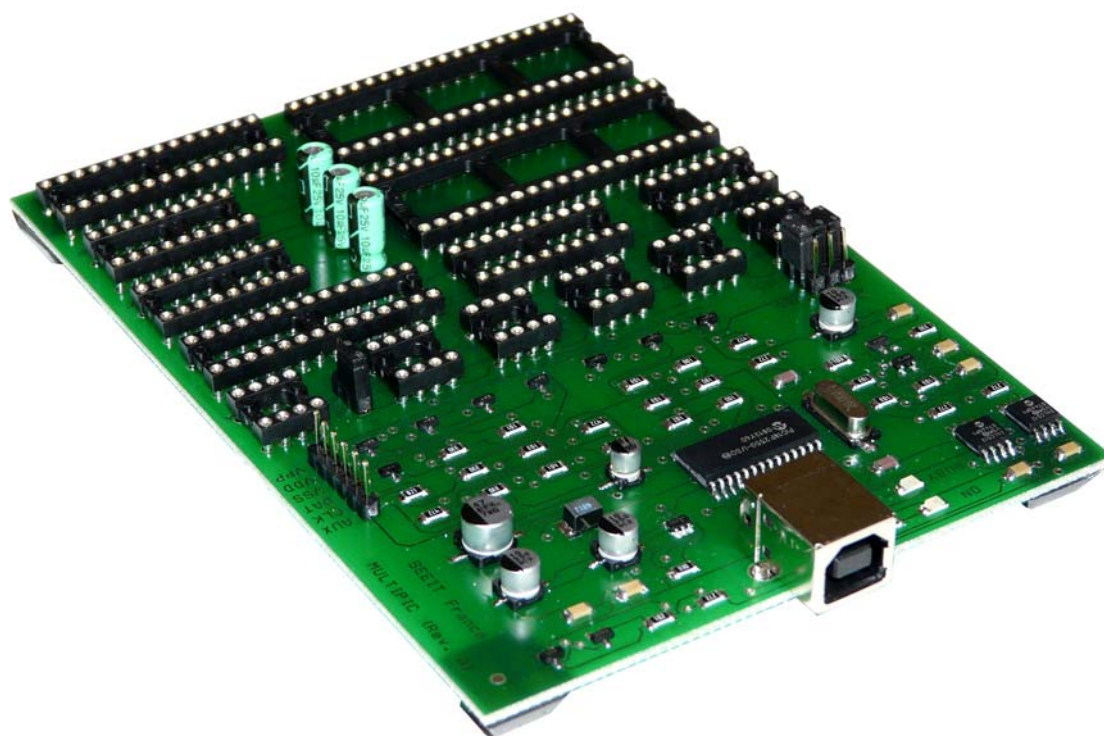


MULTIPIC

Universal programmer on USB port for
PIC microcontrollers and serials EEPROMs



Copyright:

Programmer : Copyright © 1996 - 2016 by SEEIT.

Software PICKit2 Copyright © 2008 by Microchip.

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Item includes:

Programmer with several tulip DIP package.

USB cable.

Software on CD.

User manual in English and French.

Introduction :

The MULTIPIC allows you to program over 650 different PIC microcontrôleurs from Microchip : (PIC10Fxxx, PIC12Fxxx, PIC16Fxxx, PIC18Fxxx, PIC24Fxxx, PIC24Hxxx, dsPIC30Fxxx, PIC32MXxxx and dsPIC33Fxxx). Thanks to its different tulip sockets for all components in DIP 8, 14, 18, 20, 28 et 40 pins and its SPI connector to program on-board components or for adding optionnal adapters in SOT, DFN, SOIC, SSOP, QFN, TQFP package. Also this programmer allows you to program serial EEPROMs 24C/LC/AA/FCxxx, 25LC/AAxxx, 93C/LC/AAxxx and HCSxxx components. The MULTIPIC connects to the USB port of your PC and does not require any external power supply. The software of MULTIPIC works under Windows XP/VISTA/Windows7/Windows8 (32 and 64bit) and the board is compatible with Microchip PIC software.

Installing PICKit2 software V2.61 for MultiPic programmer :

Double click on the file « Setup.exe » on the CD-ROM provide with the programmer.

The following message appear on the screen : « Welcome to the PICKit 2 v2.61 Setup Wizard ».

Click three time on « Next ».

Select « I agree » if you accept the conditions.

Click on « Next ».

The software installing is in progress.

To finish, click on « Close ».

Then, connect the MultiPIC programmer on an USB port of your computer.

Run the file « PICKit 2 v2.61 » by clicking on the icon on your desktop.

The software must fount automatically the programmer on the USB port. Otherwise, click on the menu : « Tools\Check Communication ».

Status LEDs :

Red LED : (ON) power is applied to the programmer via the USB port.

Green LED : (Busy) the programmer is busy with a function such as Program mode or is alerting that a function is in progress, (read, xrite, etc...).

