Application Note

AS72xx

How to program AS72xx firmware with FlashCatUSB

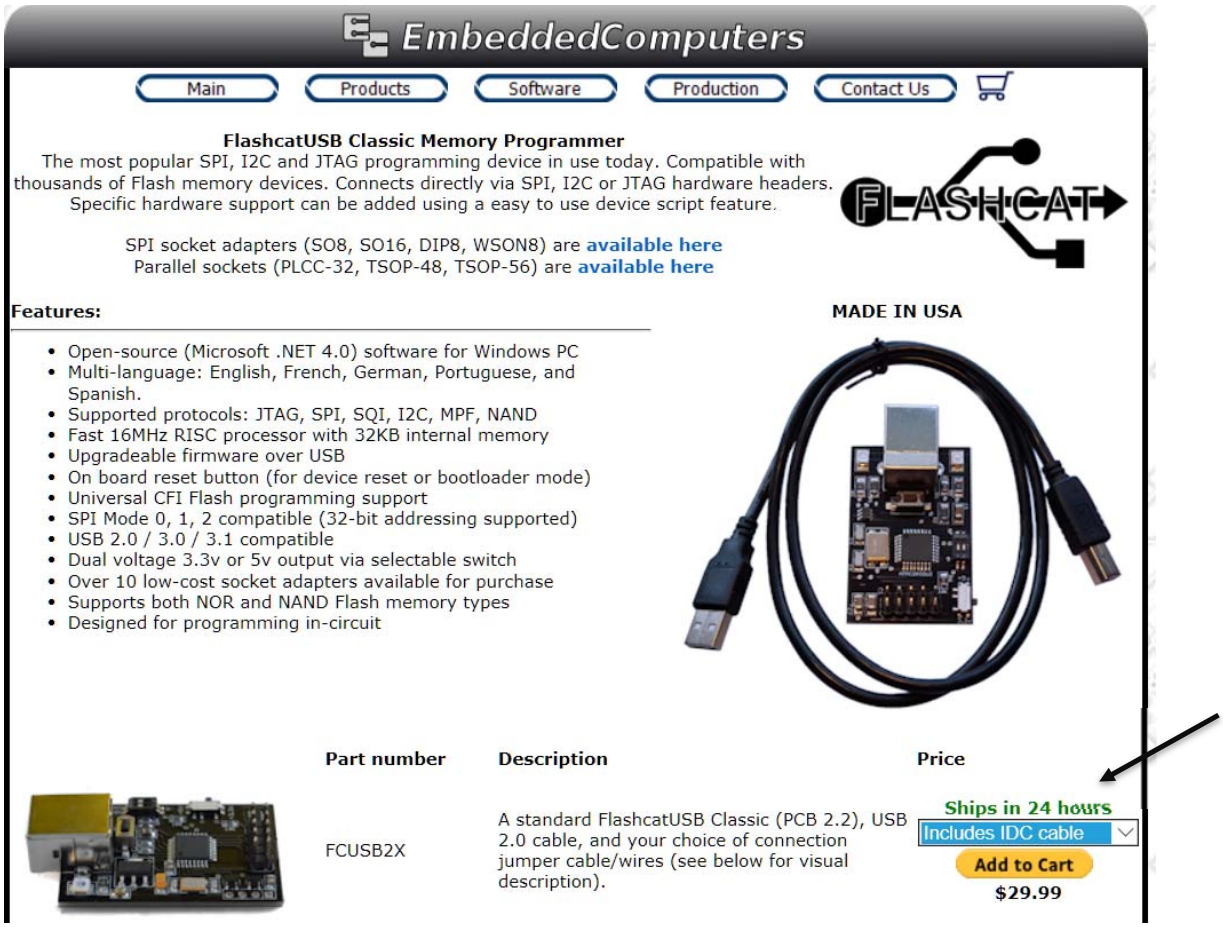
Application Note

Content Guide

1 Components and installations

AS72xx devices (including Smart Lighting Manager AS722x/AS721x devices and Spectral Sensing AS726x devices) require a flash memory[1] to work with and the memory holds AS72xx firmware. This file briefly discusses how to program the firmware with FlashCatUSB programmer.

