Real Freedom

Fiber Base (Rack Mount)

Product Manual

Revision A

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Revision A

This manual contains important information regarding the installation and operation of the Real Freedom Fiber Base (Rack Mount). For safe and reliable operation, installers must ensure that they are familiar with, and fully understand, all instructions contained herein. Broadcast Sports International reserves the right to revise and improve its products as it sees fit. This publication describes the state of this product at the time of publication and may not always reflect the product in the future.

In this manual, the following symbols call your attention to important information:

	**CAUTION** Indicates that care is required when proceeding to avoid damage to the system.
	**IMPORTANT** Indicates important information that you should read before installing, configuring, or using the system.
	**NOTE** Used to draw your attention to additional important information.
	**TIP** Indicates information that may make procedures easier.
	**WARNING** Indicates a potentially hazardous situation.

Warranty information

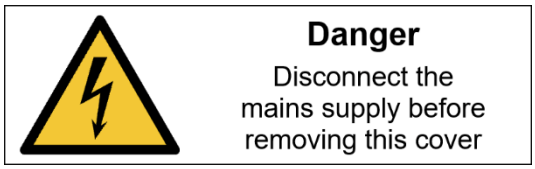
All products are warranted to be free from defects in materials or workmanship for a period of 24 months. If returned within the applicable warranty period, BSI will, at its sole discretion and at no cost to the customer, repair or replace the defective product with another unit of the same or equivalent model. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alterations or repairs.

Contact details and technical support

Real Freedom Team	For product information and help with missing or damaged items. Email: EngineeringDepartment@BSINTL.COM Tel: +1-410-564-2642
Telephone Support Line	Product technical support is provided via a telephone support line. Trained technicians are available to offer setup and configuration advice and to assist in troubleshooting technical issues. Tel: +1-410-564-2642
Return Merchandise Authorization (RMA) Procedure	Problems that cannot be resolved on the telephone may require the device to be returned to BSI for repair. In such cases, the telephone operator will assist the customer in obtaining an RMA. Please note that no returns can be accepted without a valid RMA.

Hazard warning labels

The following hazard warning labels are fixed to the Real Freedom Fiber Base (Rack Mount) for your information and safety.



About this manual

This manual contains safety information and information for installing, configuring, and operating a Real Freedom Fiber Base (Rack Mount).

It applies to the following products:

- Real Freedom Fiber Base (Rack Mount)

Contents

1
Introduction

The Real Freedom fiber system provides unparalleled flexibility of operation. Multiple RF cameras incorporating camera control may be deployed from a single remote site utilizing a single SMPTE hybrid fiber cable.

The system consists of a fiber base unit which integrates with a Real Freedom Receiver for command and control along with a remote fiber unit. The base and remote units are linked together by a single SMPTE hybrid or single mode dual fiber cable. The base unit may either be stand-alone (IFB-3211), or rack mounted. The rack mount fiber base unit described in this manual incorporates a UHF splitter which provides multiple RF receiving paths allowing up to six Real Freedom Receivers to be simultaneously supported by a single fiber base unit.

The system's intelligent connectivity notifies the Real Freedom Receiver of the presence of Real Freedom fiber units within the network, including the status and control of any attached Real Freedom Data Transmitter and Downconverters. Fiber optic signal levels and real-time health check reporting are displayed on the receiver, alerting you when RF performance is affected.

Configuration example

This example shows multiple RF cameras incorporating camera control deployed from a single remote site utilizing a single SMPTE hybrid fiber cable. Note that the base unit and splitter are separate in this diagram but can be replaced with the rack mount fiber base unit incorporating the active splitter.

