

# Product Document



## Application Note

# AS72xx

## How to Program AS72xx Firmware with FlashCatUSB



# Application Note

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## 1 Components and installations

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

**FlashcatUSB Classic Memory Programmer**  
The most popular SPI, I2C and JTAG programming device in use today. Compatible with thousands of Flash memory devices. Connects directly via SPI, I2C or JTAG hardware headers. Specific hardware support can be added using a easy to use device script feature.

SPI socket adapters (SO8, SO16, DIP8, WSON8) are [available here](#)  
Parallel sockets (PLCC-32, TSOP-48, TSOP-56) are [available here](#)

**Features:**

- Open-source (Microsoft .NET 4.0) software for Windows PC
- Multi-language: English, French, German, Portuguese, and Spanish.
- Supported protocols: JTAG, SPI, SQI, I2C, MPF, NAND
- Fast 16MHz RISC processor with 32KB internal memory
- Upgradeable firmware over USB
- On board reset button (for device reset or bootloader mode)
- Universal CFI Flash programming support
- SPI Mode 0, 1, 2 compatible (32-bit addressing supported)
- USB 2.0 / 3.0 / 3.1 compatible
- Dual voltage 3.3v or 5v output via selectable switch
- Over 10 low-cost socket adapters available for purchase
- Supports both NOR and NAND Flash memory types
- Designed for programming in-circuit

**MADE IN USA**

Part number	Description	Price
FCUSB2X	A standard FlashcatUSB Classic (PCB 2.2), USB 2.0 cable, and your choice of connection jumper cable/wires (see below for visual description).	<p><b>Ships in 24 hours</b></p> <p>Includes IDC cable <input type="checkbox"/></p> <p><b>Add to Cart</b></p> <p><b>\$29.99</b></p>

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

The FlashCatUSB systems exists from a programmer board, USB cable and an optional IDC cable. The standard system FlashCatUSB Classic (Part number FCUSB2X) is available from Embedded Computer<sup>2</sup>, must be ordered with IDC cable and be completed by an adaptation system to connect the customer test board<sup>3</sup> to the FlashCat.

## 2 Program the firmware into the onboard memory

<sup>1</sup> See application note „AS72xx Flash program and update“

<sup>2</sup> <http://www.embeddedcomputers.net/products/FlashcatUSB/>

Both Smart Lighting Manager demo boards AS72xx and Spectral Sensing demo boards AS726x have a 8-pin programmer connector onboard which connect the sensor device to the FlashCatUSB programmer via ams adapter board<sup>3</sup> and flat band cable<sup>3</sup> (see Figure 2). This variant is named programming memory with the FlashCatUSB utility.

