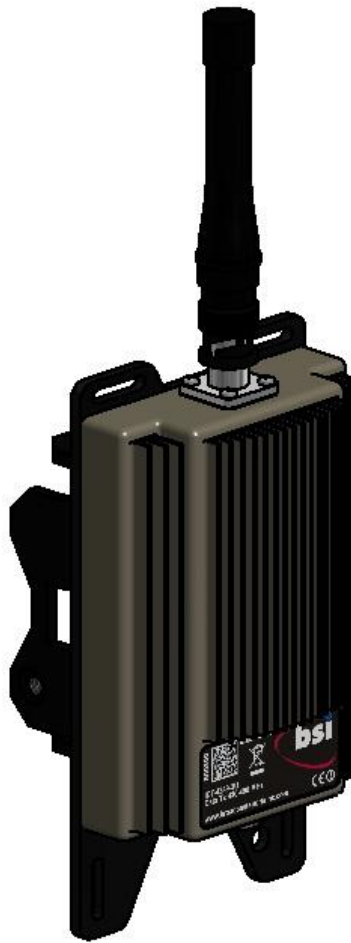


REAL FREEDOM DATA TRANSMITTER

USER MANUAL



FCC Statement

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

CAUTION: Changes or modifications not expressly approved by Broadcast Sports Inc could void the user's authority to operate the equipment

Warnings



WARNING - No user serviceable parts inside. Warranty void if opened. Refer servicing to qualified BSI personnel only.



WARNING - Connect the product only to a power source with the specified voltage rating.



CAUTION - Do not operate the Data Transmitter without the appropriate antenna fitted as damage may ensue.



CAUTION - The Real Freedom Data Transmitter is hot while it is operating. Do not touch. To prevent risk of overheating, use in a well ventilated area.



CAUTION - To prevent damage it is recommended that only BSI supplied cables and accessories should be used with this product

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1. OVERVIEW

1.1 TECHNOLOGY

The IDT-4349-3U Real Freedom Camera Control Data Transmitter has been designed for simple, secure and reliable operation in the field. The latest technology is utilized to provide the perfect combination of high performance, ease of use and low power operation.

1.2 FEATURES

- Specifically developed for narrow band GMSK transmission
- Plug and Play Connectivity
- 430 to 490 MHz operation
- 12.5 kHz channel
- High power – up to 4 watts radiated – dependant on Antenna
- Connects to any Real Freedom Down Converter with a single cable
- Compatible with BSI's Real Freedom Fiber System
- Weatherproof

1.3 DESCRIPTION

The Real Freedom Data Transmitter is an integrated component of BSI's Real Freedom Wireless System. It can be used to remotely control up to 6 Real Freedom Camera Back Transmitters and to provide camera control of most brands of broadcast camera.

The Data Transmitter connects to the system via a single cable to any Real Freedom Down Converter, allowing the user to locate system components in optimal positions without deploying any additional infrastructure or cable.

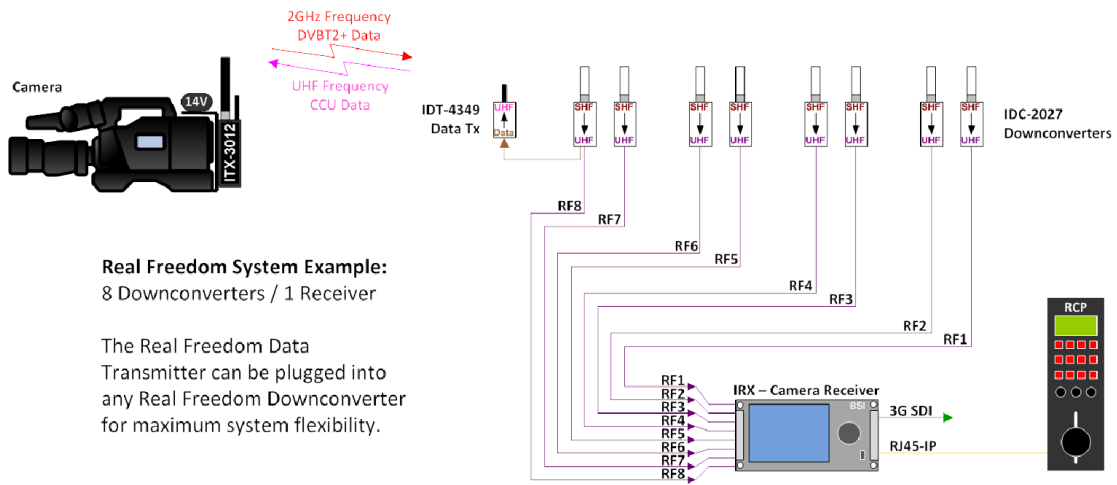
The Real Freedom Data Transmitter can be remotely controlled from

