



**VPiXX Technologies**  
*Vision Science Solutions*



VIEWPiXX /EEG (VPX-VPX-2006B)

## Installation Guide

Version 1.2

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For information, comments or suggestions, please contact us by e-mail at [support@vpixx.com](mailto:support@vpixx.com)

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## Version History of this document

Version Updated to	Date	Author	Reason
1.0	2014/10/29	P.Kakos	v1.0 release
1.1	2016/10/29	P.Kakos	New part number
1.2	2020/04/20	JF Hamelin	Maintenance
1.3	2021/08/18	P.Kakos	Update to Preliminary assembly steps

## Document Icons

The use of icons emphasizes helpful, caution or warning notes. Below is a list of the icons available.

Icon	Type	Description
	<b>Helpful Hint</b>	<i>Information to help out during assembly, installation or usage</i>
	<b>Caution Notice</b>	<i>Important Information to prevent misuse and/or damage to equipment</i>
	<b>Warning</b>	<i>Critical information to prevent damage to equipment and/or personnel</i>

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## Overview

This manual provides installation, usage, maintenance and troubleshooting information for VPixx Technologies Inc.'s VIEWPixx /EEG system.

For technical questions or product support information, do not hesitate to contact the VPixx support team by sending an E-mail at [support@vpixx.com](mailto:support@vpixx.com) or by phone.



By creating your *MyVPixx* account on the VPixx Technologies website, you will have access to additional product documentation, demos, source code examples and the latest firmware and software drivers.

## WARNING - SAFETY INFORMATION & PRECAUTIONS

### Safety precautions

- Use only a power source and connection compatible with this product, as indicated on the label of the power adapter. A power cord is included with the VIEWPixx /EEG. If another cord is used, be sure that the power source and connection are appropriate.
- Be sure that the total ampere rating of the products connected to the outlet does not exceed the maximum ampere rating of the electrical outlet, and that the total ampere rating of the products connected to the power cord does not exceed the maximum ampere rating of the power cord. Look on the power label to determine the ampere rating (Amps or A) for each device.
- Install the VIEWPixx /EEG near a power outlet that you can easily reach. Disconnect it by grasping the plug firmly and pulling it from the outlet. Never disconnect the monitor by pulling directly on the cord.

## Compliance Information

### For European Countries



#### DECLARATION OF CONFORMITY

**Manufacturer's Name:** VPixx Technologies Inc.

**Manufacturer's Address:** 630 Clairevue West suite 301  
Saint-Bruno, Qc  
Canada, J3V 6B4

**Product Name:** VIEWPixx /EEG

**Part Numbers:** VPX-VPX-2006B

**Product Options :** All

**Application of Council Directive:**

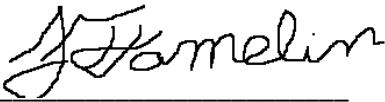
<b>2014/30/EU</b>	-Electromagnetic Compatibility directive
<b>2015/863/EU</b>	-RoHS directive
<b>2012/19/EU</b>	-Waste Electrical and Electronic Equipment directive

**The following harmonised standards have been used:**

<b>EN 61326-1:2013</b>	-Electrical equipment for measurement, control and laboratory use.
• <b>IEC CISPR 11</b>	-Radio frequency disturbance characteristics (Class A)
• <b>IEC 61000-3-2</b>	-Limits for harmonic current emissions (Class D)
• <b>IEC 61000-3-3</b>	-Limitation of voltage changes, voltage flicker ( $\leq 16A$ per phase)
• <b>IEC 61000-4-2</b>	-Electrostatic discharge immunity test (Level 2 contact, air) (Perf Criteria B)
• <b>IEC 61000-4-3</b>	-Radiated, radio-frequency, electromagnetic field immunity test (Level 2, Perf Criteria A)
• <b>IEC 61000-4-4</b>	-Electrical fast transient/burst immunity test (Level 2, Perf Criteria B)
• <b>IEC 61000-4-5</b>	-Surge immunity test (Level 2, Perf Criteria B)
• <b>IEC 61000-4-6</b>	-Immunity to conducted disturbances, induced by radio-frequency fields (Level 2, Perf Criteria A)
• <b>IEC 61000-4-8</b>	-Power frequency magnetic field immunity test (Level 2, Perf Criteria A)
• <b>IEC 61000-4-11</b>	-Voltage dips, short interruptions and voltage variations immunity tests (Perf Criteria B and C)

#### Supplementary Information:

To remain CE compliant, only CE compliant parts should be used with this product. Maintaining CE compliance also requires proper cable and cabling techniques. VPixx Technologies will not retest systems or components that have been modified by customers.

Signature: 

Printed name: Jean-François Hamelin, Eng

Title: Vice President



## The following information is only for EU member states:



The mark shown to the left is in compliance with the Waste Electrical and Electronic Equipment directive 2012/19/EU (WEEE). The mark indicates the requirement NOT to dispose of the equipment as unsorted municipal waste. For more information call VPixx Technologies Inc. or email us at [support@vpixx.com](mailto:support@vpixx.com)

## For the United States of America

This device complies with part 15 subpart B of FCC rules. Its operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 subpart B of the FCC rules.

## For Canada

This Class A digital apparatus complies with Canadian ICES-003.

## Declaration of RoHS Compliance

**RoHS** This product has been designed and manufactured in compliance with Directive **2015/863/EU** of the European Parliament and the Council on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive).

## Hardware and software requirements

### Graphics Card

The graphics card should have dual-link DVI outputs, or DisplayPort/Thunderbolt outputs (which can be converted to dual-link DVI through an active dongle).



*All DisplayPort adaptors are not created equal. The limitation is the 320 MHz video bandwidth which your graphics board can transmit over a dual-link DVI video cable. This is enough bandwidth to generate a full 1920x1200 (or 1080) image at 120 Hz.*

We strongly recommend using the following adaptor, which can be obtained from VPixx Technologies or Startech:

<https://www.startech.com/en-us/audio-video-products/dp2dvid2>

### USB 2.0

The host computer requires at least one USB 2.0 interface.

