

PickitPlus™ PK+THT™ PIC Programmer

A through-hole “Pickit 2”-based self-assembly kit

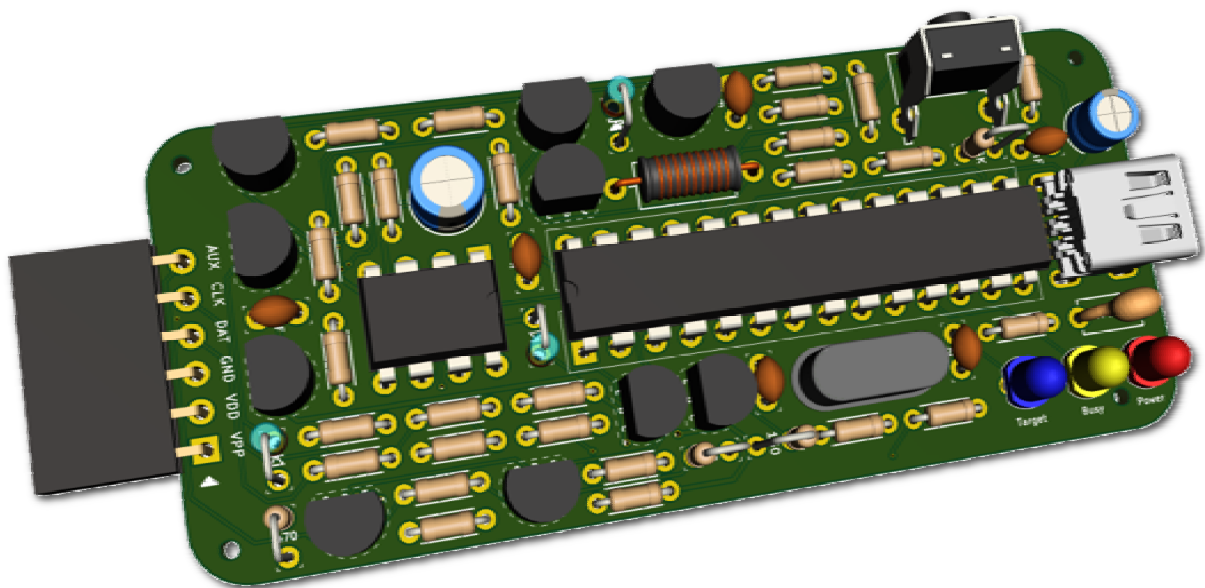


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OVERVIEW

The purpose of the PK+THT kit is to provide a reliable alternative to the Microchip® PicKit 2 programming tool (which is now difficult to obtain).

The tool operates identically to the original PK2, except for the following differences:

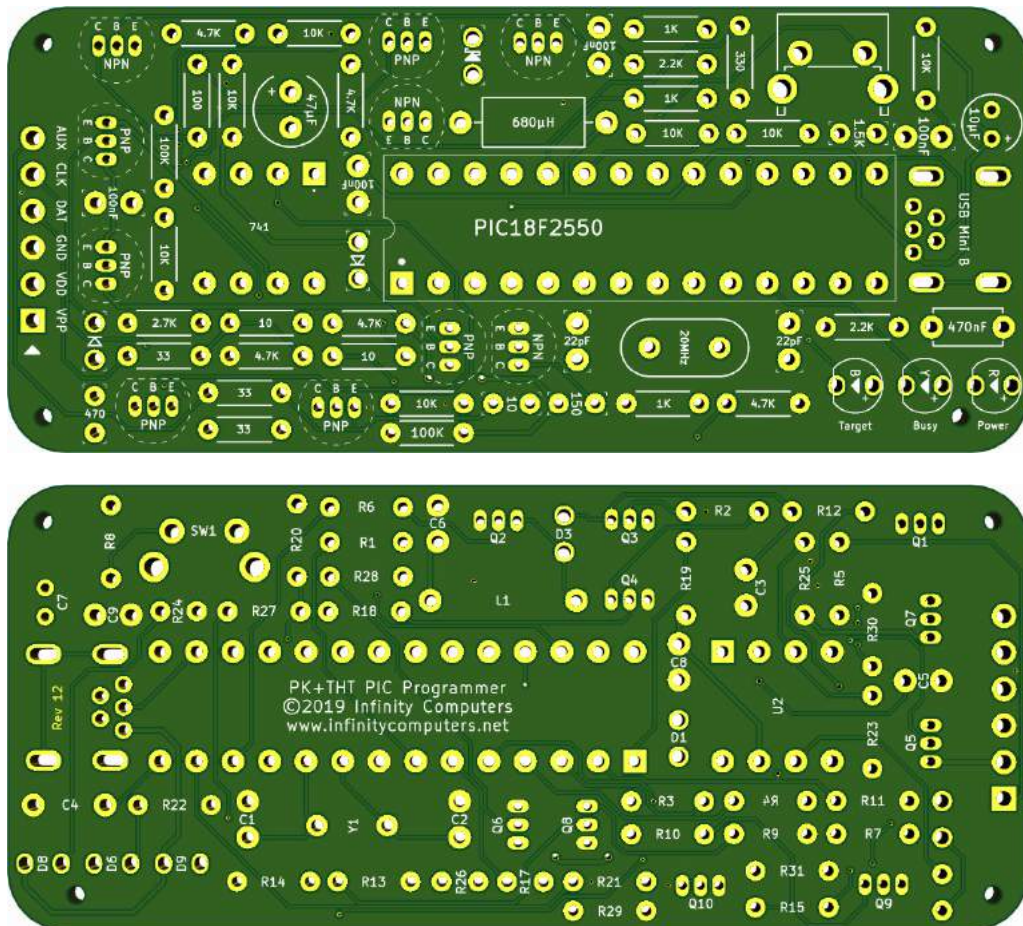
- PK-to-go is not supported.
- The “serial” cannot be changed.
- The unit is pre-calibrated. User calibration is not possible.
- The firmware cannot be updated in software (and it is not necessary to do so).
- The product is supplied in kit form.

