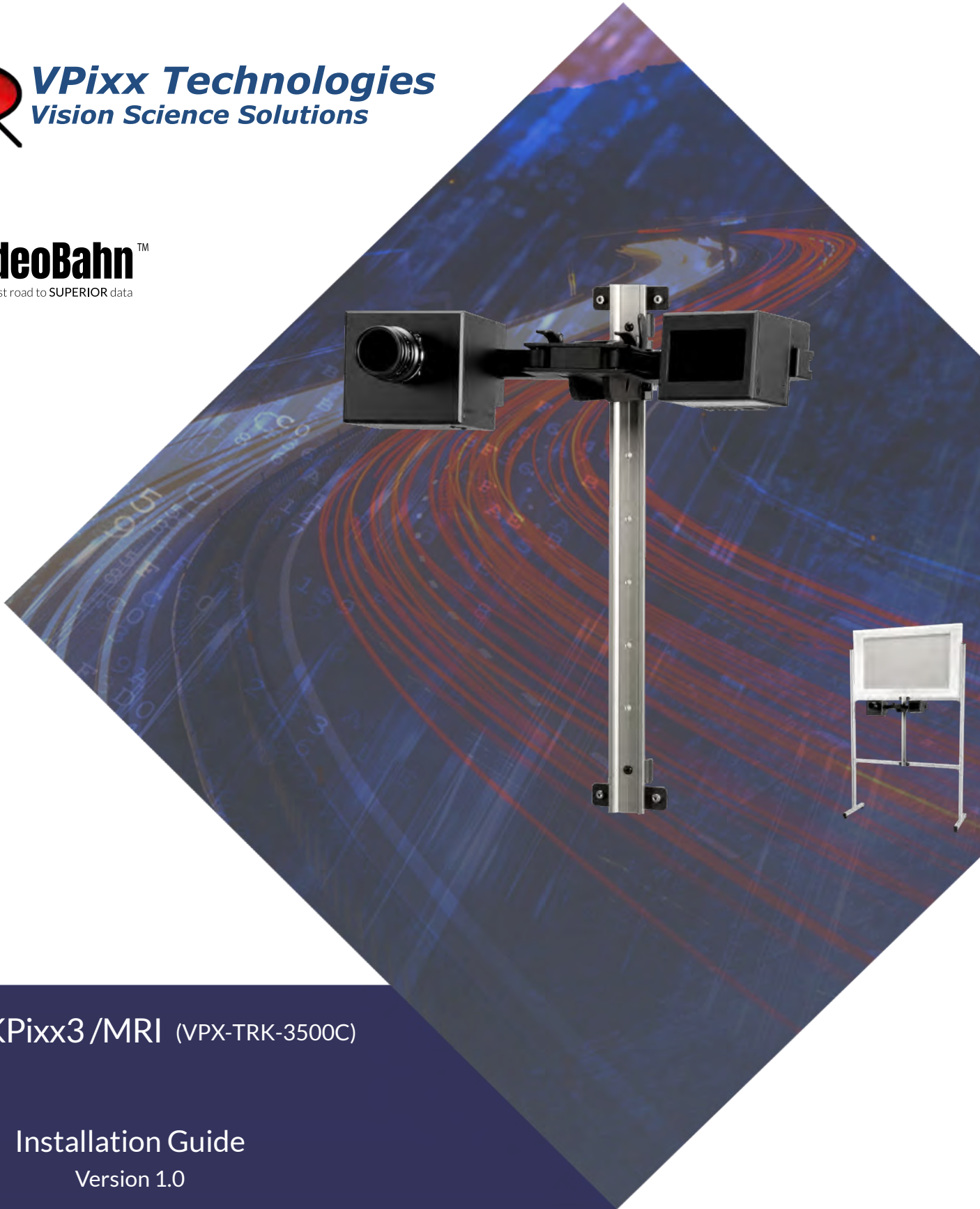




VPiXX Technologies
Vision Science Solutions

VideoBahn™

The NEW fast road to SUPERIOR data



TRACKPiXX3 /MRI (VPX-TRK-3500C)

Installation Guide

Version 1.0

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IMPORTANT

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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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Canada, J3V 6B4

Version History of this document




Table 1 – Version history

Version Updated to	Date	Author	Reason
1.0	2019/11/14	P. Kakos	First release

Document Icons

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

Table 2 – Document icons

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

MR Room Safety Symbols

Before installing and using your TRACKPixx3 /MRI or bringing the system or any of its components into an MR room, familiarize yourself with the MR room safety symbols found on your equipment. These are explained in the following table.


	<i>WARNINGS AND MARKINGS MUST BE OBSERVED! Before installing and using your TRACKPixx3 /MRI or any of the components making up the system, familiarize yourself with the MR room safety symbols that are found on your equipment. These are explained in the following table.</i>
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Table 3 – MR room safety symbols




<i>Symbol</i>	<i>Name</i>	<i>Description</i>
	MR safe	Objects and components marked with the green MR safe icon present no danger for staff and equipment when in the MR room.
	Conditionally MR safe	The yellow Conditionally MR safe icon indicates objects and components that are MR safe in a limited fashion. Specified safety distances limit how close the object or component in question may be from the magnet.
	MR unsafe	The red MR unsafe icon marks objects or components that are strictly prohibited from entering the MR room.

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Overview

This installation guide provides conformity, safety, hardware, installation and maintenance information for VPixx Technologies Inc.'s TRACKPixx3 /MRI.

The TRACKPixx3 /MRI is a versatile eye/gaze-tracking solution. It does not require a dedicated PC to process eye images and generate gaze information; all image processing is performed within the TRACKPixx3 /MRI hardware.

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 TRACKPixx3 /MRI device is suitable only for research and is not designed for medical applications or for diagnostic purposes.

Compliance information

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 B digital device, pursuant to part 15 subpart B of the FCC rules.

For Canada

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

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: TRACKPixx3 /MRI

Part Numbers: VPX-TRK-3500C


Product Options : All

Application of Council Directive:

2014/30/EU	-Electromagnetic Compatibility directive
2001/95/EU	-General Product Safety directive
2015/863/EU	-Restriction of Hazardous Substances directive
2012/19/EU	-Waste Electrical and Electronic Equipment directive

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).

WARNINGS AND SAFETY INFORMATION

WARNINGS – GENERAL


	<p>The TRACKPixx3 /MRI system is suitable only for research and not for medical applications or for diagnostic purposes.</p>
	<p>PHOTOSENSITIVE EPILEPSY (PSE) <i>Eye-tracking equipment may expose subjects with optical stimuli capable of provoking a seizure. Subjects that have never had any epileptic event may have a seizure when subjected to eye-tracking procedures. Consequently, it is very important to monitor subject reactions and well-being constantly during experiments.</i></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><i>Use of controls or procedures other than those specified herein may result in hazardous infrared radiation exposure.</i></p>

SAFETY INFORMATION

As a Class 1 LED device, the TRACKPixx3 /MRI (VPX-TRK-3500C) 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 system 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.

