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## About Matrix Orbital

From modest beginnings in 1995, Matrix Orbital has grown into a world-renowned communication interface display solution provider. By recognizing the need for an advanced and easy-to-use display, Matrix Orbital designed a revolutionary intelligent interface for LCD's and VFD's that has been used in defence, aerospace and advanced technology industries. Since then, through creativity, imagination and determination, our product line has grown dramatically to accommodate the needs of you, our customer.

Our dependable, flexible and easy-to-program RS232 / TTL, RS422, I<sup>2</sup>C and USB displays are highly suitable for applications ranging from short-run prototyping to large-volume production runs. To remain competitive in the marketplace, Matrix Orbital continues to add to its selection of high-quality displays.

At Matrix Orbital, we strive to offer the most comprehensive technical support in the industry. Through innovation and willingness to listen to our customers, Matrix Orbital can provide solutions that the competition cannot. By identifying the needs of our customers we meet and exceed expectations. Our team is ready to work with you.



Character LCD Displays



Graphic LCD Displays



Character VFD Displays

To learn more about Matrix Orbital and the people behind it, please visit :

[www.matrixorbital.ca](http://www.matrixorbital.ca) - click on people

[www.facebook.com/matrixorbital](https://www.facebook.com/matrixorbital)

[www.twitter.com/matrixorbital](https://www.twitter.com/matrixorbital)

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## TFT'S Simplified

Matrix Orbital, the world leader in intelligent interface, introduces its most innovative product yet: the full color touch capable GTT series! Matrix Orbital's GTT is a feature rich intelligent display which combines top of the line TFT LCD's with integrated touch screens, on-board memory for custom fonts, graphics and animations, a piezo buzzer for audio feedback, and much more! These top of the line displays combine Matrix Orbital's years of experience in the serial interface field with a dazzling full color display using our familiar and easy to use intelligent interface.

Bring your project to life with an abundance of colors, controllable with an easy to use touch screen. With our extensive selection of interface options communicating will always be easy! Start creating gorgeous interfaces that can be controlled with the tip of your finger.



GTT480272A

| Part Number    | Pixels    | Interface        | Module Size<br>L x W x T (mm) | Display Size<br>L x W (mm) |
|----------------|-----------|------------------|-------------------------------|----------------------------|
| GTT480272A     | 480 x 272 | RS232            | 133.00 x 78.00 x 21.70        | 97.60 x 56.40              |
| GTT480272A-USB | 480 x 272 | USB              | 133.00 x 78.00 x 21.70        | 97.60 x 56.40              |
| GTT480272A-I2C | 480 x 272 | I <sup>2</sup> C | 133.00 x 78.00 x 21.70        | 97.60 x 56.40              |

:: Many other sizes are available on request, as well as custom designs.



EXTMUSB3FT

ESCCPC5V

| Part Number | Interface | Length | Description  |
|-------------|-----------|--------|--|
| ESCCPC5V    | RS232     | 2ft    | external power communication and power cable with flow control |
| EXTMUSB3FT  | USB       | 3ft    | external A to B mini USB cable                                 |
| INTMUSB3FT  | USB       | 3ft    | internal mini USB cable  |



GTT480272A

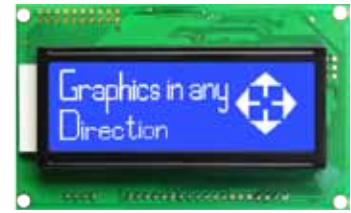
- TFT Touch Screen with bright, vivid 16-bit color
- 1 GB of on board memory for fonts, graphics and animations
- Programmable to display any language.
- Interfaces available: RS232, USB, I<sup>2</sup>C
- Piezo Buzzer to provide audio feedback
- Field upgradable firmware to keep your device current
- Hardware flow control
- Fast and easy development
- One year warranty
- Full technical support available including sample code



# Intelligent Series

## Graphic LCD Displays

The most versatile of our displays can be programmed to display any font, in any size, and in any language. With graphic displays you can easily add multi-language support to any application that uses a display. Allow your creativity to flourish with photos and graphics! We also have -1U displays which conveniently fit into any 1U application, allowing you add graphics to even a limited space.



GLK12232-25-WB

| Part Number         | Pixels    | Interface               | Keypad | GPOs | Module Size<br>L x W x T (mm) | Display Size<br>L x W (mm) | Color Options |    |     |    |     |      | Options |    |     |      |     |      |      |
|---------------------|-----------|-------------------------|--------|------|-------------------------------|----------------------------|---------------|----|-----|----|-----|------|---------|----|-----|------|-----|------|------|
|                     |           |                         |        |      |                               |                            | *XX           | WB | FGW | YG | TCI | **XX | -E      | -V | -LV | -VPT | -VE | -LVE | -VPE |
| GLK12232-25-SM      | 122 x 32  | RS232, I <sup>2</sup> C | 25     | 2    | 86.00 x 35.00 x 14.40         | 60.20 x 18.00              | ✓             |    |     |    |     | ✓    | ✓       |    |     |      |     |      |      |
| GLK12232-25-SM-USB  | 122 x 32  | USB                     | 25     | 2    | 86.00 x 35.00 x 14.40         | 60.20 x 18.00              | ✓             |    |     |    |     | ✓    | ✓       |    |     |      |     |      |      |
| GLK12232-25         | 122 x 32  | RS232, I <sup>2</sup> C | 25     | 2    | 98.00 x 60.00 x 13.50         | 76.00 x 25.20              | ✓             | ✓  |     |    |     | ✓    |         |    |     |      |     |      |      |
| GLK12232-25-USB     | 122 x 32  | USB                     | 25     | 2    | 98.00 x 60.00 x 13.50         | 76.00 x 25.20              | ✓             | ✓  |     |    |     | ✓    |         |    |     |      |     |      |      |
| GLK19264-7T-1U      | 192 x 64  | RS232, I <sup>2</sup> C | 7      | 6    | 144.00 x 38.00 x 33.00        | 82.00 x 28.40              | ✓             | ✓  | ✓   |    |     | ✓    | ✓       |    |     |      |     | ✓    |      |
| GLK19264-7T-1U-USB  | 192 x 64  | USB                     | 7      | 6    | 144.00 x 38.00 x 33.00        | 82.00 x 28.40              | ✓             | ✓  | ✓   |    |     | ✓    |         |    |     |      |     |      |      |
| GLK240128-25        | 240 x 128 | RS232, I <sup>2</sup> C | 25     | 0    | 144.00 x 104.00 x 15.00       | 114.00 x 64.00             | ✓             | ✓  | ✓   |    |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK240128-25-422    | 240 x 128 | RS422                   | 25     | 0    | 144.00 x 104.00 x 15.00       | 114.00 x 64.00             | ✓             | ✓  | ✓   |    |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK240128-25-USB    | 240 x 128 | USB                     | 25     | 0    | 144.00 x 104.00 x 15.00       | 114.00 x 64.00             | ✓             | ✓  | ✓   |    |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK24064-25         | 240 x 64  | RS232, I <sup>2</sup> C | 25     | 6    | 180.00 x 65.00 x 29.10        | 132.00 x 39.00             | ✓             | ✓  | ✓   |    |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK24064-25-422     | 240 x 64  | RS422                   | 25     | 6    | 180.00 x 65.00 x 29.10        | 132.00 x 39.00             | ✓             | ✓  | ✓   |    |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK24064-25-USB     | 240 x 64  | USB                     | 25     | 6    | 180.00 x 65.00 x 29.10        | 132.00 x 39.00             | ✓             | ✓  | ✓   |    |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK24064R-25-1U     | 240 x 64  | RS232                   | 25     | 0    | 144.00 x 38.00 x 20.50        | 112.00 x 28.00             | ✓             | ✓  |     | ✓  |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK24064R-25-1U-422 | 240 x 64  | RS422                   | 25     | 0    | 144.00 x 38.00 x 20.50        | 112.00 x 28.00             | ✓             | ✓  |     | ✓  |     | ✓    |         | ✓  |     |      |     |      | ✓    |
| GLK24064R-25-1U-USB | 240 x 64  | USB                     | 25     | 0    | 144.00 x 38.00 x 20.50        | 112.00 x 28.00             | ✓             | ✓  |     | ✓  |     | ✓    |         | ✓  |     |      |     |      | ✓    |

