

Real Freedom

Downconverter

Product Manual

Revision A1

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Manual part number: 20010-1-000




Revision A1

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This manual contains important information regarding the installation and operation of the Real Freedom Downconverter. 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.
	NOTE Used to draw your attention to additional important information.
	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.

About this manual

This manual contains safety information and information for installing, configuring, and operating a Real Freedom Downconverter.

It applies to the following products:

- IDC-1500: Real Freedom Downconverter (1435–1525 MHz)
- IDC-2027: Real Freedom Downconverter (2000–2700 MHz)
- IDC-3239: Real Freedom Downconverter (3200–3900 MHz)
- IDC-6475: Real Freedom Downconverter (6400–7500 MHz)

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Introduction

The Real Freedom Downconverter is a key component of BSI's Real Freedom wireless camera system. It receives signals in the broadcast transmit band and down-converts them to a UHF signal of between 50 MHz and 850 MHz. The UHF signal is then fed to a receiver via a coaxial cable.

Available in a range of frequency bands, the downconverter allows the receive antenna to be remotely located away from the Real Freedom Receiver by up to 150 meters. Up to eight downconverters may be paired with a single receiver. The Real Freedom Downconverter is also fully compatible with BSI's Real Freedom fiber system.

Plug and play connectivity with a Real Freedom Receiver enables access to the downconverter's advanced features. This includes the automatic configuration of receiver settings for optimal performance.

One of the most unique and beneficial features of the Real Freedom Downconverter is the ability to connect and power a Real Freedom Data Transmitter with a single cable via any downconverter within the system. This connectivity provides complete access to camera control from the receiver, allowing you to operate without compromise, locating components in optimal positions without deploying additional infrastructure or cable.

Configuration example

This example shows a simple configuration with eight downconverters connected to a single receiver.

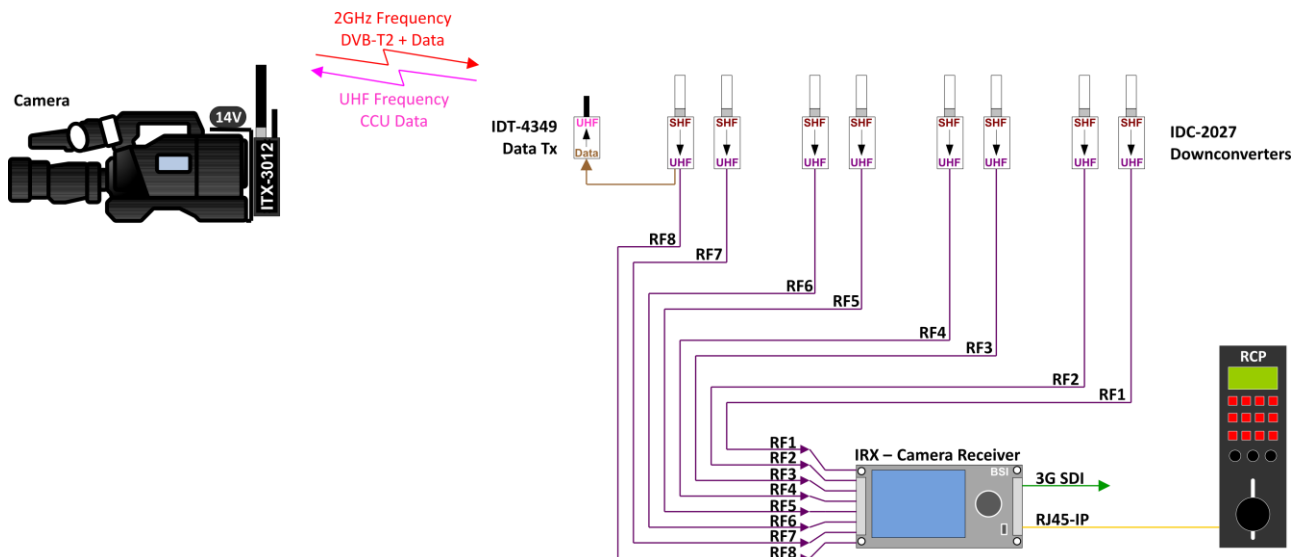


Figure 1: The data transmitter receives camera control data from a Remote Control Panel (RCP) via the Real Freedom Receiver and transmits a GMSK-modulated narrow band UHF signal of between 430 MHz and 490 MHz. For maximum flexibility, plug the data transmitter into any downconverter.

Installation and configuration

Designed to be compact and fully weatherproof, the Real Freedom Downconverter can be temporarily installed almost anywhere or permanently on the roof of an outside broadcast van.

