



## **dBAir Sound Level Meter**

### **Operating Manual**

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# Chapter 1

## Introduction

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Thank you for purchasing a dBAir from Castle Group Ltd.

Your new Sound Level meter is at the forefront of design and technology yet has been developed for seamless intuitive operation without the unnecessary complexity of traditional sound level meters.

It boasts a high-resolution large colour LCD with simple and clear visual data representation, has advanced data recording capabilities which records your data to the large internal memory available at your disposal.

Equipped with a simple plug-in microphone pre-amplifier, carry strap and a responsive membrane keypad all housed in an elegant, perfectly sized, balanced and practical case which has been developed specifically with this in mind.

Every model of the dBAir sound level meter has inbuilt Wi-Fi allowing you to automatically upload your recordings to our simple to use in-browser software at [TheCastleCloud.com](http://TheCastleCloud.com). Your data here is secure, always available and backed up automatically.

Equally, the dBAir can also be connected to The Castle Cloud through a PC app called the Castle Gateway, which enables you to upload your recordings via your PC using the included Micro USB Cable and your PC's internet connection. You can also update your instruments software as and when required. An alert in The Castle Cloud will inform you when updates are available.

Not only that, your dBAir sound level meter can act as a USB drive allowing you access to your saved recordings and transfer the standard format .csv recorded files so you can open them in your favourite spread sheet application and create your own reports.

Welcome to the new era in sound level measurement.

# Chapter 2

## dBAir Models & Features

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A list of dBAir models and features are listed below. The dBAir models are presented with all of the required features to fulfil specific applications where noise measurement is a requirement, such as for Safety or Construction.

### Safety

---

#### **dBAir Safety (GA141S)**

LSPL, LEQ, LMIN, LMAX, LPEAK, LEP'd, Exposure Points, Dose

Hearing Protector Calculator

Voice Memo Recording

### Safety Octave

---

#### **dBAir Safety Octave (GA141SO)**

LSPL, LEQ, LMIN, LMAX, LPEAK, LEP'd, Exposure Points, Dose

Octave Band Analysis (1/1): LSPL, LEQ, LMAX, LMAX, LPEAK

Hearing Protector Calculator

Voice Memo Recording

### Environmental

---

#### **dBAir Environmental (GA141E)**

LSPL, LE, LEQ, LMIN, LMAX, LPEAK

Statistical Parameters: LTM3, LTM5, Lday, Levening, Lnight, Ldn, Lden, NA, 10 user-definable Ln values (L1 - L99, 0.1 dB resolution)

Voice Memo Recording

Noise Event Recording

# Environmental Octave

---

## **dBair Environmental Octave (GA141EO)**

LSPL, LE, LEQ, LMIN, LMAX, LPEAK

Statistical Parameters: LTM3, LTM5, Lday, Levening, Lnight, Ldn, Lden, NA, 10 user-definable Ln values (L1 - L99, 0.1dB resolution)

Octave Band Analysis (1/1 or 1/3 Octaves): LSPL, LE, LEQ, LMAX, LMAX, LPEAK, Ln's.

Voice Memo Recording

Noise Event Recording

# Safety & Environmental

---

## **dBair Safety & Environmental (GA141SE)**

LSPL, LEQ, LMIN, LMAX, LPEAK, LEP'd, Exposure Points, Dose

Statistical Parameters: LTM3, LTM5, Lday, Levening, Lnight, Ldn, Lden, NA, 10 user-definable Ln values (L1 - L99, 0.1dB resolution)

Hearing Protector Calculator

Voice Memo Recording

Noise Event Recording

# Safety & Environmental Octave

---

## **dBair Safety & Environmental Octave (GA141SEO)**

LSPL, LEQ, LMIN, LMAX, LPEAK, LEP'd, Exposure Points, Dose

Statistical Parameters: LTM3, LTM5, Lday, Levening, Lnight, Ldn, Lden, NA, 10 user-definable Ln values (L1 - L99, 0.1dB resolution)

Octave Band Analysis (1/1 or 1/3 Octaves): LSPL, LE, LEQ, LMAX, LMAX, LPEAK, Ln's

Hearing Protector Calculator

Voice Memo Recording

Noise Event Recording

# Consultant

---

Professional configuration, choose from the parameters listed below.

## **dBair Consultant (GA141X)**

Standard:

- LSPL, LE, LEQ, LMIN, LMAX, LPEAK
- Voice Memo Recording

Options:

- Exposure: LEP'd, Exposure Points, Dose
- Statistics:
  - LTM3, LTM5, Lday, Levening, Lnight, Ldn, Lden, NA, 10 user-definable Ln values (L1 - L99, 0.1dB resolution)
- Octave Band Analysis (1/1)
  - LSPL, LE, LEQ, LMAX, LMAX, LPEAK, \*Ln's
- Octave Band Analysis (1/3)
  - LSPL, LE, LEQ, LMAX, LMAX, LPEAK, \*Ln's
- Hearing Protector Calculator
- Noise Event Recording

\* where **Statistics** option fitted

# Chapter 3

## Microphone and Pre-Amplifier

Measurement microphones by the very nature of their manufacture are precision components that are easily damaged through incorrect use. Great care must be taken when using the instrument to ensure the longevity of the microphone.

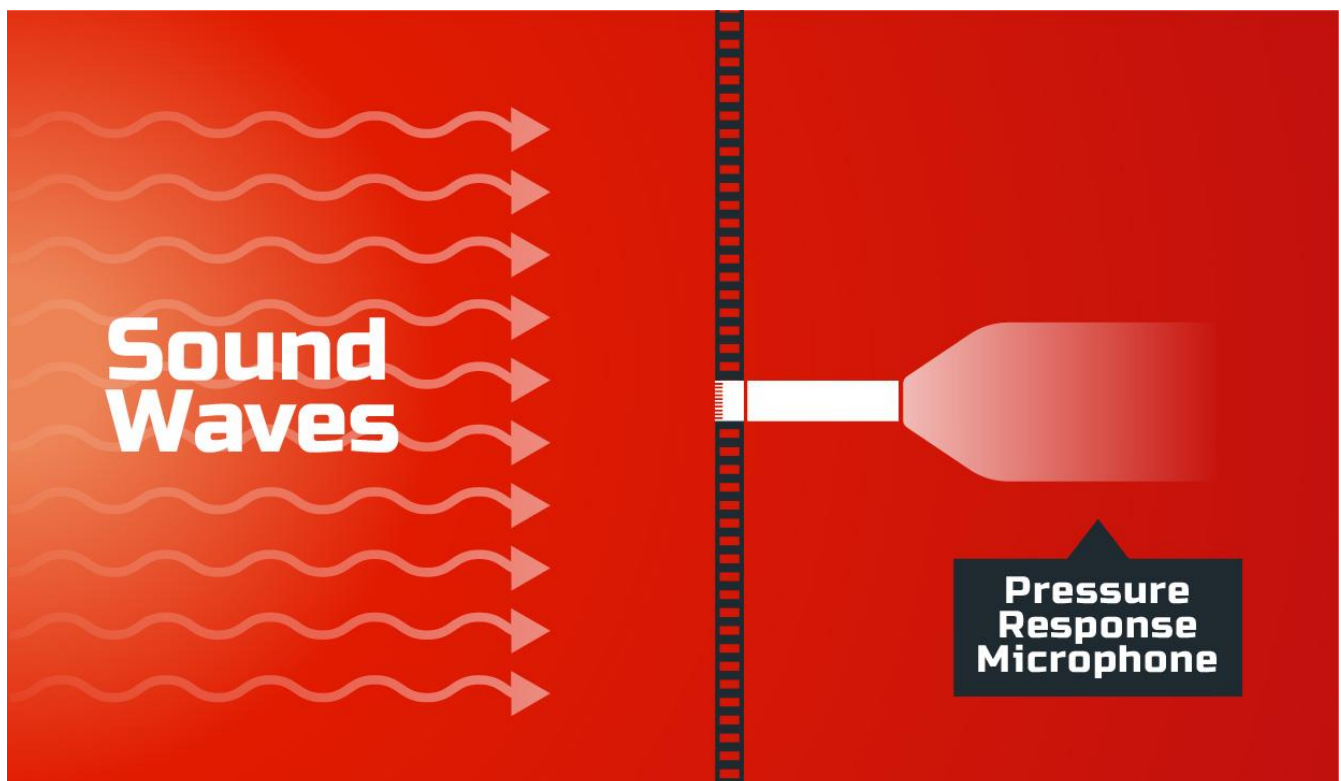
### Microphone Types

Three different types of microphone are manufactured; free field, pressure and random incidence. Each different type of microphone gives a different response in the sound field being measured.

### Pressure Microphone

Pressure microphones are manufactured to have an even frequency response to the actual sound pressure that is currently active on the microphones diaphragm.

Typical applications are closed cavities, boundaries or surfaces where the microphone can be mounted to form part of the wall.



# Random Incidence Microphone

---

Random incidence microphones are manufactured to have an even frequency response for sound arriving in all directions, simultaneously.

Typical applications include reverberation chambers and surroundings that reflect sound.



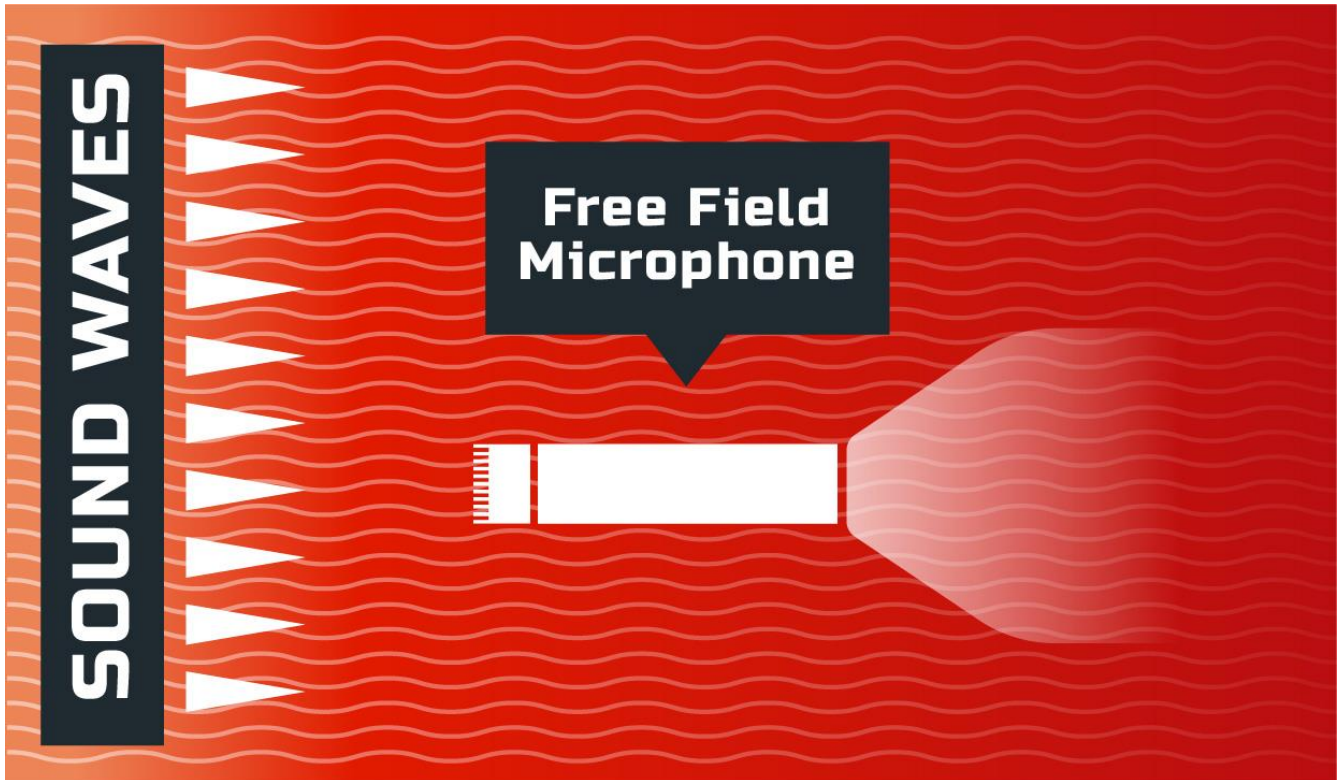
# Free Field Microphone

---

Free field microphones are manufactured to have an even frequency response for sound pressure as it existed before the microphone was placed in the sound field.

The free field microphone must always point directly towards the sound being measured, commonly referred to as 0° Incidence Angle.

Typical applications include anechoic chambers and surroundings that have little or no reflected sound.



To comply with all international legislation, all dBAir sound level meters are fitted with a **Free Field** measurement microphone.

Always point the sound level meter directly towards the noise source.

---



# Microphone Polarisation

---

Microphones require a polarisation voltage to operate and are manufactured in two ways.

## Externally Polarised

These microphones require an external charge for the microphone to operate which is generally 200V and supplied by the sound level meter.

## Pre-Polarised

These microphones generate the polarisation voltage internally and do not require the externally generated 200V polarisation charge.

All microphones supplied with dBAir sound level meters are **Pre-Polarised**.

# Microphone Sensitivity

---

The sensitivity of a microphone is determined by the output voltage it produces for a defined sound source.

Microphones are manufactured with numerous sensitivity levels and operate within a specified tolerance. Different microphones of the same model may therefore give slight differences in readings when used on the same sound meter. To allow for this all dBAir sound level meters have been designed to accommodate any variations in the tolerance of the supplied microphone up to  $\pm 3\text{dB}$ .

All models of the dBAir sound level meter with Class 1 approval have been designed for microphones with a sensitivity of  $50\text{mV}/\text{Pa}$ .

All models of the dBAir sound level meter with Class 2 approval have been designed for microphones with a sensitivity of  $25\text{mV}/\text{Pa}$ .

Great care must be taken to ensure the microphone and sound meter sensitivities match otherwise incorrect readings will occur.

# Removal of Microphone

---

The microphone is fitted to the pre-amplifier by screwing the microphone in a clockwise direction ensuring that the pre-amplifier spring pin is located centrally in the microphone.

To remove the microphone, unscrew in an anti-clockwise direction.

The microphone has a protection grid which can also be unscrewed and removed, great care must be taken to ensure that this is **NOT** removed. Underneath the protection grid is the microphone diaphragm which should never be touched or be subject to dust or dirt. Doing so may damage the microphone beyond repair or affect its acoustic response dramatically.

# Pre-Amplifier Removal & Fitting

---

To attach the pre-amplifier, position the RED orientation key on the pre-amplifier with the RED identification mark on the dBAir sound level meter and gently push the pre-amplifier into the connector.

To remove, gently pull the pre-amplifier stem away from the instrument body.



To prevent damage occurring to your dBAir sound level meter or your Pre-Amplifier assembly never attempt to twist the pre-amplifier.

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## Microphone Extension Cable

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To attach the microphone extension cable (purchased separately), position the RED orientation key on the extension cable connector with the RED identification mark on the dBAir sound level meter and gently push the extension cable into the connector.

To fit the pre-amplifier to the extension cable, see **Pre-Amplifier Removal & Fitting** above.

To remove, gently pull the extension cable connector by pulling on the knurled part of the stem.

## Certifiable Calibration

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The calibration process includes the microphone, pre-amplifier and sound level meter. Any change in this measurement chain will require a new calibration certificate.

Castle Group Ltd offers a complete calibration service offering either a full UKAS calibration or a standard traceable calibration which can be supplied with or without a test report.

It is recommended that your sound meter instrumentation is calibrated annually to ensure your measuring equipment is completely accurate and fully compliant.

# Chapter 4

## Measuring Sound

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Always calibrate your dBAir sound level meter prior to and after taking measurements using a known sound source, such as the Castle GA607 or GA611 Acoustic Calibrator.

Your dBAir can be set for calibration immediately after the unit has been turned on, see **Startup Options** for further details.

## Incidence Angle

---

It is essential that you hold your dBAir sound level meter at the correct angle to the noise source depending on the microphone type supplied with your meter.

The type of microphone supplied with your instrument is **Free Field**, see below for details of the measuring incidence angle for this microphone type: -

## Free Field

---

Free Field microphones require an incidence angle of  $0^\circ$ , therefore whilst measuring always point your dBAir sound level meter directly towards the noise source being measured.



All dBAir sound level meters are supplied with a **Free Field** measurement microphone

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# Sound Level – General Advice

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In some environments, high levels of noise can occur. The dBAir sound level meter has therefore been designed for complete accuracy up to sound levels of 140dB.

Before you record measurements, take the time to ensure you have chosen the optimum range for the application. Wherever possible, the optimum range is when the average measured signal is approximately half way between the top of the range and the bottom of the range without an overload condition.

The dBAir will register an overload if the noise level exceeds the linear operating range of the range selected by 0.5dB, it is therefore advisable to determine if an overload will occur on the selected range before measuring. In such cases, you will need to select the higher range to accommodate the higher peak levels.

If the noise levels are too low for the range selected, then the meter will display an under-range condition. Under these circumstances, you will need to select the lower range if possible

For detailed information refer to the **Technical Manual**.

If measuring low level noise, then be aware of the inherent noise levels caused by a combination of thermal and electrical noise from both the microphone and the sound level meter. Measuring data that lies within 10dB of the lowest quoted level on the lowest measuring range may be influenced by the self-noise of the system.

# Reflections

---

The sound level meter operator and the sound level meter itself can interfere with the measurements being made, reflecting the noise signal. The instrument case for the dBAir range of sound level meters has therefore been designed to minimize reflections whilst also being of rugged construction.

To minimize reflections from the operator, hold the sound level meter at arm's length, mount the sound meter on a suitable tripod or use a microphone extension cable (if applicable).

# Time Weighting

---

The time weighting is a time constant that modifies the response of the instrument to fluctuating noise levels. Without time weighting the meter display would fluctuate following the measured noise level and would be unreadable, the selected time weighting therefore softens these fluctuations over the time periods described below and in doing so the meter has a more readable display.

All dBAir sound level meters use digital time weighting filters for higher accuracy.

The following standardised time weightings are available: -

## Slow Weighting

---

Shows a slow rise in the Sound Pressure Level even for a sharp rise in the noise level, likewise a rapid reduction in noise will be shown as a slow decrease in Sound Pressure Level. The rise and fall times applied for Slow Weighting are 1 second.

## Fast Weighting

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The most commonly used time weighting which follows the noise level closer than slow weighting by displaying a fast rise and fall in the Sound Pressure Level. The rise and fall times applied for Fast Weighting are 125m Seconds.

## Impulse Weighting

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Allows your meter to show rapid rises in the noise level but has a very slow decay. The rise and fall times for Impulse Weighting are 35m Seconds and 1.5 Seconds respectively.

# Frequency Weighting Filters

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Frequency Weightings are where the Sound Pressure Level is modified by use of filtering. All dBAir sound level meters use digital frequency weighting filters for higher accuracy.

The following standardised frequency weightings are available: -

## A Weighting

---

The SPL is filtered in such a manner as to reflect the hearing response of a human ear. The signal is progressively attenuated at the higher and lower ends of the audible frequency range but much more attenuation occurs at the lower end of the audible frequency range. Generally, this is the most commonly used frequency weighting.

## C Weighting

---

The signal is progressively attenuated at the higher and lower ends of the audible frequency range, however the attenuation at the lower end is much less than with A Weighting. The response has a flat area between 200Hz and 1250Hz and has -3dB points at 31.5Hz and 8kHz. It is generally used for the acoustic emissions of machinery and for peak sound levels.