:: Many other sizes are available on request, as well as custom designs.

### Available Options

**-E** Extended Temperature

LCD -20° to +70° VFD -40° to +85°

**-LV** Low Voltage

3.3 Vdc

**-V** Extended Voltage

9-15 Vdc

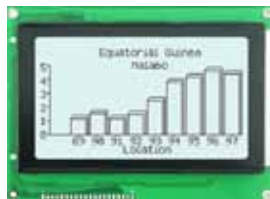
**-VPT** Voltage Regulator

9-35 Vdc

### Color Extensions

| Extension         | *XX          | WB    | FGW        | YG           | TCI       | **XX  |
|-------------------|--------------|-------|------------|--------------|-----------|-------|
| <b>Text</b>       | Black        | White | Black      | Black        | Tri Color | Blue  |
| <b>Background</b> | Yellow/Green | Blue  | Grey/White | Yellow/Green | Black     | White |

\* XX No Extension \*\* XX No Extension



GLK240128-25-FGW



GLK24064-25-1U-TCI



GLK12232-25-SM-WB



GLK24064-25

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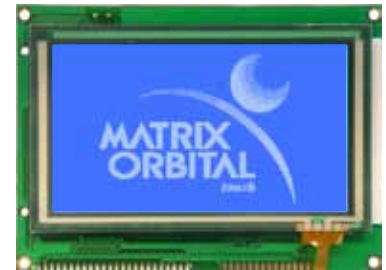
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## Touch Screens

Touch screen graphic LCDs display graphics and text in any font, style, justification and language, all with the convenience of a touch screen. Beautiful, easy and fun to use interfaces, all without the need of a keypad. When the touch screen is pressed, you can have the X and Y location sent, or have the on-screen keyboard displayed and touched keys are sent through the serial port. A great looking user interface in no time at all!



GLT240128-WB

| Part Number      | Pixels    | Interface                    | Keypad | GPOs | Module Size<br>L x W x T (mm) | Display Size<br>L x W (mm) | Color Options |    |     | Options |    |    |
|------------------|-----------|------------------------------|--------|------|-------------------------------|----------------------------|---------------|----|-----|---------|----|----|
|                  |           |                              |        |      |                               |                            | *XX           | WB | FGW | TCI     | -E | -V |
| GLT24064         | 240 x 64  | RS232, TTL, I <sup>2</sup> C | Touch  | 0    | 180.00 x 65.00 x 29.10        | 132.00 x 39.00             | ✓             | ✓  | ✓   |         |    | ✓  |
| GLT24064-USB     | 240 x 64  | USB                          | Touch  | 6    | 180.00 x 65.00 x 29.10        | 132.00 x 39.00             | ✓             | ✓  | ✓   |         |    |    |
| GLT24064-422     | 240 x 64  | RS422                        | Touch  | 6    | 180.00 x 65.00 x 29.10        | 132.00 x 39.00             | ✓             | ✓  | ✓   |         |    | ✓  |
| GLT24064R-1U     | 240 x 64  | RS232, TTL, I <sup>2</sup> C | Touch  | 6    | 112.00 x 38.00 x 28.90        | 98.00 x 28.40              | ✓             | ✓  | ✓   |         |    |    |
| GLT24064R-1U-USB | 240 x 64  | USB                          | Touch  | 6    | 112.00 x 38.00 x 28.90        | 98.00 x 28.40              | ✓             | ✓  | ✓   |         |    |    |
| GLT24064R-1U-422 | 240 x 64  | RS422                        | Touch  | 6    | 112.00 x 38.00 x 28.90        | 98.00 x 28.40              | ✓             | ✓  | ✓   |         |    |    |
| GLT240128        | 240 x 128 | RS232, TTL, I <sup>2</sup> C | Touch  | 0    | 144.00 x 104.00 x 27.80       | 114.00 x 64.00             | ✓             | ✓  | ✓   |         |    | ✓  |
| GLT240128-USB    | 240 x 128 | USB                          | Touch  | 0    | 144.00 x 104.00 x 27.80       | 114.00 x 64.00             | ✓             | ✓  | ✓   |         |    |    |
| GLT240128-422    | 240 x 128 | RS422                        | Touch  | 0    | 144.00 x 104.00 x 27.80       | 114.00 x 64.00             | ✓             | ✓  | ✓   |         |    | ✓  |

:: Many other sizes are available on request, as well as custom designs.

### Available Options

**-V** Extended Voltage  
9-15 Vdc

**-VPT** Voltage Regulator  
9-35 Vdc

### Color Extensions

| Extension         | *XX          | WB    | FGW        | TCI       |
|-------------------|--------------|-------|------------|-----------|
| <b>Text</b>       | Black        | White | Black      | Tri Color |
| <b>Background</b> | Yellow/Green | Blue  | Grey/White | Black     |

\* XX No Extension



GLT240128-FGW



GLT24064

- :: Our Graphic LCD Touch Panel provides you with a cost effective user interface solution for that great product/project you are developing
- :: Full touch screen, no keypad needed
- :: RS232, TTL, RS422, I<sup>2</sup>C or USB interface available
- :: On board memory for Fonts and Bitmaps

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## Character LCD Displays

Covering the most popular liquid crystal display configurations, control of the modules has been simplified to a set of commands delivered via RS232, RS422, I<sup>2</sup>C and USB. Meant to save time and money, we have worked to ensure that the tedious timing and special conditions typical of display controllers have been eliminated from our interface to help get your project to market faster.