Overview

The main installation and configuration steps for a Real Freedom Downconverter are as follows:

1. Connect an antenna to the downconverter.
2. Pole or surface mount the downconverter.
3. Connect the downconverter to a Real Freedom Receiver or Real Freedom Fiber Remote unit using a coaxial cable.
4. If required, connect a Real Freedom Data Transmitter to the downconverter to provide camera control.
5. Configure the operation of the downconverter using the receiver's configuration options.

Preparation

When planning the installation locations for downconverters, you should take note of the following points:

- In general, you should install downconverters in an area where they 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.
- Ideally, place the downconverters so that there is a line of sight from the transmitter to the downconverter, and in a place where nothing will obstruct the path, such as dense metal objects that may cause reflections and multipathing of the signal.
- Where possible, place downconverters close to the receiver to minimize the loss of signal strength which can occur in coaxial cables as they increase in length.
- The connection between the downconverter output and the next stage (receiver or fiber remote) cannot exceed a reasonable distance without beginning to affect performance. The chosen system configuration will influence the placement of components and the cable lengths required. Do not exceed recommended cable lengths: 400 feet for LMR 240 or 200 feet for other high-quality cable. The downconverter provides gain to compensate for the cable loss.

Environmental requirements

The following table summarizes the environmental requirements for the operation and storage of a Real Freedom Downconverter.

Table 1: Environmental requirements

Specification	Details
Humidity	95% non-condensing
Operating and storage temperature	14° to 131°F / -10° to +55°C

Power requirements

The following table summarizes the power requirements for a Real Freedom Downconverter.

Table 2: Power requirements

Specification	Details
Power	9–36 V DC (via UHF BNC connector)
Consumption	4 W typical

Unpack the downconverter

Unpack the Real Freedom Downconverter 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 downconverter for signs of damage. Report any damage to the Real Freedom Team.

Additional items required for installation

To install a Real Freedom Downconverter, you will require the following additional items:

- Antenna.
Either a BSI or third-party antenna with a standard N-type connector. Connect the antenna to the downconverter via the antenna port.
- N-N cable.
You will only require this cable if you intend to mount the antenna separately.
- Coaxial cable with BNC connectors.
It is recommended that you use good quality 50 Ohm cable.

Pole mount a downconverter

The Real Freedom Downconverter is supplied with a removable mounting bracket which allows you to mount the unit to a pole for temporary or permanent installation. The mounting bracket can be secured to vertical or horizontal poles of between 1.44 and 2.68 inch (36.5 to 68 mm) in diameter.

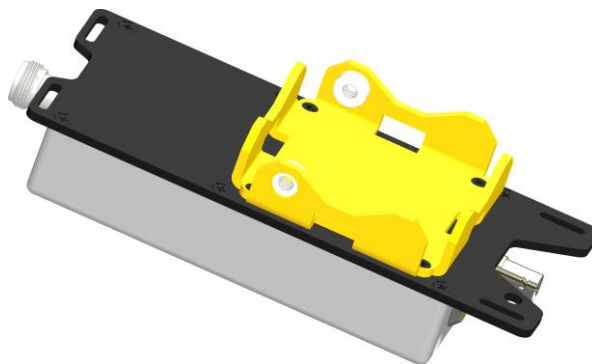


Figure 2: Downconverter mounting bracket (yellow)

Precautions

You should read these precautions before you pole mount a downconverter.

- Before attaching a downconverter to a pole or camera mount, ensure that the pole can support the weight of the downconverter (1.19 lb. / 0.54 kg), antenna, attached cables, and any other devices that you intend to attach to the pole. This is particularly important if you intend to attach the downconverter to the end of the pole.
- The downconverter must be mounted vertically with the antenna port facing up.

- When attaching the mounting bracket to the downconverter, do not overtighten the screws as it may result in thread damage.

Temporary installation

For temporary installation, use cable ties.

1. If not already attached, attach the mounting bracket to the back of the downconverter using the four screws (M3 x 8) provided.

Do not overtighten the screws as it may result in thread damage.

2. Pass at least two cable ties through the slots in the mounting bracket and around the pole.
3. Close and tighten the cable ties to secure the downconverter to the pole.

Permanent installation

For permanent installation, use hose clamps.

1. If not already attached, attach the mounting bracket to the back of the downconverter using the four screws (M3 x 8) provided.

Do not overtighten the screws as it may result in thread damage.

2. Pass the hose clamps through the slots in the mounting bracket and around the pole.
3. Tighten the hose clamps to secure the downconverter to the pole.

Installation using ¼-20 UNC mounts

Temporarily mount a downconverter on a standard Manfrotto lighting stand, camera mount, repro arm, magic arm, clamp, or Dado kit using a ¼-20 camera mount screw.

