exit button	Exit the application.
⑭	Progress display bar	Shows the progress at the time of firmware update.

13. Version information panel

The version information panel contains information on updated versions.

- Version information panel
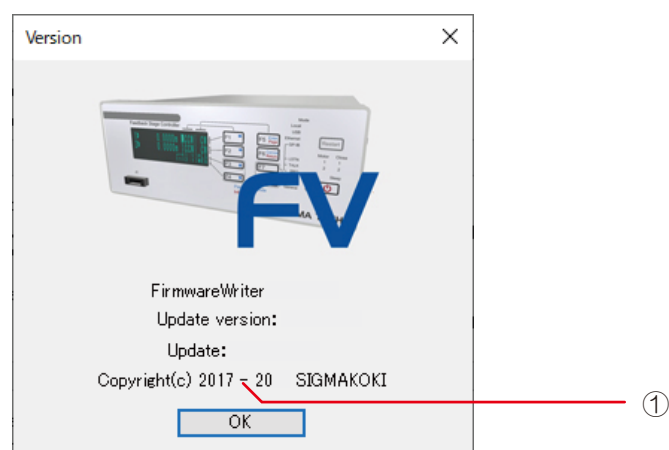
- Description

No	Name	Description
①	OK button	Close the version information panel.

14. Update procedure

This section describes the firmware update procedure.

- Step 1 Transition to firmware update mode

<table>
<tr><td style="background-color:red;color:white;text-align:center">Be sure to read this before updating the firmware</td></tr>
<tr><td>i. If you have multiple target stage controllers, please do so one by one. Remove the USB cable of the other target stage controller.</td></tr>
</table>

To enter the firmware update mode, turn on the power of the stage controller and start it. After that, hold down the F1 key (arrow ①) and press the Restart key (arrow ②) to switch to the firmware update mode.

You can check the migration with the LED pattern on the front panel. If you want to exit the firmware update mode, turn off the power of the stage controller or press the Restart key (arrow ②).

Normal mode
(LOCAL・REMOTE・TEACH・Parameter mode)

Update mode

LED pattern after migration
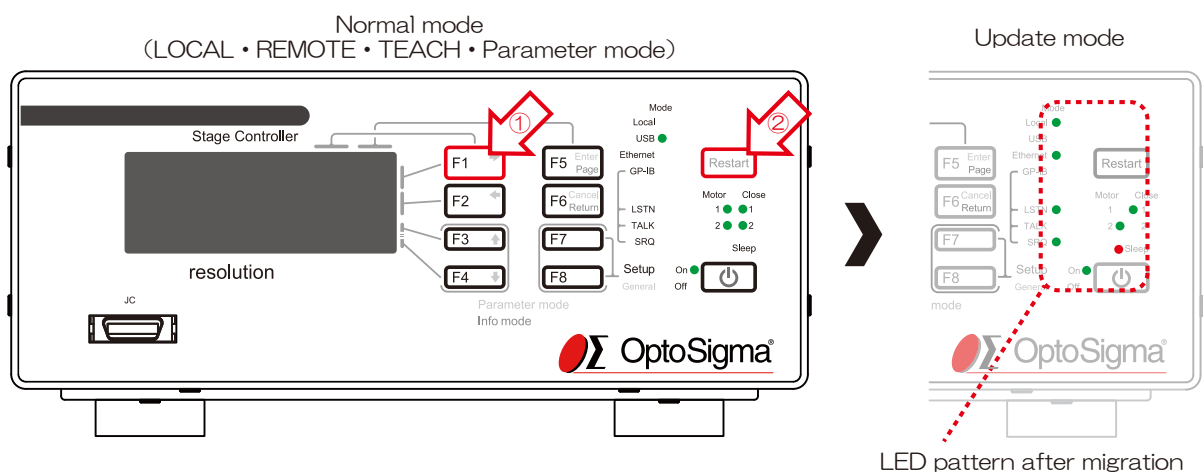
- Step 2 Firmware update connection destination setting

