

Prizmatix

USER MANUAL

HB-FC-White

**High-Brightness Fiber-Coupled Illuminator for
Various Scientific Applications**



Version: 7

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1 Introduction

Prizmatix HB-FC-White High-Brightness Fiber-Coupled light sources was designed especially for scientific illumination applications requiring white light from small core fiber. The HB-FC-White housing is self-contained light source including all necessary driver electronics and thermal management.

1.1 Features

- High Brightness fiber coupled light source from a small core diameter
- Optically Isolated TTL and Analog Inputs
- Remote control by I2C
- Long life (>10000 h)

1.2 Intended Use

The HB-FC-White illuminator intended to be used as light source in myriad scientific applications.

2 Safety

Please make yourself familiar with the contents of these operating instructions before using the HB-FC-White illuminator. Use the illuminator only as specified in this manual. Otherwise, the protection provided by the illuminator may be impaired.

The following symbols are used for the warnings:

 **CAUTION!** Failure to comply with the safety instructions can be hazardous to the user.

 **CAUTION!** Failure to comply with the safety instructions can result in damage to the instrument.

Do not use the illuminator if it is damaged. Before you use the illuminator, inspect the case. Look for cracks or missing parts.

Do not use the illuminator without the fiber (shall be purchased separately).

Do not use the device around explosive gas.

Never operate the illuminator with the cover removed or the case open.

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Any maintenance should ONLY be performed by a Prizmatix authorized technician.

Prizmatix products are NOT authorized for use as components in life support devices or systems.

2.1 Eye Safety

The HB-FC illuminator eye safety shall be assigned by end user according to IEC 62471: 2006 with respect to the specific use of the product especially the specific fiber (core diameter and NA).

3 Cleaning

Keep the SMA output connector clear from dirt and do not leave it open. Make sure to close the SMA connector with a cap when the fiber is not connected.

! **CAUTION!:** Do not try to clean inside the port – you may damage the illuminator!

The box can be wiped with mild wet-wipes.

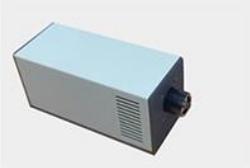
! **CAUTION!:** Do not attempt to use chemicals, e.g. Alcohol or Acetone – you may damage plastic components

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4 Set-up of the Device

Remove the device from the packaging and inspect the device for loose components or any signs of damage. Notify Prizmatix if the device appears damaged in any way: do not install or operate a damaged device.

4.1 Package Contents List

(1)		(2) *	
(3)		(4)	
(5) *		(6) *	
(7) *		(8) *	

#	Item	Description	Quantity
1	HB-FC-White illuminator	High-Brightness Fiber -Coupled Illuminator	1
2	Optical Fiber	Optical Fiber to be used with the illuminator	1
3	Power Adaptor	Power adaptor to be used with the illuminator	1
4	Mains Power Cord	Cord to connect the power adaptor to mains power	1
5	HB-FC-CTRL	Optional wired Remote controller	1
6	Control Cable	Control cable for HB-FC-CTRL	1
7	HB-FC-USB	Optional USB control interface	1
8	Control Cable	Control cable for HB-FC-USB (same as of HB-FC-CTRL)	1

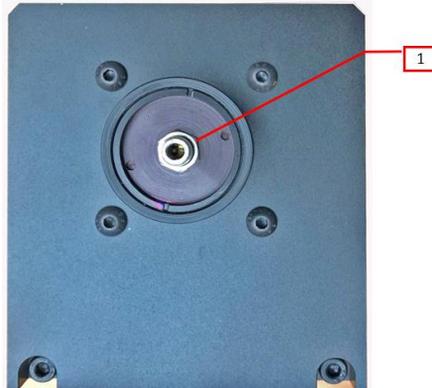
* If ordered

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4.2 System Overview

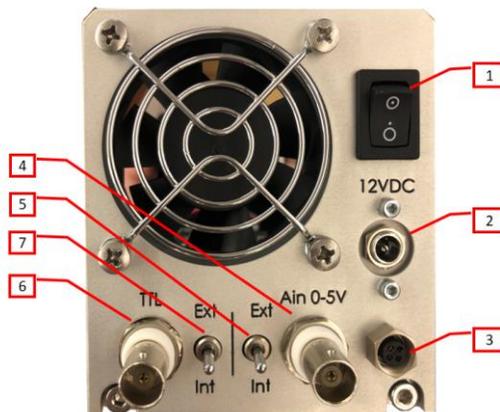
4.2.1 HB-FC-White Illuminator Controls

The front panel of the illuminator unit features: (1) SMA optical connector for fiber.



