



Updating Firmware on an IBPS controller

Rev 2.0 7/13/05

The firmware of the IBPS family of controller modules can be updated by connecting the controller up to an RS232 serial port and running a program called Tiny Bootloader on a Windows™ based system.

Note: Updating the firmware will cause the microcontroller to reset. This will cause the On/Off signals to go to an unknown state and could remove power from your device. Do not update the firmware if the controller is connected to a load.

Tiny Bootloader can be downloaded from:

<http://www.ocean-server.com/download/bootloader.zip>

Updating firmware option 1 (preferred method):

Setting up your system:

- 1) Download and install Tiny Bootloader.
- 2) Request the firmware image file from support@ocean-server.com . You will receive a .HEX file, save this to you PC.
- 3) Remove all power from your controller.
- 4) Connect to your RS232 serial port via our converter cable (19-00010-00). The converter cable has a DB9 style connector to connect to a standard serial cable (19-00011-00). You can only use PC COM ports 1-4.
- 5) Startup Tiny Bootloader.

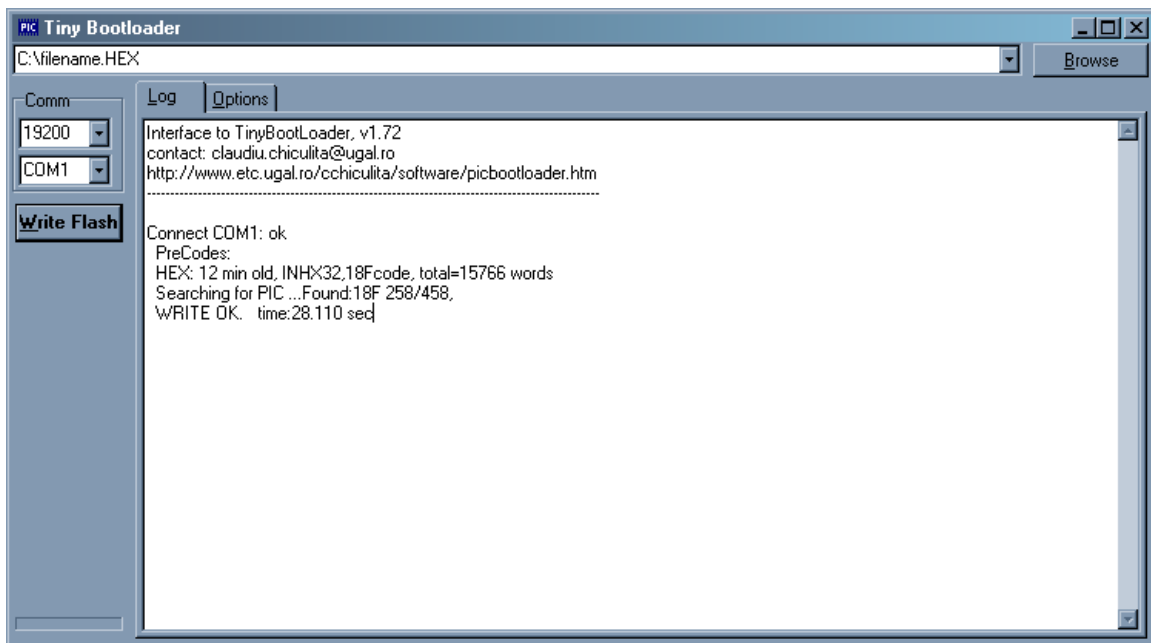


Figure 1

Configuring Tiny Bootloader and updating firmware:

- 1) In the top box, point to the image that you want to load into the IBPS controller
- 2) Set the baud rate of the COM port to 19200
- 3) Point to the COM port that is connected to your IBPS controller

