# Product Change Notification

**PCN No: 2011-06-03-01.2**

**Report Date: June 3rd, 2011**

**Subject: Wide Voltage Module Power and Temperature Considerations**

## Reason for Change:

The power dissipation and thermal properties of the Wide Voltage (-V) regulator have been physically and mathematically tested to determine a theoretical point of failure. Due to these calculations, many VFD units will no longer support the Wide Voltage option with an Extended Temperature rating and it is recommended that the performance of LCD models, especially Extended Temperature variants, be limited. The Wide Voltage, Efficient Switching (-VPT) power option is recommended for applications that may require operation outside the recommended parameters below.

## List of Affected Products:

| **Alphanumeric Displays** | | | |
|---|---|---|---|
| LK202-25-V | LK204-25-V | LCD2041-V | LK162-12-V |
| LK202-25-V-E | LK204-25-V-E | LCD2041-V-E | LK162-12-V-E |
| LK402-25-V | LK402-25-V-E | LK404-25-V | LK404-25-V-E |
| VK202-25-V | VK202-25-V-E | VK204-25-V | VFD2041-V |
| VK162-12-V | VK162-12-V-E | | |

**Product Change:**

Display operation is recommended only within the temperature and input voltage specifications outlined. Please use the table below to estimate the current draw of your display and determine the maximum input voltage available within your temperature specifications.

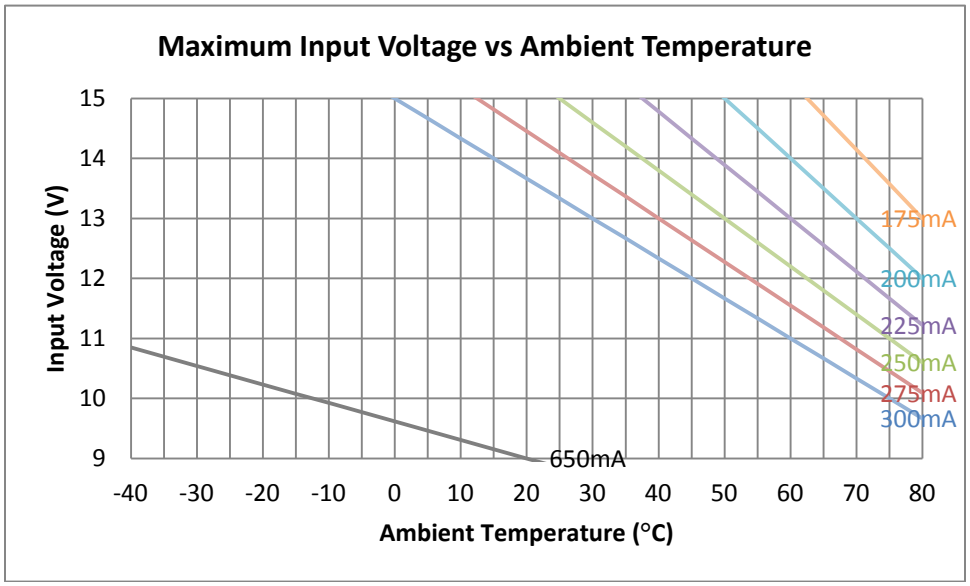


*Figure 1: Voltage vs Temperature (LK/VK204-25, LK402-25 & LK404-25)*

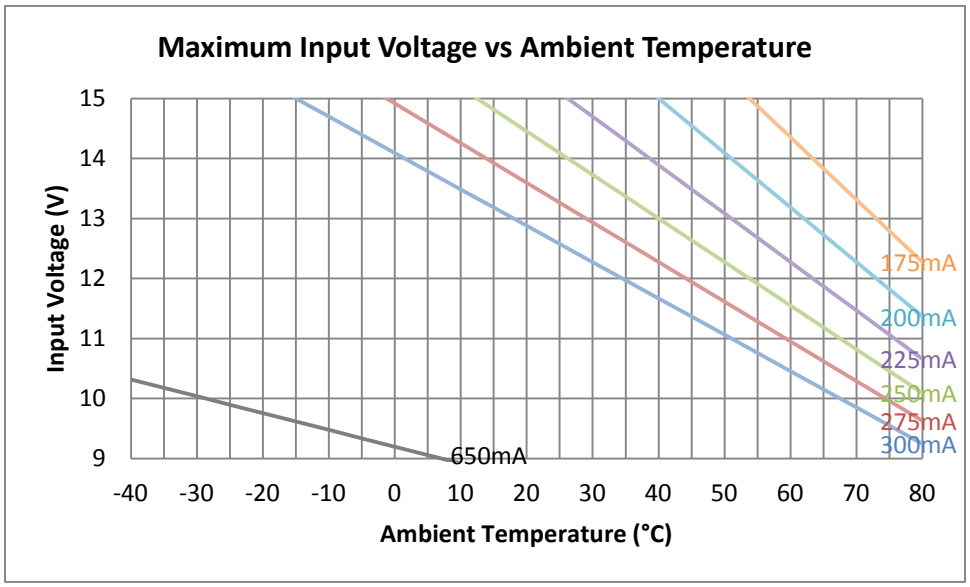


*Figure 2: Voltage vs Temperature (LK/VK162-12 & LK/VK202-25)*

Each unit will require the board current listed below to operate. If the backlight is turned on, the maximum current listed should be added to the board value. Finally, the maximum available source current of each GPO is listed; add this value for each output in use to estimate the total current draw of your display.

*Table 1: Expected Current Draw*

| | Board | Backlight | GPO |
|---|---|---|---|
| **LK204-25 (YG/IY)** | 40mA | 135mA | 20mA (Maximum) |
| **LK204-25 (GW/WB)** | | 70mA | |
| **LK204-25 (R)** | | 150mA | |
| **VK204-25** | | 250mA | |
| **LCD2041 (YG/IY)** | 40mA | 135mA | |
| **LCD2041 (GW/WB)** | | 70mA | |
| **LCD2041 (R)** | | 150mA | |
| **VFD2041** | | 250mA | |
| **LK202-25 (YG/IY/FY)** | 40mA | 130mA | |
| **LK202-25 (GW/WB/FB/FW)** | | 60mA | |
| **LK202-25 (R/FG/FA)** | | 150mA | |
| **VK202-25** | | 170mA | |
| **LK162-12 (YG/IY)** | 40mA | 90mA | |
| **LK162-12 (GW/WB)** | | 30mA | |
| **LK162-12 (R)** | | 100mA | |
| **VK162-12** | | 200mA | |
| **LK402-25** | 40mA | 210mA | |
| **LK404-25** | 40mA | 610mA | |

The estimated current draw of your unit will allow you to choose a limit on the graphs above. To ensure operation at your desired ambient temperature, regulate the maximum voltage to your display so it falls below the limit shown, or choose a –VPT module which permits much wider operation and stability.

**Schedule of Change:**
June 1, 2011

**Documentation Revision**

| Revision | Changes | Date | Author |
|---|---|---|---|
| 1.0 | Initial Release | June 3, 2011 | Clark |
| 1.1 | Added LCD/VFD2041 Displays | June 30, 2011 | Clark |
| 1.2 | Changes to affected Products | January 30, 2013 | Clark |

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**Reference Documents/Attachments:**

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

**Approvals:**

| Documentation | Design | Sales | Production |
|---|---|---|---|
| Troy Clark | Henry Jakl | Clare Lang | Yuko Hansen |