

K119. SERIAL 8 & 18 PIN PIC PROGRAMMER

This is the assembled Kit 119 which uses the P16PRO software of Bojan Dobaj to program all **8 & 18 pin** DIP serial PIC's - see listing on **picallw.com**. To program 28 & 40 pin serial PICs use Kit 96 or Kit 117. (Parallel programmed PIC's - 16C5X - are not supported by this programmer. See Kit 117, PICALL, to program these parallel programmed PICs.) The P16PRO software will work under DOS, W3.1 or W9x. However, I recommend you use the latest version of picallw.exe because it allows testing of the target board. See next page.

Do not confuse the programming methods with the serial port and parallel ports of a PC. A serial programmed PIC refers to the programming algorithm by which data enters the PIC. In this method the data bits are entered serially onto 1 pin (like a shift register) and the 13V programming voltage is toggled onto a programming pin to latch and burn the word (12 or 14 bits.) In the parallel programming method the whole word (12 or 14 bits) is presented on the PICs 8-pin port B and 4-pin port A simultaneously then the programming voltage is toggled. Timing is critical. On-board firmware is usually needed.

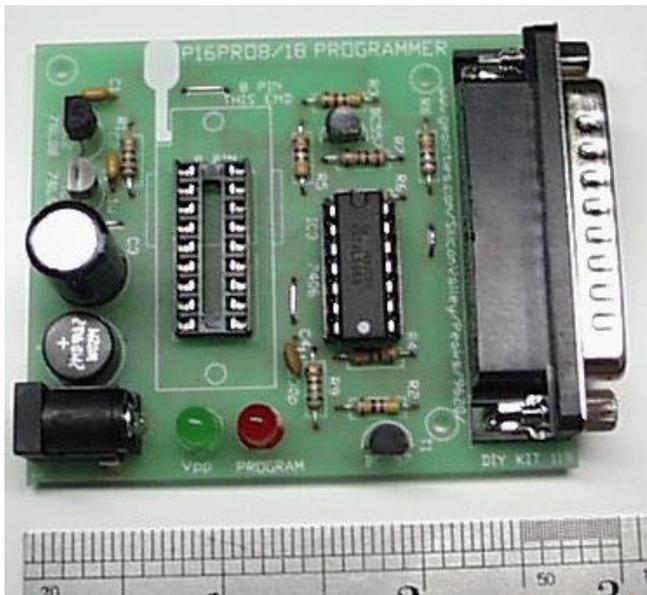
You must download the latest version of the P16PRO or picallw.exe software from:

picallw.com

It will last for a 21 day trial period before it needs to be registered (\$US20). New PIC's can be added to the software by entering them in the **device.ini** file. P16PRO Lite just for programming PIC16F84 may be used for free.

Schematic. This is based on the 40 pin hardware version which you may download from **picallw.com**. There are several changes we have made:

- R9/680E should be labelled R9/680R
- for C3 we have used 470uF/35V



COMPONENTS

Resistors 5% carbon, 1/4W:		
680R blue grey brown	R9	1
1K brown black red	R1	1
4K7 yellow violet red	R2 3 4 5	4
10K brown black orange	R6 7 8	3
SN7406/SN74LS06 inverter	IC3	1
78L05	IC1	1
78L08	IC2	1
100nF 104 monoblok	C1 2	2
330pF ceramic	C4	1
470uF/35V ecap	C3	1
8 pin IC socket		1
14 pin IC socket		1
18 pin IC socket		1
BC557	T1 2	2
Bridge rectifier WO2		1
5mm red LED	L1	1
5mm green LED	L2	1
25 pin male R/A subd connector		1
power jack		1
Kit 119 PCB		1

Hardware Description. This can be found on the websites given above. We have used a SN74LS06 high current, high voltage, inverter buffer.

To register your software (\$US20) so you can use it permanently read the **register.txt** file which comes with the software. Or you can register at Don McKenzie's web site at

<http://dontronics.com>

Don also has a comprehensive list of PIC-related websites on his Links pages.