### Operating System

The VIEWPixx /EEG is compatible with the following OS: MAC OS X, Windows 7 (32bit, 64bit), Windows 8 (32bit, 64bit) and Linux.



## General specifications

The VIEWPixx /EEG is an affordable high quality display which has been optimized specifically for triggering external data acquisition systems to precisely timed visual stimuli. The VIEWPixx /EEG features LCD glass with the fastest possible pixel response as well as a panel controller which has been custom designed for neurophysiology, cognition, and psychophysics research. Our innovative scanning LED backlight design eliminates ghosting and has superior display uniformity. In addition the VIEWPixx /EEG includes 24 TTL output triggers for synchronizing external data acquisition systems such as EEG and eye trackers with microsecond precision. The triggers can also be used to initiate external stimulators such as TMS. The levels of the 24 TTL outputs are controlled by the 8-bit RGB components of the display's top-left pixel. This strategy makes it simple to program with any stimulus generation software, and guarantees perfect synchronization between video and external hardware.

## LCD specifications

- Display resolution: 1920(H) x 1080(V) pixels
- 24-inch display size (diagonal)
- Pixel arrangement: RGB (Red dot, Green dot, Blue dot) vertical strip
- TFT LCD
- Contrast ratio: Typical 1000:1
- Viewing angle: 170° (Horizontal), 160° (Vertical)
- Polarizer surface: Antiglare
- 100 Hz to 120 Hz refresh rate with zero latency stimulus presentation
- 60 Hz to 100 Hz refresh rate with internal frame buffering

## Pixel specifications

- Pixel rise and fall time symmetry
- Pixel response time : 1 ms typical (black to white)
- 8 bits of resolution on each of the RGB channels
- Pixel pitch: 0.2715(H) x 0.2715(V) mm

## Backlight specifications

- Luminance: 100 cd/m<sup>2</sup>
- Scanning LED backlight
- Full array of white LEDs
- Display luminance uniformity: 95% over 95% of display area
- Display color uniformity: 90% over 95% of display area

## 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

## Digital output

- Number of digital outputs: 24 on db-25 connector

- Controlled by the first pixel (8bit Red, 8bit Green and 8bit Blue)
- Output drive stage: 5V through 25  $\Omega$  series resistor
- Maximum output current:
  - Source: 15 mA
  - Sink: 12 mA

## Power

- Power consumption: 100 W
- Input voltage: 12 Vdc – 8.33 A
- International AC adaptor input: 90 Vac – 264 Vac (47 Hz – 63 Hz)

## VIEWPixx /EEG stand

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

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

## Connectivity

- 1x USB 2.0 type B (for firmware update)
- 1x DB-25 female
- 1x Dual Link DVI Input
- 1x Power receptacle

## Dimensions



Figure 1 VIEWPixx /EEG dimensions

## VIEWPixx /EEG installation

Unpack the VIEWPixx /EEG and prepare a flat area to assemble the monitor. You will need a flat, soft and protected area for placing the monitor screen-down while preparing it for installation.



Ensure that while installing/handling the VIEWPixx /EEG, **you do not** drop the VIEWPixx /EEG, scratch its surface or place equipment or tools directly on the VIEWPixx /EEG.

### Prepare the location

Make sure the location where you place the device meets the following requirements:

- The VIEWPixx /EEG vent is not blocked
- Enough room remains behind the VIEWPixx /EEG to allow for a good airflow
- The VIEWPixx /EEG does not rest on an unstable surface
- The VIEWPixx /EEG is in a well-ventilated area, away from excessive light, heat, or moisture



**Temperature Consideration:** When choosing the proper location to place your device, it is important to know that LED performance largely depends on the ambient temperature of the operating environment. VPixx Technologies therefore strongly recommends choosing a location having an operating temperature range between 20°C and 28°C (68°F to 82°F). To attain optimal display uniformity, the warm-up time is around 20 minutes. This should be taken into consideration before running experiments or taking photometric measurements.

### Assemble the required equipment and tools

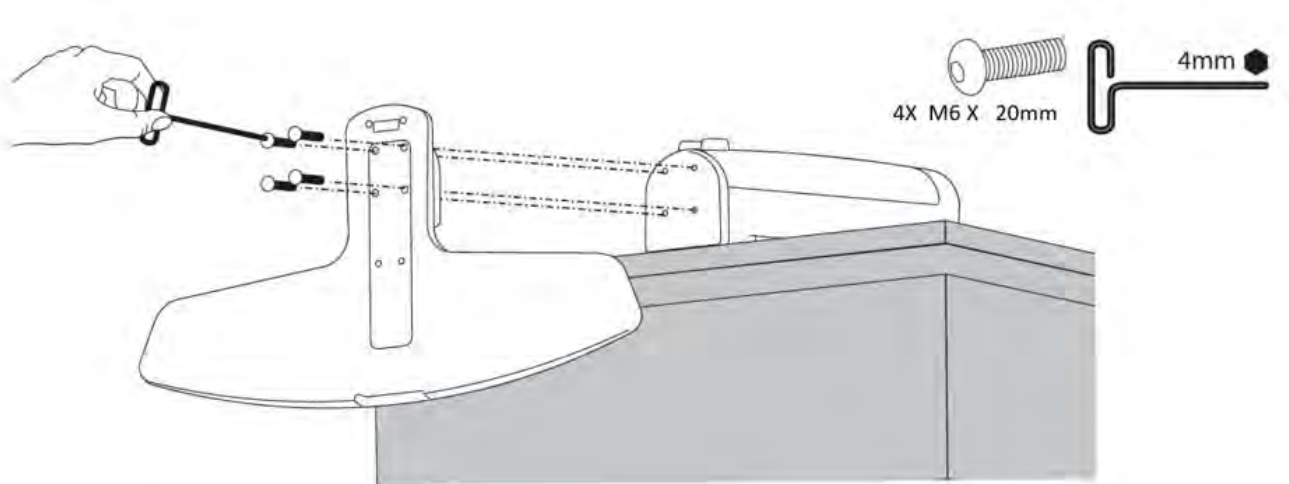
Your VIEWPixx /EEG product should contain the following tools to complete your assembly and installation.



