# User's Manual
# ELI101-CPW


**Revision 1.1**

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# 1.0 Introduction

### About ELI (the Easy LCD Interface)

ELI® is Future Designs, Inc.'s family of long-life, plug-and-play embedded displays. ELI products are true modular embedded display solutions that require no engineering or lead-time. All ELI products are compatible with a wide range of single board computers including Raspberry Pi, BeagleBone Black and Windows-based units. FDI designed ELI as an embedded display option that requires minimal development time to help customers reach production quickly. Once a product is in production, FDI's 10-15 year ELI product availability guarantee helps ensure production schedules without the risk of expensive or time consuming redesigns. Learn more about ELI at TeamFDI.com/ELI.

### ELI Compatibility

ELI products are compatible with most single board computers, PCs and operating systems. The table below illustrates the results of FDI's compatibility tests with popular operating systems and platforms. Our results, as indicated in the table, demonstrate ELI's versatility but the table is not exhaustive. ELI products are designed to work with any single board computer that has an HDMI or DVI output. To submit a question about ELI's compatibility with a platform or operating system that is not included in the table, contact a member of the FDI support team at Support@teamfdi.com.

| ELI101-CPW Compatibility Chart | | Operating System | | |
|---|---|---|---|---|
| | | Windows 7 & 10 | OSX (Apple) | Linux |
| Personal Computer Video Source | Intel | ✓ | TBD | ✓ |
| | NVIDIA | ✓ | TBD | ✓ |
| | AMD | ✓ | TBD | ✓ |
| SBC Video Source | Beaglebone Black | N/A | N/A | ✓ |
| | Intel Compute Stick | TBD | N/A | TBD |
| | Raspberry Pi | N/A | N/A | ✓ (Config File) |

Figure 1. Tested ELI Compatibility

**Your ELI Experience**

Share your experience connecting ELI devices to various (single board) computers at: http://www.teamfdi.com/edid/#edidform.

## 2.0 ELI101-CPW Box Contents

- ELI101-CPW
- Quick Start Guide

## 3.0 Optional Accessories Recommended for Use (Purchased Separately)

- 12V DC +/-5% 2A Power Supply with a center positive barrel plug
  - 2.1mm I.D. x 5.5mm O.D. x 9.5mm
- USB Type A to Mini Type B Cable (For touch)

## 4.0 Touch Screen Precaution

When the ELI101-CPW is powering up and initializing, please refrain from touching the front of the display or lying it face down on a surface. This can interfere with proper touch screen initialization and calibration and may cause temporary issues with the touch screen operation. If this condition occurs, please reset or power up the unit correctly and normal touch screen operation will resume.

## 5.0 ESD Warning

Figure 2. Electrostatic Sensitive Device

Our ELI units are shipped in a protective anti-static package. Do not subject the module to high electrostatic potentials. Exposure to high electrostatic potentials may cause damage to the boards that will not be covered under warranty. General practice for working with static sensitive devices should be followed when working with this device.

# 6.0 Technical Specifications

Table 1. Technical Specifications

| | |
|---|---|
| **Screen Size (inches):** | 10.1 |
| **Display Technology:** | IPS a-Si TFT LCD |
| **Resolution:** | 1280 x 800 (WXGA) |
| **Brightness (nits typical):** | 240 |
| **Contrast Ratio (typical):** | 800:1 |
| **Aspect Ratio:** | 16:10 |
| **Interface Input Mode:** | HDMI/DVI |
| **Colors:** | 16.7M (24 bit) |
| **Horizontal Viewing Angle:** | 85/85° |
| **Vertical Viewing Angle:** | 85/85° |
| **Surface:** | Anti-Glare |
| **Touch Screen:** | Projected Capacitive |
| **Touch Screen Interface (mA typical/max):** | USB Device |
| **Touch Panel Hardness:** | ≥ 7H |
| **Active Area (in mm W x H):** | 216.96 x 135.60 |
| **Response Time (ms):** | 10 Tr/15 Tf |
| **Backlight:** | 30 LEDs |
| **Backlight Life (K hours typical):** | 30K (at 25° C) |
| **Backlight Power Consumption (W Typical):** | 4.5 |
| **Operating Temperature:** | 0° to 50° C |
| **Storage Temperature:** | -20° to 60° C |
| **Input Voltage:** | 5-17V |
| **Power Consumption (mA typical/max)** | 250/400@17V<br>350/550@12V<br>900/1350@5V |
| **RoHS Compliant:** | Yes |
| **Dimensions (in mm W x H x D)** | 257.10 x 159.66 x 19.0 |
| **Mounting:** | 3M 300LSE tape or other 3M tape |
| **Weight (grams)** | 368 |

