

Enhanced K149 Compatible – USB & SERIAL PIC PROGRAMMER

This documentation was written 1 October 2005.

This is a USB & serial port PIC programmer. It is fully compatible with Kit 149 PIC programmer, with several added enhanced features. It takes power from the USB port and generates various required Vpp voltages via an onboard DC-DC upconverter IC circuitry. Unlike the original K149 PIC programmer, this programmer has a built-in circuitry for automatic firmware upgrading using the included software. It also includes an advanced six-pin ICSP pinheader. You can program your PIC chips via the USB port. It can also accept input from a serial port via an advanced switching push button, which completely eliminates the possible contact issues associated with a regular toggle switch found on a traditional K149 programmer.



Software

Find the installer folder on the included CD and run setup.exe. It creates and unloads software to C:\diyppgmrs. This is the User Interface to run this USB / serial port programmer. Please print and read the latest Readme.txt file in conjunction with this document.

Programming Socket

This programmer comes standard with a high quality universal 40pin 3M ZIF socket, which makes programming a lot easier and a fun process.

USB Drivers

You will need to download and install USB drivers from <http://www.ftdichip.com>. These drivers are being updated frequently. At this time they can be found at <http://www.ftdichip.com/FTWinDriver.htm>. The top heading is VCP Drivers for Win'98 / ME / 2000 / XP (with enhanced BM series support). We downloaded r9052154.zip, unpacked it into a new folder we created at C:\diyppgmrs\USB, then ran Start/Settings/ControlPanel/Add Hardware. Disregard the Microsoft Uncertified Driver warning.

You can download a Help file AN232-05 from <http://www.ftdichip.com/FTApp.htm> to guide you through the USB driver installation if you are unsure of how to do it. You can find the COM port number of the USB driver by going to Start/Settings/Control Panel/System/ Hardware/Device Manager/Ports (COM & LPT). In our system it is COM 4. The first time MicroPro is run you must set the Port to the appropriate number (File/Port). MicroPro.exe will auto detect this programmer as K149 so long as the COM port is selected.

Connecting Up

Use the included USB cable to connect this programmer with your PC. Select the USB mode by pushing the mode-switching pushbutton. If you want to use the serial mode, you will also need to connect the programmer using the included serial cable and select the serial mode accordingly.

Remove any chips from the programming socket before powering the programmer up or down.

This programmer takes power from USB port. It has a built-in DC-DC converter IC to supply necessary Vpp voltages. Once you connect the USB cable, the Power LED will light up. Next start the MicroPro software. Make sure the correct COM port is selected. Note that if you switch between USB & serial modes you will have to reset the COM port number. Exit the program to reselect the COM port. If you forget which USB COM port is installed you can always look it up at Start>Settings>ControlPanel>System>Device Manager>Ports. Note the 'Fly Window' under Options that allow this programmer to be

used with MPLAB when a new hex file is compiled.

No-Keypress Programming

Flash chips are automatically erased in this mode if they are not blank.

Known Bug

Switching between USB & Serial modes may indicate an error when the COM port is reset. However, the port, if correct, will in fact be properly Reset.

PICs Supported

For the list of PIC's supported (which is changing all the time) go to Options/ Edit Chip List. Or just click on the Chip Selector drop- down box and run through the list.

ICSP

Click Options/ ICSP Mode. Does not support low voltage programming. The LOW pin is an open collector output, which when active will pull the LOW pin to ground. It can be used in ICSP to hold LVP pin low while programming, or the OSC1 pin, or any part of the target board, which may need control (in this manner) during programming. See MicroPro Help for full details.

Adding Your Own Devices

Chipinfo.cid is just a text file and you can add your own PIC chips to it if you understand and conform to the format. Note only one (not two or more) blank line between different PIC definitions. (In early versions of the micropro.exe this file was called chipinfo.dat but this caused compilation problems in W2000 so the name was changed).

Software and Firmware Upgrades

The USB drivers, firmware and MicroPro User Interface software are being upgraded almost every month as new PICs are added and improvements made. For the latest information look at <http://www.kitsrus.com/upuc.html> When you upgrade the firmware of this programmer, unlike the standard K149 PIC programmer, there is NO need to buy a new spare PIC16F628. The automatic upgrading of the on-

board firmware chip is designed and built-in for this enhanced K149 compatible PIC programmer. All you need to do is: find the new firmware file (usually comes with the new release of the software, please consult with <http://www.kitsrus.com/upuc.html>), and load into the software upgrader (supplied with this programmer, please find the software in a folder called software upgrader). Before you flash the on-board firmware chip, you need to short the upgrade pinheader located on the programmer with a jumper. In the software upgrader the chip ID should be PIC16F628. When you are done with the firmware upgrade, make sure the upgrade jumper is removed to ensure proper future operation of the programmer. Please note: On-board firmware chip flashing can only be done via serial port mode !

Build Number

MicroPro now contains a Build number. It looks for a build number in the firmware. If they are the same (P018 in this case) then the software and firmware are matched. This should stop problems with matching firmware with MicroPro versions in the past. The programmed firmware in this kit contains the DIY149BC.hex file that can be found in the c:/diypgmrs folder. Check for firmware/MicroPro Build Number compatibility from the MicroPro Help menu.

Trade discounts are available for bulk quantity purchases of this product. Please contact our Sales Team to discuss your requirements.

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