Set the COM port of the controller to be updated at the connection destination (1). Select the connection destination name "USB serial device (COM ∗)" or "Stage Controller Usb Cdc Port (COM ∗)" (∗ mark is the COM port number). The connection destination interface is USB.
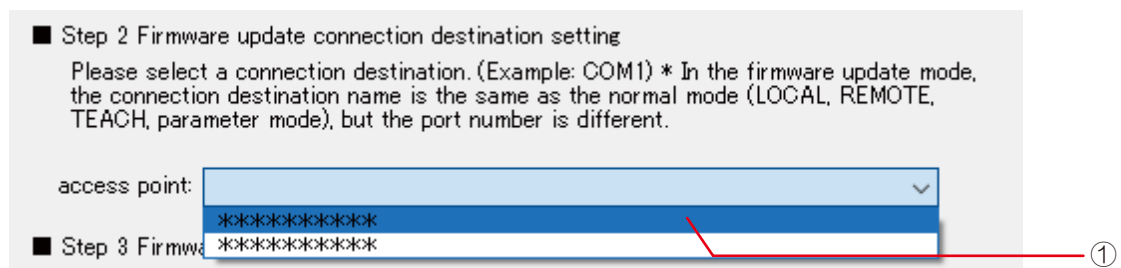
∗ If you used the USB interface in normal mode (LOCAL, REMOTE, TEACH, parameter mode), the connection destination name is the same but the port number is different after shifting to the firmware update mode.

Example: Normal mode   USB serial device (COM1)

Stage Controller Usb Cdc Port (COM1)

↓

Feedback update mode   USB serial device (COM5)

Stage Controller Usb Cdc Port (COM5)

- Step 3 Firmware update

Press the firmware update button (1) to execute. For the progress status, refer to the status (②) and the progress status display bar (③). If the connection is confirmed, "Update will start." Will be displayed in the status (②), and when the update is started, "Updating ..." will be displayed. When the update is completed normally, "It was completed normally. [Writing time: * minutes * seconds]" is displayed. The estimated update time is about 5 to 15 minutes. During the firmware update, the firmware update button changes to a cancel button. If you execute the cancel button, the firmware update will stop.

* The update time depends on the processing power of the personal computer. If the progress status display bar (③) is updated, the update is proceeding normally, so please wait as it is.
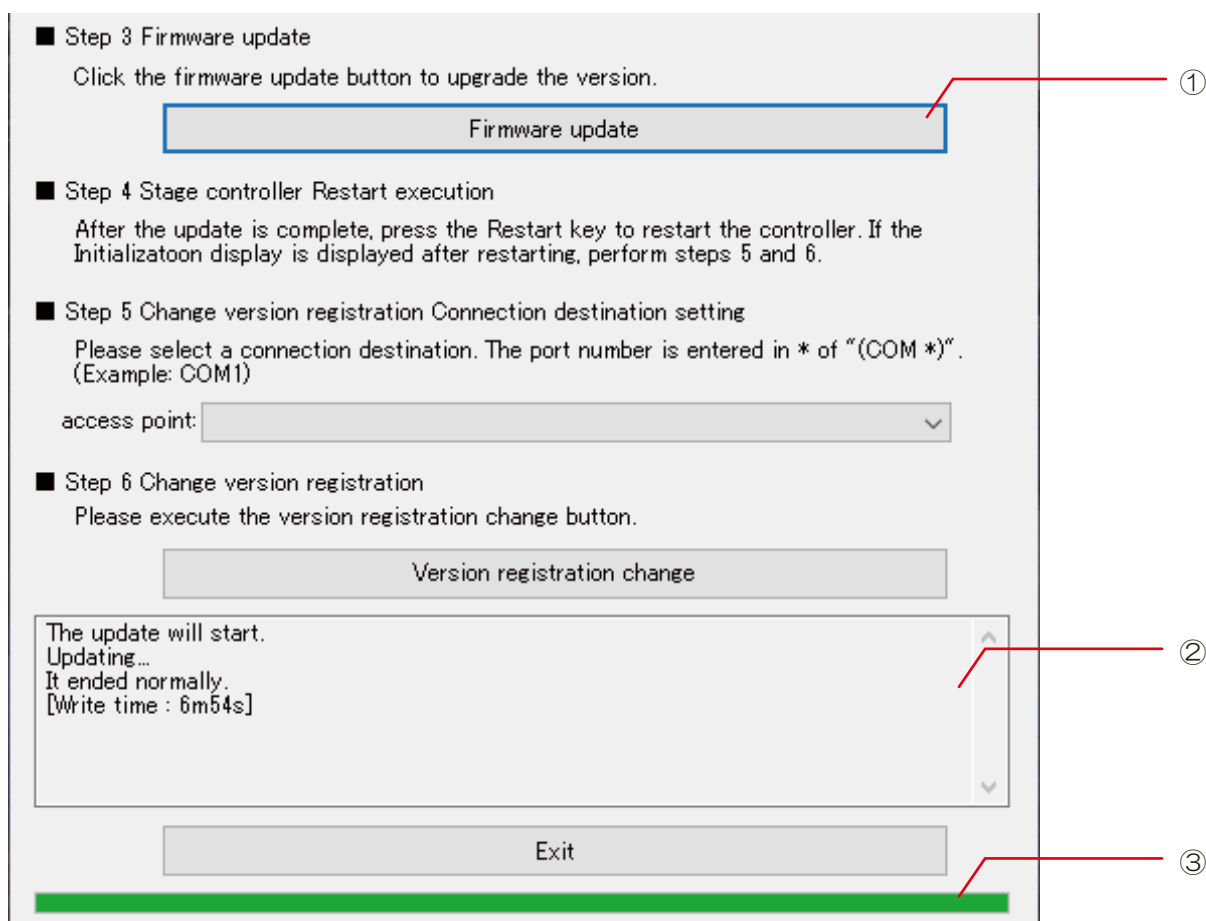
- Step 4 Execute stage controller restart