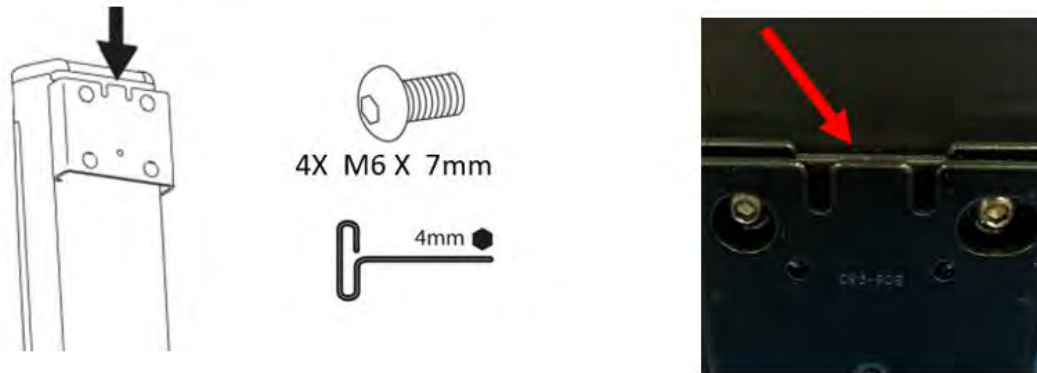
## Preliminary Assembly Steps

Start your installation with the following preliminary assembly steps, which each offer a visual representation of the required manipulations and tools.

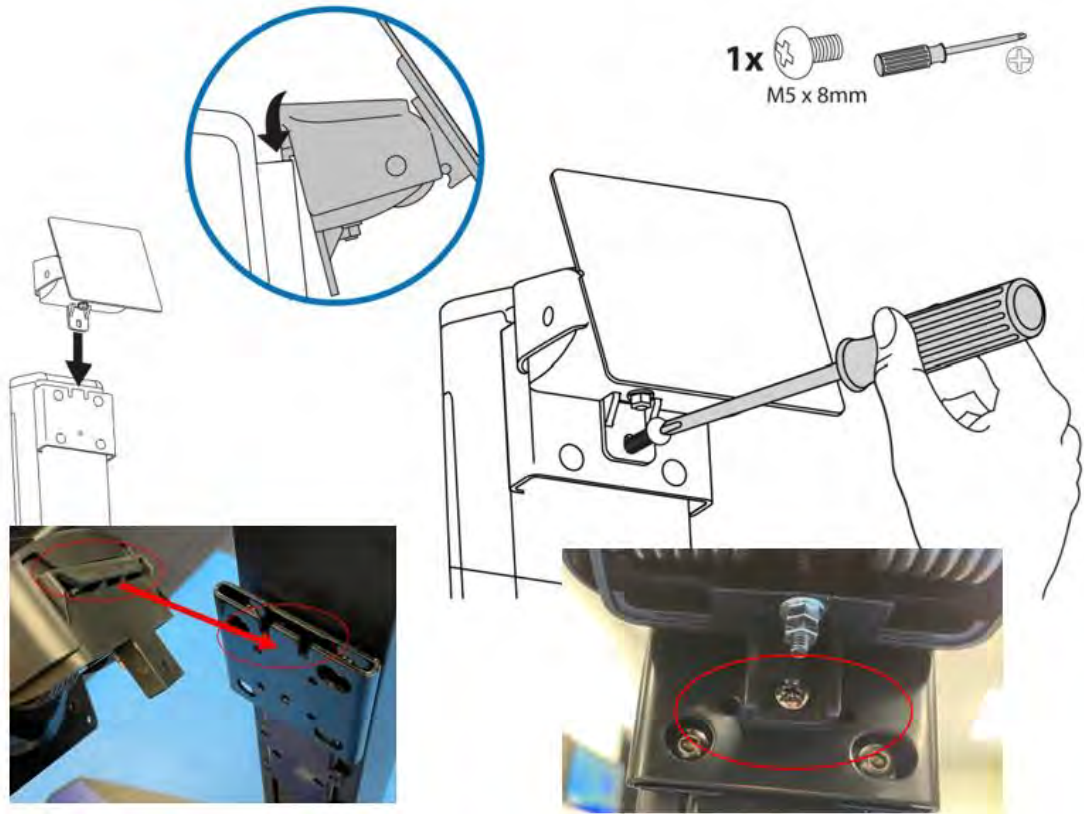
1. Secure the base to the stand.



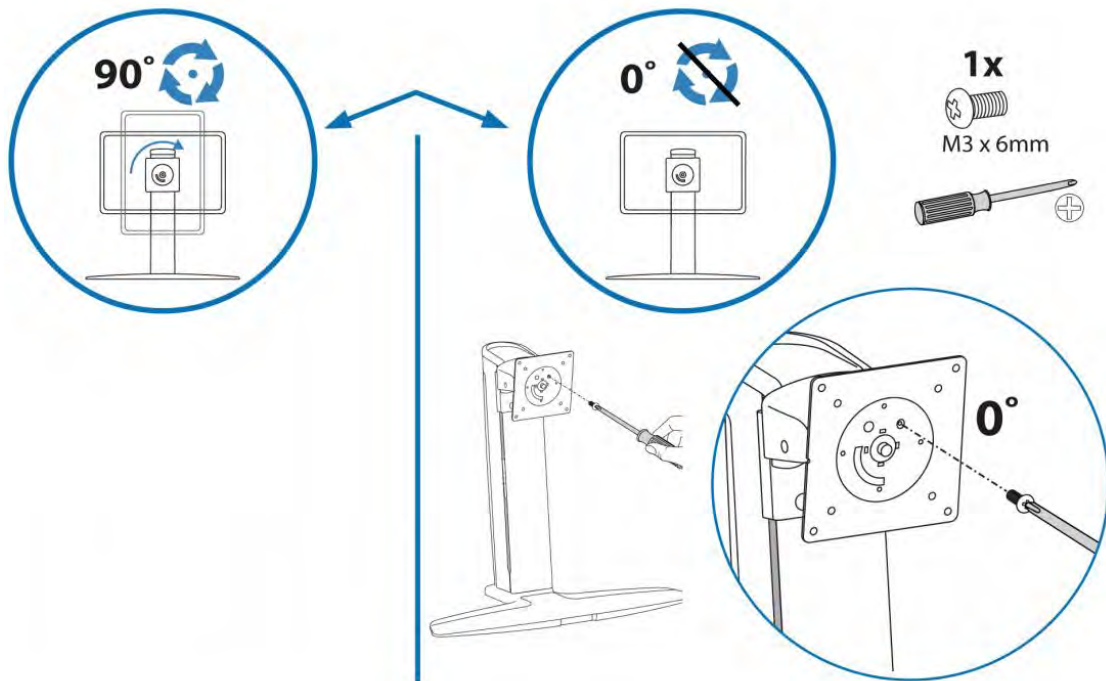
2. Secure the LCD bracket to the stand by first sliding down the bracket over the stand's sliding rail, then use the 4 M6 x 7mm screws to secure it in its desired position. **Ensure that the two grooves are positioned at the top.**



