

## QL120\_A3 Universal programming adapter user guide

QL120\_A3 is the new generation PIC universal programming adapter which have been improved on the basis of the old QL120 adapter. And this adapter can support all PIC which is powered by 5V and have 40 or less than 40 pins through connecting ICD2/PICKIT2 or others.

### 1. for DIP device:

this product's ZIF lock socket adopted the all-open design, when use it, please use the dubond line to connect J5 and J6 according to the following chip list and the first pin of chip is respondent with the first pin of lock socket near the hand position.

### 2. for SMD device:

**When no smd to dip socket:** there are nine position on the right of the adapter which can used for programming device through the mode of pressing with your hand. And this mode is no use of dubond line but is unsuitable for programming a big amount.

**When have the smd to dip socket:** Put the socket on the ZIF lock socket to program and the method is the same with dip. (it is needed by dubond lines connect).

### 3. for the chip that use internal crystal and internal reset through ICD2/MCD2:

The jumper S1 is used to select powering on VPP before VDD, and it is OFF in the normal and only the chip that use internal crystal and internal reset can set S1 to be ON.

### 4. for interface:

the J1 and J2 are the input interface of programming, which connect MCD2/ICD2/QL2006/QL-PIC280 or others have ICSP interface. (need to connect J1 or J2 anyone when using)

the J3 and J4 are the output interface which connect the external user board. And it is convenient to program the chip on the user board (you can power VPP before VDD through this adapter, and let the ICD2/MCD2 program the chip internal crystal and internal reset repeatedly.) (need to connect J1 or J2 anyone when using)

### 5. for the LED1 on the adapter:

it is the indicator of user board power and it will not be lighted until the ICD2/MCD2 have been built the normal communication with the computer and afford the 5v voltage for the adapter.

### 6. for the flow of programming:

1. build up the hardware connection (MCD2/ICD2 connect to the computer through USB/RS232 and afford the MCD2/ICD2 by external 9v. and connect the adaptor to the MCD2/ICD2 using the telephone line)
2. delay several seconds and start the software of MPLAB IDE
3. select the menu "Configure → Select Device"
4. load the hex file through "File → Import" or build a new project and load the source code to compile.  
Note: view the hex loaded, use: View → Program Memory → Opcode Hex
5. Set the configuration through "Configure → Configuration Bits"
6. select the program tools as MPLAB ICD2 (Programmer → Select Programmer → 2. MPLAB ICD2)
7. set the parameters of ICD2/MCD2 through "Programmer → Settings → Power", spatially select Power target circuit.  
And select the correspond port through "Communication" and select the application now and exit the setup.
8. connect J5 and J6 through the dubond line and setup the position of J1 jumper.
9. put the chip onto the ZIF LOCK socket and perform the "Programmer → Connect, if it is ok, then continue the next step;
10. Programmer → Programmer to begin the process of programming
11. if it is ok, change another chip to perform again Programmer → Programmer and repeat perform this step until all the chip finished.

### Appendix: the chip responding programming pins list:

Chips	pin function	VPP	VDD	GND	PGD	PGC
PIC16/18XX 40PIN Series (Except 16F59)		1	11、32	12、31	40	39
PIC16/18XX 28PIN Series (Except 16F57)		1	32	8、31	40	39
PIC16/18XX 18PIN Series		4	36	5	35	34
PIC 8PIN/14PIN/20PIN Series (Except 10FXX)		4	1	40	39	38
PIC10FXXX Series		40	2	39	37	4
PIC16F57		40	2	4	29	28
PIC16F59		14	15、35	5、25	13	12
DsPIC30FXX 18PIN Series		1	36、40	35、39	33	34
DsPIC30FXX 28PIN Series		1	13、32、40	8、31、39	29	30
DsPIC30FXX 40PIN Series		1	11、21、32、40	12、20、31、39	25	26

For more chip programming pin info, please read the datasheet of chips. Thanks a lot!