Figure 1: http://www.embeddedcomputers.net/products/FlashcatUSB



The FlashCatUSB systems exists from a programmer board, adapter(s) depending on the connectors on board, USB cable and an optional IDC cable. The standard system FlashCatUSB Classic (Part number FCUSB2X) is available from Embedded Computer[2], must be ordered with IDC cable and be completed by the adaptation system(s) to connect the customer test board[3] to the FlashCat.

[1] See application note „AS72xx Flash program and update“
[2] http://www.embeddedcomputers.net/products/FlashcatUSB/

2 Program the firmware into the onboard memory

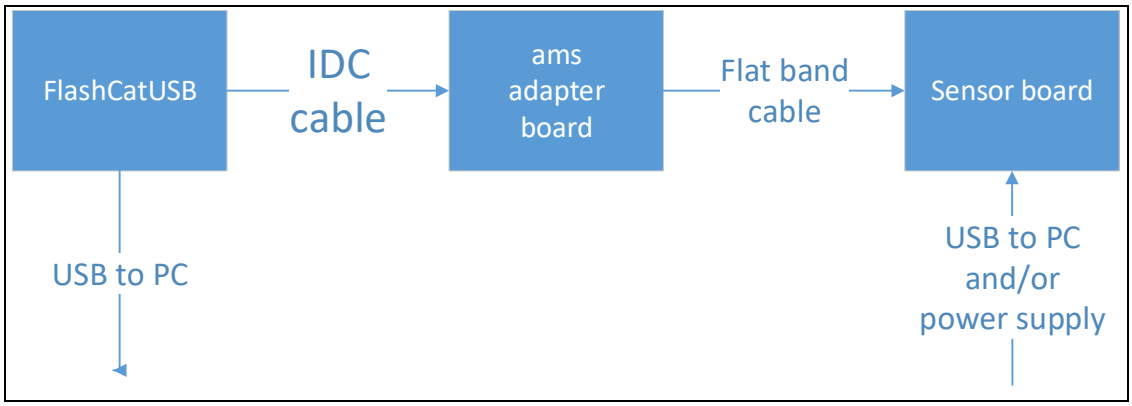
There alternative setups for firmware uploads depend on the used sensor test boards. Please check the data sheets for the programming interface to use. Alternative variants are described in the following.

8 Pin programmer connector

Depending on the version the AS72xxx boards have a 8-pin programmer connector onboard which connect the sensor device to the FlashCatUSB programmer via ams adapter board[3] and flat band cable[3] (see

Figure 2). This variant is named programming memory with the FlashCatUSB utility.

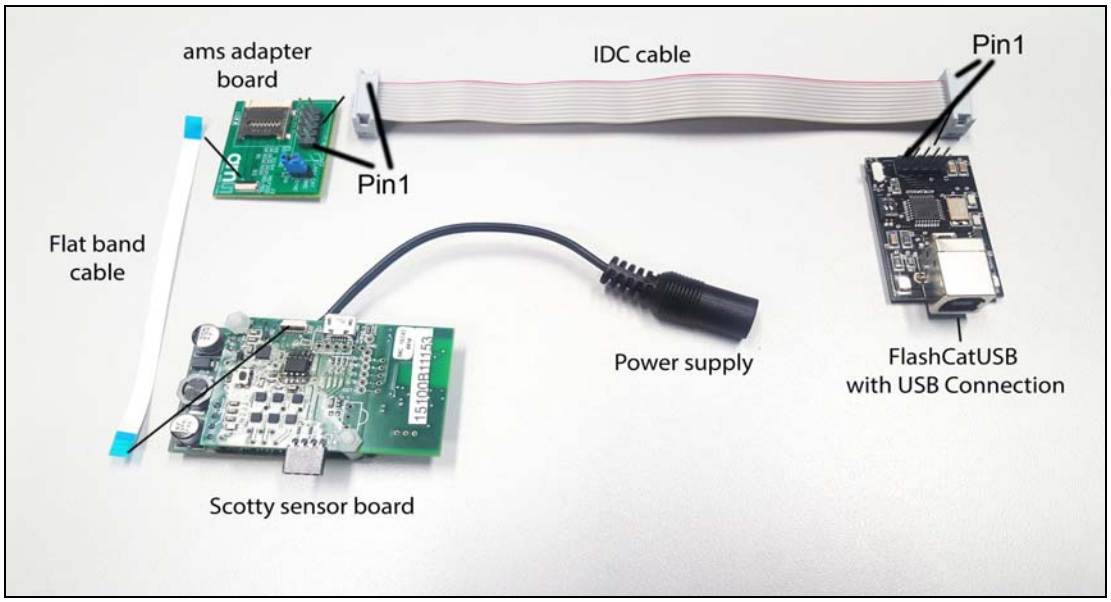
Figure 2: Sensor board with FlashCatUSB and ams adapter board for 8 Pin programmer connector



