Upgrade of FW for SPM Measuring Units

This document describes how to upgrade the Firmware (FW) of the following SPM Products:

- INSMB4V
- INSMB4S

INSMB4V is a 4 channel parallel Vibration measuring unit and INSMB4S is a 4 channel parallel SPM measuring unit. Both units use two processors, a Host processor and a DSP (Digital Signal Processor). The Host processor uses different FW for the different hardware but the DSP uses the same FW.

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Necessary tools and software

The following tools and software are needed in order to upgrade the different FW.

- A USB to UART cable, SPM 15484
- The SPM document 72093 (installing driver for 15484)
- The software PIC32UBL
- The software PRO240
- The file for FW upgrade of the host processor, see below.
- The files for FW upgrade of the DSP, see below.

How to upgrade FW

The normal way to upgrade FW is to first upgrade FW for the host processor and then FW for the DSP. That is enough if the unit is only to be operated in online mode over Modbus. If the unit should be operated in offline mode it also need a configuration file.

Latest FW

Processor	FW file	Release	Date	Type	Hardware
Host Processor	INSMB4S_20119.hex	119	2016-02-24	Binary	INSMB4S
Host Processor	INSMB4V_30113.hex	113	2016-04-01	Binary	INSMB4V
DSP	P109_dsp_spi_100proc.bin	1.0.83	2015-11-13	Binary	INSMB4S, INSMB4V
DSP	machineguard.txt	1.0.83	2015-10-15	Text	INSMB4S, INSMB4V

Upgrade of FW for Host processor

Follow these steps in order to upgrade the FW for the Host processor. A possible problem when following these steps is that a time out can be activated if the steps are carried out with an unnecessary delay between them. In that case the steps just have to be repeated without a delay between them.

- Make sure you have the correct drivers installed on a PC in order to use the USB to UART cable (SPM 15484). Use document 72093 if the drivers need to be installed.
- Connect the USB to UART cable to a USB port of the PC and to the COM port of the SPM Measuring unit.
- Connect 24 Vdc to the SPM Measuring unit.
- Set SETTINGS=999 on the front of the SPM Measuring unit.
- Push KEY once and verify that the S LED starts to flash twice repeatedly.
- Start the software PIC32UBL
- Select the correct COM Port for the USB to UART cable. The com port should be listed as “Silicon Labs CP210x USB to UART Bridge” in the Windows Device Manager.
- Set the Baud Rate to 115200.
- Click the Connect button and verify that you receive “Device connected” in the message field.
- Click the Load Hex File button and select the file to be used to upgrade the FW of the host processor, see Latest FW above.
  Verify that you receive “Hex file loaded successfully” in the message field.
- Click the Erase button and wait until two “Flash Erased” appears in the message field.
- Click the Program button and wait until “Program Completed” appears in the message field.
- Click the Verify button and wait until “Verification Successful” appears in the message field.
- Click the Disconnect button and wait until “Device Disconnected” appears in the message field.