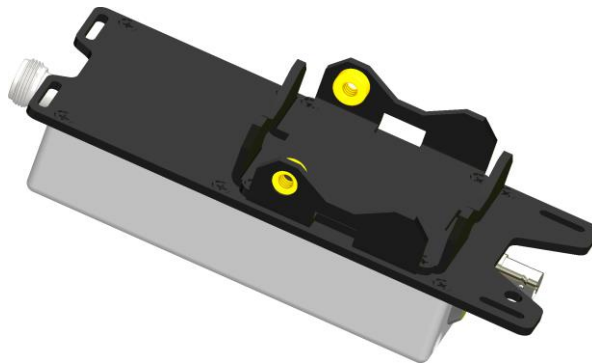


Figure 3: Downconverter ¼-20 UNC mounting screws (yellow)

1. If not already attached, attach the mounting bracket to the back of the downconverter using the four screws (M3 x 8) provided.

Do not overtighten the screws as it may result in thread damage.

2. Either thread a ¼-20 screw through the screw hole in the mounting bracket into the hole in the mount or screw the downconverter onto the mounting screw.
3. Tighten to secure the downconverter.

Surface mount a downconverter

Depending on the installation type and site, you may wish to mount a downconverter onto a vertical surface, such as a wall.

1. If attached, remove the mounting bracket from the back of the downconverter. The bracket is secured with four screws (M3 x 8).
2. Use the downconverter's back plate as a template and drill four holes into the mounting surface. Insert masonry plugs into the holes, as necessary.

3. Attach the downconverter using four screws.
4. Check that the downconverter is vertical and tighten the screws.

Connections

Depending on the configuration of the Real Freedom system, you may need to connect one or more downconverters to a receiver or fiber remote unit. To provide camera control, connect a data transmitter to one of the downconverters in the system.



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

Refer to the following drawing which shows the locations of the connectors on the downconverter.

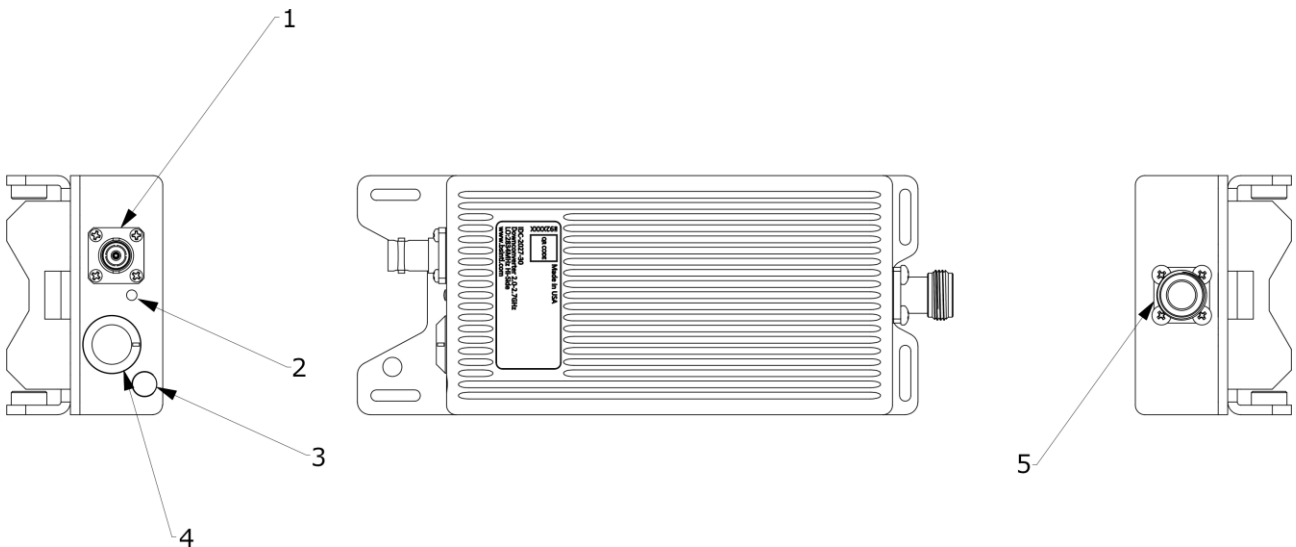


Figure 4: Real Freedom Downconverter connectors and other components

Key	Component	Description
1	BNC connector	Use to connect the downconverter to a receiver or fiber remote unit. This connector passes the down-converted UHF signal to the receiver, passes bi-directional OOK data between the downconverter and receiver, and provides bias power to the downconverter.
2	Status LED	Indicates the state of the downconverter.
3	Breather vent	Prevents the formation of condensation inside the downconverter.
4	LEMO connector	Use to connect a data transmitter to the downconverter (optional). This connector passes power and data to the BSI data transmitter.
5	N-connector	Use to attach an antenna to the downconverter.

