

**NM 100**

**PIC Programmer**

**Users**

**Manual**

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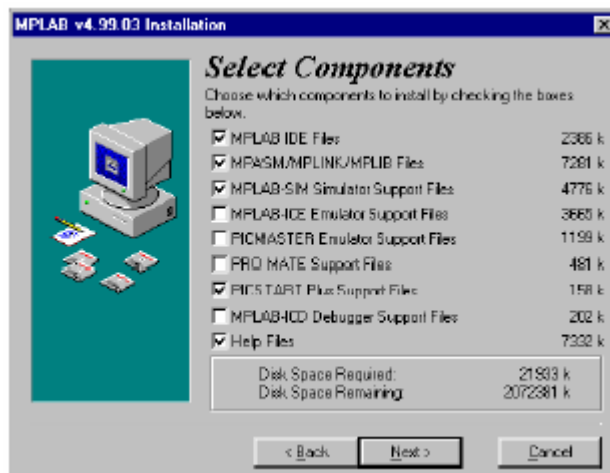
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## 1.0 Software Installation

The programmer needs to be connected to an available serial port on a windows computer. The computer has to have MPLAB<sup>®</sup> installed. For help on installing and using MPLAB, please go to the Microchip website at [www.microchip.com](http://www.microchip.com)

The main points are that you must ensure that a check is placed in the PICSTART PLUS<sup>®</sup> support files in the select components dialogue. This will ensure that the appropriate drivers are loaded.

Various updates are put out by Microchip on a regular basis. Check with our website as to the latest version supported.



## 2.0 Hardware Setup

Once MPLAB<sup>®</sup> is installed the NM100 can be connected to any available serial port using a straight through 9pin Female to 9 pin male cable.

The RJ11 connector cable should now be connected between the programmer and the NM101 prototype board. A suitable plugpack power supply (9V @ 500mA centre positive) can now be connected to the DC power jack of the NM101. No target processor is necessary to test your connections.

Plugging in this power supply should cause Led D1 on NM101 to light indicating 5 Volts is available.

