

Using MPLAB® ICD 2

1 Install the Latest Software

NOTE: Do not connect the RS-232 or USB cable until after the MPLAB IDE software is installed.

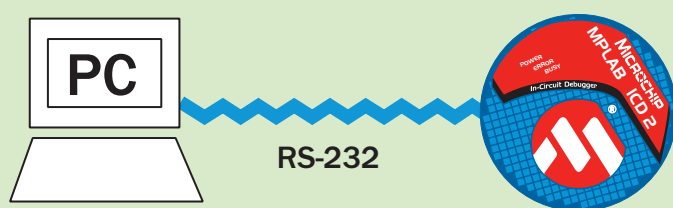
Install the MPLAB IDE v6.xx software onto your PC using the MPLAB IDE CD-ROM or download the software from www.microchip.com/devtools.

DO NOT run the MPLAB IDE program at this time.

2 Configure PC Communications

For RS-232

1. Connect MPLAB ICD 2 to the PC via RS-232 cable.



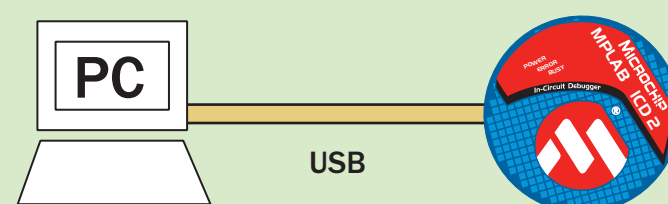
2. Set up the RS-232 Communications Port Properties as follows:

- a. Select a COM port for MPLAB ICD 2 from the Device Manager, e.g., Control Panel>System>Hardware>Device Manager>Ports>COMx, where x=1, 2, 3, etc.
- b. On the Port Settings tab set Flow Control to Hardware.
- c. On the Advanced Settings for COMx turn off (uncheck) Use FIFO buffers.

For USB

IMPORTANT: Do not allow Windows® OS to pick a USB driver. It will not work and you will be unable to install the proper driver. You must follow MPLAB ICD 2 USB Device Driver installation instructions (displayed upon completion of Step 1 and located in the MPLAB IDE install directory \Drivers\ICD2_USB\ddicd2nn.htm, where nn=OS).

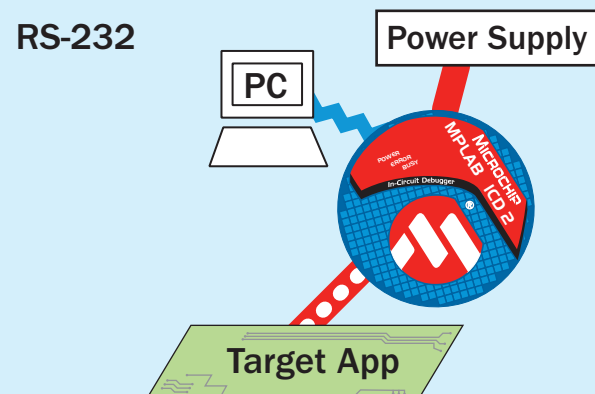
1. Connect MPLAB ICD 2 to the PC via USB cable.



2. Follow MPLAB ICD 2 USB Device Driver installation directions to install MPLAB ICD 2 USB drivers.
3. Browse for C:\Program Files\MPLAB IDE\DRIVERS\ICD2_USB\ICD2Wnn.INF or navigate to the drivers on the MPLAB IDE CD-ROM in the folder \MPLAB_IDE\Drivers and install them on your PC.

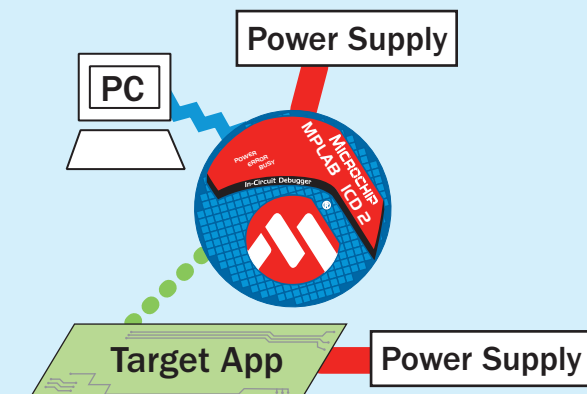
3 Connect Power and Target Application

Target Powered from MPLAB ICD 2 (<200 mA, 5V only to Target)

