

yobuddy  
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## AMC 1.5~EZ - Programming Guide

All Credit Goes to Igor Fermevc  
This is a re-edit of Igor Fermevc manual

X-Sim is a Free Motion Simulator Software Written By Martin Wiedenbauer

Atmel micro-controller needs to be programmed (FLASHED) before the AMC board will serve its purpose. There are many different ways of transferring the program code into the micro-controller (MC) but we will use "PonyProg" software. In order to use this software, you need to download it from [http://downloads.sourceforge.net/ponyprog/PonyProg\\_V207c.zip](http://downloads.sourceforge.net/ponyprog/PonyProg_V207c.zip) (version for Windows!).

After successful installation of programming SW, you will need a SERIAL COMMUNICATION PORT on your PC. If you have an older generation PC, this port is found on the back side of PC case (see fig.1). On newer PCs, there's a chance that you won't have integrated communication port, and you must use USB to SERIAL adapter (see fig.2).

fig.1

classic serial port (DB9 male)



fig.2



If you need USB to SERIAL converter shown in fig. 2, it is recommended to use one that is based on "FTDI chip" (this chip is inside, so you probably won't be able to see it, but check for it on the product package or in product specification found online).



It is highly recommended **not to** use "Prolific chip" type of adapters, or very cheap ones from unknown manufacturers! These adapters are not working properly with PonyProg SW!

In some cases, a serial port connector can be found somewhere on the motherboard. It is a classic serial port, but you need to plug extension cable with metal bracket and mount it on PC's rear panel (see fig.3). Check your motherboard manual before opening the PC case.

fig.3



Before going further, we need to check the settings for serial port (COM port) on our PC. Using "Hardware or Device Manager" search for "Ports" and highlight the one you want to use (if more than one). Right click on it and choose "Properties". Use the fig. 4 and match your settings as shown.

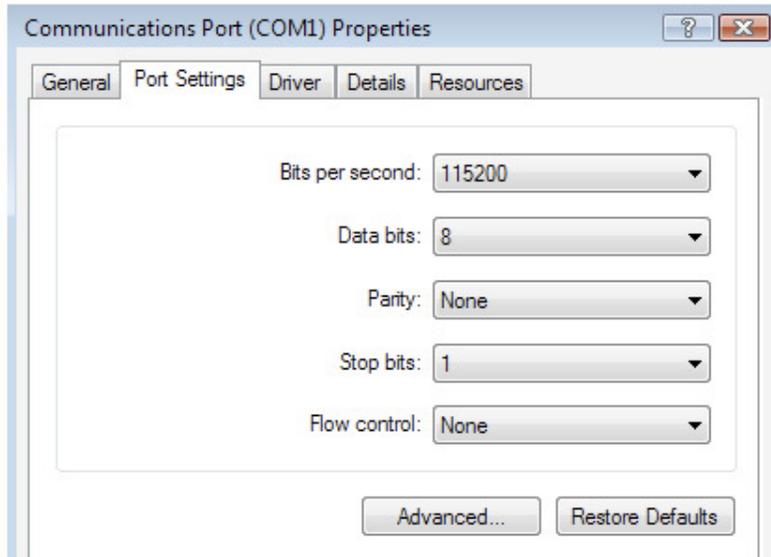


fig. 4

All MS Windows have similar COM port settings page. You need to set only the basic parameters, there's no need to go into advanced settings. Just select the proper COM port number if you have more than one.

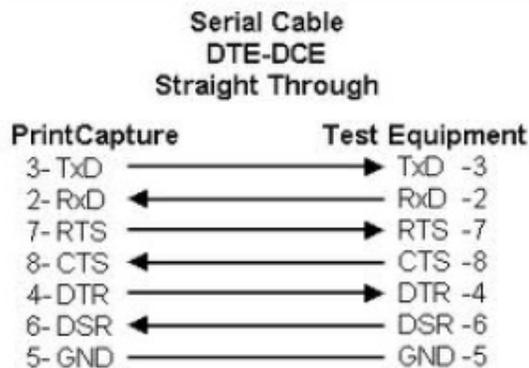
If you have a PCI modem card installed you should see COM3 in your list - don't use this!

If you need to use USB to SERIAL adapter, it will probably be shown as COM4, COM5, ...

