



Introduction

Microchip supplies the popular PIC® family of microcontrollers, along with several low-cost programming and debugging tools. The most popular of these is currently the PICKit™, a small programming and debugging unit with a USB interface. The PICKit 2 and PICKit 3 are very similar.



This application note contains hints for using the PICKit 2 or PICKit 3 interface together with a Merifix test fixture, to make a self-contained programming fixture suitable for use in the engineering lab or in low-volume production.

Mechanics

Mounting

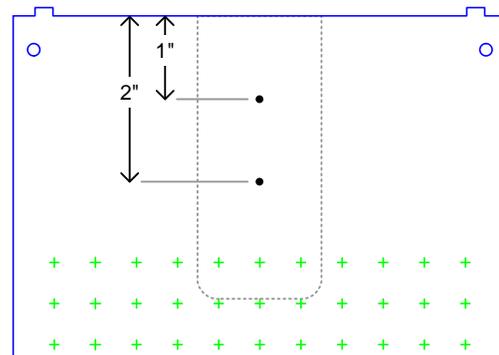
The most convenient location to mount the PICKit is underneath the probe plate, with its USB receptacle against the rear panel insert.



The small "lanyard" loop on the end of the enclosure must be trimmed off so the USB connector can be flush with the rear panel insert. A sharp knife removes it easily.

Mounted like this the PICKit encroaches about 1/2" into the centre of the probable area. The photo shows one mounted below the probe plate of an MF500 fixture. On the MF300 fixture there is a little less room, but there is enough space for probes at the front if the DUT is small.

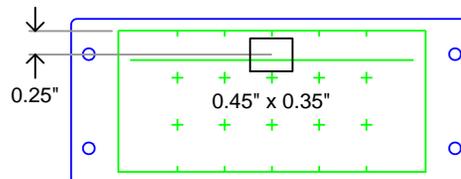
A straightforward way to mount the PICKit is to open the enclosure (it just clicks together), mount the bottom half to the underside of the probe plate with small self-tapping screws, then reinstall the circuit board and snap the top of the enclosure back on.



Suitable screws are #4 x 3/8" self-tapping with countersink heads. Drill 1/8" (3mm) clearance holes in the enclosure and countersink the inside so the heads sit flush and do not interfere with the circuit board. Drill 5/64" (2mm) pilot holes in the probe plate.

Rear Panel

A single cut-out in the rear insert is sufficient to provide access to the USB connector.



The hole must be big enough to clear the plastic part of the USB plug to allow it to plug in fully.

Drill a 1/4" hole then enlarge to the required size with a small file. The rear insert is soft plastic and cuts easily but will crack if stressed, so be careful.



Wiring

Connection to the Target header of the PICkit may be made with a small 0.1" pin strip, to which wires to the test probes can be soldered. A right-angle strip occupies the least amount of probe plate area.



| Description | Manuf. | Part No |
|-------------|--------|------------|
| Header | Molex | 90121-0766 |

A nicer arrangement is to use a 1x6 housing and crimp terminals for individual wires.



| Description | Manuf. | Part No |
|---------------|--------|------------|
| Housing | Molex | 50-57-9006 |
| Terminal pins | Molex | 16-02-0077 |

The discrete wire connector does protrude from the programmer somewhat more than the plain header strip, so make sure you have room for it.

The connections needed between the tool and the target are shown in the Microchip "PICkit 3 Programmer/Debugger User's Guide" which can be found for download on the Microchip web site on the PICkit page, or by searching for document number DS1795.

Usage

In this scenario you are probably going to want the programming tool to supply power to the target. This is configured in the programming software. Make sure that the correct voltage is chosen.

The button on the PICkit is for the "Programmer-to-Go" functionality. It is not needed when the PICkit is operating as a programmer/debugger controlled by the attached PC. If you do need to press it for any reason, the open nature of the fixture makes it easy enough to reach under the probe plate.