# :VIEW 128x64 Display

TECHNOLOGY DATA SHEET & SPECIFICATIONS

Introduction: The :VIEW 128x64 Display gives the user the ability to add a monochrome OLED display to the BBC micro:bit. The edge connector allows the BBC micro:bit to be slotted in without any other additional fixings. With the :VIEW 128x64 Display having BBC micro:bit style edge pads, this means it can be placed into other edge connectors on other accessory boards. All the pins from the BBC micro:bit are tracked through to provide the edge pads with the full usage of the BBC micro:bit, with the addition of a display.

The 128x64 display uses the SSD1306 driver on an I2C interface. Kitronik has generated custom blocks and example code for MakeCode and MicroPython (see the software section of this datasheet for more details). The :VIEW 128x64 Display has the functionality to allow the I2C address of the board to be changed, which does require some manual board adjustments (see the Selecting Display section of this datasheet for more details).
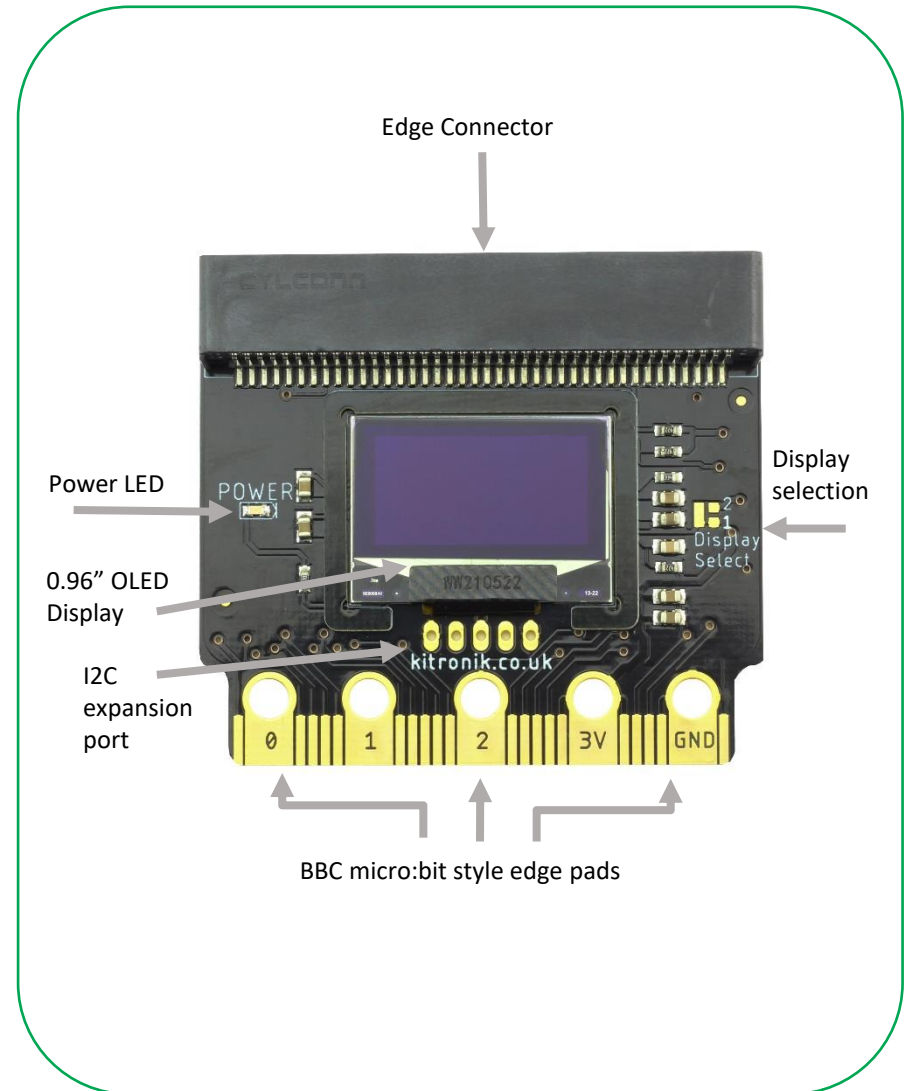
Power is provided via the edge connector or via the BBC micro:bit. The board will take a 3V supply, with no voltage protection on the board. There is a power LED to indicate that there is voltage onto the board and display. The current draw of the :VIEW 128x64 display is 40mA. This is with all the pixel on the display and power LED turned on.
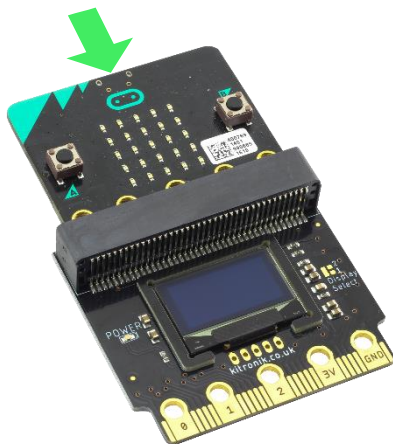
The BBC micro:bit is inserted into the top edge connector. No soldering or tools are required.

