

PICKIT2



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OVERVIEW

PICKIT2



The PICkit 2 Development Programmer/Debugger is a low-cost development programmer. It is capable of programming most of Microchip.s Flash microcontrollers and serial EEPROM devices.

The PICkit 2 Development Programmer/Debugger kit contains the following items:

- 1. The PICkit 2 Development Programmer/Debugger
- 2. USB cable
- 3. PICkit Starter Kit and MPLAB IDE

PICKIT2 USER'S GUIDE

USB Port Connection

The USB port connection is a USB mini-B connector. Connect the PICkit 2 to the PC using the supplied USB cable.

Status LEDs

The Status LEDs indicate the status of the PICkit 2.

- 1. Power (green). Power is applied to the PICkit 2 via the USB port.
- 2. Target (yellow). The PICkit 2 is powering the target device.
- 3. Busy (red). The PICkit 2 is busy with a function in progress, such asprogramming.







INSTALLATION OF PICKIT2

- Download the pickkit2 software.
- Run the setup.exe file

PICkit 2 v2.61			_OX
Welcome to the PICkit 2	v2.61 Setup V	Vizard 🔨	2
		MICR	OCHIP
The installer will guide you through the step	ps required to install PIC	Ckit 2 v2.61 on your c	computer.
WARNING: This computer program is prot	ected by copyright law	and international trea	ties. 1 severe civil
or criminal penalties, and will be prosecute	d to the maximum exter	t possible under the l	law.
	Cancel	< Back	Next >
		U	

• Click on next.



를 PICkit 2 v2.61	
Select Installation Folder	Michaelun
The installer will install PICkit 2 v2 61 to the following folder	MICROCHIP
To install in this folder, click "Next". To install to a different	folder, enter it below or click "Browse".
Eolder:	
C:\Program Files\Microchip\PICkit 2 v2\	Biowse
	Disk Cost
Install PICkit 2 v2.61 for yourself, or for anyone who uses	this computer:
4 Just me	1
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PICkit 2 v2.61		
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• Click on next ->Exit

PICKIT2 PROGRAMMER APPLICATION

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0055									

Check communication

Check Communication . Verifies USB communication with the PICkit 2 and ICSP communication with a target device by attempting to identify the connected device by its device ID.



PICkit 2 Pro	ogramme	er - OlHoss							
File Device	Family	Programmer	Tools	View	Help				
Midrange/St	andard Co	nfiguration		Enable C	ode Protect		Ctrl+P	-	
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land (Day)				OSCCAL					
User IDs:	FF FF FI	5.E.F.)		Tarnet V	DD Source				
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0028	SFFF	3FFF .	SEEE	SFFF	SEFF	SFFF	JEFE	SFFF	
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0036	9777	OFFF .	errr	3777	STEF	OFFF	STEF	9777	
0048	SFFF	SFFF	REFE	SFFF	SFFF	STFF	SFFF	STEF	
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30 FF F	T TT TT	TT TT TT	FF FF	FF FF	FF FF FF	FF FF .	I PIC	kit"	2

Setting the VDD

- This will automatically set VDD when external supply is given .
- If there is no external supply

Calibrate VDD & Set Unit ID. Opens a wizard that steps the user through calibrating the PICkit 2 VDD supplied voltage so it is more accurate, and optionally assigning a Unit ID to identify between multiple PICkit 2 devices



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PICKIT2

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Checksum:	OFCF			OSCC/	4L-		BandGap:		
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After setting the VDD

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se Devic	e Family	Programm	er Tools	View	Help				
Midrange/S	tandard Co	nfiguration	1						
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User IDs:	FF FF FF	FF							
Checksum:	OFCF			OSCC/	ÁL:	į	BandGap:		
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Load the hex file

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an reaction in						P.	nation maps		
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0028	3FFF	SFFF	SFFF	SFFF	SFFF	SFFF	SEFE	SFFF	
0030	3FFF	SEFE	SFFF	SFFF	SFFF	SFFF	SFFF	SFFF	
0038	3FFF	3FFF	SFEF	3FFF	SEFE	3FFF	SFFF	SEFE	
0040	3FFF	3FFF	SFFF	3FFF	3FFF	3FFF	3FFF	SFFF	
2222	3FFF	3FFF	SFFF	3FFF	3FFF	SEFE	3FFF	SFFF	
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0048 0050 0058 EEPRON ✓ Enable 00 FF 10 FF 20 FF	3FFF 3FFF Data d Hex Or FF FF FF FF FF FF	SFFF SFFF W FFFFFFFF FFFFFFF	3FFF 3FFF TF FF FF TF FF FF	SFFF SFFF FF FF F FF FF F	STEF SEFF TEFFFF TEFFFF	SFFF SFFF FF FF	3FFF Au + Be	3FFF to Import H Write Devi ad Device port Hex F	tex ce