3. Secure the LCD tilt bracket to the LCD bracket using the M5 x 8mm screw and a Phillips screwdriver.

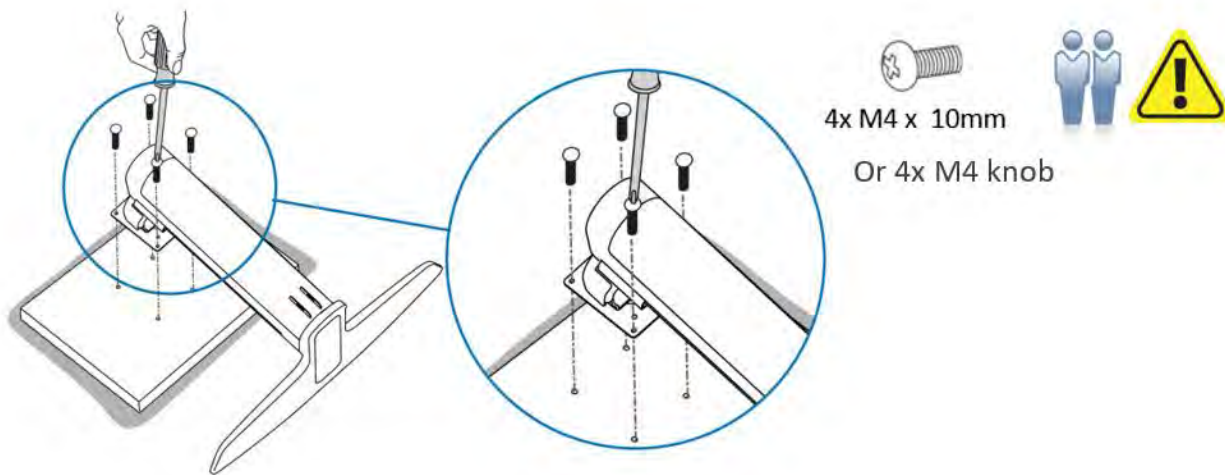


4. (Optional): Use the M3 x 6mm screw to eliminate the possibility of rotating the monitor.

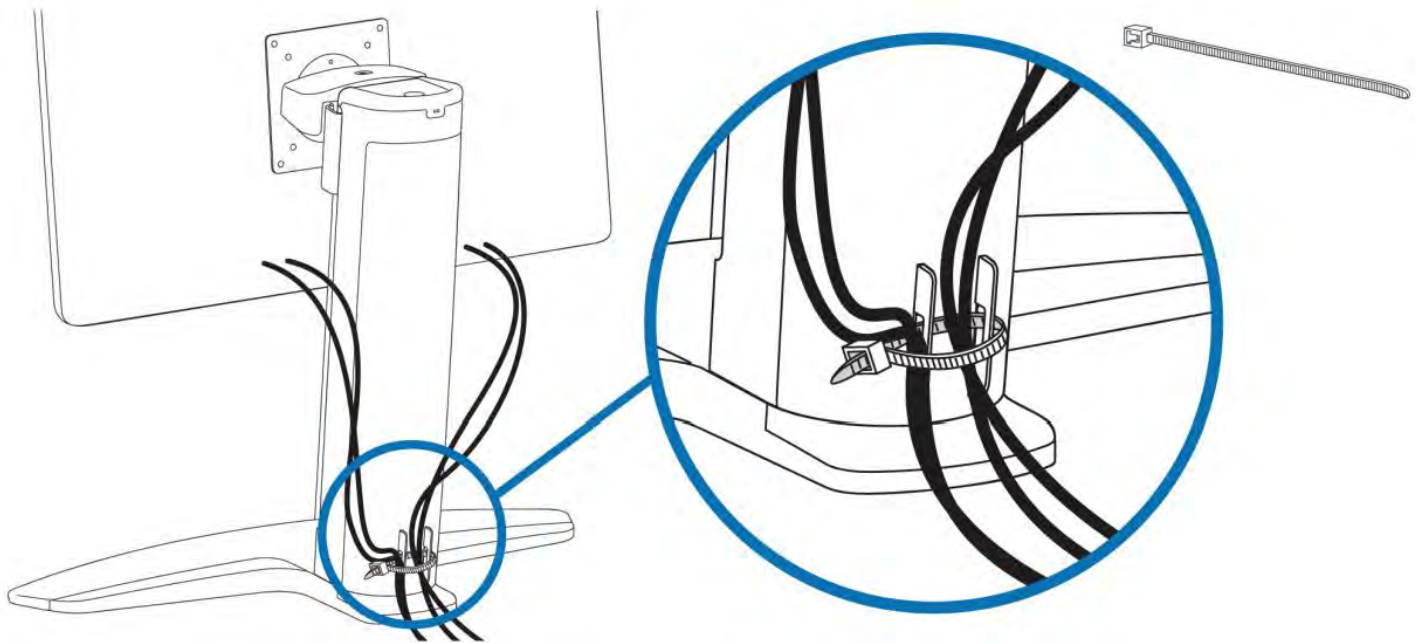




5. (Optional): Use 4x M4 x 10mm (Or 4x M4 knob) to secure the VIEWPixx monitor to the stand.



