

CrossFire SX - Firmware upgrade instructions

Revision 1.4, 2019-01-21, CMM

Revision History

1.4 – Changed from VCI3 to VCI4

Introduction

The firmware package for CrossFire SX contains four binaries. The binaries can be upgraded individually but it is important that they match each other. Only upgrade to a combination that is recommended by CrossControl.

The following binaries are used:

- Boot (SX_BOOT_x.x.x.x.bin)
- CODESYS runtime (SX_CODESYS_x.x.x.x.bin)
- CODESYS application (canopenslave_x.x.x.x.app)
- Current control software (SX_CurrentControl_x.x.x.x)

IMPORTANT!!! If upgrading the boot itself, make sure that you do not turn off power during upgrade as this might make the unit unreachable. Only upgrade boot if necessary! If upgrade of boot fails, do not turn off power to SX unit; instead try another upgrade from the PC tool.

NOTE! The CrossFire SX use two current control CPUs, one for each output group (OGA, OGB). Therefore the current control software must be downloaded two times.

The following equipment is needed to perform a firmware upgrade of the CrossFire SX:

- PC running Windows 7/8/10
- SX Config Tool PC software
- IXXAT USB-to-CAN adapter
- IXXAT VCI4 drivers
- Cabling that makes it possible to connect FW_UP_EN pin of CrossFire SX to SX supply voltage
- CAN and power cabling for CrossFire SX

Installation of SX Config Tool PC software

The SX config tool is designed for Windows 7/8/10 32 or 64-bit.

The SX Config Tool is delivered as a .zip file. Just uncompress the .zip file and double click on the CANopenTool.exe file.

Installation of IXXAT VCI4 drivers

SX Config Tool requires that the latest IXXAT VCI4 drivers are installed. They can be downloaded from the IXXAT support site (<https://www.ixxat.com/support/file-and-documents-download/drivers/vci-v4-driver>).

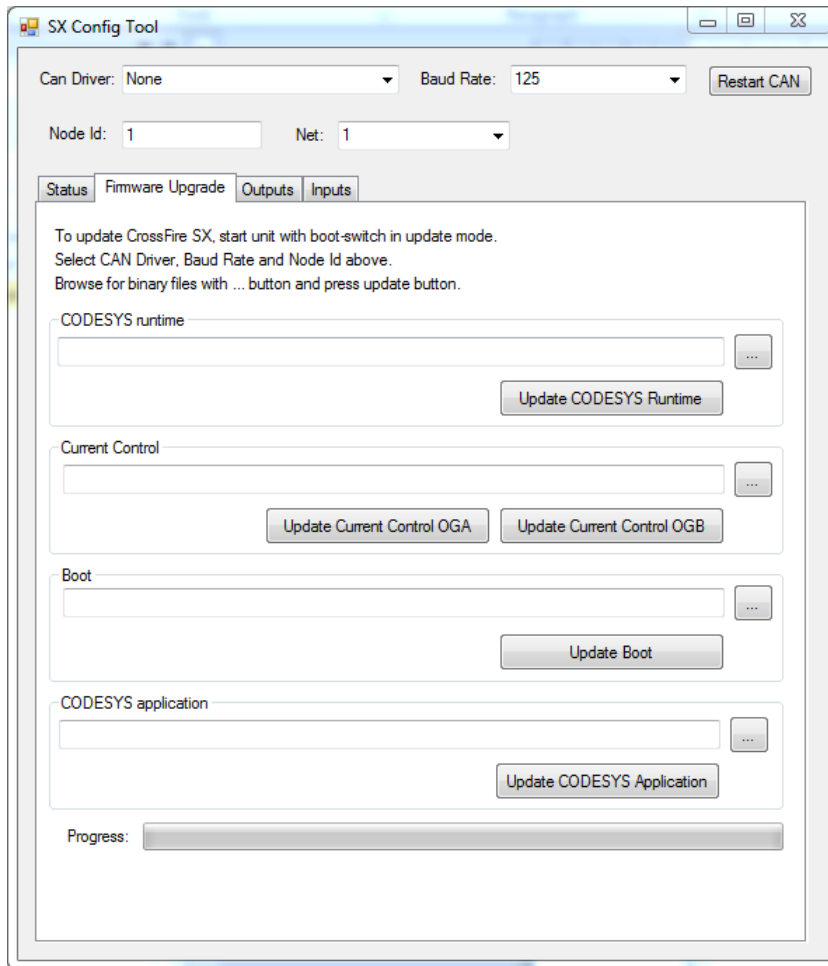
Performing Firmware Upgrade

Remove or shut down any CANopen master that is connected to the same CAN network as the CrossFire SX. This is important as the master otherwise might disturb the communication.

Connect the CrossFire SX to power and ground but keep ignition disconnected. Connect FW_UP_EN (X1 pin 22) to power and then connect ignition to power. The indicator LED should be solid green to show that the unit is in programming mode. If the CrossFire SX switches to red indication, there is probably a CANopen master connected to the network.