USAGE NOTES

- Use only the provided cables and equipment.
- Do not expose any component of the TRACKPixx3 /MRI 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 power cable carefully. Never use a damaged power cable.

	<p><i>In the event of failure, the TRACKPixx3 /MRI should be replaced. There are no user-serviceable/adjustable parts inside. Contact VPixx Technologies Inc. for repair or replacement as required.</i></p>
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Installation Example 1 - Typical Setup

The following illustration details a typical setup for the TRACKPixx3 /MRI system.

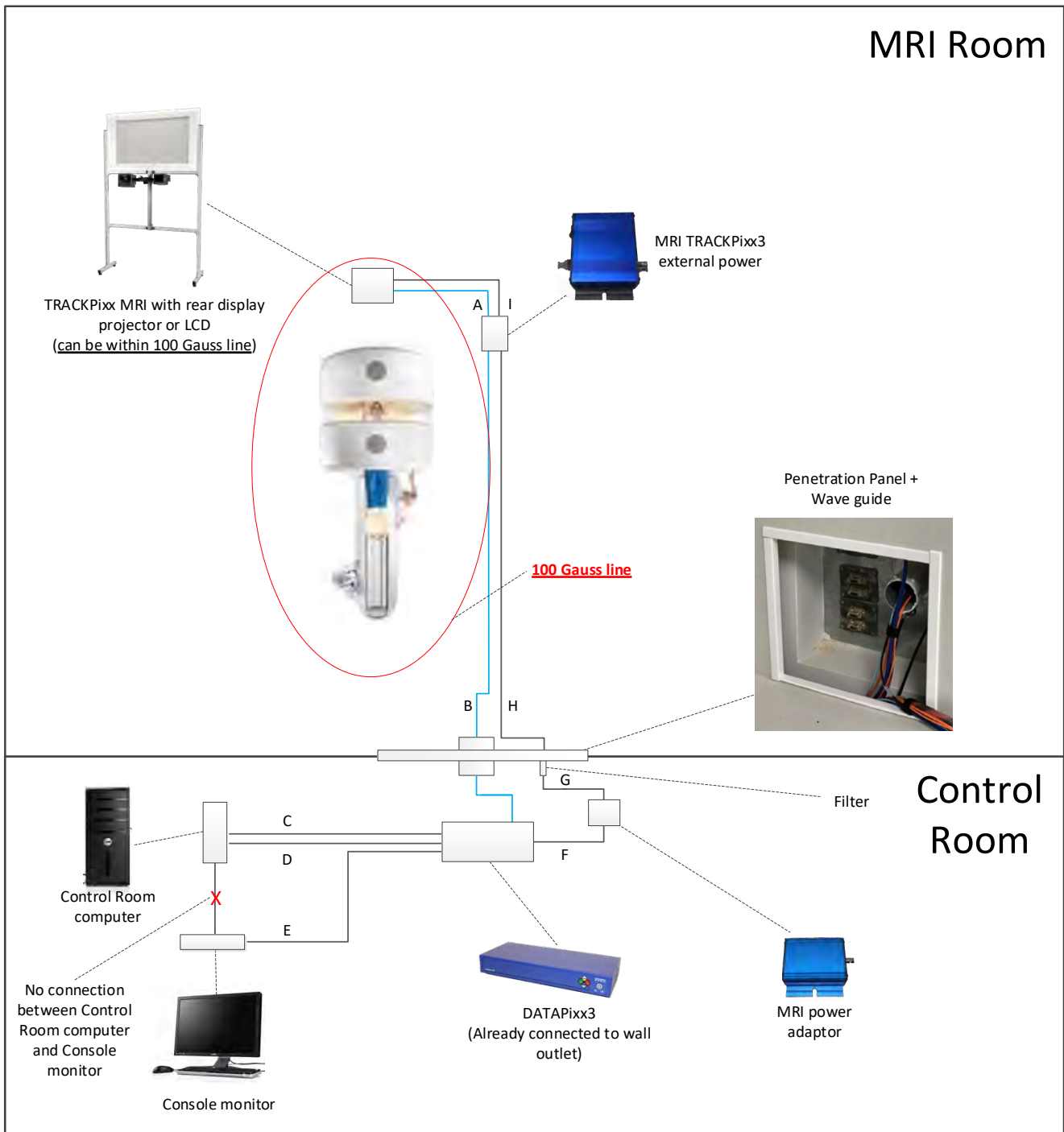


Figure 1 - Typical TRACKPixx3 /MRI System Setup

Table 4 – MRI Setup Connection Descriptions

Connection	Description
A	Fiber optic cable from MRI TRACKPixx3 External Power module to TRACKPixx3
B	Fiber Optic cable from DATAPixx3 Videobahn#1 connector to MRI TRACKPixx3 External Power module
C	USB cable from computer to DATAPixx3
D	DisplayPort cable between computer and DATAPixx3 DisplayPort IN1 connector
E	DisplayPort cable from DATAPixx3 DisplayPort OUT2 to console monitor DisplayPort input
F	Cable from DATAPixx3 +12 V OUTPUT connector to MRI Power Adaptor
G	Power cable from MRI Power Adaptor to filter
H	Power cable from filter to MRI TRACKPixx3 External Power module
I	Power cable from MRI TRACKPixx3 External Power module to TRACKPixx3

Installation Steps

Refer to the following steps for additional information concerning the installation of your TRACKPixx3 /MRI. All connection references refer to Table 4.

1. Place the MRI TRACKPixx3 external power module in a corner on the floor of the MRI room. It should be outside of the 100 Gauss line



2. Place the DATAPixx3 in the MRI control room



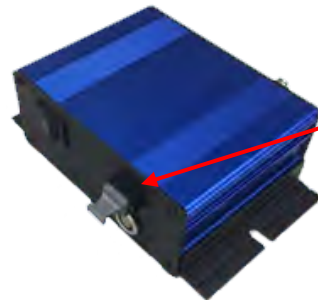
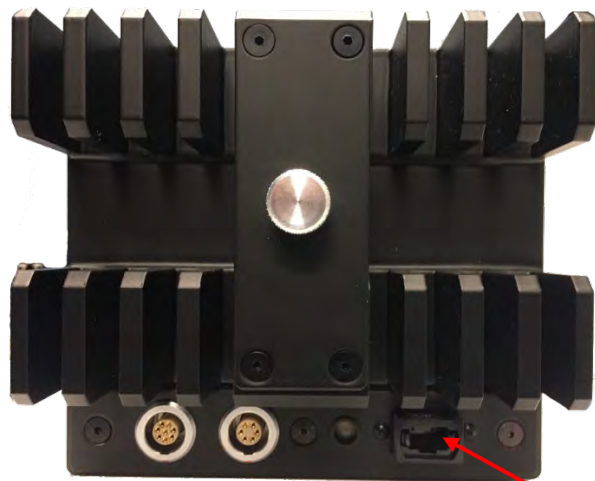
3. Place the TRACKPixx3 stand and Arm Support behind the MRI bore.



