



**VPiXX Technologies**  
*Vision Science Solutions*

**VideoBahn™**

The NEW fast road to SUPERIOR data



InfraRed Short-Range (VPX-TRK-9000)

Hardware Manual

Version 1.0

Phone : (514) 328-7499  
1 (844) 488-7499 - Toll Free USA/Canada  
EMAIL: support@vpixx.com  
www.vpixx.com





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For more information about our company and products, visit our website at [www.vpixx.com](http://www.vpixx.com)

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

Our offices are located at:




**630 Clairevue West suite 301  
Saint-Bruno, Qc  
Canada, J3V 6B4**

## Version History of this document

Version Updated to	Date	Author	Reason
1.0	2017/12/29	P.Kakos	v1.0 release

## 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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## Compliance Information



Intertek Safety Mark: Compliance of this product with IEC 60950-1:2005, IEC 62471 is certified by Intertek, an independent testing body.

### **CLASS 1 LED DEVICE**

**IEC 62471 and IEC 60950-1:2005**

**Caution:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous infrared radiation exposure.

#### **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.

#### **CISPR warning**

This is a Class A product. In domestic environments this product may cause radio interference in which case the user may be required to take adequate measures.

## 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:** InfraRed Short-Range

**Part Numbers:** VPX-TRK-9000

#### Application of Council Directive:

<b>2014/30/EU</b>	-Electromagnetic Compatibility directive
<b>2015/863/EU</b>	-Restriction of Hazardous Substances Directive
<b>2012/19/EU</b>	-Waste Electrical and Electronic Equipment directive

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

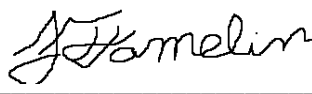
<b>EN 61326-1:2013</b>	-Electrical equipment for measurement, control and laboratory use.
<ul style="list-style-type: none"><li>• <b>IEC CISPR 11</b></li><li>• <b>IEC 61000-3-2</b></li><li>• <b>IEC 61000-3-3</b></li><li>• <b>IEC 61000-4-2</b></li><li>• <b>IEC 61000-4-3</b></li><li>• <b>IEC 61000-4-4</b></li><li>• <b>IEC 61000-4-5</b></li><li>• <b>IEC 61000-4-6</b></li><li>• <b>IEC 61000-4-8</b></li><li>• <b>IEC 61000-4-11</b></li></ul>	<ul style="list-style-type: none"><li>-Radio frequency disturbance characteristics (Class A)</li><li>-Limits for harmonic current emissions (Class D)</li><li>-Limitation of voltage changes, voltage flicker (<math>\leq 16A</math> per phase)</li><li>-Electrostatic discharge immunity test (Level 2 contact, air) (Perf Criteria B)</li><li>-Radiated, radio-frequency, electromagnetic field immunity test (Level 2, Perf Criteria A)</li><li>-Electrical fast transient/burst immunity test (Level 2, Perf Criteria B)</li><li>-Surge immunity test (Level 2, Perf Criteria B)</li><li>-Immunity to conducted disturbances, induced by radio-frequency fields (Level 2, Perf Criteria A)</li><li>-Power frequency magnetic field immunity test (Level 2, Perf Criteria A)</li><li>-Voltage dips, short interruptions and voltage variations immunity tests (Perf Criteria B and C)</li></ul>

**IEC 60950-1 Ed.2 2005** -Information Technology Equipment - Safety

**IEC 62471** -Photo biological Safety of Lamps and Lamp Systems

#### 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)

## Declaration of RoHS Compliance

**RoHS** This product has been designed and manufactured in compliance with Directive 2011/65/EU of the European Parliament and the Council on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive).



## Overview

This manual provides hardware, installation and safety information for VPixx Technologies Inc.'s InfraRed Short-Range illuminator device.

This infrared illuminator can be used with any eye tracking configuration having an effective range between 40 cm to 90 cm in conjunction with one or more TRACKPixx3 cameras.

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








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.



**The InfraRed Short-Range illuminator device is suitable only for research and is not designed for medical applications or for diagnostic purposes.**

## WARNINGS, SAFETY INFORMATION & USAGE NOTES

### WARNINGS

	<p><i>The 850 nm infrared light from the InfraRed Short-Range illuminator device is invisible under most viewing conditions.</i></p> <p><i>Subjects should not have their eyes within 40 cm (16 inches) of the infrared illuminator.</i></p> <p><b>UNDER NO CIRCUMSTANCE SHOULD A SUBJECT HAVE HIS OR HER EYES CLOSER THAN 10 CM (4 INCHES) FROM THE IR ILLUMINATOR.</b></p>
	<p><i>Any modification and/or unauthorized (previously approved in writing by VPIXX TECHNOLOGIES Inc.) or improper use of the equipment contained in this product package may void the warranty and may result in injury to users or damage to equipment. This includes the opening of electronic equipment and connectors. There are no user serviceable parts inside.</i></p>
	<p><b>CISPR WARNING:</b> <i>this is a Class A product. In domestic environments, this product may cause radio interference in which case the user may be required to take adequate measures.</i></p>
	<p><i>Use of controls or procedures other than those specified herein may result in hazardous infrared radiation exposure.</i></p>
	<p><i>If you use the InfraRed Short-Range illuminator in stand-alone mode (without a DATAPixx3 system), ensure that your power source limits current to a maximum of 2.5A on the 12V and 5V rails and each one have a Low Voltage Limited Energy.</i></p>