# 7.0 Connectors

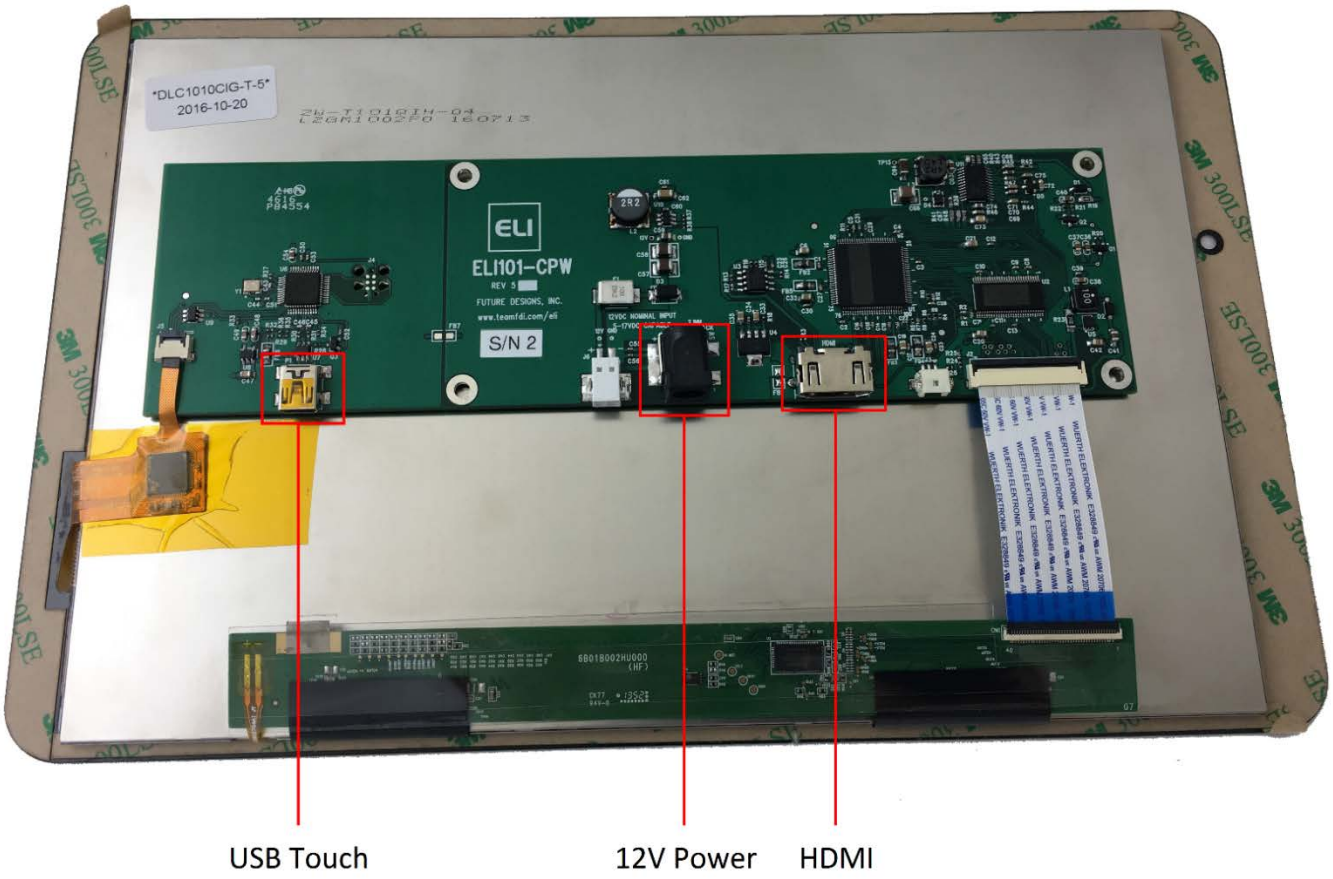


Figure 3. ELI101-CPW Connectors

# 8.0 Power Details

A 12VDC +/- 5% power supply with a 2.0A output will power any board from the ELI Family. This allows a common, off-the-shelf power supply such as the **T1071-P5P-ND** to be used for quick demos or prototyping across the entire ELI Family. In general, any 12VDC power supply with a 2.1mm center positive plug will be acceptable if it can provide enough current to power the particular ELI unit being used. On the ELI101-CPW plug power into the (P2) connector.

For volume production applications, the input power can be optimized for your particular ELI unit and lower capacity power supplies can be used.

In cases where the barrel connector is not desired, you can use the alternate power input connector (J8) with supports directly plugging in 20-26 AWG wire with maximum 5A current per contact. The datasheet for this J8 connector (PCB terminal block - PTSM 0,5/ 2-2,5-H SMD WH R24 – 1814634) can be found at http://tinyurl.com/1814634.

To verify that the ELI101-CPW unit is correctly powered you may check the 12VDC input with a Fluke meter or scope by probing the +12V and GND contacts shown below. Please verify that the 12VDC is present, is within the +/- 5% tolerance and is free from excessive noise or AC ripple.