When the firmware update is complete, press the Restart key on the stage controller. After that, when the stage controller starts up, if the following ① Initialization instruction is displayed on the display of the stage controller, proceed to ″Step 5 Version registration change Connection destination setting″.When the firmware version initialization instruction is not displayed and (2) coordinate value display is displayed, the update is complete. Proceed to ″Step 7 Confirmation of version information″.Before is the firmware version before the version upgrade, and New is the firmware version upgraded this time.
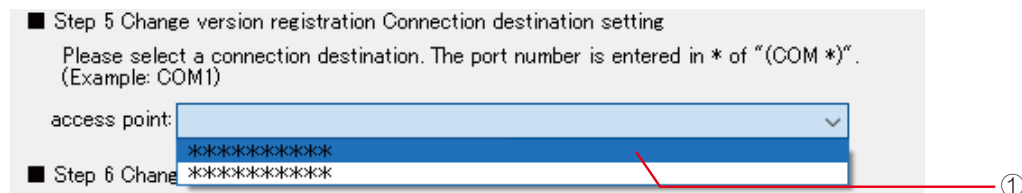
① Initialization instruction

```
S t a g e   C o n t r o l l e r
    I n i t i a l i z a t i o n
B e f o r e   F V : 0 1 . 0 * *
    N e w   F V : 0 1 . 0 3 3
```
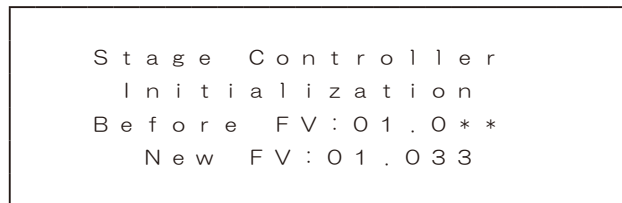
② Coordinate value display (Display example: REMOTE mode)

```
X ▶         0 . 0 0 0 0 m   R
Y ▶         0 . 0 0 0 0 m
X
Y
```
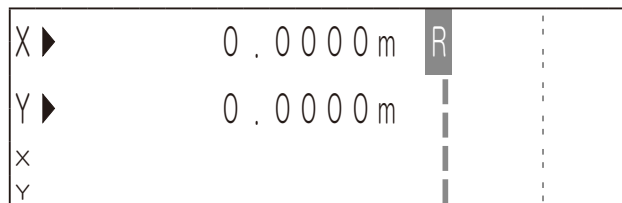
- Step 5 Change version registration Connection destination setting

To change the firmware version managed inside the stage controller, select the connection destination name ″USB serial device (COM *)″ or ″Stage Controller Usb Cdc Port (COM *)″ in the connection destination (①). Please (* mark is the COM port number). The connection destination interface is USB.

■ Step 5 Change version registration Connection destination setting
  Please select a connection destination. The port number is entered in * of "(COM *)".
  (Example: COM1)
access point:
  ✱✱✱✱✱✱✱✱✱
■ Step 6 Chang ✱✱✱✱✱✱✱✱✱✱   ①

- Step 6 Change version information

Press the version information change button (1). When the information change is completed, it will be reset automatically. Please refer to the status (②) for the progress status (the progress status display bar does not change). The change time is about 1 minute.

■ Step 6 Change version registration
  Please execute the version registration change button.
                                                                    ①
  Version registration change

Start changing version registration…
The firmware version change was completed successfully.   ②
Reset the controller.
Resetting…
The controller has been reset.

