

# CK1702 - SERIAL PIC PROGRAMMER

This is a kit of parts and a PCB to use the P16PRO software of Bojan Dobaj to program all 8, 18, 28 & 40 pin DIP serial programmed PIC's. Parallel programmed PIC's - 16C5X - are not supported by this programmer. (See K117 to program these PICs.) The P16PRO software will work under DOS, W3.1 or W95/98.

Do not confuse these 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, but not always (see design by David Tait), needed to do this.

You must download the latest shareware version of the P16PRO software from:

[www.geocities.com/SiliconValley/Peaks/9620/](http://www.geocities.com/SiliconValley/Peaks/9620/)

There is a free **P16PRO Light** version which will just program the 16C84 & 16F84 PIC's.

Then there is a shareware version P16PRO which will program other PIC's. It will last for a 21 day trial period before it needs to be registered (\$US20).

These are the PIC's that this kit will program:

PIC12C5XX	PIC16C67X	PIC12CE67X
PIC14000	PIC16C61	PIC16C715
PIC16C62	PIC16C62A	PIC16CR62
PIC16C63	PIC16C64	PIC16C64A
PIC16CR64	PIC16C65	PIC16C65A
PIC16C66	PIC16C67	PIC16C620
PIC16C621	PIC16C622	PIC16C710
PIC16C71	PIC16C711	PIC16C72
PIC16C73	PIC16C73A	PIC16C74
PIC16C74A	PIC16C76	PIC16C77
PIC16F83	PIC16CR83	PIC16C84
PIC16F84	PIC16CR84	PIC16C923
PIC16C924	PIC16C642	PIC16C662
PIC16C87X		

New PIC's can be added by entering them in the device.ini file of the software. You do not have to download new software.

**Schematic.** Download the schematic for the 40pin hardware version from the website above. There are two changes we have made:

- R9/680E should be labelled R11/680R
- for C3 ecap we have used 470uF/35V

We have made space on the board for C5/330pF from pin 6 of the 7406 to ground since there has been one only report that it may be required. We have not supplied this component but the position is there if you need to try it.

**Construction.** There are 8 links to add to the board. We have supplied 8 18 & 40 pin IC sockets. However, for maximum flexibility in programming you may wish to supply your own 40 pin **wide-slot** ZIF (3M, Aries) socket. 28 pin PICs programmed by the P16PRO are all skinny 0.3" DIPs. They need the 40 pin ZIF socket. Use the 14 pin IC socket to mount the inverter buffer IC. You will need to connect the programmer to the parallel port of a PC using a straight-through male/female cable from the on-board 25 pin PCB-mounted subd connector.

## COMPONENTS

Resistors, 5% 1/4W:		
680R blue grey brown	R11	1
1K brown black red	R1	1
4K7 yellow violet red	R2 3 4 5 9 10	6
10K brown black orange	R6 7 8	3
SN7406 inverter buffer	IC3	1
78L05	IC1	1
78L08	IC2	1
100nF 104 monoblok	C1 2	2
330pF ceramic	C4	1
470uF/35V ecap	C3	1
40 pin IC socket		1
8 pin IC socket		1
14 pin IC socket		1
18 pin IC socket		1
BC557	Q1 2 3	3
Bridge rectifier WO2		1
5mm red LED	L1 3 (use red LEDs)	2
5mm green LED	L2 (use the green for L2)	1
25 pin male R/A subd connector		1
DC power jack 2.5mm		1
Kit 96 PCB		1

To program the 64 pin PIC's - 16C92x & 17Cxxx - you will need to buy an adaptor from Microchip or make your own. Only 5 lines need to be taken from the 40 pin socket to the adaptor card - MCLR/Vpp, Vdd, Vss, RB7 & RB6.

**Hardware Description.** This can be found on the websites given above. It is best to use a Texas Instruments SN74LS06 or SN74LS16 high current, high voltage buffer inverter. 7406 and 7416 are also OK to use. (The '05 parts may work but are operating outside specification. Note different brand have different specifications!)