Connect an antenna to a downconverter

Attach the antenna directly to the N-connector on the downconverter. Where this is not possible, use a short length of N-N cable to connect and mount the antenna separately.



NOTE: BSI supply a range of antennas to suit most applications.

Connect a downconverter to a receiver

Up to eight downconverters can be directly connected to a Real Freedom Receiver. Each downconverter connects to one of the UHF BNC connectors on the rear panel of the receiver using a coaxial cable. The receiver powers the downconverter via the UHF connector.



CAUTION: Before connecting a downconverter to a receiver that is powered, you must switch off power to all BNC connectors on the back of the receiver to avoid damage to the downconverter's OOK chip. To switch off BNC power, go to the receiver's **Receive BNC Power** option in the **Receive** menu and disable power to all slots.

All downconverters should be of the same type and frequency band. For best RF performance, downconverters should always be installed in pairs with a separation of at least 30 cm between antennas.

Ensure cable runs do not exceed recommended lengths (400 feet for LMR 240 or 200 feet for other high-quality cable). The downconverter provides gain to compensate for cable loss.



CAUTION: Never connect anything other than a BSI downconverter to the UHF BNC connectors on the receiver. These ports include output voltage that may damage other equipment.

Connect a downconverter to a fiber remote unit

Up to two downconverters can be directly connected to a Real Freedom Fiber Remote unit. Each downconverter connects to one of the UHF BNC connectors on the fiber remote unit using a coaxial cable.

Connect a data transmitter to a downconverter

If required, a Real Freedom Data Transmitter can be connected to any downconverter in the system via the downconverter's LEMO power/control connector.

A one-meter cable assembly is supplied with the data transmitter for this purpose (CAB-0013-00). This cable is symmetrical and may be installed either way around.



NOTE: You can connect two data transmitters to a receiver, one on Slot A (RF1-4) and the other on Slot B (RF5-8).

Configure a downconverter

Once the power is supplied, the Real Freedom Receiver automatically detects the Real Freedom Downconverter and configures itself appropriately.

You will need to specify the receive frequency and enable the RF ports that will receive input from downconverters. You should also check the other receive settings and, if necessary, apply a gain boost for selected downconverters if the RF reception is poor.

Configure a downconverter using the receiver's **Receive** configuration options.



NOTE: Refer to the *Real Freedom Receiver Product Manual* for more information on the downconverter configuration options.

Power a downconverter from a receiver

Downconverters connected directly by coaxial cable to a receiver require power via the receiver's UHF connector.

To use this option, you must enable BNC power to the appropriate UHF connectors via the receiver's **Receive** configuration settings.

The BNC output power supply is dependent upon the receiver power supply and has the following characteristics.

Table 3: BNC output voltages and BNC current limits

Receiver supply	BNC output voltage	BNC current limit
AC	24 V DC	2 A (each port) / 8 A (total)
DC (10 to 36 V DC)	Follows input supply	2 A (each port) / 4 A (total)

Change the operating band (7 GHz downconverter)

The 7 GHz downconverter can operate in one of five user-selectable bands.



NOTE: The frequency used by the transmitter and receiver must fall within the selected pass band for correct operation.

Choose the operating band in the receiver's **Receive** configuration settings.

Table 4: 7 GHz downconverter operating bands (MHz)

Band	LO frequency	Mix	Pass band low	Pass band high
US 1	7250	High side	6400	6900
US 2	7550	High side	6700	7200
UK	7850	High side	7000	7500
Wideband Low	6100	Low side	6400	6950
Wideband High	7800	High side	6950	7500

3 Operation

Once connected to the system and configured, no further changes are required to the downconverters during the routine operation of the Real Freedom system.



NOTE: There are no controls on the Real Freedom Downconverter and as soon as power is supplied via the BNC connector, the unit starts to operate.

Downconverter status LED

Use the LED indicator on the downconverter to help you to determine whether the downconverter is operating correctly.

Table 5: Downconverter LED status indications

Condition	Description
OFF	No power.
RED	Alarm/error. There is a problem with the downconverter.
SOLID GREEN	Low gain* mode (approximately 25 dB).
FLASHING GREEN	High gain mode (approximately 40 dB).

* Gain represents the input power; low gain means low power and high gain means higher power.

Troubleshooting

This chapter provides troubleshooting information for Real Freedom Downconverters.

Use this information to help you to solve some of the problems that you may encounter when using a downconverter in a Real Freedom system.