MULTIPIC (SEIT) Device list PICkit2 version 2.61 and MPLAB version 8.90:

PIC10Fxxx	PIC10F200	PIC10F202	PIC10F204	PIC10F206	PIC10F220	PIC10F222
	PIC10F320	PIC10F322				
PIC12Fxxx	PIC12F1822	PIC12F1840	PIC12F508	PIC12F509	PIC12F510	PIC12F519
(F/LF available)	PIC12F526	PIC12F526	PIC12F609	PIC12HV609	PIC12F615	PIC12HV615
	PIC12F617	PIC12F629	PIC12F635	PIC12F675	PIC12F683	PIC12F752
	PIC12HV752					
PIC16Fxxx	PIC16F1503	PIC16F1507	PIC16F1509	PIC16F1516	PIC16F1517	PIC16F1518
(F/LF available)	PIC16F1519	PIC16F1526	PIC16F1527	PIC16F1782	PIC16F1783	PIC16F1823
	PIC16F1824	PIC16F1825	PIC16F1826	PIC16F1827	PIC16F1828	PIC16F1829
	PIC16F1847	PIC16LF1902	PIC16LF1903	PIC16LF1904	PIC16LF1906	PIC16LF1907
	PIC16F1933	PIC16F1934	PIC16F1936	PIC16F1937	PIC16F1938	PIC16F1939
	PIC16F1946	PIC16F1947	PIC16F505	PIC16F506	PIC16F526	PIC16F54
	PIC16F57	PIC16F59	PIC16F610	PIC16HV610	PIC16F616	PIC16HV616
	PIC16F627	PIC16F627A	PIC16F628	PIC16F628A	PIC16F630	PIC16F631
	PIC16F636	PIC16F639	PIC16F648A	PIC16F676	PIC16F677	PIC16F684
	PIC16F685	PIC16F687	PIC16F688	PIC16F689	PIC16F690	PIC16F72
	PIC16F73	PIC16F74	PIC16F76	PIC16F77	PIC16F707	PIC16F716
	PIC16F720	PIC16F721	PIC16F/LF722	PIC16F722A	PIC16F/LF723	PIC16F723A
	PIC16F/LF724	PIC16F/LF726	PIC16F/LF727	PIC16F737	PIC16F747	PIC16F767
	PIC16F777	PIC16F785	PIC16HV785	PIC16F84A	PIC16F87	PIC16F818
	PIC16F819	PIC16F870	PIC16F871	PIC16F872	PIC16F873	PIC16F873A
	PIC16F874	PIC16F874A	PIC16F876	PIC16F876A	PIC16F877	PIC16F877A
	PIC16F88	PIC16F882	PIC16F883	PIC16F884	PIC16F886	PIC16F887
	PIC16F913	PIC16F914	PIC16F916	PIC16F917	PIC16F946*	PIC16F1933
	PIC16F1934	PIC16F1936	PIC16F1937	PIC16F1938	PIC16F1939	PIC16LF1933
	PIC16LF1934	PIC16LF1936	PIC16LF1937	PIC16LF1938	PIC16LF1939	
PIC18Fxxx	PIC18F242	PIC18F248	PIC18F252	PIC18F258	PIC18F442	PIC18F448
(F/LF available)	PIC18F452	PIC18F458	PIC18F1220	PIC18F1230	PIC18F1320	PIC18F1330
	PIC18F2220	PIC18F2221	PIC18F2320	PIC18F2321	PIC18F2331	PIC18F2410
	PIC18F2420	PIC18F2423	PIC18F2431	PIC18F2450	PIC18F2455	PIC18F2458
	PIC18F2480	PIC18F2510	PIC18F2515	PIC18F2520	PIC18F2523	PIC18F2525
	PIC18F2550	PIC18F2553	PIC18F2580	PIC18F2585	PIC18F2610	PIC18F2620
