VPixx Technologies Inc.

VISION SCIENCE SOLUTIONS

PROPixx™

Projector optimized for vision researchers

Up to 500Hz refresh rate

FEATURES

- UP TO 12 BITS RGB INTENSITY
- UP TO 1920 x 1080 RESOLUTION
- DETERMINISTIC TIMING BETWEEN RECEPTION OF VIDEO SIGNAL AND UPDATE OF DISPLAY PIXELS
- RGB LED LIGHT SOURCE
- SHORT AND LONG THROW LENSES AVAILABLE
- PASSIVE 3D WITH 400Hz FERRO-ELECTRIC CIRCULAR POLARIZER
- 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

OVERVIEW

The PROPixx is a unique DLP LED projector which has been designed to be the most flexible display possible for vision research. The PROPixx features a native resolution of 1920 x 1080, and can be driven with refresh rates up to 500Hz with deterministic timing. The PROPixx uses high brightness LEDs as a light source, giving a larger color gamut and much longer lifetime than halogen light sources (60,000 hrs vs 2,000 hrs). Our LEDs also support high bit depth, and high frequency full color stimulation, which would not be possible with a color-wheel/halogen architecture. For stereo vision applications, our high speed ferro-electric circular polarizer can project stereoscopic stimuli for passive polarizing glasses at up to 400Hz. In addition the PROPixx 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 and eye-tracking equipment, and even a complete analog I/O subsystem. You can now successfully synchronize all of your subject I/O to video refresh with microsecond precision. The PROPixx is available with multiple projection lens options including short-throw lenses for CRT-replacement applications, and long-throw lenses for MRI/MEG applications.

SOFTWARE

Software support includes a low-level ANSI C API, PsychToolbox MATLAB, Python libraries for Mac OS X, Windows and Linux. The PROPixx is also supported by the VPixx program.

VPixx

www.vpixx.com

PROPixx SPECIFICATIONS

GENERAL SPECIFICATIONS
- Display resolution: 1920(H) x 1080(V) pixels
- Display type: Texas Instruments DMD 0.95”
- Aspect ratio: 16x9
- Illumination system: RGB LED
- Contrast: 2 000:1
- Brightness: 600 lumens
- Lamp life: 60 000 hours via solid state illumination
- Up to 12 bits of resolution on each of the RGB channels
- Up to 500Hz refresh rate
- IR remote control

VIDEO PROCESSING
- Video input: 1920 x 1080 pixels, 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 projector
- Multiple projectors can be synchronized, showing copies or subsets of original video

POWER
- Power consumption: 250W
- Input voltage: 48Vdc – 5.21A
- International AC adaptor input: 90Vac – 264Vac (47Hz – 63Hz)

MECHANICAL MOUNTING
- Front/rear table
- Front/rear ceiling
- Adjustable front/rear feet

LENSES AVAILABLE

Type	Throw Ratio	Focus Range
Super short-throw lens	0.73 : 1	3.18 - 4.27ft
Short-throw lens	1.56 – 1.86 : 1	6.6 - 23ft
Long-throw lens	1.85 – 2.40 : 1	8.2 - 32.8ft
Super long-throw lens	2.4 – 4.0 : 1	6.6 - 39.4ft

Lens Shift (maximum)
Vertical: 0.7 of frame if horizontal is at 0% position
Horizontal: 0.3 of frame if vertical is at 0% position
NOTE: 0.73 super short-throw lens has NO LENS SHIFT

PICTURE BY DLP TEXAS INSTRUMENTS

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: ±10V
- Input impedance: $1.6*10^8\Omega$ //3pF
- Absolute maximum input tolerance: ±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: ±10V
- Drive capability: ±25mA, 250mW per channel

AUDIO CODEC
- Audio line in, microphone in, speaker out, on 3.5mm jacks
- Stereo microphone input amplifier resistance: 20kΩ
- 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: >20kΩ pullup to 3.3V
- Input tolerance: 5V

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

ORDERING INFORMATION

DESCRIPTION: PROPixx
P/N: VPX-PRO-5001C

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