



SX-2000 SERIES

FIRMWARE UPDATE PROCEDURE

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"SM" represents SX-2000SM, "AI" SX-2000AI or SX-2100AI, and "AO" SX-2000AO or SX-2100AO in this procedure manual.

The SM, AI and AO units of the SX-2000 system can be updated from a PC via USB port. Follow the procedures below to update these units.

1. Install the USB driver on your PC. (See [p. 2.](#))
2. Update the SM using the SM update file. (See [p. 6.](#))
3. Update the AI or AO using the AI/AO update file. (See [p. 8.](#))

Notes

- There are 2 kinds of update files: one for the SM and another for the AI and AO.
If the SM has been updated with AI/AO update file by mistake or vice versa, refer to item 4, "What If You Failed to Update?" (See [p. 11.](#))
- Updating the SM, AI or AO unit in operation within the SX-2000 system could cause system malfunction. In such cases, reset the updated unit after update completion. The system can restore itself and operate normally.

1. USB DRIVER INSTALLATION PROCEDURE

Shown below is the driver installation procedure that allows your PC to use USB.

Step 1-1. Prepare the USB driver for the PC being used.

Shown below is an example of procedure to install the USB driver "CDM2.00.00 driver" for Windows Vista, Windows XP, Windows Server 2003, or Windows 2000 on your PC running Windows XP.

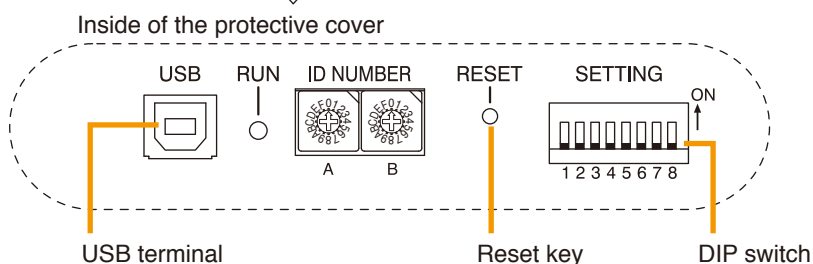
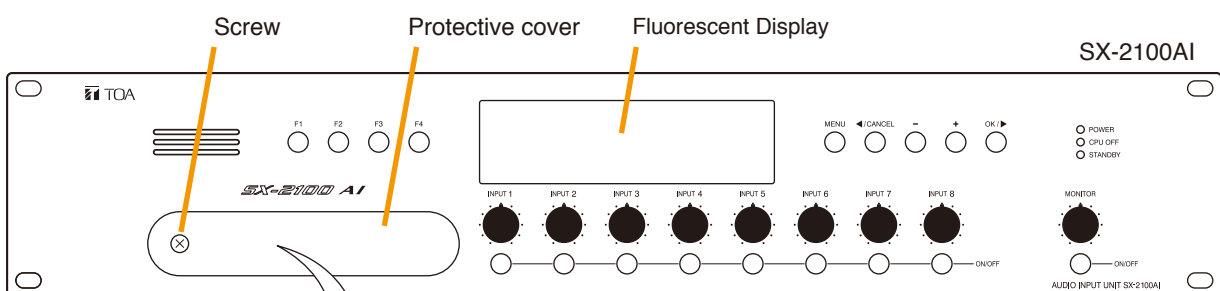
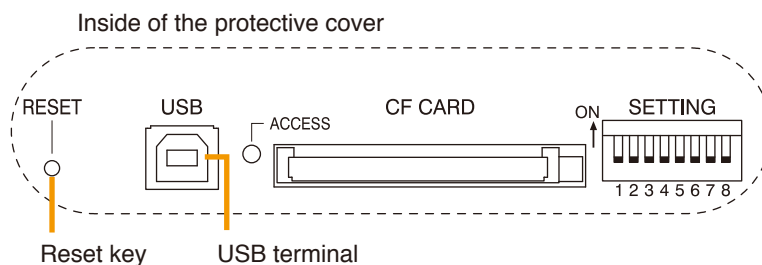
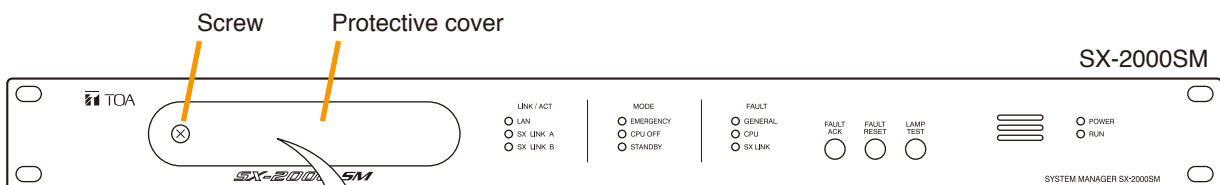
Unzip the downloaded CDM2.00.00.zip file. As an example, specify C:\CDM 2.00.00 as the unzip folder.