	PIC18F2680	PIC18F2682	PIC18F2685	PIC18F4220	PIC18F4221	PIC18F4320
	PIC18F4321	PIC18F4331	PIC18F4410	PIC18F4420	PIC18F4423	PIC18F4431
	PIC18F4450	PIC18F4455	PIC18F4458	PIC18F4480	PIC18F4510	PIC18F4515
	PIC18F4520	PIC18F4523	PIC18F4525	PIC18F4550	PIC18F4553	PIC18F4580
	PIC18F4585	PIC18F4610	PIC18F4620	PIC18F4680	PIC18F4682	PIC18F4685
	PIC18F6310	PIC18F6390	PIC18F6393	PIC18F6410	PIC18F6490	PIC18F6493
	PIC18F6520	PIC18F6525	PIC18F6527	PIC18F6585	PIC18F6620	PIC18F6621
	PIC18F6622	PIC18F6627	PIC18F6628	PIC18F6680	PIC18F6720	PIC18F6722
	PIC18F6723	PIC18F8310	PIC18F8390	PIC18F8393	PIC18F8410	PIC18F8490
	PIC18F8493	PIC18F8520	PIC18F8525	PIC18F8527	PIC18F8585	PIC18F8620
	PIC18F8621	PIC18F8622	PIC18F8627	PIC18F8628	PIC18F8680	PIC18F8720
	PIC18F8722	PIC18F8723				
PIC18FxxJxx	PIC18F24J10	PIC18F24J11	PIC18F24J50	PIC18F25J10	PIC18F25J11	PIC18F25J50
(F/LF available)	PIC18F26J11	PIC18F26J50	PIC18F44J10	PIC18F44J11	PIC18F44J50	PIC18F45J10
	PIC18F45J11	PIC18F45J50	PIC18F46J11	PIC18F46J50/	PIC18F63J11	PIC18F63J90
	PIC18F64J11	PIC18F64J90	PIC18F65J10	PIC18F65J11	PIC18F65J15	PIC18F65J50
	PIC18F65J90	PIC18F66J10	PIC18F66J11	PIC18F66J15	PIC18F66J16	PIC18F66J50
	PIC18F66J55	PIC18F66J60	PIC18F66J65	PIC18F66J90	PIC18F67J10	PIC18F67J11
	PIC18F67J50	PIC18F67J60	PIC18F67J90	PIC18F83J11	PIC18F83J90	PIC18F84J11
	PIC18F84J90	PIC18F85J10	PIC18F85J11	PIC18F85J15	PIC18F85J50	PIC18F85J90
	PIC18F86J10	PIC18F86J11	PIC18F86J15	PIC18F86J16	PIC18F86J50	PIC18F86J55
	PIC18F86J60	PIC18F86J65	PIC18F86J90	PIC18F87J10	PIC18F87J11	PIC18F87J50
	PIC18F87J60	PIC18F87J90	PIC18F96J60	PIC18F96J65	PIC18F97J60	
PIC18FxxKxx	PIC18F13K22	PIC18F14K22	PIC18F13K50	PIC18F14K50	PIC18F23K20	PIC18F23K22
(F/LF available)	PIC18F24K20	PIC18F24K22	PIC18F25K20	PIC18F25K22	PIC18F26K20	PIC18F26K22
	PIC18F26K80	PIC18F43K20	PIC18F43K22	PIC18F44K20	PIC18F44K22	PIC18F45K20
	PIC18F45K22	PIC18F46K20	PIC18F46K22			
PIC24Fxxx	PIC24F04KA200	PIC24F04KA201	PIC24F08KA101	PIC24F08KA102	PIC24F16KA101	PIC24F16KA102
PIC24FJxxx	PIC24FJ16GA002	PIC24FJ16GA004	PIC24FJ32GA002	PIC24FJ32GA004	PIC24FJ32GA102	PIC24FJ32GA104
	PIC24FJ48GA002	PIC24FJ48GA004	PIC24FJ64GA002	PIC24FJ64GA004	PIC24FJ64GA006	PIC24FJ64GA008

