

# CHIP FACTORY FAQ

## What is the latest Chip Factory firmware / software version?

The new re-programmable 18 pin 16F819 and the 8 pin 12F629 (85p each in quantity) can be used on either the original red colour Chip Factory or the current black Chip Factory Pro. However as these microcontrollers have a new programming protocol, the Chip Factory may need upgrading to firmware version 7.7 by updating the microcontroller inside the unit (5 minute task). The firmware version is displayed on the LCD screen when the Chip Factory is powered.

- Programmer (v7.7) - purchase and fit upgraded firmware, part CHI010R (red) or CHI010B (black).
- Software (v7.0.0) - site license holders can download free upgrade from [www.rev-ed.co.uk](http://www.rev-ed.co.uk)
- Manual (v7) - download free from [www.rev-ed.co.uk](http://www.rev-ed.co.uk)

## Do I need to upgrade from v6.6?

If your programmer firmware is v6.6 you should download the version 7 software. The software includes a EEPROM patch feature that will enable you to upgrade your firmware from 6.6 to 6.7. This will enable use of the 16F819 & 12F629 via the software, and the 12F629 via standalone mode. However to use the 16F819 standalone you still need to buy firmware upgrade v7.7

PIC Chip	Mode	In/Out	Price (approx.)	Firmware Version	Software Version	Notes
PIC16F84A	18	4 inputs 8 outputs	£2.45	1.1	1.0.0	obsolete, use PIC16F627
PIC16F872	28	8 in + 4 ADC 8 outputs	£2.95	3.3	3.0.0	Chip Factory Pro only
PIC16F627	18L	4 in + 2 ADC 8 outputs	£1.85	4.4	4.0.0	low res. analogue
PIC12F629	8	2 inputs 4 outputs	£0.85	6.6	6.0.0	8 pin
PIC16F819	18A	4 in + 2 ADC 8 outputs	£2.45	7.7	7.0.0	high res. analogue

## Which 18 pin chip should I use?

If you do not need high resolution analogue inputs, use the 16F627 as it is the cheapest option. If you need high resolution analogue use the 16F819. The 16F84A is now considered obsolete as it is expensive and does not have an internal resonator. Any circuit or PCB designed for the 16F84A will work with either the 16F627 or 16F819.

## Can I always use the 16F627 (or 16F819) instead of the 16F84A?

Yes, it can be used as a drop in replacement in every case. The only two points to consider are:

- The 16F627/819 has an internal resonator, which releases pins 15 and 16 for the extra digital inputs 6 and 7. However if your PCB already has a resonator fitted this is not a problem, the resonator can be left in place as long as your program does not refer to these new inputs.
- The 16F627/819 configures inputs 0 and 1 as analogue inputs A and B. However these inputs can still be used with digital switches as with the 16F84A, just use the command 'if A > 100' rather than 'if 0 on' within the program.

## Why must I buy a firmware upgrade?

### Why does the new 16F819 program much quicker than the other types?

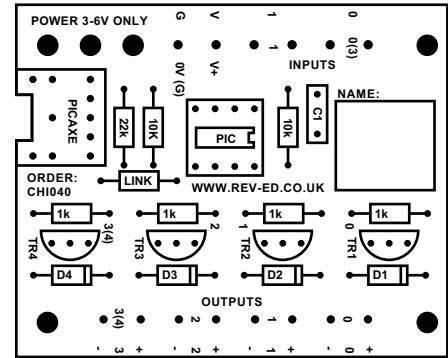
Microchip, manufacturers of the PIC microcontrollers, constantly develop their PIC technology. This reduces the cost of the microcontrollers and increases their features, which is of huge benefit to educational users. As new chips are released, their programming protocols are altered and enhanced. The Chip Factory needs revising when these new chips are released to incorporate these new programming protocols. The 8pin 12F629 has a unique new protocol, and the 16F819 is the latest release 18 pin PIC which has a new rapid programming protocol that programs 4 bytes at a time (instead of one byte at a time). This means it programs approximately four times faster than the other types.