Tip

When using the PC running on Windows 7 or Windows 10, download "Virtual COM Port (VCP) Driver" corresponding to your PC's OS bit version listed in the table, which is displayed on the Web site page at the following URL.

<https://www.ftdichip.com/Drivers/VCP.htm>

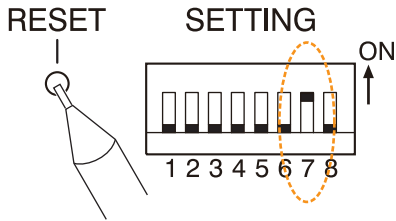
Step 1-2. Remove the protective cover on the device to be updated by unscrewing it with a Phillips screwdriver.



Note

The appearance of the SX-2100AI's protective cover and its inside shown above also applies to all AI and AO units.

Step 1-3. (Only when updating the AI or AO with Ver. 2.00 or later installed)
Set the DIP switch 7 to the "ON" position, then press the Reset key.



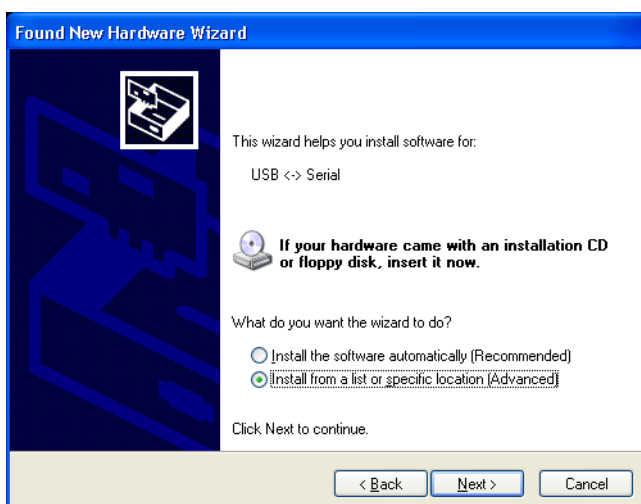
Check to be sure that indication "***CPU UPDATE MODE**" is displayed in the fluorescent display on the front panel.

****CPU UPDATE MODE ****

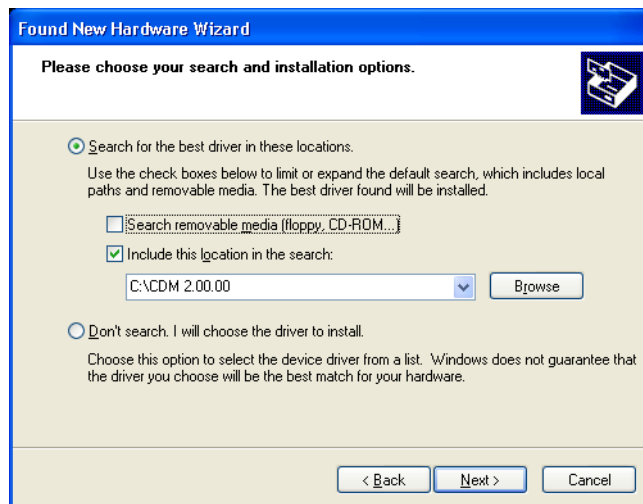
Step 1-4. Connect the PC to the device using a USB cable.
The PC recognizes the connected SM, AI, or AO as new hardware.
Follow the procedure below to install the USB driver.

