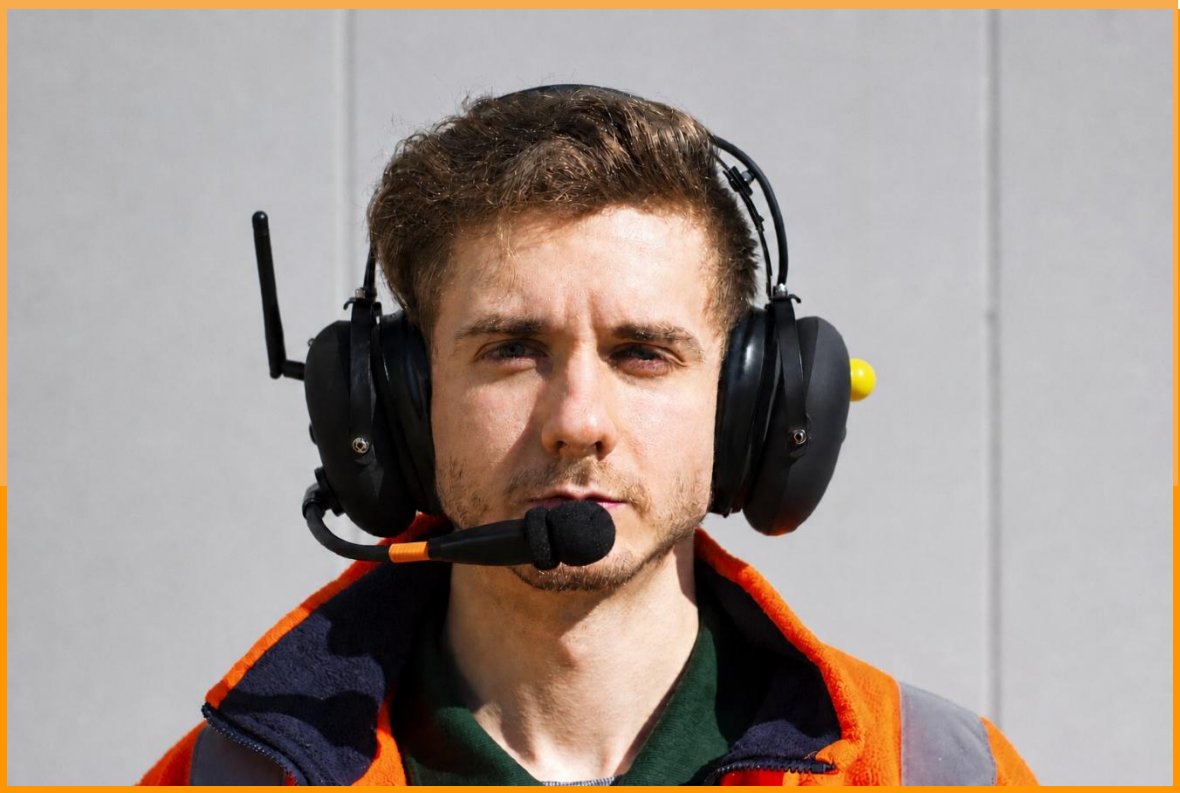
# ATHENA DE-ICING

## PRODUCT HANDBOOK



**HELPFUL CONTACTS**
Purchasing & Rentals: sales@dbdcommunications.co.uk
Accounts: accounts@dbdcommunications.co.uk

**VERSION HISTORY**
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# 1. NOTES / CONFORMITY STATEMENTS

## 1.1 Important notes:

**Warning:** Replacement parts do not come with these systems; however, they are available once a fault has been confirmed. Please contact dBD Communications should a fault occur.

**Warning:** These units contain Lithium-Ion Polymer batteries. Anything that contains Lithium-Ion Batteries must comply with the IATA / ADR / IMDG Regulations while in transport. Under normal circumstances these are totally safe, however, should the headset casings or air interface housing become deformed in any way, further use should be avoided, and dBD Communications should be contacted immediately.

**RF Radiation:** This system uses a Class 1 Bluetooth device operating between 2.400 and 2.4835 GHz. Users should avoid getting the antenna closer than 20mm to their eyes as this could result in damage to the retina (low risk). If individuals are concerned, please contact dBD Communications.