- 4. Install the TRACKPixx3 camera and the InfraRed Long-Range Illuminator on the Arm Support. They should be positioned at both ends of the Arm support.

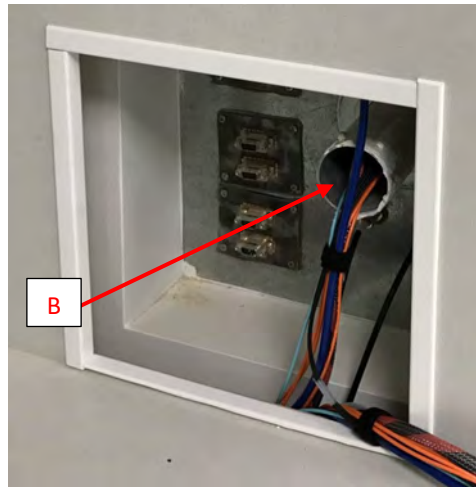


- 5. Connect the fiber optics from:
 - a. The TRACKPixx3 VideoBahn fiber optic interface to the MRI External Power Module (connection **A**).



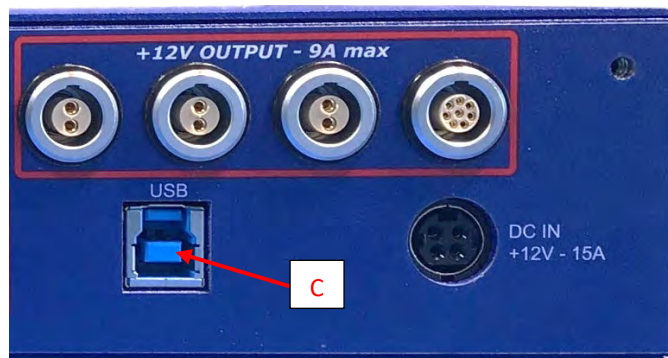
VideoBahn
fiber optic
interface

- b. The MRI External Power Module to the DATAPixx3 Videobahn#1 interface by passing the fiber optic cable through the penetration panel's wave guide (connection **B**).



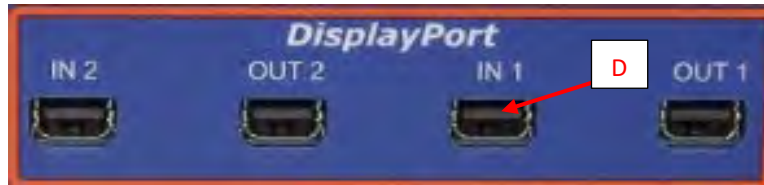
	<p><i>Remember when manipulating or connecting fiber optic cables not to kink or otherwise bend them below a bending radius of 2" (5 cm). Doing so may damage the cable.</i></p>
--	--

- 6. Connect the USB cable from one of the Control Room computer's USB ports to the DATAPixx3's USB port (connection **C**)



7. Connect a DisplayPort cable from:

- a. The Control Room computer to the DATAPixx3 DisplayPort IN1 (connection **D**)

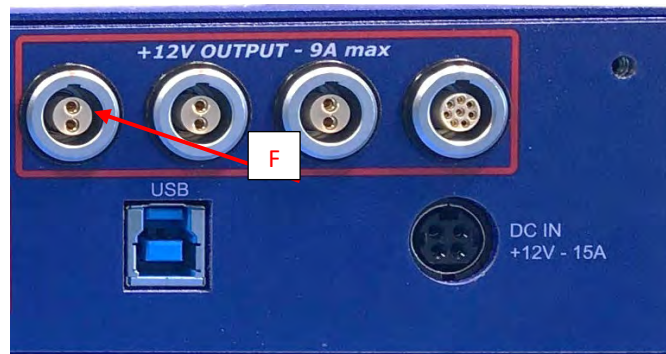


- b. The DATAPixx3 DisplayPort OUT2 to the console monitor DisplayPort input (connection **E**)

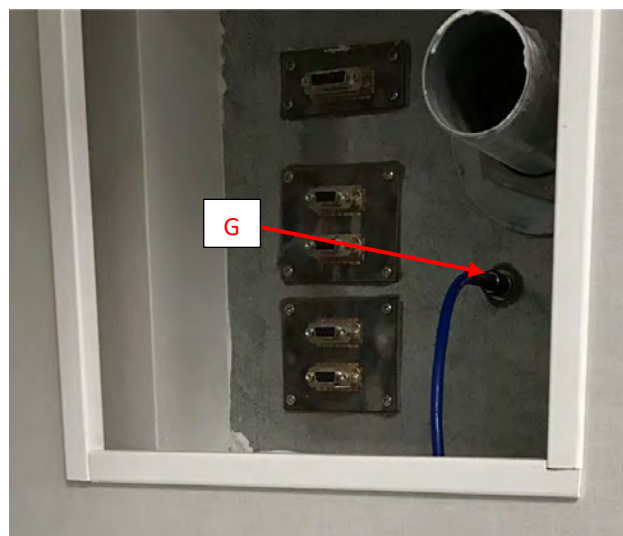


8. Connect a power cable from:

- a. The DATAPixx3 +12 V OUTPUT to the MRI Power Adaptor (connection **F**)



- b. The MRI Power Adaptor to the Penetration Panel's filter (connection **G**)



- c. Filter to MRI TRACKPixx3 External Power module (connection **H**)
- d. The MRI TRACKPixx3 External Power module to the TRACKPixx3 LEMO power connector (Figure 6) (connection **I**)
- e. Verify that the DATAPixx3's supplied AC Adaptor cable is connected from the wall outlet to the DATAPixx3's DC IN connector.



Finalizing the setup

Since the precise positioning of most VPixx instruments (including the VPixx trolley, MRI screen and MRI mirror) is critical to the proper running of your experiment, VPixx Technologies supplies a set of *Foot Locators*.



Figure 2 - VPixx Foot Locators

When the exact and final position of these instruments is determined, place the foot locators at their feet to ensure that if ever they are later displaced, they can be placed back in exactly the same configuration as before.

To apply the foot locators, follow this procedure:

1. Ensure that the location of the VPixx instrument is final and is in line with the requirements of your experiment.
2. Remove the adhesive tape under one foot locator and set it as shown in this figure.
3. Repeat step 2 for the remaining legs of the instrument.