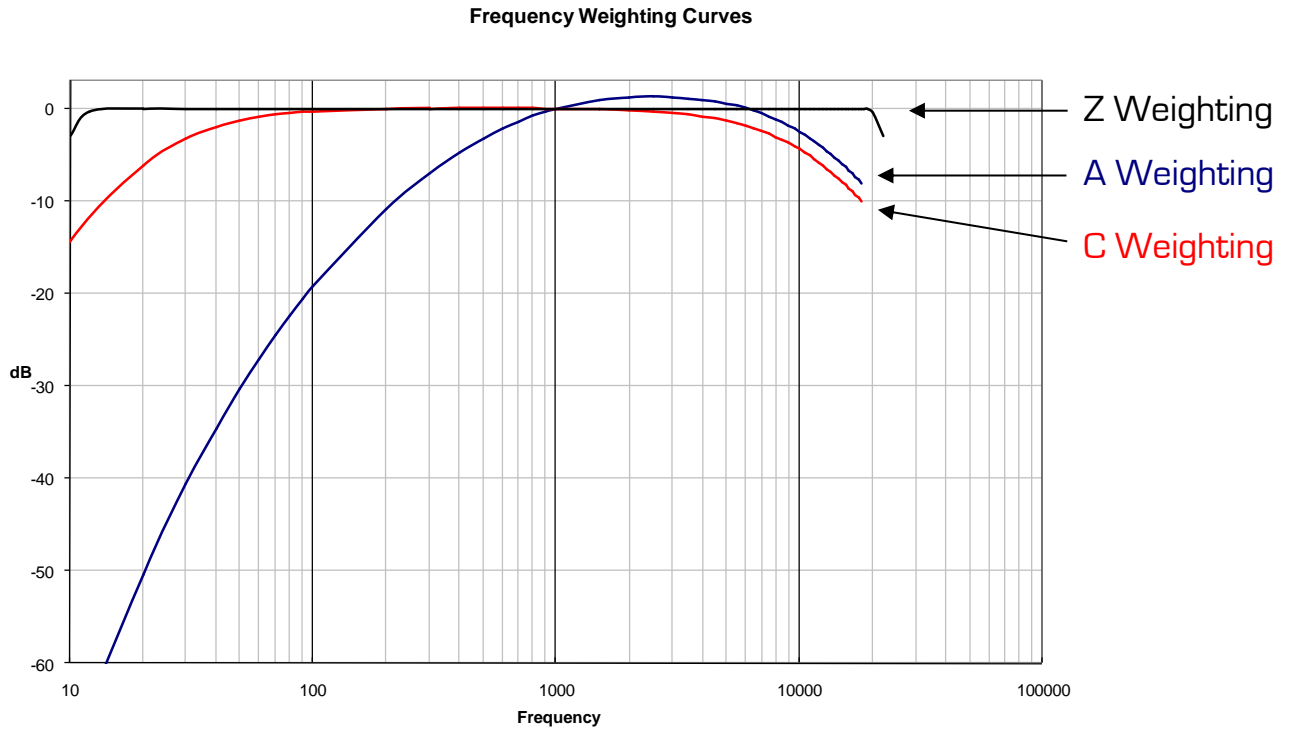
## Z Weighting

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Often referred to as the FLAT or LIN response, this weighting has a virtually flat response over the entire audible frequency range.

# Frequency Weighting Curves

The following graph shows each available frequency weighting curve.





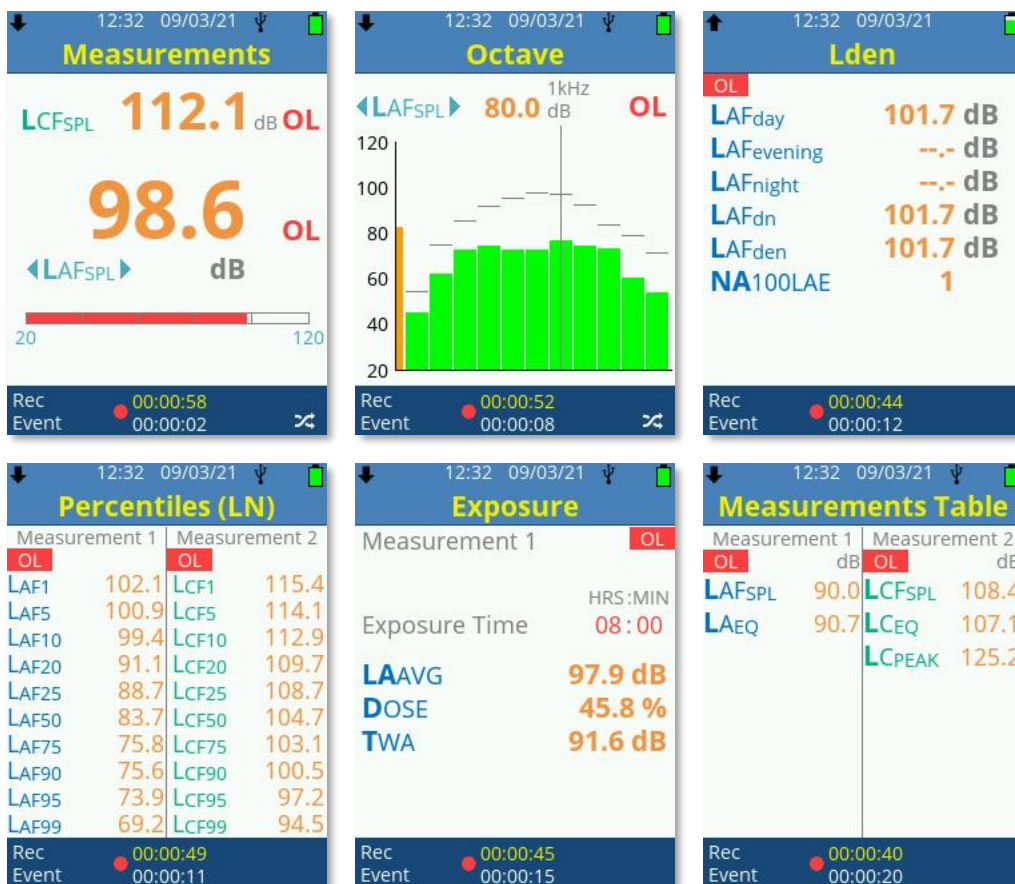
# Overload and Under Range

As mentioned in the previous General Advice section, the dBAir will register an overload if the noise level exceeds the current measurement range, and will register under range if the noise levels are too low for the current range. On either of these occasions, the dBAir will display this on your screen.

For overload this is displayed as **OL** in bold red lettering or inside a red box. Under range is similarly displayed however shows **UR**.

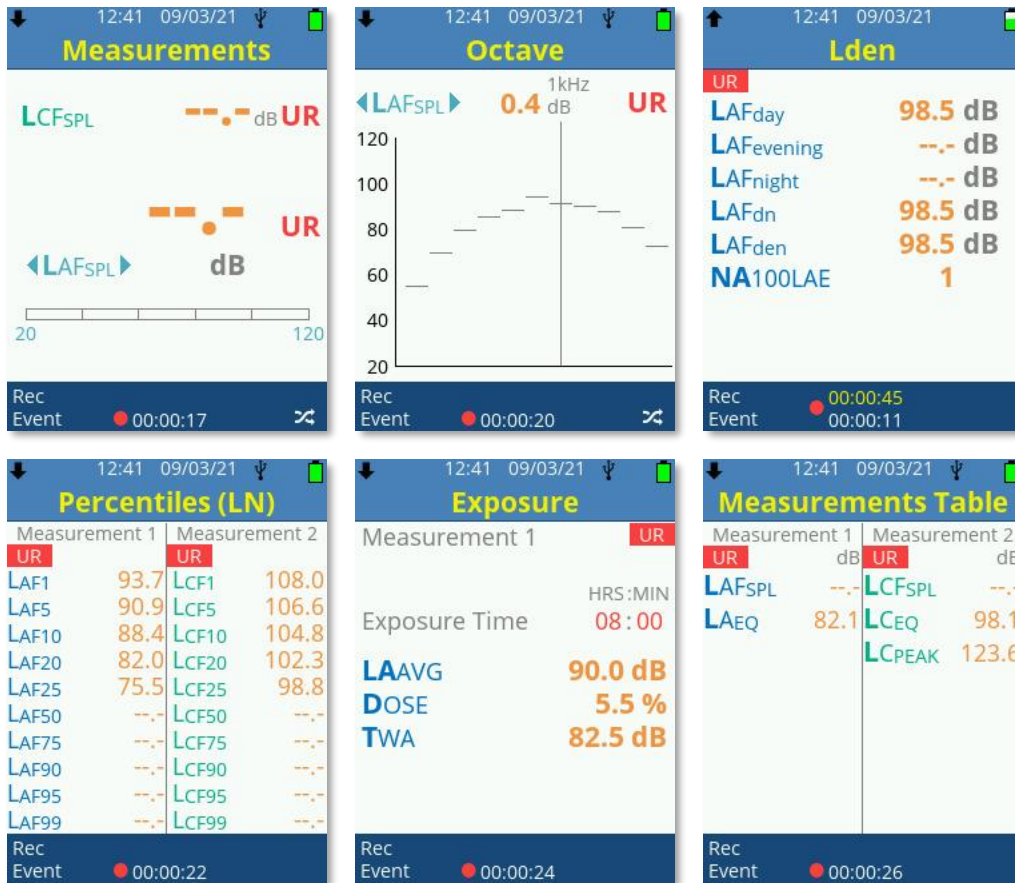
Both OL and UR indicators can always be found in the same place on each measurement screen, as shown below.

## Overload Indicator



To comply with legislation, the overload indicator is latched for time averaged or sound exposure levels until the measurement is reset.

# Under Range Indicator



Some measurement screens shown above for Overload and Under Range may not be available on your instrument, depending on your model, template selected or exposure legislation settings.

# Chapter 5

## Getting Started

This user manual is written for all models of the dBAir sound level meter. Some parameters and features may not be available for your specific model.

Please review your model in the **dBAir Models & Features** to determine which parameters and features are available where required.

## Keypad Layout

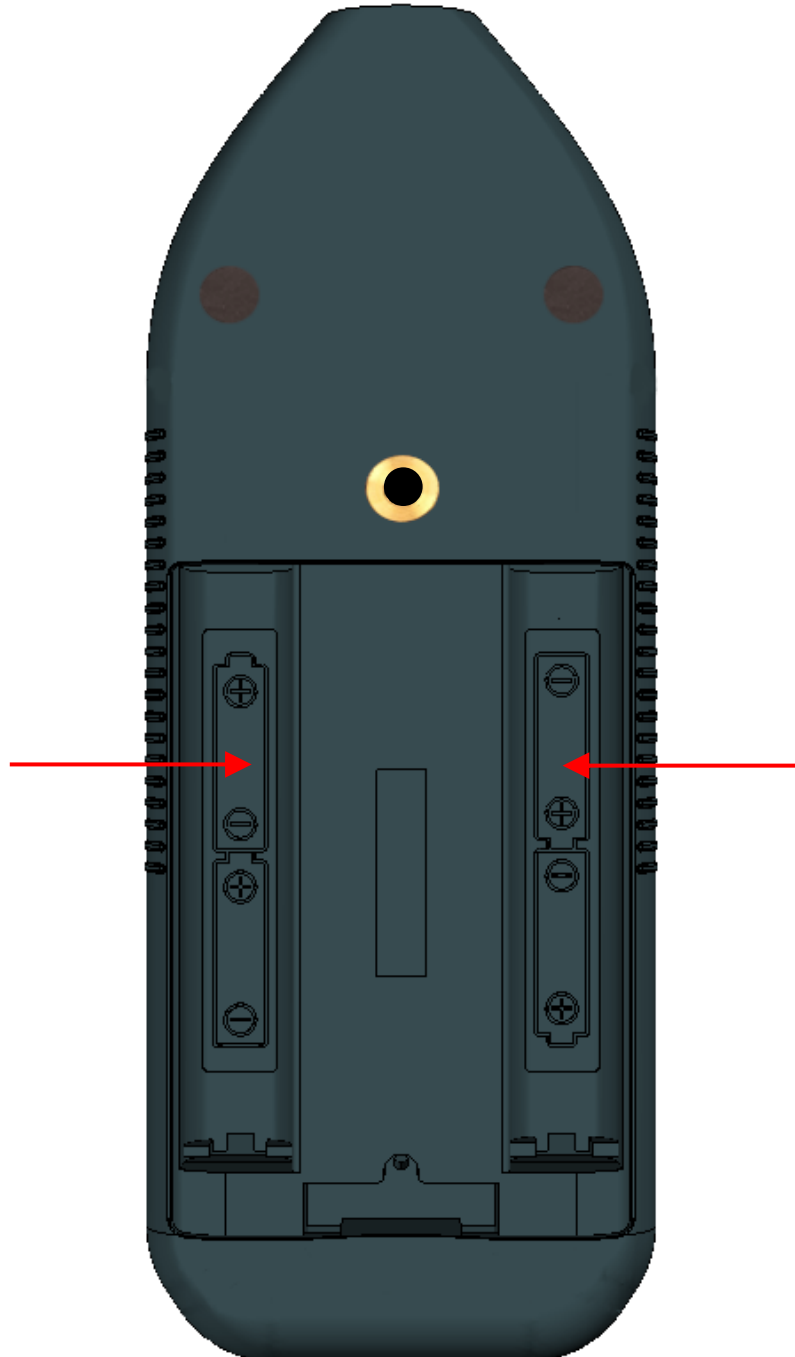
All models of the dBAir sound level meter have the same keypad layout and operation.



# Powering Your dBAir Sound Level Meter

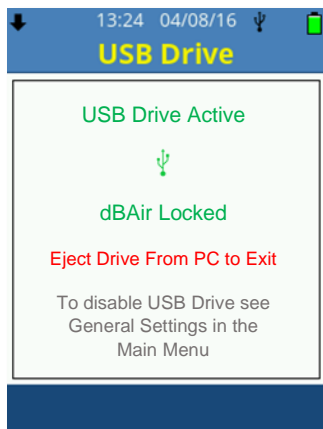
Your dBAir sound level meter can be powered from four 1.5V AA size batteries, or the micro-USB connector via a USB port or power supply capable of delivering  $>0.5A$ .

The battery compartment is located at the rear of your Vibration meter, remove the battery door and insert the batteries using the correct polarity which is shown where the batteries are fitted and indicated in the image below: -



Replace the battery door securely before using the instrument.

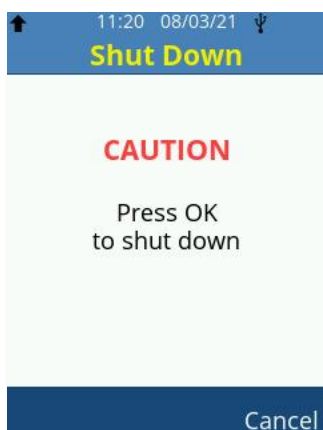
Whilst powering the instrument using the USB cable, you may be shown the following screen: -



This screen will disappear when the instrument verifies that the USB is providing power only and is not connected to a PC. This option can be disabled, see **General Settings, USB Drive** for more information.

In all power configurations press the **Power Key** once to switch the instrument on. The instrument will take several moments to boot and load configuration settings.

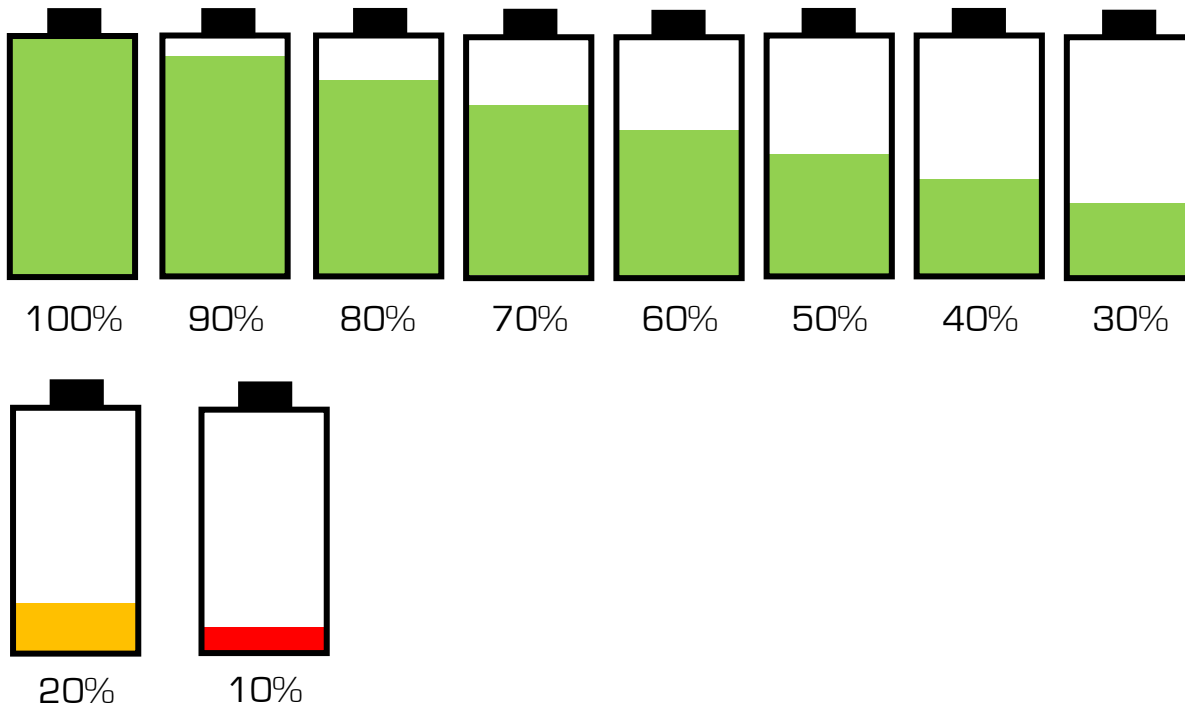
To switch the instrument off, hold the **Power Key** down for two seconds and follow the on-screen instructions, note that if no key is pressed within two minutes of switching the sound level meter on then the unit will automatically power down.



# Battery Level Indicator

---

The dBAir meter is equipped with an approximate multi-level battery indicator as shown below: -



At approximately 5% charge the battery indicator will flash, if the batteries are not replaced the unit will automatically shut down and save the recording if necessary.

---

csv files are not saved if power failure occurs.


















It is possible that large data files will also not be saved correctly in the event of power failure.

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# Instrument Icons

Several icons are used on the dBAir sound level meter to easily identify the functionality or useful settings of the instrument: -

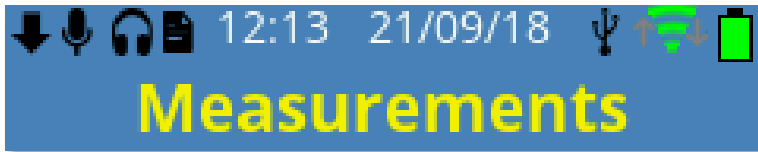
	Low Measuring Range Active
	High Measuring Range Active
	User Template Active
	Voice Memo Recorded (Flashes whilst recording)
	* Noise Event Recorded (Flashes whilst recording)
	USB Active
	WiFi - Error with Connection
	WiFi Connected / Signal Strength
	Downloading Data via WiFi from TheCastleCloud Software
	Uploading Data via WiFi to TheCastleCloud Software
	Uploading to & Downloading from TheCastleCloud Software
	Battery Charge
	Recording Data Active
	Recording Data Stopped
	File Review Active

\*Where option fitted

# Icon Location

---

The top light blue bar on your dBAir instrument displays most of the information icons, the current time, date and the current screen selected: -



The bottom dark blue bar will display the Record, File Review or Stop symbols in a similar position to the image shown below. Note that the image below may have different text to those on your display: -

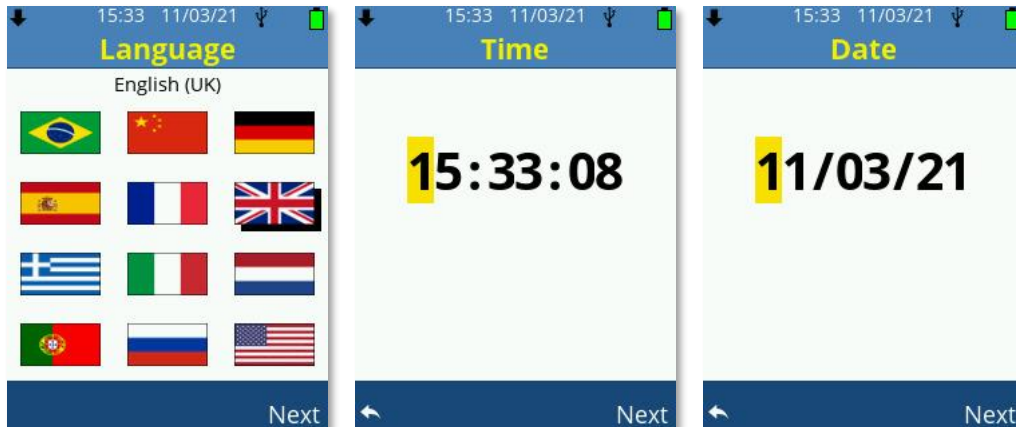




# Chapter 6

## First Time Setup

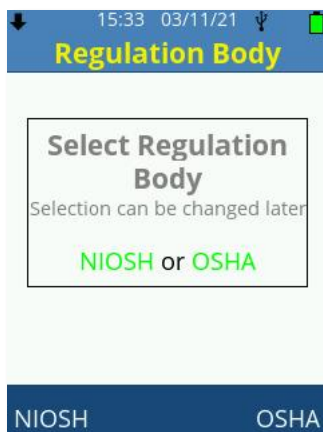
When powering on your meter for the first time, the instrument will take you through a number of windows prompting you to confirm some basic settings.