PICK		rog	Irali	ime	r - u	Almo	55									-					111
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÷	Exit			Ctr	i+q		1														
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00	20		3FF	F	31	FF		3FF	F	31	FFF		3FF	F	33	FF		3FFF	f 3	3FFF	
00	28		3FF	F	32	FF		3FF	Ε	31	FFF		3FF	F	33	FF		3FFF	t s	SFFF	
00	30		3FF	F	32	FF		3FF	F	33	FFF		3FF	F	31	FF		3FFF	6 - S	3FFF	
00	38		3FF	F	31	FF		3FF	F	31	FFF		3FF	F	33	FF		3FFF	6	3FFF	
00	40		3FF	F	32	FF		3FF	F	33	FFF		3FF	F	32	TF		3FFF		3FFF	
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• Click on open



User IUs:		977A		Config	<u>aration:</u> 2F	4E			
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lex file suc	essfully	/ importe	d.			5	Mic	ROCH	HIF
Read	Write	Verify	Erase	9 Bi	ank Check		D Target Check /MCLR	5.0	1
Program Me	Hex On	v 💌	Source:	D:\inkir	g LED PIC	Hi-Tech C	burn it.hex	e e	
0000	120A	118A	2FCF	3FFF	3FFF	3FFF	3FFF	3FFF	
8000	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	-
0010	3FFF	3FFF	SFFF	3FFF	3FFF	3FFF	SFFF	SFFF	
0018	SFFF	3FFF	SFFF	3FFF	3FFF	3FFF	3FFF	SFFF	
0020	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	
0028	3FFF	3FFF	SFFF	3FFF	3FFF	SFFF	3FFF	SFFF	
0030	3FFF	3FFF	SFFF	SFFF	SFFF	SFFF	SFFF	SFFF	
00.20	SFFF	3FFF	SEFF	3FFF	SFFF	SEFF	SEEF	SFFF	
0035	OFFE	3222							
0038	3FFF	3FFF	SELL	SFFF	3555	STEF	3222	3222	
0040 0048 0050	3FFF 3FFF	3FFF 3FFF	3FFF 3FFF	3FFF 3FFF 3FFF	3FFF 3FFF	3FFF	SFFF	3FFF 3FFF	

• Click on Write



PICkit 2 P	rogramme	er - OiHos	5		1				
ile Devic	e Family	Programm	er Tools	View	Help				
Midrange/S	Standard Co	nfiguration							
Device;	PIC16F	877A		Config	uration: 2	F4E			
User IDs:	FF FF FF	F FF							
Checksum:	F1D0			OSCC/	AL-	l	BandGap :		
rogramn	ning Suc	cessful.					Mic	ROCI	HIP
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Program	Memory					_			
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0020	3FFF	3FFF	3FFF	3FFF	SFFF	3FFF	3FFF	3FFF	
0028	3FFF	3FFF	SEEE	3FFF	SFFF	SFFF	3FFF	3FFF	
0030	3FFF	3FFF	SFFF	SFFF	3FFF	SFFF	3FFF	SFFF	
0038	SFFF	3FFF	3FFF	3FFF	3FFF	SFFF	3FFF	3FFF	
0040	3FFF	3FFF	SFFF	3FFF	3FFF	3FFF	3FFF	SFFF	
0048	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	
0050	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	
0058	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	SEEE	3FFF	-
CODON	Data								
Enabled	Hex On	ly 💌					Au +1	to import i Write Devi	-lex ce
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20 11							PI	Ckit"	2
20 22									

To erase the memory

Click on erase

The Blank Check function will read the entire device to determine if Program Memory, EEPROM Data memory, User IDs and Configuration bits are erased.



USING MPLAB

- 1) Open MPLAB
- 2) Create a folder in any drive.