Installation Example 2 – Setup using a PROPixx Projector and TRACKPixx3

The following illustration details a possible setup for the TRACKPixx3 /MRI system using an accompanying PROPixx Projector and TRACKPixx3.

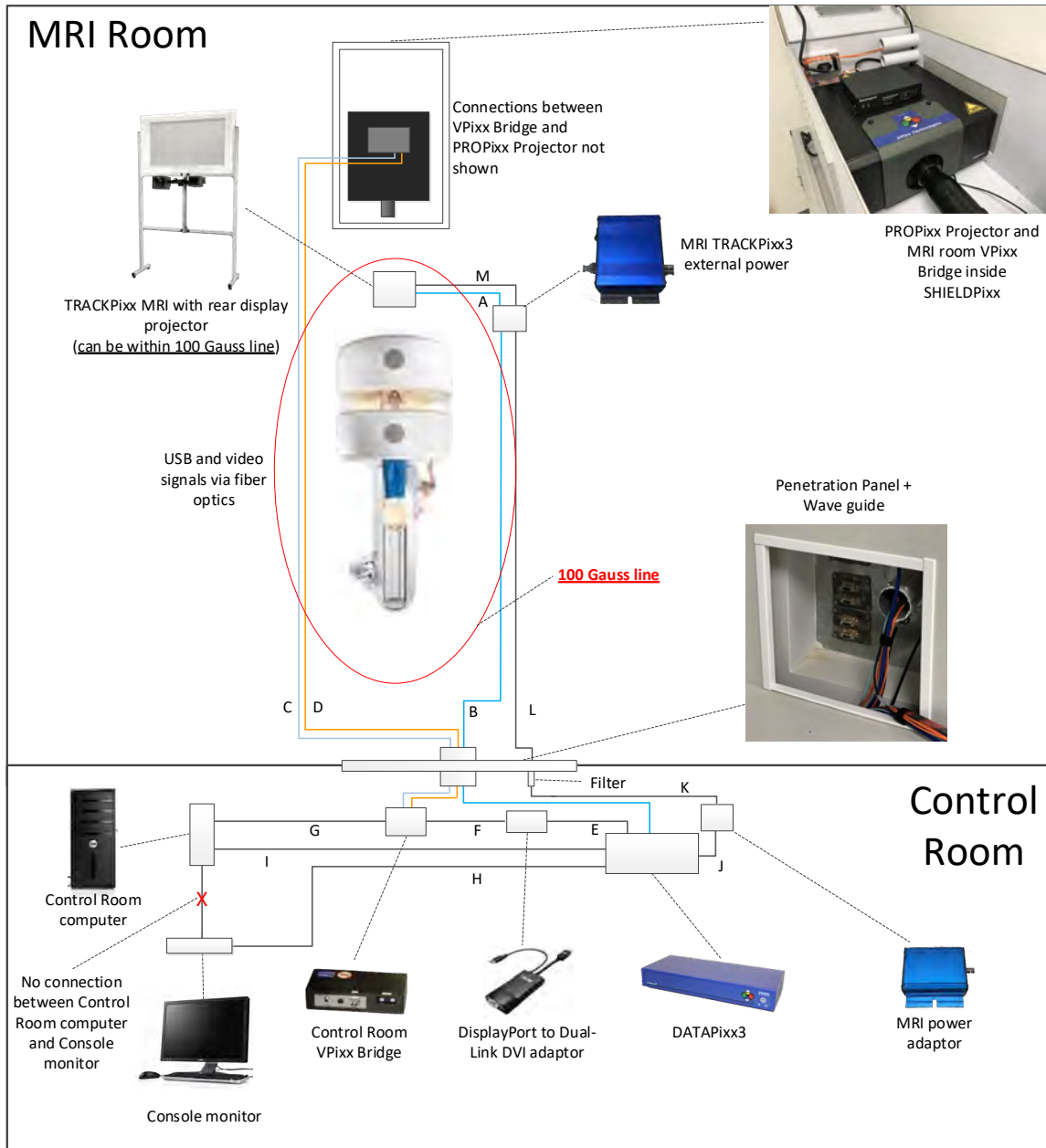


Figure 3 - Typical TRACKPixx3 /MRI System Setup using PROPixx Projector in MRI Room

Table 5 – MRI Setup Connection Descriptions (including PROPixx)

Connection	Description
A	Fiber optic cable from MRI TRACKPixx3 External Power module to TRACKPixx3
B	Fiber Optic cable from DATAPixx3 Videobahn#1 connector to MRI TRACKPixx3 External Power module
C	Fiber optic cable from Control Room VPixx Bridge USB interface to MRI Room VPixx Bridge USB interface
D	Fiber optic cable from Control Room VPixx Bridge VIDEO interface to MRI Room VPixx Bridge VIDEO interface
E	DATAPixx3 DisplayPort OUT1 connected directly to <i>DisplayPort to Dual-link DVI Adaptor</i>
F	Dual-link DVI cable
G	USB cable from computer to Control Room VPixx Bridge
H	DisplayPort cable from DATAPixx3 DisplayPort OUT2 to console monitor DisplayPort input
I	USB cable from computer to DATAPixx3
J	Cable from DATAPixx3 +12 V OUTPUT connector to MRI Power Adaptor
K	Power cable from MRI Power Adaptor to filter
L	Power cable from filter to MRI TRACKPixx3 External Power module
M	Power cable from MRI TRACKPixx3 External Power module to TRACKPixx3