Exit
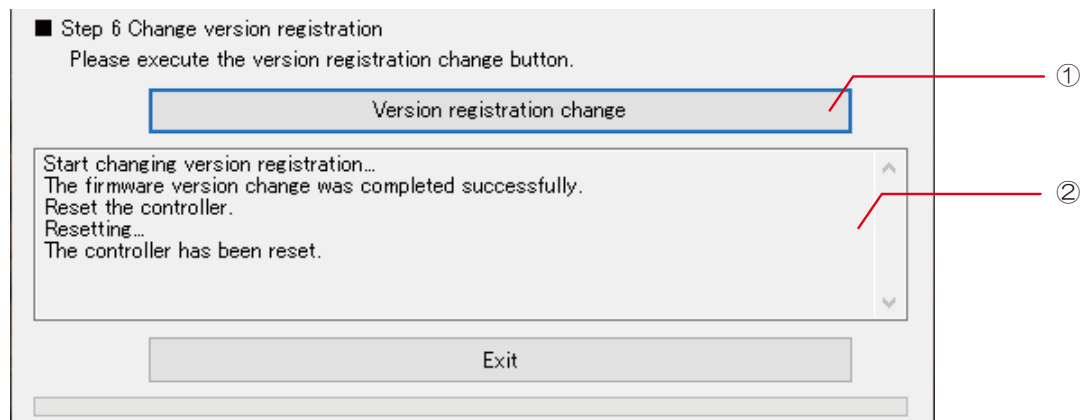
- Step 7 Confirmation of version information

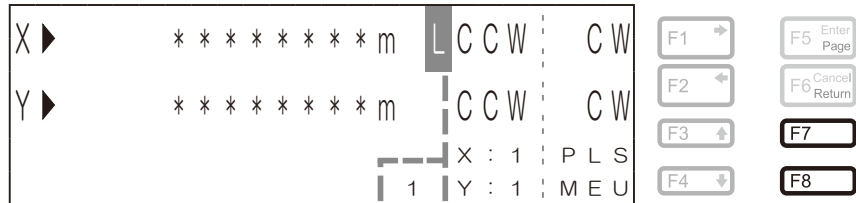 To check if the version information has been updated, check the contents displayed in the INFORMATION mode of the controller. The display method of INFORMATION mode is explained below.
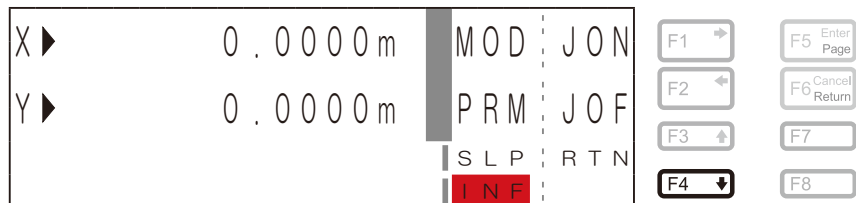
  ① After startup screen (LOCAL mode)

    After starting the controller, press both the F7 and F8 keys at the same time in LOCAL, REMOTE, and TEACH modes with nothing running.

```
X ▶          * * * * * * * * m   L  C C W    C W      [F1 →]    [F5 Enter Page]
Y ▶          * * * * * * * * m      C C W    C W      [F2 ←]    [F6 Cancel Return]
                                   X : 1   P L S     [F3 ↑]    [F7]
                              1    Y : 1   M E U     [F4 ↓]    [F8]
```

  ② SETUP mode screen

    When the SETUP mode screen is displayed, press the F4 key corresponding to INF.

```
X ▶          0 . 0 0 0 0 m   M O D   J O N          [F1 →]    [F5 Enter Page]
Y ▶          0 . 0 0 0 0 m   P R M   J O F          [F2 ←]    [F6 Cancel Return]
                             S L P   R T N          [F3 ↑]    [F7]
                             I N F                  [F4 ↓]    [F8]
```

  ③ INFOMATION mode screen

   When the INFOMATION mode screen is displayed, check the displayed contents of the F/V, and if it is "01.033", the update is completed normally.

```
[ I n f o   M e n u   1 / *   -   M o d e l ]
V e n d o r : S I G M A K O K I
M o d e l   : F C - * * *
S / N       : * * * *
E / N       : * * * * * *
F / V       : 0 1 . 0 3 3
```

    If the F/V is a different version, the firmware update may not be completed normally. In that case, please contact our sales office.

- Step 8 Exit of update

  When the work up to step 7 is completed, the firmware update is complete. Click the Exit button (1) to end the application.

