

Downloading the Bootloader program part

Into the USB-LCD-20x2 module



● Connecting a programmer hardware to the USB-LCD-20x2 module

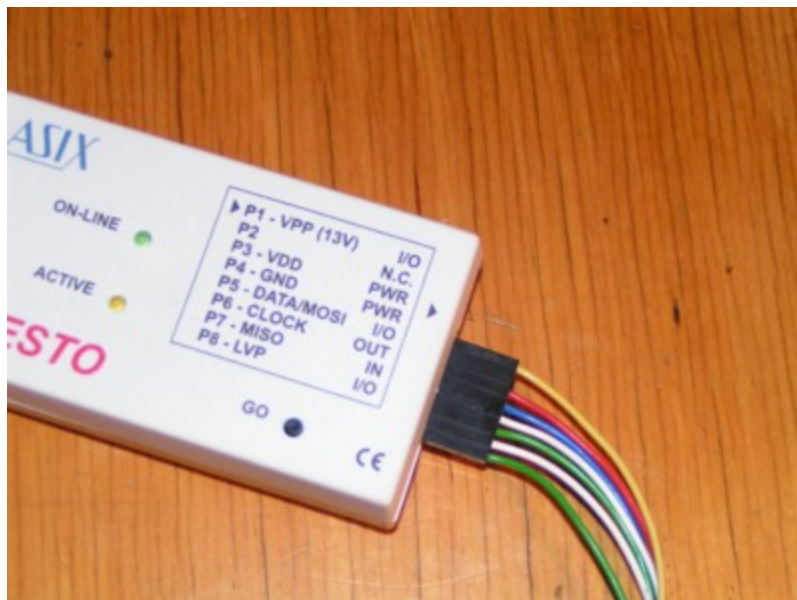
The bootloader is an absolute necessary software part to allow future firmware downloading into the USB-LCD-20x2 device and it must be downloaded first into the main onboard controller.

To install the bootloader a hardware programmer, a personal computer with Windows XP operating system installed and at least one available USB connector is needed. This programmer ("Asix Presto") is an intelligent USB device and doesn't need any external power supplies .

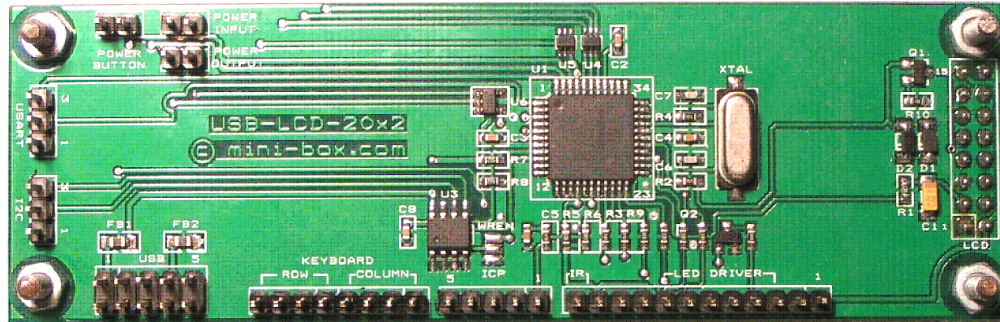
First, install the proper software driver for this programmer device. You will find in the box of the programmer a CD-ROM, which may contain the necessary device drivers, the programming utility software and an Installation guide. Please read the guide and follow the steps. Install both software components carefully and do some self tests of the programmer device to confirm the device is functioning properly. The green LED is on when the device is connected to USB port.

After the complete installation of driver and software, the USB-LCD-20x2 module must be prepared for programming:

- The programmer ("Asix Presto") has only one multi-wired connector. The image below will help you to identifying it.
- USB-LCD-20x2 module has a single ICSP (In Circuit Serial



Programming) connector situated between the two, wide pin headers. The following image helps to identifying them.



- Take the programmers connector and connect it to the USB-LCD-20x2 module ICSP connector, as you see in the image below.



- Note the colored wire connection order:
"Asix Presto" programmer vs. USB-HID-20x2

P1 - VPP (13V)		ICP 1
P3 - VDD		ICP 3
P4 - GND		ICP 2
P5 - DATA/MOSI		ICP 4
P6 - CLOCK		ICP 5

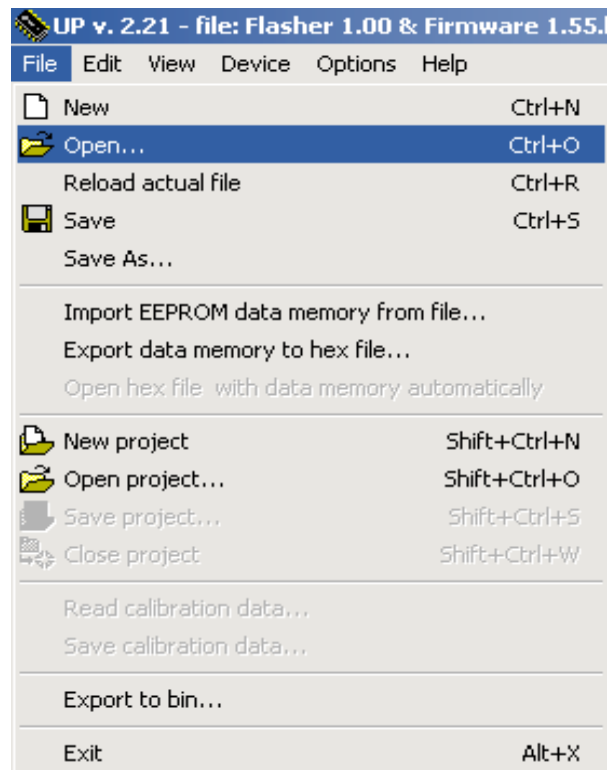
- Once the colored wires are connected in right order between the "Asix Presto" programmer and USB-HID-20x2 module you are ready to do the programming job.