	PIC24FJ64GA010	PIC24FJ64GA102	PIC24FJ64GA104	PIC24FJ96GA006	PIC24FJ96GA008	PIC24FJ96GA010
	PIC24FJ128GA006	PIC24FJ128GA008	PIC24FJ128GA010	PIC24FJ128GA106	PIC24FJ128GA108	PIC24FJ128GA110
	PIC24FJ192GA106	PIC24FJ192GA108	PIC24FJ192GA110	PIC24FJ256GA106	PIC24FJ256GA108	PIC24FJ256GA110
	PIC24FJ32GB002	PIC24FJ32GB004	PIC24FJ64GB002	PIC24FJ64GB004	PIC24FJ64GB106	PIC24FJ64GB108
	PIC24FJ64GB110	PIC24FJ128GB106	PIC24FJ128GB108	PIC24FJ128GB110	PIC24FJ192GB106	PIC24FJ192GB108
	PIC24FJ192GB110	PIC24FJ256GB106	PIC24FJ256GB108	PIC24FJ256GB110		
PIC24HJxxx	PIC24HJ12GP201	PIC24HJ12GP202	PIC24HJ16GP304	PIC24HJ32GP202	PIC24HJ32GP204	PIC24HJ32GP302
	PIC24HJ32GP304	PIC24HJ64GP202	PIC24HJ64GP204	PIC24HJ64GP206	PIC24HJ64GP210	PIC24HJ64GP502
	PIC24HJ64GP504	PIC24HJ64GP506	PIC24HJ64GP510	PIC24HJ128GP202	PIC24HJ128GP204	PIC24HJ128GP206
	PIC24HJ128GP210	PIC24HJ128GP306	PIC24HJ128GP310	PIC24HJ128GP502	PIC24HJ128GP504	PIC24HJ128GP506
	PIC24HJ128GP510	PIC24HJ256GP206	PIC24HJ256GP210	PIC24HJ256GP610		
dsPIC30Fxxx	dsPIC30F1010	dsPIC30F2010	dsPIC30F2011	dsPIC30F2012	dsPIC30F2020	dsPIC30F2023
	dsPIC30F3010	dsPIC30F3011	dsPIC30F3012	dsPIC30F3013	dsPIC30F3014	dsPIC30F4011
	dsPIC30F4012	dsPIC30F4013	dsPIC30F5011	dsPIC30F5013	dsPIC30F5015	dsPIC30F5016
	dsPIC30F6010A	dsPIC30F6011A	dsPIC30F6012A	dsPIC30F6013A	dsPIC30F6014A	dsPIC30F6015
PIC32MXxxx	PIC32MX320F032H	PIC32MX320F064H	PIC32MX320F128H	PIC32MX320F128L	PIC32MX340F128H	PIC32MX340F128L
	PIC32MX340F256H	PIC32MX340F512H	PIC32MX360F256L	PIC32MX360F512L	PIC32MX420F032H	PIC32MX440F128L
	PIC32MX440F128H	PIC32MX440F256H	PIC32MX440F512H	PIC32MX460F256L	PIC32MX460F512L	
dsPIC33FJxxx	dsPIC33FJ12GP201	dsPIC33FJ12GP202	dsPIC33FJ16GP304	dsPIC33FJ32GP202	dsPIC33FJ32GP204	dsPIC33FJ32GP302
	dsPIC33FJ32GP304	dsPIC33FJ64GP202	dsPIC33FJ64GP204	dsPIC33FJ64GP206	dsPIC33FJ64GP206A	dsPIC33FJ64GP306
	dsPIC33FJ64GP306A	dsPIC33FJ64GP310	dsPIC33FJ64GP310A	dsPIC33FJ64GP706	dsPIC33FJ64GP706A	dsPIC33FJ64GP708
	dsPIC33FJ64GP710	dsPIC33FJ64GP710A	dsPIC33FJ64GP802	dsPIC33FJ64GP804	dsPIC33FJ128GP202	dsPIC33FJ128GP204
	dsPIC33FJ128GP206	dsPIC33FJ128GP206A	dsPIC33FJ128GP306	dsPIC33FJ128GP306A	dsPIC33FJ128GP310	dsPIC33FJ128GP310A
	dsPIC33FJ128GP706	dsPIC33FJ128GP706A	dsPIC33FJ128GP708	dsPIC33FJ128GP710	dsPIC33FJ128GP710A	dsPIC33FJ128GP802
	dsPIC33FJ128GP804	sPIC33FJ256GP506	sPIC33FJ256GP506A	sPIC33FJ256GP510	sPIC33FJ256GP510A	sPIC33FJ256GP710
	sPIC33FJ256GP710A	dsPIC33FJ06GS101	dsPIC33FJ06GS102	dsPIC33FJ06GS202	dsPIC33FJ16GS402	dsPIC33FJ16GS404
	dsPIC33FJ16GS502	dsPIC33FJ16GS504	dsPIC33FJ12MC201	dsPIC33FJ12MC202	dsPIC33FJ16MC304	dsPIC33FJ32MC202
	dsPIC33FJ32MC204	dsPIC33FJ32MC302	dsPIC33FJ32MC304	dsPIC33FJ64MC202	dsPIC33FJ64MC204	dsPIC33FJ64MC506
	dsPIC33FJ64MC508	dsPIC33FJ64MC510	dsPIC33FJ64MC706	dsPIC33FJ64MC710	dsPIC33FJ64MC802	dsPIC33FJ64MC804
	dsPIC33FJ128MC202	dsPIC33FJ128MC204	dsPIC33FJ128MC506	dsPIC33FJ128MC510	dsPIC33FJ128MC706	dsPIC33FJ128MC708
	dsPIC33FJ128MC710	dsPIC33FJ128MC802	dsPIC33FJ128MC804	dsPIC33FJ256MC510	dsPIC33FJ256MC710	
HCSxxx	HCS200	HCS201	HCS300	HCS301	HCS320	HCS360
	HCS361	HCS362				
11LCxxx	11LC010	11LC020	11LC040	11LC080	11LC160	
11AAxxx	11AA010	11AA020	11AA040	11AA080	11AA160	
24LCxxx	24LC00/24C00	24LC01B	24LC02B	24LC04B	24LC08B	24LC16B
	24LC32A	24LC64	24LC128	24LC256	24LC512	24LC1025
24AAxxx	24AA00	24AA01B	24AA02B	24AA04B	24AA08B	24AA16B
	24AA32A	24AA64	24AA128	24A256	24AA512	24AA1025
24FCxxx	24FC64	24FC128	24FC256	24FC512	24FC1025	
25LCxxx	25LC010A	25LC020A	25LC040A	25LC080A	25LC080B	25LC160A
	25LC160B	25LC320A	25LC640A	25LC128	25LC256	25LC512
	25LC1025					
25AAxxx	25AA010A	25AA020A	25AA040A	25AA080A	25AA080B	25AA160A
	25AA160B	25AA320A	25AA640A	25AA128	25AA256	25AA512
	25AA1025					
93LCxxx	93LC46A	93LC46B	93LC46C	93LC56A	93LC56B	93LC56C
	93LC66A	93LC66B	93LC66C	93LC76A	93LC76B	93LC76C
	93LC86A	93LC86B	93LC86C			
93AAxxx	93AA46A	93AA46B	93AA46C	93AA56A	93AA56B	93AA56C
	93AA66A	93AA66B	93AA66C	93AA76A	93AA76B	93AA76C
	93AA86A	93AA86B	93AA86C			
93Cxxx	93C46A	93C46B	93C46C	93C56A	93C56B	93C56C
	93C66A	93C66B	93C66C	93C76A	93C76B	93C76C
	93C86A	93C86B	93C86C			
MCP250xxx	MCP25020	MCP25025	MCP25050	MCP25055		