Connect the IXXAT USB-to-CAN adapter to a USB port and make sure it is recognized by the computer (the IXXAI VCI4 drivers must be installed first). Open the PC tool and set the drop down menus to the appropriate values. The Baud Rate should be set to 250 (if the baudrate of the SX is changed from default, this value must correspond to the new value). The Net should be set to 1. The CAN Driver should be set to VCI4. The Node Id should be set to the decimal number that corresponds to how the address select pins are configured. If the address select pins are floating then the pins are internally pulled to 3.3V, and the Node Id will be 16 (1111b=Fh=15d -> ID 16). If the address select pins are tied to ground then the Node Id will be 1 (0000b=0h=0d -> ID 1). If the node is using a fixed node-id set in software, that node id should be used.

Go to the "Firmware Upgrade" tab in SX Config Tool.

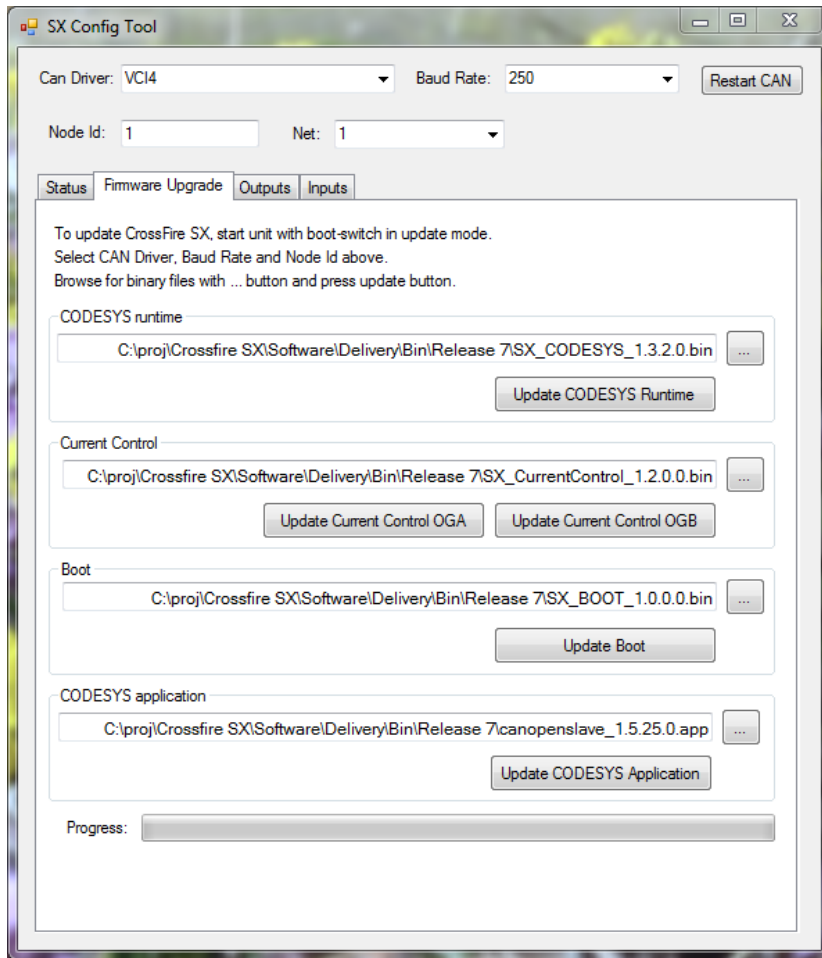


Click on the “...” button in the CODESYS runtime area of the window. Browse to the location of the SX_CODESYS_x_x_x_x.bin file, select it, and click Open. The file path should be shown in the CODESYS runtime area of the window.

Click on the “...” button in the Current Control area of the window. Browse to the location of the SX_CurrentControl_x_x_x_x.bin file, select it, and click Open. The file path should be shown in the Current Control area of the window.

Click on the “...” button in the Boot area of the window. Browse to the location of the SX_BOOT_x_x_x_x.bin file, select it, and click Open. The file path should be shown in the BOOT area of the window. Note that updating the boot shall only be performed when necessary due to the risk of making the unit unreachable.

Click on the “...” button in the CODESYS application area of the window. Browse to the location of the canopenslave_x_x_x_x.app file, select it, and click Open. The file path should be shown in the CODESYS application area of the window.



NOTE! Update of the boot is optional, only update boot if you are instructed to do so.

If you are instructed to update the boot, click on the “Update Boot” button to flash the boot area of the main CPU. The progress bar show the status of the transfer and a confirmation box will pop up to let you know when the transfer is complete. Click OK to close the window. After updating the boot, make sure the LED is green, if not try again without rebooting the unit. After successful update of the boot (green led), cycle power of the CrossFire SX.

Click on the “Update CODESYS Runtime” button to flash the CODESYS runtime into the main CPU of the SX. The progress bar show the status of the transfer and a confirmation box will pop up to let you know when the transfer is complete. Click OK to close the window.

Click on the “Update Current Control OGA” button to flash the software into the OGA micro of the SX. Click on the “Update Current Control OGB” button to flash the software into the OGB micro of the SX.

Click on the “Update CODESYS Application” button to flash the CODESYS application into the main CPU of the SX.

Disconnect ignition from power and then disconnect FW_UP_EN from power. Reconnect ignition to power and verify that the indicator LED is blinking green to show that unit is operational. The SW update is complete!