Illuminator front panel

The back panel of the illuminator unit features: (1) Main power switch, (2) Power adaptor input socket (3) Connector for I2C control, (4) Connector for Analog input (0-5V) for control of LED power, (5) Toggle switch Analog Input Int/Ext to enable/disable control of LED power by external analog input, (6) Connector for TTL input, (7) Toggle switch TTL Input Int/Ext to enable/disable control of LED ON/OFF by external TTL signal



Illuminator back panel

⚠ CAUTION!: Do not use the illuminator without the Fiber connected to the SMA connector at the illuminator!

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4.2.2 Typical System Setup

Typical HB-FC-White illuminator setup will include following components:

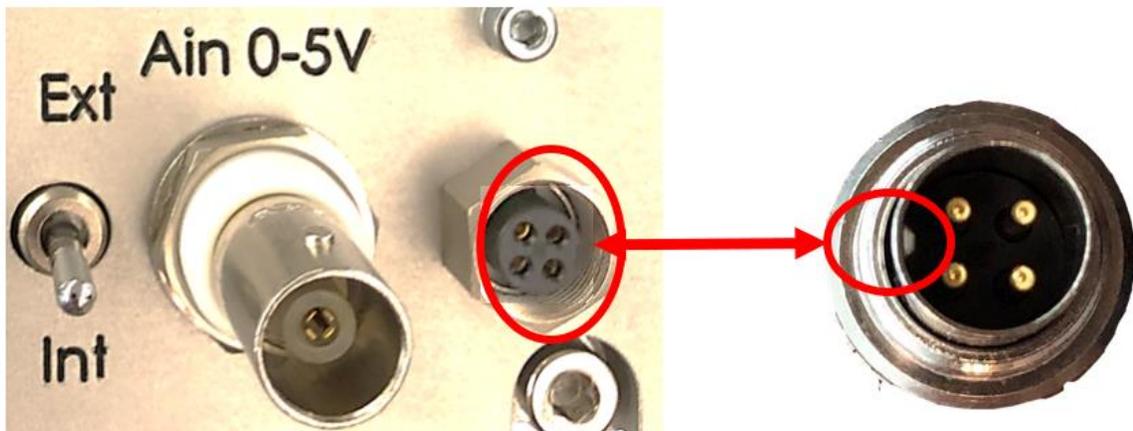
- (1) HB-FC-White illuminator with power adaptor
- (2) HB-FC-CTRL – Optical output power control unit
- (3) Optical fiber with SMA connectors

4.3 Initial Set-up of HB-FC illuminator

1. Set Power Switch on back panel of the unit to OFF position and connect power adaptor to the back of the unit and into wall mains socket.
2. If the control unit HB-FC-CTRL is purchased connect it to the HB-FC-White by the control cable.

If the control unit was not ordered the power is still can be controlled via the Analog input (0-5V)

- ! CAUTION!:** The control cable connector have a key for correct connection. Please pay attention to the correct orientation of the connectors.



3. Set both the TTL and Ain (Analog Input) switches on back panel to 'Int' position.
4. Connect the fiber to the front panel SMA connector.
5. Connect the other end of the fiber to the experimental setup.
6. Switch the back-panel power switch to the "ON" position.
7. If the control unit HB-FC-CTRL was not ordered light should be seen at the distal end of the fiber. The unit will work at max. output power.

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8. If the control unit HB-FC-CTRL was ordered there will not be light at the distal end of the fiber until the HB-FC-CTRL dial will be turned clockwise for increase of output power.

 **CAUTION!**: Do not stare at operating illuminator. May be harmful to the eyes

9. At end of use switch the unit off by switching the Power Switch on back panel to OFF position.

 **CAUTION!**: Never disconnect the power cord from the product before switching the ON/OFF switch on back panel to OFF position

10. For TTL input connect a BNC cable to **TTL** input connector on back panel of the illuminator. To enable TTL control, change the position of the **TTL Int/Ext** switch to **Ext** position.