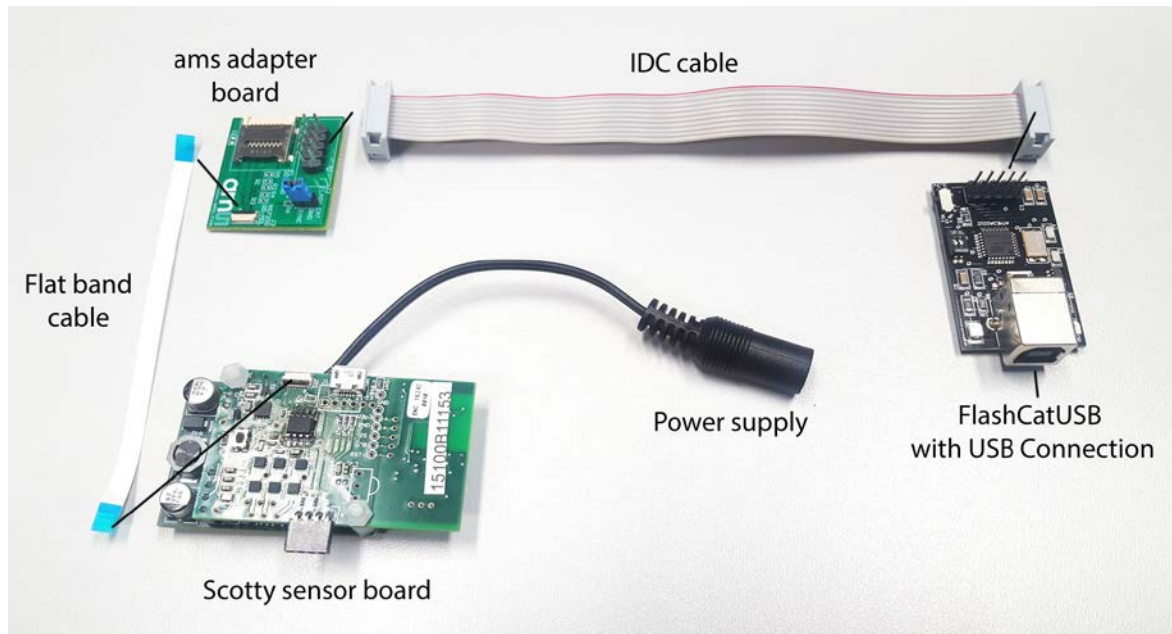


Figure 2: SLIK demo board with FlashCatUSB programmer and ams adapter board

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<sup>4</sup>. 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.

After the software installation please make the following steps to initialize the programming system<sup>5</sup>:

- 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

<sup>3</sup> 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.

<sup>4</sup> Download the installation files from <http://www.embeddedcomputers.net/software/> and follow the instructions in the FlashCatUSB manual to install the driver and software

<sup>5</sup> An other sequence or reversing steps can result errors



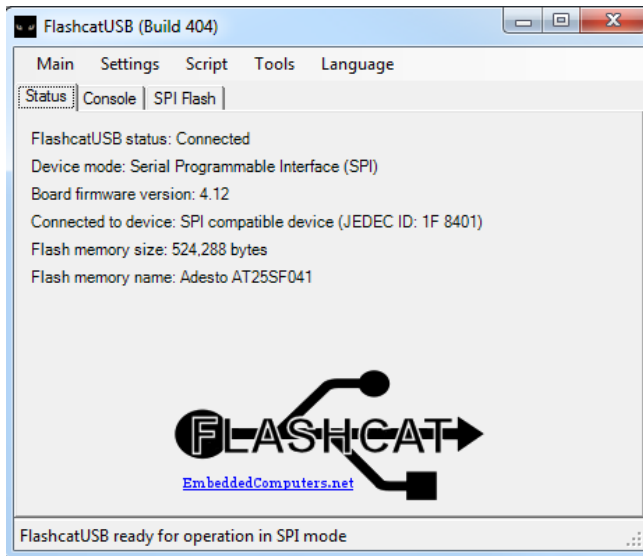


Figure 3: Start window FlashCatUSB

In case of the error “not connected FlashCat” after a successful driver installation, please re-install FlashCatUSB software AND the FlashCatUSB firmware FCUSB.CLASSIC.x.xx.SPI.I2C.EXT.hex<sup>6</sup>. For more details see the FlashCatUSB manual<sup>7</sup>.

### 3 Program the firmware into an off board memory

In order to program the firmware into an off board memory, a socket in addition to the FlashCatUSB programmer is needed. The picture below shows an example of the sockets and connections.

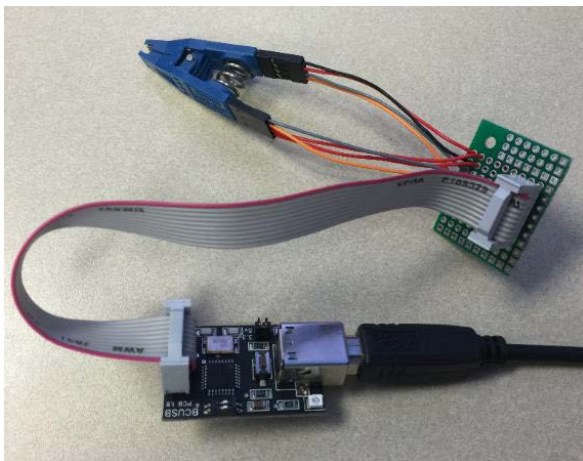


Figure 4: Example of the sockets and connections

<sup>6</sup> x.xx means, use the newest firmware

<sup>7</sup> Note the details in the data sheet to use the firmware update switch on the board before and after the update.

## 4 Program the firmware

The FlashCatUSB programming utility works with either connection. Double click FlashCatUSB.exe to see the screen as below. (The version Build 404 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<sup>8</sup>.