**Cables and connections:** All cables and connections should be checked at regular intervals to ensure that they are in good condition and not damaged in any way. Damaged items should be replaced as soon as practically possible.

## 1.2 Conformity Statements:

**RoHS** - The devices comprising this system are RoHS compliant.



None of the parts that comprise this system should be disposed of in normal waste. For disposal instructions please refer to dBD Communications or their local representatives.

**CE** – The system is to be self-certified. A CE file containing all results of tests and investigations shall be held for viewing at dBD Communications.

**Low Voltage Directive (LVD)** – All parts of this system are either compliant or do not need to be considered.

**EMC** – Individual parts of this system are already EC and FCC compliant.

**ESD** – Individual parts of this system are already EC and FCC compliant.

# 2. PRODUCT OVERVIEW

## 2.1 Product Details

Communication in day-to-day operations can be complex, but one of the main features that we as humans have, is the ability to speak. Without speech and the ability to hear we are reduced to lip reading, facial expressions, and the complexity of body language such as gesturing. This product can provide the ability to clearly hear what another is saying, and freely communicate, leaving their hands and eyes free to work safely and efficiently.

There are many industries where operatives need to wear noise suppressing ear protection, but a result of reducing the noise, severely reduces the ability to converse or take instruction especially at a distance.

This does not mean that this method of working is inappropriate, but it has its limitations. Duplex Communications provide a solution to the need for PPE **and** effective communication to operate safely.

The Athena De-Icing system is a set of two rugged headsets (Athena Blocked Headset) which use PNR (Passive Noise Reduction) to minimise external noise from the environment. Where noise levels exceed 80dB, we recommend the additional use of ear plugs to reduce situational noise.

Each headset has an in-built Bluetooth transceiver and the two headset systems automatically pair and connect to each other providing a full duplex intercom facility. This has many advantages for the operators both in terms of personal comfort and safety and because there is no need to Push to Talk (PTT), the operator stress and workload is reduced.

The Bluetooth system is designed with Dynamic Noise Reduction built in; this further enhances the already passive noise reduction provided by the Microphone system. Each headset is provided with a small external antenna which ensures that a maximum range of up to 150 metres can be obtained between the headsets in open space.

Other systems are available which offer more communication capability including functions to add additional users, range to the systems and different system packages to suit environmental needs.

Please contact sales@dbdcommunications.co.uk for further information.

Our YouTube training videos can be found via the following link:
https://youtu.be/ndCbJwC_LF4?si=iY5oW9rTWRF8Xyb4

## 2.2 Technical Details

Each headset has the ability to produce a maximum of 100mW Radiated Power out of the Antenna.

The headsets will work to a range of 150m in normal working conditions. The system operates depending on line of sight (due to this, large metal objects will restrict range capability).

The headsets are powered from a 3.7V DC Lithium-Ion battery source. The chargers supplied provide between 4.5V and 6.5V DC dependant on the variant selected.

## 2.3 Temperature ranges

The headsets will accommodate -30 to +75 degrees centigrade.

## 2.4 IP protection

The headsets are rated to IP66.

The headset protection will vary depending on the variant being used. They are all dependant on whether the headset is worn or not. If not worn IP rating reduces due to the inner ear cup section being exposed.

## 2.5 Weights

Each headset is no more than 0.45Kg

In their packed flight bag, the total weight is 1.6Kg

## 2.6 Class 1 Bluetooth device To FCC Part 15C

| | |
|---|---|
| **Operating Frequency Range (OFR)** | **2402-2483.5MHz** |
| **Channels** | 79 |
| **Channel Separation** | 1MHz |
| **Channel Bandwidth (20dB)** | 1.391MHz |
| **Conducted Power** | 15.94dBm (64.39mW) |
| **Transmission Technique** | FHSS |
| **Modulation** | GFSK, π/4 DQPSK, 8DPSK |
| **Antenna Gain** | 2.14dBi |

*Note: User's do not need to change any channels on system, this is information for technical support only.*

# 3. EQUIPMENT CHECK LIST

## 3.1 Equipment List

**On receiving your Athena system, you should have the following items:-**





a) Two headsets, which will be a combination of the above.

The closed dome is generally worn by personnel outside of the vehicle or elevated cab. The bump-stop or behind the head variant are generally worn by drivers of operators inside of the cabs.