Note, ams offers a wide range of alternative Sensor boards with/without direct power supply and/or only USB connection. shows an example. Please check the data sheets of the single sensor boards for the specific connections between sensor board, USB and power supply.

[3] ams FlashCatAdapter (RD-MDL programmer) - this is an optional purchase unit whose availability is not always guaranteed. Please ask ams sales for delivery time, price and alternatives.

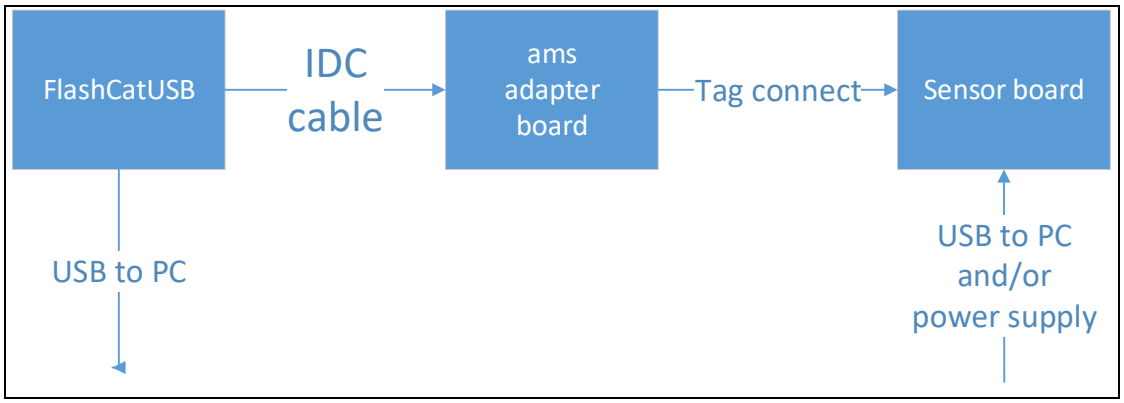
Figure 3: Example for Sensor board SLIK with FlashCatUSB and 8 Pin programmer connector4



Tag-Connect

New test boards have a 6 pole tag interface on board which can be connected with the TC2030-clip (for more details see www.tag-connect.com). Figure 4 shows all necessary components of the Tag-connect programmer tool with sensor and adapters. **Figure 5** shows an example as full system assembled, ready for use. Note also here the user manuals which includes more details for the special sensor board connectors.