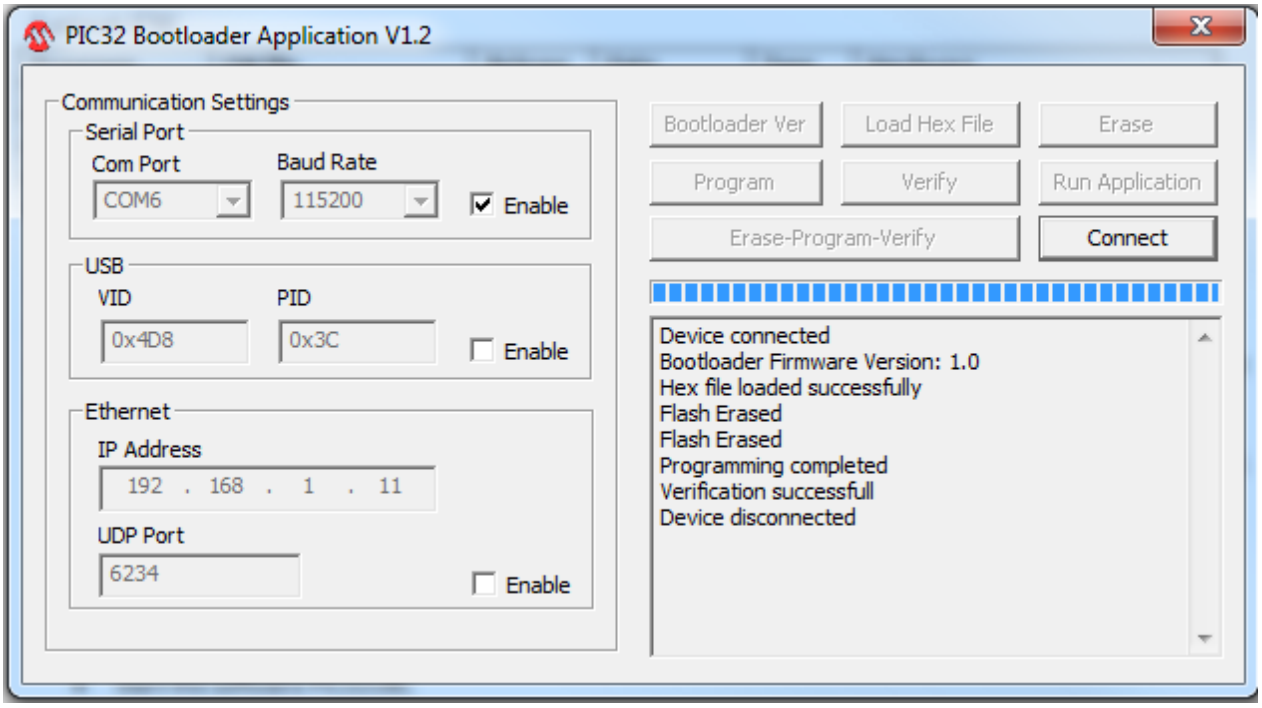

Figure 1: The user interface used for upgrade of the firmware for the Host processor. The messages shown in the message field is the result of a successful data transfer.

Upgrade of FW for DSP

Follow these steps in order to upgrade the FW for the DSP.

- Make sure you have the correct drivers installed on a PC in order to use the USB to UART cable (SPM 15484). Use document 72093 if the drivers need to be installed.
- Connect the USB to UART cable to a USB port of the PC and to the COM port of the SPM Measuring unit.
- Connect 24 Vdc to the SPM Measuring unit.
- Set SETTINGS=099 on the front of the SPM Measuring unit.
- Start the software PRO240
- Verify that the software has identified the Comport used by the USB to UART cable. The com port should be listed at the bottom of the window.
- Click on Download DSP program and select the binary file to be used for FW upgrade of the DSP processor, see Latest FW above. Wait for the transfer to complete that can take a few minutes.
- Click on Download MachineGuard and select the text file to be used for FW upgrade of the DSP processor, see Latest FW above. Wait for the transfer to complete.
- The unit is now ready for operation.

Upgrade of Configuration File

If the unit is to be operated in offline mode it must have a configuration file. This file contains the Measuring settings that can be used in offline mode where the user select a specific configuration using the rotary switches on the front. Follow these steps in order to download the Measuring Settings in the Configuration file.

- Make sure you have the correct drivers installed on a PC in order to use the USB to UART cable (SPM 15484). Use document 72093 if the drivers need to be installed.
- Connect the USB to UART cable to a USB port of the PC and to the COM port of the SPM Measuring unit.
- Connect 24 Vdc to the SPM Measuring unit.
- Set SETTINGS=099 on the front of the SPM Measuring unit.
- Start the software PRO240
- Verify that the software has identified the Comport used by the USB to UART cable. The com port should be listed at the bottom of the window.
- Click on Download Measuring Settings and select the configuration file where the Measuring settings are stored.
- Wait for the transfer to complete.
- The unit is now ready for offline operation.

Revisions of Document

Revision	Author	Date	Comment
000	Pontus Eriksson	2015-05-13	First release
001	Pontus Eriksson	2015-10-20	
002	Pontus Eriksson	2015-10-28	
003	Pontus Eriksson	2015-12-08	PRO240 introduced
004	Pontus Eriksson	2016-02-25	INSMB4S_20119.hex added
005	Pontus Eriksson	2016-04-05	INSMB4V_30113.hex added