



SVGA4

Miniature LCD

0.7" / 18mm diagonal
800 x 600 pixels



Features

- Miniature transmissive TFT LCD
- High resolution – SVGA (800 x 600 pixels) LCD
- Fast response twisted nematic liquid crystal structure
- High contrast
- Binary and greyscale operation
- PC (analogue) input signal
- Accepts SVGA (800 x 600) and VGA (640 x 480) signals
- Sharp images, clear text
- Lightweight and portable
- Simple system integration
- Minimal space requirements
- Range of accessories available, including backlighting options
- Customisation service available
- Upgrade to VX (Video EXtension) model available. The VX model accepts composite video input - NTSC/PAL/CCIR/RS170
- Also available in the SVGA range of products:
 - [SVGA4VX- 0.7"/ 18mm](#)

Applications

- Spatial light modulation
 - Simulation (projection)
 - Printing
 - Holography
 - Stereolithography
 - Optics / electro-optics R&D
- LCD
 - Simulation (direct view)
 - Thermal imaging
 - Head-up displays

Description

The SVGA4 miniature LCD is supplied to users as an instant plug and play unit, consisting of an LCD panel and an associated interface PCB. To display an image on the LCD panel, simply supply an SVGA or VGA signal from the external monitor port of a PC.

The LCD panel displays binary and continuous greyscale monochrome patterns and images with a spatial resolution of 800 x 600 pixels. SVGA images completely fill the panel whereas VGA images are displayed on a 640 x 480 window centred on the panel. The unit uses the miniature LCD panel as the intensity modulating element. Optimised for amplitude modulation, the LCD panel is suitable for both high and low intensity light applications and allows users to integrate the unit into evaluation prototypes and end-user products.

The LCD panel is an active matrix, thin film transistor (TFT) type that uses a twisted nematic liquid crystal material. The panel is fabricated using a high temperature, polysilicon-on-quartz process that allows a high aperture ratio and good optical transmission to be achieved. The matrix is constructed with a metal mask that covers the inter-pixel spaces, obscuring the TFTs and preventing light leakage through the unswitched parts of the panel.

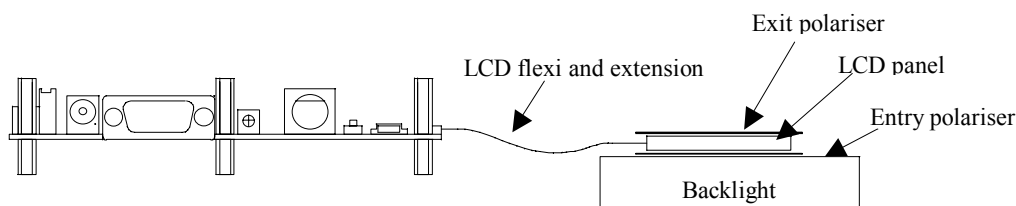
When used in conjunction with suitable external polarisers, the panel is capable of contrast ratios of greater than 100:1 for greyscale imagery and its response is fast enough to allow the display of motion video, with minimal smearing.

To view an image on the LCD panel using conventional illumination, polarisers are required on both the entry and exit sides of the panel.

An entry polariser is not necessary if a polarised light source is used. Should the application result in high levels of thermal dissipation, bonding an entry polariser onto the LCD panel is not recommended.

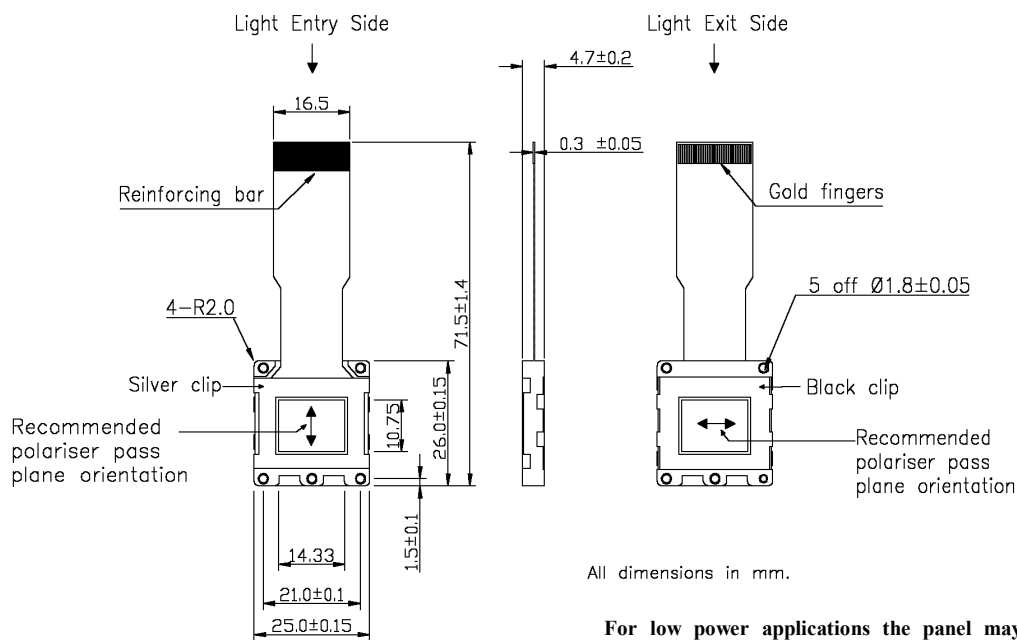
For more information on the board configurations and connection arrangements see below.