Another good PIC website is Microchip Net resources at

www.geocities.com/SiliconValley/Way/5807

For any questions regarding this kit email me at

peter@kitsrus.com

Using PICALLW.EXE to test Kits 117, 96, 81 and 119

In 2001, the Windows version of PICALL is the programming program to use with Kits 117, 96 81 and 119. This program **picallw.exe** is where the developer Bojan Dobaj is putting all his effort.

Forget P16Pro, pf84 and 'picall for dos'. Use the latest version of Picall for programming all the above programmers. (It will also program Dontronics DT-001.)

Instead of changing the documentation for all these kits I have initially done this general information sheet. Download version 0.10a, may 2001 of picallw.exe from

kitsrus.com
dontronics.com

and install it.

Kit 117. This is the easy one since picallw.exe is targeted at Kit 117. Connect a **straight-through** Male/Female cable from the PC parallel port to kit 117. (**Not** a modem cable; **not** a lap link cable – a straight-through cable.) Connect power. The green LED should go on. Neither of the red LEDs should turn on. If they do then check component placement and soldering before going on. Make sure PICALL is the programmer selected in the center drop down menu.

- Settings/LPT Port. Set to 'auto' is what I use.
- Settings/Hardware Setup-Test. Click on the first 3 tests will show little dots appearing after the test box. If everything is OK the word 'passed' will appear.
- clicking on Set/Clear VPP and Set/Clear VPP1 will turn the two red LEDs labelled VPP and VPP1 on Kit 117 on/off.

That is it. Click OK and do your programming. If you get any Error Messages you can find the details at:

Help/Contents/Hardware/Picall Hardware/PICALL Error Codes

Kit 117 is the hardware version 3.1 mentioned in Bojans documentation.

Unfortunately I can find no discussion in the Help about Prog Delay Auto Adjust setting. Just leave it where it is seems to work well.

For all the other programmers including Kit 119 click P16PRO in the drop down box in the center of the startup screen.

picallw.exe will work **free** for PIC16F84 programming in all these other programmers. No registration is required. If you

have a paid registration for P16PRO then move the p16pro.reg file to the same folder as picallw.exe.

First go to Settings/LPT Port and set 'Auto'.

Go to Settings/Hardware Setup-Test. If the message 'Can't find the P16PRO or compatible hardware' comes up then check component placement and soldering. The test box is different from that for K117.

(Your assembled Kit 119 has already been tested using picallw.exe and has been found OK. But do these tests again in any case.)

The first thing to do, obviously, is click on the programmer you are using in the lower left box: kit 119 in this case, kit 96, kit 81 or the dontronics DT-001. (If you made your own Tait-stype programmer you can set the settings yourself for it.)

Do not play with any settings in the first two columns which were set automatically when you pressed kit 96 or kit 81, etc. Now look at the 'Set/Clear' boxes in the third column on the right hand side. This is the only place where we will click things.

Each 'Set/Clear' box relates to the hardware connection written in the center column: Data Out, Clock ... Reset.

In kit 96 looking at the schematic:

- pin 3 is Clock
- pin 4 is VDD,
- pins 2 and 10 are Data Out and Dataln,
- pins 5 and 6 are the VPP and VPP40 resp. which turn on each of the two LEDs.

First click Set/Clear on VPP and on VPP1. The red programming voltage LEDs should turn on/off.

In K119, the programming LED will come on when either VPP or VPP1 is clicked.

Now use a multimeter set to 20V. Connect to ground lead somewhere on the board. Connect the red lead to pin 3 of the DB25 connector. Clicking on the Set/Clear will turn on 5V to pin 3 then turn it off. Similarly with pins 4 and 2 & 10. These tests can be used to trace the 0V/5V at other places on the target board. They show that the cable connection is working to the target board.

You should get the hang of it by now.