**One headset will have a black on/off button (this is the primary)**



**One headset will have a white on/off button (this is the secondary)**



b) Your system will have a serial number on the inside of the headband

***DO NOT REMOVE THIS (Warranty Reasons)**




c) Two screw on antennas



d) One two way mains charger



**Your system will be packed in one of the pictured carrying options below:**

**A Flight Bag**



## 3.2 Accessories List

**Additional hygiene options are available which include:**

| | |
|---|---|
| **Mic covers** | **MM-ELE** |
| **Cloth ear covers** | 100% COTTON EAR COVERS |
| **Gel ear cups** | SL-GEL |
| **Foam ear cups** | SL-UR |
| **Antenna** | W-ANT |
| **Mains (AC) Charger 2 Way** | GA151-810-2 |
| **Primary Headset** | Please contact sales@dbdcommunications.co.uk for part numbers as various options available. |
| **Secondary Headset** | Please contact sales@dbdcommunications.co.uk for part numbers as various options available. |
| **Throat Mic**<br>*Note: Only able to be used with specific headset prepared for Throat Mic.* | DBD-THROAT |

| | |
|---|---|
| **Flight Bag** | DBD-PKG-FB |
| **HiVis Bag** | DBD-PKG-HV |

# 4. ATHENA DE-ICING SYSTEM DETAILS

The Athena system comprises two Bluetooth PNR headsets with screw on antennas and a charging system, allowing the user to charge from mains voltages from 100V to 263V A.C. The Athena System allows two people to communicate up to 150 metres apart.





Around the mic boom there is coloured tape, this indicates which type of headset you have.

Orange tape indicates an Athena De-Icing system- You will have audio in both ear domes when using a two domed headset. The behind the head or bump stop variant is designed so the user can hear the local surroundings, so no communication is heard in one of the ears, normally the left-hand side.

The domes are fully enclosed which gives noise suppression (when using gel earmuffs). This system on the Primary headset (identified by a black power button), can work with a Back-to-Back Radio system by applying a radio interface lead.

Depending on your chosen configuration, your Athena Primary headset (for ground controller) can provide the following functions;



- AUX Radio PTT
    - operated by the black button on the right-hand side ear dome



- Latch – Operated via yellow button on right hand ear dome

# 5. SYSTEM SET UP

**To set up your system follow the instructions below:**

a) Collect the Primary and Secondary headsets from the Flight Bag.

b) Within the bag there will be an antenna in the pocket.

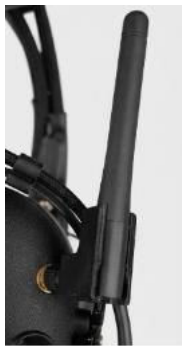




c) Firstly, the antennas need to be fitted to the headsets. This is achieved by straightening the antenna at the knuckle, found close to the connector end.

d) Offer the antenna to the headset connector, making sure that the antenna is in-line with the headset connector.

e) Gently push the connectors together to ensure that the connector engages, before screwing it on.

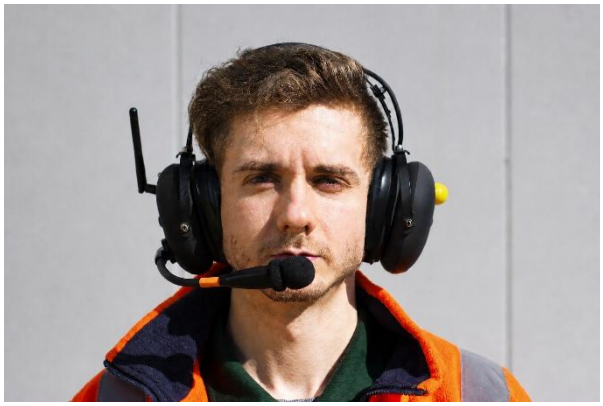


f) Tighten the antenna using the splined connector base and not the overall antenna body.