RF signal issues

Signal reception problems may be caused by issues at the transmitter, receiver, or downconverter. Use the information in the following table to help you troubleshoot downconverter RF issues.

Table 6: Downconverter RF troubleshooting

Symptom	Possible cause	Actions
No RF signal at the receiver.	No DC voltage.	<ul style="list-style-type: none"> Check the status LED is green. If not, see Status LED issues for details.
	Antenna issues.	<ul style="list-style-type: none"> Check the RSSI signal strength on the receiver unit. Refer to the Receiver Product Manual for details. Check the antenna is properly connected to the downconverter. Verify that the correct frequency band antenna is connected to the downconverter.
	Broken downconverter antenna or faulty coaxial cable.	<ul style="list-style-type: none"> Check the antenna and coaxial cable are functional. If faulty, replace the antenna and coaxial cables with new ones and check the signal at the receiver. If still faulty, replace the downconverter.
Poor RF signal.	Long cable runs.	<ul style="list-style-type: none"> Ensure cable runs have not exceeded recommended lengths (400 feet for LMR 240 or 200 feet for other high-quality cable). In the receiver menu (Receive > Receive Gain Boost), select the check box to apply a gain boost for extra long cable runs where signal loss is anticipated or where the RF reception level is poor.
	Incorrectly placed downconverters.	<ul style="list-style-type: none"> Check the placement of downconverters. Microwave, especially at higher frequencies, is best when the line of sight to a downconverter is maintained. Coverage may not be sufficient.

Symptom	Possible cause	Actions
Poor RF signal	Insufficient power.	<ul style="list-style-type: none"> Adjust the output power of the transmitter from the receiver (Remote Tx Ctrl > Remote Tx Transmit Power). However, if the Carrier to Noise Ratio (CNR) falls as you increase the power of the transmitter, more power is not the solution. Note that CNR is dependent on frequency band. Typically, a good CNR at 1.4 GHz is 25–30 dB, at 2 GHz is 23–27 dB, and at 7 GHz is 20–25 dB.
	Incorrect configuration.	<ul style="list-style-type: none"> Ensure that power is enabled on BNC ports connected to downconverters. Downconverters require BNC power. The downconverters should have green illuminated LEDs.
	Mismatched downconverter antennas.	<ul style="list-style-type: none"> Verify there is no mismatch of antennas. All downconverter and transmitter antennas should match your band of operations.

Status LED issues

Use the information in the following table to help you troubleshoot downconverter status LED issues.

Table 7: Downconverter LED troubleshooting

Symptom	Possible cause	Actions
Status LED is off.	No comms data from receiver.	<ul style="list-style-type: none"> Check the coaxial cable is properly connected to the downconverter.
	No DC voltage on the receiver's BNC port.	<ul style="list-style-type: none"> Check coaxial cable has DC voltage. If not, verify that the receiver port bias power has been enabled and verify that the downconverter is connected to the correct receiver port.
	Faulty coaxial cable.	<ul style="list-style-type: none"> Check the coaxial cable is functional. If faulty, replace the coaxial cable and recheck the signal at the receiver.
	Faulty downconverter.	<ul style="list-style-type: none"> Replace the downconverter. If the new downconverter works, call Technical Support.
Status LED is red.	A faulty transmitter unit if one is connected to the downconverter.	<ul style="list-style-type: none"> Disconnect the data transmitter (if present). If the LED is now green, replace the data transmitter. If the LED is still red, call Technical Support.

Performance issues

Use the information in the following table to help you troubleshoot performance issues.

Table 8: Troubleshooting performance issues

Symptom	Possible cause	Actions
Poor system performance.	Cable or downconverter connector issues.	<ul style="list-style-type: none">• Check downconverter cables and connectors for damage.• Replace any damaged cables.• Clean connectors as required.

This chapter describes the maintenance, cleaning, and storage procedures for Real Freedom Downconverters.

Routine maintenance procedures

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



WARNING: The Real Freedom Downconverter 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 downconverters and 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 Real Freedom Downconverter 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 a downconverter.

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 Real Freedom Downconverters in the rack at operating temperature.

For long term storage:

1. Disconnect the Real Freedom Data Transmitter from the downconverter.
2. Disconnect the downconverter from the Real Freedom Receiver or Remote Fiber Unit.
3. If pole or surface mounted, detach the downconverter.
4. Disconnect the antenna from the downconverter.
5. Cover the connectors with suitable dust covers.
6. Place the downconverter in protective packaging and store in a cool, dry environment.

Technical drawings and connector pinouts for the Real Freedom Downconverter.

Dimensions

The following drawings show the dimensions of the Real Freedom Downconverter and the positions of the holes used to pole mount the unit.