Choose your Language, Time & Date settings by using the **Up**, **Down**, **Left** and **Right** arrow keys to change the selection, confirm by using **Soft Key 2** on each window.

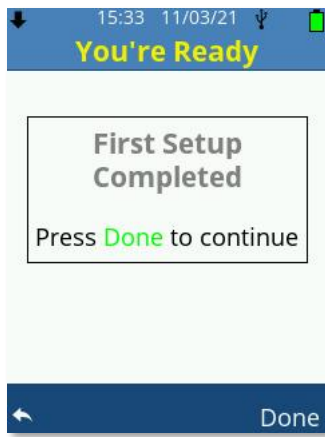
Return to the previous screen at any time by pressing **Soft Key 1**.

If the chosen language is English (US) then you will now be shown the following: -



Use **Soft Key 1** to pre-select exposure settings for NIOSH legislation or **Soft Key 2** to pre-select exposure settings for OSHA legislation. The options can be changed later.

You are then shown the following: -



Choose **DONE** by pressing **Soft Key 2** when you're happy with your selection.

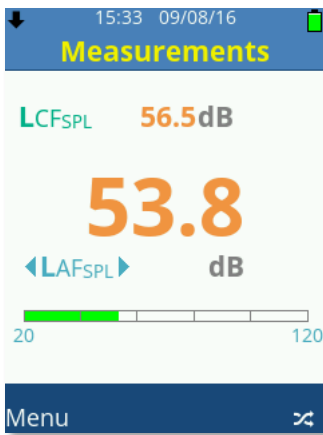
# Using Your dBAir

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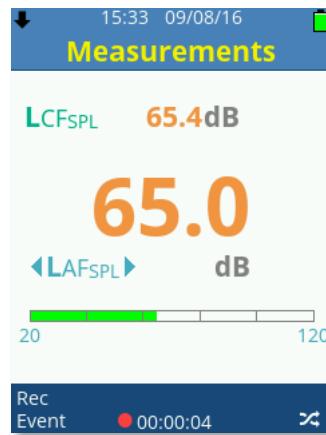
The dBAir sound level meter has three primary operational modes, these are: -

- Real Time
- Recording
- File Review

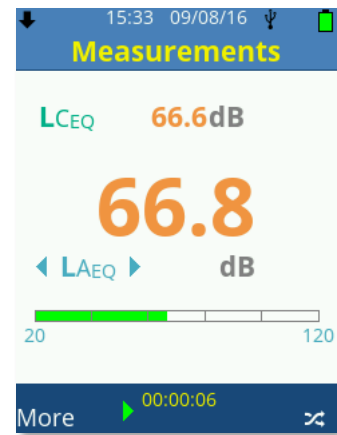
Each can be quickly identified by viewing the bottom bar, Real Time has no icon, Record has a standard red record symbol and File Review has a standard green play symbol: -



Real Time



Record



File Review

## Real Time

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This is the standard mode of operation for your dBAir sound level meter.

The menu system can be accessed whilst in real time mode and the instrument settings changed if required.

Measurement screens are accessible but not all parameters all available whilst real time mode is active.

It is possible to reset parameters in real time mode by quickly pressing the **Power** Key, note that when Screen Shot is enabled the **Power** key cannot be used to reset parameters.

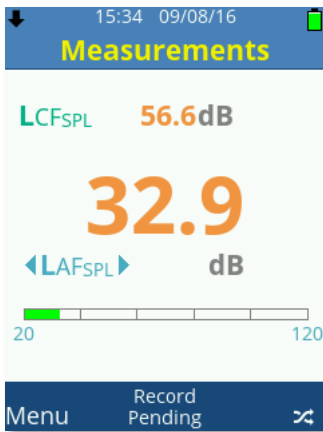
File Review or Recording a data file can both be achieved through real time operation.

# Recording

Recording data is achieved by pressing the **Record** key.

The settings for the recording are all made under **Measurement Settings, Data Recording**.

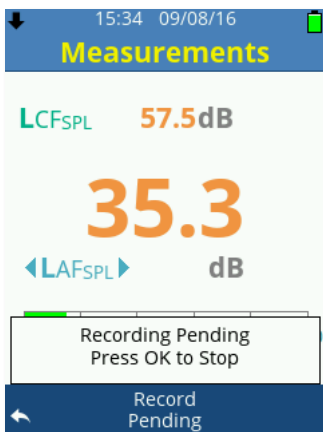
If **Smart Timers** or **Start On** have been selected, then the instrument may show Record Pending: -



This indicates that a recording is scheduled to start at the specific time or date set.

**DO NOT** switch off the instrument as the recording will not take place whilst the instrument is off.

To stop a pending recording press the **Stop** key whilst in any measurement screen: -



Press the **OK** key to stop the recording or **Soft Key 1** to cancel the stop request.

# Recording Screen Display

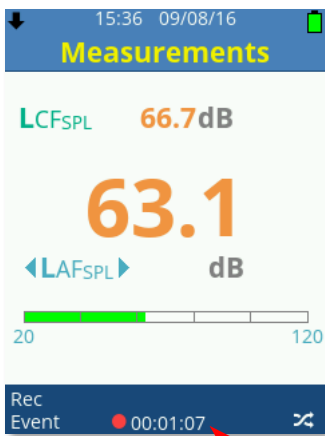
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The settings made under Data Recording will affect the information and how its displayed on your dBAir instrument.

## Time History Disabled

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If Time History is not enabled for the recording, the bottom bar will only indicate the elapsed recording time: -

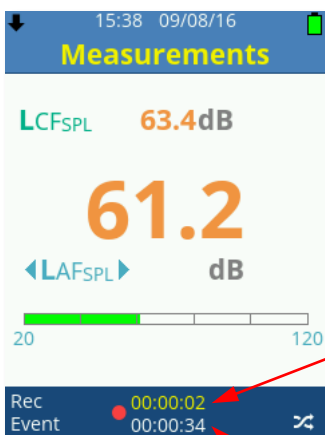


Elapsed Recording Time

## Time History Enabled

---

When Time History is enabled for the recording, the bottom bar will display the elapsed recording time and the current long interval countdown time: -



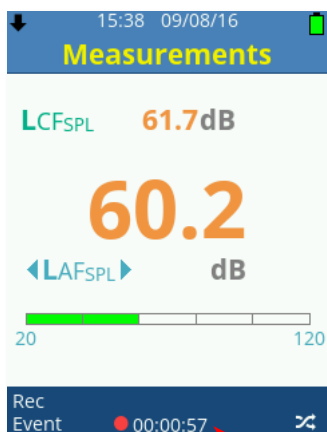
Long Interval Countdown Time

Elapsed Recording Time

## Time History Disabled, Duration Timer Set

---

When Time History is disabled for the recording but the Duration Timer is enabled, the bottom bar will only display the remaining recording time: -

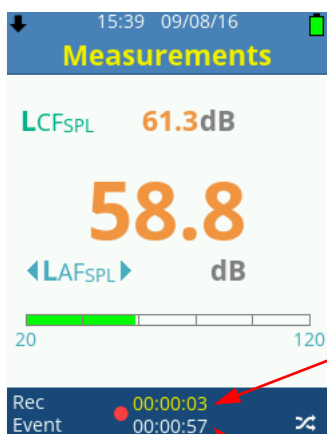


Remaining Recording Time

## Time History Enabled, Duration Timer Set

---

When both Time History and Duration Timer are enabled for the recording, then the bottom bar will display the remaining recording time and the current long interval countdown time: -



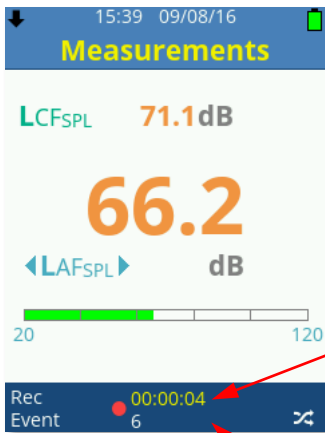
Long Interval Countdown Time

Elapsed Recording Time

## Time History Enabled, Interval Timer Set

---

When both Time History and Interval Timer are enabled for the recording, then the bottom bar will display the remaining interval timer repeats and the current long interval countdown time: -



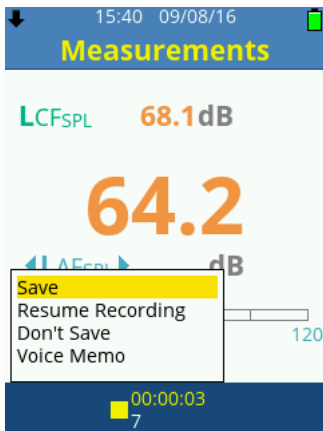
Long Interval Countdown Time

Remaining Interval Timer Repeats

# Stopping an Active Recording

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Pressing the **Stop** key during an active recording will display a Yellow standard stop symbol to indicate the recording has been temporarily halted and will also display the available options: -



Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose from the following: -

- Save
- Resume Recording
- Don't Save
- Voice Memo

## Save

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Select Save to save the recording using either manual or auto file naming as selected.

See **Auto File Naming** and **Manual File Naming** for further details.

## Resume Recording

---

Select Resume recording to continue with the data recording, data will not be including during the time period that the recording was halted.

## Don't Save

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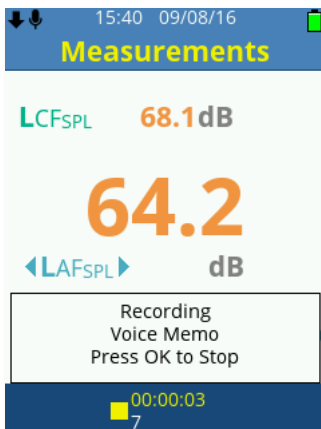
Select Don't Save to return to Real Time mode without saving the current recording.



## Voice Memo

---

Select Voice Memo to attach a voice memo audio recording to the current data recording.



Press the **Stop** key to stop the voice memo audio recording and return to the available options.

# File Review

---

The settings that were made under Data Recording will affect the information and how its displayed on your dBAir instrument.

Use the **Up** or **Down Arrow** keys to scroll measurement screens or the **Left** or **Right Arrow** keys to scroll measurement parameters.

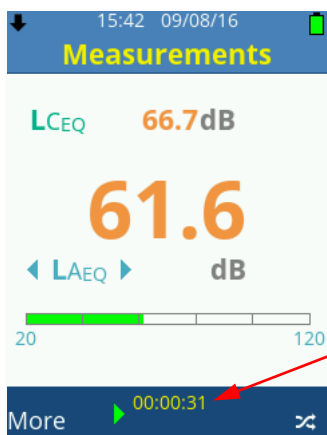
Use **Soft Key 2** to swap between measurement 1 or measurement 2 and Long Interval selection if Interval Timers have been used.

Use the **Left** or **Right Arrow** keys to scroll parameters and Long Interval selection if Interval Timers have been used.

## Time History Disabled

---

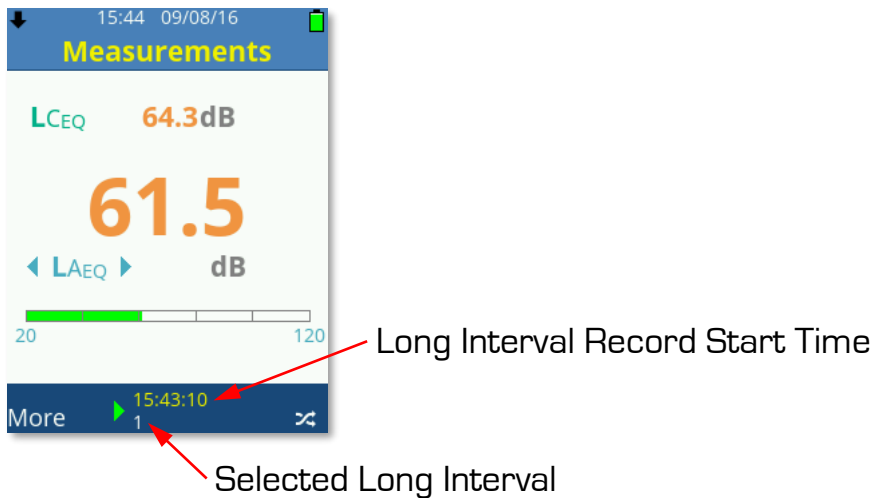
If Time History had not been enabled for the recording, the bottom bar will only indicate the total recording time: -



Total Record Time

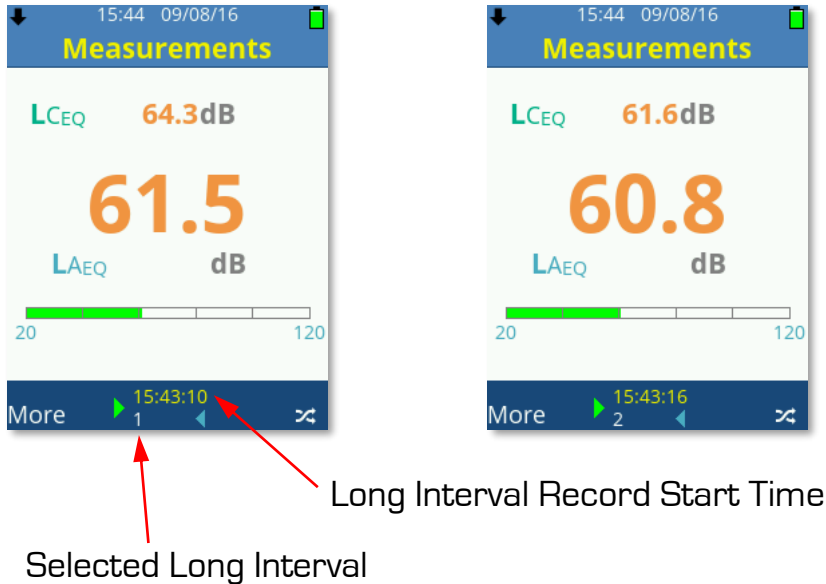
# Time History Enabled

If Time History had been enabled for the recording, the bottom bar will display the selected long interval and the time this long interval started recording: -



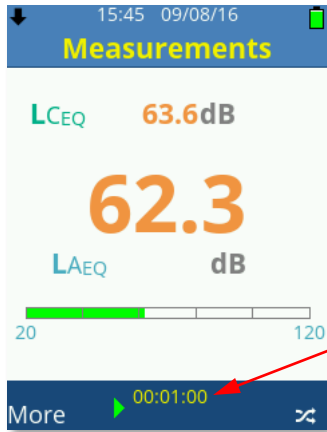
With the Long Interval Selected, use the **Left** or **Right Arrow** keys to scroll and select any of the Long Interval periods.

Use **Soft Key 2** to swap between measurement 1 or 2 and view data as required for any Long Interval period.



# Time History Disabled, Duration Timer Set

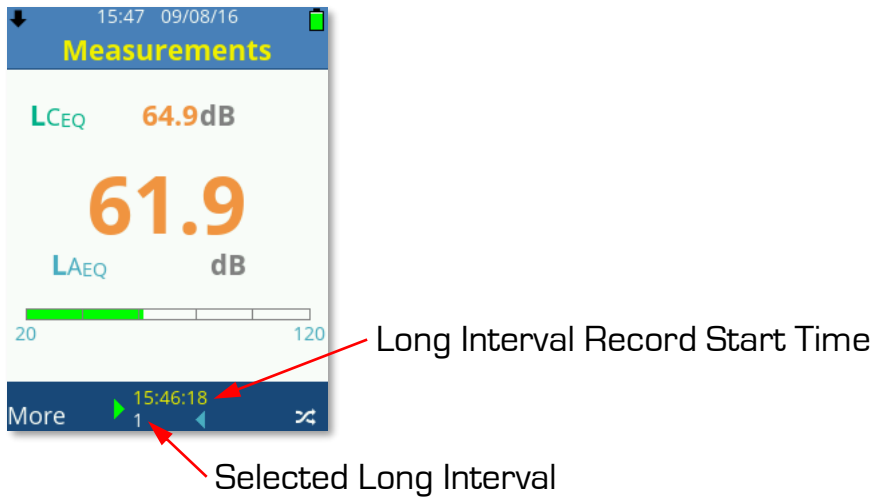
If Time History had not been enabled for the recording but the Duration Timer has, the bottom bar will only indicate the total recording time: -



Total Record Time

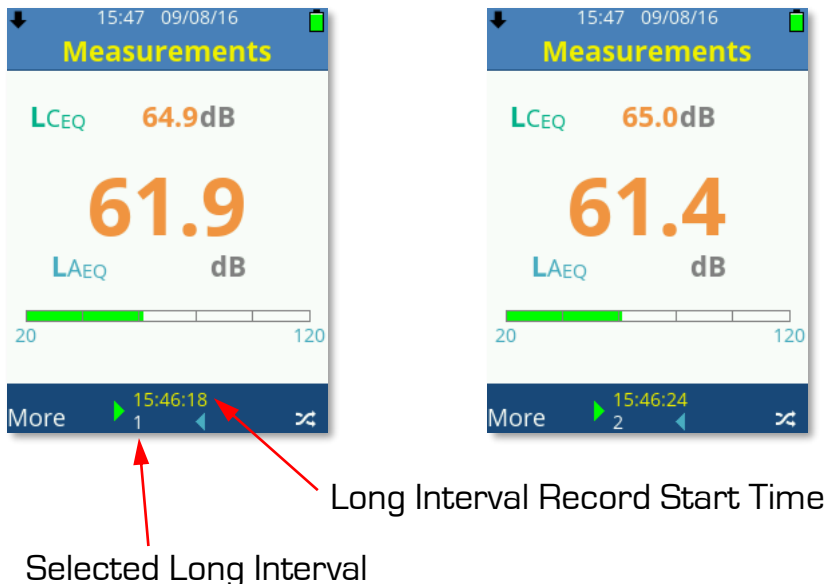
# Time History Enabled, Duration Timer Set

When both Time History and Duration Timer were enabled for the recording, then the bottom bar will display the remaining recording time and the current long interval countdown time: -



With the Long Interval Selected, use the **Left** or **Right Arrow** keys to scroll and select any of the Long Interval periods.

Use **Soft Key 2** to swap between measurement 1 or 2 and view data as required for any Long Interval period.



# Time History Enabled, Interval Timer Set

When both Time History and Interval Timer were enabled for the recording, then the bottom bar will display the selected Long Interval record start time and the selected Interval Timer Repeat: -

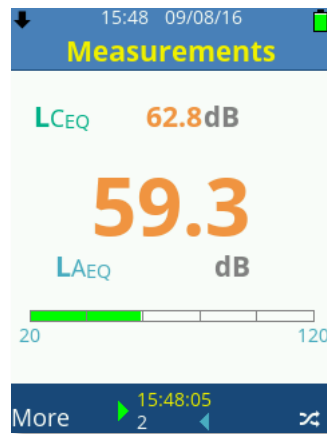


Long Interval Record Start Time

Selected Interval Timer Repeat

With the Long Interval Selected, use the **Left** or **Right Arrow** keys to scroll and select any of the Long Interval periods.

Use **Soft Key 2** to swap between measurement 1 or 2 and view data as required for any Interval Timer Repeat.



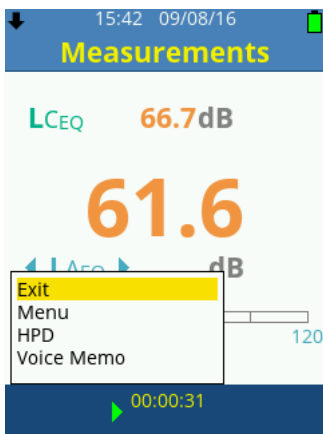
Long Interval Record Start Time

Selected Long Interval

# File Review Options

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During File Review, press Soft Key 1 to display the available options: -



Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose from the following: -

- Exit
- Menu
- HPD
- Voice Memo

## Exit

---

Select Exit to quit File Review mode and return to Real Time mode.