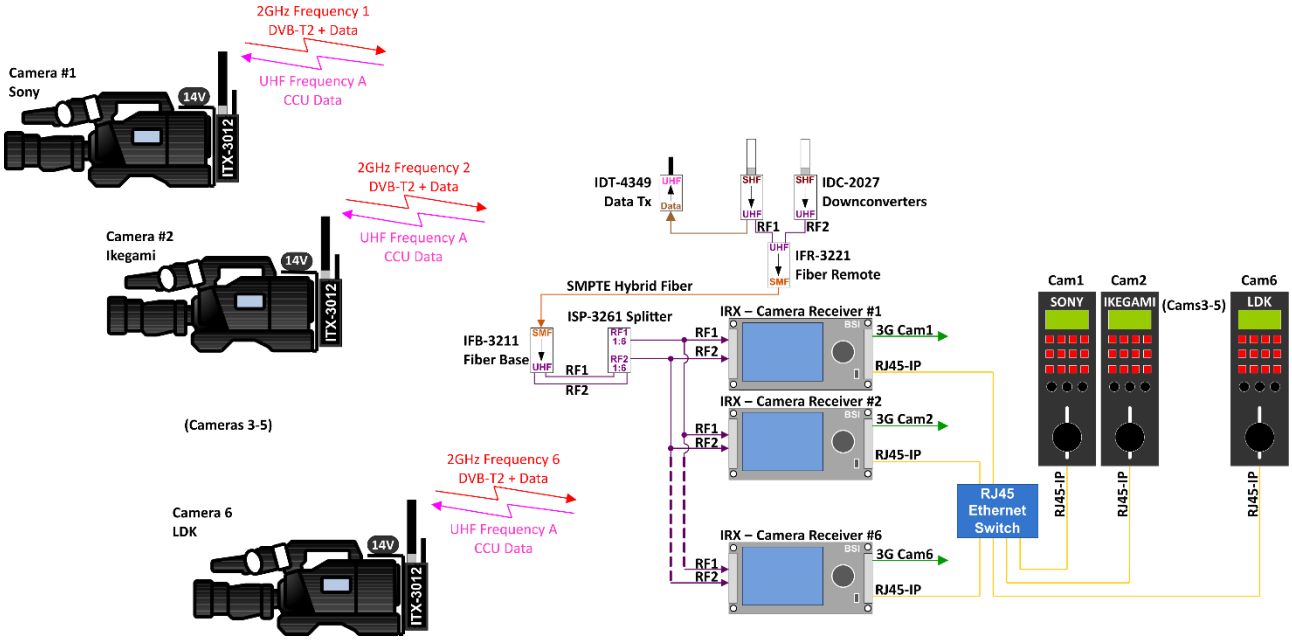


Figure 1: Networked multi camera reception with remote fiber extender and active UHF splitter.

2
Installation and configuration

This chapter contains the installation instructions for the Real Freedom Fiber Base (Rack Mount).

Overview

The main installation and configuration steps for a Real Freedom Fiber Base (Rack Mount) are as follows:

1. Rack mount the fiber base unit in a standard equipment rack.

   You can install two fiber base units one on top of the other next to a receiver in the rack using a mount kit (20005-9-075) or two fiber units can be installed side by side using a joining kit (20006-9-031).

2. Connect the fiber base unit to a Real Freedom Fiber Remote unit using a fiber cable.
3. Connect the RF outputs from the fiber base unit to Real Freedom Receivers.
4. From the receiver, monitor fiber optic signal levels, voltages, and currents of connected equipment, which can help to alert you when RF performance is affected. If RF levels are low, use the receiver to introduces extra gain into the system.

Preparation

When planning the installation location for the fiber base unit, you should take note of the following points:

- In general, you should install the unit in an area where it can be accessed easily by support technicians. This area should also be out of reach or inaccessible to anyone that does not need to gain access, such as fans at a sporting event or attendees at a conference.
- Install the fiber base unit close to the receivers, ideally in the same equipment rack, to minimize the loss of RF signal strength.

Environmental requirements

The following table summarizes the environmental requirements for the operation and storage of a Real Freedom Fiber Base (Rack Mount).

Table 1: Environmental requirements

Specification	Details
Humidity	95% non-condensing
Operating and storage temperature	14° to 149°F /-10° to +65°C

Power requirements

The following table summarizes the power requirements for a Real Freedom Fiber Base (Rack Mount).

Table 2: Power requirements

Specification	Details
Power	100–240 V AC, 50/60 Hz
Consumption	Fiber base unit ~10 W, internal UHF splitter ~5W DC.

Unpack the base unit

Unpack the Real Freedom Fiber Base (Rack Mount) and refer to the packing list to ensure that all items are included. Report any missing items immediately to the Real Freedom Team.

Inspect the fiber base unit for signs of damage. Report any damage to the Real Freedom Team.

Additional items required for installation

To install the Real Freedom Fiber Base (Rack Mount), you will require the following additional items:

- Standard 19-inch equipment rack with at least one Rack Unit (RU) of free space and a Real Freedom Rx Dual Fiber Base Mount Kit (20005-9-075) or a Real Freedom Joining Kit - Rack Unit (20006-9-031) if you intend to rack mount the fiber base unit.
- The other components of your Real Freedom installation, which may include one or more receivers, downconverters, data transmitters, camera back transmitters and cameras, and fiber remote units.

Cable requirements

To install the Real Freedom Fiber Base (Rack Mount), you will require the following cables:

- IEC C14 power cable to power the fiber base unit from an AC supply.
- Coaxial cables with BNC connectors.

  It is recommended that you use good quality 75 Ohm cable.

Rack mount a fiber base unit

The Real Freedom Fiber Base (Rack Mount) is designed to be mounted in a standard 19-inch (48.3 cm) equipment rack. The unit is 1RU high and half rack width.

NOTE: You can also place a fiber base unit on a solid, stable surface.

Tools

To rack mount a Real Freedom Fiber Base (Rack Mount), you will require the following tools:

- #3 Phillips head screwdriver

Precautions

You should read these precautions before you install a Real Freedom Fiber Base (Rack Mount) in an equipment rack.

- Before you begin the installation, make sure that the fiber base unit is disconnected from the power source.
- Close any open spaces in the rack with blank panels since open spaces will reduce cooling efficiency.
- To prevent risk of overheating, use in a well-ventilated area.
- Since there is no power button (on/off switch) on the fiber base unit, ensure that you have access to the rear of the rack or leave a sufficient wire management loop to pull the unit out from the front of the rack.

