VPixx Technologies
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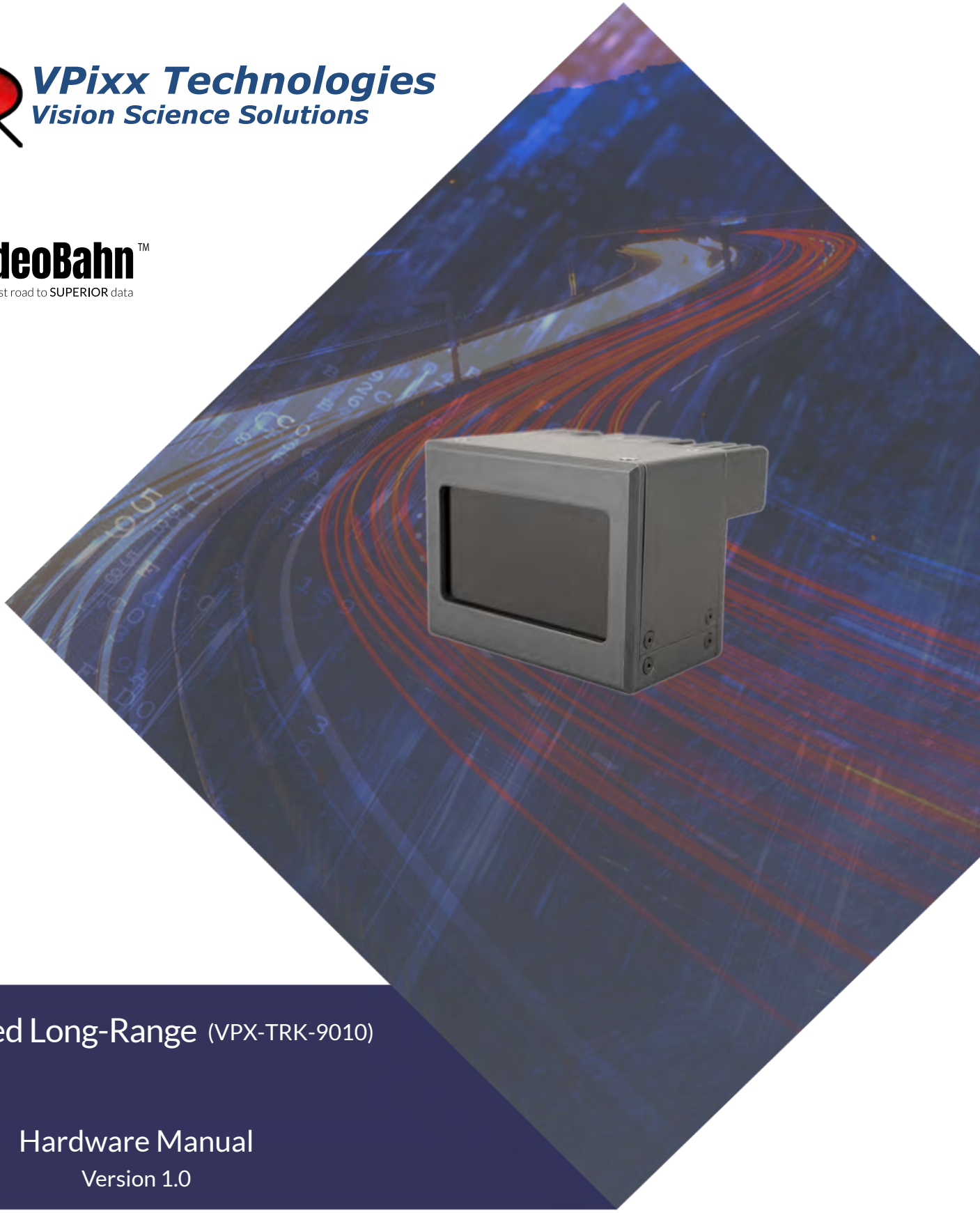

InfraRed Long-Range (VPX-TRK-9010)

Hardware Manual

Version 1.0

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For more information about our company and products, visit our website at ***www.vpixx.com***

For information, comments or suggestions, please contact us by e-mail at ***support@vpixx.com***

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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
	Helpful Hint	*Information to help out during assembly, installation or usage*
	Caution Notice	*Important Information to prevent misuse and/or damage to equipment*
	Warning	***Critical information to prevent damage to equipment and/or personnel***

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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.