Note : Some devices don't exist in DIP package and need an optional adapter.

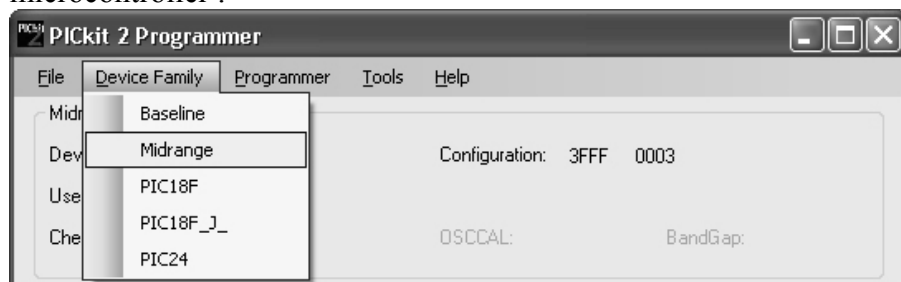
In green : device supported list by MPLAB version 8.90.

In yellow : device supported list by MPLAB version 8.90 (not tested).

Select a device:

The software can detect automatically the component inserted in the DIP socket by its device ID, but for this you must before select the correct Device Family.

For this, click on the menu « Device family » and select the component family corresponding to your PIC microcontroller :



Baseline : PIC10Fxxx and some other PIC12Fxxx/16Fxxx without device ID.

Midrange : all other PIC12Fxxx and PIC16Fxxx.

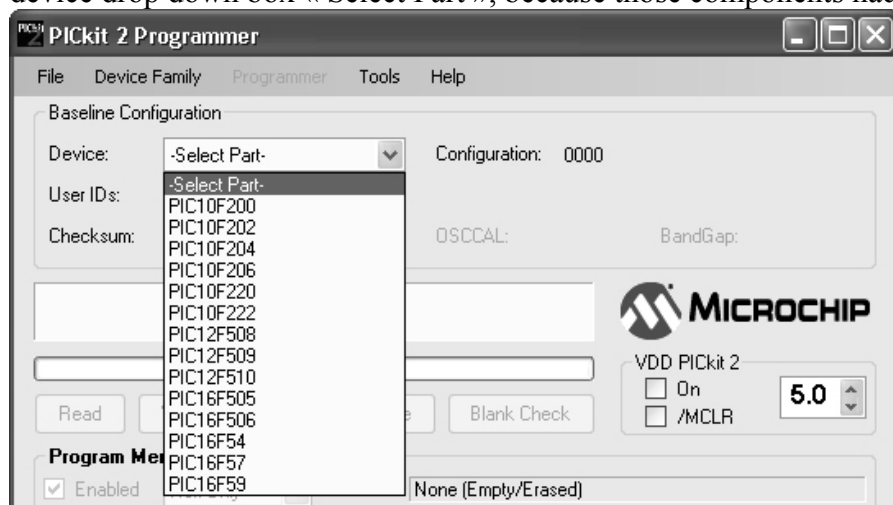
DsPIC30 SMPS : dsPIC30F1010 / dsPIC30F2020 / dsPIC30F2023 only.

EEPROMS : 8 pins DIP EEPROMS, (24Cxx / 25Cxx / 93Cxx).

Etc...

Except for baseline microcontrollers, the software will automatically read the device ID word from the connected PIC microcontroller and display it in the Configuration window. At any time, the device family may be selected to search for connectivity to a device in that family. Be careful, ensure that the correct Device Family has been selected. These devices do not contain a device ID to confirm device selection. Choosing the wrong Baseline Flash device may cause an erasing of the OSCCAL value stored in the last memory location.

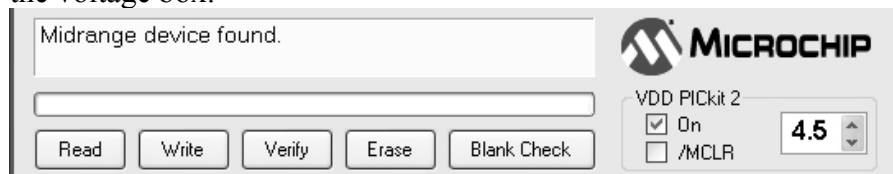
If the Baseline (12-bit core) Flash device family is selected, the user must select the specific device from the device drop down box « Select Part », because those components hadn't device ID.



If you prefer select manually a component, you can activate the menu « Programmer\Manual Device Select ».

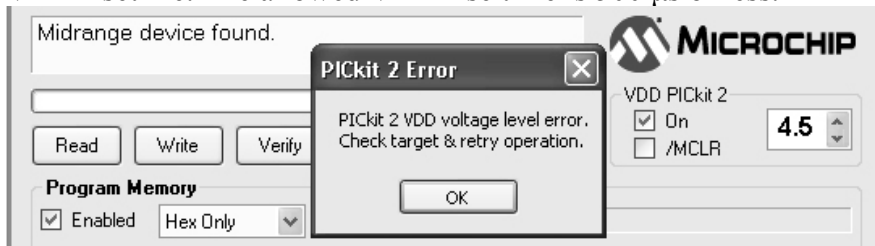
External target power on VDD pin:

The MULTIPIC can supply power to an external target. To enable power to the external target device, check the box « VDD PICKIT2 » On, (when starting the software programmer, target is always off). The voltage supplied to the external target may be adjusted from 2,5V to 5,0V before or after enabling power by adjusting the voltage box.