Step 1-5. Install the USB driver on the PC.
It is necessary to install both the "USB<->Serial" and "USB Serial Port" drivers.

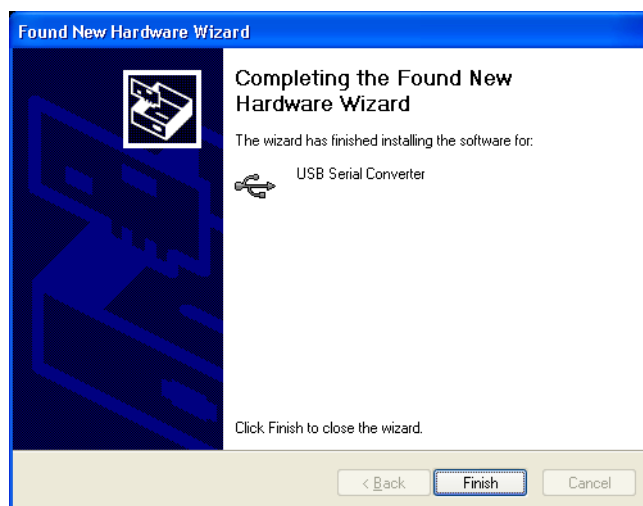
First, install the "USB<->Serial" driver.
Click the Next button with the setting below.



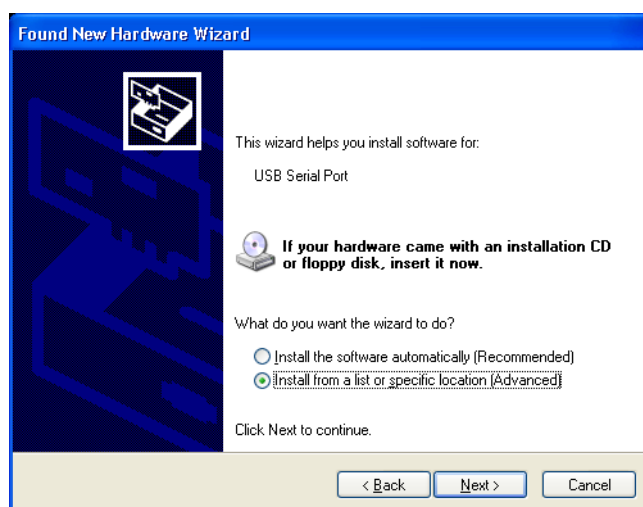
Click the "Browse" button, select the folder where you extracted the USB driver, then click the "Next" button.



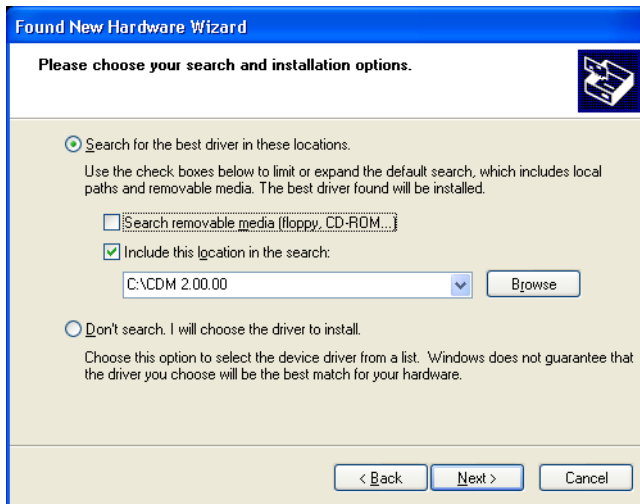
Click the "Finish" button after installation completion.