## Menu

---

Select Menu to access the menu system of the dBair sound level meter, the File Review mode remains active.

## HPD

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Access the Hearing Protector Database using the file open in File Review.

## Voice Memo

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Select Voice Memo to attach a voice memo audio recording to the current data recording.

Press the **Stop** key to stop the voice memo audio recording and return to the available options.

# Chapter 7

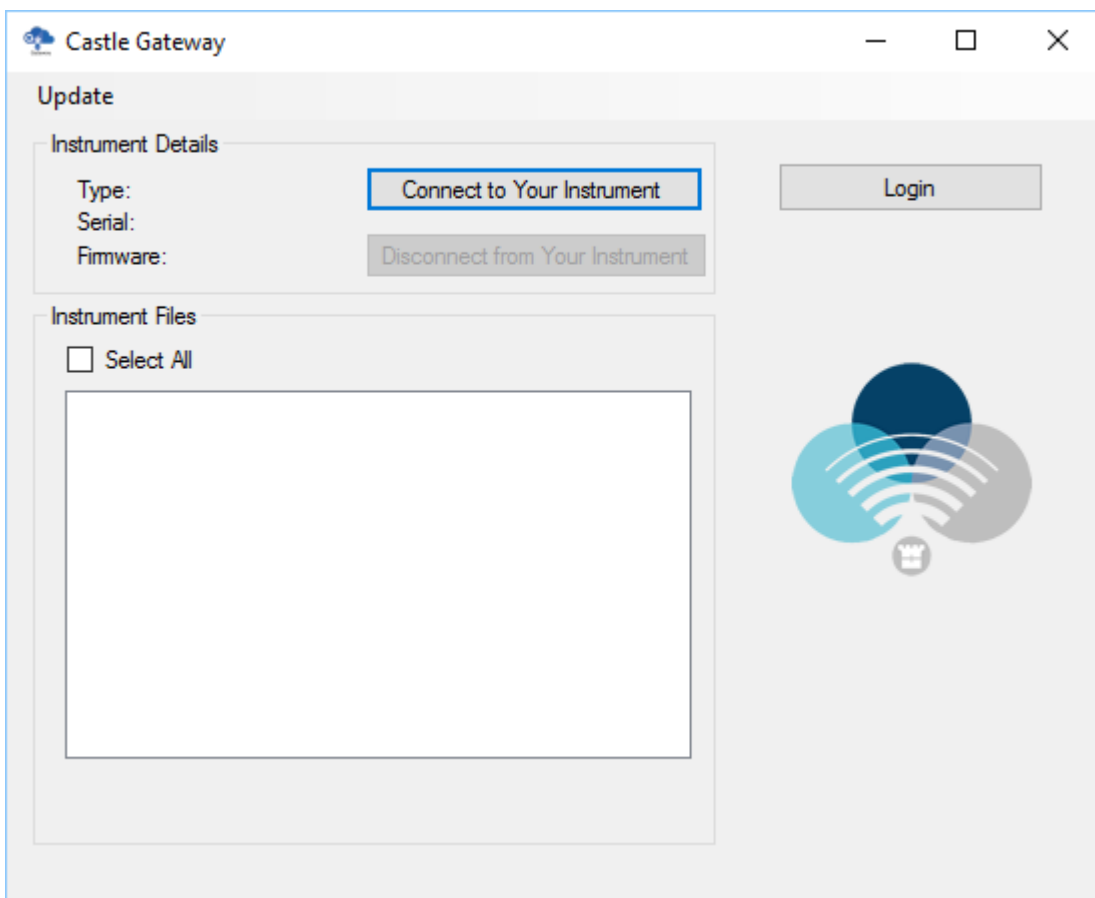
## TheCastleCloud Gateway

The Castle Gateway app allows you to upload your recordings via your PC using the included Micro USB Cable and your PC's internet connection. You can also update your instruments software as and when required. An alert in The Castle Cloud will inform you when updates are available.

The Gateway app can be downloaded from [TheCastleCloud.com](http://TheCastleCloud.com) and installed on any computer.



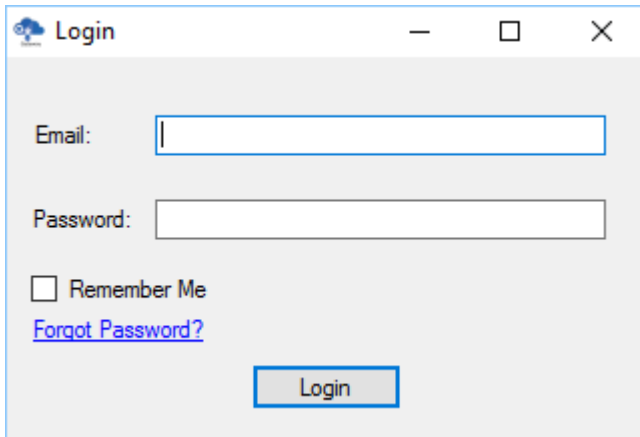
Double click the launch icon  to run the application: -





# Logging In

With the Castle Gateway application open, login to your CastleCloud account by clicking on the **Login** button: -

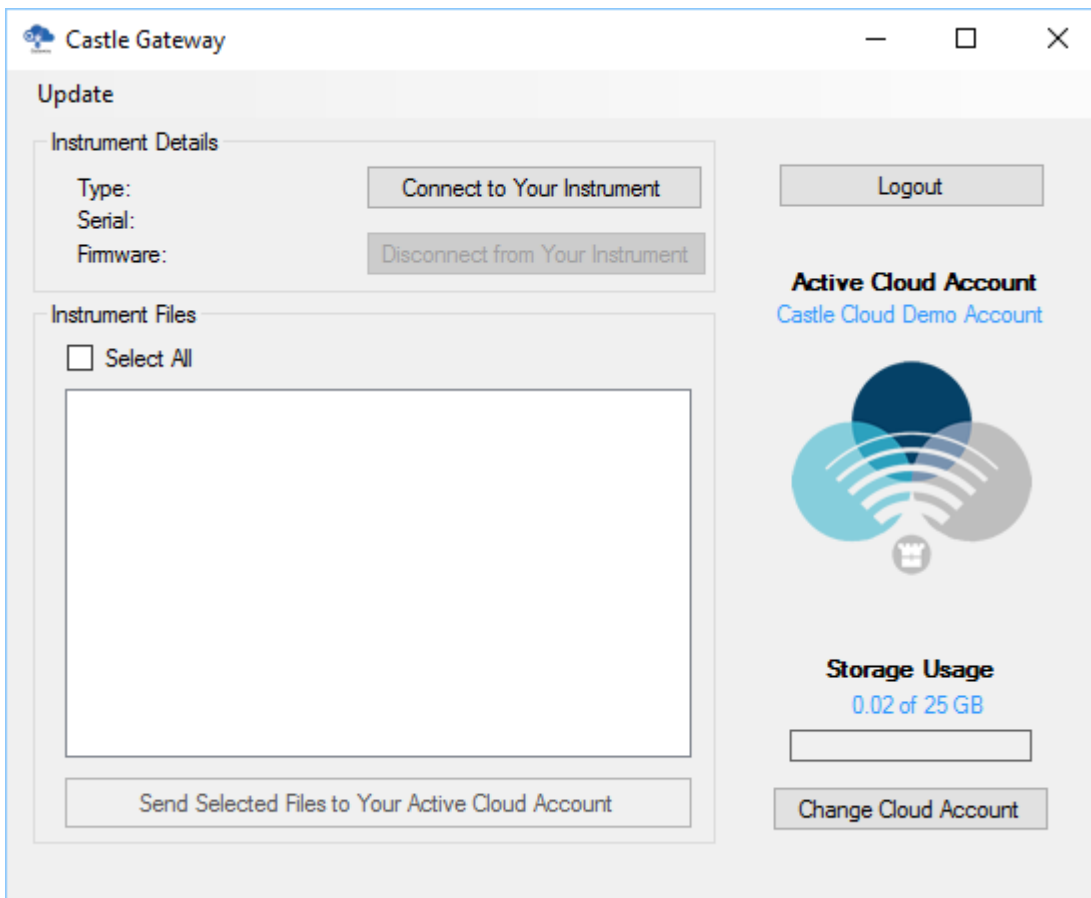


The screenshot shows a window titled "Login" with a standard Windows title bar (minimize, maximize, close). The window contains the following elements:

- An "Email:" label followed by a text input field.
- A "Password:" label followed by a password input field.
- A checkbox labeled "Remember Me".
- A blue hyperlink labeled "Forgot Password?".
- A "Login" button at the bottom center.

Enter your login details and if required tick **Remember Me** to save your login details.

Click the **Login** Button to login using the details provided. Once logged in successfully the active account will be shown: -



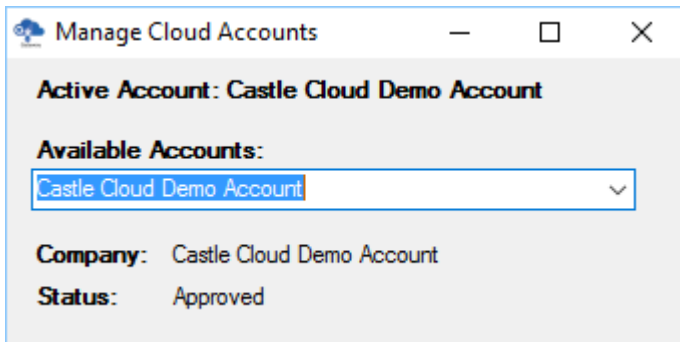
The screenshot shows the main interface of the "Castle Gateway" application. The window title is "Castle Gateway". The interface is divided into several sections:

- Update**: A section at the top left.
- Instrument Details**: A panel containing fields for "Type:", "Serial:", and "Firmware:". To the right of these fields are two buttons: "Connect to Your Instrument" and "Disconnect from Your Instrument".
- Instrument Files**: A panel below "Instrument Details" containing a "Select All" checkbox and a large empty rectangular area. Below this area is a button labeled "Send Selected Files to Your Active Cloud Account".
- Logout**: A button located in the top right area of the main interface.
- Active Cloud Account**: A section showing the current account as "Castle Cloud Demo Account". It features a circular logo with a Wi-Fi symbol and a small "YAW" icon below it.
- Storage Usage**: A section showing "0.02 of 25 GB" with a progress bar below it. A "Change Cloud Account" button is located below the progress bar.

# Change Account

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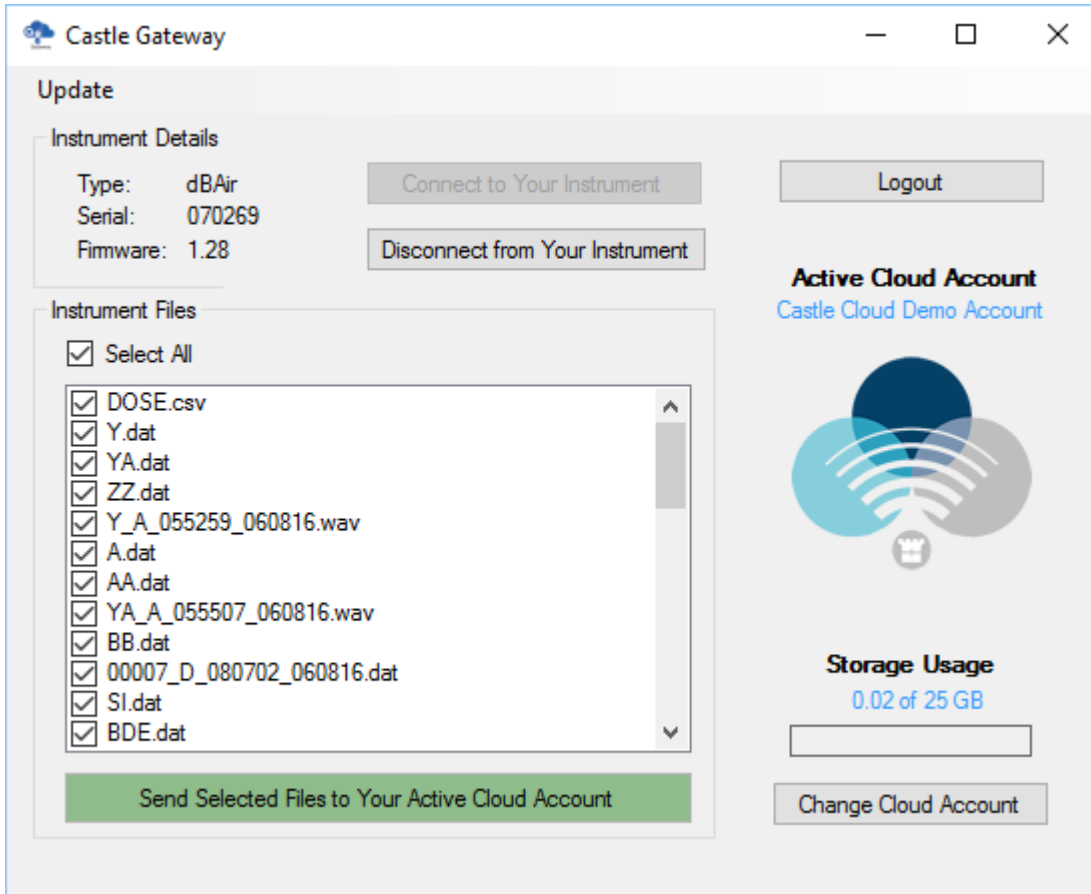
If multiple accounts are held then click on the **Change Cloud Account** button and select the required account: -



# Connect to dBAir

Ensure the dBAir sound level meter is switched on and attach the supplied USB cable to the sound meter and your PC. Your PC must also be connected to the internet.

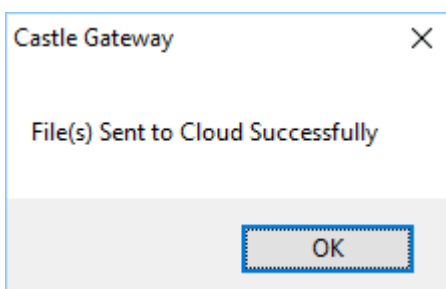
USB Drive must be activated to allow the gateway application access to your dBAir sound meter, see USB Drive for more details if required: -



A list of all files that can be sent to your CastleCloud account will be displayed within the application.

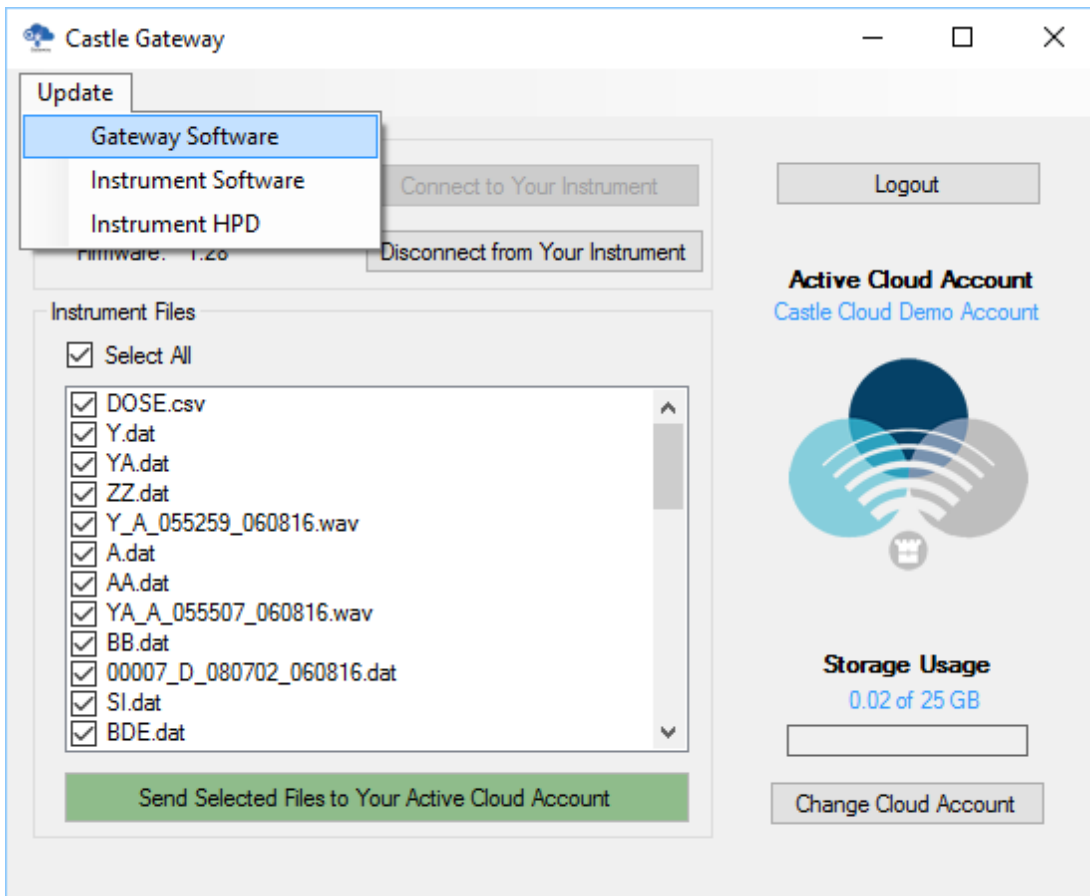
Select the file(s) that you wish to send and then click on the **Send Selected Files to Your Active Cloud Account** button.

All selected files will then be uploaded and viewable online through your CastleCloud account.

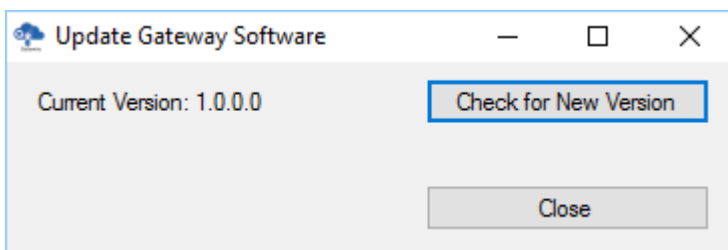


# Update Gateway Software

Select **Update** and then **Gateway Software**: -



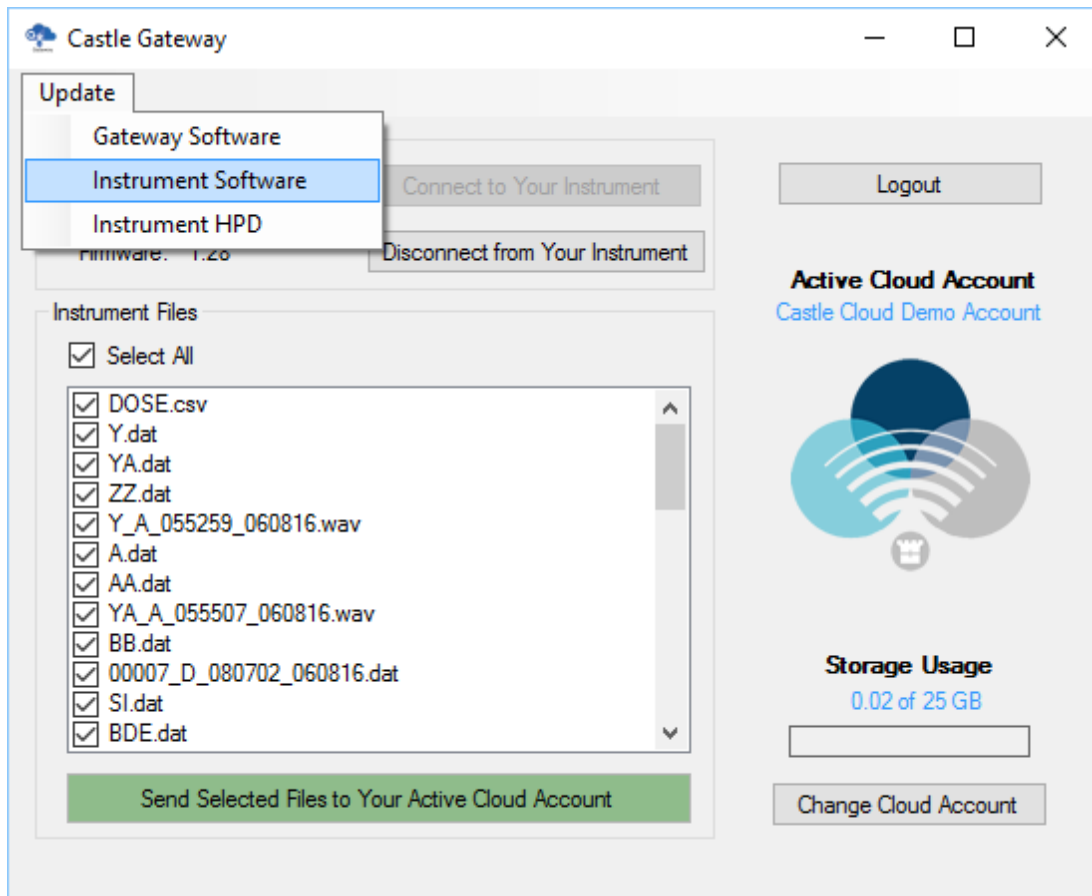
The current Gateway Software version is displayed: -



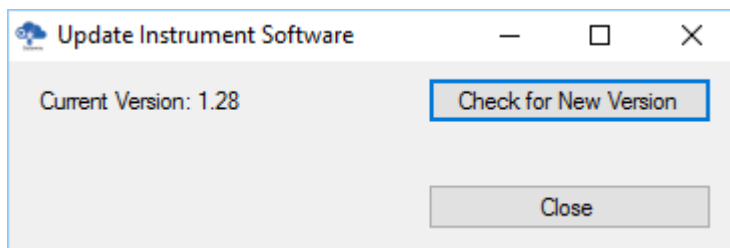
Click on **Check for New Version** to check TheCastleCloud.com for updated software and follow on screen prompts as required.