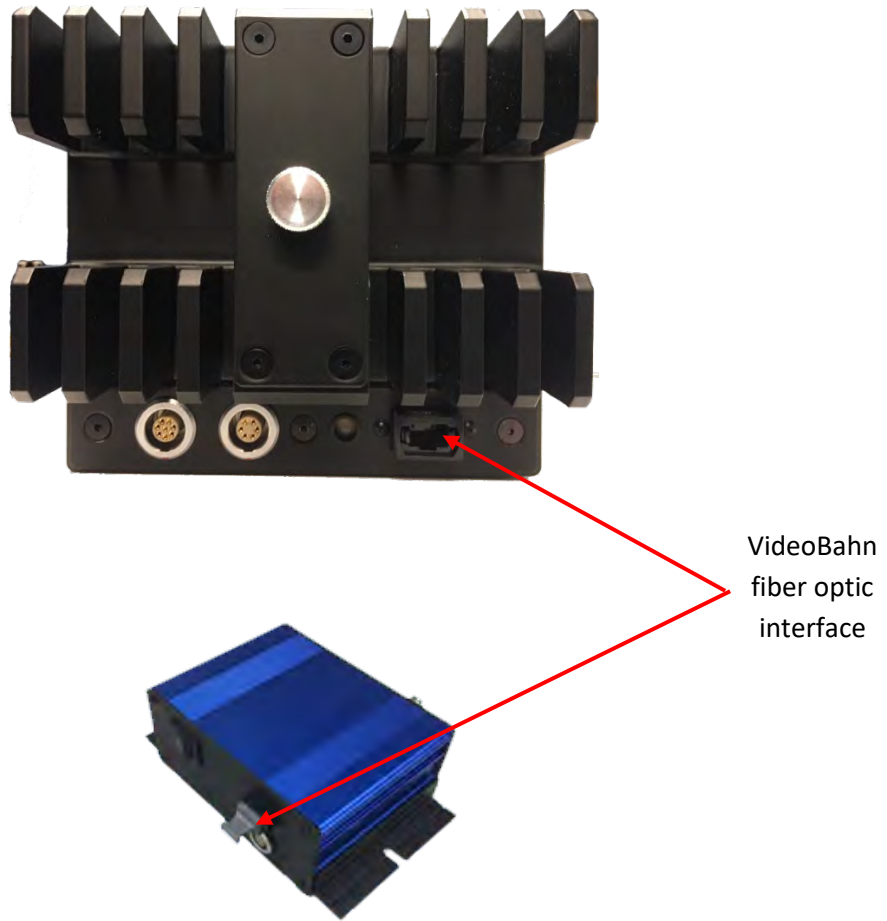


Connections specific to the PROPixx Projector are detailed in the *PROPixx Projector Installation Guide*.

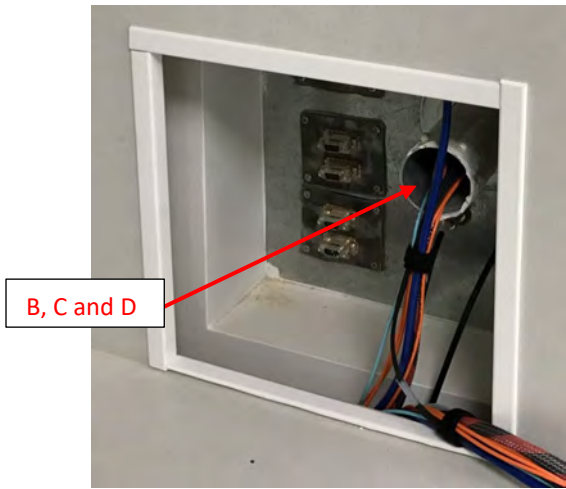
Installation Steps

Refer to the following steps for additional information concerning the installation of your TRACKPixx3 /MRI. All connection references refer to Table 5.

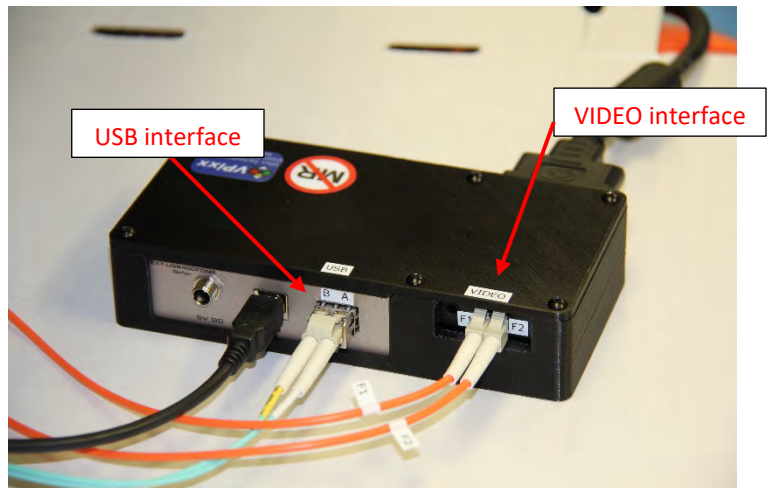
1. Connect the fiber optics from:
 - a. The TRACKPixx3 VideoBahn fiber optic interface to the MRI TRACKPixx3 External Power Module (connection **A**).



- b. The MRI TRACKPixx3 External Power Module to the DATAPixx3 VideoBahn#1 interface by passing the fiber optic cable through the penetration panel's wave guide (connection **B**)



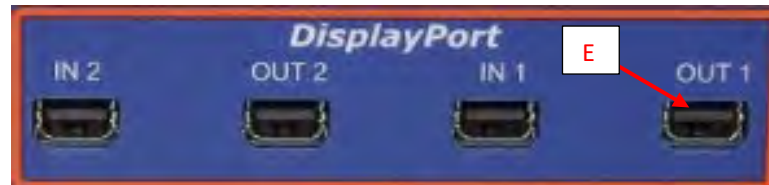
- c. The Control Room VPixx Bridge (VIDEO / USB) interfaces to the MRI Room VPixx Bridge (VIDEO / USB) interfaces through the penetration panel's wave guide (connections **C** and **D**)



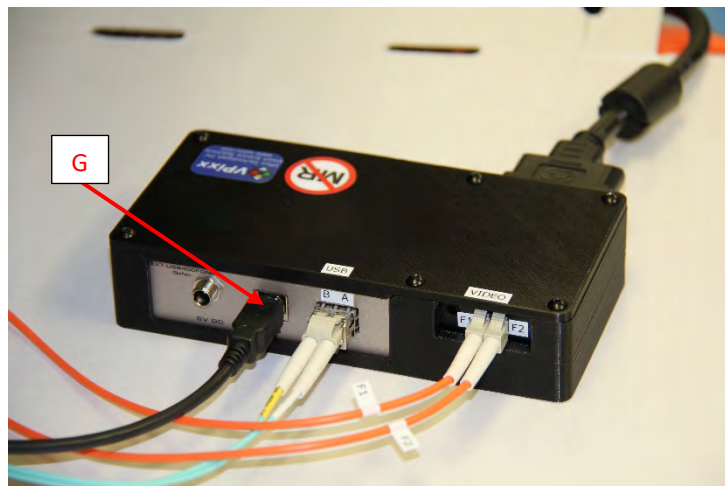


Remember when manipulating or connecting fiber optic cables not to kink or otherwise bend them below a bending radius of 2" (5 cm). Doing so may damage the cable.

