Product Change Notification

PCN No: 2010-10-08-03
Report Date: October 8, 2010
Subject: GLK240128-25 PCB 4.0 New Board Revision Release

List of New Products:

GLK240128-25 PCB 4.0 including all applicable extensions and combinations

-WB, -FGW, -YG (display colour)
-VPT, -V, -E (power and temperature options)

Reason for Change:

The GLK240128-25 PCB Rev 4.0 Matrix Orbital graphic module series have been upgraded to be able to unify display modules and offer new features and benefits.

Product Change:

The following list of hardware and firmware changes are all effective on all the variants of the GLK240128-25 as stated under 'List of New Products'. The old PCB 1.1 is now superseded by PCB Rev 4.0, and the old firmware version v6.0 is now superseded by v8.0. The changes are stated to compare the old and the new PCB revision.

Schedule of Change:

November 1, 2010

Hardware Changes:

1) Six general purpose outputs (GPOs) are offered by PCB Rev 4.0. PCB 1.1 does not offer any general purpose outputs.

2) The 'Protocol Select Jumpers' now come with USB and RS422 selection, although the said additions are not for end users' use, they are provision for the PCB Rev 4.0 to be able to offer the -USB and -422.

3) A power LED is added to the PCB Rev 4.0 to indicate power through the display, which is good for troubleshooting and evaluation purposes.

4) A single Dallas 1-Wire connection is now offered on PCB Rev 4.0

5) A separate manual over-ride header (R5 and C1 are still manual override) is now offered on PCB Rev 4.0 such that manual over-ride will not require much disturbance of system connections.

6) A serial header (the connector is populated only upon request) is added on PCB Rev 4.0

7) Better ESD protection is offered on PCB Rev 4.0 by having extra optional ground jumps

8) Quadrupled EEPROM capacity is offered on PCB Rev 4.0. This means more fonts and bitmaps can be uploaded (from 16KB on PCB Rev 1.1, we now have 64KB capacity)

9) Added piezo buzzer that can be run at specified frequency and duration.

10) PCB Rev 4.0 now utilizes a new microcontroller running at higher frequency which results to a faster response time from the display; PCB Rev 1.1 offered 376ms time drawing a single 240x128 bitmap from external memory; the new PCB Rev 4.0 offers 56ms time to draw a single 240x128 bitmap from external memory. A jump of 600%

11) Optional CTS / RTS (hardware flow control) connection are added to the 4-pin data / communication connector (pins 5 and 6 respectively).

12) Brighter backlight for the YG displays, as we now use better

components for the backlight circuitry.

Please refer to
http://www.matrixorbital.ca/manuals/GLK_series/GLK240128-25
for the GLK240128-25 PCB 4.0 manual.

Firmware Changes:
Firmware version v8.0 (released October 15, 2010):

1) For display verification, a new command is added:
   Read Screen Command: 254 / 184
   This will make the display reply 3840 bytes (30 bytes per row, 128 rows) of data that defines the current image displayed on the screen. If a host application is written such that it will accept the replied data, the host application can then draw what is written on the screen.

2) For use of the piezo buzzer, a new command is added :
   Set Piezo Buzzer Command: 254 / 187 / freq / time
   When this command is sent, the piezo buzzer will resonate to frequency and time specified.

3) For protocol flexibility, new commands are added / modified:
   Set Flow Control: 254 / 63 / <mode>
   where <mode>:
   0 - No flow control
   1 - Software flow control (associated cmds 254/60, 254/59, 254/58)
   2 - Hardware flow control (associated cmd 254/62)
   Set Flow Control Value Command: 254 / 60 / <On Value> / <Off Value>
   This command opens up the capability of Xon/Xoff flow control, which are values 0x011 / 0x13. Default is still the 0xFF, 0xFE.
   Set Hardware Flow Control Trigger Level: 254 / 62 / trigger level
   When hardware flow control is in effect, the trigger level can be set up on the microcontroller such that the trigger level determine how many receiver UART FIFO characters must be written before an interrupt request is activated. When the receiver FIFO level reaches the programmed trigger level, RTS is de-asserted (high) signaling the host to stop sending data.
   There are 4 options for the trigger level:
   0 - 1 character trigger level

1 - 4 character trigger level
2 - 8 character trigger level
3 - 14 character trigger level (default value)

4) For use of the Dallas 1-wire connections, the following commands are added:
Search for Dallas 1-Wire Devices: 254 / 200 / 2
Dallas 1-Wire Transaction: 254 / 200 / 1 / <transaction>
The preceding commands can be used to determine Dallas 1-Wire (non-parasitic) slave devices connected on the bus (cmd 200 / 2); and send device specific commands (cmd 200 / 1)

5) We now offer field upgradeable firmware. For ease of upgrades and necessary bug fixes, we now offer field upgradeable firmware. The upgrade can be done within the mogd# application software.

6) List of New (or Changed) Commands:

Display Screen Control Command:

184: Read Screen

- new command, as described in item #1 under Firmware Changes

Piezo Buzzer Related Command:

187: Set Piezo Buzzer - new command, as described in item #2

Protocol Related Command:

63: Set Flow Control Mode

60: Set Flow Control Value Command

62: Set Hardware Flow Control Trigger Level

- new commands, as described in item #3

Dallas 1-Wire Related Commands:

200 / 1: Search for Devices - new command, as described in item #4

200 / 2: 1-Wire Transaction - new command, as described in item #4

Please see the manual for in depth details.

Documentation Revision

Revision	Changes	Date	Author
1.0	Initial Release	10/08/10	R Malinis

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Reference Documents/Attachments:

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

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