# Update Instrument Software

Select **Update** and then **Instrument Software**: -



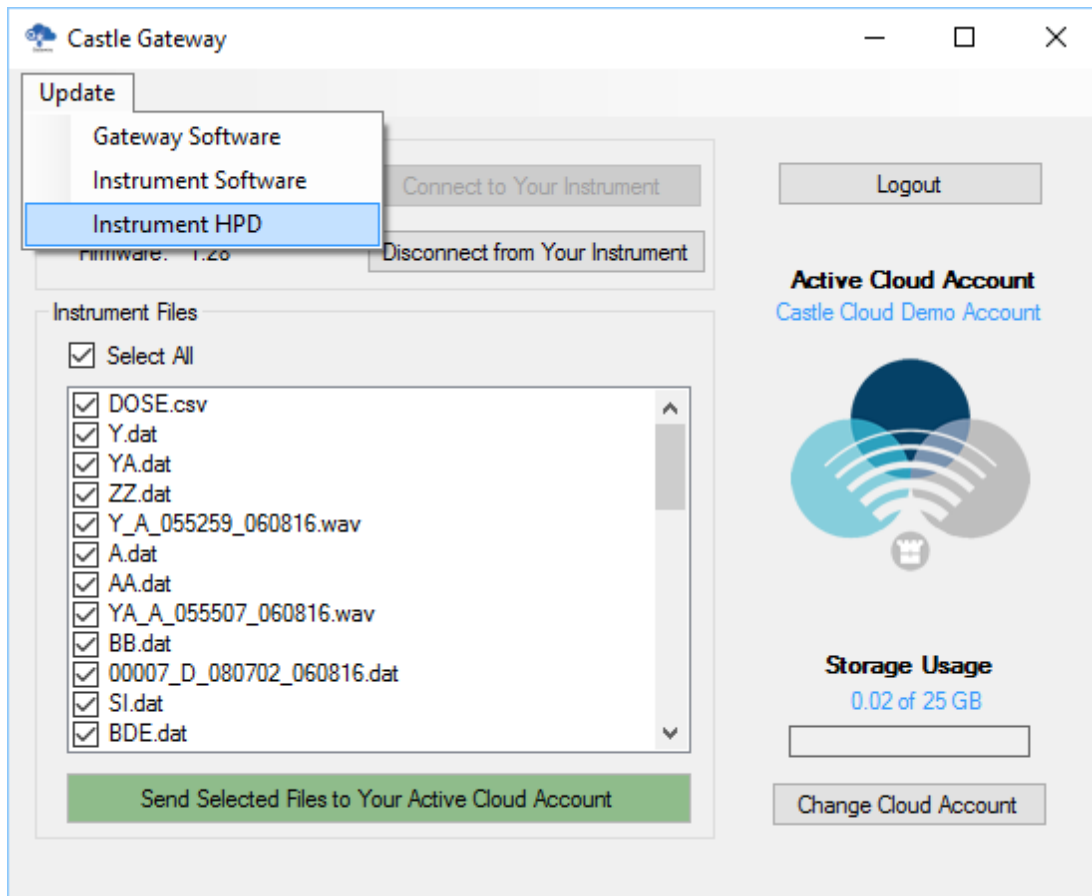
The current Instrument Software version is displayed: -



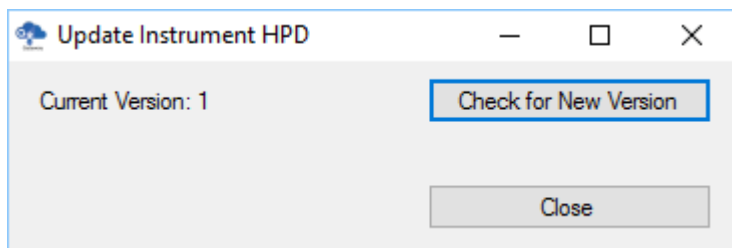
Click on **Check for New Version** to check TheCastleCloud.com for updated software and follow on screen prompts as required.

# Update Instrument HPD

Select **Update** and then **Instrument HPD**: -



The current Instrument HPD version is displayed: -



Click on **Check for New Version** to check TheCastleCloud.com for an updated version and follow on screen prompts as required.

# Chapter 8

## Menu Navigation & Settings

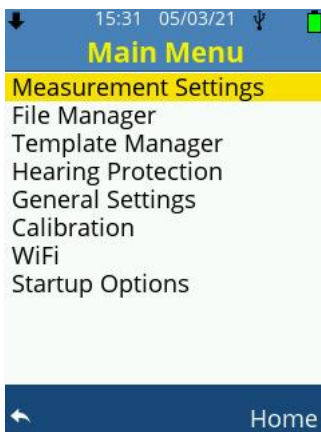
---

The Main Menu is available to all models of dBAir sound level meters and is selected using **Soft Key 1** when labelled as **Menu**.

On most screens within the dBAir menu system, **Soft Key 1** can be used to go back to the previous screen, this will be displayed using the ◀ symbol when available.

Similarly, **Soft Key 2** can be used to go back to the measurement screen, this will be displayed as **Home** when available.

The Main Menu is not available when the sound level meter is recording: -



Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose the highlighted selection.



Hold down the Directional Arrow keys to rapidly amend or scroll selections

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# Measurement Settings

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Select Measurement Settings to change how and what your sound level meter records and displays.

Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose the highlighted selection.





# Range

Your dBAir is fitted with two operating ranges named Low and High, with Range selected use the **OK** key or the **Left, Right Arrow** keys to toggle the selection.



For class 1 instruments the Low range measures linearly from 23dB to 115dB whilst the High range measures linearly from 43dB to 140dB at 1kHz.

For class 2 instruments the Low range measures linearly from 26dB to 115dB whilst the High range measures linearly from 46dB to 140dB at 1kHz.

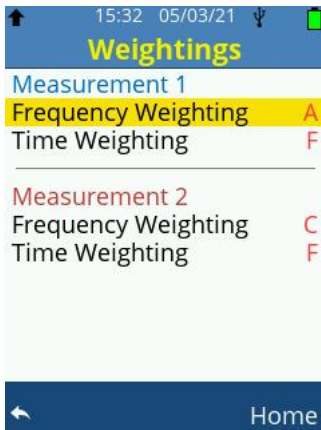
For display scaling purposes, the displayed ranges on the instrument show 20dB to 120dB for the Low range and 40dB to 140dB for the High range.

# Weightings

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Select Weightings to change the frequency and time weightings that are applied to each measurement.

Scroll through the available options using the **Up** or **Down Arrow** keys and use the **Left** or **Right Arrow** keys to amend the selection.



## Frequency Weighting

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Your dBAir sound level meter simultaneously measures sound on Measurement 1 and Measurement 2 and each can have independent Frequency Weightings applied.

Select between 'A', 'C' or 'Z' weightings.

## Time Weighting

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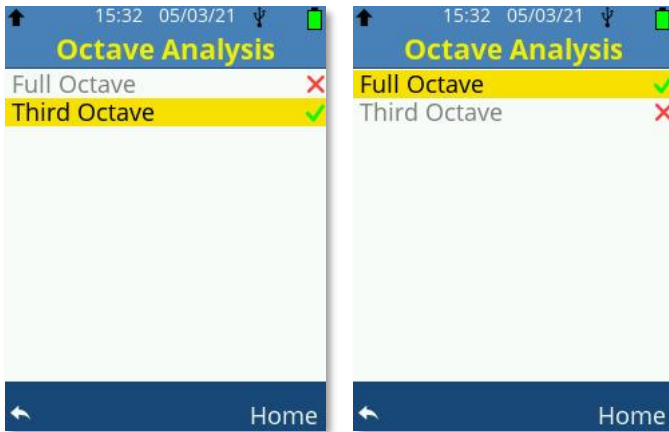
Your dBAir sound level meter simultaneously measures sound on Measurement 1 and Measurement 2 and each can have independent Time Weightings applied.

Select between 'S' - Slow, 'F' - Fast or 'I' - Impulse weightings.

# Octave Analysis

Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose the highlighted selection.

Octave band analysis does not have to be used and can be disabled as required. Only one analysis method can be selected at any time and all analysis is on Measurement One only.



## Full Octave

When Full Octave is selected, full octave band analysis is performed on measurement one and will produce the additional following parameter data for the short and long interval if used at the following frequencies: -

### Frequencies

16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz

### Short Interval

Leq, Lmin, Lmax, Lpeak, Le\*

### Long Interval

Leq, Lmin, Lmax, Lpeak, Le\*, Ln1\*, Ln2\*, Ln3\*, Ln4\*, Ln5\*, Ln6\*, Ln7\*, Ln8\*, Ln9\*, Ln10\*

*\*Where fitted, and enabled*

## Third Octave

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When Third Octave is selected, one third octave band analysis is performed on measurement one and will produce the additional following parameter data for the short and long interval if used at the following frequencies: -

### Frequencies

12.5Hz, 16Hz, 20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz, 20kHz

### Short Interval

Leq, Lmin, Lmax, Lpeak, Le\*

### Long Interval

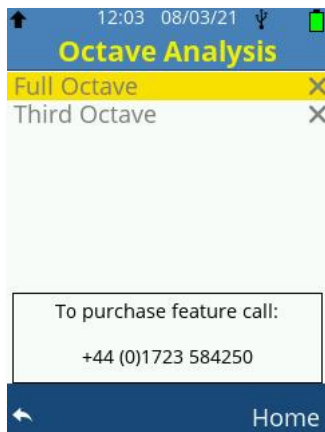
Leq, Lmin, Lmax, Lpeak, Le\*, Ln1\*, Ln2\*, Ln3\*, Ln4\*, Ln5\*, Ln6\*, Ln7\*, Ln8\*, Ln9\*, Ln10\*

*\*Where fitted, and enabled*

## Upgrade to Octave Band Analysis

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If your particular dBAir model does not have access to octave band analysis, either full octave and/or third octave, then you will be shown the screen below.



You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

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# Results Selection

Under Results Selection you can select which standard results you wish to enable. Those that are enabled are displayed on the instrument and are recorded, any that are disabled will neither be displayed nor recorded.

Scroll the available options using the directional **Arrow** keys, press **OK** to toggle the highlighted selection.



Please note that the above screen may differ to the model of dBAir sound level meter you own, an example of another model is shown below where certain parameters are not available: -



# Exposure & HPD

Under Exposure & HPD you can select which measurement channel is used for exposure calculations and which settings to use for hearing protector calculations.

Scroll the available options using the directional **Arrow** keys, and use the **Left, Right Arrow** keys to toggle the highlighted selection.



## Measurement Channel

Select which measurement channel exposure data is calculated from. The options are: -

- Measurement Channel 1
- Measurement Channel 2

## Pre-Set

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Pre-Set which legislation to use for the hearing protector calculations and which database shall be used.

### UK/EU

Select this option for requirements meeting current UK and EU legislation. Exchange Rate, Criterion, Threshold, Database and Derating are fixed as below: -

- Exchange Rate = 3
- Criterion = 85
- Threshold = Off
- Database = ISO
- Derating = Off

When UK/EU is selected the Exposure measurement screen displays and records the following parameters: -

- LEPd, DOSE (Pa<sup>2</sup>h), POINTS, POINTS/Hr

### OSHA

Select this option for requirements meeting current OSHA legislation. Exchange Rate, Criterion, Threshold, Database, Derating and Correction are fixed as below: -

- Exchange Rate = 5
- Criterion = 90
- Threshold = 80
- Database = ANSI
- Derating = 50% Reduction for Ear Plugs , 50% reduction for Ear Muffs
- Correction = Off

When OSHA is selected the Exposure measurement screen displays and records the following parameters: -

- LAVG, DOSE [%], TWA



## NIOSH

Select this option for requirements meeting current NIOSH legislation. Exchange Rate, Criterion, Threshold, Database, Derating and Correction are fixed as below: -

- Exchange Rate = 3
- Criterion = 85
- Threshold = 80
- Database = ANSI
- Derating = 50% Reduction for Ear Plugs , 25% reduction for Ear Muffs
- Correction = Off

When NIOSH is selected the Exposure measurement screen displays and records the following parameters: -

- LAVG, DOSE [%], TWA

## Custom

Select this option to configure each setting individually.

- Exchange Rate = 3, 4, 5, 6
- Criterion = 70, 75, 80, 85, 90, 95
- Threshold = Off, 70, 75, 80, 85, 90, 95
- Database = ISO, ANSI
- Derating = Off, OSHA, NIOSH

When Custom is selected the Exposure measurement screen displays and records the following parameters: -

- LAVG, DOSE [%], TWA

## Correction

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The Health & Safety Executive (HSE) correction of 4dB can be applied to the hearing protector calculations.

Use the Left or Right Arrow keys to toggle the selection: -

- Off
- 4dB

## Standard Deviation

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The quantity of applied manufacturer Standard Deviations can be amended using the **Left, Right Arrow** keys between: -

- Off
- 1
- 2

## Upgrade to Exposure & HPD

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If your particular dBAir model doesn't have access to Exposure data, then you will be shown the screen below.



You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

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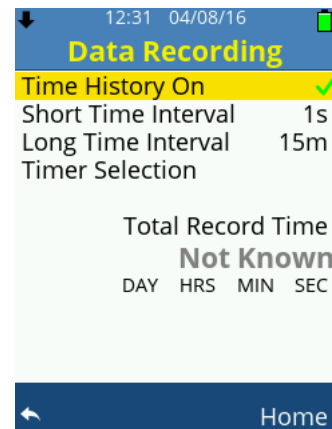
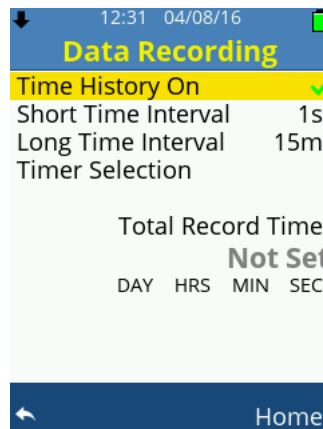
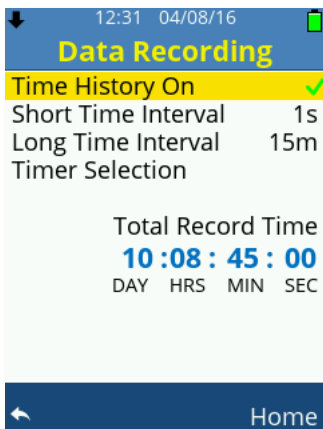
# Data Recording

Select Data Recording to determine if the data recording should contain a time history and if used which time interval periods are to be used.

The instrument records over the time periods determined by the Time History settings in conjunction with the settings made within the Timer Selection or by the user manually stopping the recording.

If a recording period can be calculated by the instrument this will be shown as the Total Record Time

Selections made within the Timer Selection where the instrument can calculate the record time, this will be shown on the Data Recording screen as the Total Record Time. If no settings are made with Timer Selection, then **Not Set** will be shown and if calculations of the record time can't be made then **Not Known** will be shown.



Scroll the available options using the **Up** or **Down Arrow** keys.

Press **OK** or the **Left, Right Arrow** keys to toggle Time History On.

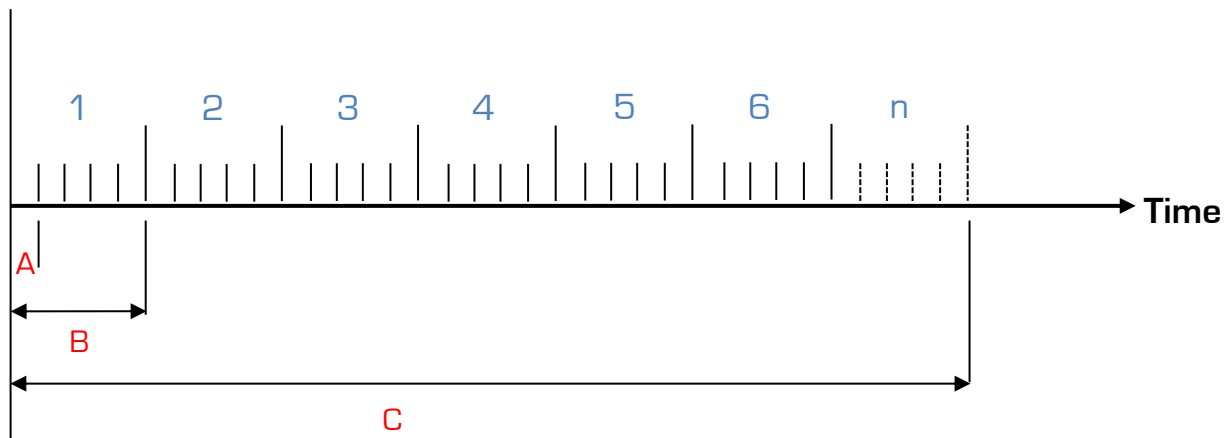
Use the **Left** or **Right Arrow** keys to amend the values for Short Time Interval and Long Time Interval.

Press the **OK** key to select Timer Selection.

## Time History On - Enabled

---

When Time History On is enabled the dBAir sound level meter will simultaneously and independently record data at the selected Short and Long Time Interval Settings.



### Start of Recording

Where: -

- **A** = Short Time Interval
- **B** = Long Time Interval
- **C** = Interval Timer, Smart Timer or Duration Timer, Total Measurement Length

**Note:** Long Time intervals do not have to be multiples of the Short Time interval.



Only calculations over the Long Time Interval are displayed on screen

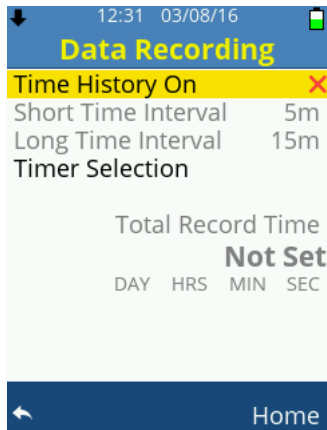
---

## Time History On - Disabled

---

If Time History On is disabled, then all data recordings made will not contain any Time History data and the Short and Long Time Interval settings become unavailable.

In this case, you will just get one set of measurements over the total measurement time.



## Short Time Interval

---

When Time History On is enabled, each recording will calculate data over the Short Time Interval selected.

The available options for the Short Time Interval are as follows: -

- 10ms, 100ms, 200ms, 500ms, 1 to 59s, 1 to 60m

If timers are used, then non-cumulative data is reset at the start of each Short Interval period.



Calculations over the Short Time Interval are not displayed on screen

---

## Long Time Interval

---

When Time History On is enabled, each recording will calculate data over the Long Time Interval selected.

The available options for the Short Time Interval are as follows: -

- 1 to 59s, 1 to 59m, 1 to 24Hr

If timers are used, then non-cumulative data is reset at the start of each Long Interval period.