2. Connect the DATAPixx3 DisplayPort OUT1 directly to the *DisplayPort to Dual-link DVI Adaptor* (connection **E**)



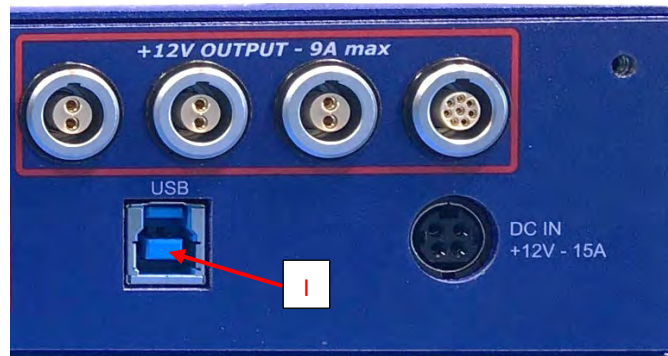
3. Connect the Dual-Link DVI cable from the *DisplayPort to Dual-link DVI Adaptor* to the Control Room VPixx Bridge. (connection **F**)
4. Connect a USB cable from one of the Control Room computer's USB ports to the Control Room VPixx Bridge's USB port (connection **G**)



5. Connect a DisplayPort cable from DATAPixx3 DisplayPort OUT2 to the console monitor DisplayPort input (connection **H**)

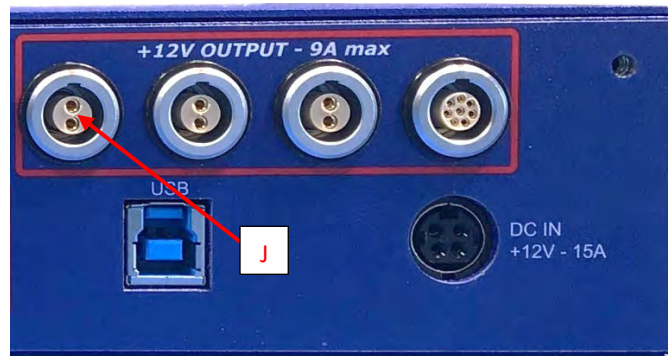


6. Connect the USB cable from one of the Control Room computer's USB ports to the DATAPixx3's USB port (connection **I**)

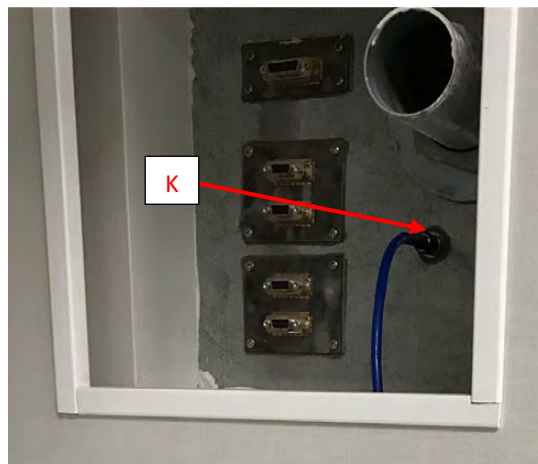


7. Connect a power cable from:

- a. The DATAPixx3 +12 V OUTPUT to the MRI Power Adaptor (connection **J**)



- b. The MRI Power Adaptor to the Penetration Panel's filter (connection **K**)



- c. The filter to the MRI TRACKPixx3 External Power module (connection **L**)
- d. The MRI TRACKPixx3 External Power module to the TRACKPixx3 LEMO power connector (Figure 6) (connection **M**)
- e. Verify that the DATAPixx3's supplied AC Adaptor cable is connected from the wall outlet to the DATAPixx3's DC IN connector



8. Refer to the **Finalizing the setup** section. Once this has been completed.

TRACKPixx3 installation details

This section offers more information on the positioning of the TRACKPixx3 camera as well as information on the installation of lenses, cabling, etc. This example supposes a standard TRACKPixx3 position inline with the MRI and subject.

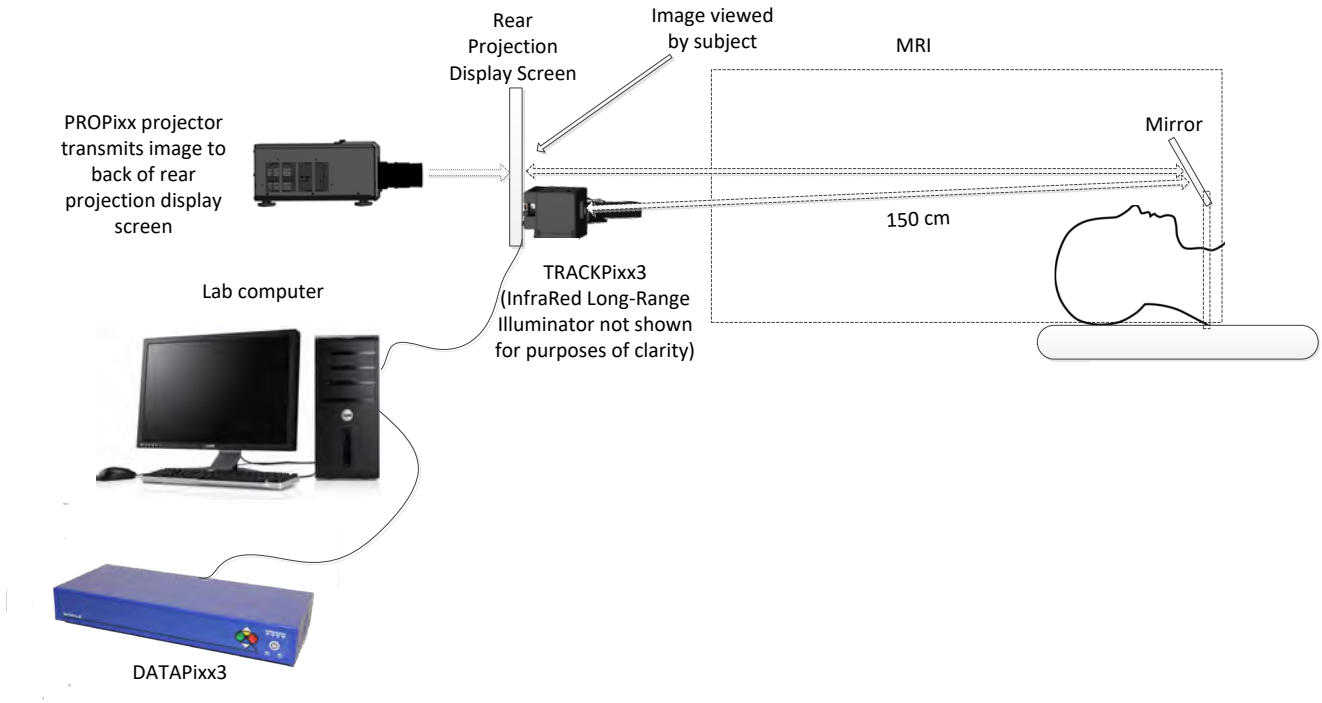


Figure 4 - Typical TRACKPixx3 /MRI Camera Placement (screen mount example shown)

Adding/changing lenses

Your TRACKPixx3 package includes one 75 mm lens which must be attached to the TRACKPixx3 camera before using the system. To add the lens to the TRACKPixx3, simply place it on the lens receptacle area of your TRACKPixx3 and gently screw it clockwise using its C-mount adaptor until the adaptor cannot turn anymore.