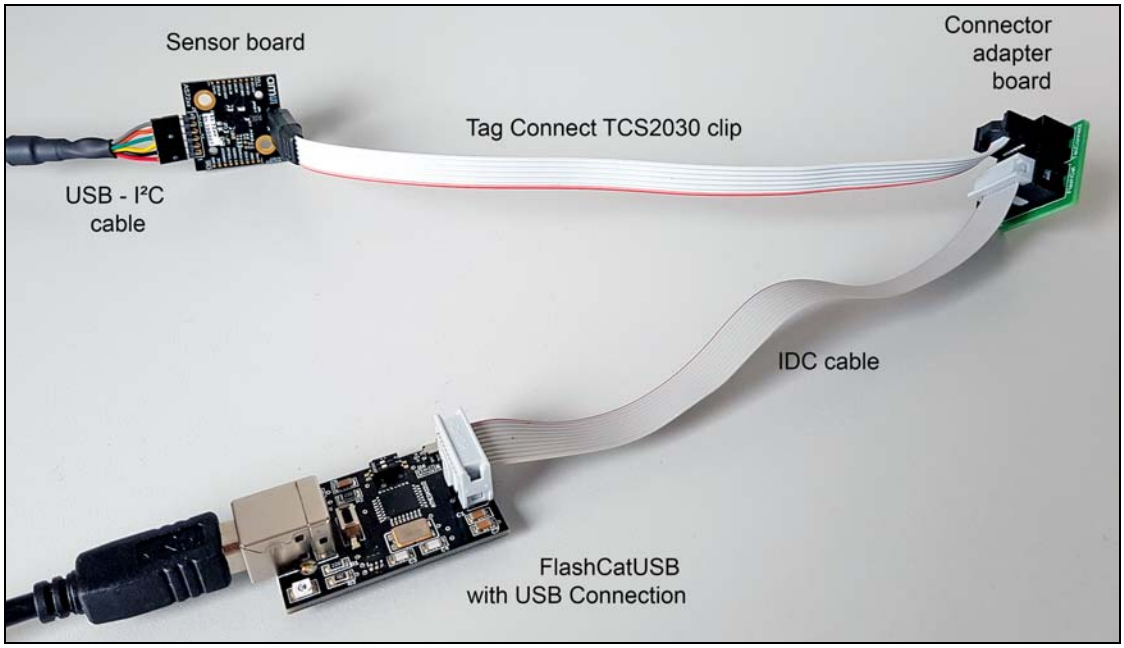
Figure 4: Parts of sensor demo board with FlashCatUSB programmer, adapters and Tag-connector



[4] Connect the flat band cable to the connector with the bare contacts facing down and/or the blue insulating tape facing up.

All adapters are available in conventional shops, exclude the ams FlashCat adapter board X1X2 which is available from ams. Ask the FAE or als team from ams to order it.

Figure 5: Assembled sensor demo board with FlashCatUSB programmer, adapters and Tag-connector



Connect all parts as shown in the Figure 4. Then Connect USB cable and/or if necessary the power supply. Note, there are some board specific requirements possible, e.g. you must connect also RESET and GND pins by wire in case of firmware upload at the iSPI evaluation board version 1.0. Therefore, please ask our FAE team for system specific conditions.

Using the FlashCat programmer

When you connect FlashCatUSB programmer to your computer for the first time, you may need to redirect the OS to the driver folder from FlashCatUSB utility package to install the driver[5]. After the driver installation, please check FlashCatUSB firmware by double clicking “FlashCatUSB.exe” to bring the screen up as below. The firmware version of the FlashCatUSB board should be the version 4.12 or later with SPI interface.

[5] Download the installation files from http://www.embeddedcomputers.net/software/ and follow the instructions in the FlashCatUSB manual to install the driver and software

After the software installation please make the following steps to initialize the programming system[6]:

- SLIK and FlashCat both powered off, no USB connected
- Connect the FlashCat and adapter to the SLIK
- Connect power to the sensor test boards
- Plug the FlashCat into the USB port directly on the PC (not a docking station)
- Start the FlashCatUSB software