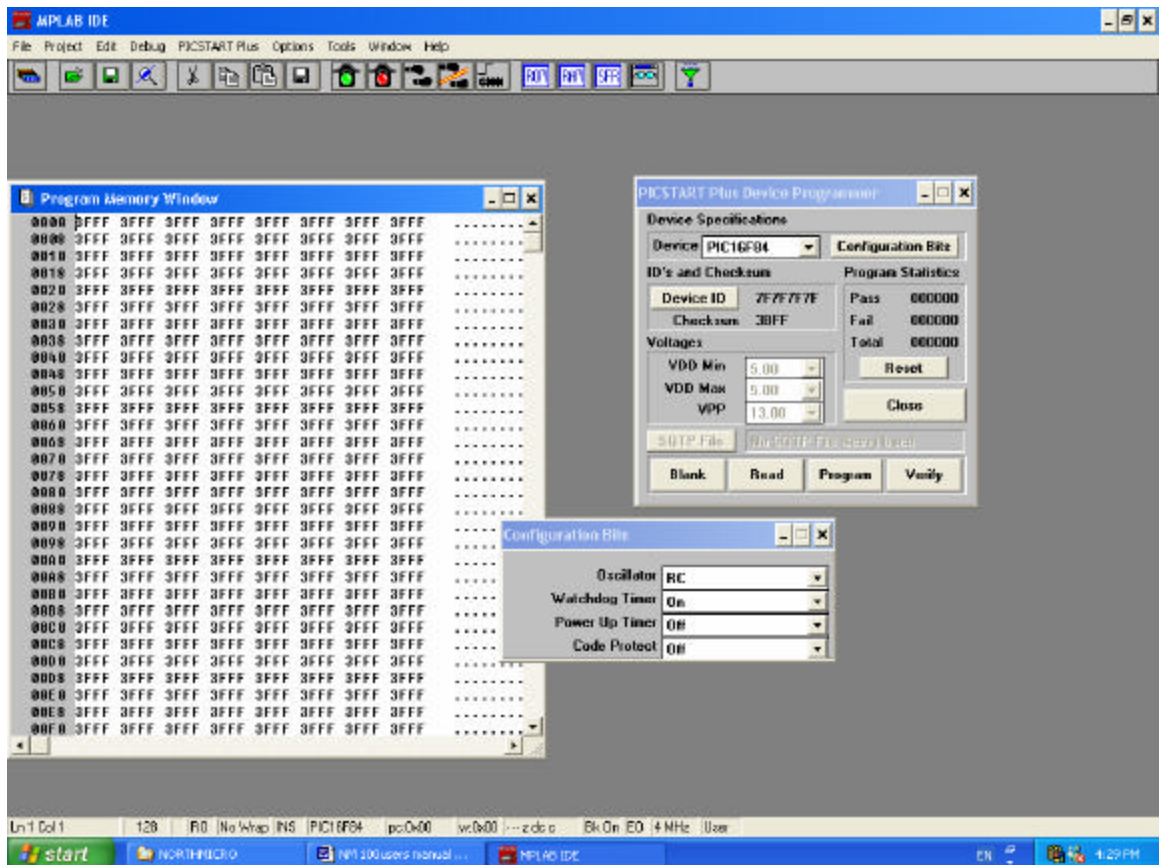
### 3.0 MPLABØ Setup

Now run MPLABØ. We now need to enable the programmer. We first have to tell MPLABØ. which com port to use. This is done by clicking on *Options* then *Programmer options* then *communications port setup*. You will be presented with a screen with the available serial ports. Check the serial port that you connected the NM100 to, then click on OK. The Led on the programmer will briefly light.

Now select which programmer MPLAB will use by clicking on *Options* then *Select Programmer* then *Picstart Plus Dev programmer*.

Now select *Picstart Plus* then *Enable Programmer* . Two screens will appear briefly indicating the following .

Establishing communications and then communicating with Picstart. If everything is connected and setup correctly you will be left with the following on screen display.



The NM100 programmer LED will now be lit indicating a successful connection and that the programmer is enabled. If you now click on *Picstart Plus* then *Reset programmer* the Led will go out then come back on after a successful reset. If you disable the programmer by clicking on *Picstart Plus* then *Disable Programmer* the Led on the programmer will go off.

When you have reached this point the Northmicro programmer is correctly installed.

## 4.0 Setup Problems

If you are having problems, check the following.

**MPLAB PICSTART 0 components installed.**

**Using the correct version of MPLAB. Check our website for latest info.**

**Straight through Serial cable connected. (Not a Null modem cable)**

**No other program is using that serial port.**

**RJ11 connected to prototype board NM101 which has been assembled correctly.**

**Check for 5Volts on NM101. Led D1 should be lit. Connect a meter between GND and VDD as marked on board.**

**Options as outlined above have been correctly entered.**

**Change programmer to a different port and then select that port in MPLAB.**

## 5.0 Programming a Device

Using the Northmicro programmer is identical to that of the PICSTART. The device of course is not the same. To use the IDE we strongly suggest for first time users to follow MPLAB's Tutorial which is available on microchips website. It walks you through a number of the basic features of MPLAB. Once you have a built your project files, all you need to do is insert the appropriate PIC in the NM101 and click on program. Within your assembly files or C files you can include device setting information which will automatically be transferred to the programmer or you can manually click on the parameter in the programmer windows. Either way will work.

While programming, the LED on the programmer will flash indicating correct operation. The rate of Flash will change if the memory locations being written to contain the same information. If the contents of locations are the same, the flash rate will speed up and the programming time will be reduced. In this way, minor changes to your code will be updated quickly.

We hope that you find this programmer useful. Additional prototyping boards can be purchased from our website. We hope to offer additional prototyping boards so keep checking back.

## 6.0 In Circuit Programming

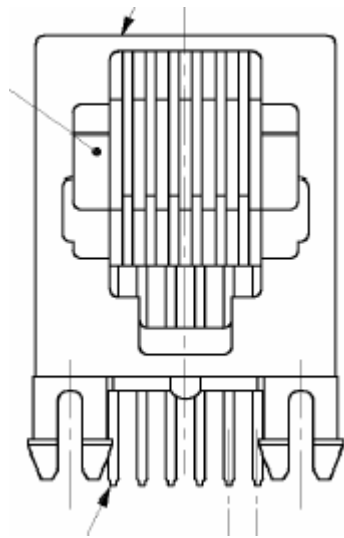
The NM100 is designed to be used for in circuit programming (ICP). Our prototype board NM101 is setup to ICP three standard package styles. If you wish to use another package style such as a surface mount part you can do this by making sure that you have suitable connections on you circuit board. You will need 5V, GND, RB7 and RB6 and MCLR.

Note that when in circuit programming, certain precautions need to be exercised. RB7 and RB6 are both used in this mode along with MCLR. It is important that you follow the recommendations given by Microchip in a document DS 30277C. Available at

<ftp://ftp.microchip.com/download/tools/picmicro/program/icsp/30277c.pdf>

Where possible, it is better not to use RB7 or RB6 in your target application.

You can make up a cable to suit your application with the following information. Note that the programmer needs a 5 V supply@ 200mA initial surge. This can be supplied either from your target application or external source. Ground must be linked to your target as well!



pin 1  
NM100 RJ11  
Front view

Pin nos	Microcontroller pin
1	LVP RB4or RB3
2	RB6
3	RB7
4	GND
5	VDD +5V
6	!MCLR