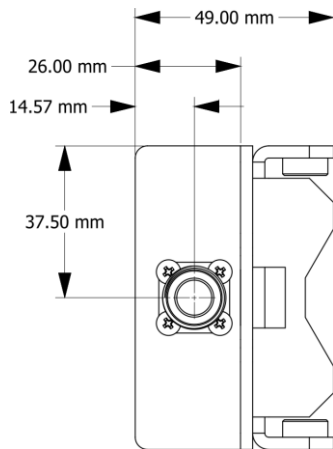


Figure 5: Downconverter top

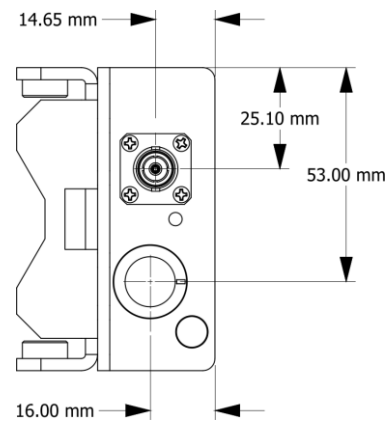


Figure 6: Downconverter bottom

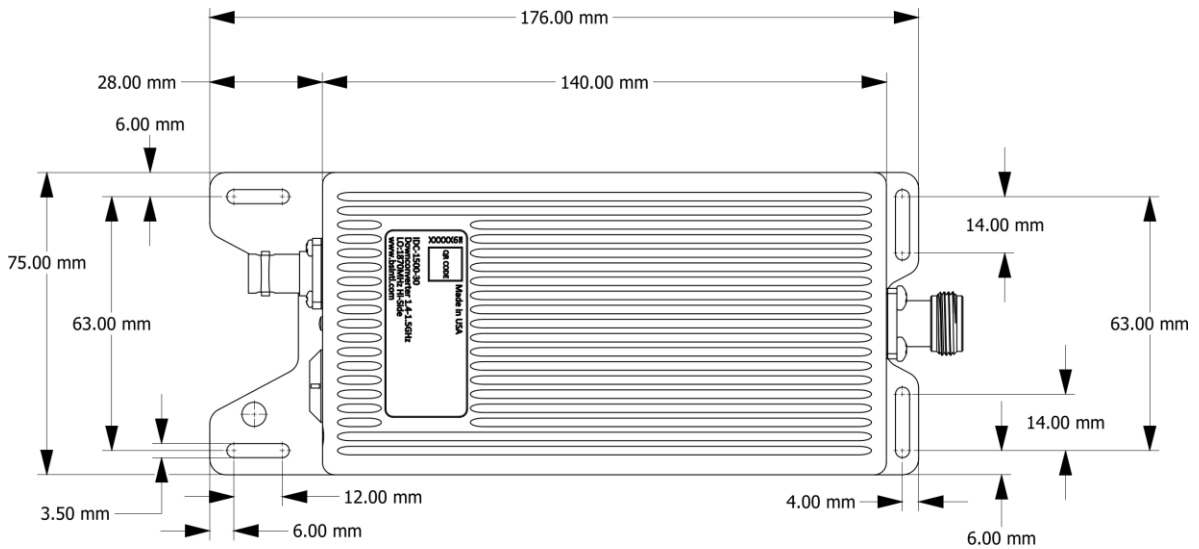


Figure 7: Downconverter front

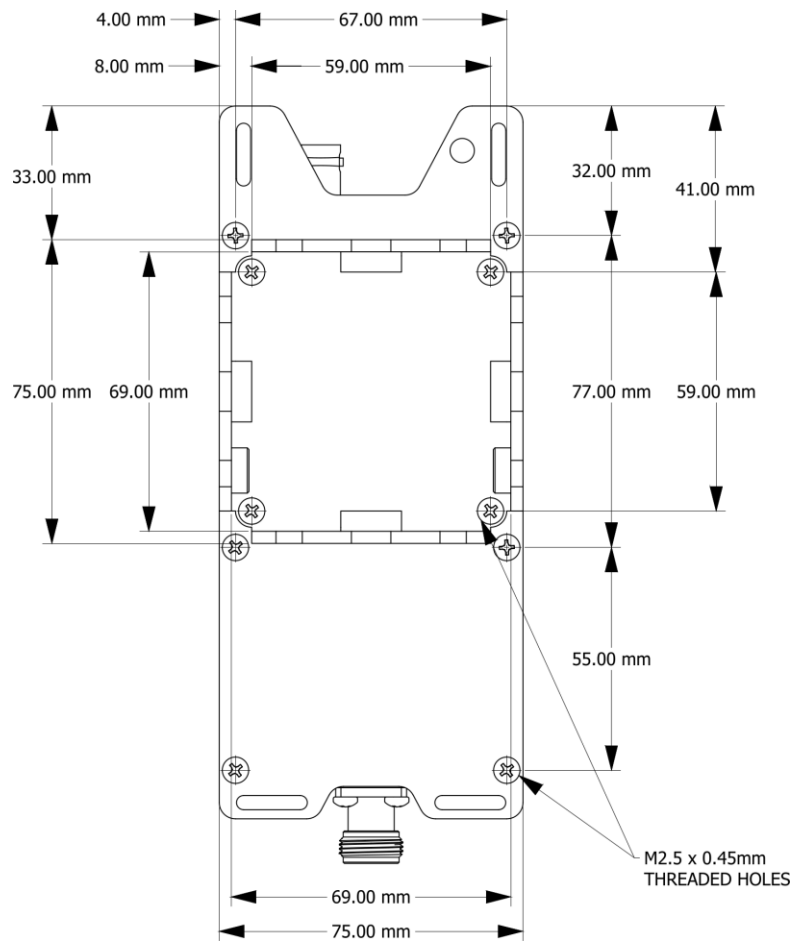


Figure 8: Downconverter mounting bracket