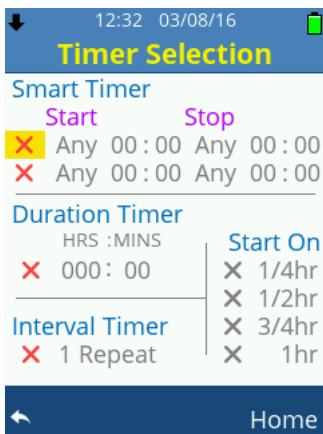
Calculations over the Long Time Interval are displayed on screen if used

---

## Timer Selection

---

Choose Timer Selection to set the overall automatic recording length.



Scroll the available options using the **Up** or **Down Arrow** keys.

Press **OK** to toggle the selected option On/Off.

Only one of the following options can be enabled at any time: -

- Smart Timer
- Duration Timer
- Interval Timer

With the option enabled, use the **Left** or **Right Arrow** keys to move and highlight the selection to change. Use the **Up** or **Down Arrow** keys to amend the selection.



Time History needs to be enabled to use Interval Timer Repeat

---

## Smart Timer

The dBAir sound meter allows the use of two simultaneous Smart Timers where the user can select the Start/Stop day and the Start/Stop times.

Smart Timers can be used with or without Time History enabled.

The settings can be amended as shown below: -

### Start: (Day, Hours, Minutes)

- Day: Any, Mon, Tue, Wed, Thu, Fri, Sat, Sun
- Hours: 00 to 23
- Minutes: 00 to 59

### Stop: (Day, Hours, Minutes)

- Day: Any, Mon, Tue, Wed, Thu, Fri, Sat, Sun
- Hours: 00 to 23
- Minutes: 00 to 59

---

The Data Recording screen shows the Total Record Time if Day is not set to Any



Timer will not be started until the **Record** key is pressed whilst in the measurement screen

**THE INSTRUMENT HAS TO BE ON FOR ANY TIMER TO OPERATE**

---



## Duration Timer

The Duration Timer allows the user to manually enter the total recording time and can be used with or without Time History enabled.

The settings can be amended as shown below: -

- 000 to 999 HRS, 00 to 59m



The option Start On becomes available if Duration Timer is enabled

---

## Interval Timer

The Interval Timer is only available when Time History On is enabled and allows the user to select how many times to repeat the Long Time Interval.

The total recording time is hence the Long Time Interval \* Repeat Selection

The repeat setting can be amended as shown below: -

- 1 to 1000



The option Start On becomes available if Interval Timer is enabled

---

## Start On

If required, the instrument can be set to start recording on the next Time Marker that is enabled for Start On.

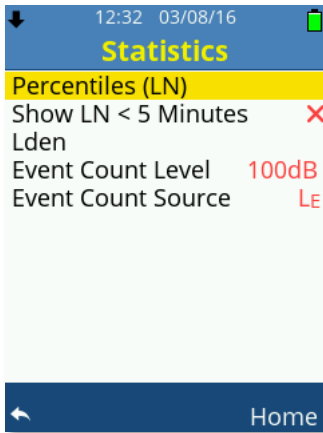
Example: If the current time is 9.10am and the Start On 15m is enabled then after the user presses the record button the recording will only start at 9.15am.

# Statistics

---

Select Statistics to determine if the data recording should contain statistical data which may be useful for environmental applications.

Statistics are only available to instrument models fitted with this feature.



Scroll the available options using the **Up** or **Down Arrow** keys.

Press the **OK** key to select Percentiles [LN] or Lden.

Press **OK** or the **Left, Right Arrow** keys to toggle Show LN < 5 Minutes.

Use the **Left** or **Right Arrow** keys to amend the values for Event Count Level and Event Count Source.

## Percentiles

---

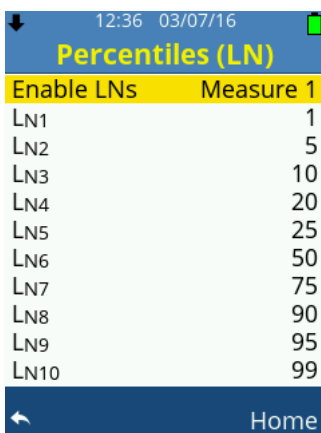
Choose Percentiles to enable or disable Percentiles, commonly referred to as LNs, by using the **OK** key or the **Left, Right Arrow** keys to amend Enable LNs between the following options: -

- Off, Measure 1, Measure 2 or Measure 1 & 2

When LNs are enabled the selection of individual LNs becomes available using the **Up** or **Down Arrow** keys to scroll.

A maximum of ten percentiles can be selected and each one (LN1 to LN10) can be individually set to the following value: -

- Off or 1 to 99



The screenshot shows a mobile application interface with a blue header bar containing the time '12:36' and date '03/07/16'. Below the header is a title bar 'Percentiles (LN)' in yellow. The main content is a table with two columns: 'Enable LNs' and 'Measure 1'. The table lists LNs from LN1 to LN10 with their respective Measure 1 values. At the bottom, there is a blue bar with a left arrow and the text 'Home'.

Enable LNs	Measure 1
LN1	1
LN2	5
LN3	10
LN4	20
LN5	25
LN6	50
LN7	75
LN8	90
LN9	95
LN10	99

Use the **Left** or **Right Arrow** keys to amend the values for each LN.

Press the **OK** key to toggle any LN Off/On. Individually disabled LN data will not be displayed or recorded.

## Show LN < 5 Minutes

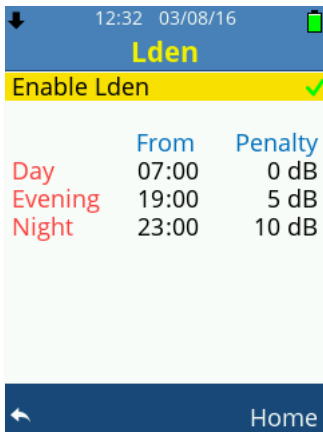
---

Percentiles (LNs) require at least 5 minutes recording to gather enough data to be accurate, however they may be shown where the recording time is lower than 5 minutes. Enable this option if this is required.

# Lden

---

Choose Lden to set day, evening and night settings.



Press **OK** or the **Left, Right Arrow** keys to toggle enable Lden.

When enabled Day, Evening and Night become available. Scroll the available options using the **Up** or **Down Arrow** keys and use the **Left** or **Right Arrow** keys to amend the values.

Day, Evening and Night can be individually set as follows: -

From [hh:mm]

- 00:00 to 23:59

Penalty [dB]

- 0 to 20

## Upgrade to Statistics

---

If your particular dBAir model doesn't have access to Statistical data, then you will be shown the screen below.



You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

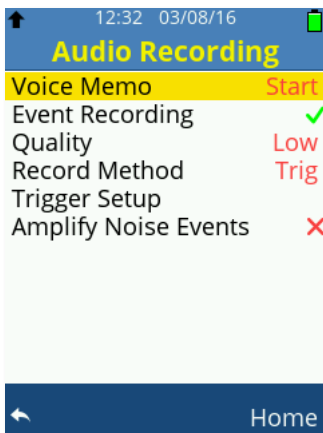
---

# Audio Recording

---

The Audio recording screen is available to all models of dBAir to allow setting Voice Memo audio recording.

Event recording however is only available to specific models.



Scroll the available options using the **Up** or **Down Arrow** keys.

Press **OK** or the **Left, Right Arrow** keys to toggle Event Recording.

Use the **Left or Right Arrow** keys to amend the Quality settings.

Use the **Left** or **Right Arrow** keys to amend the values for Quality and Record Method.

Press the **OK** key to select Trigger Setup.

Press **OK** or the **Left, Right Arrow** keys to toggle Amplify Noise Events.

## Voice Memo

---

Voice Memo allows the user to attach a voice recording to a data recording.

All voice memo audio files can be a maximum length of one minute and are saved as .wav file format, recorded at 12kHz, 16 bit and unweighted.

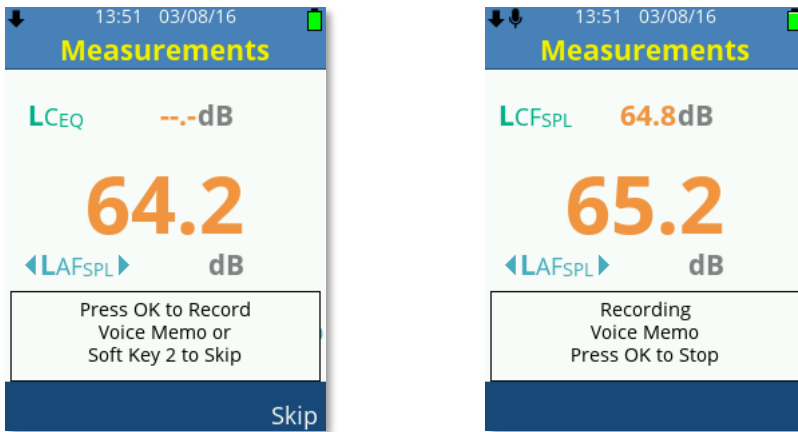
Settings for Voice Memo are as follows: -

- Start, End, Off

### Start

---

The user can be prompted automatically to attach a voice memo at the start of a recording.



Press the **OK** key to start a Voice Memo recording or **Soft Key 2** labelled **Skip** to start the data recording without creating a voice memo.

Press the **OK** key to stop the Voice Memo recording and start the data recording.



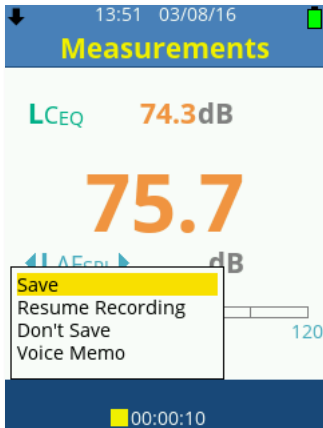
Whilst recording a Voice Memo, the Voice Memo icon will flash. Any data recording with a Voice Memo audio file displays the Voice Memo icon.

Multiple Voice Memo audio files can be attached to a data file if required.

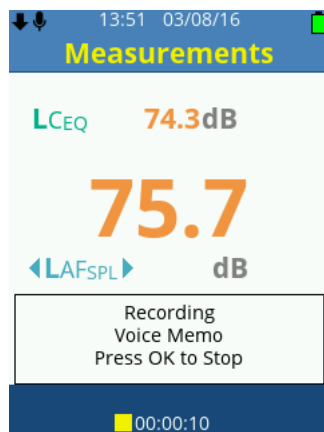
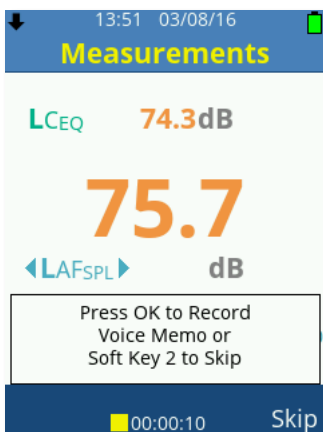
---

## End

The user can be prompted automatically to attach a voice memo at the end of a recording.



Scroll the available options using the **Up** or **Down Arrow** keys ensuring **Save** is selected and press the **OK** key.



Press the **OK** key to start a Voice Memo recording or **Soft Key 2** labelled **Skip** to save the data recording without creating a voice memo.

Press the **OK** key to stop the Voice Memo recording and save the data recording.



Whilst recording a Voice Memo, the Voice Memo icon will flash. Any data recording with a Voice Memo audio file displays the Voice Memo icon.

Multiple Voice Memo audio files can be attached to a data file if required.

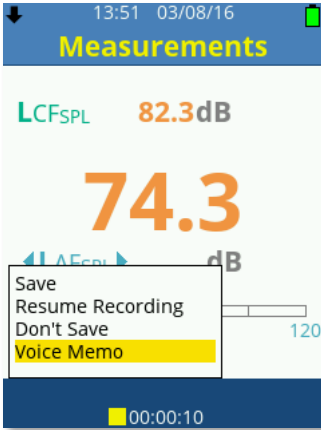


## Off

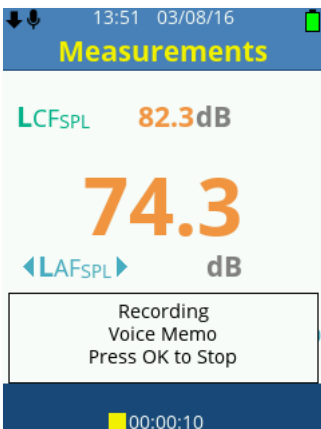
Select Off for Voice Memo when automatic prompts are not required.

Adding a Voice Memo can still be achieved either during a recording, after a recording or when in file File Review to view a saved data file.

During a **data recording** press the **Stop** key, the recording is paused.

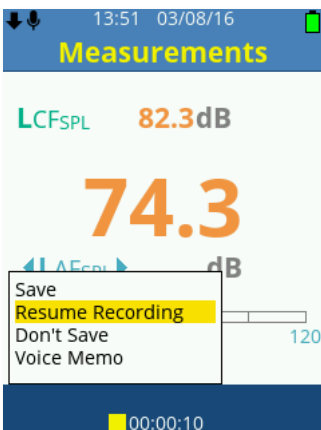


Use the **Up** or **Down Arrow** keys to highlight Voice Memo.



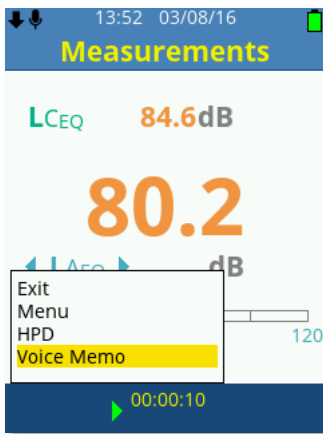
Press the **OK** key to start a Voice Memo recording or **Soft Key 2** labelled **Skip** to save the data recording without creating a voice memo.

Press the **OK** key to stop the Voice Memo recording and save the data recording.

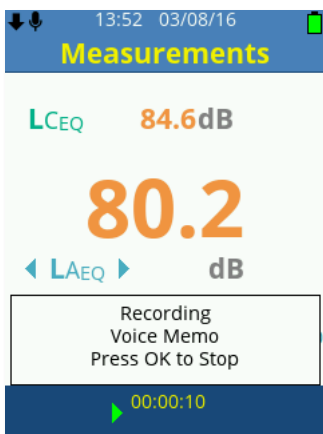


Select Resume Recording to continue the data recording or Save to save the file.

During **file File Review** press the **Stop** key, the recording is paused.



Use the **Up** or **Down Arrow** keys to highlight Voice Memo then press the **OK** key to start a Voice Memo recording.



Press the **OK** key to stop the Voice Memo recording and attach to the open data recording.



Whilst recording a Voice Memo, the Voice Memo icon will flash. Any data recording with a Voice Memo audio file displays the Voice Memo icon.

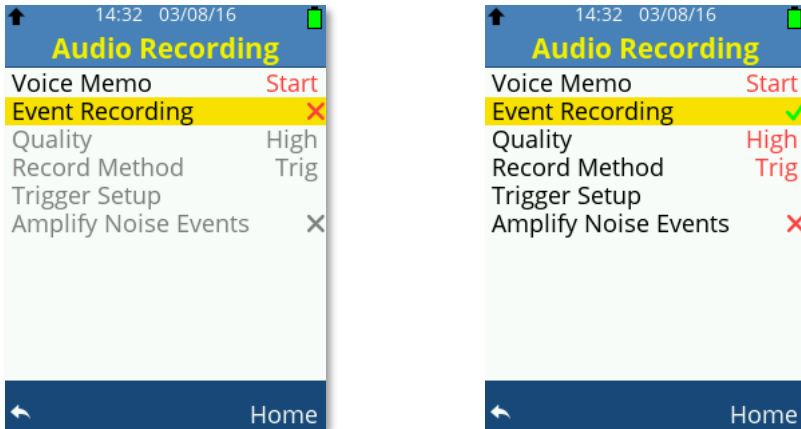
Multiple Voice Memo audio files can be attached to a data file if required.

## Event Recording

---

Event Recording is only available to specific models and is a powerful feature that allows the user to set automatic noise event audio recordings that are triggered and recorded as required.

All event recordings are saved as .wav file format, unweighted and limited to 1.9GB in size. In the event that the file size limit is reached a new .wav file will be started and the file name appended with P1, P2 etc.



When Event Recording is enabled the options below become available for selection: -

- Quality
- Record Method
  - Trigger Setup - Becomes available when Record Method set to Trig
- Amplify Noise Events

### Quality

Set the recording quality of the Event Recording, the options are listed below: -

- Low = 12kHz, 16 Bit
- Med = 24kHz, 16 Bit
- High = 48kHz, 16 Bit



Higher quality audio produces larger file size noise event audio files.

---

## Record Method

Set the recording method of the Event Recording, the options are listed below: -

- Cont
- Trig

### Continuous (Cont)

---

Setting the recording method to Cont will produce a continuous noise event audio file as soon as the data recording is started, it will not require a trigger event.

The audio file ends when the data recording ends.

All event recordings are saved as .wav file format, unweighted and limited to 1.9GB in size. In the event that the file size limit is reached a new .wav file will be started and the file name appended with P1, P2 etc.



Continuous Event Recording can create large audio files. Set with caution.

---

### Trigger (Trig)

---

When the recording method is set to Trig then the option Trigger Setup becomes available. Press the **OK** key to enter the Trigger Setup options.



Scroll the available options using the **Up** or **Down Arrow** keys.

## Trigger Edge

---

Use the **Left, Right Arrow** keys to select between: -

- Rise
- Fall

When set to **Rise**, triggering of the noise event audio file recording will begin when the Trigger Level is reached on the positive rising edge of the input noise, i.e. when the noise increases past the trigger level.

When set to **Fall**, triggering of the noise event audio file recording will begin when the input noise falls below the Trigger Level on the negative falling edge of the input noise.

## Trigger Level

---

Use the **Left, Right Arrow** keys to adjust the Trigger Level as follows: -

- Low Range: 45.0 to 110.0 in 0.5dB resolution steps
- High Range: 45.0 to 135.0 in 0.5dB resolution steps

The Trigger Level is the decibel [dB] level at which when the input noise level crosses, on either the set Rising or Falling Edge, the trigger is set and the noise event audio recording begins.

It is not possible to adjust the value beyond 110.0dB on whilst on the Low range. If this is attempted the following warning will be shown: -



## Trigger Freq

---

Use the **Left, Right Arrow** keys to adjust the Trigger Frequency as required.

The available Trigger Frequencies depend on the octave analysis the dBAir sound level meter is set to.

If the dBAir is set to Full Octave analysis then the following Trigger Frequencies are available: -

- All, 16Hz, 31.5Hz, 63Hz, 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, 8kHz, 16kHz

If the dBAir is set to Third Octave analysis then the following Trigger Frequencies are available: -

- All, 12.5Hz, 16Hz, 20Hz, 25Hz, 31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1kHz, 1.25kHz, 1.6kHz, 2kHz, 2.5kHz, 3.15kHz, 4kHz, 5kHz, 6.3kHz, 8kHz, 10kHz, 12.5kHz, 16kHz, 20kHz

Set the Trigger Frequency so that the triggering point of the noise event audio recording is isolated only to the frequency specified. The noise event audio recording is not affected and records as normal.

If the Trigger Frequency is set to All then no individual frequency is used to determine the triggering point of the noise event audio file.

If neither full or third octave analysis are used, then the Trigger Frequency is set to All.

## Record Time

---

Set the Recording Time of the triggered noise event audio file.

Use the **Left, Right Arrow** keys to adjust the Hours, Minutes and Seconds as required.

Scroll the available options using the **Up, Down Arrow** keys or the **OK** key.

The maximum Record Time is 23:59:59 (hh:mm:ss)



Noise Event Recordings can create large audio files. Set with caution.

## Amplify Noise Events

Noise events are recorded within the audio range of the sound level meter and hence a recorded noise event may not be audible from a computer and speaker system.

Imagine a noise event recording is triggered at 100dB, a fairly loud noise event, however the dBAir sound level meter measures sound up to 140dB and as such the noise event is insignificant in comparison.

The un-amplified audio is required if the noise event audio is to be used for any legal reasons with your noise data or if you wish to re-measure the noise levels from the recorded file.