SELECT DEVICE

Project Wizard		
Step One: Select a device		^{ال} *
	Pictors77A	
	< <u>B</u> ack Next > Cancel	Help

SELECT LANGUAGE SUITE

Active Toolsuite	HI-TECH Universal ToolSuite	~
Toolsuite Conter	B Knudsen Data CC5X B Knudsen Data CC5X B Knudsen Data CC8E Byte Craft Assembler & C Compiler CCS C Compiler for PIC10/12/14/16/18/24/dsPIC30/ds HI-TECH Universal ToolSute	PIC33
Location	IAR PIC18 IAR Systems Midrange Microchip MPASM Toolsuite	1
C:\Program File:	ations in project	Browse



CREATE NEW PROJECT

Project Wizard	
Step Three: Create a new project, or reconfigure the active project?	<u>تو</u> ر ^ا
Create New Project File	Browse
Reconfigure Active Project Make changes without saving	
Save changes to existing project file Save changes to another project file	Browse
< Back Next >	Cancel Help

ADD FILES

Save Projec	t As	2 🛛		
Save in: 🙆	piccontrol	- O 🕫 E	🤊 🛄 -	
icd.mcp				
Ele came:	(L-412)			
nie Laine.			Zave	
Save as type:	MPLAB IDE Project Files (*.mcp)	~	Cancel	
Jump to:	C:\Documents and Settings\anita\	Desktop\ 💌		



oject Wizard 🛛 🛛 🔀
Step Three: Create a new project, or reconfigure the active project?
Create New Project File
C:\Documents and Settings\anita\Desktop\piccontrol\lcd12 Browse
Reconfigure Active Project Make changes without saving
Save changes to existing project file
Save changes to another project Ne Browse
< <u>Back</u> <u>N</u> ext> Cancel Help
Step Four: Add existing files to your project
piccontrol Add >> Add >> Icd.as Icd.cof Icd.cof
icd.dep icd.hex icd.hud icd.ist icd.ist
lcd.mcp ⊡ lcd.mcs ✓
< Back Next > Cancel Help



PROJECT WIZARD SUMMARY

Project Wizard		
33	Summary	
SE	Click 'Finish' to create/configure the project with these parameters.	
10/0	Project Parameters	Υ.
CONT -	Device: PIC16F877A	
· 8 150	Toolsuite: HI-TECH Universal ToolSuite	
1 (a)	File: C:\Documents and Settings\anita\Desktop\piccontrol\lcd12.mcp	
	A new workspace will be created, and the new project added to that workspace.	
	<a>Back Finish Cancel Help	
Ele Edit View Project Debugg	ar Programmer Iools Configure Window Help	🌇 🚯 🗮 💻 📔 Ch
Icd12.mcw		
E Cd12.mcp	Build Version Control	Find in Files
Header Files Object Files Library Files Other Files		
Files Symbols		



Write the Program





Save the program in respective folder

Save As				? 🛛
Save in: 🔯	piccontrol	G	1	🕑 🖽 •
Icd.as				
File name:	lod12.c			Save
Save as type:	All Source Files (*.c;*.h;*.asm;*.as;*.inc;*.s;*.bas)		~	Cancel
Jump to:	C:\Documents and Settings\anita\Desktop\piccontrol\		~	
Encoding:	ANSI			
	Add File To Project			



Add file

Contraction of the second seco		
File Edit View Project Debugger Programmer	Tools Configure Window Help	2
0000	🖡 🔋 🛛 Debug 💌 🖬	📽 🖬 🖗 🗠 🚺
🗖 lcd12.mcw		
	Build V	ersion Control Find in Files
Files Symbols		



Select the .c file

Add Files to	o Project	? 🛛
Look in:	piccontrol	💌 G 🕼 🕩 🖽 •
Icd12.c	be: C File te Modified: 9/30/2014 4:56 PM e: 864 bytes	
File name:		Open
Files of type:	Source (*.c;*.as)	Cancel
Jump to:	C:\Documents and Settings\anita\Desktop\piccontrol\	~
O User: Fi O System	ie(s) were created especially for this project, use relative path File(s) are external to project, use absolute path	2 💌
Look in: ն	piccontrol	
E Icdi2.c Icd.as E Icd.c startup.as		
File name:	led12.c	Open
Files of type:	Source (*.c;*.as)	Cancel
Jump to:	C:\Documents and Settings\anita\Desktop\piccontrol\	~
Remember Auto: Le	per this setting It MPLAB IDE guess	
O User: Fil O System:	e(s) were created especially for this project, use relative path File(s) are external to project, use absolute path	



😽 lcd12 - MPLAB IDE v8.92	2 - led12.mew				
File Edit View Project Debug	gger Programmer Tools	Configure Wind	ow Help		112
0 📽 🖬 🕺 🐂 📾 🗍	应共动源局	8 Debug	🕑 🗗 📽 🖬 🖡	🖟 🙃 🛈 📃 I	
100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100					
Icd12.mcw		-			
🖃 🛄 lcd12.mcp*	f		Output		
🖨 🧮 Source Files		B	uild Version Contro	Find in Files	
led12.c					
Object Files					
Library Files					
Other Files					
Files Symbols					