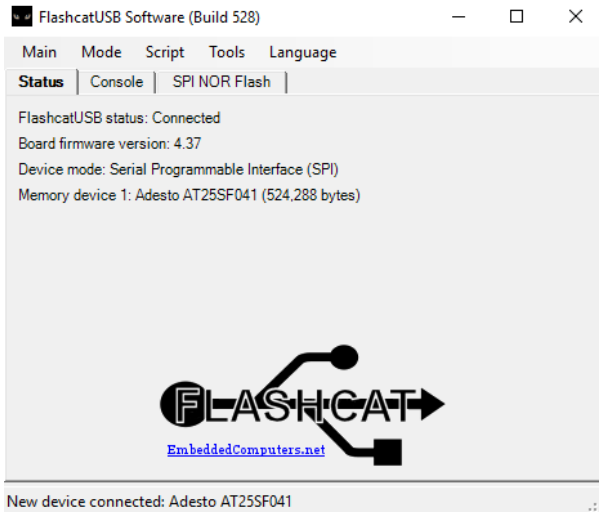


Figure 6: Start window FlashCatUSB

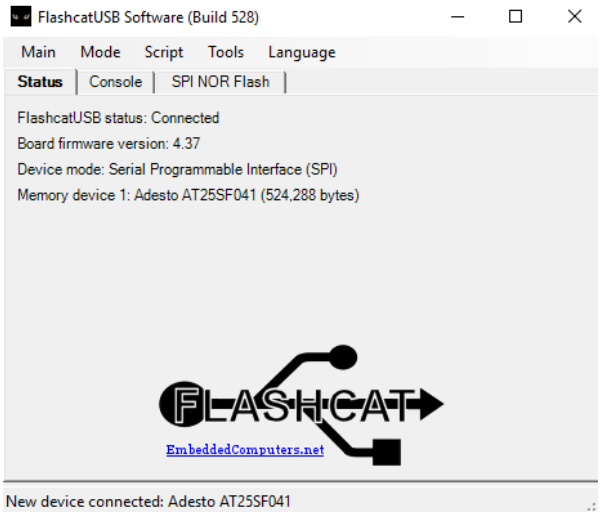
In case of the error “not connected FlashCat” after a succesfull driver installation, please download latest FlashCatUSB software and read the manual. Sometime, it is necessary to update the firmware of the flashcat (Ex- FCUSB.CLASSIC.x.xx.SPI.I2C.EXT.hex). Therefore, read the page 11 of the “FlashcatUSB_Manual”.

3 Program the firmware

The FlashCatUSB programming utility works with either connection. Double click FlashCatUSB.exe to see the screen as shown below. (The version Build 528 as the example. Newer version of the utility should work as well). The utility automatically detected the flash memory with the name Adesto AT25SF041 or comparable types[9].

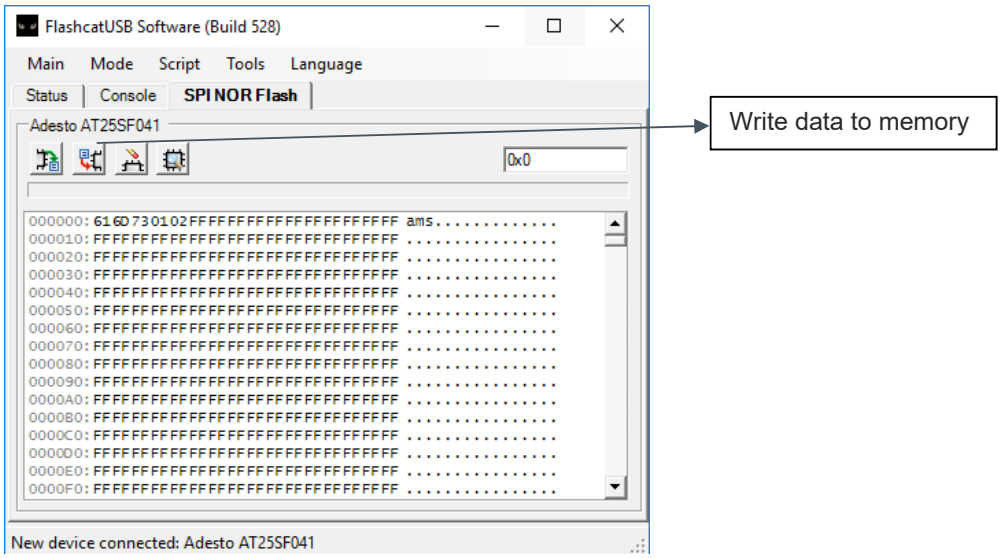
[6] An other sequence or reversing steps can result errors
[9] See the application note “AS72xx Flash program and update”

Figure 7: Start Window



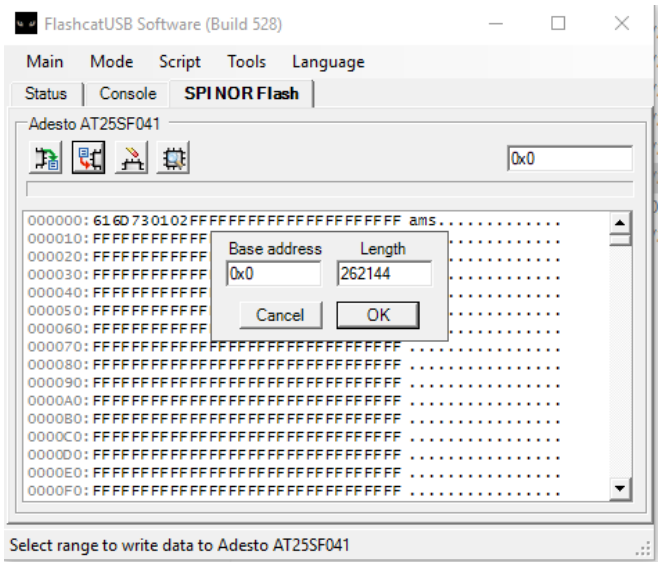
Click “SPI Flash” tab, you will see the interface as below.