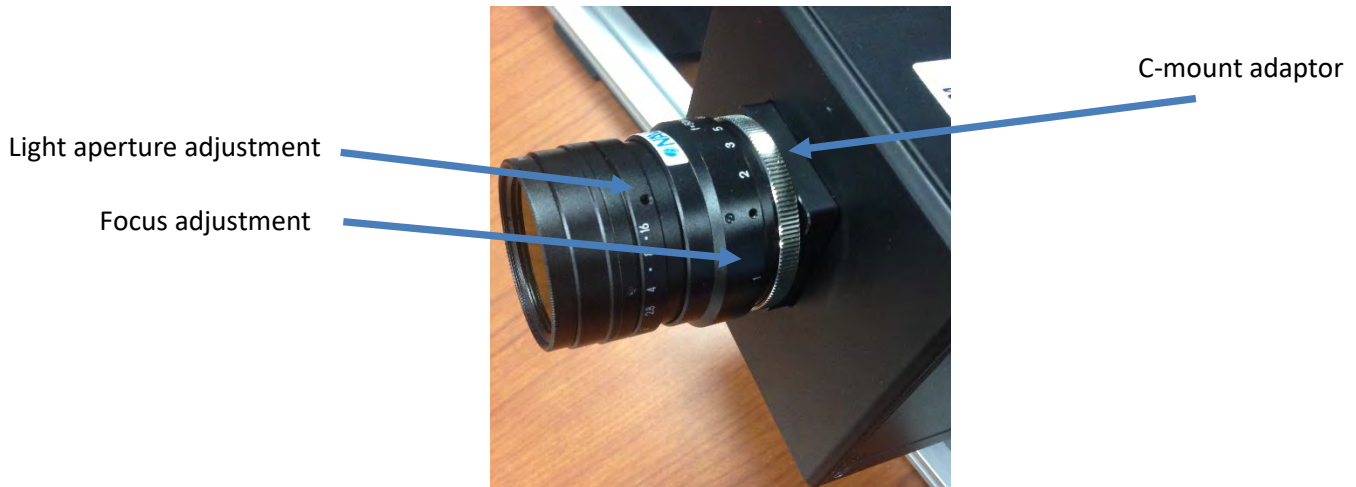


Figure 5 - Lens C-mount adaptor

Once the camera lens has been firmly installed and the system is operational, use the focus adjustment ring and light aperture adjustment ring on the lens (refer to Figure 5) to adjust the image focus and brightness recorded by the camera.

TRACKPixx3 rear connectors

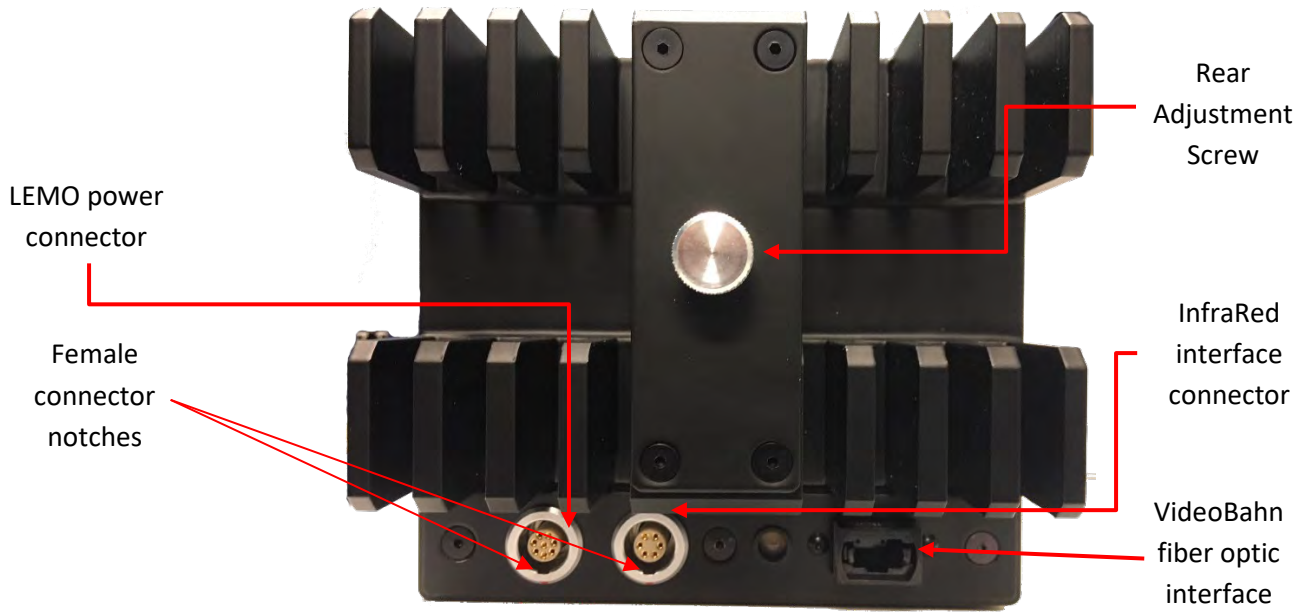


Figure 6 - TRACKPixx3 camera rear connectors

Ensure that when inserting either the InfraRed interface cable or the power cable into the TRACKPixx3, the cable connector orientation is such that its red dot (see picture below) is in line with the TRACKPixx3 camera connector’s female connector notch (refer to Figure 6).



Figure 7 - cable connector red dot and notch

InfraRed Illuminator

Connect the infrared cable supplied with your InfraRed Illuminator device into the camera's rear connector, as seen in Figure 8 below. The connector also possesses an alignment notch at the top, to ensure that the connector is properly aligned when inserted.

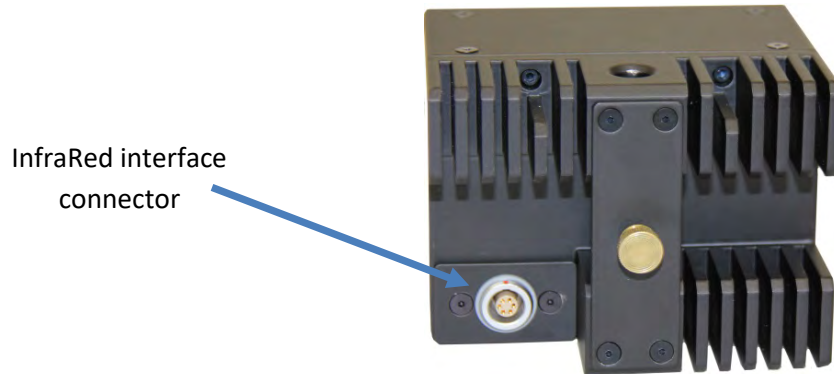


Figure 8 - InfraRed interface connector

Arm Support

Included in your TRACKPixx3 package is an arm support allowing you to assemble the TRACKPixx3 and the InfraRed Illuminator device and arrange them in the exact position required by your MRI eye-tracking experiment.