receives camera control data from one or more Operator Control Panels (OCP's) via the Real Freedom Receiver and transmits a GMSK modulated narrow band UHF signal of between 430MHz and 490MHz.

REAL FREEDOM SYSTEM

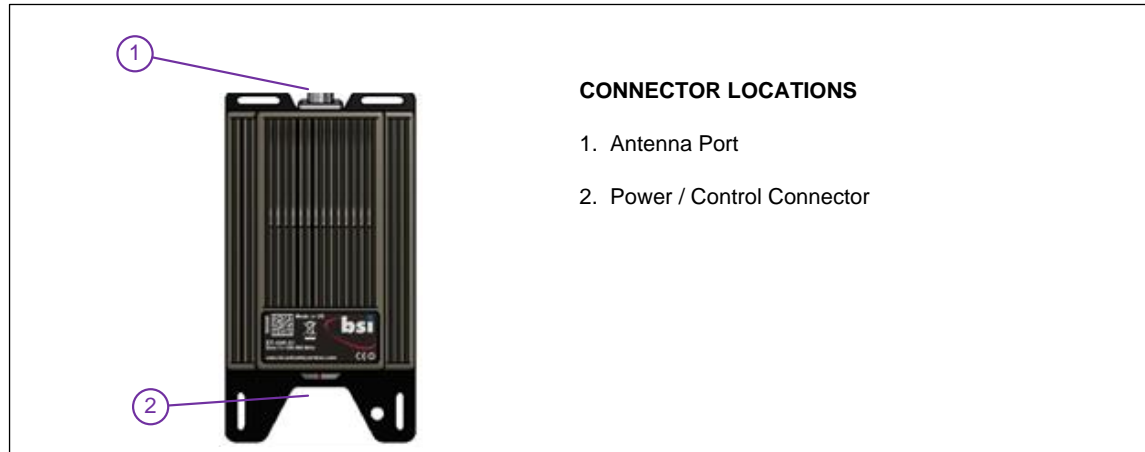
Model IDT-4349-3U

Plug and play connectivity with Real Freedom Down Converters and Receivers enables access to the Data Transmitter's advanced features. This includes the automatic configuration of receiver settings for optimal performance.



1.4 LOCATION AND FUNCTIONS OF PARTS

1.4.1 Connectors



1 – Antenna Port

A BSI antenna should be directly connected to this port.

2 – Power / Control Connector

Used to pass power and data from a BSI Down Converter.

1.4.2 Controls and Indicators



4 – Status LED

The LED indicator shows the status of the Real Freedom Data Transmitter as follows:

OFF	No Power
GREEN	OK
RED	Alarm / Error / No Connection to Down Converter

2. INSTALLATION

2.1 Mounting

Designed to be compact and fully weatherproof, the Data Transmitter is supplied with a removable mounting bracket which allows for two mounting options:

Pole clamp (temporary or permanent installation)

The mounting bracket can be secured to vertical or horizontal poles of between 36.5 and 68 mm in diameter.

For temporary installations cable ties can be used. Pass at least two cable ties through the slots in the mounting bracket and around the pole before securing.

For permanent installation hose clamps should be used. Pass two hose clamps through the slots in the mounting bracket and around the pole before securing.