General Configuration



Test configuration showing SVGA4L11 LCD panel (external polarisers on light entry and light exit side)

1. LCD Panel Specifications



For low power applications the panel may safely be illuminated from either the light entry or light exit side

| | |
|-----------------------------|---|
| Type | Active matrix TFT transmission mode panel using twisted nematic liquid crystal material. ¹ |
| Spatial resolution | 800 (H) by 600 (V) monochrome pixels |
| Pixel pitch | 18µm (H) x 18µm (V) |
| Pixel dimensions | 15µm (H) x 12.5µm (V) |
| Panel dimensions | Active area 14.33mm (H) x 10.75mm (V) |
| Transmission | 16% typical |
| Fill factor | 54% |
| Contrast ratio ² | >100:1 readily achievable with film polarisers |

(1) Supplied with or without polarisers

(2) SVGA4L01 panel measured with Polaroid HN22 film polariser in close proximity to LCD on light input side and bonded-on polariser on light exit side

2. Interface Specifications

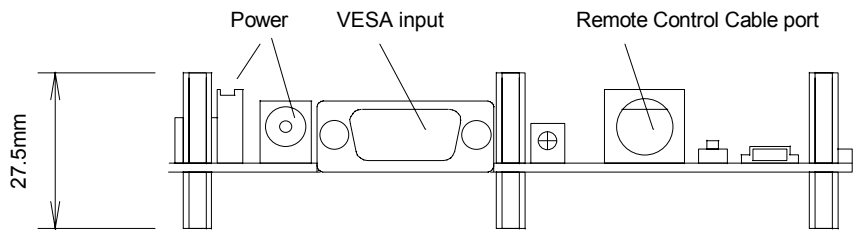
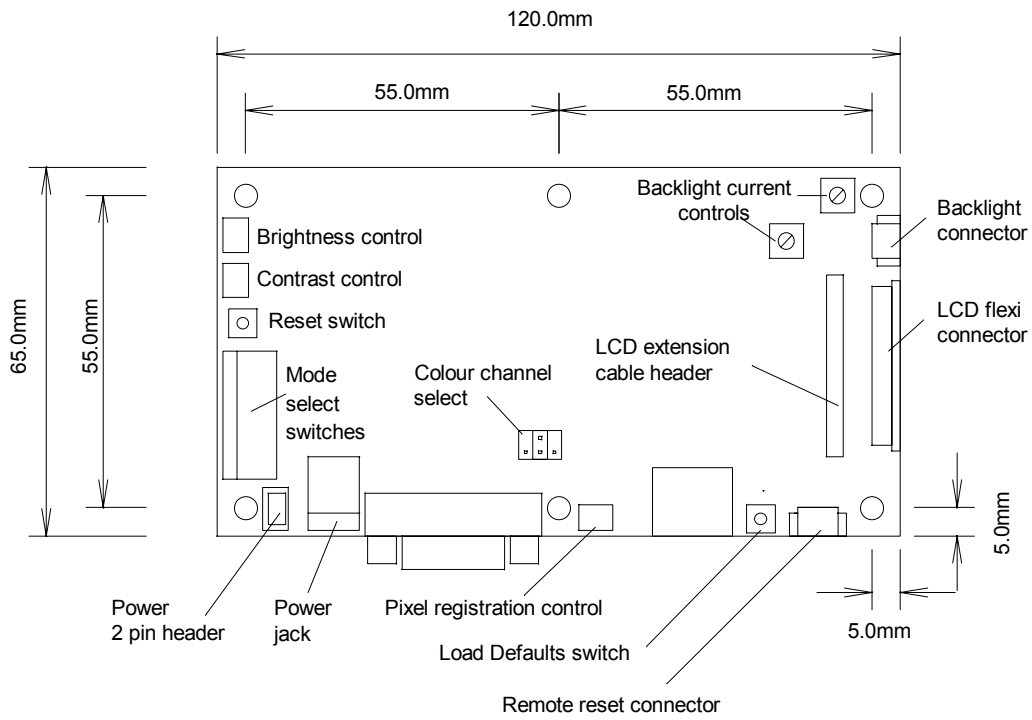
The interface allows the SLM to be driven directly by the video adapter of a personal computer set to SVGA resolution (800 x 600 pixels) and running at a frame rate of 60Hz. Power for the unit is supplied by single rail external DC power supply.

The interface makes extensive use of digitally controlled analogue chips in the video signal path. These chips can be accessed by the use of a Remote Control Cable (RCC), supplied separately. This allows the interface to be plugged into a PC running suitable terminal emulation software such as "Hyper Terminal" providing access to all of the control registers on the interface and enables the user to remotely adjust image linearisation (gamma correction), contrast, brightness and position (horizontal, vertical)

Rotary controls and switches mounted on the interface allow manual adjustment of contrast, brightness and image orientation (horizontal, vertical inversion).