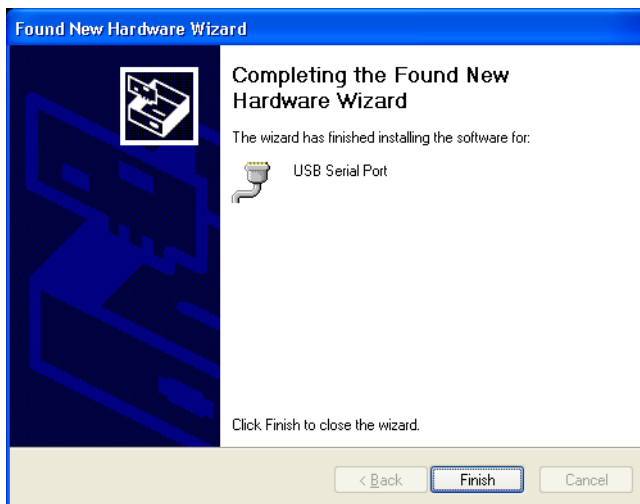
Next, install the "USB Serial Port" driver.
Click the "Next" button with the setting below.



Click the "Browse" button, select the folder where you extracted the USB driver, then click the "Next" button.



Click the "Finish" button after installation completion.



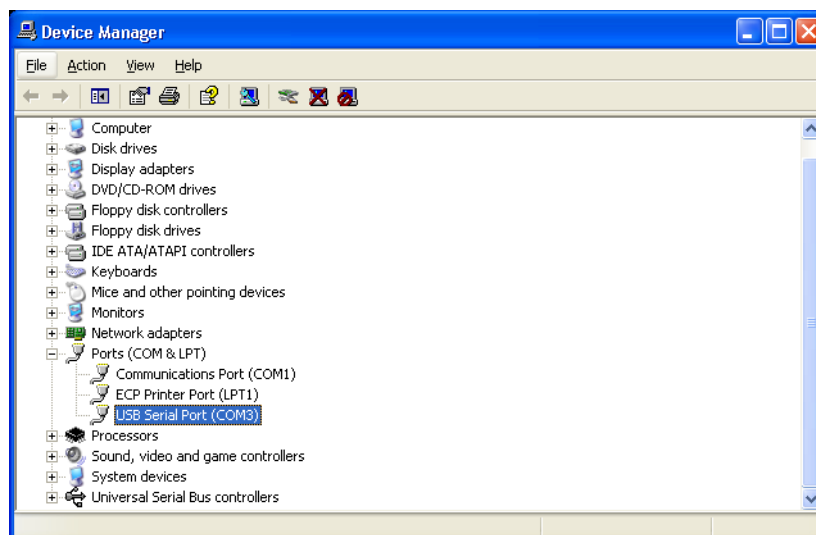
Step 1-6. Confirm that the USB driver has been installed successfully.

Following is an example of procedure using Windows XP-based PC.

Click on "Control panel" → "System" → "Hardware," then click the "Device manager" button.

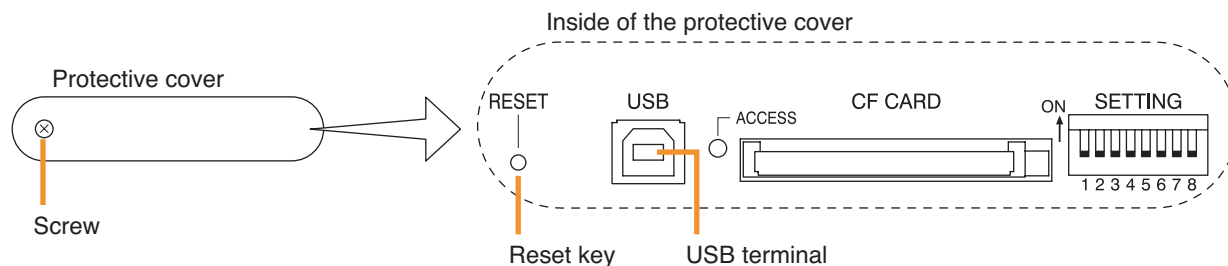
The "Device manager" window is displayed. Confirm that the USB Serial Port (COM*) folder is created.

Note: The suffix number (in the place of *) differs depending on the PC.



2. FIRMWARE UPDATE PROCEDURE FOR THE SM

Step 2-1. Remove the protective cover on the SM to be updated.



Step 2-2. Connect the PC to the SM using a USB cable.

When the USB driver is not installed on the PC: First, install it referring to item 1 on [p. 2](#), then go to **Step 2-3**.

When the USB driver has been installed on the PC: Go to **Step 2-3**.

