

9 LCD display

You may have noticed that our programs gradually increased in complexity. We have reached the point where using Assembly is no longer aiding in making the inner workings of the microcontroller clear. Accessing memory was complicated, the next subjects are even more complicated. Chances are Assembly will confuse you more than it will help. For that reason we will stop with the Assembly sections and continue in C and Flowcode⁸².

LCD displays are very common in microcontroller applications because it is the only small and portable means of textual feedback. It would therefore have been convenient to discuss this board at the very beginning of this course. But as you will discover the operation is quite complicated so we have used the RS232 connection to the PC instead. Which of course has much more capabilities as well.

The LCD board contains a small LCD screen with 2 lines of each 16 visible characters. A large jumper can be used to switch between the default connections and a patch panel that allows you to make any connection you want. A small variable resistor is used for brightness control. There is no backlight available.

If your LCD screen appears not to work try adjusting the brightness with the small variable resistor.

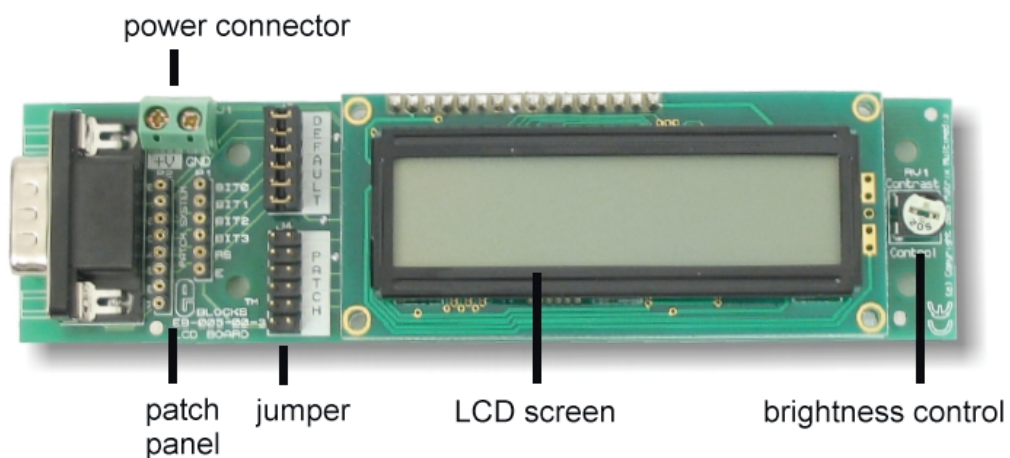


Figure 301. LCD board.

The LCD screen on this E-block has 2 lines of 16 visible characters. That suggests that there are invisible characters as well, and this is indeed the case. The LCD controller has a memory of 2 lines of 40 characters each, called DRAM. The display area, or window, is 16 characters wide, and is located on the left of the total area. It can be moved to other areas as well.

⁸² When we reach the chapter on USB we will drop C as well because making a USB library in C is a course on itself, and serves no educational purpose in our course.