

Dot Matrix Display

www.freetronics.com/dmd

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Getting Started with your Dot Matrix Display (DMD)

What can you do with 512 LED's in a large display panel? All kinds of fun and useful stuff!

The **DMD** is a huge dot matrix LED display panel to connect to your Freetronics Eleven, EtherTen and any Arduino compatible board. This large, bright 512 LED matrix panel has on-board controller circuitry designed to make it easy to use straight from your board's control pins.

Clocks, status displays, graphics readouts and all kinds of impressive display projects are ready to create with this display's features.

- 32 columns x 16 rows of high brightness Red LEDs (512 LEDs in total) on a 10mm pitch
- 5V operation
- Viewable over 12 metres away
- Tough plastic frame
- Controller IC's on board, simple clocked data interface
- Arduino compatible library, graphics functions and examples on our site
- Dimensions: 320(W) x 160(H) x 14(D)mm (30mm(D) including rear connectors)

The **DMD** is provided with a support library created by us for displaying text in different fonts, drawing graphics, lines, circles, rectangles and more when connected to any Arduino compatible board.

Please go to www.freetronics.com/dmd for further guides and downloads.

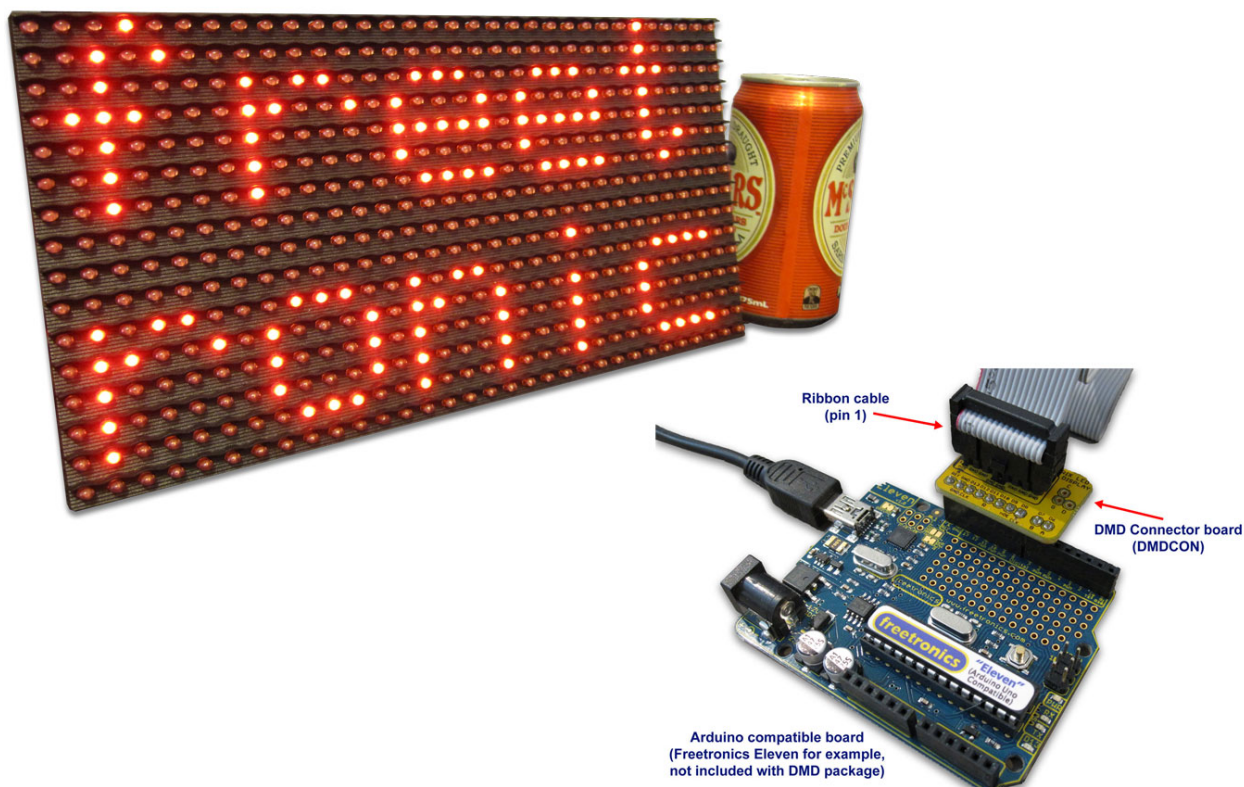
Freetronics boards which can be used to control the **DMD** are the Eleven, EtherTen, EtherMega and USBDroid.