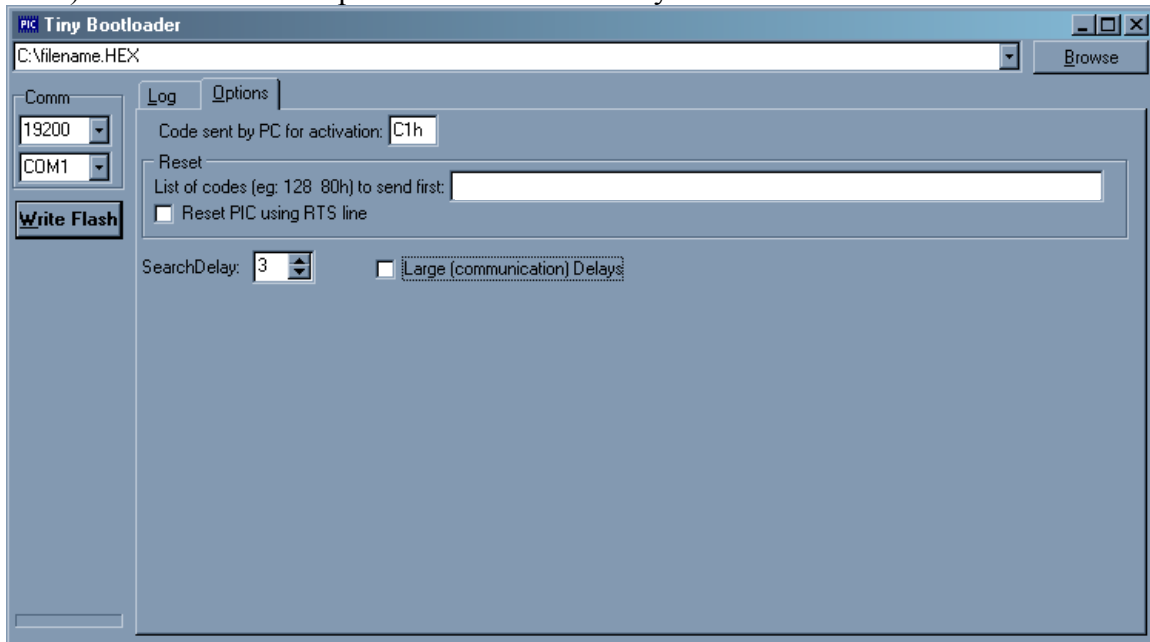


Figure 2

- 4) Apply power to your battery controller.
- 5) Click on the Write Flash button within a second or two of applying power to update the firmware. Do not remove power from the controller during programming. You can click on the Log tab to monitor the progress and verify that the programming was successful (see Figure 1). If the write fails try it a few more times. If after a few tries it still doesn't work, see below.
- 6) It is also recommended that you reset the NVRAM of the microcontroller by connecting to the module through a HyperTerminal:
 - a. At the HyperTerminal Hit the space bar so you come to the console prompt.
 - b. At the prompt type "s" for setup.
 - c. Type "r" for reset.
 - d. Type "y" to confirm that you want to reset the NVRAM.

Updating firmware option 2 (not recommended):

If your controller is already in a system with batteries connected and there is a connection to the serial port, it is possible to update the firmware without removing power from the battery controller. This method is less reliable and not recommended.

To update your module when power is applied, follow all of the steps in “Setting up your system” while ignoring step 3.

Once your system is set up, follow all of the steps in “Configuring Tiny Bootloader and updating firmware” but replace step 4 with the following

- 4) Click on the Options tab and in the Reset List of codes put “11h” (see Figure 3).

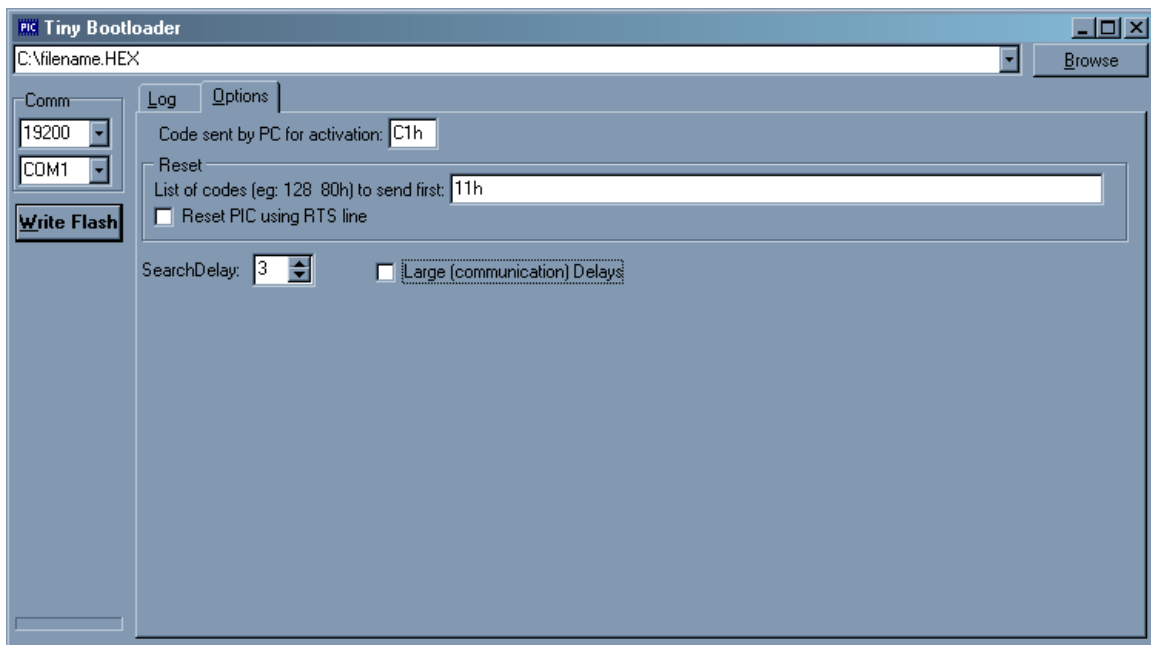


Figure 3

When updating firmware with this method there is no time constraints in hitting the Write Flash button. Note, if this doesn't work after a few attempts, resort to Option 1.

Troubleshooting:

Could not connect to COMx: Verify that you have identified the correct COM port. Verify that no other program is using the COM port including OceanServer's Minibats or Fullbats programs.

pic sending unknown data:More than 2 id bytes received: This error can occur if there are characters stored in the COM ports buffer. By clicking on the Write Flash but a few times the buffer will get flushed. Another cause of this problem is that the IBPS controller is sending data over the COM port. This can happen if a start up command is used on the IBPS controller or if Minibats or Fullbats isn't exited properly. To clear this

condition connect to the IBPS controller using Hyperterminal (see The Software User's Guide for instructions on connecting to a Hyperterminal) and hit the space bar. Hitting the space bar causes a break and the controller will stop outputting data. Remember to close the Hyperterminal connection to allow Tiny Bootloader to connect to the COM port.

Searching for PIC ...Not found: Verify that the module has power and is connected to the proper COM port.