6. Secure the screen cables to the back of the stand using a plastic tie-wrap.



## Cable installation

You can rotate the VIEWPixx /EEG as shown below for easy access to all connectors.



Figure 2 VIEWPixx /EEG connectors

1. Connect the DVI cable between the VIEWPixx /EEG and your computer.
2. Connect the AC adaptor. Use only the AC adaptor that comes with your VIEWPixx /EEG. The wrong type of AC adaptor will damage the system and its components.
3. Disconnect power from the product by unplugging the power cord from the electrical outlet.



*Install the VIEWPixx /EEG near a power outlet that you can easily reach. Disconnect it by grasping the plug firmly and pulling it from the outlet. Never disconnect the monitor by pulling directly on the cord.*



*The USB interface is used only for firmware updates.*

## I/O connector descriptions

### Digital Output Connector

The following table shows the digital output pin assignment.

Table 1 Digital Output connector

Pin	Description	Pin	Description
1	Digital Out 0	14	Digital Out 1
2	Digital Out 2	15	Digital Out 3
3	Digital Out 4	16	Digital Out 5
4	Digital Out 6	17	Digital Out 7
5	Digital Out 8	18	Digital Out 9
6	Digital Out 10	19	Digital Out 11
7	Digital Out 12	20	Digital Out 13
8	Digital Out 14	21	Digital Out 15
9	Digital Out 16	22	Digital Out 17
10	Digital Out 18	23	Digital Out 19
11	Digital Out 20	24	Digital Out 21
12	Digital Out 22	25	Digital Out 23
13	GND		Shield *

Connector type: D-SUB, 25 pins  
Gender: Female



\* Shield is tied to the GND by a 0 Ohm resistor inside the VIEWPixx /EEG system.



## Theory of operation

### Video and output synchronization

The VIEWPixx /EEG has two ways of treating incoming video. For timing-critical research, the incoming video should have a resolution of 1920 x 1080, and a refresh rate of 100-120 Hz. Under these conditions, the VIEWPixx /EEG displays the video with no processing delay, and the digital output subsystem has microsecond-precise synchronization with the incoming video. If the resolution drops below 1920x1080, or the refresh rate drops below 100 Hz, then the VIEWPixx /EEG begins to operate as a normal LCD panel. Incoming video is scanned into an internal frame buffer, then rescanned out to the display. This mode should only be used when not running timing-critical experiments.



*If the display is used with rescanned video input, a small red square appears at the top-left corner as a reminder not to use this configuration for timing-critical experiments.*

### Video Pipeline

A video signal contains all the pixels for every frame. The resolution determines the amount of pixels: for example, 1920 x 1080 means 1920\*1080 pixels on your screen. Each of these pixels contains the color information it will show on screen.

Colors are described using the RGB (Red-Green-Blue) format. For every video frame, each pixel has access to 24 bits of color information (8 bits per color). This means, for example, that red can take values from 0 to 255 and consequently that 256 different shades of red are possible. Red 0 signifies no red, while red 255 signifies 100% red color. All of the three colors (RGB) have 8 bits, which creates 16 777 216 different possible colors. RGB colors are usually represented as (R,G,B), where R, G and B are the respective color values [0-255].

A color is usually described with 8 bits of information. 8-bit information can be seen as  $R_7R_6R_5R_4R_3R_2R_1R_0$ , which is a binary representation of the color (in this example, R for Red). Every bit ( $R_i$ ) can take the value 0 or 1, and the final value will be a sum:

$$Red = \sum_{i=0}^{i=7} 2^i * R_i$$

The color red 255 would be represented as 0b11111111, whereas red 16 would be 0b00010000. Since 255 represents every bit at a value of 1, it is the maximum value for an 8-bit number.

## VIEWPixx EGG pixel representation

By considering the pixel final color as a composition of red, green and blue, it can be understood how we map the 24 bits of information from a pixel color to the 24-bit output of the Digital Out of the VIEWPixx /EEG.

The VIEWPixx /EEG takes the top-left pixel's 24-bit color information and triggers the digital outputs with these 24 bits of information.

## Pin versus D<sub>out</sub>

A pin is a physical output to which the physical trigger cable is connected. D<sub>out</sub> is how we digitally map it inside the device.

D<sub>out</sub> 0-7 are mapped to red.

D<sub>out</sub> 8-15 are mapped to green.

D<sub>out</sub> 16-23 are mapped to blue.

Table 2 Pins VS D<sub>out</sub>

Desired D <sub>out</sub> to trigger	Value to add	Color and number	Desired physical pin to trigger
0	1	Red 0	Pin 1
1	2	Red 1	Pin 14
2	4	Red 2	Pin 2
3	8	Red 3	Pin 15
4	16	Red 4	Pin 3
5	32	Red 5	Pin 16
6	64	Red 6	Pin 4
7	128	Red 7	Pin 17
8	1	Green 0	Pin 5
9	2	Green 1	Pin 18
10	4	Green 2	Pin 6
11	8	Green 3	Pin 19
12	16	Green 4	Pin 7
13	32	Green 5	Pin 20
14	64	Green 6	Pin 8
15	128	Green 7	Pin 21
16	1	Blue 0	Pin 9
17	2	Blue 1	Pin 22
18	4	Blue 2	Pin 10
19	8	Blue 3	Pin 23
20	16	Blue 4	Pin 11
21	32	Blue 5	Pin 24
22	64	Blue 6	Pin 12
23	128	Blue 7	Pin 25

## How to interact with the VIEWPixx EEG triggers

Follow this simple procedure to handle the EEG triggers:

- 1- Select the  $D_{out}$  you want to trigger
- 2- Set the basic color to black (0,0,0)
- 3- Add the value for the desired  $D_{out}$  to the desired color
- 4- Set the top-left pixel to the resulting color.

For example: if you wish to trigger  $D_{out}$  4-5-12-14, you would:

$D_{out}$  4 – add 16 to red

$D_{out}$  5 – add 32 to red

$D_{out}$  12 – add 16 to green

$D_{out}$  14 – add 64 to green

The resulting color would then be:  $(16+32,16+64,0) = (48, 80, 0)$

And if we look at the reverse situation: you wish to convert the color to its 8-bit (binary) representation.

