USING PICkit™ 3 IN-CIRCUIT DEBUGGER

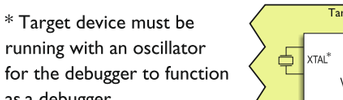
1 Install the Latest Software

Install the MPLAB IDE software onto your PC using the MPLAB IDE CD-ROM or download the software from the MPLAB IDE page of the Microchip web site [www.microchip.com/MPLAB]. Check the latest Release Notes for additional information.

2 Configure PC USB Communications

Connect the PICkit 3 development programmer / debugger to a PC USB port via a USB cable. PICkit 3 uses the standard HID USB Windows® driver.

Note: If a USB hub is used, the hub must be powered with its own power supply.

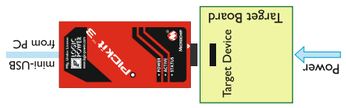


3 Build Your Project

1. Launch MPLAB IDE.
2. Load your project or use the Project Wizard to create a new one.
3. Build your project based on your configuration and options.
4. Select the PICkit 3 as either a debugger (Debugger>Select Tool>PICkit 3) or as a programmer (Programmer>Select Programmer>PICkit 3).

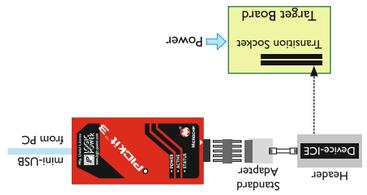
4 Connect to Target Device

Typical Debugger System - Device with On-Board ICE Circuitry:



1. Attach the PICkit 3 to the PC using the USB cable, if not already.
2. Attach the communications cable between the debugger and target board.
3. Connect power to the target Board.

Alternate Debugger System - ICE Device:



5 Program and Debug

1. Program your device.
2. As a programmer, PICkit 3 will automatically run your code. As a debugger, you can run, halt, single step and set breakpoints in your code.

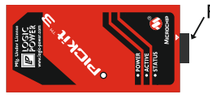
Note: For information on Reserved Resources used by the debugger, see the PICkit 3 on-line help.

Additional Information

Target Connector Pinout

Pin	Signal
1	MCLR/VPP
2	VDD Target
3	VSS Ground
4	ICSPDAT/PGD
5	ICSPCLK/PGC
6	LVP

Circuitry and Connector Pinouts

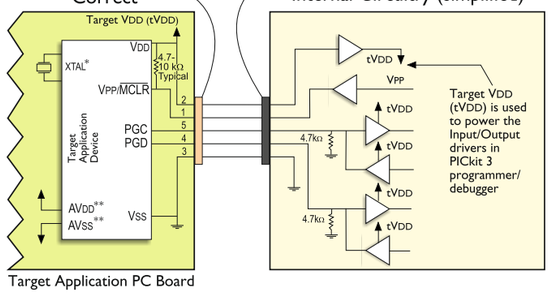


PICkit 3 Connector Pinout

Pin	Signal
1	MCLR/VPP
2	VDD Target
3	VSS Ground
4	ICSPDAT/PGD
5	ICSPCLK/PGC
6	LVP

* Target device must be running with an oscillator for the debugger to function as a debugger.
* * If the device has AVDD and AVSS lines, they must be connected for the debugger to operate.

Correct

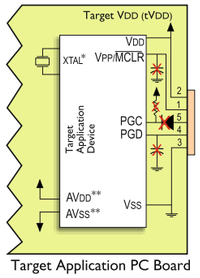


Target Application PC Board

PICkit 3 Internal Circuitry (simplified)

Target Circuit Design Precautions

Incorrect



Target Application PC Board

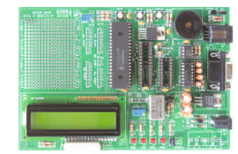
- Do not use multiplexing on PGC/PGD - they are dedicated for communications to PICkit 3.
- Do not use pull-ups on PGC/PGD - they will divide the voltage levels since these lines have 4.7 kΩ pull-down resistors in PICkit 3.
- Do not use capacitors on PGC/PGD - they will prevent fast transitions on data and clock lines during programming and debug communications.
- Do not use capacitors on MCLR - they will prevent fast transitions of VPP.
- Do not use diodes on PGC/PGD - they will prevent bidirectional communication between PICkit 3 and the target PIC® MCU.

Recommended Setings

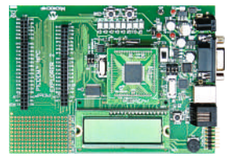
COMPONENT	SETTING
Oscilliator	• OSC bits set properly • Running
Power	Supplied by target
WDT	Disabled (device dependent)
Code-Protect	Disabled
Table Read Protect	Disabled
LVP	Disabled
BOD	VDD > BOD VDD min
JTAG	Disabled
AVDD and AVSS	Must be connected
PGCx/PGDx	Proper channel selected, if applicable
Programming	VDD voltage levels meet programming specs

Note : See the *PICkit 3 User's Guide* for more component and setting information.

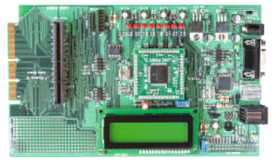
DEMO BOARDS



PICDEM 2 Plus



PIC18 EXPLORER



EXPLORER 16

PIC16 & PIC18 DEMO BOARD

PIC18F8722/PIC18F87J11 DEMO BOARD

PIC24 & dsPIC33F DEMO BOARD

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