LK204-7T-1U-TCI

| Part Number      | Characters x Lines | Interface               | Keypad | GPOs | Module Size L x W x T (mm) | Character Size L x W (mm) | Display Size L x W (mm) | Color Options |    |    |    |   |    |    |    |    |     |    |     | Options |      |      |   |   |  |
|------------------|--------------------|-------------------------|--------|------|----------------------------|---------------------------|-------------------------|---------------|----|----|----|---|----|----|----|----|-----|----|-----|---------|------|------|---|---|--|
|                  |                    |                         |        |      |                            |                           |                         | *XX           | GW | WB | IY | R | FA | FB | FG | FW | TCI | -E | -LV | -VPT    | -V-E | -VPE |   |   |  |
| LCD0821          | 8 x 2              | RS232, I <sup>2</sup> C | N/A    | 1    | 58.00 x 32.00 x 25.00      | 2.96 x 5.56               | 38.00 x 16.00           | ✓             | ✓  | ✓  | ✓  |   |    |    |    |    |     |    |     | ✓       | ✓    |      | ✓ |   |  |
| LCD2041          | 20 x 4             | RS232, I <sup>2</sup> C | N/A    | 3    | 98.00 x 60.00 x 27.50      | 2.95 x 4.75               | 76.00 x 25.20           | ✓             | ✓  | ✓  | ✓  |   |    |    |    |    |     |    |     | ✓       |      | ✓    |   | ✓ |  |
| LK162-12         | 16 x 2             | RS232, I <sup>2</sup> C | 12     | 7    | 80.00 x 36.00 x 27.50      | 2.95 x 5.55               | 64.50 x 5.50            | ✓             | ✓  | ✓  | ✓  |   |    |    |    |    |     |    |     | ✓       |      |      |   |   |  |
| LK202-25         | 20 x 2             | RS232, I <sup>2</sup> C | 25     | 6    | 116.00 x 37.00 x 25.73     | 3.20 x 5.55               | 83.00 x 18.60           | ✓             | ✓  | ✓  | ✓  | ✓ | ✓  | ✓  | ✓  | ✓  |     |    |     | ✓       |      |      |   |   |  |
| LK202-25-USB     | 20 x 2             | USB                     | 25     | 6    | 116.00 x 37.00 x 25.73     | 3.20 x 5.55               | 83.00 x 18.60           | ✓             | ✓  | ✓  | ✓  | ✓ | ✓  | ✓  | ✓  | ✓  |     |    |     | ✓       |      |      |   |   |  |
| LK204-25         | 20 x 4             | RS232, I <sup>2</sup> C | 25     | 6    | 98.00 x 60.00 x 27.50      | 2.95 x 4.75               | 76.00 x 25.20           | ✓             | ✓  | ✓  | ✓  |   |    |    |    |    |     |    |     | ✓       |      | ✓    |   | ✓ |  |
| LK204-25-USB     | 20 X 4             | USB                     | 25     | 6    | 98.00 x 60.00 x 27.50      | 2.95 x 4.75               | 76.00 x 25.20           | ✓             | ✓  | ✓  | ✓  |   |    |    |    |    |     |    |     | ✓       |      |      |   |   |  |
| LK204-25-422     | 20 x 4             | RS422                   | 25     | 6    | 98.00 x 60.00 x 30.63      | 3.20 x 5.55               | 76.30 x 25.00           | ✓             | ✓  | ✓  | ✓  |   |    |    |    |    |     |    |     | ✓       |      | ✓    |   | ✓ |  |
| LK204-7T-1U*     | 20 x 4             | RS232, I <sup>2</sup> C | 7      | 9    | 140.20 x 38.00 x 29.00     | 3.90 x 5.20               | 82.00 x 28.40           | ✓             | ✓  | ✓  |    |   |    |    |    |    |     |    |     | ✓       | ✓    | ✓    |   | ✓ |  |
| LK204-7T-1U-USB* | 20 x 4             | USB                     | 7      | 9    | 140.20 x 38.00 x 29.00     | 3.90 x 5.20               | 82.00 x 28.40           | ✓             | ✓  | ✓  |    |   |    |    |    |    |     |    |     | ✓       | ✓    |      |   |   |  |
| LK402-25         | 40 x 2             | RS232, I <sup>2</sup> C | 25     | 6    | 182.00 x 33.50 x 21.00     | 3.20 x 5.55               | 154.50 x 17.00          | ✓             |    |    |    |   |    |    |    |    |     |    |     | ✓       |      | ✓    |   | ✓ |  |
| LK402-25-USB     | 40 x 2             | USB                     | 25     | 6    | 182.00 x 33.50 x 21.00     | 3.20 x 5.55               | 154.50 x 17.00          | ✓             |    |    |    |   |    |    |    |    |     |    |     | ✓       |      |      |   | ✓ |  |
| LK402-25-422     | 40 X 2             | RS422                   | 25     | 6    | 182.00 x 33.50 x 21.00     | 3.20 x 5.55               | 154.50 x 17.00          | ✓             |    |    |    |   |    |    |    |    |     |    |     | ✓       | ✓    | ✓    |   |   |  |
| LK404-25         | 40 X 4             | RS232, I <sup>2</sup> C | 25     | 6    | 190.00 x 54.00 x 27.00     | 2.78 x 4.89               | 148.00 x 30.30          | ✓             |    |    |    |   |    |    |    |    |     |    |     | ✓       |      | ✓    |   | ✓ |  |

\*Has 3 dual color LED indicator lights: Yellow, Green and Red :: Many other sizes are available on request, as well as custom designs.

### Available Options

**-E** Extended Temperature  
LCD -20° to +70° VFD -40° to +85°

**-LV** Low Voltage  
3.3 Vdc

**-V** Extended Voltage  
9-15 Vdc

**-VPT** Voltage Regulator  
9-35 Vdc

### Color Extensions

| Extension         | *XX          | GW         | WB    | IY     | R     | FA    | FB    | FG    | FW    | FY     | TCI       |
|-------------------|--------------|------------|-------|--------|-------|-------|-------|-------|-------|--------|-----------|
| <b>Text</b>       | Black        | Light Blue | White | Yellow | Red   | Amber | Blue  | Green | White | Yellow | Tri Color |
| <b>Background</b> | Yellow/Green | Grey/White | Blue  | Black  | Black | Black | Black | Black | Black | Black  | Black     |

\* XX No Extension



LK204-25



LK202-25-FW

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## Character VFD Displays

Our Vacuum Fluorescent Displays (VFDs) have a longer life and are the brightest of displays. They do not suffer from performance effects due to varying temperature and they deliver a higher viewing angle. Control of modules has been simplified to a set of commands delivered via RS232, RS422, I<sup>2</sup>C or USB communication. Optional VFD Filters available to customize your display to coordinate with your application.