Mounting procedure: two fiber base units next to a receiver

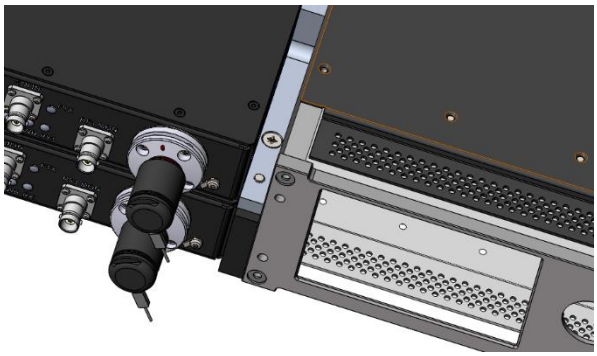
To mount two fiber base units next to a receiver, you will require 2RU (3.5 inches, 89 mm) of vertical rack space and a Real Freedom Rx Dual Fiber Base Mount Kit (20005-9-075).

1. Place one fiber base unit on top of the other and attach the *Rx & Dual Fiber Base Rack Brackets* using four M4 x 20 Phillips screws per bracket.

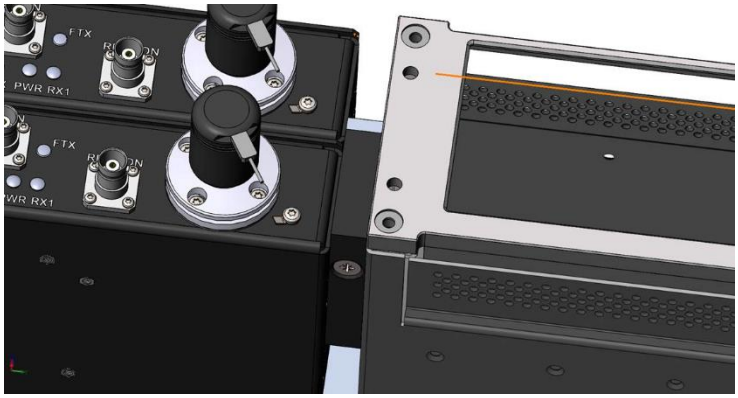
2. Attach the *Rx Joining Block* to the side of the receiver using two M4 x 20 Phillips screws.

   You need to install this block using the bottom two screw holes next to the receiver's handle.

3. Attach the *Bracket Fixing 2U* to the other side of the receiver using four M5 x 12 Phillips screws.
4. Place the receiver next to the fiber base units.
5. Connect the front *Rx & Dual Fiber Base Rack Bracket* to the *Rx Joining Block* using an M5 x 20 Phillips screw inserted through the bracket into the joining block.



6. Insert an M5 x 50 Phillips screw through the bottom of the *Rx Joining Block* and screw into the *Rx & Dual Fiber Base Rack Bracket*.



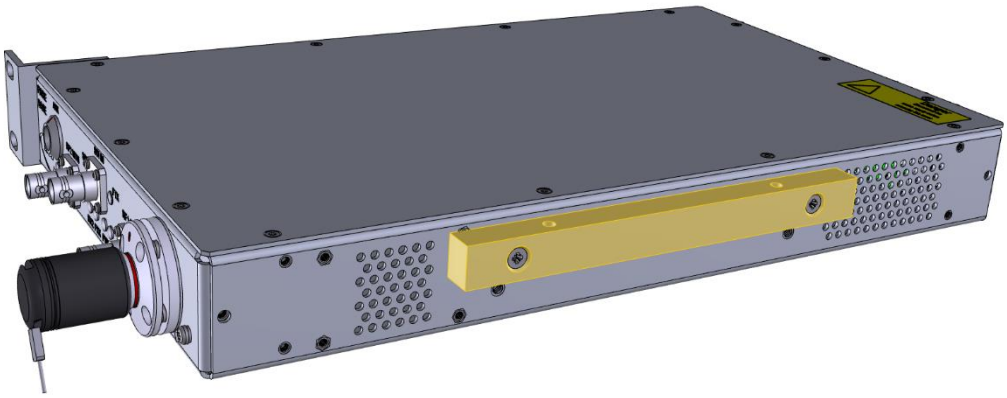
7. Install the connected units at the desired location in the equipment rack and secure to the vertical uprights using four rack screws.

Mounting procedure: two fiber base units side by side

To mount two fiber base units side by side, you will require 1RU (1.75 inches, 44.45 mm) of vertical rack space and a Real Freedom Joining Kit - Rack Unit (20006-9-031).

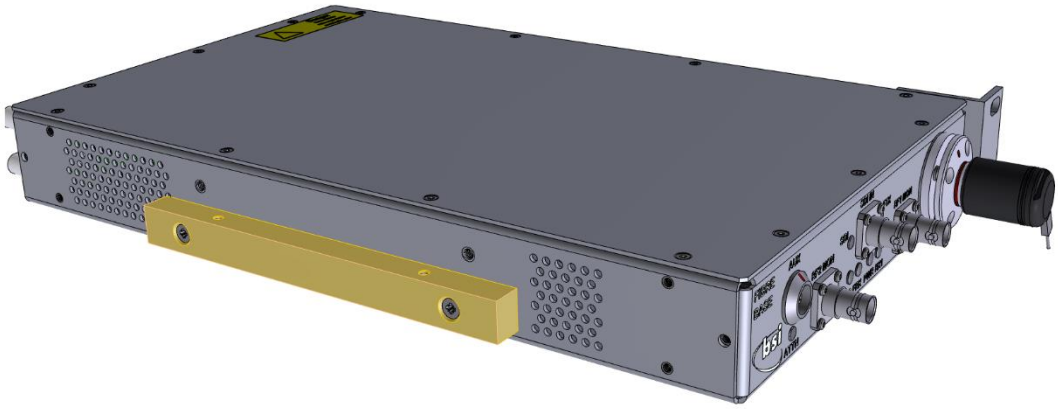
1. Attach the *Joining Bar Top (Rack Unit)* to the right side of the first fiber base unit using two M4 x 20 Phillips screws.