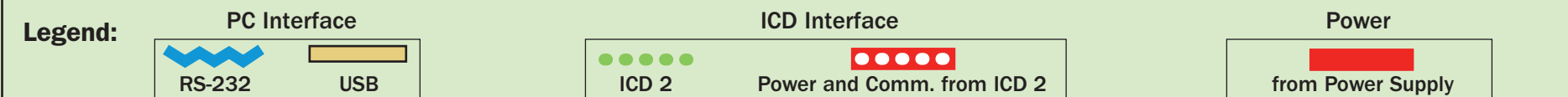
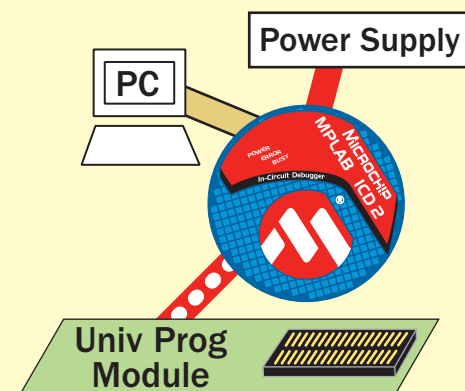
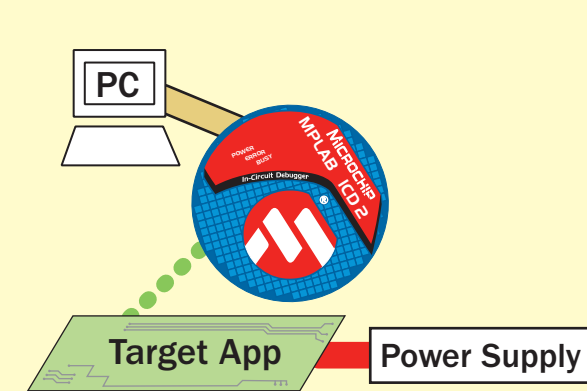
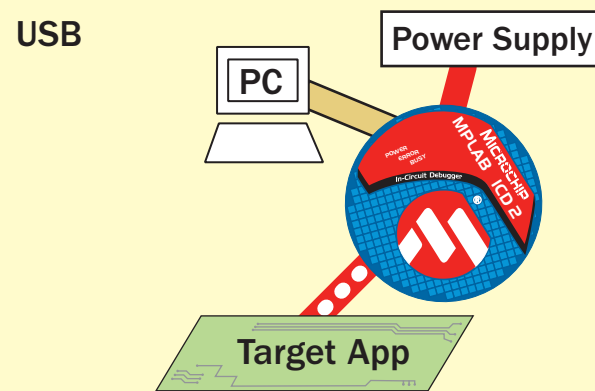
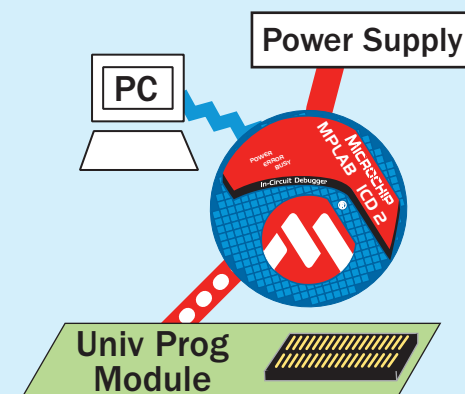


Target Powered from Power Supply

NOTE: Always apply power to MPLAB ICD 2 before applying power to your target applications.



Programming with the Universal Programming Module (AC162049)