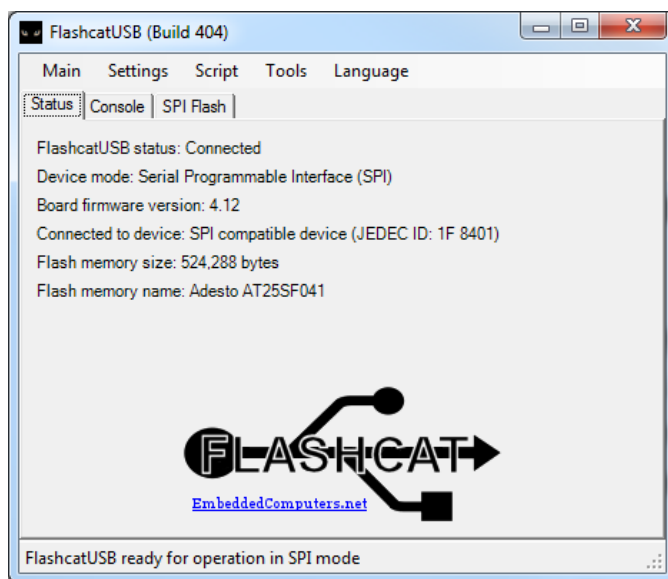


Figure 5: Start Window

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

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<sup>8</sup> See the application note “AS72xx Flash program and update”





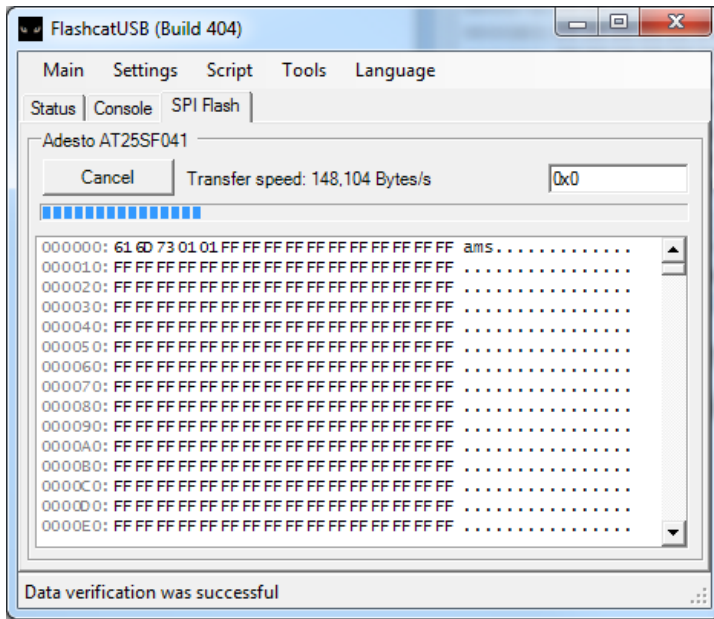


Figure 8: Window after process is completed

Programming is completed.

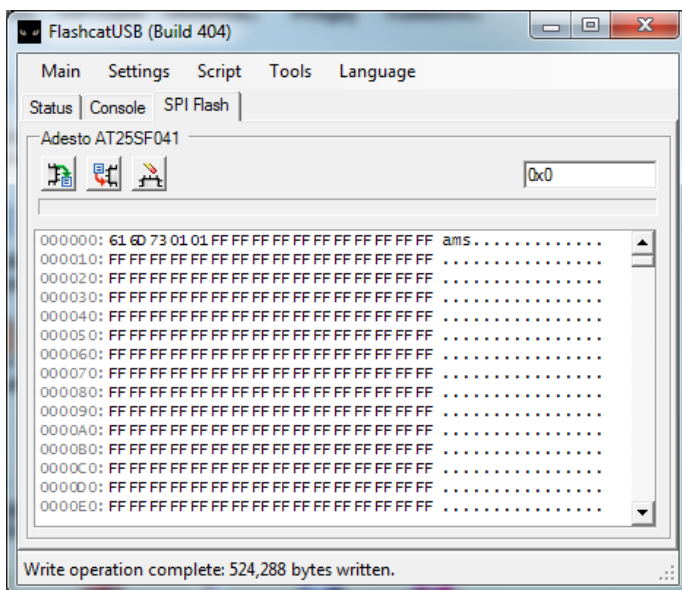


Figure 9: Window after processing

After the successful programming please stop the FlashCatUSB software and disconnect all components. The sensor board now includes the new firmware.

## 5 Contact Information

For further information and requests, e-mail us at:

[ams\\_sales@ams.com](mailto:ams_sales@ams.com)

**For sales offices, distributors and representatives, please visit:**

[www.ams.com/contact](http://www.ams.com/contact)

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## 7 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.