   You need to install this bar using the top two screw holes as shown in the following image.



2. Attach the *Joining Bar Bottom (Rack Unit)* to the left side of the other fiber base unit using two M4 x 20 Phillips screws.

   You need to install this bar using the bottom two screw holes as shown in the following image.



8. Place the fiber base units together and connect the joining bars using two M4 x 25 Phillips screws.

9. Install the connected units at the desired location in the equipment rack and secure to the vertical uprights using four rack screws.

Connections

Refer to the following drawings which show the locations of the connectors and LEDs on the Real Freedom Fiber Base (Rack Mount).

CAUTION: To prevent damage, it is recommended that you only use BSI supplied cables and accessories with this product.

Front panel

The front panel contains the fiber base unit connections.

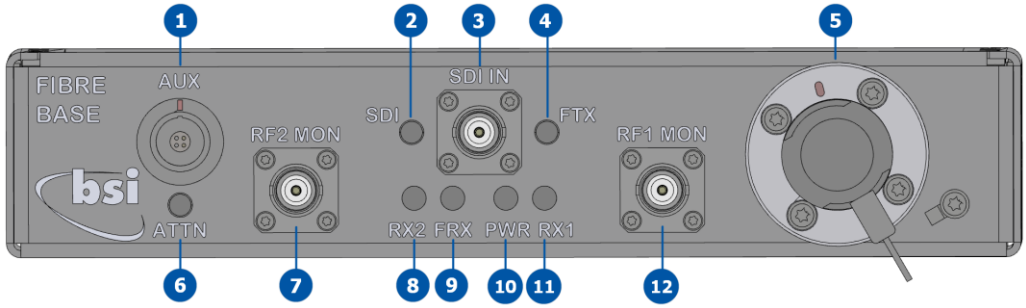


Figure 2: Connections and LEDs on the front panel

Key	Component	Description
1	AUX	Use for fiber base unit programming and firmware updates. Connector: 4-pin LEMO
2	SDI	Indicates whether SDI input is activated.
3	SDI IN	SDI/ASI input. Use to connect an SDI or ASI source to the fiber base unit to send over the fiber link to the fiber remote unit. Connector: BNC (F)
4	FTX	Indicates the state of the optical transmitter.
5	Fiber connector	Use to connect the fiber cable to the base unit. The other end of the fiber cable connects to the fiber remote unit. Fiber FC/APC – S & D connectors and SMPTE are typically the most used, but other connector types are available.
6	ATTN	Indicates whether remote attenuation is activated.
7	RF2 MON	Use for monitoring purposes only and will usually be connected to a spectrum analyzer. This can, however, be used as an additional output if required. Connector: BNC (F)
8	RX2	Indicates whether the fiber base unit RF2 interface is communicating with the receiver.
9	FRX	Indicates the state of the RF1 and RF2 optical receive levels.
10	PWR	Indicates whether the base unit is powered and has detected a fiber remote unit.
11	RX1	Indicates whether the fiber base unit RF1 interface is communicating with the receiver.
12	RF1 MON	Use for monitoring purposes only and will usually be connected to a spectrum analyzer. This can, however, be used as an additional output if required. Connector: BNC (F)

Rear panel

The rear panel contains the RF output connectors from the active UHF splitter.

