

VIEWPixx /3D™

Display toolbox optimized for vision researchers



OVERVIEW

The VIEWPixx /3D is a complete display toolbox which has been optimized specifically for stereoscopic and other dynamic visual stimuli. The VIEWPixx /3D features LCD glass with the fastest possible pixel response, and a panel controller which has been custom designed for vision research. Our innovative scanning LED backlight design eliminates ghosting, has superior display uniformity, and features a wide color gamut exceeding that of any CRT. In addition the VIEWPixx /3D includes an array of peripherals which often need to be synchronized to video during an experiment, including a stereo audio stimulator, a button box port for precise reaction-time measurement, triggers for electrophysiology equipment, and even a complete analog I/O subsystem. Because we implemented the video controller and peripheral control on the same circuit board, you can now successfully synchronize all of your subject I/O to video refresh with microsecond precision.

FEATURES

- 10-BIT RGB INTENSITY
- 1920 x 1080 DISPLAY RESOLUTION AT 120 Hz
- DETERMINISTIC TIMING BETWEEN RECEPTION OF VIDEO SIGNAL AND UPDATE OF DISPLAY PIXELS
- SCANNING LED BACKLIGHT WITH DIRECT RGB LED ARRAY
- FAST 16-BIT DATA ADCs/DACs
- STEREO AUDIO INPUT/OUTPUTS
- 24 TTL TRIGGER INPUT/OUTPUTS
- ALL ANALOG AND DIGITAL INPUTS / OUTPUTS FEATURE MICROSECOND SYNCHRONIZATION TO VIDEO REFRESH

SOFTWARE

Software support includes a low-level ANSI C API, PsychToolbox MATLAB / Octave libraries for Mac OS X, Windows and Linux, and HID support (PsychoPy, E-Prime, Presentation). The VIEWPixx /3D is also supported by the VPixx program.



www.vpixx.com

VIEWPixx /3D SPECIFICATIONS

LCD SPECIFICATIONS

- Display resolution: 1920(H) x 1080(V) pixels
- 23.6 inch display size (diagonal)
- Pixel pitch: 0.2715(H) x 0.2715(V) mm
- Pixel arrangement: RGB (Red dot, Green dot, Blue dot) vertical strip
- TFT LCD
- 10 bits of resolution on each of the RGB channels
- 100Hz to 120Hz refresh rate with zero latency stimulus presentation
- 60Hz to 100Hz refresh rate with internal frame buffering
- Pixel response time :
 - 1ms typical in scanning backlight mode
 - 2ms typical in normal backlight mode
- Luminance:
 - 100 cd/m2 in scanning backlight mode
 - 250 cd/m2 in standard backlight mode
- Uniformity: 95% over 95% of display area
- Contrast ratio: Typical 1000:1
- Viewing angle: 170° (Horizontal), 160° (Vertical)
- Polarizer surface: Antiglare

BACKLIGHT SPECIFICATIONS

- Scanning LED backlight
- Direct RGB LED array
- Wide gamut LED
- Factory white point D65

VIDEO PROCESSING

- Video input: 1920 x 1080 pixels, 60 to 120 Hz, 24 bits (Dual link DVI)
- Deterministic timing between reception of video signal and update of display pixels
- Completely bypass all image processing “enhancements” prevalent in standard consumer LCD panels
- Multiple displays can be synchronized, showing copies or subsets of original video

POWER

- Power consumption: 180W
- Input voltage: 48Vdc – 3.75A
- International AC adaptor input: 90Vac – 264Vac (47Hz – 63Hz)

VIEWPixx STAND

- Mounting standards: VESA MIS-D/E, MIS-F
- Hole pattern: 100 x 100mm & 75 x 75mm

Lift	Tilt	Pan	Rotation	VESA
5" 13 cm	30°	Base 360°	90° P/L	MIS-D/E MIS-F

ANALOG TO DIGITAL CONVERTER

- Number of channels: 16 (or 8 differential), on DB-25 connector
- Converter resolution: 16 bits
- Maximum sampling rate: 200 kSPS per channel
- Frequency programming modes:
 - Samples per second
 - Samples per video frame
 - Nanoseconds per sample
- Simultaneous sampling across all channels
- Input range: $\pm 10V$
- Input impedance: $1.6 \times 10^8 \Omega // 3pF$
- Absolute maximum input tolerance: $\pm 12V$

DIGITAL TO ANALOG CONVERTER

- Number of channels: 4 on DB-25 connector
- Converter resolution: 16 bits
- Maximum sampling rate: 1 MSPS per channel
- Frequency programming modes:
 - Samples per second
 - Samples per video frame
 - Nanoseconds per sample
- Simultaneous output updates
- Output range: $\pm 10V$
- Drive capability: $\pm 25mA$, 250mW per channel

AUDIO CODEC

- Audio line in, microphone in, speaker out, on 3.5mm jacks
- Stereo microphone input amplifier resistance: 20k Ω
- Microphone sampling rate: 96kHz
- Programmable microphone bias voltage range: 2.0V to 3.1V
- Stereo DAC sampling rate 96kHz

DIGITAL INPUT

- Number of digital inputs: 24 on db-25 connector
- Input termination: >20k Ω pullup to 3.3V
- Input tolerance: 5V

DIGITAL OUTPUT

- Number of digital outputs: 24 on db-25 connector
- Output drive stage: 5V through 25 Ω series resistor
- Maximum output current:
 - Source: 15mA
 - Sink: 12mA

ORDERING INFORMATION

DESCRIPTION: VIEWPixx /3D
P/N: VPX-VPX-2005C

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