VK202-25

| Part Number  | Characters x Lines | Interface               | Keypad | GPOs | Module Size<br>L x W xT (mm) | Character Size<br>L x W (mm) | Display Size<br>L x W (mm) | Options |    |     |     |      |  |  |
|--------------|--------------------|-------------------------|--------|------|------------------------------|------------------------------|----------------------------|---------|----|-----|-----|------|--|--|
|              |                    |                         |        |      |                              |                              |                            | -E      | -V | -LV | -VE | -VPE |  |  |
| VFD2041      | 20 x 4             | RS232, I <sup>2</sup> C | N/A    | 3    | 98.00 x 60.00 x 24.40        | 2.40 x 4.70                  | 70.80 x 20.90              | ✓       |    | ✓   |     | ✓    |  |  |
| VK162-12     | 16 x 2             | RS232, I <sup>2</sup> C | 12     | 7    | 80.00 x 36.00 x 27.67        | 2.46 x 4.76                  | 51.36 x 11.40              |         |    |     |     |      |  |  |
| VK202-25     | 20 x 2             | RS232, I <sup>2</sup> C | 25     | 6    | 116.00 x 37.00 x 29.48       | 2.40 x 4.70                  | 89.75 x 11.50              | ✓       |    |     |     |      |  |  |
| VK202-25-USB | 20 x 2             | USB                     | 25     | 6    | 116.00 x 37.00 x 29.48       | 2.40 x 4.70                  | 70.80 x 11.50              | ✓       |    |     |     |      |  |  |
| VK204-25     | 20 x 4             | RS232, I <sup>2</sup> C | 25     | 6    | 98.00 x 60.00 x 24.40        | 2.40 x 4.70                  | 70.80 x 20.90              | ✓       |    | ✓   |     | ✓    |  |  |
| VK204-25-USB | 20 x 4             | USB                     | 25     | 6    | 98.00 x 60.00 x 24.40        | 2.40 x 4.70                  | 70.80 x 20.90              | ✓       |    |     |     |      |  |  |
| VK204-25-422 | 20 x 4             | RS422                   | 25     | 6    | 98.00 x 60.00 x 24.40        | 2.40 x 4.70                  | 70.80 x 20.90              |         |    | ✓   |     |      |  |  |

### Available Options

**-E** Extended Temperature  
LCD -20° to +70° VFD -40° to +85°

**-LV** Low Voltage  
3.3 Vdc

**-V** Extended Voltage  
9-15 Vdc

**-VPT** Voltage Regulator  
9-35 Vdc

### 20x2 VFD Filters

| Part Number | Description           | Text Displays | Background Display |
|-------------|-----------------------|---------------|--------------------|
| BLU202      | Blue 20x2 VFD Filter  | Blue          | Dark Blue          |
| GRN202      | Green 20x2 VFD Filter | Green         | Dark Green         |
| GRY202      | Grey 20x2 VFD Filter  | Blue/Green    | Dark Grey          |
| RED202      | Red 20x2 VFD Filter   | White         | Dark Red           |

### 20x4 VFD Filters

| Part Number | Description           | Text Displays | Background Display |
|-------------|-----------------------|---------------|--------------------|
| BLU204      | Blue 20x4 VFD Filter  | Blue          | Dark Blue          |
| GRN204      | Green 20x4 VFD Filter | Green         | Dark Green         |
| GRY204      | Grey 20x4 VFD Filter  | Blue/Green    | Dark Grey          |
| RED204      | Red 20x4 VFD Filter   | White         | Dark Red           |



BLU202



GRN202



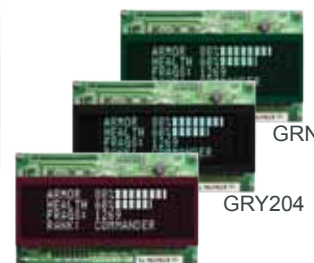
GRY202



RED202



BLU204



GRN204

GRY204

RED204

:: VFD Filters are available in 20x2 and 20x4 in Blue, Grey, Green and Red  
 :: Custom filters are available upon request

Sales | [sales@matrixorbital.ca](mailto:sales@matrixorbital.ca)  
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Matrix Orbital's economy line of Liquid Crystal (LCD) and Vacuum Fluorescent displays (VFD) allow the ease of RS232 / TTL, I<sup>2</sup>C or USB Communication designed for high volume projects requiring a low cost, high value display. Features include software controlled backlight and contrast, 3 GPOs and the Matrix Orbital intelligence and ease of use we are famous for.

## Character LCD Displays



MOU-AL202C-WB3SE

Matrix Orbital offers Liquid Crystal Displays in a variety of sizes and colors to suit any project. Is yours a high volume project and want to offer options? This is the display for you.

| Part Number | Characters x Lines | Interface        | GPOs | Module Size L x W x T (mm) | Character Size L x W (mm) | Display Size L x W (mm) | Color Options |    |    |    |    |    |    |    |    |   |   |   |   |   |
|-------------|--------------------|------------------|------|----------------------------|---------------------------|-------------------------|---------------|----|----|----|----|----|----|----|----|---|---|---|---|---|
|             |                    |                  |      |                            |                           |                         | YX            | BW | WB | XY | XR | FA | FB | FG | FW |   |   |   |   |   |
| MOS-AL162A  | 16 X 2             | RS232 / TTL      | 3    | 80.00 x 36.00 x 25.60      | 2.96 x 5.55               | 64.50 x 15.50           | ✓             | ✓  | ✓  | ✓  |    |    |    |    |    |   |   |   |   |   |
| MOS-AL162F  | 16 X 2             | RS232 / TTL      | 3    | 69.00 x 21.50 x 23.65      | 2.56 x 4.90               | 47.56 x 11.00           | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |
| MOS-AL202C  | 20x 2              | RS232 / TTL      | 3    | 116.00 x 37.00 x 26.75     | 3.20 x 5.55               | 83.00 x 18.60           | ✓             | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ |
| MOS-AL204B  | 20x 4              | RS232 / TTL      | 3    | 146.00 x 62.50 x 25.60     | 4.84 x 9.22               | 123.50 x 43.00          | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |
| MOS-AL242A  | 24x 2              | RS232 / TTL      | 3    | 118.00 x 36.00 x 27.50     | 3.20 x 5.55               | 88.30 x 11.50           | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |
| MOI-AL162A  | 16 x 2             | I <sup>2</sup> C | 3    | 80.00 x 36.00 x 25.60      | 2.95 x 5.55               | 64.50 x 15.50           | ✓             | ✓  | ✓  | ✓  | ✓  |    |    |    |    |   |   |   |   |   |
| MOI-AL202C  | 20 x 2             | I <sup>2</sup> C | 3    | 116.00 x 37.00 x 26.75     | 3.20 x 5.55               | 83.00 x 18.60           | ✓             | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ |
| MOI-AL204B  | 20x 4              | I <sup>2</sup> C | 3    | 146.00 x 62.50 x 25.60     | 4.84 x 9.22               | 123.50 x 43.00          | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |
| MOI-AL242A  | 24x 2              | I <sup>2</sup> C | 3    | 118.00 x 36.00 x 27.50     | 3.20 x 5.55               | 88.30 x 11.50           | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |
| MOU-AL162A  | 16 X 2             | USB              | 3    | 80.00 x 36.00 x 25.60      | 2.96 x 5.55               | 64.50 x 15.50           | ✓             | ✓  | ✓  | ✓  | ✓  |    |    |    |    |   |   |   |   |   |
| MOU-AL202C  | 20 x 2             | USB              | 3    | 116.00 x 37.00 x 26.75     | 3.20 x 5.55               | 83.00 x 18.60           | ✓             | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  | ✓ | ✓ | ✓ | ✓ | ✓ |
| MOU-AL204B  | 20x 4              | USB              | 3    | 146.00 x 62.50 x 25.60     | 4.84 x 9.22               | 123.50 x 43.00          | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |
| MOU-AL242A  | 24x 2              | USB              | 3    | 118.00 x 36.00 x 27.50     | 3.20 x 5.55               | 88.30 x 11.50           | ✓             |    |    |    |    |    |    |    |    |   |   |   |   |   |

:: Many other sizes are available on request, as well as custom designs. \* Please ask sales for the complete part number of your display to order.