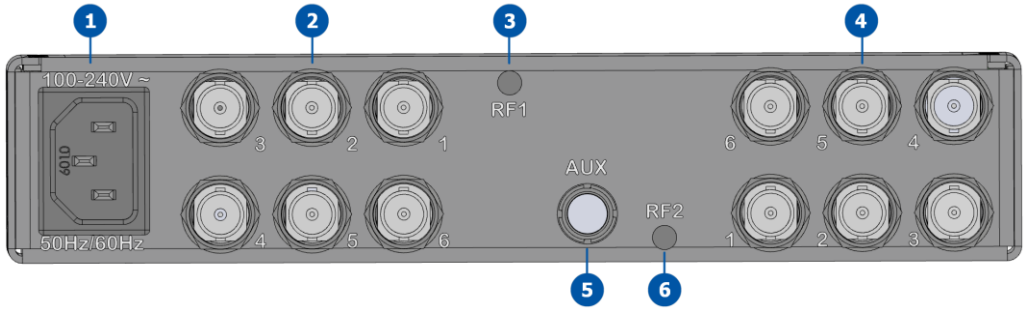


Figure 3: Connections and LEDs on the rear panel

Key	Component	Description
1	100–240V	AC input to power the unit. Connector: IEC C14
2	RF 1 BNC	Use the RF connectors to split the RF output from the first RF signal. Each output forms a single RF input to a Real Freedom Receiver allowing you to connect up to six Real Freedom Receivers. You should connect BNC 1 to the Master Real Freedom Receiver that hosts the Connection Map. You can power the splitter on BNC 1 from the Real Freedom Receiver. Connector: BNC (F)
3	RF1 LED	Indicates whether the active UHF splitter is powered and in active (flashing green) or passive (flashing red) mode. In active mode, additional gain is added for splitter loss. Add a gain boost when RF levels are too low from the receiver's **Fiber & Splitter** menu.
4	RF 2 BNC	Use the RF connectors to split the RF output from the second RF signal. Each output forms a single RF input to a Real Freedom Receiver allowing you to connect up to six Real Freedom Receivers. You should connect BNC 1 to the Master Real Freedom Receiver that hosts the Connection Map. You can power the splitter on BNC 1 from the Real Freedom Receiver. Connector: BNC (F)
5	AUX	Use for splitter unit programming and firmware updates. Connector: 4-pin LEMO
6	RF2 LED	Indicates whether the active UHF splitter is powered and in active (flashing green) or passive (flashing red) mode. In active mode, additional gain is added for splitter loss. Add a gain boost when RF levels are too low from the receiver's **Fiber & Splitter** menu.

Connect a fiber remote unit to a fiber base unit

Use an appropriate fiber cable to connect the fiber remote unit to the fiber base unit. FC/APC – S & D connectors and hybrid SMPTE are typically the most used connectors, but other types are available.

IMPORTANT: Practice clean fiber handling procedures and clean all fibers prior to connection. Dirt may be easily transferred from one fiber to another.

Connect a fiber base unit to a receiver

Use coaxial cables to connect the outputs (RF1 and RF2) on the back of the Real Freedom Fiber Base (Rack Mount) to the BNC connectors on the back of Real Freedom Receivers (RF1 and RF2).

You can connect the RF outputs to up to six receivers. It is recommended that you use good quality 75 Ohm cable.

NOTE: You should connect BNC 1 to the Master Real Freedom Receiver that hosts the connection map.

Configure a fiber base unit

Once the power is supplied, the Real Freedom Receiver automatically detects the Real Freedom Fiber Base (Rack Mount) and Real Freedom Fiber Remote unit and configures itself appropriately.

NOTE: Refer to the ***Real Freedom Receiver Product Manual*** for more information on the fiber configuration options and how to enable Active Mode (Gain Boost) when RF levels are low.

3
Operation

Once connected to the system and configured, no further changes are required to the Real Freedom Fiber Base (Rack Mount) unit during the routine operation of the system.

TIP: Use the receiver's **Fiber Status** page to view fiber optic signal levels, voltages and currents of connected equipment, and real-time health check information, which can help to alert you when RF performance is affected. If the fiber levels are low or extremely low, you will see amber and red signal indicators. This usually indicates that you need to clean the fibers.

Fiber base unit front panel status LEDs

Use the LED indicators on the front panel of the fiber base to help you to determine whether the unit is operating correctly.

ATTN

The ATTN LED indicates whether remote attenuation is activated.

Table 3: ATTN LED indications

Condition	Description
SOLID AMBER	Remote attenuation ON (Rx Control). Attenuation has been activated from the Real Freedom Receiver menu.
FLASHING AMBER	Remote attenuation ON (Manual Control). Attenuation activated but is not being controlled from the Real Freedom Receiver menu.
OFF	Remote attenuation OFF. Attenuation has been deactivated from the Real Freedom Receiver menu.

SDI

The SDI LED indicates whether SDI input is activated.

Table 4: SDI LED indications

Condition	Description
GREEN	SDI/ASI input is active and a valid SDI/ASI signal has been detected on the SDI IN input.
SOLID AMBER	SDI/ASI input is active, but no valid SDI/ASI signal has been detected on the SDI IN input.
OFF	ERROR STATE SDI/ASI input has been deactivated.

RX1/RX2

The RX1/RX2 LEDs indicate whether the fiber base unit's RF1/RF2 interface is communicating with the receiver.

Table 5: RX1/RX2 LED indications

Condition	Description
BLUE	NORMAL STATE The fiber base unit RF1/RF2 interface is communicating with the receiver.
SLOW FLASHING BLUE	ERROR STATE The fiber base unit RF1/RF2 interface is not communicating with the receiver.

FRX

The FRX LED indicates the state of the RF1 and RF2 optical receive levels.

Table 6: FRX LED indications

Condition	Description
SOLID AMBER	NORMAL STATE RF1 and RF2 optical receive levels are both OK.
FLASHING AMBER (EVEN FLASH)	ERROR STATE RF2 optical receive level OK, RF1 optical receive level is low.
FLASHING AMBER (ODD FLASH)	ERROR STATE RF1 optical receive level OK, RF2 optical receive level is low.
FAST FLASHING AMBER	ERROR STATE RF1 and RF2 optical receive levels are both low.
OFF	ERROR STATE RF1 and RF2 optical receivers have been deactivated.

PWR

The PWR LED indicates whether the base unit is powered and has detected a fiber remote unit.

Table 7: PWR LED indications

Condition	Description
SOLID GREEN	NORMAL STATE DC power levels are OK, and the base unit has detected the fiber remote unit.
SLOW FLASHING GREEN	ERROR STATE DC power levels are OK, but the base unit has not detected the fiber remote unit.
SOLID RED	ERROR STATE DC power alarm, but the base unit has detected the fiber remote unit.
SLOW FLASHING RED	ERROR STATE DC power alarm and the base unit has not detected the fiber remote unit.
OFF	ERROR STATE No DC power.

