

Pic-Plot Assembly Instruction

Overview

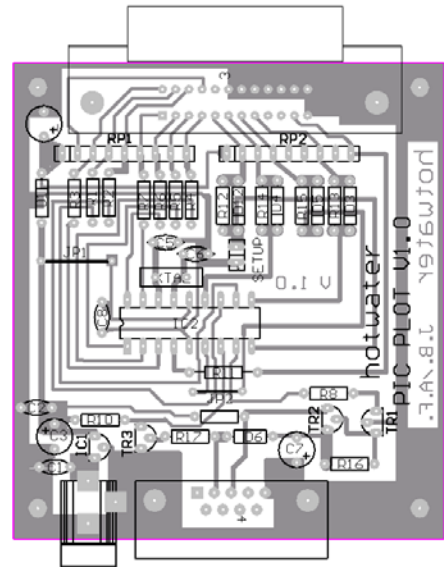
Pic-Plot is a small interface that allows you to transfer the HPGL instructions from GPIB port of your Lab equipment to RS232 serial port of your PC.

Construction

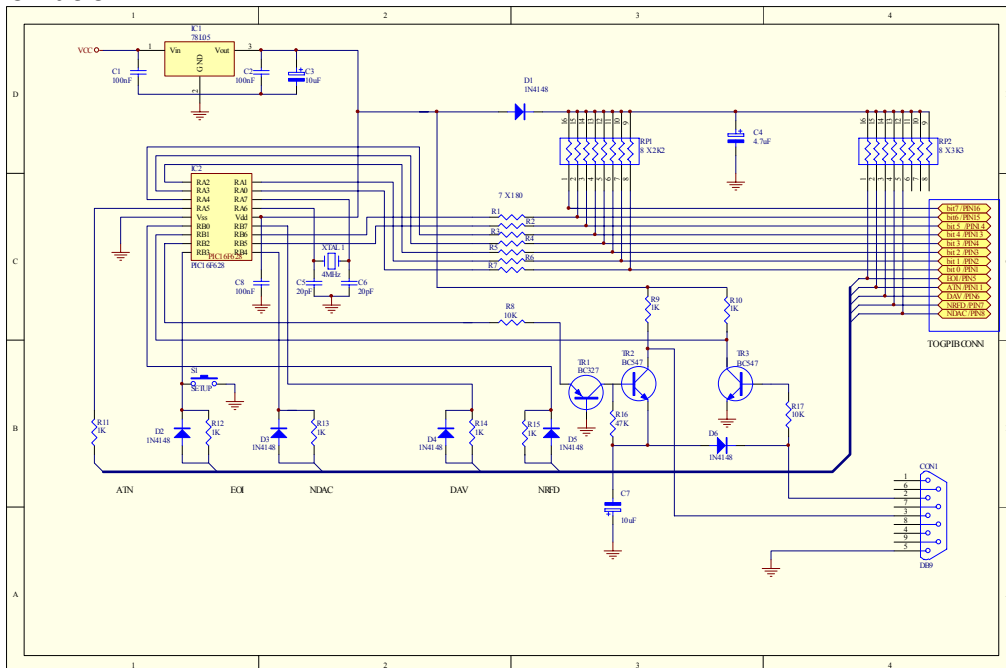
Building Pic-Plot is easy and it will take no longer than one hour to build it.

Parts List

Part Used	PartType	Designators
1	7	1K R9 R10 R11 R12 R13 R14 R15
2	6	1N4148 D1 D2 D3 D4 D5 D6
3	1	22uF C7
4	1	4MHz XTAL 1
5	2	8 X 2K2 RP1
5A	1	8 X 3K3 RP2
6	1	10K R8 R17
7	2	4.7uF C3 C4
8	2	22pF C5 C6
9	1	47K R16
10	1	78L05 IC1
11	3	47nF C1 C2 C8
12	1	BC327 TR1
13	1	DB9 CON1
14	1	PIC16F628 IC2
15	2	BC547 TR2 TR3
16	7	180 R1 R2 R3 R4 R5 R6 R7
17	1	JUMPER S1 (SETUP)



Schematic



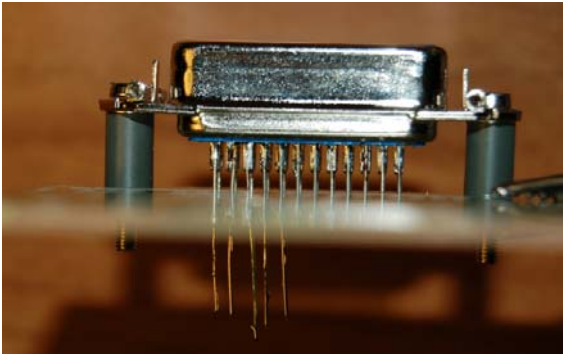
Assembly Instructions

You will need a low power pencil-type soldering iron with a small tip, some thin soldering wire.