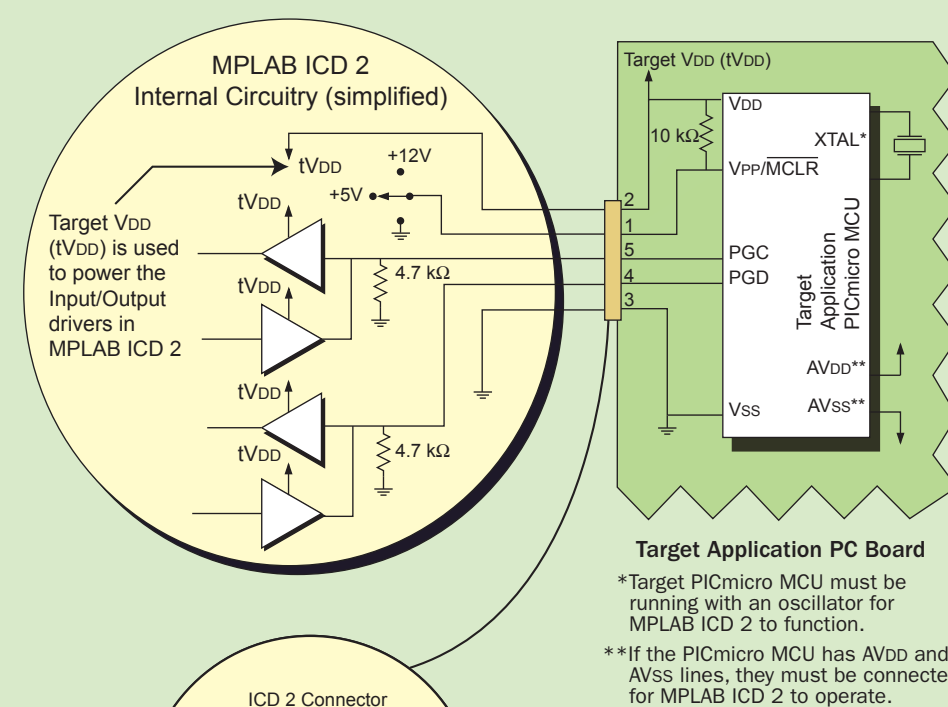
4 Configure MPLAB IDE

Open the MPLAB IDE program and configure the MPLAB IDE software to work properly with MPLAB ICD 2:

1. For debugging, select Debugger>Select Tool>MPLAB ICD 2. For programming, select Programmer>Select Programmer>MPLAB ICD 2.
2. To set the communications port for MPLAB ICD 2, select Debugger/Programmer>Settings>Communication tab and choose a Com Port (USB, COM1, COM2, etc.). Click Apply.
3. Select the Power tab. If you are supplying power directly to the target application, verify the Power target circuit from MPLAB ICD 2 checkbox is empty. If you want to power the target circuit from the MPLAB ICD 2, select the checkbox. Click OK.

Additional Information

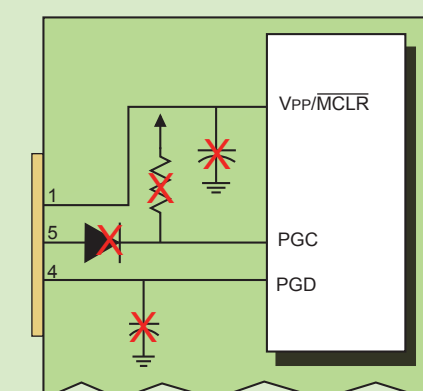
Electrical Connections to Target



Guidelines

- Oscillator – must be operational for MPLAB ICD 2 debug operations.
- Power – must be connected to target. Internal buffers on PGC and PGD are connected to MPLAB ICD 2's VDD when MPLAB ICD 2 is powering the target (less than 200 mA, 5V operation only). When the target has its own power supply, the target VDD is connected to these buffers. This also provides level translation (down to 2V) for low voltage operation.
- WDT – Disable the Watchdog Timer while debugging.
- Code Protect – Disable all code protection while debugging.
- Table Read Protect – Disable all table read protection while debugging.
- Reserved Resources – Avoid reserved program memory and file registers used by the debugger. See Reserved Resources section below.
- LVP – Do not enable Low Voltage Programming.
- PLL – Switching to PLL oscillator requires power down of target.
- AVDD and AVSS – If target PICmicro® MCU has these Analog power pins, they also must be connected to the proper power and ground.
- Ensure that configuration bits are correctly programmed, especially for the oscillator.

Target Circuit Design Considerations



- No pull-ups on PGC/PGD – they will divide the voltage levels since these lines have 4.7 kΩ pull-down resistors in MPLAB ICD 2.
- No capacitors on PGC/PGD – they will prevent fast transitions on data and clock lines during programming and debug communications.
- No capacitors on MCLR – they will prevent fast transitions of VPP.
- No diodes on PGC/PGD – they will prevent bidirectional communication between MPLAB ICD 2 and the target PICmicro MCU.

Reserved Resources (See on-line help or readme for specifics)

MPLAB ICD 2 has the following restrictions and reserves certain on-chip resources for debugging. After the target PICmicro MCU is programmed to run without MPLAB ICD 2 in your application, none of these restrictions apply:

- MCLR/VPP is shared for programming and reset control.
- Low-voltage ICSP programming (LVP) must be disabled.
- PGC and PGD are reserved for programming and in-circuit debugging. Usually these are the RB6 and RB7 pins.
- A few general purpose file registers are reserved.
- One stack level is reserved for the PIC12FXXX and PIC16FXXX MCU families. Two stack levels are reserved for the PIC18FXXX MCU family.
- An area in upper program memory is reserved.
- Shadow registers are used in the PIC18XXX MCU's



www.microchip.com



© 2003 Microchip Technology Inc., 4/03 DS51265C