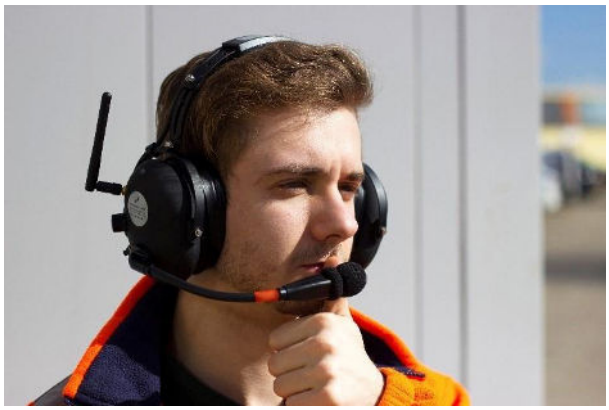
g) Bend the antenna at the knuckle, at a 90° angle and ensure that it sits vertical when the headset is worn.

h) This antenna can be supplied which is more robust but cannot be bent.

i) The over the head variants are to be worn as shown in the picture to the right. The hard headband with the model number displayed, sits over your head.



j) Adjusting the Microphone Boom - The microphone is on the end of the boom swan-neck fitment. It is protected by a foam mic cover which is held on by an O-ring. The user should adjust the microphone for their own comfort, but it should be placed as close as possible to the user's lips. It is suggested to be a thumb width away from the lips.



k) Remove the headset and refer to section 6 Operating Your Equipment for details on how to use the headsets and system.

# 6. OPERATING YOUR EQUIPMENT

**a) Turning on your headset:-**



To turn on your headset, push and hold the on/off button for approximately 2 seconds (NO LONGER), you will hear an initial warning tone (da-dah) and a green light. This will be followed by 1, 2 or 3 beeps (For further details on battery indication see **section 7 Charging Instructions**). Your system is now on.

**b) Check Headsets are paired:-**



After turning your system on, you will hear warning tones from each headset (da-dah) indicating that they have paired, both headsets will then have green lights that flash alternatively between the two headsets. If both lights stay solid green, then the headsets are not paired. (To pair system, see **section 8 Pairing Instructions**).

**c) Volume Control:-**



The volume control is allocated next to the on/off button. This allows the user to adjust the audio to a comfortable level.

**d) Ready to Operate:-**

The headset is now ready for use, and you will be able to freely communicate between 2 users.

**e) Low Battery Warning:-**

When the battery has less than 30 minutes left the headset with the low battery will provide an audible regular beep to indicate power is about to run out. If this is happening, then a charger must be applied. The system is designed to rapid charge so if in this condition when being charged for the first 30 minutes 2/3 of the battery will be charged back up again.

**f) Turning off your Headset:-**



To turn your headset off, push and hold the on/off button for approximately 2 seconds and you will hear a warning tone (da-doo) indicating the headset has been turned off.

# 7. CHARGING INSTRUCTIONS

***DO NOT USE ANY OTHER CHARGING SYSTEM TO CHARGE YOUR HEADSETS, OTHER THAN THOSE PROVIDED BY dBD COMMUNICATIONS. USE OF OTHER CHARGERS CAN CAUSE DAMAGE TO PRODUCT AND WILL INVALIDATE WARRANTY – SEE SECTION 11 WARRANTY & SERVICING***





a) To charge your system, the mains charger is to be plugged in to the socket on the headset. This is located on the left ear dome at the bottom. Your headset **MUST BE SWITCHED OFF** when charging. You **MUST NOT SWITCH THE HEADSET ON**, while charging. The headset will take approximately 3-4 hours to charge fully from a low battery.

When plugged in to charge, an orange light will illuminate, indicating that the headset is charging.

b) If no orange light appears on plug in, then the headset is already fully charged.

c) On initial power up, as explained in the operational instructions, you will hear 1, 2 or 3 beeps synced with orange lights. These beeps indicate your battery status.

1 beep indicates – less than 30% battery power
2 beeps indicate- 30-80% battery power
3 beeps indicate-more than 80% battery power.

d) While the headsets have been charged before they are dispatched, it is recommended that they are topped up before being used for the first time.

They should also be charged after each use whether this is for a short or prolonged period.

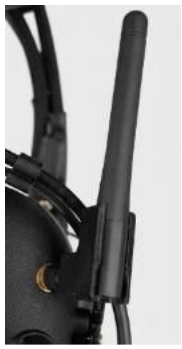
e) On a single charge each headset will operate for approximately 24 hours, however there are two main factors that affect this operational time

Note: Bluetooth operates using a minimal RF power output. This means that the drain on the battery will be less when the headsets have a clear line of site between them or at very short range. If the headsets are working at the extreme of their range or in an obstructed environment, the battery drain will be higher which will reduce the operational time between charges.

