```
;
        list p=16c84, f=inhx8m  ;Enter device name
                                ;printed on the probe
                                ;connected to your pod.
        include <P16C84.INC>

FALSE           EQU 0
TRUE            EQU 1
LCD_DATA        EQU PORTB
LCD_DATA_TRIS   EQU TRISB
LCD_CNTL        EQU PORTA
E               EQU 2
RW              EQU 1
RS              EQU 0

TEMP1           EQU H'0030'
Count           EQU H'000C'
Count2          EQU H'000D'
CHAR            EQU H'000E'
TEMP            EQU H'000F'
MSD             EQU H'0010'
LSD             EQU H'0011'
DEBOUNCE        EQU H'0012'


        org 0

        BCF     STATUS, RP0
        CLRF    PORTA
        CLRF    PORTB

        BSF     STATUS, RP0
        MOVLW   B'01000'
        MOVWF   TRISA
        CLRF    TRISB
        BCF     STATUS, RP0


        ; Init LCD

        ; Clear port
        CLRF    LCD_CNTL

        MOVLW   D'150'
        MOVWF   Count2
DLOOP1
        CALL    WAIT_1MS
        DECFSZ  Count2, f
        GOTO    DLOOP1

        MOVLW   B'0010'
        MOVWF   LCD_DATA
        NOP
        NOP
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E

        CALL    WAIT_1MS
        CALL    WAIT_1MS

        MOVLW   B'0010'
        MOVWF   LCD_DATA
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E
```

```
        MOVLW   B'1000'
        MOVWF   LCD_DATA
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E

        CALL    WAIT_1MS
        CALL    WAIT_1MS

        MOVLW   B'00001000'
        CALL    SEND_CMD
        MOVLW   B'00000001'
        CALL    SEND_CMD
        MOVLW   B'00000110'
        CALL    SEND_CMD

        ; BIG E letter
        MOVLW   B'01000000'
        CALL    SEND_CMD
        MOVLW   B'11111'
        CALL    SEND_CHAR
        MOVLW   B'11111'
        CALL    SEND_CHAR
        MOVLW   B'11000'
        CALL    SEND_CHAR
        MOVLW   B'11111'
        CALL    SEND_CHAR
        MOVLW   B'11111'
        CALL    SEND_CHAR
        MOVLW   B'11000'
        CALL    SEND_CHAR
        MOVLW   B'11111'
        CALL    SEND_CHAR
        MOVLW   B'11111'
        CALL    SEND_CHAR

        ;Drawing
        MOVLW   B'00000'
        CALL    SEND_CHAR
        MOVLW   B'00000'
        CALL    SEND_CHAR
        MOVLW   B'01010'
        CALL    SEND_CHAR
        MOVLW   B'00000'
        CALL    SEND_CHAR
        MOVLW   B'00100'
        CALL    SEND_CHAR
        MOVLW   B'00100'
        CALL    SEND_CHAR
        MOVLW   B'10001'
        CALL    SEND_CHAR
        MOVLW   B'01110'
        CALL    SEND_CHAR


        MOVLW   B'10000000'
        CALL    SEND_CMD


        MOVLW   'E'
        CALL    SEND_CHAR
        MOVLW   'r'
        CALL    SEND_CHAR
        MOVLW   'i'
        CALL    SEND_CHAR
```

```
        MOVLW   'c'
        CALL    SEND_CHAR
        MOVLW   B'00100111'
        CALL    SEND_CHAR
        MOVLW   's'
        CALL    SEND_CHAR
        MOVLW   ' '
        CALL    SEND_CHAR
        MOVLW   'L'
        CALL    SEND_CHAR
        MOVLW   'C'
        CALL    SEND_CHAR
        MOVLW   'D'
        CALL    SEND_CHAR

        CLRF    Count

LOOP
        MOVLW   B'11000000'
        CALL    SEND_CMD
        movlw   D'16'
        movwf   DEBOUNCE
LOOPE
        MOVFW   Count
        CALL    SEND_CHAR
        INCF    Count, 1
        DECFSZ  DEBOUNCE, 1
        GOTO    LOOPE

        movlw   D'200'
        movwf   DEBOUNCE
LOOPC
        BTFSC   PORTA, 3
        GOTO    LOOPC
LOOPCA
        decfsz  DEBOUNCE, 1
        GOTO    LOOPCA
        BTFSC   PORTA, 3
        GOTO    LOOPC

        movlw   D'200'
        movwf   DEBOUNCE
LOOPD
        BTFSS   PORTA, 3
        GOTO    LOOPD
LOOPDA
        decfsz  DEBOUNCE, f
        GOTO    LOOPDA
        BTFSS   PORTA, 3
        GOTO LOOPD

        GOTO    LOOP


SEND_CHAR
        MOVWF    CHAR
        CALL     BUSY_CHECK
        SWAPF    CHAR, w
        ANDLW    0x0F
        MOVWF    LCD_DATA
        BCF      LCD_CNTL, RW
        BSF      LCD_CNTL, RS
        BSF      LCD_CNTL, E
        BCF      LCD_CNTL, E
        MOVF     CHAR,W
```

```
        ANDLW   0x0F
        MOVWF   LCD_DATA
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E

        return

SEND_CMD
        MOVWF   CHAR
        CALL    BUSY_CHECK
        SWAPF   CHAR, w
        ANDLW   0x0F
        MOVWF   LCD_DATA
        BCF     LCD_CNTL, RW
        BCF     LCD_CNTL, RS
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E
        MOVF    CHAR, w
        ANDLW   0x0F
        MOVWF   LCD_DATA
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E
        return

BUSY_CHECK
        BSF     STATUS, RP0
        MOVLW   0xFF
        MOVWF   LCD_DATA_TRIS
        BCF     STATUS, RP0
        BCF     LCD_CNTL, RS
        BSF     LCD_CNTL, RW
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E
        SWAPF   LCD_DATA, w
        ANDLW   0x0F
        MOVWF   TEMP
        BSF     LCD_CNTL, E
        BCF     LCD_CNTL, E
        MOVF    LCD_DATA, w
        ANDLW   0x0F
        IORWF   TEMP, f
        BTFSC   TEMP, 7
        GOTO    BUSY_CHECK
        BCF     LCD_CNTL, RW
        BSF     STATUS, RP0
        MOVLW   0x00
        MOVWF   LCD_DATA_TRIS
        BCF     STATUS, RP0

        RETURN
WAIT_1MS   ;at 10mhz wait 2,500 cycles
        MOVLW   D'250'
        MOVWF   Count
WAITLOOP
        GOTO    $+1   ;1-2
        GOTO    $+1   ;3-4
        GOTO    $+1   ;5-6
        NOP  ;7
        DECFSZ  Count, f ;8
        GOTO    WAITLOOP ;9-10
        RETURN

        end
```