For example: you want to know which  $D_{out}$  will be ON if the color is gray (143, 123, 152)  $\rightarrow$  (0b10001111, 0b01111011, 0b10011000)

R <sub>7</sub>	R <sub>6</sub>	R <sub>5</sub>	R <sub>4</sub>	R <sub>3</sub>	R <sub>2</sub>	R <sub>1</sub>	R <sub>0</sub>
1	0	0	0	1	1	1	1
G <sub>7</sub>	G <sub>6</sub>	G <sub>5</sub>	G <sub>4</sub>	G <sub>3</sub>	G <sub>2</sub>	G <sub>1</sub>	G <sub>0</sub>
0	1	1	1	1	0	1	1
B <sub>7</sub>	B <sub>6</sub>	B <sub>5</sub>	B <sub>4</sub>	B <sub>3</sub>	B <sub>2</sub>	B <sub>1</sub>	B <sub>0</sub>
1	0	0	1	1	0	0	0

Using that representation and knowing how the  $D_{out}$  are represented (0-7 is red, 8-15 is green, 16-23 is blue), we see that  $D_{out}$  0,1,2,3,7,8,9,11,12,13,14,19,20,23 are currently ON.

## Optimization

Some graphic cards have **dithering** as a feature/disadvantage. Dithering may alter the values of the colors that are sent, in the range of  $\pm 1$ . This can be disastrous for triggers since it can enable/disable a trigger you were counting on.

For example: we are triggering on  $D_{out}$  7, so the color is set to (128 (0b1000000), 0, 0), but the graphics card decides to change it to 127 (0b01111111): instead of triggering  $D_{out}$  7, we are now triggering  $D_{out}$  0, 1, 2, 3, 4, 5 and 6. In order to prevent problems like this, we suggest using the most significant bits to do any kind of triggering and using numbers that cannot be affected by  $\pm 1$ . For example, if we wanted to trigger on  $D_{out}$  7 and ignore  $D_{out}$  0-3, we would use the color (128+8 (0b10001000), 0, 0), so 127+8/129+8 (0b10000111/0b10001001) would still have  $D_{out}$  7 on.

## Digital interface

The VIEWPixx /EEG contains 24 TTL outputs. The levels of the 24 TTL outputs are controlled by the 8-bit RGB components of the display's top-left pixel. This strategy is simple to program with any stimulus generation software, and guarantees perfect synchronization between video and external hardware.

The following picture shows the delay between the digital output and stabilization of the first top-left pixel with the scanning backlight. This delay is constant and is always 6 ms after the digital output's rising edge.

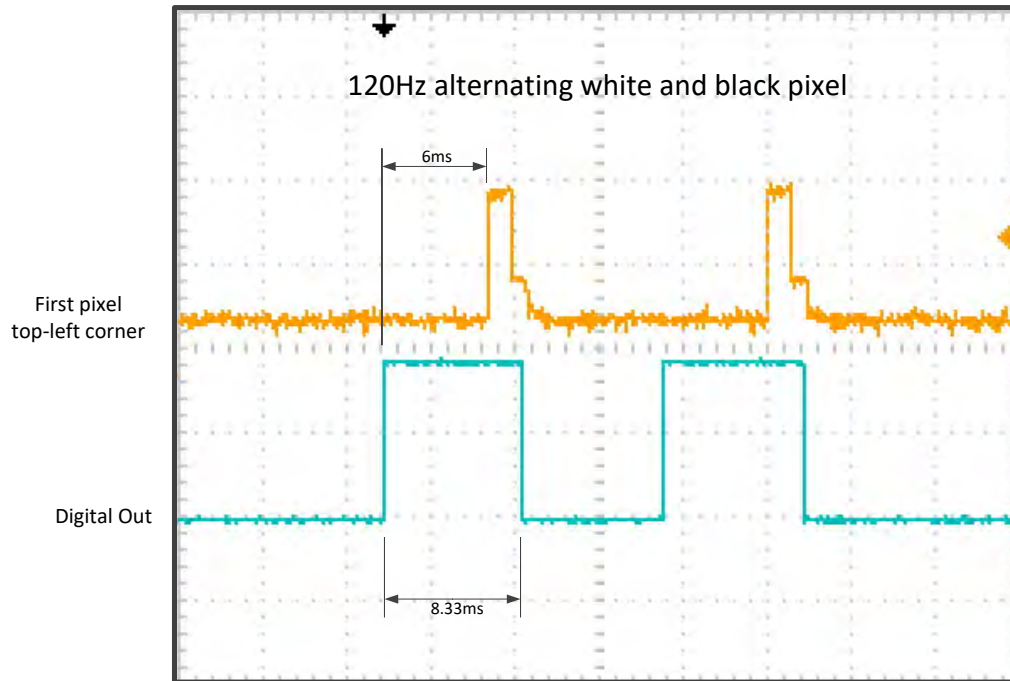


Figure 3 Pixel Mode

## Cables

It is important to remember that most of the physical cables only make use of 8 triggers. It is therefore important to know exactly which  $D_{out}$  they are connected to.

**Cable VPX-ACC-1012** is used to mix (LOGICAL OR) the EEG signal with a previously constructed 8-bit signal to connect to a device with 8 triggers. The signals taken from the VIEWPixx /EEG are generated from Green 7, Green 6, Green 5, Green 4 and Red 7, Red 6, Red 5, Red 4. You also have access to 2 BNC cables which are triggered with Blue 7 and Blue 6. As explained in the optimization chapter, it is suggested to add 8 to your color value to protect from dithering since you are not using the least significant bits of all three colors with this cable.


**Cable VPX-ACC-1010** is used for the EEG signal with another independent 8-bit signal to connect to a device with 16 triggers. The signals taken from the VIEWPixx /EEG are generated from Green 7, Green 6, Green 5, Green 4 and Red 7, Red 6, Red 5 and Red 4. You also have access to 2 BNC cables which are triggered with Blue 7 and Blue 6. As explained in the optimization chapter, it is suggested to add 8 to your color value to protect from dithering since you are not using the least significant bits of all three colors with this cable.