FTX

The FTX LED indicates the state of the optical transmitter.

Table 8: FTX LED indications

Condition	Description
SOLID AMBER	NORMAL STATE The optical transmitter used to send camera control and SDI/ASI data over the fiber link is ON.
FLASHING AMBER	ERROR STATE Optical transmitter has an alarm.
OFF	ERROR STATE Optical transmitter has been deactivated.

Fiber base unit rear panel status LEDs

Use the LED indicators on the rear panel of the fiber base unit to help you to determine whether the splitter is in active or passive split mode.

RF1/RF2

The RF1/RF2 LEDs indicate whether the active splitter is powered and in active (flashing green) or passive (flashing red) mode. In active mode, additional gain is added for splitter loss.

Table 9: RF1/RF2 LED indications

Condition	Description
RED (SLOW FLASH)	PASSIVE SPLIT MODE The splitter unit is powered from the Real Freedom Receiver and is in the passive split state. This is the normal mode of operation which can be controlled from the Real Freedom Receiver.
GREEN (SLOW FLASH)	ACTIVE SPLIT MODE The splitter unit is powered from the Real Freedom Receiver and is in the active split state. The active state introduces extra gain into the system which can be controlled from the Real Freedom Receiver.
OFF	UN-POWERED MODE The splitter unit is not being powered from the Real Freedom Receiver on BNC 1. The splitter will still operate in a passive mode but will not appear on the receiver's Connection Map.

4
Troubleshooting

This chapter provides troubleshooting information for the Real Freedom Fiber Base (Rack Mount).

Use this information to help you to solve some of the problems that you may encounter when using a Real Freedom Fiber Base (Rack Mount) in a Real Freedom fiber system.

Fiber issues

Use the information in the following table to help you troubleshoot fiber issues when using Real Freedom Fiber Base (Rack Mount).

Table 10: Troubleshooting fiber issues

Symptom	Possible cause	Actions
Poor fiber signal.	Loose or dirty fiber connections.	• Check that all fiber connectors on the base and remote units are securely fastened. • Remove the fiber connection and clean the glass tip. Reconnect and verify the signal.
No fiber signal.	Fiber incorrectly connected or faulty fiber cable.	• Check that fiber is connected to the correct ports on both the fiber remote and fiber base (S to S and D to D). • Turn off power to the receiver's RF ports carrying fiber. • Change the fiber cable.

RF issues

Use the information in the following table to help you troubleshoot RF issues when using Real Freedom Fiber Base (Rack Mount).

Table 11: Troubleshooting RF issues

Symptom	Possible cause	Actions
Poor RF signal.	Cable runs too long.	• Ensure that you minimize the required cable lengths and RF signal loss by installing the fiber base unit close to the receivers. • Minimize the cable length between the fiber remote unit and attached downconverters.
	RF levels too low.	• Use the receiver's **Fiber & Splitter** menu to add a gain boost into the splitter system. Note that if you add a boost when RF levels are not too low you can overload/saturate the system.

Symptom	Possible cause	Actions
	Issues with the downconverters connected to the fiber remote unit.	• Check the placement of downconverters attached to the fiber remote unit. • Verify there is no mismatch of antennas. All downconverter and transmitter antennas should match your band of operations. • Check downconverters are powered.
	Poor or no fiber signal from the remote unit to the base unit.	• Check that all fiber connectors are securely fastened. • Remove the fiber connections and clean the glass tip. Reconnect and verify the signal. • Check that fiber is connected to the correct ports on both the fiber remote and fiber base units (S to S and D to D). • Turn off power to the receiver's RF ports carrying fiber.

5
Maintenance

This chapter describes the maintenance, cleaning, and storage procedures for the Real Freedom Fiber Base (Rack Mount).

Routine maintenance procedures

You should perform the following maintenance procedures on a regular basis.

WARNING: The Real Freedom Fiber Base (Rack Mount) does not contain user serviceable parts. Warranty is void if the device is opened. Refer servicing to qualified BSI personnel only.

Performance monitoring

It is recommended that you periodically monitor the overall performance of the fiber system. If you experience failure or deterioration in the performance of the system, check cables and adapters, input, and output connectors for damage.

Visual inspection

Depending on operating environments and use, periodically inspect the fiber components for signs of damage, dirt, or corrosion. Check that all markings and warning labels are in good condition.

Cleaning

If necessary, use low-pressure compressed air cleaning to remove small particles and debris from the surface of the fiber base unit.

Clean connector surfaces with a cotton swab moistened with a small quantity of alcohol. Use a lint-free cloth to wipe connector surfaces after cleaning.

CAUTION: Do not use abrasive cleaners.

Storage

Store Fiber Base (Rack Mount) units in the rack at operating temperature.

IMPORTANT: Ensure that you attach the fiber connector cover if there is no attached fiber cable.

For long term storage:

1. Disconnect all cables from the fiber base unit and remove from the rack if rack mounted.
2. Cover the connectors with suitable dust covers.
3. Place the unit in protective packaging and store in a cool, dry environment.

A
Technical data

Technical drawings and connector pinouts for the Real Freedom Fiber Base (Rack Mount).

Dimensions

The following drawings show the dimensions of the Real Freedom Fiber Base (Rack Mount) and the positions of the holes used to rack mount the unit.

