DIY KIT 75. PIC TRAINER

This kit teaches you how to use a microcontroller (uC) for measuring temperature (in either degrees F or deg C), humidity, as a counter, as a timer and for analog to digital conversion. The code to support all these functions is contained within the one programmed uC. The kit uses three plug-in units to a motherboard which has an 2x16 LCD on-board

Assembly

Construct the motherboard first. Solder the **short** pins of the 16 pin header strip into pins 1-16 of the LCD. (Pins 15 & 16 are for backlighting which is not used in this circuit.) Second, make sure that the 78L05 voltage regulator does not sit more than 1/2" (12mm) above the surface of the board. The LCD sits directly above the mother board attached by the 16-pin socket. Make sure to get the preprogrammed PIC IC into the 18pin IC socket around the right way. Just follow the overlay to mount the other components. You can thread the 9V wires through the hole provided from the back to provide some strain relief.

On the 75B Analog/Digital Board there are 4 trimpots to mount plus one right-angled 10 pin male header.

The 75C Switch Board has three Zippy tact switches, 3 resistors, one SPDT switch & the connector header.

On the 75D Temp/Humidity board the humidity sensor can go either way around. The DS1620 temperature chip is mounted in the 8 pin IC socket.

When power is connected and no board is attached then '**DIY ELECTRONICS'** should show on the top line of the display. If nothing appears then adjust the trimpot on the motherboard to get the display contrast right. Plug in a daughter board & hit reset. The function of the daughter board will be automatically detected.

Discussion

The source code for Kit 75 can be downloaded from

http://www.kitsrus.com/zip/k75_c711.zip

Alot of code has been squeezed into the PIC16C711-04/P. This has been at the expense of resolution. However, the aim of the kit is to show you the source code and how to marry separate projects together. You can, of course, design your own projects to use the LCD/motherboard display.

Photos of the project can be downloaded from

http://www.kitsrus.com/jpg/k75_1.jpg
http://www.kitsrus.com/jpg/k75_2.jpg
http://www.kitsrus.com/jpg/k75_3.jpg
http://www.kitsrus.com/jpg/k75_4.jpg

KIT 75 COMPONENTS LISTING

K75 Motherboard:

10K 5% resistors		2
104 0.1uF .1"p monoblok		1
1N4004 diode		1
78L05		1
Zippy tact switch		1
100uF/16V mini ecap		1
Programmed PIC 16C711-04/P		1
4.19MHz 3 pin ceramic resonator		1
18 pin IC socket		1
9V battery snap		1
16x2 LCD display, no backlight		1
10K 103 trimpot		1
16 pin male socket for LCD		1
16 pin female socket for LCD		1
10 pin R/A female socket		1
Kit 75A PCB		1

K75B Analog-to-Digital Board:

10K Koa trimpot		4
10 pin R/A male socket		1
Kit75B PCB		1

K75C Counter/Timer Board:

10K 5% resistor		3
Zippy tact switch		3
SPDT PCB-mounted switch		1
10 pin R/A male socket		1
Kit75C PCB		1

K75D Temperature/Humidity Board:

104 .1uF .1"p monoblok		1
10K 5% resistor	R1	1
27K	R3	1
220R	R2	1
DS1620	IC1	1
Humidity Sensor, Scimarec HS15P		1
8 pin IC socket		1
10 pin R/A male socket		1
Kit75D PCB		1

The data sheet for the PIC16C711 can be downloaded from **www.microchip.com**

The data sheet for the Dallas DS1620 can be downloaded from **www.dalsemi.com**

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