At the centre of the board are the breakout pads for the I2C lines, along with two ground pads and a 3V power pad. These pads are on a 2.54mm pitch, which means they will fit either wire or a pin header for jumper cables. This can be used by those who wish to add more I2C devices and functionality.

Note: Pin header is not supplied with the :VIEW 128x64 Display.

Edge Connector

Power LED

0.96" OLED Display

I2C expansion port

Display selection

BBC micro:bit style edge pads

MakeCode Blocks Editor Code

Kitronik have designed a custom extension to support the use of the :VIEW 128x64 Display in the micro:bit MakeCode Block editor. This can be added via the add Extensions function in the editor by searching "Kitronik" or from:
https://github.com/KitronikLtd/pxt-kitronik-128x64Display/

kitronik-128x64display
A custom MakeCode Extension
the Kitronik 128x64 Display

This example code will help get you started:

The first block in the "onStart" bracket will be a show block with a text insert saying "Hello!". Clicking on the '+' icon on the end of the block will allow the line to be selected. In this example we have chosen line 1.

The "forever" bracket begins with the same show block, but this time the BBC micro:bit rotation input block has been placed in (with allocation on line 3). This will display the roll reading onto the screen. Added after is a 200 millisecond delay so the display shows a stable number and is not too responsive.

For more information on programming the :VIEW 128x64 Display visit:

kitronik.co.uk/56115
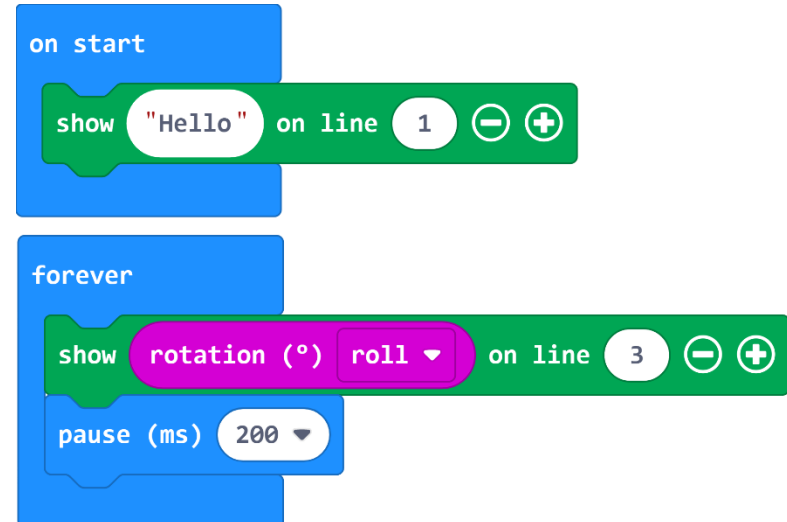
MicroPython Editor Code

Kitronik have designed custom functions to support the use of the :VIEW 128x64 Display in the micro:bit Python editor. This can be found on our GitHub page from:
https://github.com/KitronikLtd/micropython-microbit-kitronik-display128x64

Take a copy of all the additional Python files from the GitHub page. Each file has additional functions which can be used when required. To begin using them, start a new project at:
https://python.microbit.org/

Once loaded, click on the "Load/Save" icon, then add project files. When using the VIEW 128x64 Display, its required to add the display128x64.py file. See the image to the right for an example of the window for adding files to the project.

The code first requires to import display128x64 and construct an instance. This will initialise with default setup and will set the display ready to receive commands. For any other projects, this same process will be required.

In this test code, the display_as_text function will be used and the different ways it can be utilised. On line 9 the function is called with a string to be displayed, followed by the number of characters along the row and which line is starts on.
The same principle is take for the function on line 10, expect it takes in a number and display on line 3.
In the while loop, the function will take a variable which will increase each loop till it reaches 100.