You can find more information on these boards at www.freetronics.com

What's in the box

Included in your DMD package is:

- The 512 LED Dot Matrix Display (DMD)
- A 16 pin (2x8) IDC ribbon cable for DMD connection
- A "DMDCON" Connector PCB to directly connect your DMD straight into an Arduino compatible board, no extra soldering or wires required.
- An optional 5V power cable to use if jumpering power to DMD's stacked on top of each other



Installation of your DMD

1. Turn the DMD over so that the PCB is facing you and the "UP" arrow is pointing away from you.
2. Connect the ribbon cable to the DMD connector on the left side. The connector on the right side is to allow more DMD's to be connected to make larger combined displays.
The red stripe (pin 1) on the ribbon cable should be towards the "UP" side of the rear of the DMD.
The DMD has an "UP" marker on the back and an arrow facing upwards, to assist in the display and cable directions.
3. Connect the other end of the ribbon cable to the DMDCON board. The location of the red stripe and connector direction is clearly marked on the DMDCON board.
4. Plug the DMDCON board into your Arduino board.
The DMDCON board is designed to plug straight into the Arduino headers with AREF on the left and D6 on the right.
You can see the pin markings on the DMDCON board to match with your Arduino board pin markings if needed.
5. That's it! Your DMD is connected to your Arduino board.

At this point you can run the DMD from our downloaded library and examples even though it has no 5V power connected to the DMD terminals, as the data lines feed weak power to the LEDs. It's a handy way to develop and play with your DMD graphics and display project.

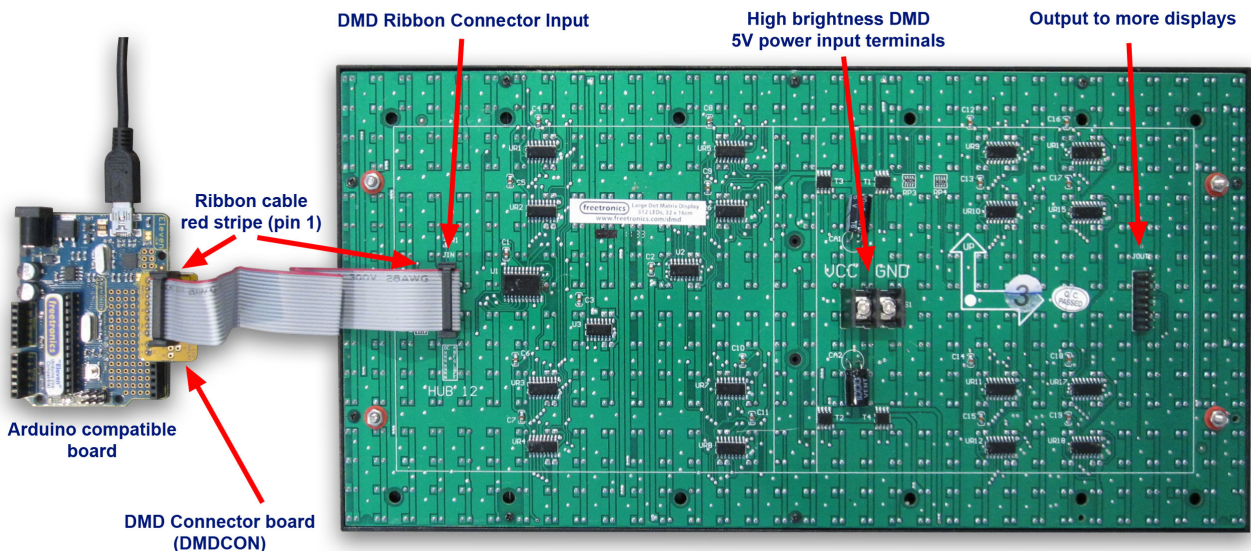
6. If or when you want the DMD to be very bright and the LEDs fully powered, connect a strong, stable 5V supply that is capable of at 4 to 40 Amps of current at 5V DC (regulated) to the large VCC (5V) and GND terminal block.
The current used is proportional to how many LEDs are lit in the display.

If all 512 LEDs are lit, the DMD is capable of drawing some rather high currents from the 5V rail!
We recommend that for high brightness, high power use where most or all LEDs are lit, that an ATX PC power supply or similar is used to power the 5V rail. For more detail about high brightness 5V supplies please see our web page for the DMD.

Do not use 5V from your Arduino or USB power to power the high brightness DMD 5V input terminals directly as those sources are only capable of 0.5A at best.

If connecting separate 5V power to your DMD terminals while connected to your Arduino board by USB, be very careful of your external 5V power source polarity as you may feed damaging reverse voltage to your computer's USB port, should the wires be reversed or ground offset.

7. For further examples and tutorials, please see our dedicated page at www.freetronics.com/dmd



About Freetronics

Freetronics is an Australian company created by Jonathan Oxaer and Marc Alexander to provide easy access to hardware, parts, and products related to Arduino projects and the book *Practical Arduino*. Learn more at www.freetronics.com. Follow us on Twitter at twitter.com/freetronics.