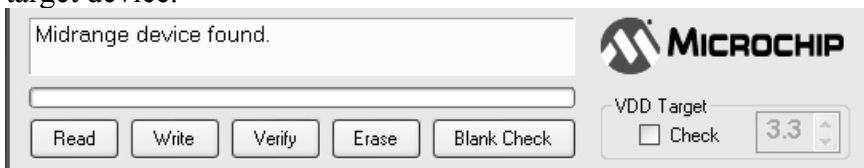


If a short or heavy current load is detected on the MULTIPIC supplied VDD, then the user will receive an error message on the screen: « PICKIT 2 VDD voltage level error. Check target & retry operation », and VDD will be

automatically disabled. To avoid heavy current load errors, it is recommended to keep the external target current consumption below 25 mA. Large VDD capacitances should also be avoided as they slow down the VDD risetime. The allowed VDD rise time is 500 μ s or less.



Also, the target device may also be powered externally. By default, the MULTIPIC will automatically detect an externally powered board. The box « VDD PICKit2 », will be updated to the box « VDD Target », the check box text will change to « Check », and the detected VDD voltage is displayed in the gray out voltage box. Clicking the check box will update the detected VDD voltage displayed in the voltage box. If no VDD voltage is detected when the check box is clicked, then the MULTIPIC will return to supplying VDD power to the target device.



Import Hex file :

To import a compiled program (hex file), select: « File\Import Hex ». The Hex file format INHX32 is supported. Browse for the hex file and click « Open ». The code is displayed in the « Program Memory », and the « EEPROM Data », windows. The name of the Hex file is displayed in the « Source » block. The software will warn the user if the Hex file does not contain any configuration worlds. The user will also be warned that the Hex file is larger than the selected device if the Hex file contains memory locations that do not exist in the current device. Any data for non-existent locations will not be imported.

Note : normaly, your Hex file must contain all information to configure the fuses or configuration worlds, if the Hex file has been correctly compiled. In this case, you can use MPLAB, ICprog or WinPIC800 to configure the fuses of the Hex file in those softwares, and save it after.

Export Hex file :

Export a Hex file read from a device. The Hex file is created in the INHX32 format.

To export a program, select: « File\Export Hex ». The file will be save on your harddisk.

Read a device :

To view the code written into a microcontroller inserted on DIP support, select the menu « Programmer\Read Device » or click on the button « Read ».

The code is displayed in the Program and Data EEPROM Memory windows for your review.

If all 0x0000 are displayed, it is possible that the device is code-protected. In this case it will not possible to read it.

If all 0xFFFF are displayed, it is possible that the device is blank.

Use the menu « File\Export Hex » to save all the memory into a file in Hex INHX32 format.

Or click the button « Read Device + Export Hex File » at the bottom, on the right corner.

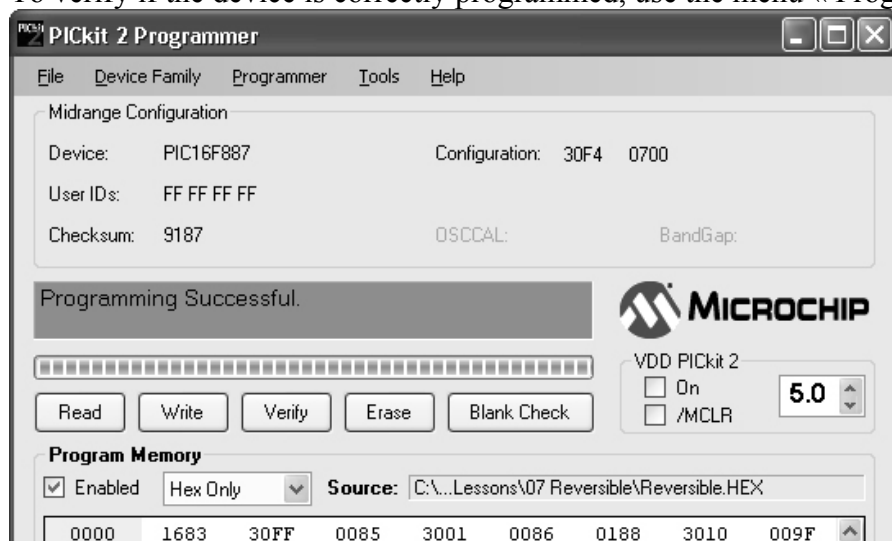


Write a device :

After a device family has been selected and a hex file has been imported, the component can be programmed by clicking on the **Write** button. The PIC microcontroller will be erased and programmed with the hex code previously imported. The status of the Write operation is displayed in the status bar located under the Device Configuration window.

To write a device, use the menu « Programmer\Write Device ».

To verify if the device is correctly programmed, use the menu « Programmer\Verify ».



Note : The device will be erased prior to programming.

To verify if the device is erased use the menu « Programmer\Blank Check ».

If the device is not erased, use the menu « Programmer\Erase » to erase it.

The software uses the bulk erase method that requires a minimum VDD. The user will be warned if VDD is below the minimum for the connected device.

If the write is successful, the status bar turns green and displays « Programming Successful ».

If the write fails, the status bar turns red and displays « Programming Failed ». This error indicates that the data was corrupted during the programming sequence. If this error is displayed, try writing the program to the device again.

