K150. USB PIC PROGRAMMER

This documentation was written October 9, 2003.

This is the third in a series of three PIC Programmers designed by Tony Nixon. Most of the components – resistors, some capacitors, transistors and two ICs – are surface mount and are presoldered on the board. There are 14 through-hole components for the buyer to solder.

Color photos of the assembled Kit can be found at
http://www.kitsrus.com/jpg/k150_1.jpg
http://www.kitsrus.com/jpg/k150_2.jpg
http://www.kitsrus.com/jpg/k150_3.jpg
http://www.kitsrus.com/jpg/k150_4.jpg

The photos are with an optional ZIF socket.

Hardware. Most components – resistors, transistors and 2 Ics - are already presoldered onto the PCB. But some thru-hole components have been left for the buyer to solder. Solder the lowest height thru-hole components first. Make sure the crystal is mounted 2-3mm above the PCB so the case cannot make contact with the pads on the top layer or the R19 resistor. The USB connector is a 'B' type. You will need to buy a standard A-B USB cable to connect from your PC to K150.

Software. Download diypack14.zip from
http://www.kitsrus.com/zip/diypack14.zip

Unzip and run setup.exe. It creates and unloads to c:\diypgmrg. The programmed firmware in this kit contains the k150.hex file which is in the folder.

NOTE: if you log onto this site and find a later version of diypack.zip then make sure you download **diypack14.zip** and not the latest version. After you have the kit working then you can download the latest version, upgrade the firmware and run with the latest MicroPro.exe.

USB Drivers. You will need to download and install USB drivers from http://www/ftdichip.com   Now these drivers are being updated about every month. 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)

I recently downloaded P9012134.zip, unpacked it into C:\diypgmrd\USB
then ran Start/Settings/Control Panel/Add Hardware. (diypgmrd folder is created by diypack10.zip.) 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/ControlPanel/System/Hardware/ DeviceManager/Ports (COM&LPT). In my system it is

COM3 so when MicroPro first runs you must set the Port to 3. (File/Port.)

Change. The reality is that USB drivers, K150 firmware and the K150 User Interface software MicroPro.exe 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

COMPONENTS	
1N4004	1
1N4148	1
6.000mHz 49/US package	1
7812	1
7805	1
10uF/25V ecap	1
47uF/25V ecap	1
Power jack	1
USB 'B'	1
3mm red LED	1
3mm green LED	1
Rubber feet	4
6 pin header	1
6 pin harness	1
18 pin IC socket	1
programmed PIC16F628-20P	1
40 pin IC socket	1
K150 PCB with surface mount components	1

We have provided a 40 pin IC socket with this kit. However, if you are going to be doing a lot of programming you really need a 40 pin ZIF socket. You can buy it direct from DIY for $US15 including airmail postage.
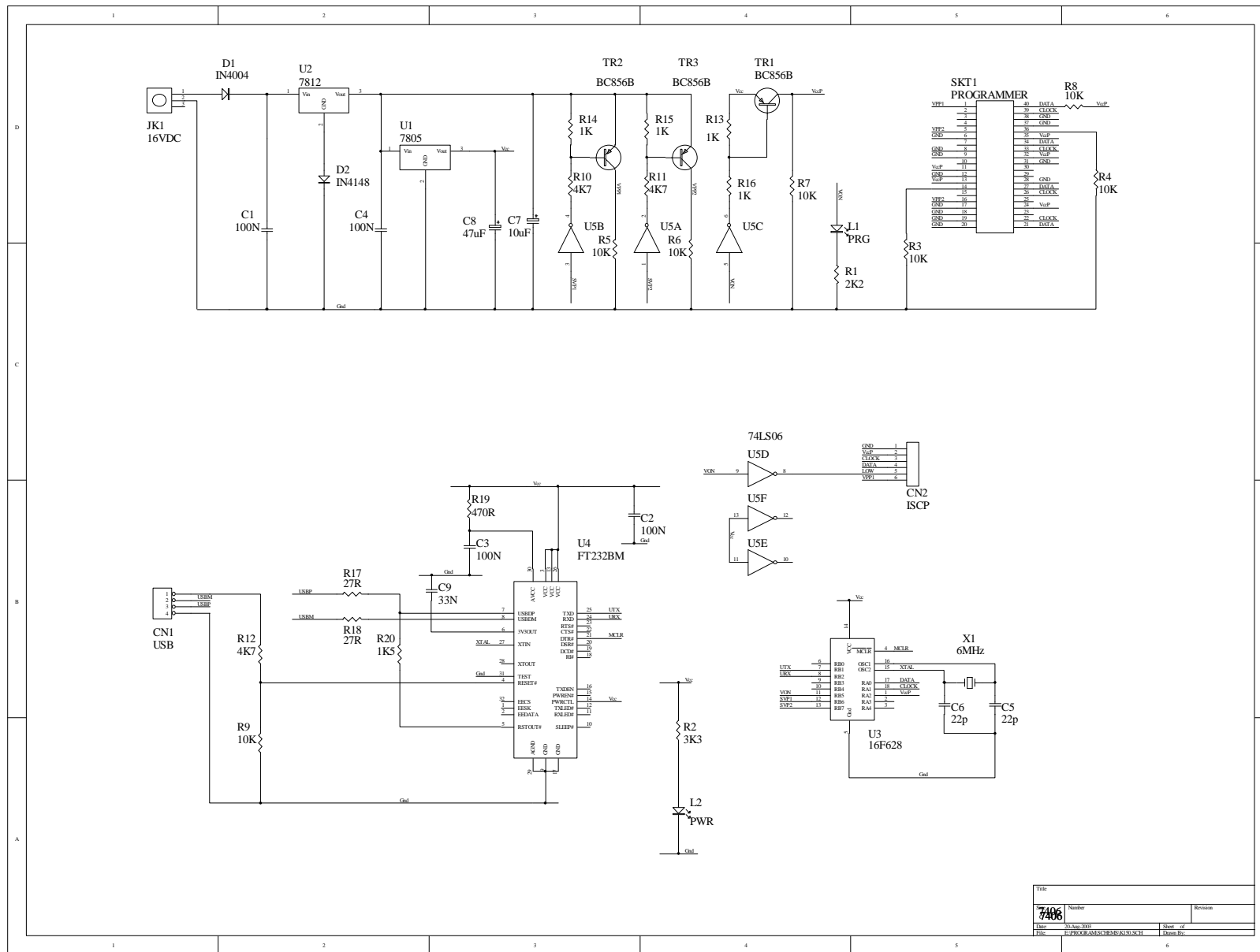
Protocol Number. To help match hardware and firmware there is a protocol number in each. If they are the same (P00A) in this case then the software and firmware are matched. This should stop problems with matching firmware with MicroPro versions in the past. (Protocol number was called Build number in diypack12 but we changed it.)

Other USB Programmer Kits. Kit 149B allows both USB and serial port input. Only the FT232BM chip is surface mounted (and presoldered.) All other components are thru-hole.

Kit 128 is an all-Flash USB PIC Programmer powered just by the USB port. Almost all surface mount with some thru-hole components.

All 3 Programmers are supported my MicroPro software.

Problems. Email me at   peter@kitsrus.com

7406