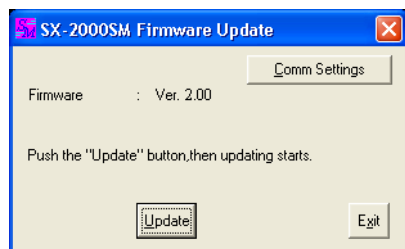
Step 2-3. Update the firmware of the SM.

Prepare the SM update file (UpdateSX_SM_*.exe).

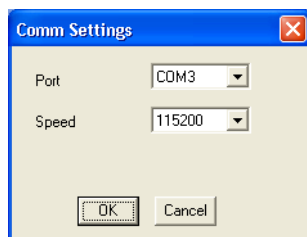
"*" in the file name represents the version number.

The example here shows the procedure to update the SM firmware to Ver. 2.00.

Launch the SX-2000SM Firmware Update utility (UpdateSX_SM_2_00.exe).

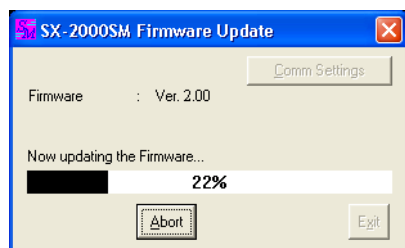


Click the "Comm Settings" button, then check to see that the COM port number displayed matches the number assigned to the USB driver. In the example below, it is assumed that the USB Serial Port (COM3) is used. Check to see that the USB serial Port created in **Step 1-6** on [p. 5](#) and its speed are set correctly. If not, set them correctly, then click the "OK" button. The screen reverts to the Main screen.

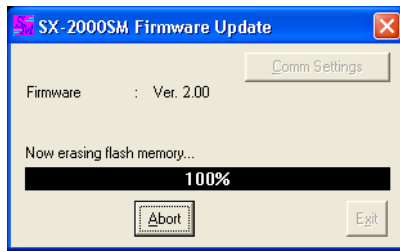


Clicking the "Update" button on the Main screen starts update process with transmitting the control firmware. Subsequently, the firmware update completes after the flash memory initialization and writing. The screen changes as follows through the process.

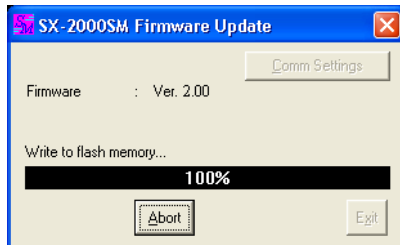
During transmission



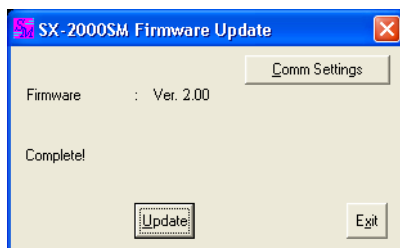
During flash memory erase



During flash memory write



Update completion



Click the "Exit" button to close the screen.

Notes

- Error message such as "No response" may be displayed on the "Now updating the firmware" screen. In this case, unplug the USB cable and reset the SM. Wait for approximately one minute, then retry from **Step 2-2**.
- Never unplug the USB cable or exit the file in operation till the "Complete" screen appears.
- If the "Abort" button is clicked during flash memory write, the writing is aborted.

Step 2-4. Unplug the USB cable from the SM.

Step 2-5. Reset the SM.

Press the reset key inside the protective cover.

As long as the SM is not reset, its firmware remains unchanged.