CONFIGURATION BIT SETTINGS





😽 lcd12 - MPLAE	8 IDE v8.92 -	[Configuratio	n Bits]			
File Edit View	Project Deb	ugger Programn	rer Tools Configure V	Vindovi Help		
	46	5 M a J	III. 💡 Debug	• d & 2 & a 0 2	Checksum: 0x0fcf	
	🛛 Configuratio	n Bits set in code	19			
Address	Value	Field	Category		Setting	
2001	JIII	NDIE FWRIE BOREN LVP CPD WRI CP	Watchdog Timer Power-up Timer Brown-out Reser Low-Voltage (S. Data EEFROM Mer Flash Program 1 Flash Program 1	I WDT enabled I FNRT disabled t BOR enabled i RB3/PGM pin has PGM fun n Data EEFROM code protec & Write protection off; a & Code protection off	ction; low-voltage programming tion off 11 program memory may be writt	g enabled Sen to by EECON control
lcd12 - MPLAB	IDE v8.92 - [Configuration I	Sits]			
File Edit View	Project Debug	ger Programmer	Tools Configure Windo	w Help		
0203	4 6 4	A # # #	P Debug	d # 9 8 8 8 9 8 5	Checksum: 0x0fcf	
]	Configuration	Bits set in code.				
Address	Value	Field	Category		Setting	
2007	SEFF	FOSC	Decillator Sele g	C oscillator		
		NDTE 1	latchdog Timer (w	DI EURDIEU		
		FWRIE	Power-up Timer Pi	WRT disabled		
		BOREN B	Brown-out Reset B(DR enabled		
		LVP 1	low-Voltage (Si:RB	33/FGM pin has FGM function	; low-voltage programming enabl	ed
		CPD I	Data EEPROM Mem De	ata EEPROM code protection	off	
		WRT 1	Tlash Frogram NW Wi	rite protection off; all pr	ogram memory may be written to	by EECON control
		CP I	flash Program № C	de protection off		



	Contracesto	n Bits set in code			
Address	Value	Field	Category	Setting	
		NDTE FWRTE BOREN LVP	Natohdog Timer Power-up Timer Brown-out Reset Low-Voltage (Si	NDT enabled FNRT disabled BOR enabled RB3/FGM pin has FGM functions low-voltage programming enabled	*
		CPD MRI CP	Data EEFROM Nem Flash Program N Flash Program N	RE3/PCM pin has FCM functions low-voltage programming enabled RE3 is digital 1/0, KV on MCLR must be used for programming code procession off	

SELECT DEVICE DIALOG

MPLAB IDE v7.62.07		
File Edit View Project Debugger Programmer Tools	Configure Window Help	
D 😂 🖬 🔌 🐂 🙉 🛛 🖽 🗰 😵 📗	Select Device Configuration Bits External Memory ID Memory	Checksum: 0x26ff
Output	Settings	
Build Version Control Find in Files		
Files Symbols		
PIC16F887		1 1 N 8



Choosing the pick kit 2 IC (16F877A)

- ALL	
and the second s	
Microchip Tool	Support
MPLAB REAL IC	E 🥝 PICkit 1
MPLAB ICD 2	O PICkit 2
O MPLAB ICD 3	O PICkit 3
ools	
COMPILER v9.60	VDI
MPLAB ICD 2	O PICkit 2
MPLAB ICD 3	O PICkit 3
MPLAB ICE	4000 ICE/ICD Headers
No Module	No Header
	l. k
	(C) (C)
	MPLAB REAL IC MPLAB ICD 2 MPLAB ICD 3 OOIS COMPILER v9.60 MPLAB ICD 2 MPLAB ICD 2 MPLAB ICD 3 MPLAB ICD 3 MPLAB ICD 3 MPLAB ICD 3



Selecting PICkit 2 as the Debug Tool



Load the program on to pickit2





ICSP(In Circuit Serial Programming)

Pin 1: Ground

Pin 2: VCC

Pin 3: MCLR

Pin 4:PGC

Pin 5:PGD





NOTE:Connect Red strip to PGD





ICSP is a technique where programmable device is programmed after device is placed in the circuit board



ICSP CONNECTION WITH DEVELOPMENT BOARD

