

# HOW TO COPY A PIC

If you are using the EPROM+ programming system to duplicate or copy PIC microcontrollers please read this sheet as it lists the required steps plus any special considerations.

All members of the PIC microcontroller family have two parts which must be copied for the device to function properly. The two parts are the memory array and the configuration fuses. The memory array is where the program for the part resides while the configuration fuses set specific features such as oscillator type, watchdog timer and code protect. There is a sheet which accompanies the PIC adapter which identifies the configuration fuses and their settings. **NOTE:** If the CODE PROTECT bit is set (0), you cannot read valid data from the PIC program memory and the device cannot be duplicated.

Before you insert your PIC, connect the programming unit to your computer, install the PIC adapter in the programming unit (fully left justified in the 32 pin socket), connect the AC power pack and start the program. These steps are listed in detail in the system manual.

1. After the EPROM+ is connected and the program is running, choose the part number with which you are working from the device selection table.
2. Install your master PIC into the adapter. PIC16C54 and PIC16C56 parts are placed in the far right hand side of the 48 pin socket (see PIC adapter addendum). Open the handle on the adapter to release the socket pins, insert the part then close the handle to lock the part in place.
3. Select Command 3 (Read device into buffer) and answer "Y"es to read the part starting at address 0. This will read the PIC memory array into the buffer.
4. Select Command Z (Device Options) and choose "R"ead configuration fuses. This will read the configuration fuses into the system. Note that the EPROM+ places the fuse data one byte past the memory array in the buffer.
5. You are now ready to program a blank part. Remove your master PIC from the adapter and insert a blank.
6. Select Command 2 (Program device from buffer) and answer "Y"es. The EPROM+ will first verify that your new PIC is blank, it will then program the memory array and verify that the memory array programmed properly. Following this it will program the configuration fuses if any of the fuses were set to 0. Note if all configuration fuses are set to 1, the system will not program the fuses as this is how unprogrammed fuses are already set.
7. After the configuration fuses are programmed, you may remove the part from the adapter. It has been successfully programmed.

If you wish, you may save the master PIC data and configuration fuses to a file. Use Command A to save the buffer from 0 to 400 for a 16C54 or 0 to 800 for a 16C56. After you have saved the data to a file. Use Command 4, option 1 to load your file into the buffer, then use Command 2 to begin making PICs as described above. To fully understand how to operate the EPROM+, please read the manual as it describes all features and commands.