1/4"-20 lighting fixture (temporary installations)

The 1/4 " insert can be used to mount the Data Transmitter to a lighting stand, tripod or "magic-arm" style mounting system.

Care should be taken to ensure that the screw thread is securely tightened and that the mount has sufficient strength to support the Data Transmitter, antenna and cables attached.



CAUTION

The Data Transmitter must be mounted vertically with the Antenna port facing up. Do not over tighten the screws. Thread damage may result.



CAUTION

The Data Transmitter becomes hot while operating. Mount the unit in a well ventilated area where it will not be accidentally touched

2.2 Antenna Installation

The Data Transmitter is designed to be used with BSI or third party antennas using a standard BNC(M) connector. The antenna should be connected directly to the Data Transmitter via the antenna port.

BSI can supply a range of antennas to suit most applications.



CAUTION

Operating The Data Transmitter without the appropriate antenna fitted may result in damage to the unit.

2.3 Connecting the Data Transmitter to a Down Converter

The Data Transmitter can be connected to any Real Freedom Down Converter in your system using the supplied data cable assembly. This cable is symmetrical and may be installed either way around.

No other connections are required.

3. OPERATING INSTRUCTIONS

3.1 General

There are no controls on the Real Freedom Data Transmitter. As soon as power is supplied via the data cable the unit will start operating.

The Real Freedom Receiver will automatically detect the Data Transmitter when it is connected to the system and configure itself appropriately. Transmit frequency and output power can be controlled from the Receiver.

3.2 Changing the Transmit Frequency

The Data Transmitter may be tuned across the range 430 to 490 MHz by using the Real Freedom Receiver front panel controls. Please see the Receiver Operating manual for details.

3.3 Changing Output Power

The Data Transmitter may be set to low, medium or high output power by using the Real Freedom Receiver front panel controls. Please see the Receiver Operating manual for details.



WARNING

The end user is responsible for ensuring that they are properly licensed to operate at the frequency and output power selected

4. TROUBLESHOOTING

4.1 TROUBLESHOOTING COMMON PROBLEMS

4.1.1 Status LED is Off

Probable Causes

1. No DC voltage at the Data Tx
2. Faulty Lemo Cable

Troubleshooting Steps

1. Check the Down Converter
 - a. Confirm that the Down Converter is powered and operating correctly (see Down Converters Users Manual)
 - b. Try connecting to a different Down Converter
2. Check the Data Cable
 - a. Replace the Data Cable with a new or known good cable
 - b. Recheck the LED

If still faulty please call technical support

4.1.2 Status LED is Red

Probable Causes

1. No Comms data from receiver
2. Faulty Lemo Cable

Troubleshooting Steps

1. Check the Receiver Settings
 - a. Confirm that Camera Control is enabled (see Receiver Users Manual)
 - b. Recheck the LED
2. Change the Data Transmitter Lemo cable

If still faulty please call technical support

4.1.3 No Camera Control Data transmitted

Probable Causes

1. Broken or not fitted Data Transmitter Antenna

Troubleshooting Steps

1. Check Status LED is Green, if not see above.
2. Check Antenna is properly connected to the Data Transmitter
3. Verify that the correct Antenna, i.e. frequency band, is connected to the Data Transmitter
4. If still faulty please call technical support