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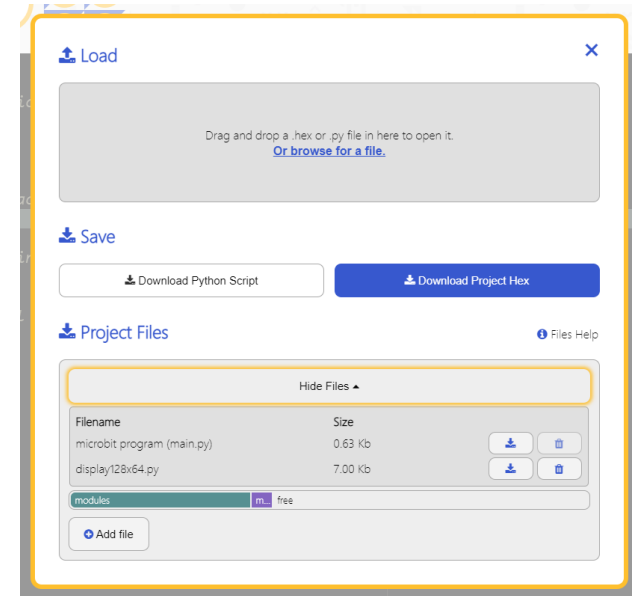
```python
#Kitronik VIEW 128x64 Display
#displayText.py
#Example of how to display text, numbers and variables
from microbit import *
from display128x64 import *

view = Kitronik128x64Display()

view.display_as_text("This is the top line", 0, 0) #add a string to top line
view.display_as_text(200, 0, 2) # add a number to line 3

incNumber = 0
while True:
    view.display_as_text(incNumber, 0, 4)   #add a variable increasing on line 5
    if incNumber < 100:
        incNumber += 1
    sleep(1000)
```

Dimensions
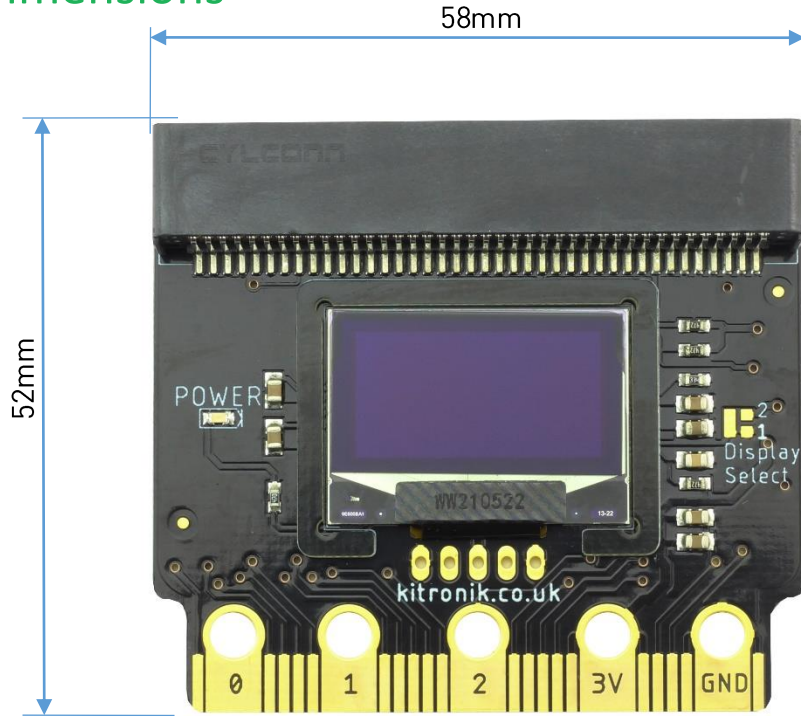
(Dimensions +/- 0.8mm)

Selecting Display:

The :VIEW 128x64 Display gives the ability to use two displays at the same time. This is possible by using the adjustment 'Display Select' pads (shown in the picture to the right). It is made up of a long pad connected to one of the display driver IC pins and each of the small pads is connected to the required voltage rail. The VIEW 128x64 Display will always be set to 1. Change the display selection by cutting the small link track (marked in red) and soldering a connection from the long pad to the required small pad. This will then change the address to the display number written next to the pad. In the software, for Makecode within typescript, when using any of the functions add a number 1 (for display1) or a number 2 (for display 2) at the end of the function brackets. In microPython use the address value of '0x3C' for Display 1 and '0x3D' for Display 2