## SAFETY INFORMATION

As a Class 1 LED device, the InfraRed Short-Range illuminator device is compliant with the IEC-62471 LED safety standard, which regulates LED and laser eye and skin safety. Class 1 LED devices are safe under most operational and testing conditions. As the InfraRed Short-Range illuminator device may be used in test and laboratory conditions where a subject may be exposed to its infrared emissions for protracted periods, precautions must be taken, mainly to ensure maximum subject comfort.

- The InfraRed Short-Range illuminator device should not be aimed at a specific subject at distances of less than 40cm (16 inches) from the eyes. This will ensure an exposure of less than 15 W/m<sup>2</sup>. Exposure decreases as the square of the distance, so even slightly larger distances will reduce exposure significantly.
- UNDER NO CIRCUMSTANCE SHOULD A SUBJECT have his or her eyes closer than 10 cm (4 inches) from the InfraRed Short-Range illuminator device.
- The InfraRed Short-Range illuminator device may become warm during operation, and its mounting/positioning should therefore minimize unnecessary skin contact. Follow the recommended assembly and installation instructions.
- Ensure that the InfraRed Short-Range illuminator device is mounted in an area that allows for sufficient airflow all around it.

## USAGE NOTES



- Do not expose any components of the InfraRed Short-Range illuminator device to adverse weather conditions such as rain, water, heat, cold or abnormally high levels of humidity.
- Unplug the system before cleaning, and refer to the appropriate cleaning procedure in the maintenance section of this document to clean any component.
- Handle the interface cable carefully. Never use a damaged interface cable.
- Ensure that adequate air circulation surrounds the InfraRed Short-Range illuminator device.



*In the event of failure, the InfraRed Short-Range illuminator device should be replaced. There are no user serviceable/adjustable parts inside. Contact VPixx Technologies Inc. for repair or replacement as required.*

## Included equipment

After unpacking your InfraRed Short-Range illuminator device, verify that it contains the following components.

Component	Description	Visual representation
1	InfraRed Short-Range illuminator device	
2	Interface cable for using with a TRACKPixx3 camera	

## InfraRed Short-Range installation

Connect the InfraRed Short-Range cable into the rear connector, as seen in the following picture.

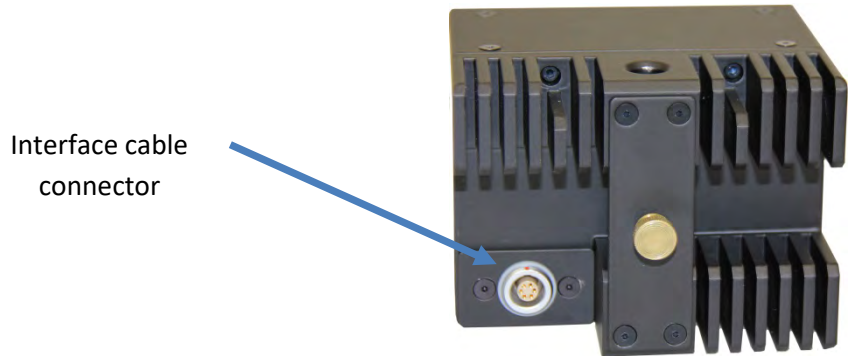


Figure 1 - InfraRed Short-Range connector

This connector possesses an alignment notch at the top. Ensure that when inserting the connector, the cable is properly aligned so that its red dot (see picture below) is in line with the female connector notch.



Figure 2 - cable connector red dot and notch

## Mounting apparatus

Included in your InfraRed Short-Range illuminator package is a mounting apparatus allowing you to assemble the illuminator and arrange it in the exact position required by your application.

## Fixing the InfraRed Short-Range illuminator device to the mounting apparatus

Follow this procedure to fix the InfraRed Short-Range illuminator to the mounting apparatus.

1. Slide the illuminator along the mounting apparatus' support arm.
2. Once in its desired location along the mounting arm, tighten the mounting screw at the back of the InfraRed Short-Range illuminator device to secure it in place.



Figure 3 - Mounting screw

## Connector description

A LEMO connector is used for interfacing the InfraRed Short-Range illuminator device with other equipment. The following table lists the pin descriptions.

Pin #	Description	Additional information
1	+12 VDC power supply	Connect the +12 VDC input to a stable power supply. This pin requires 650 mA.
2	+5 VDC power supply	Connect the +5 VDC input to a stable power supply. This pin requires 50 mA.
3	Factory usage, do not connect	
4	PWM input	Drive PWM with a pulse-width modulated signal with a duty cycle ranging from 0% to 100% and a frequency range between 20 Hz and 50 kHz to control the brightness. If you leave this pin floating, the InfraRed Short-Range illuminator will have full brightness at power up.
5	Factory usage, do not connect	
6	GND	Connect the GND input to the ground system.



