

## PIC demo kit with PIC16F1827-I/P

**Demonstration • Development • Building Block**

Features:-

Open source example programs in Microchip XC8 C, HITECH C and Assembler

2 line x 16 character backlit LCD

I<sup>2</sup>C temperature sensor

RS232 interface

Variable voltage source for analogue input stimulation 5V

regulator for use with PicKit3 or stand alone operation

Expansion bus

Program with the PicKit2, or Program and Debug with the PicKit3 & MPLAB

PCB can mount on back of display with straight display connectors and nuts/bolts/spacers



Zoom in on this document for more image detail

We include open source example programs in Microchip XC8 C and HITECH C (downloadable) which display the temperature, an 8 bit ADC value, a running loop count and outputs the temperature to the serial port. This includes C functions for I<sup>2</sup> C, LCD, serial port TX and ADC input.

Other examples include MPASM serial port TX/RX and fuse configuration.

**Use this kit** to experiment with 18 pin PIC microcontrollers (PIC16F1827 included), learn C or assembly language programming, **Develop** and test your own ideas and projects.

**Use the kit** as a low cost **Building Block** for your own projects, the PCB can mount on the back of display with straight display connectors and 4 x nuts/bolts/spacers, the kit is also available in this form.



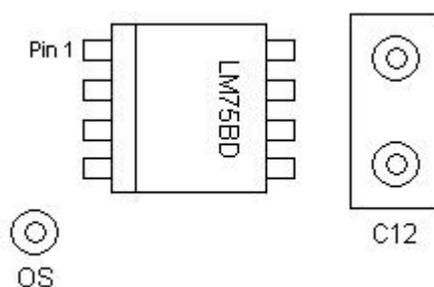
**If you are a beginner** you will need to download MPLABX and the FREE XC8 C compiler from Microchip and also purchase a PicKit2 or PicKit3 programmer (other programmers can be used but the programming connector is pinned for the PicKit). You will also need to follow the instructions, guides and examples available from Microchip and other online sources.

**Note** that the PicKit2 programmer can power this demo board and program the PIC16F1827 in-circuit using the software supplied with the PicKit2 (an update may be required), the PicKit3 uses MPLAB to program and debug the PIC16F1827 but does not provide power to the board, you need to supply 8 to 15V DC at 10mA with no back light enabled, or 12 to 15V DC at 100mA with the backlight enabled.

**In-circuit Debug** uses PIC port pins RB6 and RB7, therefore if you wish to use in-circuit debug and the LCD display at the same time, the RS pin of the display which is normally jumpered to RB6, will need feeding from a different pin of the PIC, for example RB0. The '#define LCD\_RS' in the file lcd.c would then need changing from RB6 to RB0 in this example.

### Assembly

The first component to fit when assembling the kit is the temperature sensor IC4, please see the following drawing for orientation of this IC, please take care not to overheat this IC (you do not need to fit this IC if temperature sensing is not required).



Follow by fitting the 10K resistors, diode, right angle LCD socket (LC1), 100nf capacitors, IC2, socket for IC1, crystal, 33pf caps, 1uf caps, pin headers, IC3, VR1 & 2 and then the rest of the parts.

The idea is to fit the components in order of height making it easier to turn the board over for soldering.

The kit can be assembled with 60/40 tin/lead or lead free solder.

#### List of components included in the kit

IC1	PIC16F1827-I/P (programmed with example code)
IC2	HIN232CPZ
IC3	78L05
IC4	LM75BD
D1	1N4148
XT1	4MHz Crystal with Insulator pad
R1, R3, 4, 5	10K
R2	220R 0.5 Watt
VR1	10K variable
VR2	20K variable
C1, 7, 9, 10	1uF Tantalum
C2, 3	33pf
C4, 5, 6, 8, 11, 12	100nF X7R
CN1, 4, 5, 6, 7, 9, 10, 12, 13	2 Pins
CN2	6 pin right angle
CN3	9 pin D socket
CN8	2 way Terminal block
CN11	10 pins
CN14	not fitted (tracked out)
LC1	16 way right angle socket for LCD

2 Line x 16 Character LCD display with  
backlight cstech.co.uk PIC Demo PCB Issue A  
18 pin (turned pin) IC socket for IC1  
16 pin right angle connector for LCD  
9 x Jumpers



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