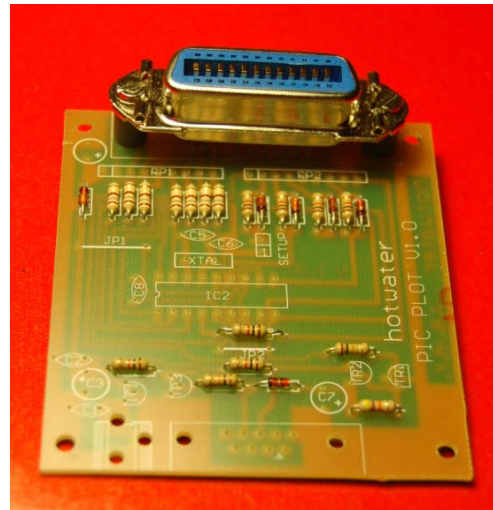
1) Install all the resistors and glass diodes (See parts list for component identification). Leads have to be bent to fit the holes in the PCB. Observe diodes polarity. Do not throw the cut resistor leads as they will be used in the step 2!

2) Install the GPIB connector on the pcb. Check carefully the orientation: it will be hard to recover a mistake here. Screw it before to solder the pre cut resistor lead both on the connector pins and PCB corresponding pads.

Pictures #3 and #4 give a good idea of this assembly step:



Pic.3

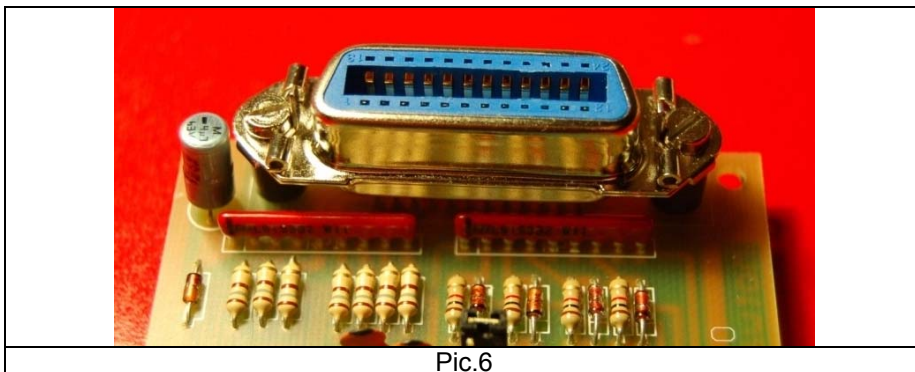


Pic.4

3) Install wire jumpers JP1 and JP2 .

4) Install the IC2 socket; pay extra care to seat it in the PCB with the right orientation (see the drawing on the PCB)

5) Install resistor ladders RP1 (2.2K) and RP2 (3.3K). Note that the common pin must be placed on the left side of the PCB. Picture #6 shows how to properly orientate RP1 and RP2.



Pic.6

6) Install C5 and C6 (22pF) and then the 4MHz Crystal.

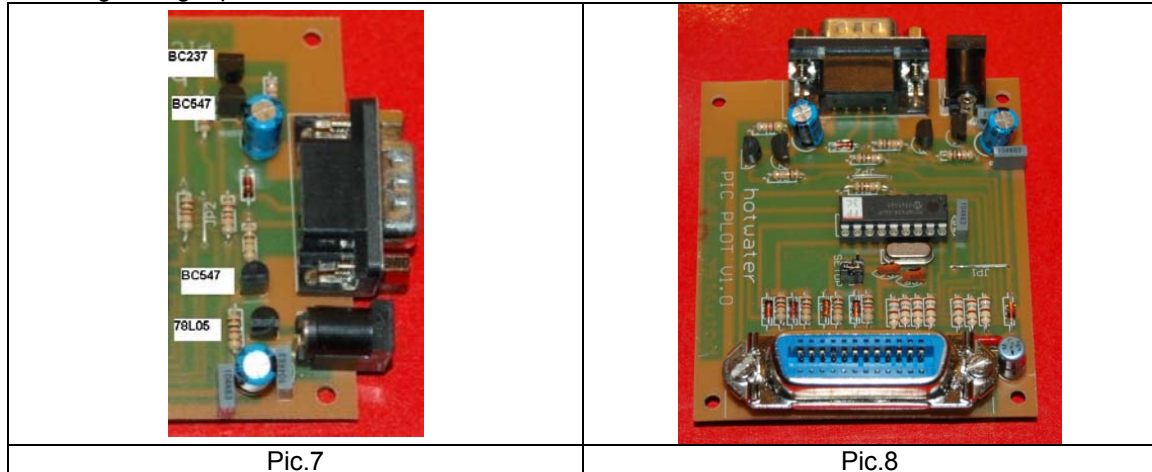
7) Install C1 C2 C8 (47nF), C3 C4 (4.7uF) and then C7 (22uF).

Note that C3, C4 C7 are electrolytic capacitor, so take care about the polarity.

On the PCB the "+" leads are highlighted in the serigraphy. Note C7 has the + to GND.

8) Install TR1 (BC327), TR2 and TR3 (BC547) and IC1 (78L05).

TR1, TR2, TR3 and IC1 are all in TO92 plastic package, so don't mix them. Picture#7 helps on locating the right placement for each of them.



9) Mount the RS232 and power supply connectors as shown in the picture #8.

10) Mount the 2-pin removable jumper S1 (SETUP)

Now the PCB is fully assembled.

To protect the interface against any polarity inversion, we recommend to add a rectifier diode on the back side of the PCB in parallel to the supply connector (cathode to +, anode to GND).

Before inserting the microcontroller IC2, it is suggested to supply the unit and check the proper operation of the 5V regulator IC1.

Now the Pic-Plot is fully mounted; the procedures to program and use the interface are described in the quick reference manual.

Document version 1.2

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