Experiment No: 9

Title: 8051 – LCD16x2 interfacing with PIC18

Class: T.E. **Year:** **Semester: Five**

Roll No.: **Name:**

Date of performance: **Date of Submission:**

Signature:

AIM: LCD16x2 interfacing with PIC18

S/W AND H/W TOOLS: MPLAB IDE V8.92, Hardware kit Winpic800 utility

THEORY: LCDs (Liquid Crystal Displays) are used for displaying status or parameters in embedded systems.

LCD 16x2 is a 16-pin device which has 8 data pins (D0-D7) and 3 control pins (RS, RW, EN). The remaining 5 pins are for supply and backlight for the LCD.

The control pins help us configure the LCD in command mode or data mode. They also help configure read mode or write mode and also when to read or write.

LCD 16x2 can be used in 4-bit mode or 8-bit mode depending on the requirement of the application. In order to use it, we need to send certain commands to the LCD in command mode and once the LCD is configured according to our need, we can send the required data in data mode.

interfacing LCD to PIC is not different from interfacing to 8051. The basic concept and gist of the programming is almost same. Visit the following link for more.

Only the pins, registers and architecture using for interfacing will be different. When we look at the program, functions like initialization, sending data to the LCD will be almost same.

In the pic programming also for initializing the LCD the R/W pin should be low for writing the data, Enable pins should be high and register select pin (RS) should be high for writing the data. For sending a command the RS should be low, R/W pin should be low and enable pin should be high.

Initializing the LCD function:

lcdcmd(0x38);//Configure the LCD in 8-bit mode,2 line and 5×7 font
lcdcmd(0x0C);// Display On and Cursor Off
lcdcmd(0x01);// Clear display screen
lcdcmd(0x06);// Increment cursor
lcdcmd(0x80);// Set cursor position to 1st line,1st column

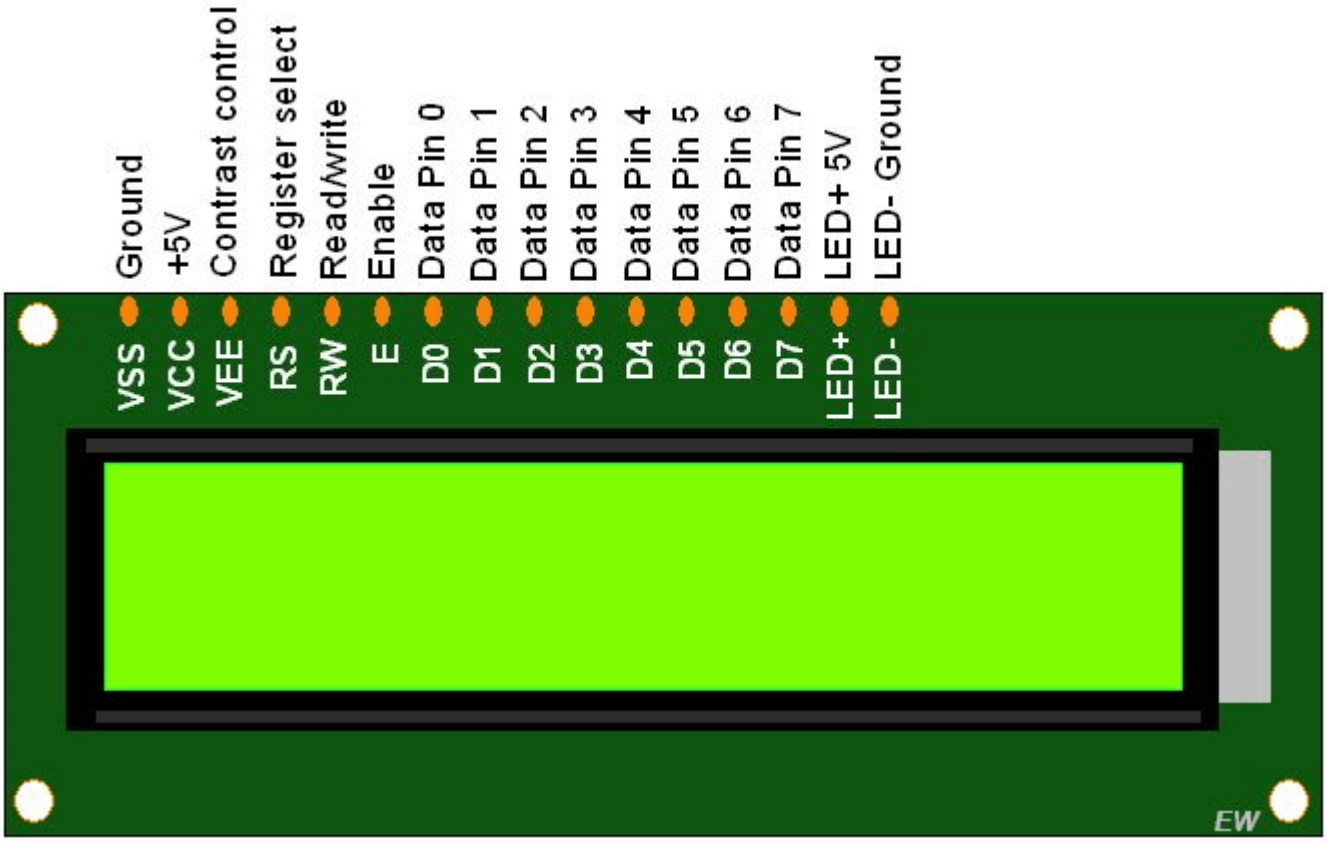
Sending command to the LC:

- rs=0; Register select pin is low.
- rw=0; Read/write Pin is also for writing the command to the LCD.
- en=1;enable pin is high.

Sending data to the LCD:

- rs=1; Register select pin is high.
- rw=0; Read/write Pin is also for writing the command to the LCD.
- en=1; enable pin is high.

Interfacing Diagram:



LCD16x2

CONCLUSIONS: