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## Product Change Notification

**PCN No:** 2013-03-20-01  
**Report Date:** March 20, 2013  
**Subject:** GLK19264A-7T-1U PCB Rev 2.0 and  
GLK19264A-7T-1U-USB PCB Rev 2.0 Release  
(Firmware Version 8.4)

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### List of New Products:

GLK19264A-7T-1U PCB Rev 2.0 (-LV, -VPT and all color and temperature variants) GLK19264A-7T-1U-USB PCB Rev 2.0 (-422,-VPT and all color and temperature variants)
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### Reason for Change:

The GLK19264-7T-1U PCB Rev 1.x Matrix Orbital graphic module has been upgraded to PCB Rev 2.0 to unify the product line and offer new features and benefits. PCB Rev 1.x, which offered all available communications options in one PCB, has been upgraded into two PCBs:

- GLK19264A-7T-1U PCB Rev 2.0 which offers RS232/TTL/I<sup>2</sup>C interface
- GLK19264A-7T-1U-USB PCB Rev 2.0 which offers USB/RS422 interface

The GLK19264A-7T-1U PCB Rev2.0 supports the following voltage options:

- Regular voltage (5V input)
- -VPT (9V-35V input)
- -LV (3.3V input)

The GLK19264A-7T-1U-USB PCB Rev2.0 supports the following voltage options:

- -USB
- -422 (regular voltage)
- -422-VPT (9V-35V input) - this is the recommended voltage option for -422

**Schedule of Change:**

August 15, 2013

**Product Change:**

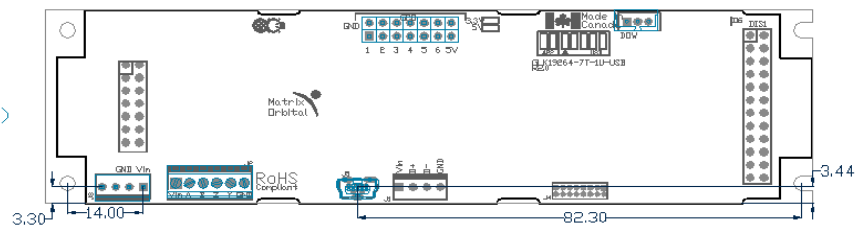
The following list of hardware and firmware changes is effective on all the variants of the GLK19264A-7T-1U as stated under 'List of New Products'. The old PCB 1.x is now superseded by this new module PCB Rev 2.0, and the old firmware version v6.1 is now superseded by v8.4. The changes are stated to compare the old and the new PCB revisions.

**Hardware Changes:**

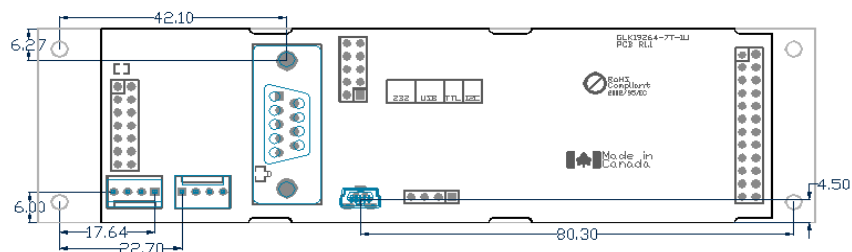
- 1) Six general purpose outputs (GPOs) are offered via a header on the back of PCB Rev 2.0 in addition to the 3 front facing, bi-colour LEDs provided on PCB Rev 1.1.
- 2) The 'Protocol Select Jumpers' on the GLK19264A-7T-1U PCB Rev 2.0 includes RS232, TTL and I<sup>2</sup>C.
- 3) The 'Protocol Select Jumpers' on the GLK19264A-7T-1U-USB PCB Rev 2.0 includes RS422 and USB. We now support RS422 protocol.
- 4) A power LED is added to the PCB Rev 2.0 to indicate power through the display, which is good for troubleshooting and evaluation purposes.
- 5) A single optional Dallas 1-Wire connection is now offered on PCB Rev 2.0.
- 6) Better ESD protection is offered on PCB Rev 2.0 by having extra optional ground jumps.
- 7) Much bigger EEPROM capacity is offered on PCB Rev 2.0. This means more fonts and bitmaps can be uploaded (from 16KB on PCB Rev 1.0/1.1, we now have 256KB capacity)
- 8) Added piezo buzzer that can be run at specified frequency and duration.
- 9) PCB Rev 2.0 now utilizes a new microcontroller running at higher frequency which results to a faster response time from the display.

- 10) Optional CTS / RTS (hardware flow control) connection are added to the 4-pin data / communication connector (pins 5 and 6 respectively).
- 11) Tri color backlight capability – we are now able to offer a -TCL display color option.
- 12) There are minor changes on the PCB dimension; the new PCB Rev 2.0 has ‘wings’ which makes it slightly bigger, also some minor connector location changes:

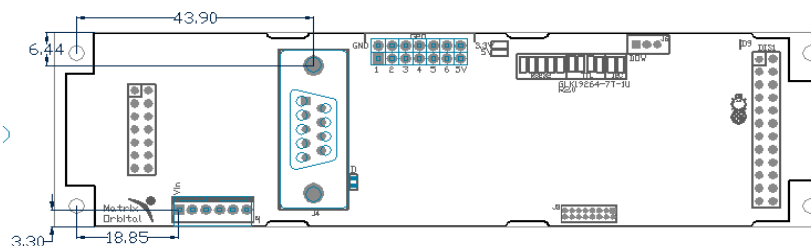
PCB 2.0 (USB)



PCB 1.1



PCB 2.0 (Serial)



Please refer to  
[http://www.matrixorbital.ca/manuals/GLK\\_Series/GLK19264-7T-1U/](http://www.matrixorbital.ca/manuals/GLK_Series/GLK19264-7T-1U/)  
 for the GLK19264A-7T-1U PCB Rev 2.0 manual.

## Firmware v8.4 (Released on February 1, 2013):

### 1) File System Command Changes:

To implement the full capacity of the new 256KB flash part we use onboard, it is necessary to change some of the old commands:

Command	Command Structure (Differences in red)
<b>Upload Bitmap File</b>	v6.1 – 254 / 94 / 1 byte File ID / 2 byte File Length / <data string>
	<b>v8.4</b> – 254 / 94 / <b>2</b> byte File ID / <b>4</b> byte File Length / <data string>
<b>Draw Bitmap from Memory</b>	v6.1 – 254 / 98 / 1 byte File ID / X / Y
	<b>v8.4</b> – 254 / 98 / <b>2</b> byte File ID / X / Y
<b>Upload a Font File</b>	v6.1 – 254 / 36 / 1 byte File ID / 2 byte File Length / <data string>
	<b>v8.4</b> – 254 / 36 / <b>2</b> byte File ID / <b>4</b> byte File Length / <data string>
<b>Delete a File</b>	v6.1 – 254 / 173 / 1 byte Type / 1 byte File ID
	<b>v8.4</b> – 254 / 173 / 1 byte Type / <b>2</b> byte File ID
<b>Download a File</b>	v6.1 – 254 / 178 / 1 byte Type / 1 byte File ID
	<b>v8.4</b> – 254 / 178 / 1 byte Type / <b>2</b> byte File ID
<b>Move a File</b>	v6.1 – 254 / 180 / 1 byte Old Type / 1 byte Old File ID / 1 byte New Type / 1 byte New File ID
	<b>v8.4</b> – 254 / 180 / 1 byte Old Type / <b>2</b> byte Old File ID / 1 byte New Type / <b>2</b> byte New File ID

Text in red shows the difference in the command parameters. For all parameters with 2 or more bytes, LSB is sent first.

## **2) Additional Commands (for new Hardware Features):**

- Activate Piezo Buzzer Command (254 / 187)
- Set Keypad Buzzer Beep Command (254 / 182)
- ASCII Bell Character (7d) is implemented
- Dallas 1-Wire Command (254 / 200)
- Hardware Flow Control Settings Command (254 / 64)
- Set Tri-Color Backlight Base Color Command (254 / 130)
- Set LED Indicators Command (254 / 90)

## **3) Additional Commands (Firmware Features):**

- Keypad Backlight
- 9-Slice Bitmaps
- Scripts
- Scripted Keypad
- Scroll
- Bar Graphs (updated)
- Animation
- Drawing / Graphic Functions (circles, ellipses, etc)
- Strip charts (updated)
- Text Window, Labels
- Bitmap and 9-Slice Masking
- Xmodem single file and full file system upload and download

## **4) Field Upgradeable Firmware**

We now offer field upgradeable firmware on our new GLK19264A-7T-1U PCB Rev 2.0 and GLK19264A-7T-1U-USB PCB Rev 2.0. Please see the manual for details on how to do this.

**Please see the manual for in depth details.**

## Documentation Revision

Revision	Changes	Date	Author
1.0	Initial Release	2013/07/30	R Malinis

### Contact Information:

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### Reference Documents/Attachments:

Location: <http://www.matrixorbital.ca/manuals/>

### Approvals:

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