Exit ①
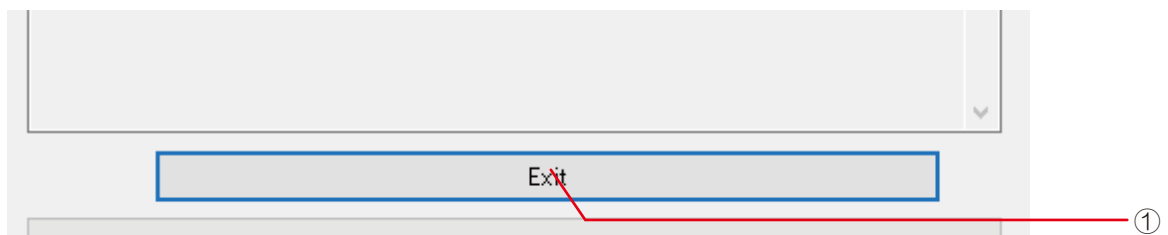
15. Troubleshooting

If you encounter any problems, please check the following. If the problem persists after taking the corrective action, unplug the power cable from the outlet and contact us or your dealer.

Contents	Possible causes	Workaround
• The connection destination is not displayed.	The cable is not connected.	Make sure the USB cable is connected.
	USB is not recognized by the computer.	A USB driver is required for Windows 8.1, 8 and 7. Please download and install from our website. ∗
• Multiple connection destinations are displayed.	Multiple stage controllers are connected and started.	Remove the USB cable other than the stage controller to be updated. To identify the target model, you can identify the COM port by connecting and disconnecting the USB cable while the device manager is running.
• Unable to start update.	The connection destination is different.	Make sure that the connection destination is the COM port to which the controller is connected. The COM port can be identified by connecting / disconnecting the USB cable while the device manager is running.
	The controller is not turned on.	Press the POWER key to turn it on.
		Turn on the MAIN POWER switch.
• The update failed.	The power of the stage controller was turned off or the cancel button was pressed during the update.	Exit this application and turn off the power of the stage controller. After that, restart the stage controller and execute the firmware update again with this application.
	An error was displayed on the software status screen.	There is a possibility of a communication error, so check the communication status of your computer. Check the hardware status in the device manager related to the COM port. After that, restart the stage controller and the personal computer, and execute the update again.
	The USB or power cable was disconnected during the update.	After reconnecting, restart the stage controller and personal computer, and then execute the update again.
• The display screen of the controller is off. • Can't operate the keys on the controller.	The update remains unsuccessful.	Please perform the update.
• For initialization display It has become.	The version registration contents are different.	Perform steps 5, 6 and 7.

∗ See the instruction manual for the stage controller.

16. History

The version upgrade history is described.

Version	Update date	Contents
01.033	2021/08/24	Fixed that the operation direction of the command ″A:″ is not changed when the parameter ″POS Dir″ is set to ″CW +″.
		Fixed the acquisition coordinate values of commands ″Q:″ and ″P:″ being inverted when the parameter ″POS Dir″ is set to ″CW +″.
01.032	2021/05/10	Added parameters for error correction.
		Added a parameter that allows you to select the limit sensor input stop method from immediate stop and deceleration stop.
		Added an option selection parameter to select JC-01 or MD-400.
01.030	2019/12/05	Changed USB Vendor ID and Product ID to SIGMA KOKI
01.029	2019/02/01	Fixed a typo in the reply character when an overspeed error occurs in reply format 1 of the commands ″Q:″, ″SRQ:″, and ″ER:″.
		Changed general-purpose I / O ″T_STATUS″ and ″/ T_STATUS″ to always output without depending on the parameter ″TEACH IF″
01.027	2018/07/02	A command error occurs in a command that has um / mm unit specifications such as commands ″A:″ and ″M:″.
		Fixed an error in the value returned by a command that has a um / mm unit reply such as the command ″GR:″.
01.026	2018/01/25	Fixed that one-shot pulse is output from general-purpose OUTPUT1 when commands ″G″ and ″GN:″ are executed in TEACH.
		Changed the specification of the command ″GIS:″ from 1 to 7 to 0 to 7.
01.025	2017/11/28	Fixed that when the command ″TG:″ is sent after writing TEACH, it becomes CMD ER.
		Fixed LED Motor / Close being lit regardless of axis setting after returning from SLEEP
01.023	2017/04/24	Supports iSerial Number for USB interface.
01.022	2017/03/14	Fixed not being applied to the command ″Q:″ coordinate value when the parameter ″Pos Dir″ is changed.
01.021	2017/03/02	Disables sending and receiving of command ″PRM_GET:″ when executing command ″TG:″
		Disables Ethernet initialization when command ″RESET:″
01.020	2017/01/17	Changed the jog controller so that it can be operated even in REMOTE mode
		Changed the ″JON″ and ″JOFF″ keys on the front panel to enable only the READY and ERR states.
		Fixed a bug in the 2-axis side operation direction when executing TEACH mode
		Fixed that the reply character of the command ″GC:″ is not returned at the time of echo back.
		Fixed malfunction of command ″A:″ when changing parameter ″Pos Dir″
01.000	2016/10/14	First version

Memo

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