If a device has EEPROM data memory, the “Enable” checkbox next to Program Memory and the “Enable” checkbox next to EEPROM Data memory will become available.

The checkboxes may be used to select which memory regions programming operations will affect with the menus « Program\Write », « Program\Read » and « Program\Verify ».

Menus « Program\Erase » and « Program\Blank check » always operate on all memory regions.

During a **Write**, regions that are unaffected will remain unchanged in the device.

If Program Memory is unchecked, while EEPROM Data is checked then a Write operation will only write EEPROM Data, while Program Memory, User IDs, and Configuration Words in the device will remain unchanged.

If Program Memory is checked, while EEPROM Data is unchecked then a Write operation will affect Program Memory, User IDs, and Configuration Words, while EEPROM Data in the device will remain unchanged.

Note : automatic file reload.

Prior to each write, the imported hex file time stamp is compared to the version on the disk. If the version on the disk is newer, it is reloaded. This occurs only when a hex file has been read from the disk.

Verify :

Use the menu « Programmer\Verify » or click on the button « Verify ».

The Verify function verifies the device program to the imported hex file. It compares all areas of memory including program memory, data EEPROM memory, ID and Configuration bits. To verify the code, import the hex file and click the **Verify** button. If the code is the same, the status bar turns green and displays « Device Verified ». If a discrepancy is found, the status bar turns red and displays where the error is located: « Error in Program Memory, Data EEPROM Memory, or Configuration Bits ».

Erase :

Use the menu « Programmer\Erase » or click on the button « Erase ».

The Erase function erases the program memory, data EEPROM memory, ID and Configuration bits, regardless of the state of the Program Memory and EEPROM Data “Enabled” checkboxes. However, this function is not normally needed since the Write function performs an erase operation prior to programming microcontroller.

Note : the OSCCAL value and band gap values are preserved on parts with these features.

Blank Check :

Use the menu « Programmer\Blank Check » or click on the button « Blank Check ».

The Blank Check function will read the entire device to determine if Program Memory, EEPROM Data memory, User IDs, and Configuration bits are erased. All memory regions will be examined, regardless of the state of the Program Memory and EEPROM Data “Enabled” checkboxes.

Auto Import and Write Device :

Click the button « Auto Import Hex + Write Device » at the bottom, on the right corner to activate this function. This feature allows the MULTIPIC to automatically import a hex file and write it to a connected device when the hex file is updated. This will bring up an Import Hex file dialog defaulting to the first hex file in the file history under the File menu. After selecting a file, it will be written to the device.

The software will now monitor the selected hex file for updates. When the file has been updated (has a newer time stamp), the software will automatically re-import the hex file and write to the target device. While this feature is enabled, other programming operations are disabled.

The « Auto Import Hex + Write Device » button will remain depressed while this feature is active. To stop using this feature, click the « Auto Import Hex + Write Device » button again. If an error is encountered during hex file importing or device programming, the software will automatically exit this feature mode.

Menu Programmer\Verify on Write :

When checked, the device will be immediately verified after programming on a Write (recommended).

When unchecked, the device will be programmed but not verified on a Write.

Menu Programmer\Clear Memory Buffers on Erase:

When checked, all the content of the Buffers are clear to 0xFFFF.

When unchecked, the content of the Buffer stay unchanged.

Menu Programmer\Hold Device in Reset:

This menu has the same functionality as the « VDD PICKit 2 / MCLR » checkbox on the main window.

When checked, the MCLR (Vpp) pin is held low and the MCLR/VPP pin of the component stay in RESET.

When unchecked, the pin is released (tri-state), allowing an external pull-up to bring the device out of Reset.

This function can be used to prevent a device from executing code before and after programming.

Menu Programmer\Alert Sounds...:

When checked, there is an alert sound after each end of function, (Read, Write, Verify, Erase, Blank-Check).

Menu Programmer\Write on PICKit button:

Not available on MULTIPIC programmer.

Menu Programmer\Manual Device Select:

When checked, you can select manually a component. There is no auto detection in this case.

Menu Programmer\PICkit2 Programmer-To-Go:

Not available on MULTIPIC programmer.

Menu Tools\Enable Code Protect and menu Tools\Enable Data Protect :

The Code and Data Protect functions enable the read protection features of the PIC microcontroller.

To protect the program memory code, use the menu « Tools\Enable Code Protect » to protect the FLASH memory and « Tools\Enable Data Protect » to protect the EEPROM Data memory.

If the device is read after it has been protected, the protected memory regions will display all zeros.

Menu Tools\OSCALL :

Allows the OSCCAL value to be changed for devices where it is stored in the last location of Program Memory.

Menu Tools\Target VDD Source :

Auto-Detect: The programmer will automatically detect whether the target device has its own power supply or needs to be powered from by the MULTIPIC programmer on each operation.

Force PICkit2: The programmer will always attempt to supply VDD to the target device.

Force Target: The programmer will always assume the target has its own power supply.

Menu Tools\Calibrate VDD & Set Unit ID... :

Opens a calibration wizard to calibrate the MULTIPIC VDD supplied voltage with a voltmeter.