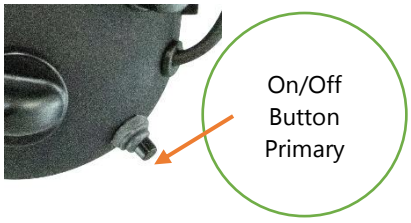
Each headset has a volume control. If the volume is continuously set high, then the battery drain will be greater, again reducing the likely operational time.

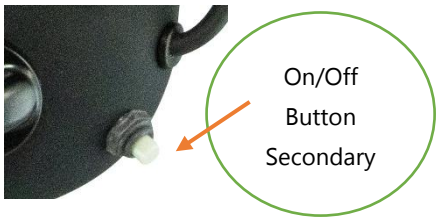
# 8. PAIRING INSTRUCTIONS

**Before you begin:**



a) Firstly, check that your headset is fully charged (2 beeps - 30-80% charged is enough to carry out pairing process)
b) Switch both headsets off.
c) Make sure both headsets have antennas and that they are screwed down fully.






d) On each headset push and hold the on/off button for approximately 10 seconds.

*At approximately 10 seconds you should hear a triple beep, these beeps will sync with a triple orange light. When this happens**, let go of the button.***
*The two headsets will now search for each other.*





| | |
|---|---|
| One will go orange and stay a solid orange (Primary button) | The other will beep and flash on and off with a green light occasionally. (Secondary button) |

After a while you will hear a beep-boo (warning tone) sound from each headset, indicating that they have paired. Both headsets will then have green lights that flash alternatively.

## Checking your system is paired:

a) The antenna needs to be bent at the knuckle at a 90-degree angle.



b) Put the headset on, making sure that the hard headband is adjusted to your head.

.



c) Scratch the mic on each headset to confirm the pairing connection.



## Your headsets are now ready to use.

# 9. STORING YOUR SYSTEM

## 9.1 Flight Bags

The flight bag has two compartments, and it is advisable to separate the equipment evenly into them as shown in the picture below.

If a headset and charger is placed in each side, there is ample room for the equipment. The microphone is bent into the middle of the two ear shells, and the antennas are removed and placed in the plastic bag provided.



# 10. FAULT FINDING

### 10.1 Headset will not turn on.

Check headset is charged by plugging into mains charger (if headset battery is completely flat; the orange light will illuminate).

### 10.2 Headset turns on but permanently green, solid light.

Check both headsets are turned on and are the right serial numbers (there should be an “A” Primary and “B” secondary headset).

### 10.3 Headset turned on and paired (flashing green light) but no audio.

Check volume, does the microphone look serviceable?

### 10.4 Headset turned on and paired (flashing green light) but interference on audio (Crackling).

Check all antenna connections are fitted correctly on both headsets.

### 10.5 Lack of range

Check all antenna connections are fitted correctly on both headsets. Also consider where you are trying to communicate. This system with large obstruction in front of it will reduce range as will all RF communication systems.

### 10.6 Low volume in headsets

Check volume control on headset.

### 10.7 When applicable, no back-to-back radio functions.

Check radio interface lead is correctly fitted. Confirm back-to-back radio is switched on and has adequate battery life.

If you cannot resolve the issue, please contact dBD Communications to discuss further.

# 11. SERVICING AND WARRANTY

Each system has a 1-year warranty from date of purchase. Extended warranty can be purchased on a year-by-year basis.

dBD Communications can offer an option of either a light or deep service.  Depending on the option taken, this can extend the life of the equipment.

Please contact sales@dbdcommunications.co.uk for options available.

The following warranty conditions are in place and non-adherence to any of the below will invalidate your 1 year or subsequent warranties purchased.

a) Removal / defacing of equipment serial numbers.
b) Incorrect chargers used to charge any of the equipment or accessories.
c) Misuse of product (not in line with fair wear & tear).

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# CONNECTING TEAMS
# EMPOWERING SAFETY
# IMPROVING OPERATIONS




**dBD Communications Management & Consultancy Ltd**
Company number: 4431602