Fixing the TRACKPixx3 and InfraRed Illuminator to the Arm Support

The procedure to mount either the TRACKPixx3 or InfraRed Illuminator device to the arm support is the same.

1. Slide the device along the arm support.
2. Once in its desired location along the arm support, tighten the mounting screw at the back of the device to secure it in place.

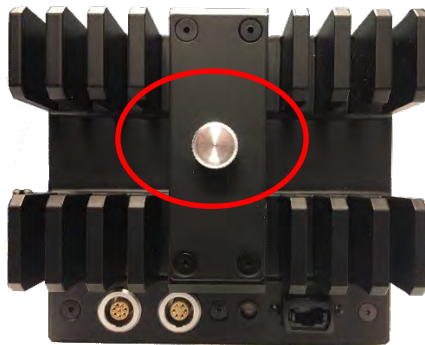


Figure 9 - Mounting screw

3. Once the devices are securely added to the arm support, use the two **cam levers** to aim the TRACKPixx3 and the InfraRed Illuminator device according to your needs.
4. Use the **height adjustment screw** to raise or lower both devices according to your needs.

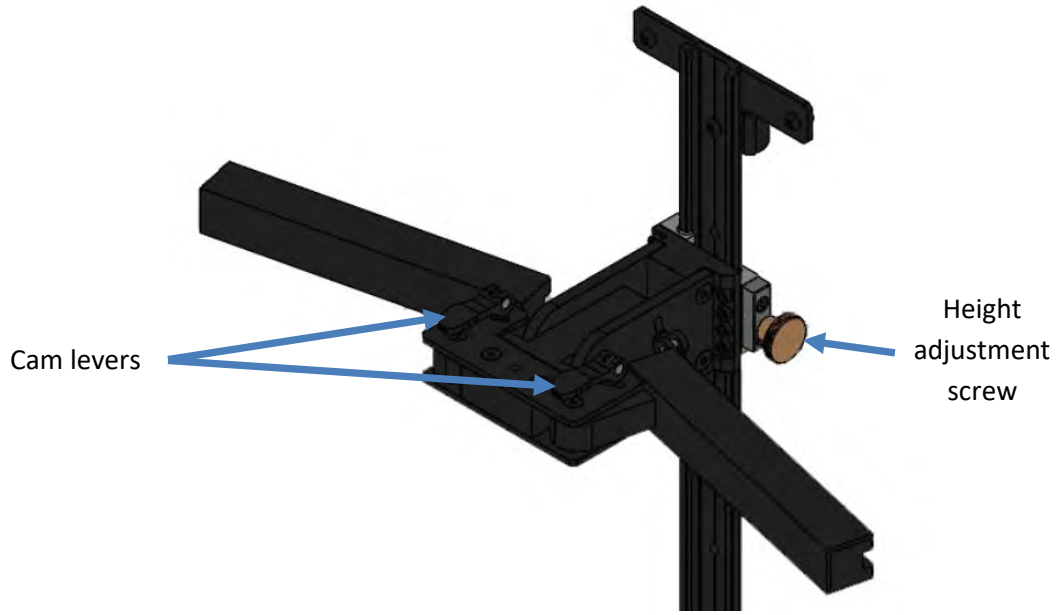


Figure 10 – Arm support cam levers and height adjustment screw

TRACKPixx3 rear LED

To the rear of your TRACKPixx3 camera is a status LED which, under normal operation will be ORANGE. After power up, a short delay during which the LED will be RED signifies that the camera is in initialization mode.

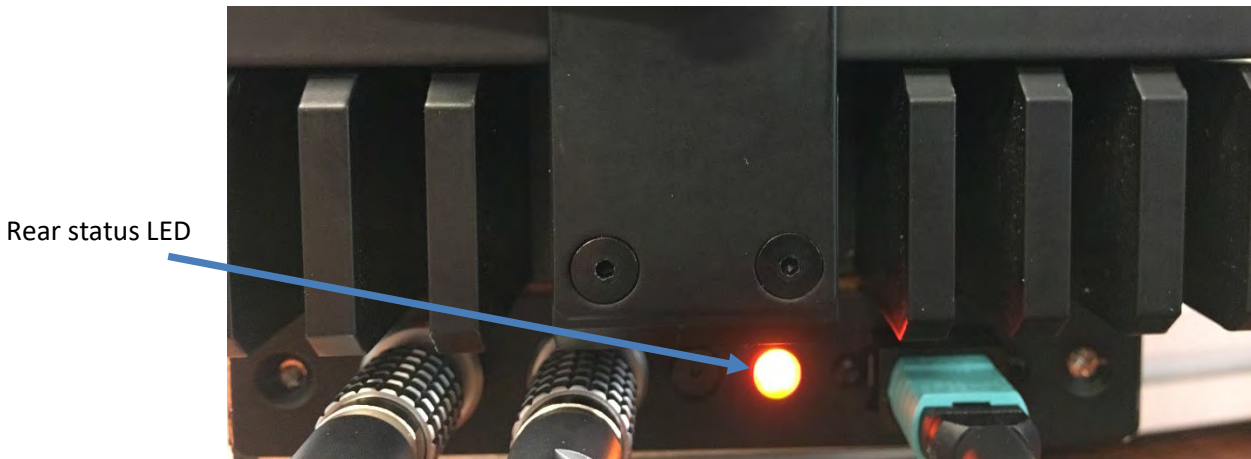


Figure 11 - TRACKPixx3 rear LED

Using the TRACKPixx3 /MRI

The TRACKPixx3 /MRI may be used in one of several ways using one of many different software applications.



Before setting up your first eye-tracking session, CAREFULLY READ the safety information contained in the **WARNINGS AND SAFETY INFORMATION** section

For information on how to use your TRACKPixx3 /MRI, please refer to the
Application Guide for VPixx Products

Maintenance

The TRACKPixx3 /MRI system does not require periodic maintenance.

Cleaning the TRACKPixx3 /MRI

Clean your TRACKPixx3 /MRI system as required and depending on usage.



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

Warranty

The TRACKPixx3 /MRI is warranted against manufacturing defects in materials and workmanship for a period of two years from the date of purchase.



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