● Downloading the Bootloader in the USB-LCD-20x2 memory

Start the programmer software named "Asix UP". As first step the user will be asked about the microcontroller type. Please select the PIC18F4550 named de-vice. Now load the "MCHPUSB X.XX version.hex" file from File/Open/Browse menu point as shown in below images.



Important Notes:



When ICSP cable is used to program microcontroller directly in the application circuitry, the "ICSP power up delay" causes a delay after applying power to the microcontroller, e.g. to charge filtering capacitors in application circuitry. "Asix Presto" has built-in overcurrent protection, which measures the current shortly after applying power to the microcontroller. In ICSP mode the actual delay depends on this option, thus increasing this value unnecessarily increases the probability of possible damage to the part when handled incorrectly. For shorter delays the programmer's circuitry can detect the overcurrent soon enough to prevent the damage to the part. The overcurrent limit is about 100 mA for both power supply and programming voltage. So don't worry! Just set **ON** "Slower switching of voltage with ICSP" in Program Settings on Programming tab (highlighted in red on the picture).

After doing this setting you are able to start micro-controller device programming.



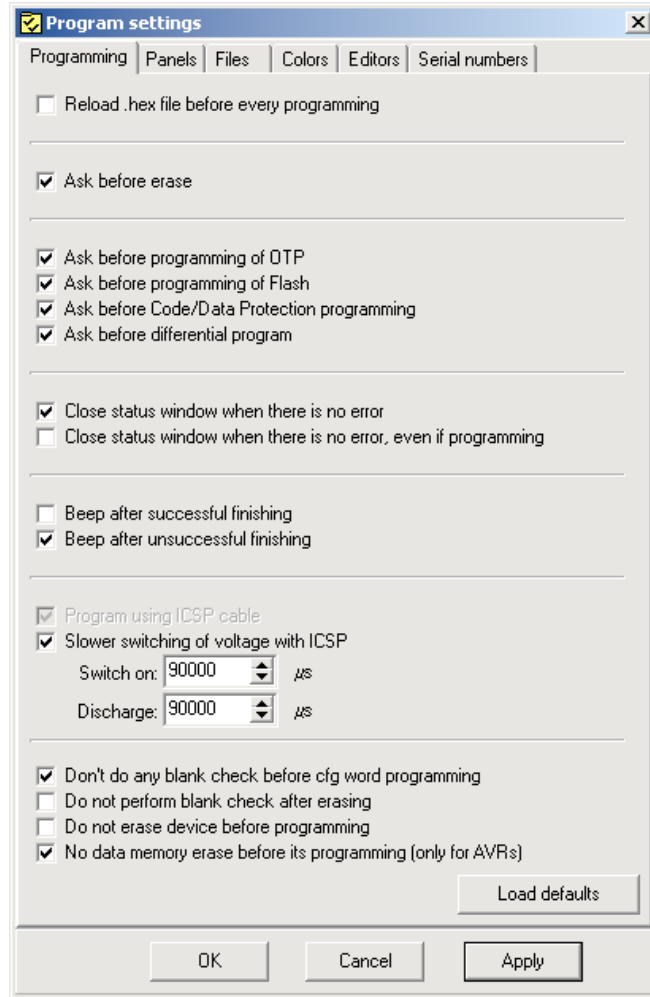
Programming the USB-LCD-20x2 must begin with a memory erasing procedure by pressing the "Erase" button.



Ensure the program memory was ready cleared by pressing the "Blank check" button.



Finally by pressing the "Program" button the USB-LCD-20x2 will be programmed, (the Bootloader software will be downloaded into micro-controller's main program memory). During programming a self-test process is executed to verify if every byte was correctly wrote.



- **Verifying if the USB-LCD-20x2 runs the Bootloader program**

After programming, disconnect the USB-LCD-20x2 device from the "Asix Presto" programmer and then plug into a free USB connector on the same PC. If you plugging in the USB-LCD-20x2 device for the first time into a USB connector, the Windows XP operating system will notify you that there appears a new device named HID. Just following the well-known "Next, Next, OK, OK..." procedure to automatically installing the right device drivers. After that the LCD lights up and displays something like this:

If you can see this text message on the device LCD it means the programming procedure was successfully completed and the device runs the version 0.30 (or X.XX) of the Flasher (bootloader) software. The **absence** of Firmware version number means that there is no firmware downloaded yet.