### Color Extensions

| Extension         | YX           | BW    | WB         | XY     | XR    | FA    | FB    | FG    | FW    |
|-------------------|--------------|-------|------------|--------|-------|-------|-------|-------|-------|
| <b>Text</b>       | Black        | White | Light Blue | Yellow | Red   | Amber | Blue  | Green | White |
| <b>Background</b> | Yellow/Green | Blue  | Grey/White | Black  | Black | Black | Black | Black | Black |

## Character VFD Displays



MOS-AV162A-NT3SE

Vacuum Fluorescent Displays (VFD's) can be easily configured to display a wide variety of customized messages. VFDs also have the advantage of being very robust, and are able to function normally in a variety of environments. Optional VFD Filters available to customize your display to coordinate with your application.

| Part Number      | Characters x Lines | Interface        | GPOs | Module Size L x W x T (mm) | Character Size L x W (mm) | Display Size L x W (mm) |
|------------------|--------------------|------------------|------|----------------------------|---------------------------|-------------------------|
| MOS-AV162A-NT3SE | 16 x 2             | RS232 / TTL      | 3    | 80.00 x 36.00 x 27.03      | 2.46 x 4.76               | 51.36 x 11.40           |
| MOS-AV202C-NT3SE | 20 x 2             | RS232 / TTL      | 3    | 116.00 x 37.00 x 27.50     | 2.40 x 4.70               | 70.80 x 11.50           |
| MOI-AV162A-NT3IE | 16 x 2             | I <sup>2</sup> C | 3    | 80.00 x 36.00 x 27.03      | 2.46 x 4.76               | 51.36 x 11.40           |
| MOI-AV202C-NT3IE | 20 x 2             | I <sup>2</sup> C | 3    | 116.00 x 37.00 x 27.50     | 2.40 x 4.70               | 70.80 x 11.50           |
| MOU-AV162C-NT3SJ | 16 x 2             | USB              | 3    | 80.00 x 36.00 x 27.03      | 2.46 x 4.76               | 51.36 x 11.40           |
| MOU-AV202C-NT3SJ | 20 x 2             | USB              | 3    | 116.00 x 37.00 x 27.50     | 2.40 x 4.70               | 70.80 x 11.50           |

\* VFD Filters are available for 20x2 and 40x2 :: Custom filters are available upon request

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## Interface Module

The X-Board is the simple solution for an economical interface board. Add Matrix Orbital's intelligence to your existing parallel character LCD or VFD for quick and easy prototyping. Features include Matrix Orbital's industry standard intelligence, 3 GPO's, software controlled back light and contrast, and supports a variety of interfaces. Use the S-Series for serial and TTL, the I-Series for I<sup>2</sup>C or the U-Series for USB.

### X-Board S-Series / I-Series

The S-Series allows industry standard and proven RS232 or TTL communication at 9600 or 19,200 Kbps.

| Part Number      | Interface        | GPOs | Module Size<br>L x W xT (mm) |
|------------------|------------------|------|------------------------------|
| X-Board S-Series | RS232 / TTL      | 3    | 55.88 x 36.00 x 20.82        |
| X-Board I-Series | I <sup>2</sup> C | 3    | 55.88 x 36.00 x 20.82        |

The I-Series allows up to 8 displays to be daisy chained for multiple displays on a single communication line.

### X-Board U-Series

The U-Series is the simplest X-Board to use, as it uses a single cable for data and power. Under windows, this X-Board creates a virtual comport for simple USB communication.

| Part Number      | Interface | GPOs | Module Size<br>L x W xT (mm) |
|------------------|-----------|------|------------------------------|
| X-Board U-Series | USB       | 3    | 55.88 x 36.00 x 20.82        |



X-Board S-Series



X-Board U-Series

## Features

- 8 user definable custom characters
- S-Series is RS232 or TTL Compatible (Jumper Selectable)
- I-Series is I<sup>2</sup>C compatible and allows up to 8 units
- U-Series is standard USB
- Ability to add a customized splash / startup screen
- 4 levels of software controlled brightness for a VFD display
- 32 levels of software controlled contrast for a LCD display
- 3 general purpose outputs for a variety of applications
- Horizontal or vertical bar graphs
- Medium digit capability on applicable displays
- Large digit capability on applicable displays (a display that consists of 4 rows)

#### Characters x Lines

|        |
|--------|
| 8 x 1  |
| 8 x 2  |
| 16 x 1 |
| 16 x 2 |
| 20 x 2 |
| 24 x 2 |
| 20 x 4 |

Our X-Boards are compatible with most of these display sizes

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Matrix Orbital MOP-Series consists of a multitude of parallel display options to enhance your product. With our large variety of colors and our ability to produce custom displays we are committed to helping you succeed to get your product noticed. We offer competitive pricing on all our parallel modules and have the lowest lead times in the industry to save you time and money!

## Character LCD Displays



MOP-AL162A-BYFY

Our high quality alphanumeric parallel displays feature industry compatible HD44780 4/8 bit controller.

| Part Number | Characters x Lines | Module Size L x W x T (mm) | Character Size L x W (mm) | Display Size L x W (mm) | Color Options |      |      |      |      |      |      |      |      |      |  |  |  |  |  |   |  |
|-------------|--------------------|----------------------------|---------------------------|-------------------------|---------------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|---|--|
|             |                    |                            |                           |                         | BYFY          | BBTW | BGRW | BTTY | BBTR | BFTA | BFTB | BFTG | BFTW | BYRN |  |  |  |  |  |   |  |
| MOP-AL082B  | 8 x 2              | 58.00 x 32.00 x 14.0       | 2.96 x 5.56               | 38.00 x 16.00           | ✓             | ✓    | ✓    | ✓    |      |      |      |      |      |      |  |  |  |  |  |   |  |
| MOP-AL162A  | 16 x 2             | 80.00 x 36.00 x 14.00      | 2.95 x 5.55               | 64.50 x 15.50           | ✓             | ✓    | ✓    | ✓    |      |      |      |      |      |      |  |  |  |  |  | ✓ |  |
| MOP-AL202C  | 20 x 2             | 116.00 x 37.00 x 14.50     | 3.20 x 5.55               | 83.00 x 18.60           | ✓             | ✓    | ✓    |      | ✓    | ✓    | ✓    | ✓    | ✓    |      |  |  |  |  |  |   |  |
| MOP-AL204A  | 20 x 4             | 98.00 x 60.00 x 15.00      | 4.75 x 2.95               | 25.20 x 76.00           | ✓             | ✓    | ✓    | ✓    | ✓    |      |      |      |      |      |  |  |  |  |  |   |  |
| MOP-AL204B  | 20 x 4             | 146.00 x 62.50 x 13.00     | 4.84 x 9.22               | 123.50 x 43.00          | ✓             |      |      |      |      |      |      |      |      |      |  |  |  |  |  |   |  |
| MOP-AL242A  | 20 x 4             | 118.00 x 36.00 x 14.00     | 3.20 x 5.55               | 93.50 x 16.00           | ✓             |      |      |      |      |      |      |      |      |      |  |  |  |  |  |   |  |
| MOP-AL402A  | 40 x 2             | 182.00 x 33.50 x 13.00     | 3.20 x 5.55               | 154.50 x 17.00          | ✓             |      |      |      |      |      |      |      |      |      |  |  |  |  |  |   |  |
| MOP-AL404C  | 40x 4              | 190.00 x 54.00 x 14.00     | 4.89 x 2.78               | 148.00 x 30.30          | ✓             |      |      |      |      |      |      |      |      |      |  |  |  |  |  |   |  |

:: Many other sizes are available on request, as well as custom designs.  
 \* Please ask sales for the complete part number of your display to order

### Color Extensions

| Extension         | BYFY         | BBTW  | BGRW       | BTTY         | BBTR  | BFTA  | BFTB  | BFTG  | BFTW  | BYRN  |
|-------------------|--------------|-------|------------|--------------|-------|-------|-------|-------|-------|-------|
| <b>Text</b>       | Black        | White | Light Blue | Yellow/Green | Red   | Amber | Blue  | Green | White | Black |
| <b>Background</b> | Yellow/Green | Blue  | Grey/White | Black        | Black | Black | Black | Black | Black | N / A |

## Character VFD Displays



MOP-AV204A-BNNN

Our high quality alphanumeric parallel displays feature industry compatible HD44780 4/8 bit controller. Combine it with our X-board S-series to get your project off the ground faster..

| Part Number     | Characters x Lines | Module Size L x W x T (mm) | Character Size L x W (mm) | Display Size L x W (mm) |
|-----------------|--------------------|----------------------------|---------------------------|-------------------------|
| MOP-AV162A-BNNN | 16 x 2             | 80.00 x 30.00 x 11.68      | 4.70 x 2.40               | 70.80 x 11.50           |
| MOP-AV202C-BNNN | 20 x 2             | 116.00 x 37.00 x 15.00     | 5.40 x 2.40               | 70.80 x 11.50           |
| MOP-AV204A-BNNN | 40 x 2             | 98.00 x 60.00 x 12.80      | 4.70 x 2.40               | 70.80 x 20.90           |

\* VFD Filters are available for 20x2 and 40x2  
 :: Custom filters are available upon request \* Please ask sales for the complete part number of your display to order

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## Parallel Series

Matrix Orbital MOP-Series consists of a multitude of parallel display options to enhance your product. With our large variety of colors and our ability to produce custom displays we are committed to helping you succeed to get your product noticed. We offer competitive pricing on all our parallel modules and have the lowest lead times in the industry to save you time and money!

### Graphic LCD Displays



MOP-GL24064A-BBTW

| Part Number   | Characters x Lines | Module Size<br>L x W x T (mm) | Display Size<br>L x W (mm) | Color Options |      |      |      |      |      |  |
|---------------|--------------------|-------------------------------|----------------------------|---------------|------|------|------|------|------|--|
|               |                    |                               |                            | BYFY          | BBTW | BGFW | BWFW | BBFB | BSSX |  |
| MOP-GL12232B  | 32 x 122           | 84.00 x 44.00 x 10.00         | 80.00 x 36.00              |               | ✓    |      |      |      |      |  |
| MOP-GL12232D  | 32 x 122           | 65.80 x 27.00 x 12.00         | 60.20 x 18.00              | ✓             | ✓    |      |      |      |      |  |
| MOP-GL12864F  | 64 x 128           | 75.00 x 52.70 x 8.00          | 60.00 x 32.60              | ✓             |      |      |      |      |      |  |
| MOP-GL240128D | 128 x 240          | 144.00 x 104.00 x 16.00       | 114.00 x 64.00             | ✓             | ✓    | ✓    |      |      |      |  |
| MOP-GL24064A  | 64 x 240           | 180.00 x 65.00 x 16.00        | 132.20 x 39.20             | ✓             |      | ✓    | ✓    |      |      |  |
| MOP-GL24064R  | 64 x 240           | 144.00 x 144.00 x 16.00       | 93.00 x 24.00              |               |      | ✓    | ✓    | ✓    | ✓    |  |

:: Many other sizes are available on request, as well as custom designs.  
\* Please ask sales for the complete part number of your display to order

#### Color Extensions

| Extension  | BYFY         | BBTW  | BGFW       | BWFW | BBFB  | BSSX     |
|------------|--------------|-------|------------|------|-------|----------|
| Text       | Black        | White | Light Blue | Blue | White | Multiple |
| Background | Yellow/Green | Blue  | Grey/White | Grey | Blue  | Black    |

### Graphic Touchscreen

Touch screen graphic LCDs display graphics and text in any font, style, justification and language, all with the convenience of a touch screen. Beautiful, easy and fun to use interfaces, all without the need of a keypad. When the touch screen is pressed, you can have the X and Y location sent, or have the on-screen keyboard displayed and touched keys are sent through the serial port. A great looking user interface in no time at all!

Our high quality graphic parallel displays feature industry compatible T6963 8 bit controller.



MOP-GLT240128D-BGFW

| Part Number         | Characters x Lines | Module Size<br>L x W x T (mm) | Display Size<br>L x W (mm) | Display Color<br>(Text / Background) |
|---------------------|--------------------|-------------------------------|----------------------------|--------------------------------------|
| MOP-GLT240128D-BBTW | 128 x 240          | 144.00 x 104.00 x 16.00       | 114.00 x 11.50             | White / Blue                         |
| MOP-GLT240128D-BGFW | 128 x 240          | 144.00 x 104.00 x 16.00       | 70.80 x 11.50              | Light Blue / Grey/White              |
| MOP-GLT240128D-BYFY | 128 x 240          | 144.00 x 104.00 x 16.00       | 70.80 x 20.90              | Black / Yellow/Green                 |

- Our Graphic LCD Touch Panel provides you with a cost effective user interface solution for that great product/project you are developing.
- Full touch screen, no keypad needed
- RS232, RS422, I2C or USB interface available
- On board memory for Fonts and Bitmaps

:: Many sizes are available on request, as well as custom designs

\* Please ask sales for the complete part number of your display to order

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Take your project to the next level with Matrix Orbital's easy to use accessories. Complete your display package quickly and effectively with a wide range of accessory options. Custom cables available to order on demand. We are happy to help create a custom cable to help you overcome any design obstacles you may encounter during your project development.

## Communication | Power Cables

### Communication and Power

| Part Number | Description   |
|-------------|---|
| SCCPC5V     | Serial Communication/ Power 5V Compatible with any MOS or LK/ VK Display, LCD/VFD Series, GLK12232-25/ GLK12232-25-SM, GLK19264-7T-XX Rev.1.1 |
| ESCCPC5V    | External communication and power cable with flow control, 2ft long Compatible with GTT, GLT/GLK24064, GLT/GLK240128, GLT / GLK24064R-XX-1U    |

### Power

| Part Number | Description          |
|-------------|----------------------|
| PC12V       | Power Cable 12V      |
| PC5V        | Power Cable 5V       |
| PCS         | Power Cable Standard |
| PCUSB       | Power Cable USB      |



EXTMUSB3FT

### Communication

| Part Number | Description                           |
|-------------|---------------------------------------|
| BBC         | Breadboard Cable                      |
| BBPDC       | Breadboard Parallel Development Cable |
| CCS1FT      | Serial 1ft Cable                      |
| CCS4FT      | Serial 4ft Cable                      |
| EXTMUSB3FT  | External A - B 3ft Mini USB Cable     |
| INTMUSB3FT  | Internal Mini USB 3ft Cable           |

## VFD Filters

VFD Filters are available in 20x2 and 20x4 in Blue, Grey, Green and Red for greater readability in a variety of lighting conditions, and to coordinate with your application.



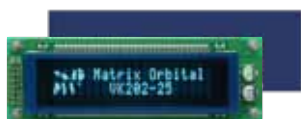
VK202-25 with RED202

### 20x2 VFD Filters

| Part Number | Description           | Text Displays | Background Display |
|-------------|-----------------------|---------------|--------------------|
| BLU202      | Blue 20x2 VFD Filter  | Blue          | Dark Blue          |
| GRN202      | Green 20x2 VFD Filter | Green         | Dark Green         |
| GRY202      | Grey 20x2 VFD Filter  | Blue/Green    | Dark Grey          |
| RED202      | Red 20x2 VFD Filter   | White         | Dark Red           |

### 20x4 VFD Filters

| Part Number | Description           | Text Displays | Background Display |
|-------------|-----------------------|---------------|--------------------|
| BLU204      | Blue 20x4 VFD Filter  | Blue          | Dark Blue          |
| GRN204      | Green 20x4 VFD Filter | Green         | Dark Green         |
| GRY204      | Grey 20x4 VFD Filter  | Blue/Green    | Dark Grey          |
| RED204      | Red 20x4 VFD Filter   | White         | Dark Red           |



BLU202



GRY202



GRN202



RED202



BLU204



GRY204



GRN204



RED204

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Take your project to the next level with Matrix Orbital's easy to use accessories. Complete your display package quickly and effectively with a wide range of accessory options.

## Keypad

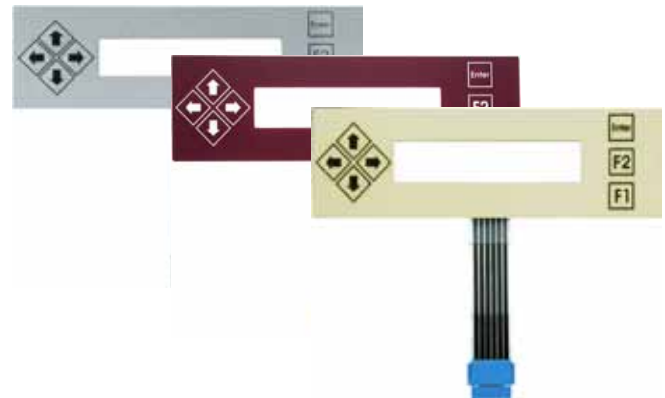
Keypad overlays can be combined with a variety of displays to add programmable buttons to your project

### Keypad

| Part Number | Description  |
|-------------|--|
| KPP202A     | Beige 7 Button Keypad Overlay for use with LK/VK202    |
| KPP202A-BK  | Black 7 Button Keypad Overlay for use with LK/VK202    |
| KPP202A-DR  | Dark Red 7 Button Keypad Overlay for use with LK/VK202 |
| KPP202A-SK  | Silver 7 Button Keypad Overlay for use with LK/VK202   |
| KPP204A     | Beige 15 Button Keypad Overlay for use with LK/VK204   |
| KPP204A-BK  | Black 15 Button Keypad Overlay for use with LK/VK204   |
| KPP4X4      | Black 4x4 Keypad compatible with most displays         |



KPP202A-BK



## Mounting | Overlay

We offer sleek and durable coated rust-resistant steel mounting brackets in a variety of colors with mounting screws and washers. Mounting overlays come in an easy to use package including everything you require: self-adhesive overlay, adhesive cut and drill guide and all necessary screws, nuts, spacers and washers.

### Mounting Bracket

| Part Number | Description   |
|-------------|---|
| B19264-BK   | Black Steel Mounting Bracket for use with GLK19264-7T-1U and LK204-7T-1U            |
| B2021-AL    | Brushed Aluminum Mounting Bracket for use with LK/VK202-25                          |
| B2021-BK    | Black Vinyl Mounting Bracket for use with LK/VK202-25                               |
| B2021-BL    | Black Aluminum Mounting Bracket for use with LK/VK202-25                            |
| B202A       | Steel Mounting Bracket With Beige Keypad Overlay for use with LK/VK202-25           |
| B202A-BK    | Steel Mounting Bracket With Black Keypad Overlay for use with LK/VK202-25           |
| B202A-DR    | Steel Mounting Bracket With Dark Red Keypad Overlay for use with LK/VK202-25        |
| B202A-SK    | Steel Mounting Bracket With Silver Keypad Overlay for use with LK/VK202-25          |
| B2041       | Beige Mounting Bracket for use with LK/VK204-25, LCD2041, GLK12232-25               |
| B2041-AL    | Brushed Aluminum Mounting Bracket for use with LK/VK204-25, LCD2041, GLK12232-25    |
| B2041-BK    | Black Vinyl Mounting Bracket for use with LK/VK204-25, LCD2041, GLK12232-25         |
| B2041-BL    | Black Aluminum Mounting Bracket for use with LK/VK204-25, LCD2041, GLK12232-25      |
| B24064-BK   | Black Steel Mounting Bracket for use with GLK24064R-25-1U-XX                        |
| B204A       | Beige Vinyl Mounting Bracket for use with LK/VK204-25, LK/VK204-25-USB, GLK12232-25 |
| B204A-BK    | Black Vinyl Mounting Bracket for use with LK/VK204-25, LK/VK204-25-USB, GLK12232-25 |



B19264-BK

### Mounting Overlay

| Part Number | Description              |
|-------------|--------------------------|
| MK2021      | Beige Vinyl Overlay      |
| MK2021-AL   | Brushed Aluminum Overlay |
| MK2021-BK   | Black Vinyl Overlay      |
| MK2021-BL   | Black Aluminum Overlay   |
| MK2041      | Beige Vinyl Overlay      |
| MK2041-AL   | Brushed Aluminum Overlay |
| MK2041-BK   | Black Vinyl Overlay      |
| MK2041-BL   | Black Aluminum Overlay   |

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## DevDevil Development Board

Development Made Easy! The Matrix Orbital DevDevil is a product development board which provides all of the functionality of an alphanumeric display in a project development friendly package. A variety of color options are offered for both the 20 characters by 2 lines and 20 characters by 4 lines display models. The DevDevil opens the door to a world of exciting display possibilities!

Package includes:

- One 20x2 or 20x4 LCD or VFD display
- Mini-USB onboard connector with USB cable
- 6 general purpose outputs (GPOs) or 6 LEDs
- Dallas one wire support
- 7 physical buttons
- 5 x 5 keypad matrix input found on their production counterparts



DD-DB1-AL204A-WB



:: RS232, USB, TTL, and I<sup>2</sup>C protocols offered through a dynamic switch block, standard headers for all protocols are offered on the board, as well as a variety of input power options.

:: Powering up the DevDevil can be as easy as connecting to the mini-USB connector on board. Alternate power options include an AC adapter, power through the DB9 header, and 4 pin data/power input.

| Part Number      | Characters x Lines | Display Type | Display Size L x W (mm) | Module Size L x W (mm)  | Color Options |            |
|------------------|--------------------|--------------|-------------------------|-------------------------|---------------|------------|
|                  |                    |              |                         |                         | Background    | Text       |
| DD-DB1-AL202C    | 20 x 2             | LCD          | 83.0 x 18.6             | 167.64 x 117.76 x 25.73 | Yellow/Green  | Black      |
| DD-DB1-AL202C-GW | 20 x 2             | LCD          | 83.0 x 18.6             | 167.64 x 117.76 x 25.73 | White         | Grey       |
| DD-DB1-AL202C-WB | 20 x 2             | LCD          | 83.0 x 18.6             | 167.64 x 117.76 x 25.73 | Blue          | White      |
| DD-DB1-AL202C-FW | 20 x 2             | LCD          | 83.0 x 18.6             | 167.64 x 117.76 x 25.73 | Black         | White      |
| DD-DB1-AL202C-FB | 20 x 2             | LCD          | 83.0 x 18.6             | 167.64 x 117.76 x 25.73 | Black         | Blue       |
| DD-DB1-AL202C-IR | 20 x 2             | LCD          | 83.0 x 18.6             | 167.64 x 117.76 x 25.73 | Black         | Red        |
| DD-DB1-AL204A    | 20 x 4             | LCD          | 76.0 x 25.2             | 167.64 x 117.76 x 27.50 | Yellow/Green  | Black      |
| DD-DB1-AL204A-WB | 20 x 4             | LCD          | 76.0 x 25.2             | 167.64 x 117.76 x 27.50 | Blue          | White      |
| DD-DB1-AL204A-GW | 20 x 4             | LCD          | 76.0 x 25.2             | 167.64 x 117.76 x 27.50 | White         | Grey       |
| DD-DB1-AL204A-IY | 20 x 4             | LCD          | 76.0 x 25.2             | 167.64 x 117.76 x 27.50 | Black         | Yellow     |
| DD-DB1-AV202C    | 20 x 2             | VFD          | 83.0 x 18.6             | 167.64 x 117.76 x 27.50 | Black         | Blue/Green |
| DD-DB1-AV204A    | 20 x 4             | VFD          | 76.0 x 25.2             | 167.64 x 117.76 x 27.50 | Black         | Blue/Green |

### Accessories

:: DevDevil Cable Kit DD-PASC-PKG includes AC Power Adapter and 4ft Serial Cable.

:: VFD Filters are available in 20x2 and 20x4 in Blue, Grey, Green and Red. Increase readability in a variety of lighting conditions and coordinate with your application.

:: Optional accessories available to purchase for use in specific applications.

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# PC Bay Inserts Series

## Character VFDs PC Bay Inserts

Matrix Orbital provides complete Drive Bay mounting kits. In one of these kits you receive the following: VFD Module , PC Bay Insert , A Wide Voltage unit , Screws, Serial and Power Cable  
When you order the PC Drive Bay Insert kit, it does come pre-assembled so you only need a Philips screw driver to put it inside your computer.



BVK202A-BK-XX

| Part Number     | Characters x Lines | Interface               | Keypad | GPOs | Module Size L x W x T (mm) | Character Size L x W (mm) | Display Size L x W (mm) | Background Color x Text | Options                             |                          |                          |                          |
|-----------------|--------------------|-------------------------|--------|------|----------------------------|---------------------------|-------------------------|-------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
|                 |                    |                         |        |      |                            |                           |                         |                         | -E                                  | -LV                      | -V                       | -VPT                     |
| BVC2021-AL-BK   | 20 x 2             | RS232, I <sup>2</sup> C | 25     | 6    | 116.00 x 37.00 x 27.50     | 3.20 x 5.55               | 82.20 x 18.20           | Black x Blue/Green      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| BVK202A-XX-BK-S | 20 x 2             | RS232, I <sup>2</sup> C | 25     | 6    | 116.00 x 37.00 x 25.73     | 3.20 x 5.55               | 82.20 x 18.20           | Black x Blue/Green      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

: Many other sizes are available on request. as well as custom designs. \*Please ask sales for the complete part number of your display to order

## Graphic LCDs PC Bay Inserts

Matrix Orbital provides complete Drive Bay mounting kits. In one of these kits you receive the following: LCD Module , PC Bay Insert , A Wide Voltage unit , Screws , Serial and Power Cable  
When you order the PC Drive Bay Insert kit, it does come pre-assembled so you only need a Philips screw driver to put it inside your computer



BGK19264-BK-XX

| Part Number     | Pixels   | Interface               | Keypad | GPOs | Module Size L x W x T (mm) | Display Size L x W (mm) | Color Options                       |                                     |                                     | Options                             |                                     |                                     |                                     |                                     |                                     |                                     |
|-----------------|----------|-------------------------|--------|------|----------------------------|-------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                 |          |                         |        |      |                            |                         | XX                                  | GW                                  | WB                                  | -E                                  | -LV                                 | -V                                  | -VPT                                | -VE                                 | -LVE                                | -VPE                                |
| BGK19264-BK     | 192 x 64 | RS232, I <sup>2</sup> C | 7      | 6    | 144.00 x 38.00 x 33.00     | 82.00 x 28.40           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| BGK19264-BK-USB | 192 x 64 | USB                     | 7      | 6    | 144.00 x 38.00 x 33.00     | 82.00 x 28.40           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |
| BGK24064R-BK    | 240 x 64 | RS232, I <sup>2</sup> C | 25     | 6    | 116.00 x 37.00 x 25.73     | 83.00 x 18.60           | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

\*Has 3 dual color LED indicator lights: Yellow, Green and Red \* Please ask sales for the complete part number of your display to order

### Available Options

**-E** Extended Temperature  
LCD -20° to +70° VFD -40° to +85°

**-LV** Low Voltage  
3.3 Vdc

**-V** Extended Voltage  
9-15 Vdc

**-VPT** Voltage Regulator  
9-35 Vdc

### Mounting Bracket Extensions

| Extension | *XX         | AL               | BK          | BL             | S            |
|-----------|-------------|------------------|-------------|----------------|--------------|
| Type      | Beige Vinyl | Brushed Aluminum | Black Vinyl | Black Aluminum | Silver Vinyl |

\* XX No Extension

### Color Extensions

| Extension  | *XX          | GW         | WB    | IY     | R     | FA    | FB    | FG    | FW    | FY     | TCI       |
|------------|--------------|------------|-------|--------|-------|-------|-------|-------|-------|--------|-----------|
| Text       | Black        | Light Blue | White | Yellow | Red   | Amber | Blue  | Green | White | Yellow | Tri Color |
| Background | Yellow/Green | Grey/White | Blue  | Black  | Black | Black | Black | Black | Black | Black  | Black     |

\* XX No Extension

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