For more information, or if you have any question, feel free to contact VPixx Technologies at [support@vpixx.com](mailto:support@vpixx.com)

### Display luminance

The VIEWPixx /EEG is factory calibrated at 100 cd/m<sup>2</sup> with a native gamma very close to 2.2. Because LED performance depends on the ambient temperature of the operating environment, VPixx Technologies strongly recommends an operating temperature range between **20°C and 28°C (68°F to 82°F)**. To attain optimal uniformity, the warm-up time is around 20 minutes and should be taken into consideration before your experiments.

You can change the backlight intensity with the PyPixx program. By reducing the intensity for low luminance stimulus, you maintain the high bit depth video for the entire luminance range of your stimulus.

	<p>For more information on the PyPixx program, please refer to the <b>Application Guide for VPixx Products on MyVPixx</b>.</p>
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### LED configuration

The following diagram shows the LED matrix configuration in the VIEWPixx /EEG. A total of 448 LEDs are distributed into 56 cells to obtain excellent uniformity on the display.

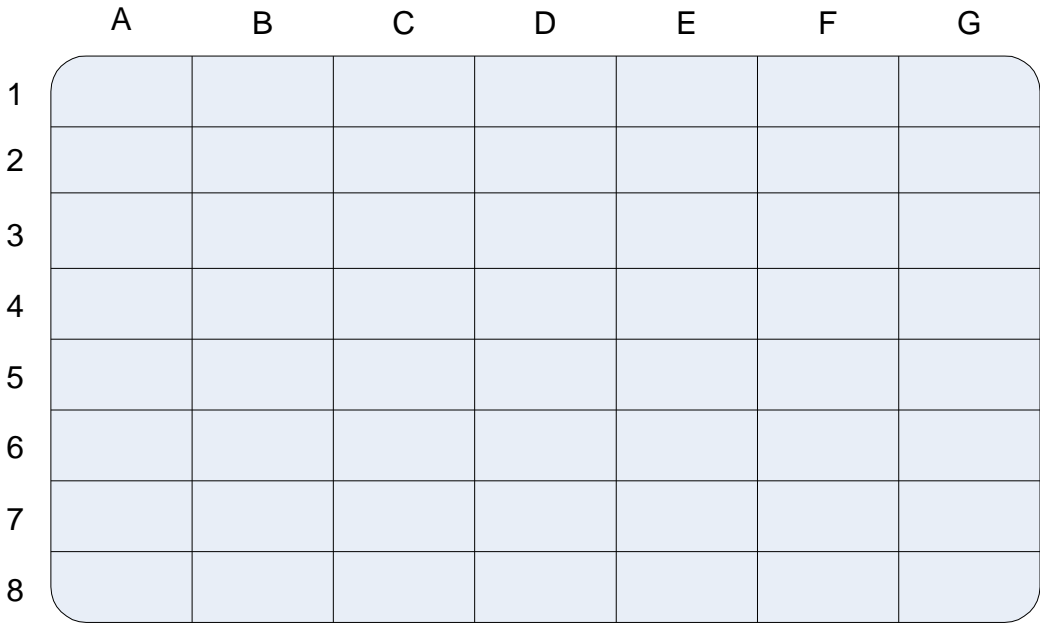


Figure 4 LED matrix configuration

## Scanning backlight

The VIEWPixx /EEG will have display timing characteristics that resemble those of a CRT. The backlight LEDs are powered only within a narrow horizontal bar, and the bar is scanned from the top of the display to the bottom. The scanning is synchronized to the LCD pixel updates, effectively hiding much of the liquid crystal rise/fall time. The scanning backlight is used to improve the display characteristics of dynamic visual stimuli.

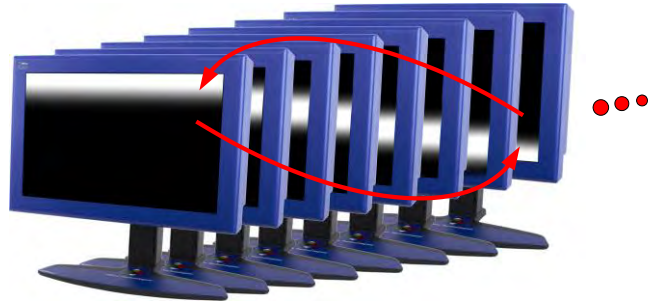


Figure 5 Scanning backlight

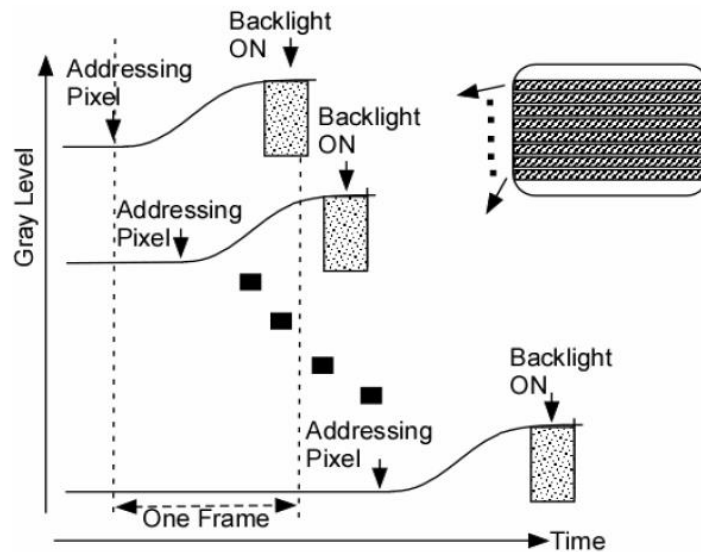


Figure 6 Pixel response time information (120 Hz alternating white black)

As you can see in the following three graphs, use of the scanning backlight can drastically reduce pixel response time, which in turn eliminates the blurring effect of moving stimuli.

