F LASH L AB

Flash Lab is a PC104 style Pic micro controller development system consisting of a main micro controller board with RS232 connectivity and stackable prototyping boards. Included is the Mecanique Microcode Loader software and bootloader firmware in the onboard Pic. This means that no hardware programmer is needed to programme the Pic, only a serial connection to a PC and a standard *.hex file produced by virtually any compiler or assembler.
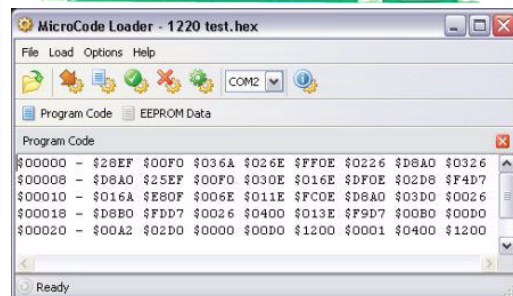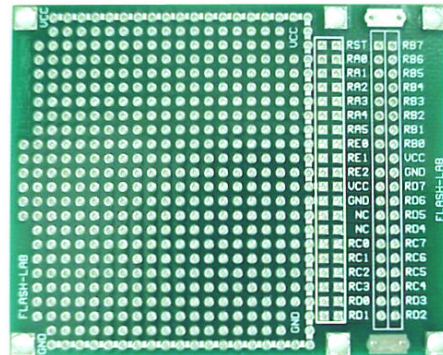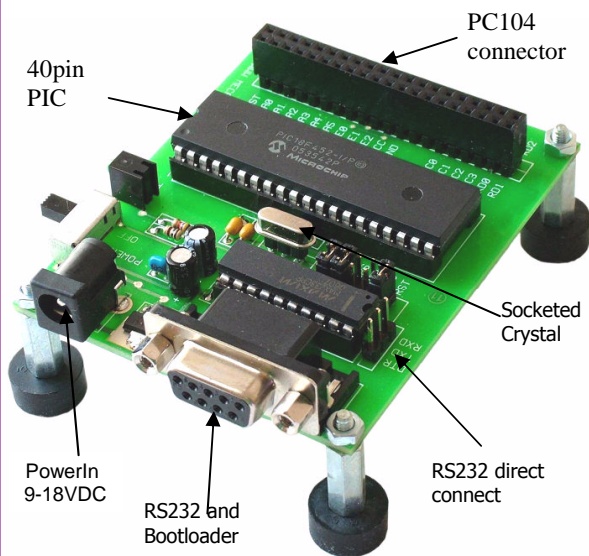
Features include:

♦ Bootloader programming (no hardware programmer required)
♦ 16F877A, 18F452 or 18F4455 pic (**other pics available on request)
♦ RS232 connector for boot -loading and serial comms
♦ DTR, RX and TX separately available
♦ Onboard 5V regulator
♦ Socketed 20MHz crystal
♦ 40 pin PC104 stack through gold plated connections
♦ Microcode Loader software/firmware and all documentation on CD

All I/O lines, PIC functions, 5V supply and reset line connect to the PC104 connector and thus are passed through to stacked prototype boards. Prototyping boards connect by stacking and picking up the PC104 connections. Spacers, nuts and screws are included to enable a compact and solid assembly to be constructed which can be used as a finished project if so required. Prototype circuits can be saved intact to be used again, thus saving repetitive wiring work for future projects, the same main board being used to develop many projects.

The RS232 connection not only allows bootloading but also integration with a PC based system further enhancing design possibilities.

The Flash Lab main board is assembled utilising quality components including an optional 40 pin pic chip with bootloader, requiring only the end user's programme and custom circuitry constructed on a stackable protoboard. Ideal for development, it can also be utilised as part of a finished system and is also an ideal low -cost replacement for PLC modules.

All software and documentation is provided on CD.

40 pin PIC

PC104 connector

Power In 9-18VDC

RS232 and Bootloader

Socketed Crystal

RS232 direct connect

DC supply voltage range	9-18VDC (2.1mm*5.5mm centre +ve)
PIC	16F877A, 18F452, 18F4455**
Socketed crystal	20MHz supplied
Dimensions	65x80mms (stacked board height 16mms)
RoHS	Yes

XTAL Socket

vcc

R1
4K7

R2
100R

	40 PIN PIC MICROCONTROLLER
13	OSC1/CLKI
1	MCLR/VPP
2	RA0/AN0
3	RA1/AN1
4	RA2/AN2/VREF-
5	RA3/AN3/VREF+
6	RA4/T0CKI
7	RA5/AN4/SS/LVDIN
14	RA6/OSC2/CLKO
33	RB0/INT0
34	RB1/INT1
35	RB2/INT2
36	RB3/CCP2B
37	RB4
38	RB5/PGM
39	RB6/PGC
40	RB7/PGD

RC0/T1OSO/T1CKI 15
RC1/T1OSI/CCP2A 16
RC2/CCP1 17
RC3/SCK/SCL 18
RC4/SDI/SDA 23
RC5/SDO 24
RC6/TX/CK 25
RC7/RX/DT 26

RD0/PSP0 19
RD1/PSP1 20
RD2/PSP2 21
RD3/PSP3 22
RD4/PSP4 27
RD5/PSP5 28
RD6/PSP6 29
RD7/PSP7 30

RE0/RD/AN5 8
RE1/WR/AN6 9
RE2/CS/AN7 10

OSC1
OSC2

C2 22pF
C1 22pF

Remove C1 & C2 if a 3 terminal resonator is used

PIN CONFIGURATIONS MAY VARY DEPENDING ON PIC USED

Direct RS232 port access

	MAX233	
6	Gnd	Gnd	9
16	C2-	V-	17
10	C2-	V-	12
15	C2+	C1-	13
11	C2+	C1+	8
19	R2in	R2out	20
4	R1in	R1out	3
18	T2out	T2in	1
5	T1out	T1in	2
14	V+	Vcc	7

Vcc

DB9F
5
9 Reset
4
8 Tx
3
7 Rx
2
6
1

Reset

5X5 HEADER
1 2 RC7
3 4 RC6
5 6 RA4
7 8 RA5
9 10

STACKTHROUGH PC104 40WAY

Reset	1		2	RB7
RA0	3		4	RB6
RA1	5		6	RB5
RA2	7		8	RB4
RA3	9		10	RB3
RA4	11		12	RB2
RA5	13		14	B1
RE0	15		16	RB0
RE1	17		18	Vcc
RE2	19		20	Gnd
Vcc	21		22	RD7
Gnd	23		24	RD6
	25		26	RD5
	27		28	RD4
RC0	29		30	RC7
RC1	31		32	RC6
RC2	33		34	RC5
RC3	35		36	RC4
RD0	37		38	RD3
RD1	39		40	RD2

Power

Centre +ve
1
2
Power Jack

LM340 5V
VI VO
GND

D1 LED

C5 10uF
C7 100nF
C4 10uF
R3 330R
C3 10nF
C6 10nF

Vcc

POWERLITE SYSTEMS   www.powerlite.co.uk

flashlab_main.DSN	Flash Lab main board	
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Artwork:	Customer No:	