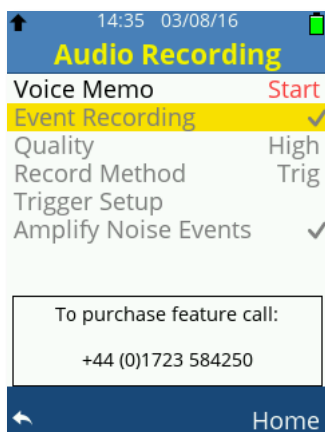
If you wish to audibly hear audio noise events, then enable this option which will automatically amplify noise event recordings so that the noise event recording can be identified easily.

All amplification occurs on .wav files when the file has stopped recording and is processor intensive. During amplification no other tasks can be achieved and each minute of high-quality recorded audio takes on average 3 seconds to amplify.

Amplified Noise Events **ARE NOT** reversible to un-amplified audio.

## Upgrade to Event Recording

If your particular model of the dBAir sound level meter doesn't have access to Event Recording, then you will be shown the screen below.



You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

# Save as Template

---

Choose Save as Template to save all current settings to a file known as a Template which can be loaded at any time to your exact requirements, quickly and easily.

Templates can be recalled using Template Manager in the Main Menu.



Use the **Arrow** keys to change characters and enter the Template Name up to a maximum of 16 characters.

Select **↑, ↓** to change between upper case and lower case.

Use **Soft Key 1** to exit without saving the template.

Use **Soft Key 2** labelled **Done** to save the template using the file name entered.



A maximum of 16 characters can be used for a template name.

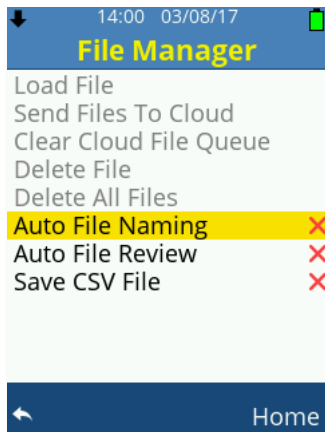
---



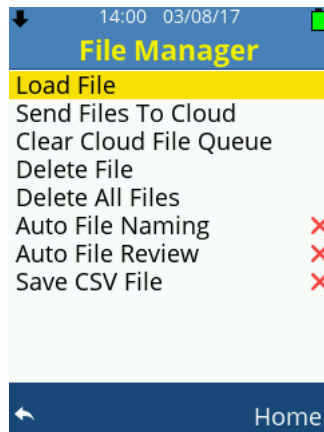
# File Manager

Select File Manager to load saved data files, send files to the cloud manually and set file orientated options.

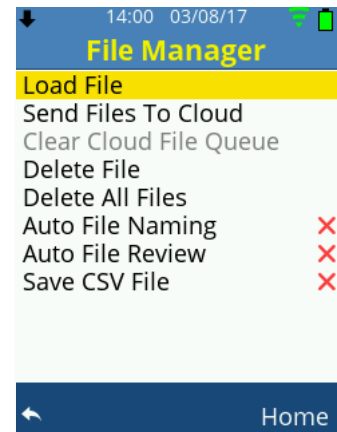
Option availability will depend on data files being saved and Wi-Fi being enabled: -



No files saved



Files saved, Wi-Fi Off



Files saved, Wi-Fi On

Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose from the following: -

- Load File
- Send Files To Cloud
- Clear Cloud File Queue
- Delete File
- Delete All Files

Press **OK** or the **Left, Right Arrow** keys to toggle the following: -

- Auto File Naming
- Auto File Review
- Save CSV File

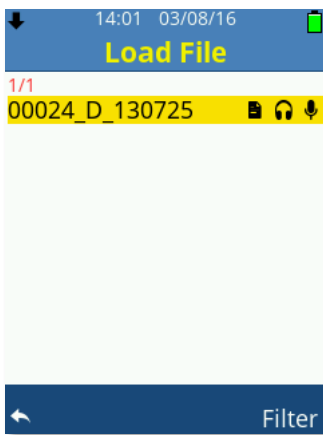
# Load File

---

Scroll the saved data files using the **Up** or **Down Arrow** keys, press the **OK** Key to open the selected file in File Review mode.

The file number and total number of data files saved are listed in red. If multiple files exist, then the **Left** or **Right Arrow** keys can be used to scroll the data files by page.

Associated icons are shown alongside the file name if the saved data file was created from a template, or any type of audio recordings are also associated with the file.



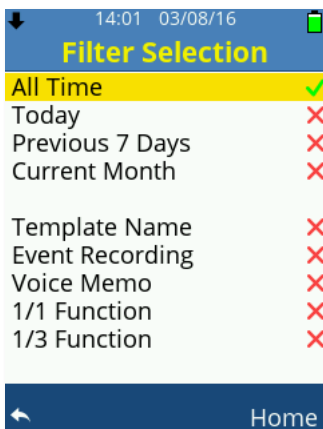
Press **Soft Key 2** labelled Filter to open a new window for file filtering options.

## Filter Selection

---

Filter the list of saved data files by the selections made.

Scroll the options using the **Up** or **Down Arrow** keys and press the **OK** Key or the **Left, Right Arrow** keys to toggle each available option.



Only one option from **All Time**, **Today**, **Previous 7 Days** or **Current Month** can be selected at any time.

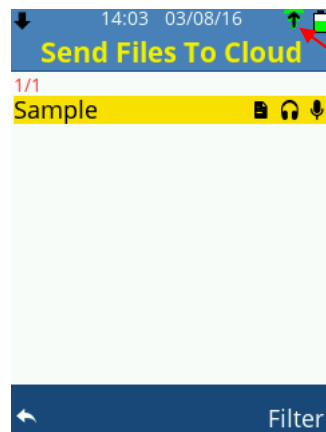
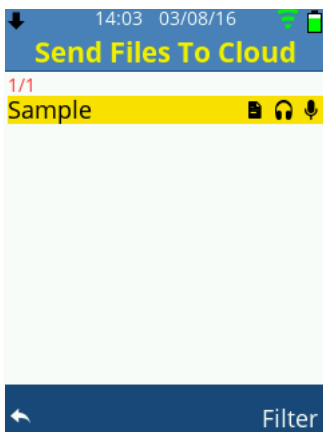
Some options may be grey and not selectable depending on your dBAir sound level meter model.

# Send Files To Cloud

Scroll the saved data files using the **Up** or **Down Arrow** keys, press the **OK** Key to manually send the selected file to TheCastleCloud.com. During an upload a white arrow will be shown to the left of the Wi-Fi symbol.

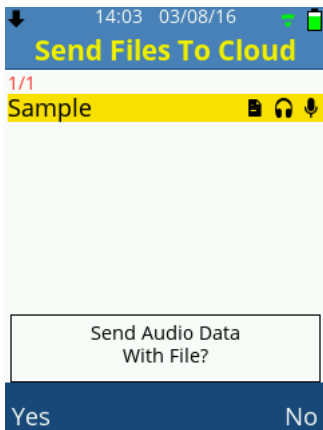
The file number and total number of data files saved are listed in red. If required press **Soft Key 2** labelled Filter to open a new window for file filtering options. If multiple files exist, then the **Left** or **Right Arrow** keys can be used to scroll the data files by page.

Associated icons are shown alongside the file name if the saved data file was created from a template, or any type of audio recordings are also associated with the file.



Arrow indicates Uploading

If the data recording contains any type of audio recording, then the following will be shown before the file is uploaded: -



Press **Soft Key 1** labelled **Yes** to upload all the associated audio files with the data file.

Press **Soft Key 2** labelled **No** to upload only the data file.



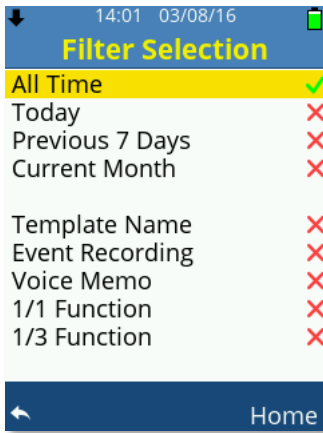
A reliable Wi-Fi internet connection is required to upload data using this option

## Filter Selection

---

Filter the list of saved data files by the selections made.

Scroll the options using the **Up** or **Down Arrow** keys and press the **OK** Key or the **Left, Right Arrow** keys to toggle each available option.



Only one option from **All Time**, **Today**, **Previous 7 Days** or **Current Month** can be selected at any time.

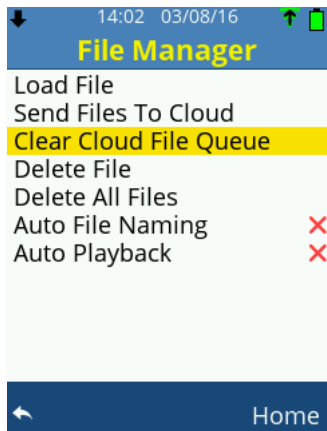
Some options may be grey and not selectable depending on your dBAir sound level meter model.

# Clear Cloud File Queue

---

Select Clear Cloud File Queue to cancel all the pending file uploads.

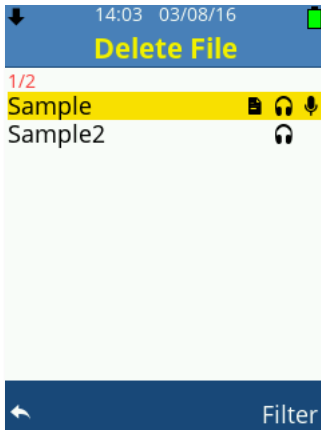
This option only becomes available if a file exists in the upload queue.



# Delete File

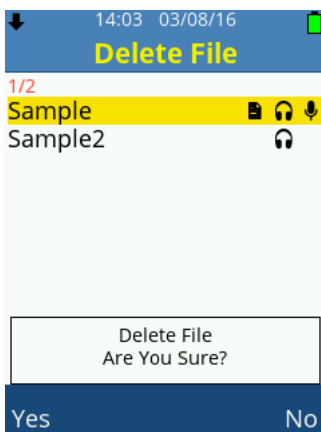
---

Choose Delete File to delete one individual data recording and any associated audio recordings.



Scroll the available data files using the **Up** or **Down Arrow** keys, press **OK** to select the file to delete.

If multiple files exist, then the **Left** or **Right Arrow** keys can be used to scroll the data files by page.



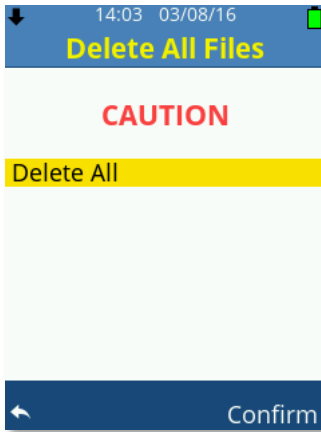
Press **Soft Key 1** labelled **Yes** to delete all the associated files.

Press **Soft Key 2** labelled **No** to cancel.

# Delete All Files

---

Choose Delete All Files to delete all data recordings and all associated audio recordings.



Press **Soft Key 1** to cancel and go back to the previous screen.

Press **Soft Key 2** labelled **Confirm** to delete all files.



Deleted files are unrecoverable.

---

# Auto File Naming

---

When Auto File Naming is enabled, each data recording and all its associated audio files are automatically named using the naming structure below: -

COUNT_C_TIME_DATE.dat	Data File
COUNT_C_TIME_DATE.csv	Data CSV File
COUNT_V_TIME_DATE.wav	Voice Memo Wav File
COUNT_A_TIME_DATE.wav	Noise Event Audio Wav File

Each data file and any associated audio files begin with an incremental count: -

- 00001 to 99999

Each file is then tagged with one of the following for easy identification: -

- D - Data File
- C - CSV File
- V - Voice Memo
- A - Noise Event Audio File

Each file is then time and date stamped in the format as per language selected, in the UK this is as follow: -

- TIME - hhmmss
- DATE - ddmmyy



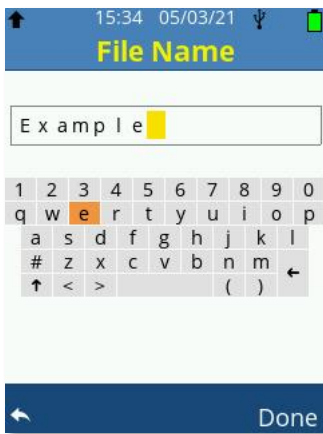
File names on the dBAir display are suppressed, the date is not visible.

---



## Manual File Naming

When Auto File Naming is disabled, the user is required to enter a file name manually.



Use the **Arrow** keys to change characters and enter the File Name up to a maximum of 16 characters.

Select **↑**, **↓** to change between upper case and lower case.

Use **Soft Key 1** to exit without saving the file.

Use **Soft Key 2** labelled **Done** to save the file using the file name entered.

Each data recording and all its associated audio files are structured as below: -

FILENAME.dat	Data File
FILENAME.csv	Data CSV File
FILENAME_V_TIME_DATE.wav	Voice Memo Wav File
FILENAME_A_TIME_DATE.wav	Noise Event Audio Wav File

Each audio file is then tagged with one of the following for easy identification: -

- V – Voice Memo
- A – Noise Event Audio File

Each audio file is then time and date stamped in the format as per language selected, in the UK this is as follow: -

- TIME – hhmmss
- DATE – ddmmyy

# Auto File Review

---

When Auto File Review is enabled then when each data recording ends and is saved either automatically or manually then the dBAir automatically displays the file.

# Save CSV File

---

Enable Save CSV File to also save a CSV file.

Converting the data file to the CSV file automatically occurs after the data file is saved and depending on the file size, may take several minutes to complete.

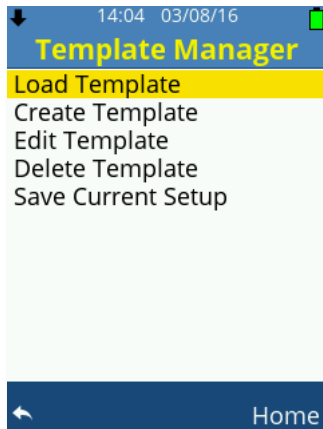
The CSV file can be copied from the USB Drive and opened in spreadsheet applications.

# Template Manager

---

Select Template Manager to load, save, edit or create templates.

Option availability will depend on user templates existing or factory pre-installed templates being supplied with your particular model of dBAir sound level meter.



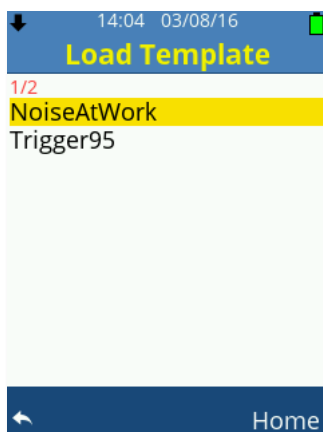
Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose the selection.

## Load Template

---

Scroll the available templates using the **Up** or **Down Arrow** keys, press **OK** to choose and load the highlighted template.

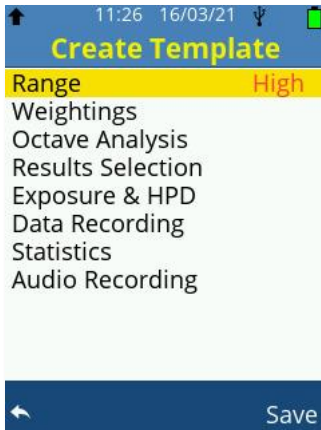
If multiple templates exist, then the **Left** or **Right Arrow** keys can be used to scroll the templates by page.



# Create Template

---

Select Create Template to change the instrument settings and store them into a new template.



Create Template is very similar to the Measurement Settings screen which can be referred to for further information.

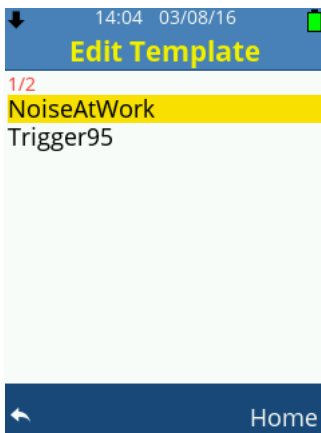
Scroll through the options using the **Up** or **Down Arrow** keys, press **OK** to choose the selection and adjust the instrument settings as required.

**Soft Key 2** labelled **Save** can be used to save the instrument settings into a template.

# Edit Template

---

Select Edit Template to quickly amend the instrument settings held within a saved template.



Scroll the available templates using the **Up** or **Down Arrow** keys, press **OK** to load and edit the highlighted template.

If multiple templates exist, then the **Left** or **Right Arrow** keys can be used to scroll the templates by page.



Editing Template is very similar to the Measurement Settings screen which can be referred to for further information.

Scroll through the options using the **Up** or **Down Arrow** keys, press **OK** to choose the selection and adjust the instrument settings as required.

**Soft Key 2** labelled **Save** can be used to save the new settings and overwrite the existing template.



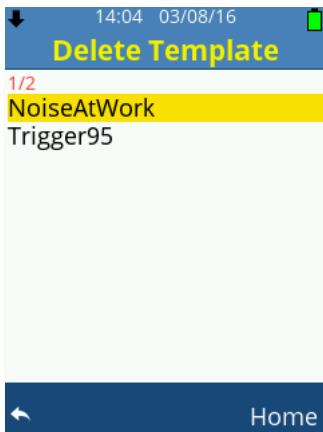
Templates can be modified and saved as new templates. Load the template, edit and then save as a new template.

---

# Delete Template

---

Choose Delete Template to delete one individual template file.



Scroll the available templates using the **Up** or **Down Arrow** keys, press **OK** to select the template to delete.

If multiple templates exist, then the **Left** or **Right Arrow** keys can be used to scroll the templates by page.



Factory pre-installed templates are non-removable.

---



Deleted user templates are unrecoverable.

---

# Save Current Setup

---

Choose Save Current Setup to save the current instrument settings as a template with your chosen name.



Use the **Arrow** keys to change characters and enter the Template Name up to a maximum of 16 characters.

Select **↑, ↓** to change between upper case and lower case.

Use **Soft Key 1** to exit without saving the template.

Use **Soft Key 2** labelled **Done** to save the template using the file name entered.

# Hearing Protection

---

Hearing Protection is only available on specific dBAir models and is an internally stored database of leading manufacturers hearing protectors.

Selecting Hearing Protection allows you quickly and easily to identify which hearing protector would suit a specific noise environment after analysing your measured data.

Different countries have different legislation for calculating hearing protection and how the manufacturer calculates the protector's data. The dBAir sound level meter simplifies the process for the user by setting the correct parameters, the correct database of hearing protectors and any relevant derating.

To accomplish this the dBAir offers pre-set legislation settings for the UK, Europe, USA and finally a Custom option to allow the user to define settings as required.

Regardless of the legislation settings, the outcome is to calculate the effectiveness of the chosen hearing protector for the selected noise data. For the UK and Europe this is called APL (Assumed Protection Level). The US has two legislation options, OSHA and NIOSH, OSHA call this value PAR (Personal Attenuation Rating) whereas NIOSH call the value ENL (Effective Noise Level).

The calculated effectiveness value is colour coded allowing you to instantly see if the hearing protector offers the right amount of protection: -

Effectiveness (APL, PAR, ENL)	Colour Coding	Protection Level
$\leq 70\text{dB}$	RED	Over Protected
70 to 80dB	GREEN	Good
80 to 85dB	AMBER	Border Line
$\geq 85\text{dB}$	RED	Under Protected

It is highly recommended that over protection where levels at the ear are below 70dB are avoided. Over protection can impact on communication causing the user to remove the protection and also reduce the ability to hear warning signals such as fire alarms.

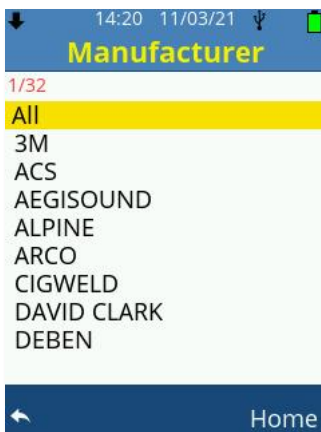


Scroll the available data files using the **Up** or **Down Arrow** keys.

If multiple files exist, then the **Left** or **Right Arrow** keys can be used to scroll the data files by page.



Press the **OK** key to use the selected file for HPD analysis and show the available manufacturers depending on the legislative settings of the instrument and how the noise data recording was configured.



Scroll the available Manufacturers using the **Up** or **Down Arrow** keys, press the **OK** key to select the manufacturer and show all the models available for the chosen manufacturer and the calculated effectiveness. The listing is in order showing the lowest effectiveness value first.