### Why does my 8 pin 12F629 fail to program when in the Chip Factory?

Ensure you are inserting the 8 pin chip at the BOTTOM of the black Chip Factory Pro socket as marked on the programmer (top of older red programmers). Make sure you have written your program in 8 pin mode (mode '8'). Also ensure the software is version 6 or 7, and the firmware version 6.6 or 7.7.

### Why is my 8 pin 12F629 getting warm after it has been working for a while?

The maximum voltage for the PIC12F629 is 5.5V, it should not be used with a 4xAA battery box (which gives 6V). We recommend a 4.5V battery pack. A 6V pack could be used in series with a N4001 diode, as the diode will drop 0.7V.



### How can I test 8 pin programs, is there a demo board available?

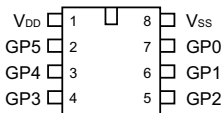
We recommend use of the AXE101 Cyberpet project PCB (fitted with an 8 pin LIF socket, part CON033). This will provide similar features to the 18 pin demo board (LED and piezo outputs, switch inputs).

### Do you provide an 8 pin project board like the 18 pin boards?

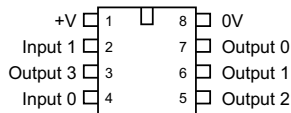
Yes, we provide a self assembly 8 pin project board, part CHI040. This provides two inputs and four transistor driven outputs for the 8 pin 12F629. If desired you can fit it with an 8 pin LIF socket (CON033).

### What are the chip pinouts?

PIC12F629



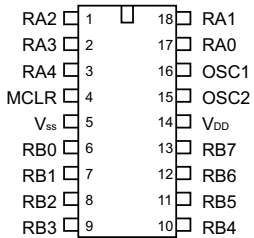
PIC12F629



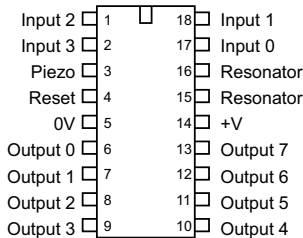
### How do I use the beep command on the 8 pin chip?

The beep command acts on output 2 (leg 5), rather than a dedicated 'piezo' leg as with the 18 and 28 pin PIC.

PIC16F84A



PIC16F84A

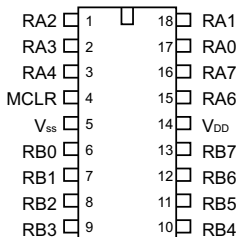


### Do you provide any sample 12F629 projects?

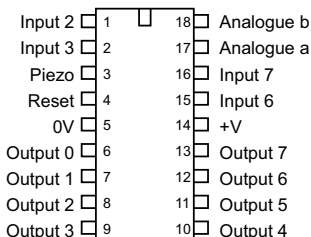
Yes, there are four sample KS3 projects, with complete student notes, for the 8 pin microcontroller. Full kits, including PCB and 16F629 chip, cost under £3 each in volume.

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|--------|-----------------|
| AXE101 | Cyberpet        |
| AXE102 | Alarm           |
| AXE103 | Safety Light    |
| AXE105 | Electronic Dice |

PIC16F627

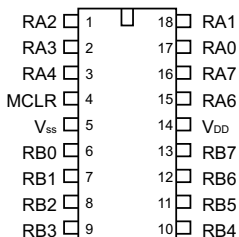


PIC16F627

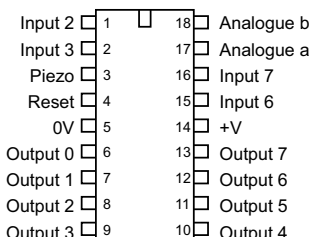


(16F872 is only supported by Chip Factory Pro)

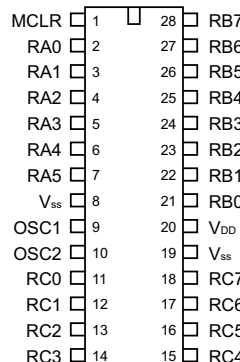
PIC16F819



PIC16F819



PIC16F872



PIC16F872