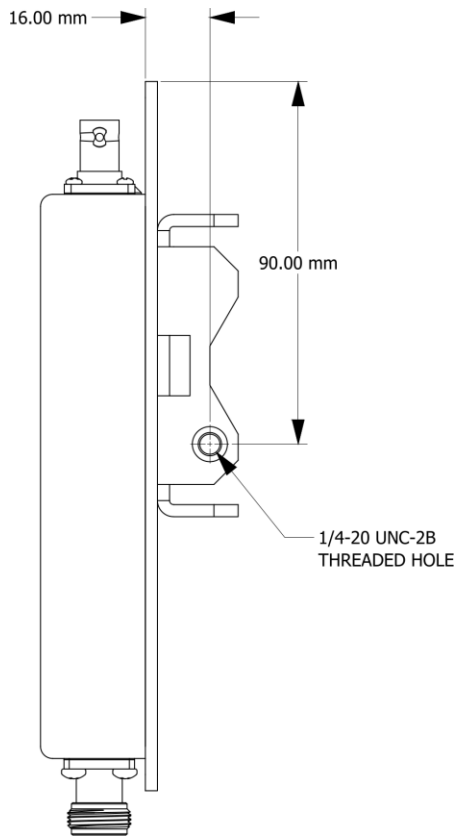


Figure 9: Downconverter mounting bracket (right side)

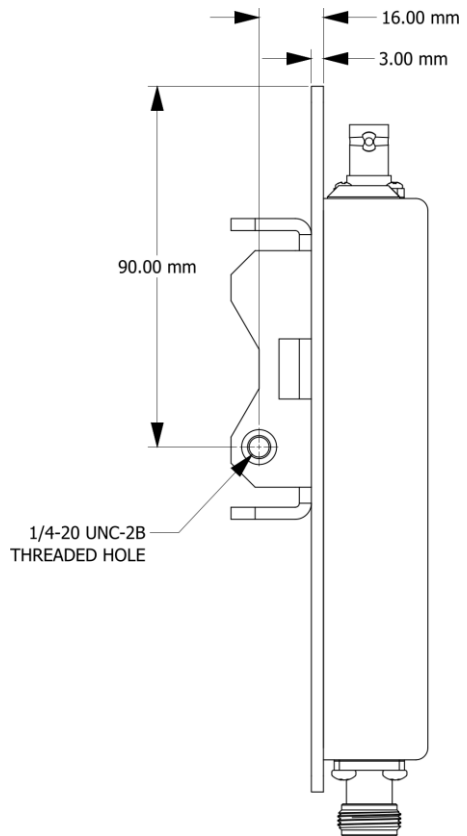


Figure 10: Downconverter mounting bracket (left side)

Specifications

The following tables contain the specifications for the Real Freedom Downconverter.