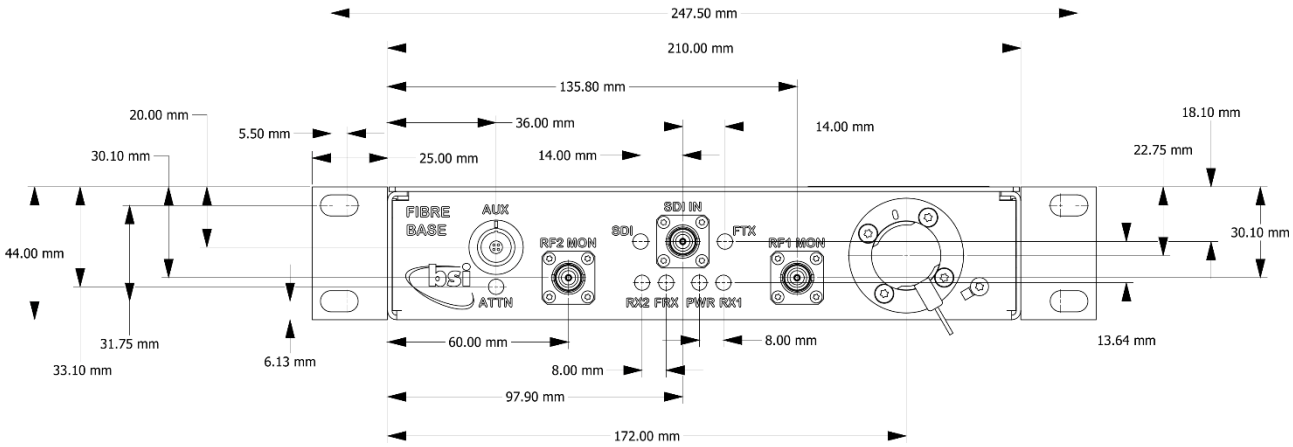


Figure 4: Front panel

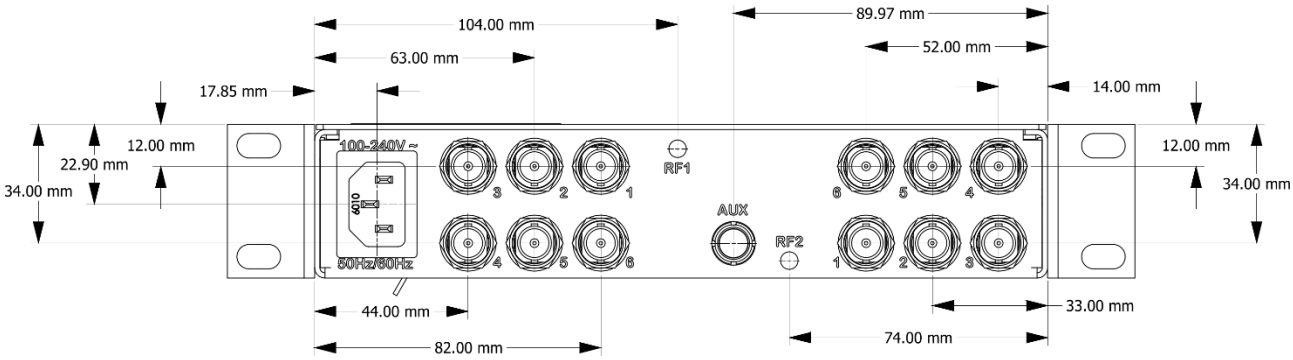


Figure 5: Rear panel

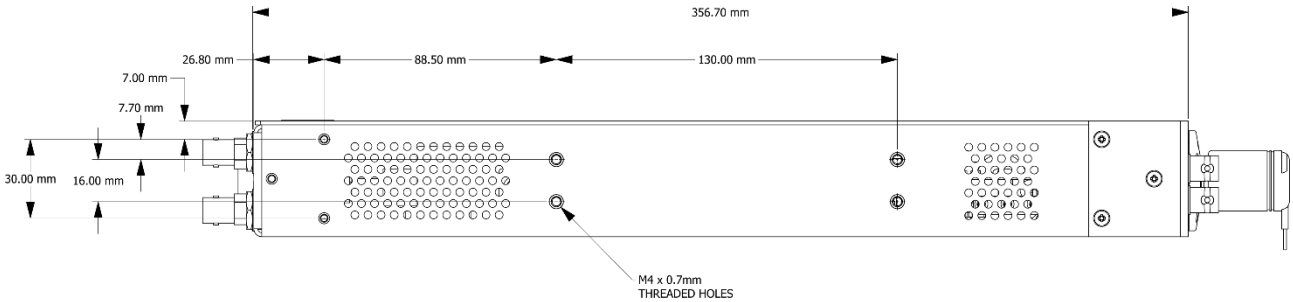


Figure 6: Left side showing holes used to rack mount the unit

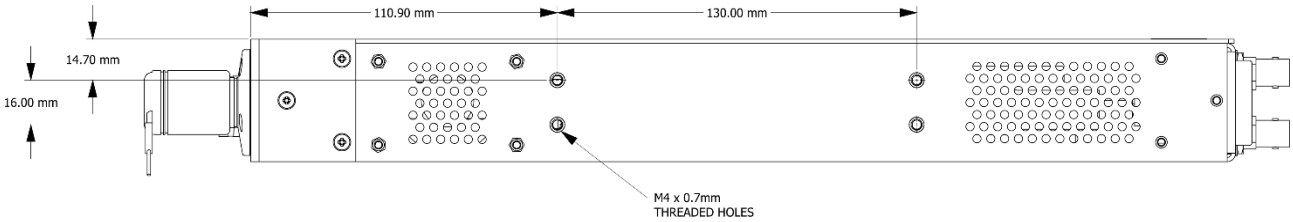


Figure 7: Right side showing holes used to rack mount the unit

Connector pinout assignments

Pinouts for the connectors on the Real Freedom Fiber Base (Rack Mount).