**Remember this COM number! You'll need to set it in PonyProg later!**

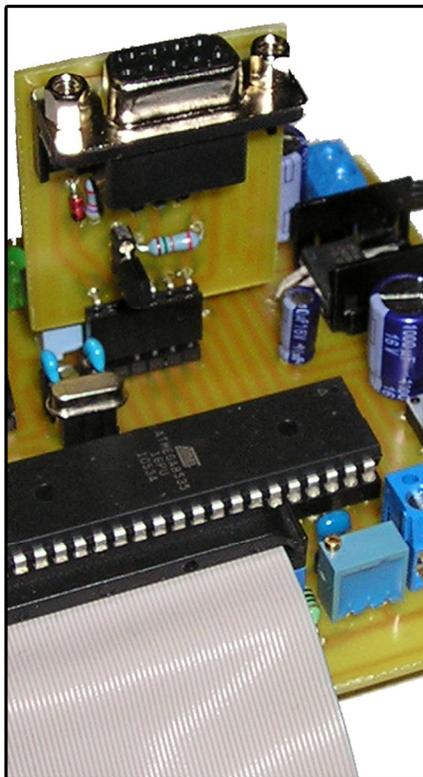
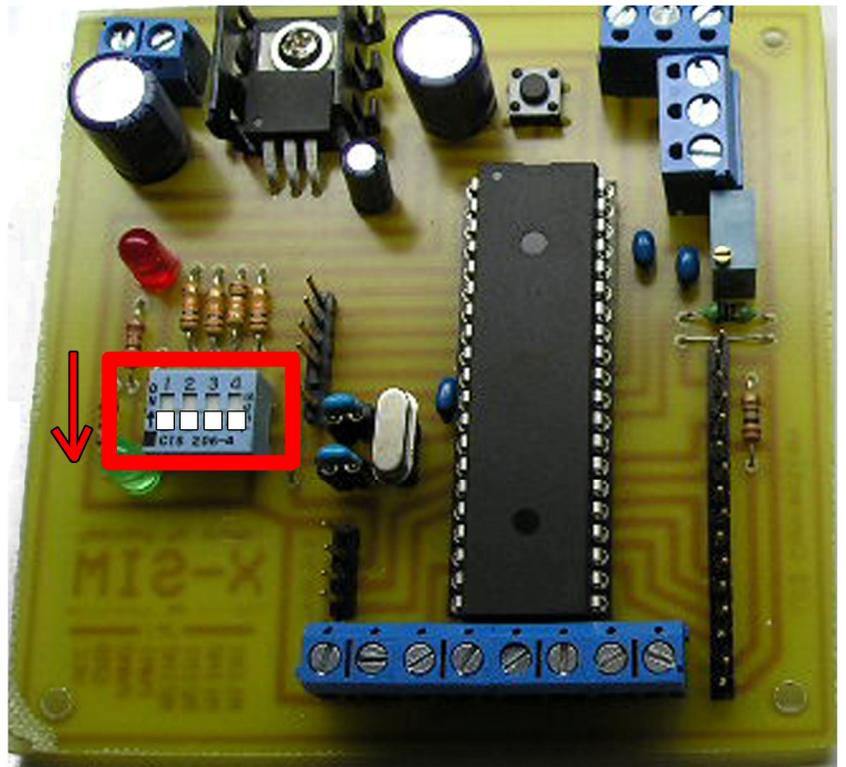
The last hardware part you'll need to perform the programming is the serial cable. This cable is called STRAIGHT SERIAL CABLE or SERIAL EXTENSION CABLE (see fig. 5 for details).

fig.5



Notice one male, and one female connector!  
Male connector goes to AMC, and female connectors goes to PC running PonyProg SW!

Set all of the  
Switch Settings to  
the OFF position  
in order to flash  
the AMC 1.5~EZ



Plug in your  
Programmer~EZ into  
the programming  
header on your AMC  
1.5~EZ

Top of the programmer  
faces the ATMEGA  
chip!

## PonyProg2000

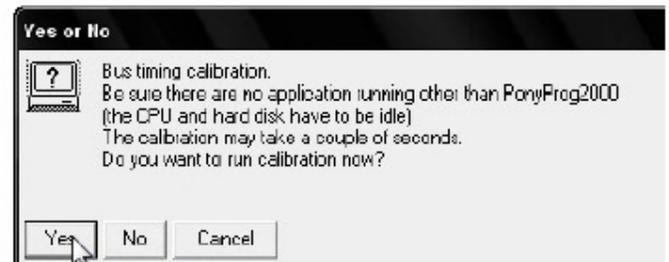
Assuming you have managed to setup the "Pony" application, start it and click OK in the welcome screen.