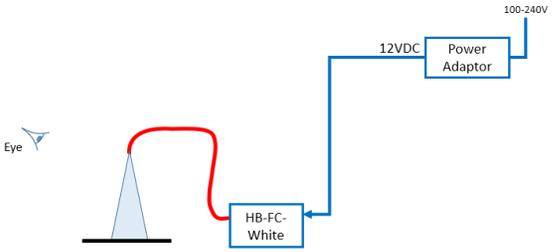
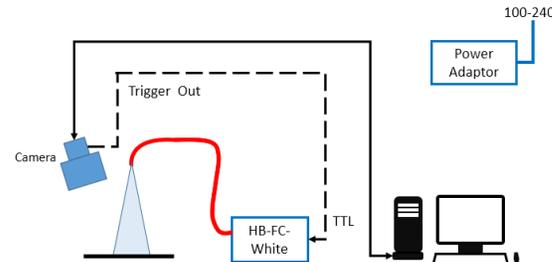
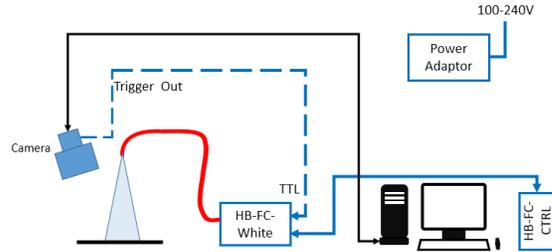
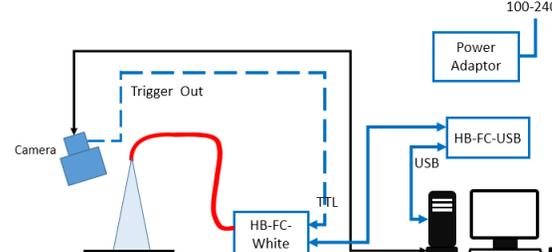
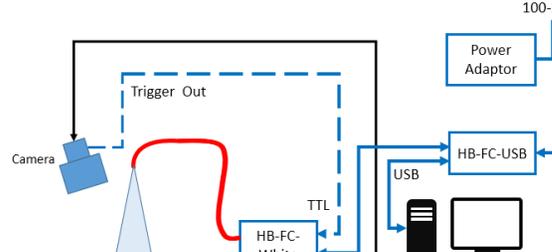
11. For Analog Input connect BNC cable to **Ain** input connector on back of panel of the illuminator. To enable Analog Input control, change the position of the **Ain Int/Ext** switch to **Ext** position

 **CAUTION!**: Do not cover back panel of unit - ensure that air can circulate freely.

4.4 Set-up of HB-FC illuminator with HB-FC-CTRL or HB-FC-USB

The HB-FC-White illuminator and its optional control units (HB-FC-CTRL, HB-FC-USB) can be used in various illumination setups and various configurations as described in following figures.

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<p>Configuration A: Basic On/Off - mimics the standard lamp.</p>	
<p>Configuration B: Additionally, to configuration A: optional camera synchronization by connecting the camera's Trigger out signal to HB-FC-White TTL input.</p>	
<p>Configuration C: Additionally, to configuration B: HB-FC power is manually controllable by wired HB-FC-CTRL control.</p>	
<p>Configuration D: Additionally, to configuration B: HB-FC-White power can be controlled by a software via USB</p>	
<p>Configuration E: HB-FC power can be controller either by software or manually. The latest change (Software of Manual) will take over the control.</p>	

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5 Specifications

5.1 Electrical Specifications

TTL Input, Analog Input		Optically isolated BNC connectors
Analog power control	%	0-100
ON/OFF		Power switch or by TTL signal
Input Voltage (Float)	V	12
Max Input current	A	5
Power Adaptor Input		85-264 VAC, 47-63 Hz, 1.5 A

5.2 General Specifications

Operation temperature range	°C	10 - 35
Storage temperature range	°C	-10 - 55
Operating relative humidity (non-condensing)	%	<90
Head weight	Kg	1.3
Power adaptor dimensions (L x W x H)	mm	125 x 30 x 31.5
Power adaptor weight	g	300
Power Adaptor Safety		

5.3 Drawing