The interface provides support for a cold cathode fluorescent lamp (CCFL) to be used as a backlight for the LCD.

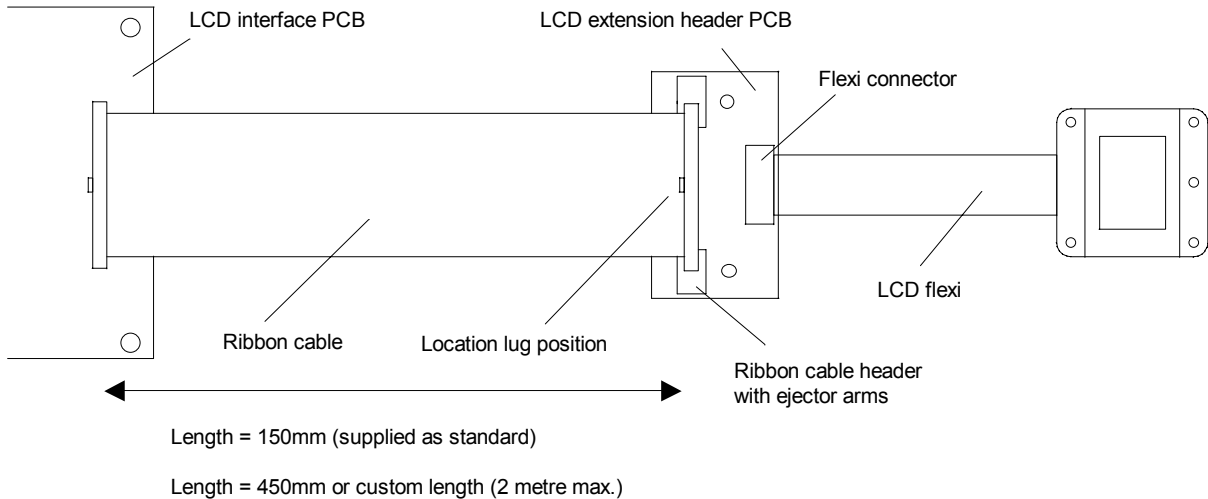
Interface P CB



Six mounting holes, 3.5mm I/D fitted with 3mm hexagonal posts

Interface specifications continued...

The unit is supplied with a 150mm ribbon cable interconnect for the LCD panel. Longer ribbon cables, up to a maximum of 2m, are also supported (supplied separately).



Configuration showing SVGA4 LCD panel flexi and extension ribbon cable

Interface general

| | |
|---|---|
| Operating voltage range | 11.5 – 13.5V |
| Power consumption: Without backlight With backlight at full power | 4W typical 5.5W typical |
| Operating temperature range: Interface LCD panel | -10 to 70°C -10 to 70°C |
| PCB dimensions including mounting posts | 125mm (L) x 65mm (W) x 27.5mm (H) approx. |
| Backlight | 3-pin 1.25mm pitch header connector |

Interface timing

| | |
|-----------------|----------------------|
| Mode | SVGA |
| Refresh rate | 60Hz, non-interlaced |
| Line frequency | 37.879kHz |
| Pixel frequency | 40.000MHz |

Note: Complies with VESA guideline #900602, “800 x 600 @ 60Hz”

| | |
|-----------------|----------------------|
| Mode | VGA |
| Refresh rate | 60Hz, non-interlaced |
| Line frequency | 31.469kHz |
| Pixel frequency | 25.175MHz |

Note: This is “Industry Standard” timing for VGA mode



Product Ordering

To place an order please quote:

Product Configuration

SVG4L11 SVGA4 LCD panel without polarisers
SVG4P01 SVGA4 interface PCB

Optional Accessories

SVG4L01 SVGA4 LCD panel with bonded-on exit polariser
SVG4L12 SVGA4 LCD panel with bonded-on entry and exit polarisers
CRLBL34 Cold Cathode Fluorescent Lamp (CCFL) backlight (34mm diagonal)
CRLCVMO PC-to-interface video cable
CRLCMAX Mains cable - USA
CRLCMOX Mains cable - UK
CRLCMEX Mains cable - Europe
CRLPS12 12 volt power supply
CRLS2VX LCD panel extension cable – 300mm, 1metre, 2 metres or custom length (please specify)
CRLSVGAB Pendant controller - enables remote control of brightness, contrast, horizontal and vertical positioning of the image using push button switches. Controller cable length 2 metres
CRLSVGAP Remote Control Cable (RCC) - enables wired remote control of image linearisation (gamma correction), contrast, brightness and position (horizontal, vertical) via a PC running Hyper Terminal. RCC cable length 2 metres

*Mains cables for Denmark, Switzerland, Italy and Australia are available on request.

To Upgrade to our composite video compatible SVGA product or for more information on our exclusive range of XGA transmissive displays please refer to the relevant product datasheets on our website <http://www.crlopto.com> or contact CRL Opto directly: sales@crlopto.com