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For European Countries

CE

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 Long-Range
Part Numbers: VPX-TRK-9010

Application of Council Directive:

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

The following harmonised standards have been used:

EN 61326-1:2013 –Electrical equipment for measurement, control and laboratory use.

- **IEC CISPR 11** -Radio frequency disturbance characteristics (Class A)
- **IEC 61000-3-2** -Limits for harmonic current emissions (Class D)
- **IEC 61000-3-3** -Limitation of voltage changes, voltage flicker (≤16A per phase)
- **IEC 61000-4-2** –Electrostatic discharge immunity test (Level 2 contact, air) (Perf Criteria B)
- **IEC 61000-4-3** –Radiated, radio-frequency, electromagnetic field immunity test (Level 2, Perf Criteria A)
- **IEC 61000-4-4** –Electrical fast transient/burst immunity test (Level 2, Perf Criteria B)
- **IEC 61000-4-5** –Surge immunity test (Level 2, Perf Criteria B)
- **IEC 61000-4-6** –Immunity to conducted disturbances, induced by radio-frequency fields (Level 2, Perf Criteria A)
- **IEC 61000-4-8** –Power frequency magnetic field immunity test (Level 2, Perf Criteria A)
- **IEC 61000-4-11** –Voltage dips, short interruptions and voltage variations immunity tests (Perf Criteria B and C)

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

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).

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Overview

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

This infrared illuminator can be used with any eye tracking configuration having an effective range between 100 cm to 180 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.

	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 Long-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

	The 850 nm infrared light from the InfraRed Long-Range illuminator device is invisible under most viewing conditions. ***Subjects should not have their eyes within 100 cm (40 inches) of the infrared illuminator.*** ***UNDER NO CIRCUMSTANCE SHOULD A SUBJECT HAVE HIS OR HER EYES CLOSER THAN 10 CM (4 INCHES) FROM THE IR ILLUMINATOR.***

	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.

	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.

	Use of controls or procedures other than those specified herein may result in hazardous infrared radiation exposure.

	If you use the InfraRed Long-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.

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SAFETY INFORMATION

As a Class 1 LED device, the InfraRed Long-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 Long-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 Long-Range illuminator device should not be aimed at a specific subject at distances of less than 100 cm (40 inches) from the eyes. This will ensure an exposure of less than 15 W/m². 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 Long-Range illuminator device.
- The InfraRed Long-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 Long-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 Long-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 Long-Range illuminator device.

	In the event of failure, the InfraRed Long-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 Long-Range illuminator device, verify that it contains the following components.

Component	Description	Visual representation
1	InfraRed Long-Range illuminator device	
2	Interface cable for using with a TRACKPixx*3* camera	

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InfraRed Long-Range installation

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

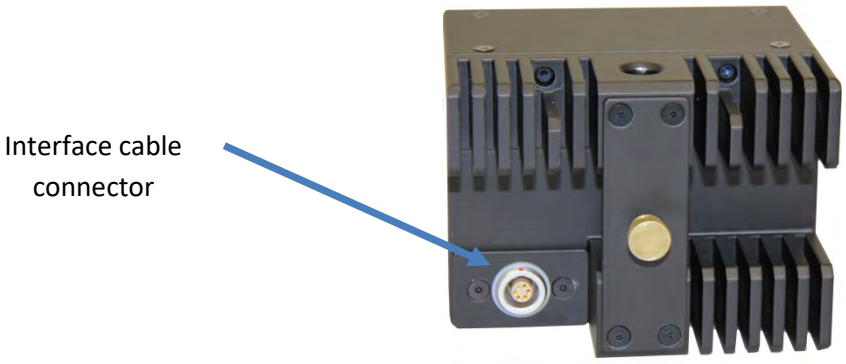

Figure 1 - InfraRed Long-Range connector

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 Long-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 Long-Range illuminator device to the mounting apparatus

Follow this procedure to fix the InfraRed Long-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 Long-Range illuminator device to secure it in place.