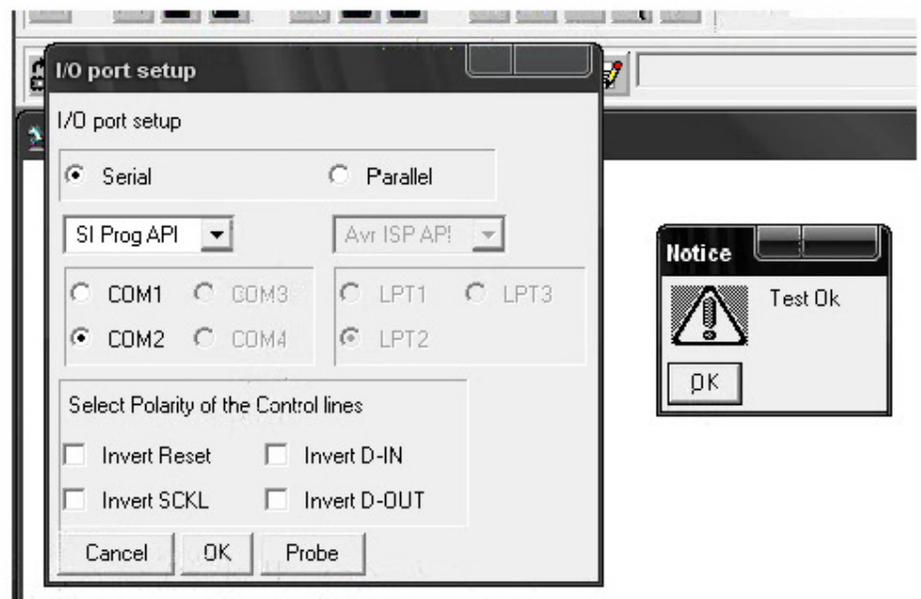
In the menu bar, click on **SETUP**, then **CALIBRATION**.



In the popup window click **YES**. After a couple of seconds, you should see **Calibration OK** notice window. Click **OK** and proceed to next step.

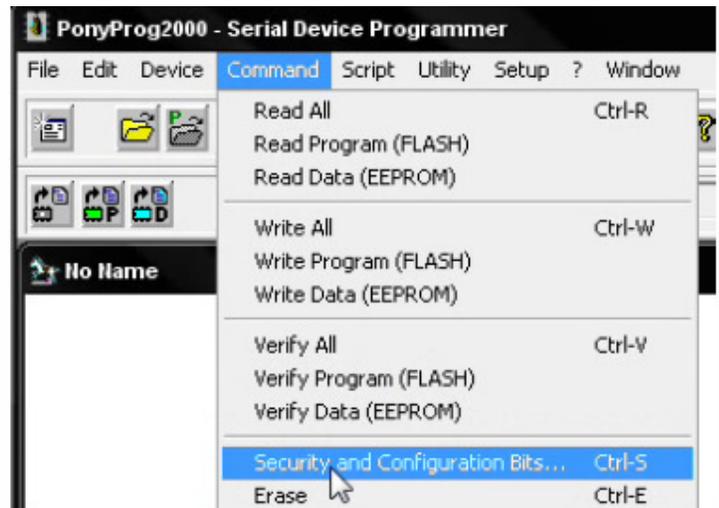


Click on **SETUP**, then **INTERFACE SETUP**, select "SI PROG API" radio button, and choose the COM port number that you are using. Click on **PROBE** and after a couple of seconds, you should see **TEST OK** notice window. Close the setup window by clicking **OK**.



Click on **COMMAND** in the menu bar, and then **SECURITY & CONFIGURATION BITS**, and click **READ**. Settings are read from AMC. You will see the window with factory default bits checked.

Without going into details about these bits, just follow the next step.



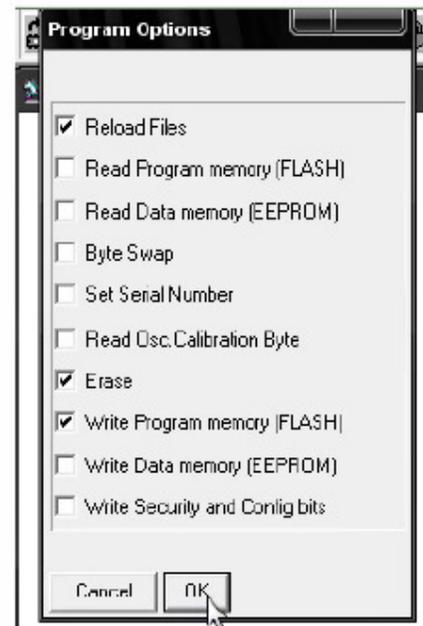
You will need to set the bits (fuses) in proper way, so match the selection of checkboxes as shown on the picture:

Click on **WRITE**, wait for process to finish, and click on **READ** to confirm the results. Click **OK** to close configuration window.



Click on **COMMAND** menu item and choose **PROGRAMM OPTIONS**.

Match the settings as shown in the picture and click **OK**.



In **FILE** menu item chose **OPEN PROGRAMM (FLASH) FILE...**



Browse for the firmware file **PWM\_AMC15\_2DOF\_V1\_CRYSTAL\*\*.HEX** and select it, than click **OPEN**.

File will be loaded and you can see "raw" FW data. Click on **COMMAND** than chose **PROGRAMM**.

You'll see a window with information related to erasing , writing and verifying the data. Durring this process, RED LED on AMC board will be ON.

When the process is finished, you'll see "Program succesfull" message box, and AMC LCD should show the info about the firmware version. CLick OK to continue.

To be sure that flashing process is done properly, you can do the "read" proceure again.