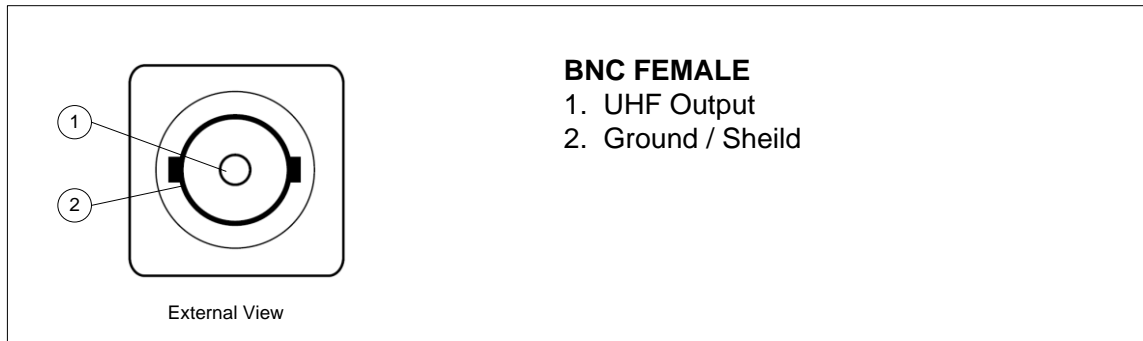
5. TECHNICAL DATA

5.1 TECHNICAL SPECIFICATIONS

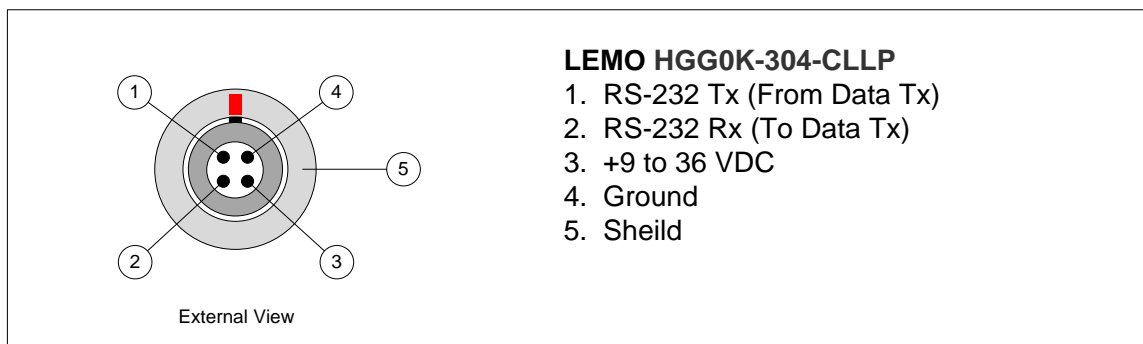
Real Freedom Data Transmitter (IDT-4349-3U)	
UHF	
Output Power:	100mW-4W
Connector:	N (F)
Frequency:	430-490MHz
Tuning Step:	12.5KHz
Modulation:	GMSK
ACPR:	> -60dBc
Spurious:	> -36dBm (operating)
	> -57dBm (standby)
I/O & Power	
Connector:	Lemo 0K 4-pin CLL.0K.304.CLLP
Data:	From downconverter via Lemo I/O
Power:	9-36VDC via Lemo I/O
LED:	Green/On, Flashing Green/Transmit Data
Physical	
Size (WxHxD):	2.95 in. x 5.47 in. x 1.14 in.
	75 mm x 139 mm x 29 mm
Weight:	0.97 lbs / 0.44 Kg
Environmental:	Weatherproof to IP67
Mounting:	Pole clamp with 1/4" x 20 fixture
Compliance	
ETSI:	R&TTE Directive
FCC:	Parts 15 & 90

5.2 CONNECTOR PIN-OUTS

5.2.1 Antenna Port



5.2.2 Power / Control



APPENDIX A: Accessory Guide

Available Accessories

Description	Part #
3 dBi Omni Antenna	AOF-4349-0U
Lemo Cable (1m)	CAB-0013-00
Quick Start Guide	QSG-0004-00
User Manual	UMA-0004-00

Sales Contact Information:

Sales Department
Broadcast Sports Inc
Axis 3, Rhodes Way,
Watford, Hertfordshire, WD24 4YW
UK

Tel: +44 1923 810130

Email: sales@bsiuk.com

APPENDIX B: Technical Support

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.

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.

Technical Support Contacts:

Tel: +44 1923 810131

Please visit www.broadcastsportsinc.com for full terms and conditions.

APPENDIX C: Warranty Information

Coverage

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.

Please visit www.broadcastsportsinc.com for full terms and conditions.