Figure 7 demonstrates pixel response times for a 120 Hz alternating black/white signal. This is an example of a typical consumer LCD. It shows a pixel rise time of 5 ms and a fall time of 1.25 ms.

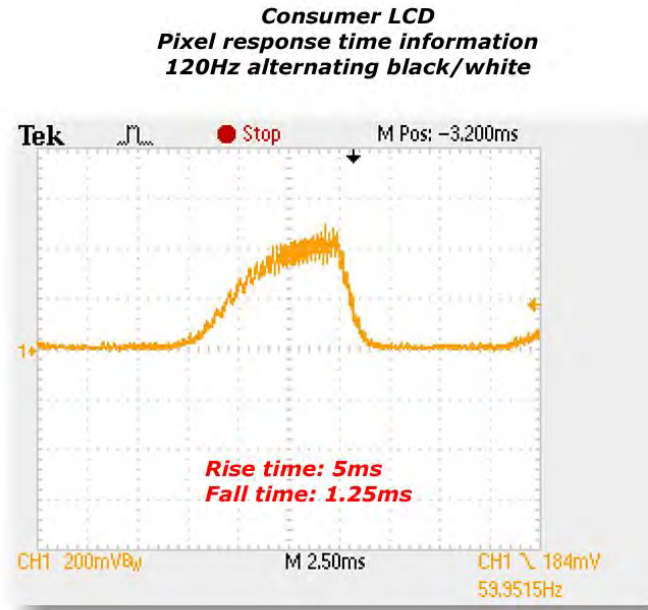


Figure 7 Typical consumer LCD pixel response time

Conversely, for the same signal, use of a scanning backlight shows a pixel rise time of 1 ms and a fall time of 1 ms, as shown on Figure 8 below.

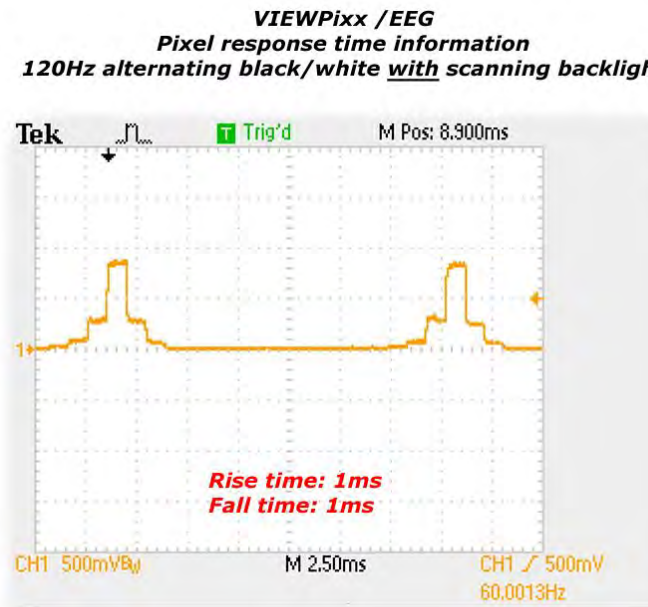


Figure 8 VIEWPixx /EEG pixel response time (with scanning backlight)

Finally, use of a scanning backlight for a 120 Hz constant white signal shows a pixel rise time of 1 ms and a fall time of 1 ms, as shown on Figure 9 below.

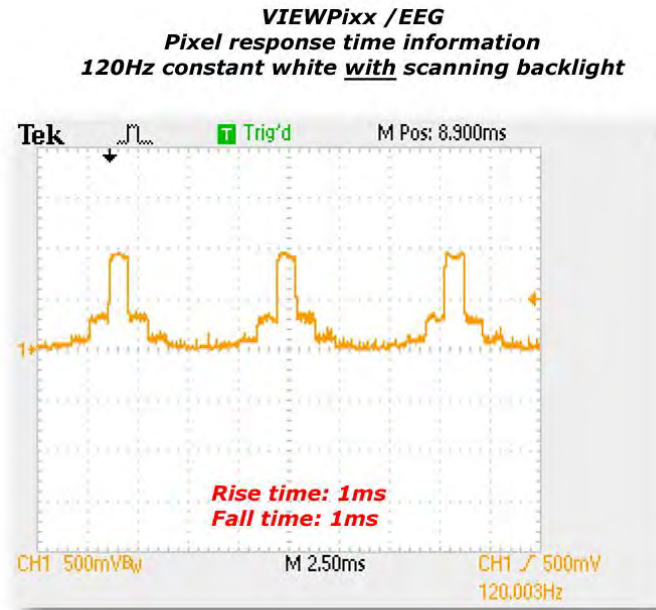


Figure 9 VIEWPixx /EEG pixel response time (constant white signal)



## VIEWPixx /EEG Firmware update

The USB cable is supplied with your monitor for firmware updates only. Your VIEWPixx /EEG is plug and play and does not require drivers for normal operation except for firmware update operations.



*For more information on firmware update, please refer to the **Application Guide for VPixx Products on MyVPixx.***

## Maintenance and Calibration

### Calibrating the VIEWPixx /EEG

Calibrating the VIEWPixx /EEG display requires the use of the X-Rite i1Pro spectrophotometer or the X-Rite i1Display Pro.



*For more information on calibrating the VIEWPixx /EEG, please refer to the **Application Guide for VPixx Products** on MyVPixx.*

### Cleaning the VIEWPixx /EEG

Clean the surface of your VIEWPixx /EEG as required and depending on usage. Turn your monitor off and unplug the power cord. Clean the monitor surface with a lint-free, non-abrasive cloth. Stubborn stains may be removed with a cloth dampened with mild cleaner. Avoid using a cleaner containing alcohol or acetone. Use a cleaner intended for use with the monitor. Never spray cleaner directly on the screen, as it may drip inside the monitor and cause an electric shock.



***Do not apply pressure to, or rub, the sensitive product surface.***



***Do not use cleaners that contain any petroleum-based materials such as benzene, thinner, acetone, alcohol or any volatile substance to clean the LCD monitor screen***

## Warranty

The VIEWPixx /EEG is warranted against manufacturing defects in materials and workmanship for two years for parts and labor from the date of purchase.





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