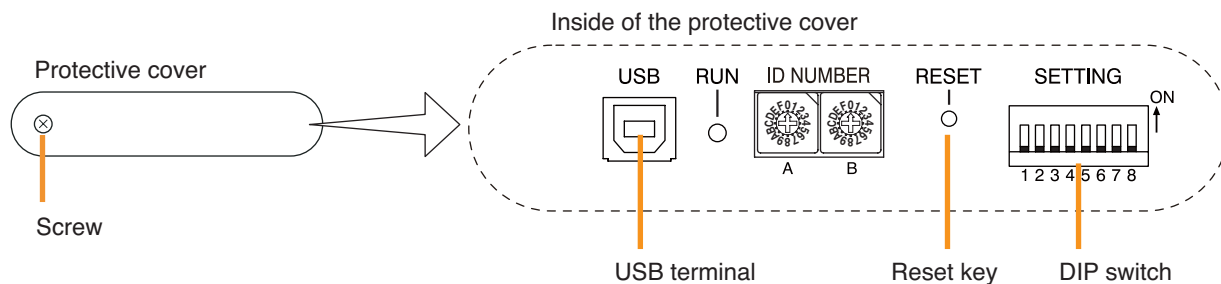
Memo

You can confirm the SM's firmware version number on the AI's and AO's fluorescent display when the SM, AI and AO are updated to Ver. 2.00 or later. For details, refer to the SX-2000 series Operating Instructions.

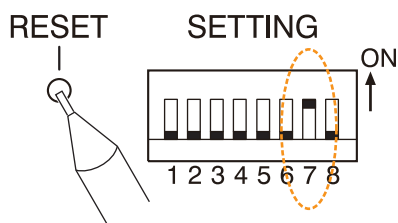
Step 2-6. Replace the protective cover.

3. FIRMWARE UPDATE PROCEDURE FOR THE AI AND AO

Step 3-1. Remove the protective cover on the AI or AO to be updated.



Step 3-2. (Only when updating the AI or AO with Ver. 2.00 or later installed)
Set the DIP switch 7 to the "ON" position, then press the Reset key.



Check to be sure that indication "***CPU UPDATE MODE***" is displayed in the fluorescent display on the front panel.

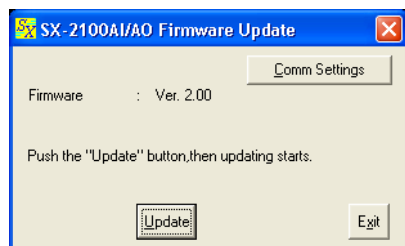
****CPU UPDATE MODE****

Step 3-3. Connect the PC to the AI or AO using a USB cable.
When the USB driver is not installed on the PC: First, install it referring to item 1 on [p. 2](#), then go to **Step 3-4**.
When the USB driver has been installed on the PC: Go to **Step 3-4**.

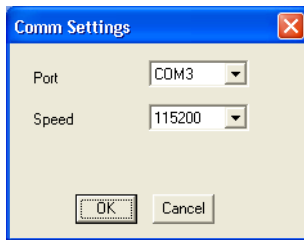
Step 3-4. Update the firmware of the AI or AO.
Prepare the AI/AO update file (UpdateSXAIO_*.exe).
"*_*" in the file name represents the version number.

The example here shows the procedure to update the AI or AO firmware to Ver. 2.00.
Launch the SX-2100AI/AO Firmware Update utility (UpdateSXAIO_2_00.exe)*.

* Can also be used for updating the SX-2000AI or SX-2000AO.

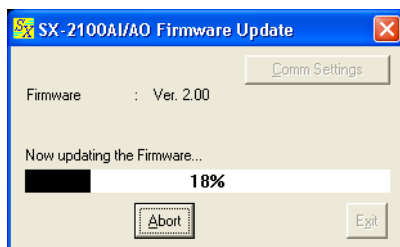


Click the "Comm Settings" button, then check to see that the COM port number displayed matches the number assigned to the USB driver. In the example below, it is assumed that the USB Serial Port (COM3) is used. Check to see that the USB serial Port created in **Step 1-6** on [p. 5](#) and its speed are set correctly. If not, set them correctly, then click the "OK" button. The screen reverts to the Main screen.

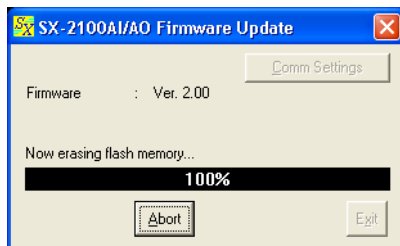


Clicking the "Update" button on the Main screen starts update process with transmitting the control firmware. Subsequently, the firmware update completes after the flash memory initialization and writing. The screen changes as follows through the process.