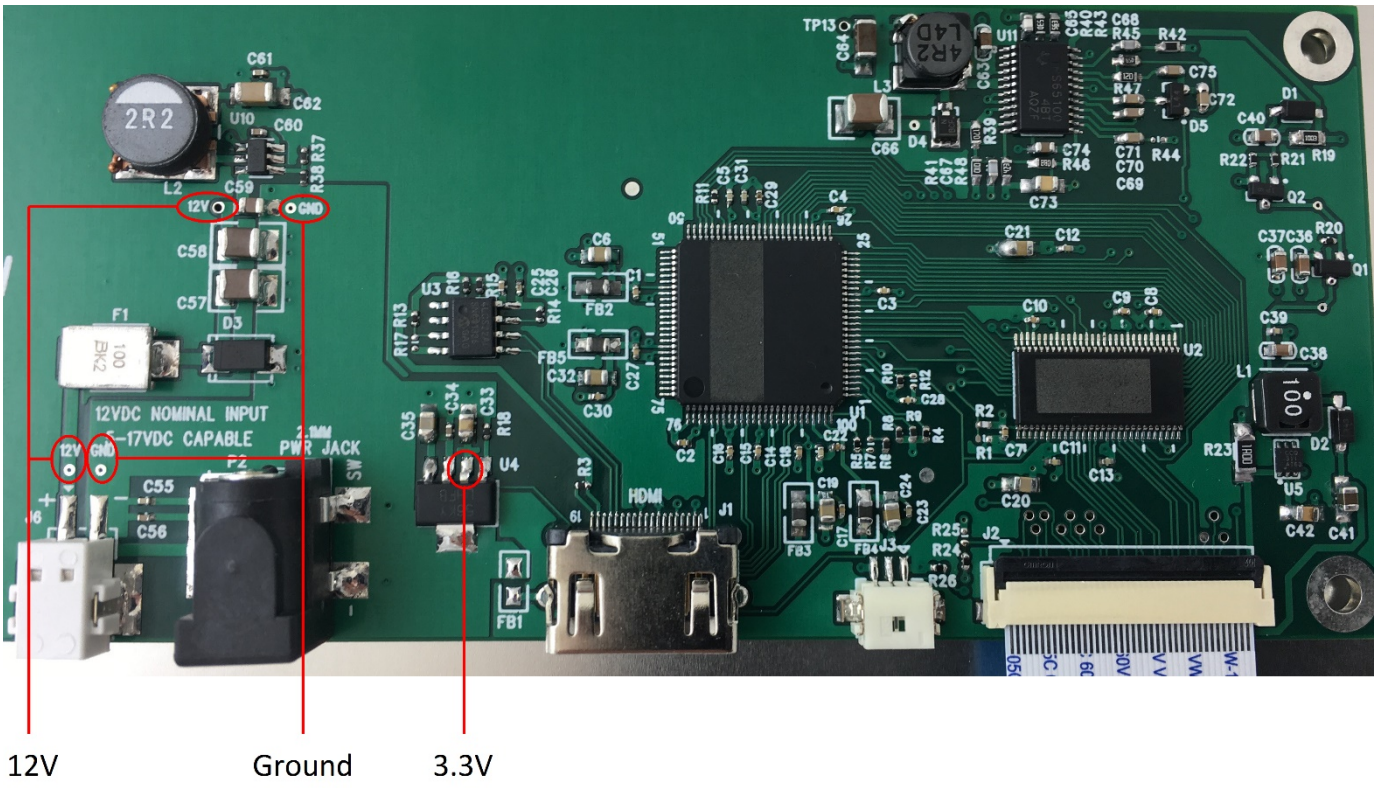


Figure 4. ELI101-CPW Power Test Points

## 9.0 Extended Display Information Data (EDID)

ELI uses Extended Display Identification Data (EDID) for automatic configuration with many operating systems. You can find out more on our website at http://www.teamfdi.com/edid/.

# 10.0 PWM Control of Backlight

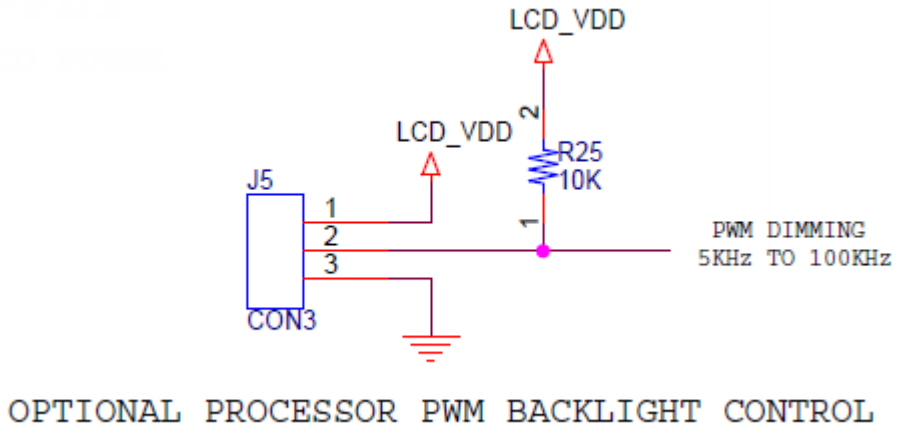


Figure 5. PWM Backlight Control

All ELI products are designed to reduce power consumption when required. To reduce the power consumption of the backlight/ELI, the user can connect an externally generated Pulse Width Modulated (PWM) signal to pin 2 of J5. This signal must be between 5KHz and 100KHz. On the ELI side we softly pull the PWM diming signal to LCD_VDD providing 100% backlight power when no PWM signal is applied at J5. In the ELI101-CPW, power consumption can be controlled from 1.27W to 0.43W with the PWM signal.

If the external system is capable of providing the PWM diming signal at 3.3V DC, there is no need to connect pin 1 to the cable. ELI provides this signal when the external system needs this voltage to generate the PWM diming signal.

# 11.0 Support

## 11.1 Where to Get Help

Online technical support is available at http://www.teamfdi.com/support/

## 11.2 Useful Links

- Future Designs, Inc. Forums: http://www.teamfdi.com/forum
- ELI101-CPW Product Page: http://www.teamfdi.com/product-details/eli101-cpw
- ELI Software User's Manual: http://www.teamfdi.com/wp-content/uploads/ELI-Software-Users-Manual.pdf
- Tell us about your ELI experience: http://www.teamfdi.com/edid/#edidform
- EDID Information Page: http://www.teamfdi.com/edid/