Figure 3 - Mounting screw

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Connector description

A LEMO connector is used for interfacing the InfraRed Long-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 300 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 Long-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 Long-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 Long-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 Long-Range illuminator has a straight connection. Pin1 to Pin1, Pin2 to Pin2, etc. **One cable end has a 7th pin, which is floating.**

You can plug this cable directly to the VPixx Technologies TRACKPixx*3* camera box (VPX-TRK-3410C) on the 7-pin LEMO connector.

Interface cable connector for InfraRed Long-Range illuminator device

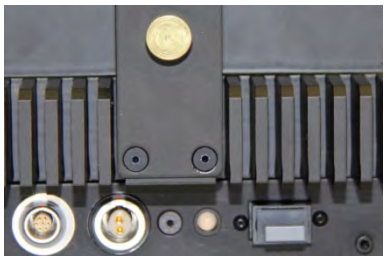

Figure 4 - TRACKPixx3 rear view

Typical setup

The DATAPixx*3* and the TRACKPixx*3* system constitute the core data acquisition components of your eye tracking solution. The following illustration details a typical setup for the TRACKPixx*3* system using the InfraRed Long-Range illuminator.

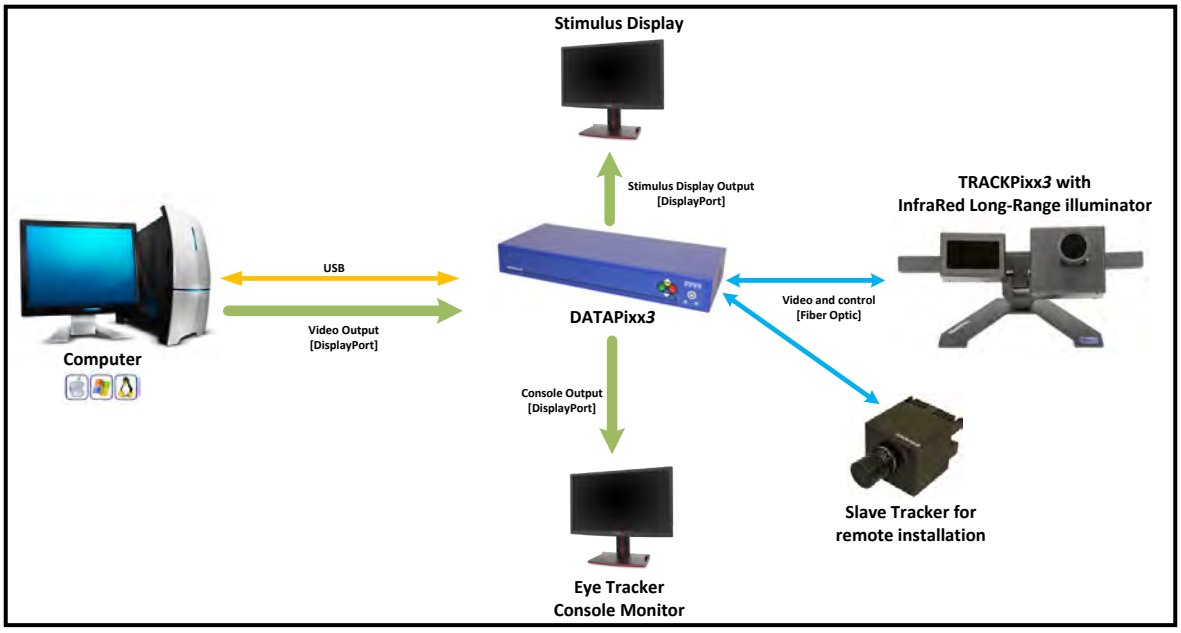

Figure 5 - Typical TRACKPixx*3* setup

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Maintenance and Calibration

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

Cleaning the InfraRed Long-Range illuminator

Clean your InfraRed Long-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 – 300 mA +5 VDC – 50 mA
Wavelength	850 nm
Maximum Radiation	15 W/m^2 @ 100 cm
Optimal Range of Use	100 cm to 180 cm
Illumination Angle	6°
Operating Temperature	0°C to 70°C

Warranty

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

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