***If you use the InfraRed Short-Range illuminator in stand-alone mode (without a DATAPixx3 system), ensure that your power source limits current to a maximum of 2.5A on the 12V and 5V rails.***

**Connector type on the InfraRed Short-Range illuminator device : EGG.1B.306.CLL or equivalent.**

**Mating connector type from LEMO : FGG.1B.306.CLAD52Z or equivalent.**



### Interface cable description

The interface cable supplied with the InfraRed Short-Range illuminator has a straight connection. Pin1 to Pin1, Pin2 to Pin2, etc. **One cable end has a 7<sup>th</sup> pin, which is floating.**

You can plug this cable directly to the VPixx Technologies TRACKPixx3 camera box (VPX-TRK-3410C) on the 7-pin LEMO connector.

Interface cable connector for InfraRed Short-Range illuminator device

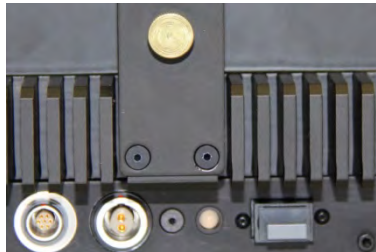


Figure 4 - TRACKPixx3 rear view

### Typical setup

The DATAPixx3 and the TRACKPixx3 system constitute the core data acquisition components of your eye tracking solution. The following illustration details a typical setup for the TRACKPixx3 system using the InfraRed Short-Range illuminator.

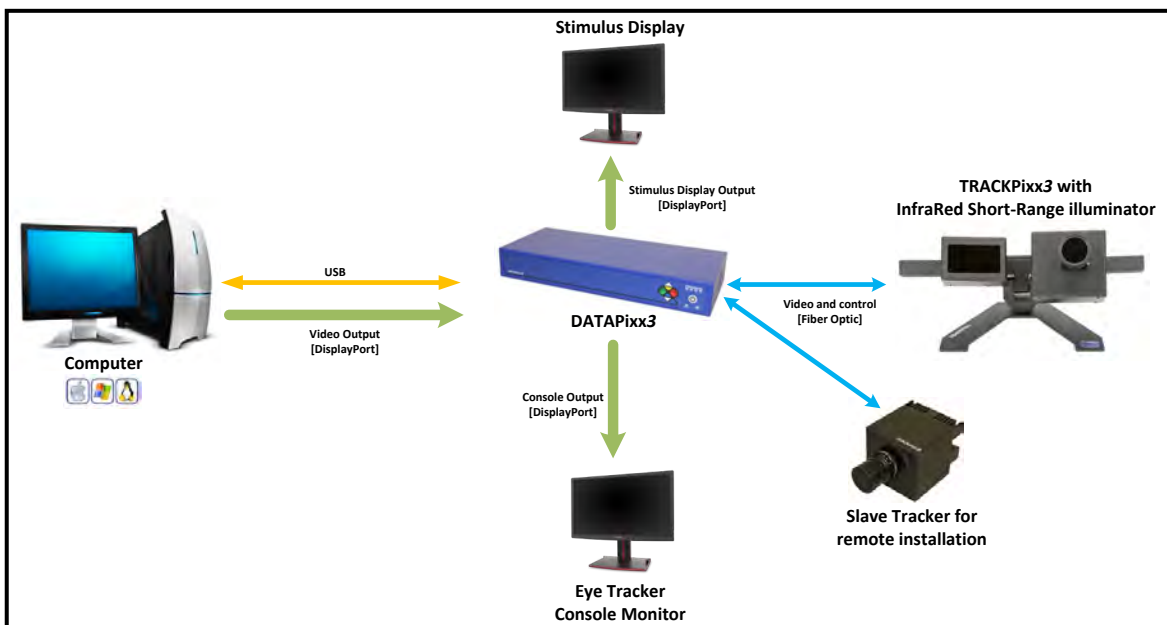


Figure 5 - Typical TRACKPixx3 setup



## Maintenance and Calibration

The InfraRed Short-Range illuminator device does not require calibration.

### Cleaning the InfraRed Short-Range illuminator

Clean your InfraRed Short-Range illuminator device if required, using an appropriate microfiber cleaning cloth.



***Do not use cleaners that contain any petroleum-based materials such as benzene, thinner, or any volatile substance***

## Specifications

Specification	Value
Power Requirement	+12 VDC – 650 mA
	+5 VDC – 50 mA
Wavelength	850 nm
Maximum Radiation	15 W/m <sup>2</sup> @ 40 cm
Optimal Range of Use	40 cm to 90 cm
Illumination Angle	20°
Operating Temperature	0°C to 70°C

## Warranty

The InfraRed Short-Range illuminator device is warranted against manufacturing defects in materials and workmanship for a period of two years from the date of purchase.



***VPiXX Technologies Inc.***

630 Clairevue West suite 301

Saint-Bruno, Qc

Canada, J3V 6B4

TEL/FAX: (514) 328-7499

TOLL FREE: (844) 488-7499 (USA/CANADA)

EMAIL: [sales@vpixx.com](mailto:sales@vpixx.com)