Figure 8: SPI Flash Window



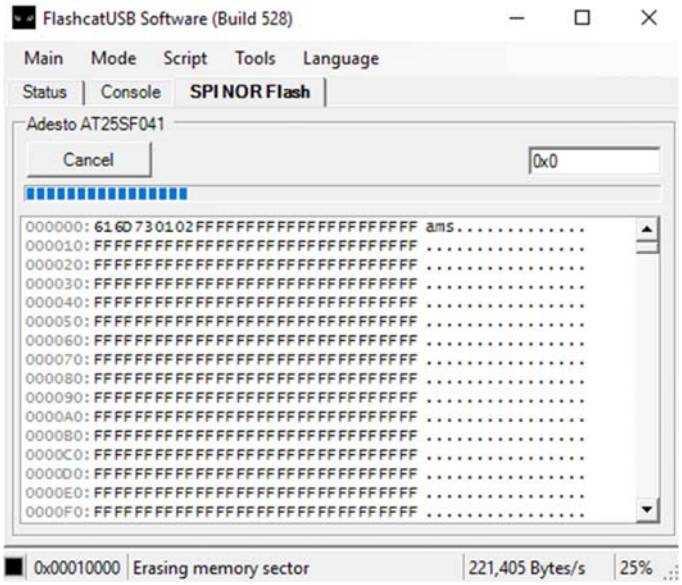
Then click the button for write data to memory for programming the device. The file selection window will show up and please select the firmware you would like to program into the device and click ‘OK”. In case of update AS72XX_complete.bin file (e.g. 256k for Scotty) then click “OK” on the small window, which allows you to set Base Address and Length. Use the default value as shown in the window or ask the support team. In case of update AS72XX_update.bin file (base address 0x12000 for 56kbyte update) to prevent an overwrite of the signature.

Figure 9: Recommend default values



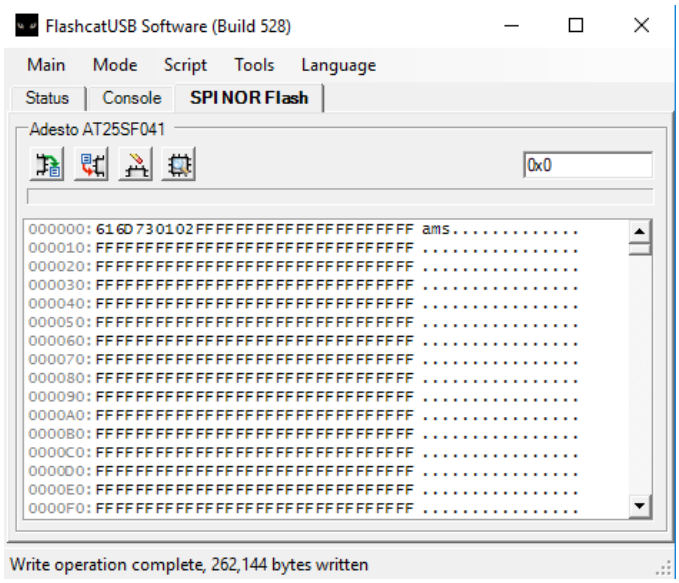
After clicking on “OK”, the programming starts and it will take several seconds to complete.

Figure 10: Window after process is completed



Programming is completed.

Figure 11: Window after processing



After the successfull programming please stop the FlashCatUSB software and disconnect all components. The sensor board now includes the new firmware. (Note: If flashcat is connected to scotty board, GUI will not work.So make sure that Flashcat should be disconnect after any update).

4 Contact Information

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6 Revision Information

Initial Version

Note: Page numbers for the previous version may differ from page numbers in the current revision.
Correction of typographical errors is not explicitly mentioned.