Calibration allows greater accuracy both in the VDD voltage supplied to the target from MULTIPIC, and the voltage detected on a powered target and reported in the software. The calibration is stored in the programmer unit nonvolatile memory, so the unit will remain Calibrated. It is important to note, however, that as the calibration is dependent on the USB voltage, moving the programmer unit to a different USB port, to or from a USB hub or to another computer port may invalidate the calibration.

During the calibration procedure, the MULTIPIC may optionally be assigned a Unit ID string to identify it uniquely. Once assigned, the MULTIPIC Unit ID will display in the PICkit2 software title bar, and in the Status Window.

Menu Tools\Use VPP First Program Entry :

When checked, it allows the programmer to connect to and program devices with configurations and code that interferes with the ICSP signal pins, preventing MULTIPIC from detecting them. Using this feature requires that the programmer supplies VDD to the target.

Menu Tools\Use LVP Program Entry :

Using this feature requires that the programmer supplies VDD to the target.

Menu Tools\Fast Programming :

When checked, the programmer will attempt to program the device as fast as possible. When unchecked, the programmer will slow down ICSP communication. This may be helpful for targets with loaded ICSP lines.

Menu Tools\UART Tool... :

Puts the MULTIPIC in UART Mode and opens a terminal-like interface for communicating with a PIC MCU device program through the USART pins.

Menu Tools\Logic Tool... :

Puts the MULTIPIC in TTL Logic Mode and opens a logic analyser interface for studying TTL level for input or output signals. See the file « PICkit-2_UserGuide_LogicTool.pdf » on the CD-ROM for more informations.

Menu Tools\Check Communication :

Verifies USB communication with the MULTIPIC and ICSP communication with a target device by attempting to identify the connected device by its device ID.

Menu Tools/Troubleshoot... :

Opens a wizard to help with troubleshooting connectivity from the programmer to the target device. This is most useful where the programmer is unable to detect the target device at all.

Download PICkit2 Programmer Operating System (advanced):

This function is used to update the firmware. But in this case click on “Delete” if the software asks you to update the firmware, because if the update is not made correctly, the MULTIPIC will not work after.

In most cases, you don't need to update the firmware of the MULTIPIC. This function is only used to start the MULTIPIC when it is built.

To update the firmware, use another ICSP PIC programmer and connect it as follows:

Pin 1 : VPP

Pin 8 or 19 : Vss

Pin 20 : Vdd

Pin 26 : NC

Pin 27 : CLK/PGC/RB6

Pin 28 : DATA/PGD/RB7

After, import the firmware type PK2V023xxx and program it into the PIC18F2550 of the MULTIPIC.

HE10 ICSP connector :

The ICSP (In Circuit Serial Programming) connector permits to connect an adapter for special component package or to program component directly on board.

Here is the connecting diagram for the ICSP connector:

Aux : Auxiliary

CLK : Clock (ICSPCLK/PGC)

DAT : Data (ICSPDAT/PGD)

Vss : Ground

Vdd : Power

Vpp : Vpp/MCLR

Minimize the distance the ICSP signals must travel by placing the ICSP connector as close to the application circuit device as possible. Minimize any cable length between the MULTIPIC and application circuit device. The goal is to keep the ICSP signals within the level and slew rate specifications for successful programming.

However, the application circuit must be designed to allow all the programming signals to be connected to the device without distorting the programming signals. Figure shows a typical circuit as a starting point when designing an application circuit for ICSP. For successful ICSP programming, the precautions in the following sections need to be followed.

Isolate Vpp/MCLR/port pin:

If the VPP pin is used as a MCLR pin the application circuit is typically connected to a pull up resistor/capacitor circuit, as recommended in the device data sheet. Care must be taken so that the VPP voltage slew rate is not slowed down and exceeds the rise time in the programming specification (typically 1 μ s).

If a supervisory circuit or a push button is interfaced to the MCLR pin, it is recommended that they be isolated from the VPP voltage by using a Schottky-type diode or limiting resistor as shown in the figure.

If the VPP pin is used as an I/O port pin the application circuit that connects to the I/O pin may not be able to handle the +12V voltage. It is recommended to use a Schottky-type diode or limiting resistor as shown in the figure.

Isolate ICSPCLK/PGC and ICSPDAT/PGD pins:

The ICSPCLK/PGC and ICSPDAT/PGD pins need to be isolated from the application circuit to prevent the programming signals from being affected by the application circuitry. ICSPCLK/PGC is a unidirectional synchronous serial programming clock line from the programmer to the target. ICSPDAT/PGD is a bidirectional synchronous serial programming data line. If the design permits, dedicate these pins for ICSP. However, if the application circuit requires that these pins be used in the application circuit, design the circuitry in a manner that does not alter the signal level and slew rates. Isolation circuitry will vary according to the

application. Figure shows one possibility by using series resistors to isolate the ICSP signals from the application circuit.

VDD pin:

If the application circuit is powered by the programmer, the programmer supply voltage may set between the maximum and minimum voltages allowed by the device programming specification, unless the minimum is below +2.5V. Be sure to set the voltage box to the appropriate voltage before programming the device or turning on VDD.

If the application circuit is powered externally, the programmer may be used with application circuits powered externally between +5.0V and +2.5V.