Compliance

Table 9: Compliance information

Parameter	Specification
FCC	47 CFR 15B
CE	R&TTE Directive, EN 60950, EN 301 489-28/1, EN 302 064-2

Environmental

Table 10: Operating and storage specifications

Parameter	Specification
Humidity	95% non-condensing
Ingress	Weatherproof to IP67
Operating/storage temperature	14° to 131°F / -10° to +55°C

Frequency band options

Table 11: Frequency band ranges

Model	Specification	
IDC-1500	Downconverter (1435–1525 MHz)	
IDC-2027	Downconverter (2000–2700 MHz)	
IDC-3239	Downconverter (3200–3900 MHz)	
IDC-6475	Downconverter (6400–7500 MHz)	
	Band 1: 6400–6900 MHz	Band 4: 6400–6950 MHz
	Band 2: 6700–7200 MHz	Band 5: 6950–7500 MHz
	Band 3: 7000–7500 MHz	

Gain

Table 12: Gain specifications

Model	Specification
IDC-1500	25 to 44 dB (variable)
IDC-2027	26 to 44 dB (variable)
IDC-3239	26 to 44 dB (variable)
IDC-6475	Variable

LO

Table 13: LO values

Model	Specification		
IDC-1500	1870 MHz		
IDC-2027 (2 GHz)	2834 MHz (high side)		
IDC-3239 (3 GHz)	4030 MHz (high side)		
IDC-6475	Band 1: 7190 MHz	Band 3: 7850 MHz	Band 5: 7800 MHz
	Band 2: 7550 MHz	Band 4: 6100 MHz	

Physical

Table 14: Size, weight and mounting specifications

Parameter	Specification
Size (W x H x D)	2.95 in x 5.51 in x 1.02 in / 75 mm x 140 mm x 26 mm
Weight	1.19 lb. / 0.54 kg
Mounting	Pole clamp with 1/4" x 20 fitting

Power and I/O

Table 15: Power and communication specifications

Parameter	Specification
Power	9–36 V DC (via UHF BNC connector)
Consumption	4 W Typical
Receiver comms	Bi-directional FSK (via UHF BNC connector)
Data transmitter	LEMO 4-pin HGG0K-304-CLLP

RF

Table 16: RF specifications

Parameter	Specification
Connectors	RF: N (F) 50 Ohm, UHF: BNC (F) 75 Ohm
Noise figure	<3 dB
O1P3	>25 dBm
OP1dB	>12 dBm

Connector pinout assignments

Pinouts for the connectors on the Real Freedom Downconverter.

Antenna port

Use to attach an antenna to the downconverter.

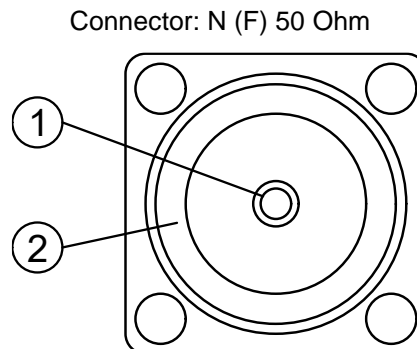


Figure 11: Front face of N (F) connector

Pin	Purpose
1	RF input
2	Ground/Shield

Power and control

Use to connect a data transmitter to the downconverter. This connector passes power and data to the BSI data transmitter.

Connector: LEMO HGG0K-304-CLLP

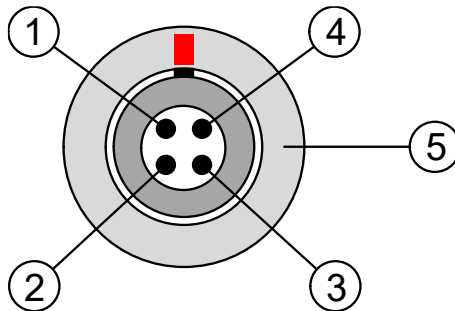


Figure 12: Front face of LEMO power/control connector

Pin	Purpose
1	RS232 receive (to downconverter)
2	RS232 transmit (from downconverter)
3	+9 to 36 V DC
4	Ground
5	Shield

UHF output

Use to connect the downconverter to a receiver or fiber remote unit. This connector passes the down-converted UHF signal to the receiver, passes bi-directional OOK data between the downconverter and receiver, and provides bias power to the downconverter.

Connector: BNC (F) 75 Ohm

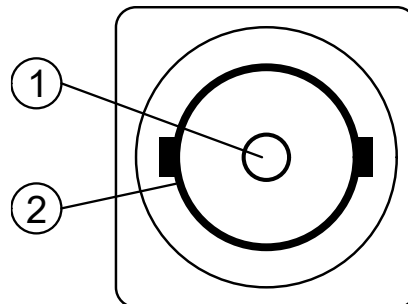


Figure 13: Front face of BNC (F) connector

Pin	Purpose
1	UHF output
2	Ground/Shield

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 Downconverter. Specific warnings and cautions are found throughout this product manual, and you should follow this guidance during the routine use of a Real Freedom Downconverter.

Electromagnetic compatibility – Class A

Information about the Real Freedom Downconverter'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.

CE Declaration of Conformity (European Union)

This product meets the requirements of the following directives and carries the CE marking accordingly: 2014/35/EU Low Voltage Directive, 2014/30/EU EMC Directive.

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 substances 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.