



# ELECTRIC ACTUATOR FIRMWARE INSTRUCTIONS

## WHAT YOU NEED

Computer/Laptop

USB Mini Cable

[STM32CubeProgrammer Software](#)

[Firmware File \(ka7510\\_v1020.elf\)](#)

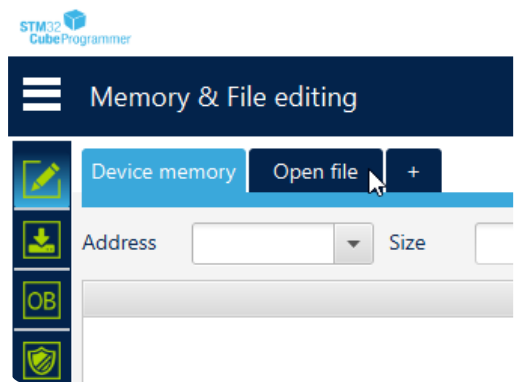
### Why is the STM32 software required?

The electric actuator's board utilizes the STM32 computer chip, and this software enables your computer to send new firmware to the chip.

The software is directly from the chip manufacturer's website and is safe to download.

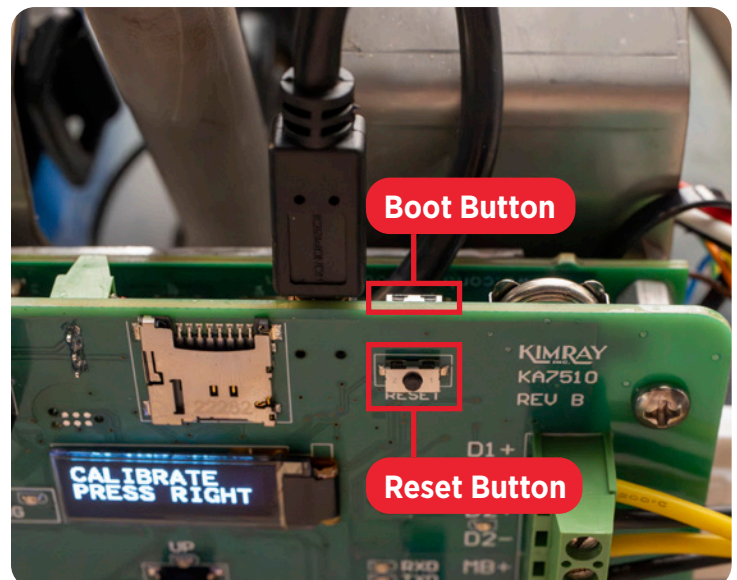
## INSTALLATION INSTRUCTIONS

1. Connect the **USB mini cable** from your computer to the **mini USB port** on the top of the electric actuator board. If your electric actuator is currently unpowered, this will provide power to the board.
2. Download, install, and open the latest version of **STM32CubeProgrammer**.
3. Load the firmware by clicking **Open file** or the **+ button** and selecting the firmware file on your computer.



**Please read all steps before advancing.** The reset button is located on the top-right quadrant of the board, and the boot button is located on the back of the board, directly behind the reset button.

4. Place the board into bootloader mode:
  - Hold down both the **BOOT** and **RESET** buttons.
  - Release the **RESET** button, and wait approximately one second.
  - Release the **BOOT** button.
  - Your computer should make a confirmation sound indicating that this was successful.



## INSTALLATION INSTRUCTIONS CONTINUED

5. In **STM32CubeProgrammer**, select **USB** from the blue dropdown menu on the right side of the screen.
6. Verify the USB bootloader is active by clicking the **Refresh** button. The board's serial number should now be visible in the USB configuration.
7. Load the file to the board by clicking the **Download** button. The progress bar at the bottom of the program will fill to 100%, and then a popup will appear when the download is complete.
8. Click the **Disconnect** button to safely disconnect your computer from the board.
9. Press the **RESET** button on the electric actuator board and wait for the board to indicate which firmware is loaded. Confirm that the expected firmware version (v1.2) is loaded.
10. Your electric actuator is now updated! Unplug the USB mini cable if no longer needed.

The screenshot shows the STM32CubeProgrammer interface with several key elements highlighted by red callouts:

- Open Firmware:** Points to the '+' button next to the file 'ka7510\_v1020.elf' in the 'Device memory' section.
- Download Firmware to Board:** Points to the 'Download' button in the top right of the memory editor.
- Select USB Configuration:** Points to the 'USB' dropdown menu in the top right.
- Refresh:** Points to the circular refresh icon next to the 'USB1' port selection.
- Board Serial Number:** Points to the serial number '204C37634843' displayed in the USB configuration panel.
- Progress Bar:** Points to the progress bar at the bottom of the window, which is currently at 0%.

The main memory editor displays a table of memory addresses and their contents:

Address	0	4	8	C	ASCII
0x08000000	20020000	0801B161	08014D45	08014D4D	... a±. .EM. .MM. .
0x08000010	08014D55	08014D5D	08014D65	00000000	UM. .]M. .eM. . . . .
0x08000020	00000000	00000000	00000000	08014D6D	. . . . .mM. . . . .
0x08000030	08014D7B	00000000	08014D89	08014D97	{M. . . . .M. . .M. . .
0x08000040	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .
0x08000050	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .
0x08000060	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .
0x08000070	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .
0x08000080	08014DA5	0801B1B1	08014D89	0801B1B1	¥M. .±±. .¹M. .±±. .
0x08000090	0801B1B1	0801B1B1	0801B1B1	08014DD5	±±. .±±. .±±. .OM. .
0x080000A0	0801B1B1	0801B1B1	08014DE5	0801B1B1	±±. .±±. .âM. .±±. .
0x080000B0	0801B1B1	08014DF9	0801B1B1	0801B1B1	±±. .ÛM. .±±. .±±. .
0x080000C0	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .
0x080000D0	0801B1B1	0801B1B1	08014E0D	0801B1B1	±±. .±±. . .N. .±±. .
0x080000E0	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .
0x080000F0	0801B1B1	0801B1B1	0801B1B1	0801B1B1	±±. .±±. .±±. .±±. .

The log window at the bottom shows the following messages:

```
09:12:23 : STM32CubeProgrammer API v2.20.0 | Windows-64bits
09:15:54 : Number of partitions: C:\Users\hkosec\Downloads\ka7510_v1020\ka7510_v1020.elf
09:15:54 : Number of segments: 2
09:15:54 : segment[0]: address= 0x8000000, size= 0x350A4
09:15:54 : segment[1]: address= 0x20000358, size= 0x0
```