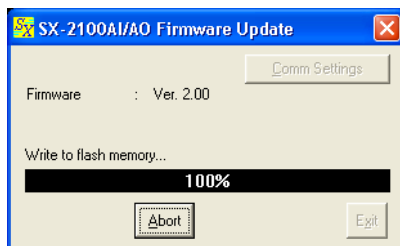
During transmission



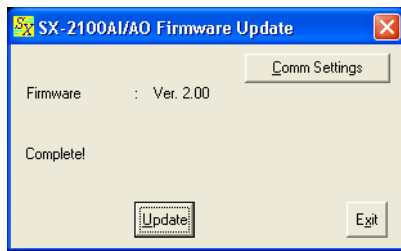
During flash memory erase



During flash memory write



Update completion



Click the "Exit" button to close the screen.

Notes

- Error message such as "No response" may be displayed on the "Now updating the firmware" screen. In this case, unplug the USB cable and reset the AI and AO. Wait for approximately one minute, then retry from **Step 3-2**.
- Never unplug the USB cable or exit the file in operation till the "Complete" screen appears.
- If the "Abort" button is clicked during flash memory write, the writing is aborted.

Step 3-5. Unplug the USB cable from the AI or AO.

Step 3-6. (Only when updating the AI or AO with Ver. 2.00 or later installed)
Set the DIP switch 7 back to the OFF position.

Step 3-7. Reset the AI or AO.
Press the reset key inside the protective cover to reset the device.
When all devices within the system are connected via Analog link, pressing the Reset key on the SM resets all AI and AO units at once.
Check to see that updated version number is displayed in the fluorescent display on the front panel.

Step 3-8. Replace the protective cover.

4. WHAT IF YOU FAILED TO UPDATE?

Complete the firmware update following the procedure below if the update failed by such reasons that a mistaken update file was used to update the SM, AI, or AO unit, or that the unit was reset or turned off during data writing.

Step 4-1. Remove the protective cover of the target device.

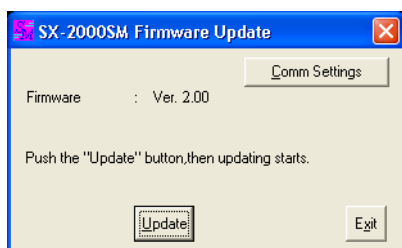
Step 4-2. Connect the PC to the device using a USB cable.

Step 4-3. Hold down the Reset key on the device for 2 seconds or more, then release it when the RUN indicator starts flashing*.

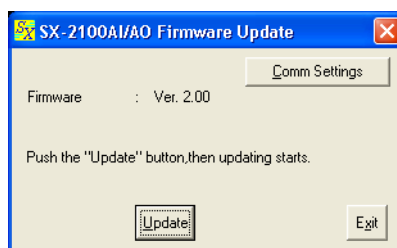
* Indicator flashes rapidly twice followed by a pause, then repeats.

Step 4-4. Launch the firmware update utility that corresponds to the device, then click the "Update" button.

[For the SM]

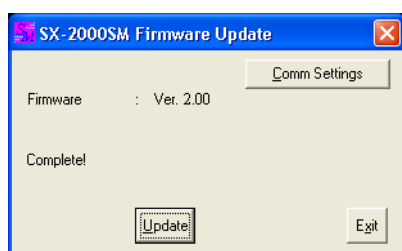


[For the AI and AO]

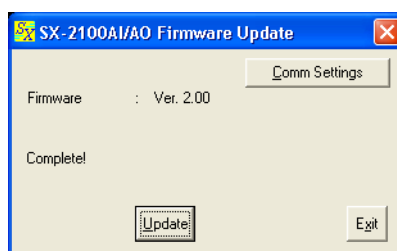


Step 4-5. Click the "Update" button again after update completion.

[For the SM]



[For the AI and AO]



Step 4-6. Click the "Exit" button after completion of the 2nd update.

Step 4-7. Unplug the USB cable from the device.

Step 4-8. Reset the device.

Press the reset key inside the protective cover to reset the device.

When all devices within the system are connected via Analog link, pressing the Reset key on the SM resets all AI and AO units at once.

Step 4-9. Replace the protective cover.