Front panel AUX connector

Use for fiber base unit programming and firmware updates.

Connector: LEMO 0K 4-Pin CLL.0K.304.CLLP

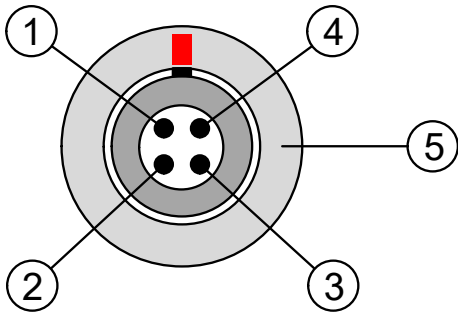


Figure 8: Front face of LEMO AUX connector

Pin	Purpose
1	RS-232 RXD
2	RS-232 TXD
3	+12 to 48 V DC
4	Return
5	Shield

Rear panel AUX connector

Use for splitter unit programming and firmware updates.

Connector: LEMO 0B 4-Pin (ECG.0B.304.CLN)

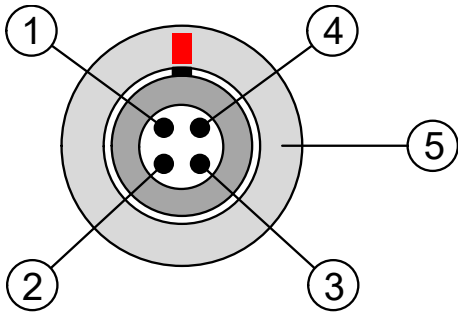


Figure 9: Front face of LEMO AUX connector

Pin	Purpose
1	Return
2	RS-232 RXD
3	RS-232 TXD
4	+9 to 36 V DC
5	Shield

RF output connector

Use to split the RF output and connect to Real Freedom Receivers.

Connector: BNC female (75 Ohm)

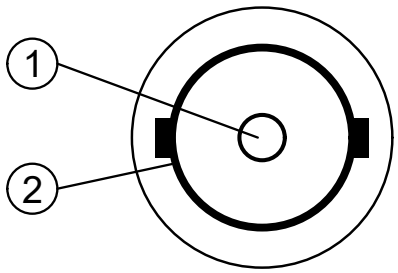


Figure 10: Front face of BNC (F) connector

Pin	Purpose
1	RF output
2	Ground/Shield

SDI IN connector

SDI/ASI input. Use to connect an SDI or ASI source to the fiber base unit to send over the fiber link to the fiber remote unit.

Connector: BNC female (75 Ohm)

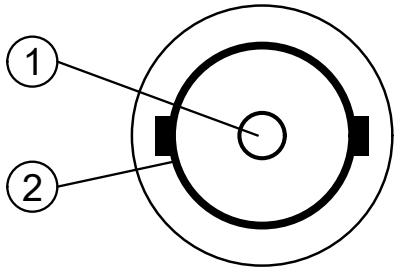


Figure 11: Front face of BNC (F) connector

Pin	Purpose
1	SDI/ASI input
2	Ground/Shield

B
Safety and regulatory compliance

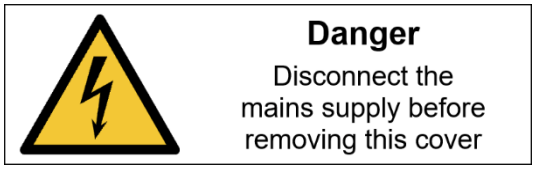
Important safety and electromagnetic compatibility information.

Safety notice

It is extremely important to read and understand all safety information and instructions before using a Real Freedom Fiber Base (Rack Mount). Specific warnings and cautions are found throughout this product manual, and you should follow this guidance during the routine use of a Real Freedom Fiber Base (Rack Mount).

Hazard warning labels

The following hazard warning labels are fixed to the Real Freedom Fiber Base (Rack Mount) for your information and safety.



Electromagnetic compatibility – Class A

Information about the Real Freedom Fiber Base (Rack Mount)'s electromagnetic compatibility.

Compliance statement (United States)

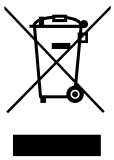
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions, however, set forth in Section 15.5 of the FCC Rules: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may 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 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by Broadcast Sports International could void the user's authority to operate the equipment.

Disposal and recycling – European Union

This product is required to comply with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC and 2012/19/EU) and is marked with the following symbol:



This symbol indicates that this product is not to be disposed of with household waste, according to the WEEE Directive and your national law. This product should be handed over to a designated collection point or to an authorized collection site for recycling waste Electrical and Electronic Equipment (EEE).

Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substance that are generally associated with EEE and products of this type. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about recycling this product, please contact BSI.