The PK+THT is fully compatible with all existing PickitPlus software solutions that target the original PicKit 2.

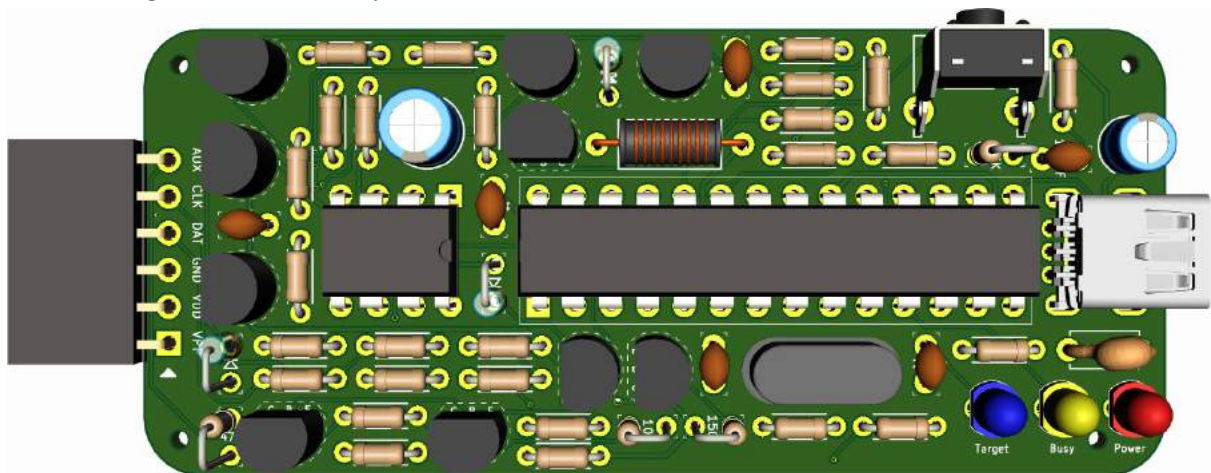
ASSEMBLY

BOARD LAYOUT







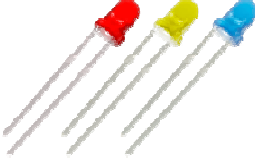

Here are both sides of the board before assembly:



The board again, after assembly:



BILL OF MATERIALS

Item	Qty	Picture	Component ID(s)
Capacitor, 22pF, ceramic disc	2		C1, C2
Capacitor, 100nF, ceramic disc	4		C5, C6, C8, C9
Capacitor, 10 μ F, electrolytic	1		C7
Capacitor, 47 μ F, electrolytic	1		C3
Capacitor, 470nF, ceramic	1		C4
Diode, small signal	1		D1
Diode, zener, 2V	1		D2
Diode, schottky	1		D3
LED, 3mm, red	1		D8
LED, 3mm, yellow	1		D6
LED, 3mm, blue	1		D9
Resistor, $\frac{1}{8}$ W, 10 Ω	3		R4, R10, R17
Resistor, $\frac{1}{8}$ W, 33 Ω	3		R7, R15, R31
Resistor, $\frac{1}{8}$ W, 100 Ω	1		R5
Resistor, $\frac{1}{8}$ W, 150 Ω	1		R26
Resistor, $\frac{1}{8}$ W, 330 Ω	1		R20
Resistor, $\frac{1}{8}$ W, 470 Ω	1		R16
Resistor, $\frac{1}{8}$ W, 1K	3		R6, R13, R28
Resistor, $\frac{1}{8}$ W, 1.5K	1		R24
Resistor, $\frac{1}{8}$ W, 2.2K	2		R1, R22
Resistor, $\frac{1}{8}$ W, 2.7K	1		R11
Resistor, $\frac{1}{8}$ W, 4.7K	5		R3, R9, R12, R14, R19
Resistor, $\frac{1}{8}$ W, 10K	7		R2, R8, R18, R21, R23, R25, R27
Resistor, $\frac{1}{8}$ W, 100K	2		R29, R30

Inductor, 680 μ H	1		L1
Crystal, 20MHz	1		Y1
Tactile button, angled, 6mm	1		SW1
Transistor, bipolar, NPN	4		Q1, Q2, Q4, Q6
Transistor, bipolar, PNP	6		Q3, Q5, Q7, Q8, Q9, Q10
741 op-amp	1		U2
PIC18F2550, DIP-28	1		U1
Pin header, 1x06, female, 2.54mm, angled	1		J1
Mini USB port	1		J2

REQUIRED TOOLS

You will need the following equipment:

- Soldering iron
- Solder

The following additional equipment is recommended:

- Multimeter
- Anti-static wrist strap

You may also want some way to hold the board in place during soldering, such as a small clamp or vice.

ASSEMBLY

Anyone with a basic modicum of soldering experience should have no difficulty in assembling this board.

The best way to go about it is as follows:

1. Solder all the resistors.
2. Solder the remaining components.

It is advisable to solder small components, such as resistors, before larger ones.

Be careful not to overheat the chips whilst soldering. It is recommended that you not touch any IC pin with the iron for more than a couple of seconds at a time. In addition, you should observe standard anti-static precautions whilst handling chips.¹

The coloured bands on metal-film resistors (the blue ones) are difficult to read with the human eye. In lieu of squinting, simply measure them with a multimeter.²

¹ No refunds will be given for chips damaged during assembly.

² Don't have a multimeter? Get one. It's the single most useful tool you could possibly have for electronics work.