The dBAir automatically calculates the hearing protector effectiveness using the most accurate method, again dependant on how the noise data recording was configured.

- For UK and EU the order is as follows: -
  1. Octave
  2. HML
  3. SNR
- For OSHA and NISOH the order is as follows: -
  1. Octave
  2. NRR

Scroll the available models using the **Up** or **Down Arrow** keys, press the **OK** key to select the highlighted hearing protector model.

The following shows and describes each calculation method.

## Octave Method

Octave Method is only available if your dBAir sound meter model is fitted with octave band analysis and if the data recording was recorded utilising full octave or third octave analysis.

Octave method Hearing Protection Calculations require measurement 1 is 'A' weighted. If the data recording was made with measurement 1 using 'C' or 'Z' frequency weightings, then they will be converted to 'A' weighting for the purpose of calculations only.

The original data file is NOT modified.



Use the **Up** or **Down Arrow** keys to toggle between graph or table view

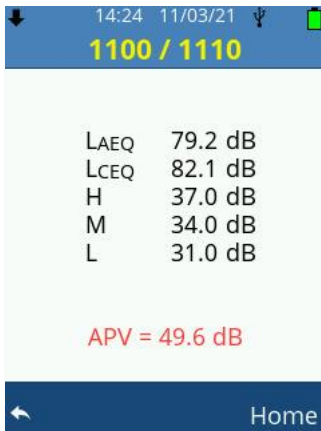
Whilst in graph view use the **Left** or **Right Arrow** keys to scroll through the octave bands.

# HML Method

---

Does not require octave band analysis; however, the data file must be recorded using the following Frequency Weightings: -

- 'A' Weighting and 'C' Weighting

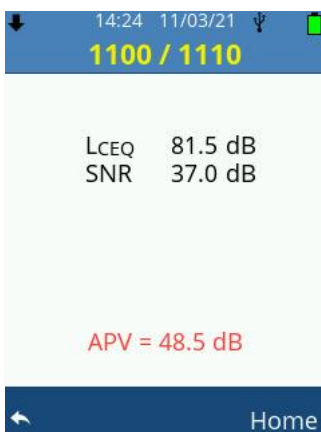


# SNR Method

---

Does not require octave band analysis; however, the data file must be recorded with a measurement channel using the following Frequency Weightings: -

- 'C' Weighting

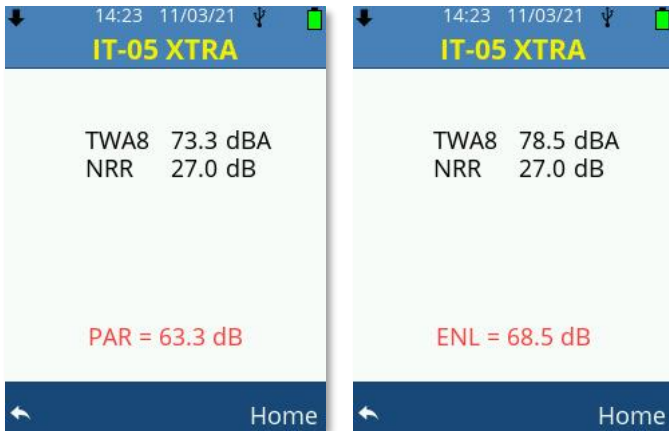


# NRR Method

---

Does not require octave band analysis; however, the data file must be recorded with a measurement channel using the following Frequency Weighting: -

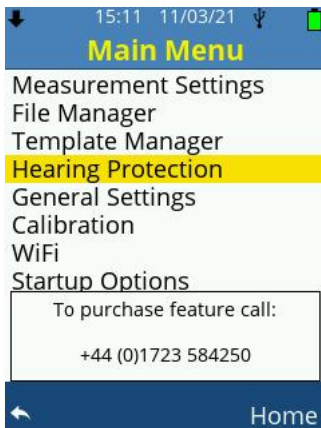
- 'A' or 'C' Weighting



# Upgrade to Hearing Protection

---

If your particular dBAir model doesn't have access to Hearing Protection, then you will be shown the screen below.

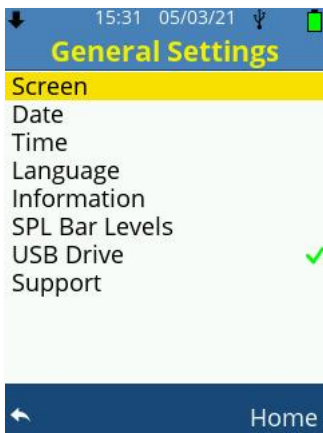


You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

# General Settings

---

General Settings is available to all models of dBAir and is where specific instrument settings are made.



Scroll the available options using the **Up** or **Down Arrow** keys, press **OK** to choose from the following: -

- Screen
- Date
- Time
- Language
- Information
- SPL Bar Levels
- Support

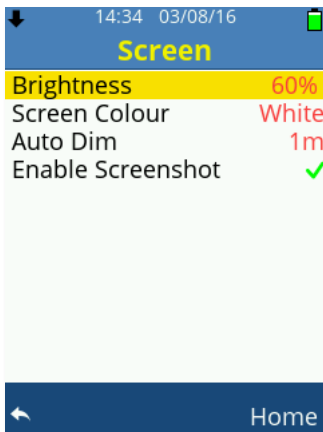
Press **OK** or the **Left, Right Arrow** keys to toggle the following: -

- USB Drive

# Screen

---

Select Screen to amend how the dBAir screen looks and power saving features.



## Brightness

---

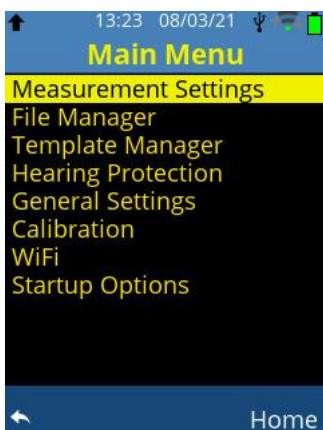
Use the **Left, Right Arrow** keys to adjust the screen brightness as required.

Increased screen brightness reduces battery operating time.

## Screen Colour

---

Use the **Left, Right Arrow** keys to toggle the screen colour between White or Black: -



## Auto Dim

---

The Auto Dim feature will automatically dim the screen to after a set period of time to reduce operating power and increase battery run time.

Use the **Left, Right Arrow** keys to adjust the Auto Dim as below: -

- Off or 1 to 15 (minutes) - 1m recommended



Press any key to exit the active auto dim function.

---

## Enable Screen Shot

---

Press **OK** or the **Left, Right Arrow** keys to toggle Enable Screen Shot.

When screen shot is enabled the **Power** key can be pressed to capture and save the current screen to the internal SD card.

All images are saved in .ppm format, a suitable editor such as 'Gimp' can be used to save the file into other formats.

Gimp can be downloaded free at the following address: -

- <https://www.gimp.org/>

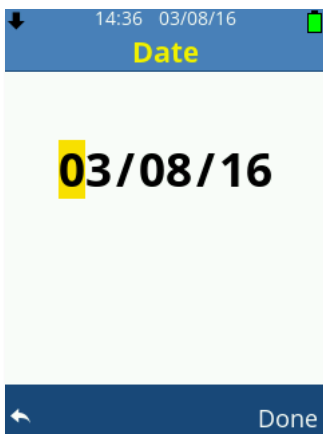
When Screen Shot is enabled the **Power** key cannot be used to reset parameters.

All saved screen shot files are accessible using the dBAir in USB Drive mode.

# Date

---

Enter the current date using the date format specific to your region.



Use the **Up, Down Arrow** keys to adjust the value.

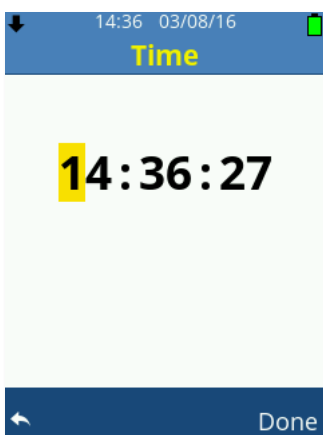
Use the **Left, Right Arrow** keys to move forward or back.

Press **Soft Key 2** labelled **Done** to accept the date changes.

# Time

---

Enter the current date using the date format specific to your region.



Use the **Up, Down Arrow** keys to adjust the value.

Use the **Left, Right Arrow** keys to move forward or back.

Press **Soft Key 2** labelled **Done** to accept the date changes.



# Language

---

Scroll the available operating language options using the **Up** or **Down Arrow** keys.

Press the **OK** key or use the **Left, Right Arrow** keys to switch the selected language as required.



If a language is inadvertently selected, press the following key sequence to access the language screen: -

**Soft Key 1, Up, Up, Up, Ok, Down, Down, Down, Down, Ok**

---

# Information

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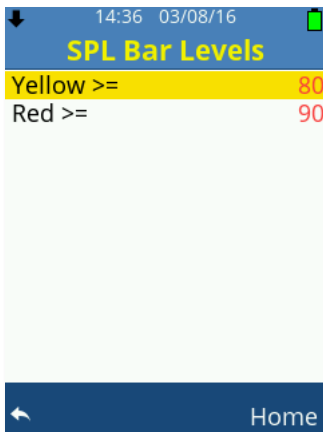
Select to show instrument specific information.



# SPL Bar Levels

---

Select to adjust the levels at which colour coding of the SPL bar appears.



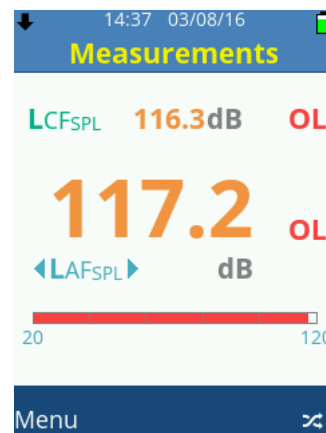
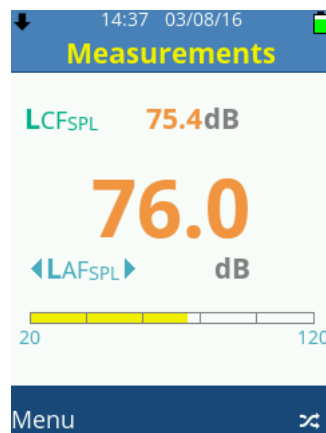
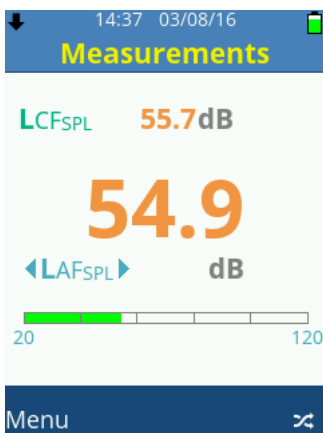
Scroll the options using the **Up** or **Down Arrow** keys.

Use the **Left, Right Arrow** keys to adjust as follows: -

Yellow: 40 to 100dB

Red: 80 to 140dB

Red values cannot be set lower than Yellow values and any value below what is set for Yellow will be displayed Green on the display.



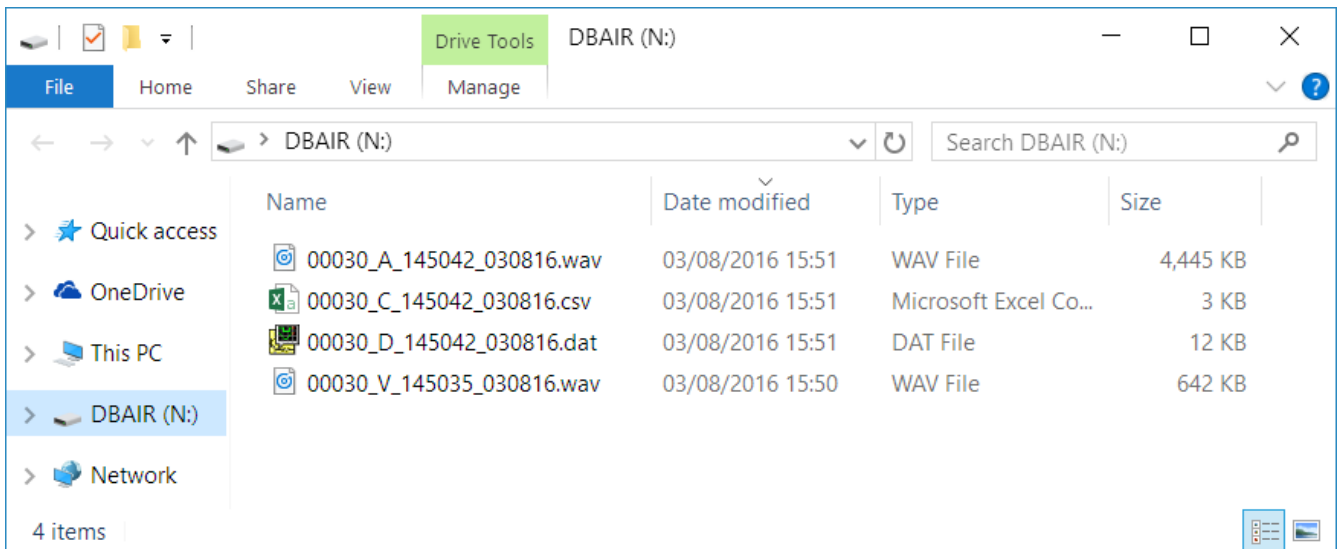
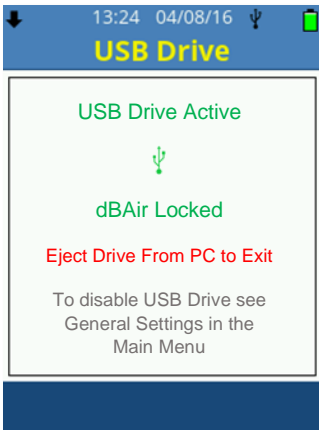
Settings made for Red are range dependant, values between 121 and 140 will only be visible Red on the High range.

---

# USB Drive

When USB Drive is enabled and the supplied USB lead is plugged into the dBAir instrument and a PC then the SD card of the dBAir becomes available.

Plug in the USB cable and the USB Drive Active screen will be displayed: -



The dBAir instrument will open as a folder and files can be copied and deleted as required.

CSV files can be opened directly in most spreadsheet applications and .wav files can be played in most media players.

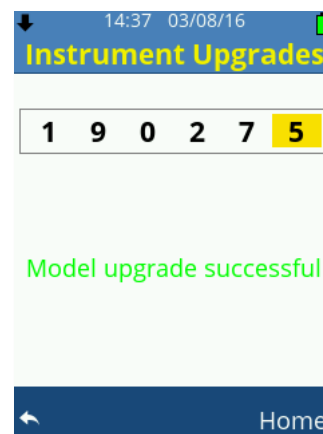
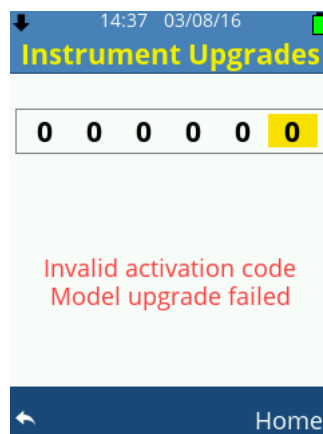
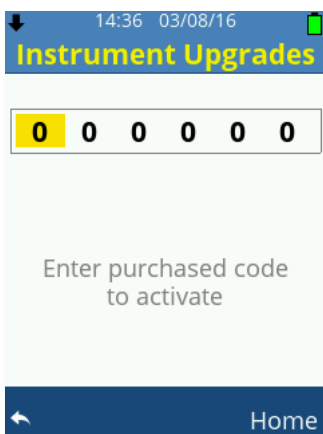
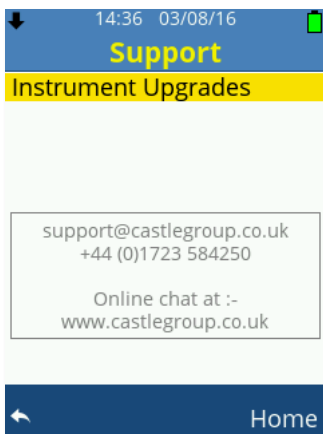
To exit USB Drive, on your PC right click over the drive labelled DBAIR under This PC and click '**Eject**'. Unplugging the USB cable without ejecting the drive first will not enable you to exit USB Drive.



Deleted files are unrecoverable.

# Support

Press the OK key on Instrument Upgrades to instantly apply any upgrades purchased.



Enter your supplied upgrade code using the **Up, Down Arrow** keys to adjust the value.

Use the **OK** key or the **Left, Right Arrow** keys to move forward or back.

Press the **OK** key to enter to register the code.



You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

Your instrument serial number is required, please have this ready.

# Calibration

---

Select Calibration to acoustically calibrate your dBAir sound level meter.

It is recommended that the calibration procedure is undertaken prior to, and after measurements have been taken using the Castle GA607 or dBCal acoustic calibrator.

The calibration screen can be set to start when the instrument boots, see **Startup Options**.

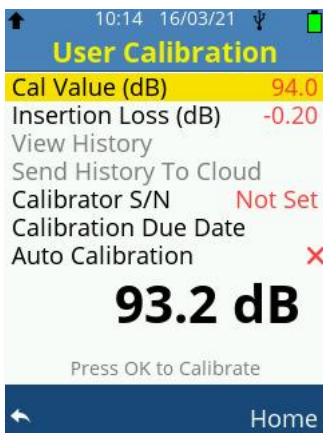
Calibration occurs at the selected Cal Value plus any Insertion Loss entered, see **Insertion Loss**.

## Calibrate to

---

If the acoustic calibrator does not have atmospheric pressure correction then the correction must be applied here.

The dBCal acoustic calibrator has inbuilt atmospheric pressure correction and hence no adjustment for this is necessary.



Ensure the calibrator is attached to the microphone by gently inserting the microphone into the cavity of the calibrator. A certain amount of resistance should be felt whilst inserting the microphone as the O-ring on the calibrator forms a seal around the microphone.

Be extremely careful not to damage the microphone capsule when inserting and removing from the acoustic calibrator cavity. Please refer to your acoustic calibrator manual if necessary.

Ensure that the calibrator is switched on and set to required output level.

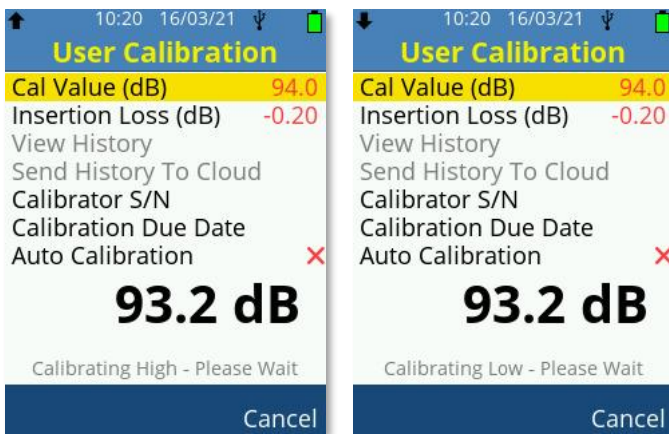
Adjust the Cal Value to match the output level of the acoustic calibrator using the **Left** or **Right Arrow** keys between 90.0 and 114.5 dB in 0.1 dB steps.

When the Cal Value is set correctly, including any corrections, press **OK** to begin calibrating your dBAir sound meter.

## Calibrating

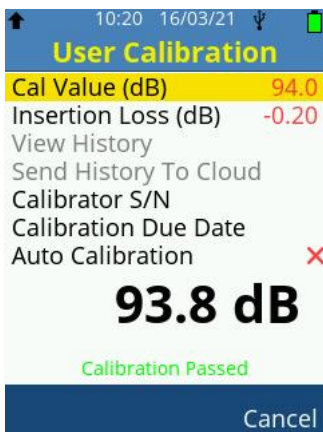
---

During calibration you will be shown the following screens: -



## Calibration Passed

If the calibration is successful then you will briefly be shown the following screen: -



## Calibration Failed

If the calibration is not successful then you will briefly be shown the following screen: -



Please ensure your acoustic calibrator is switched on, correctly sealed over the microphone capsule and giving the correct output level that matches the entered Cal Value.



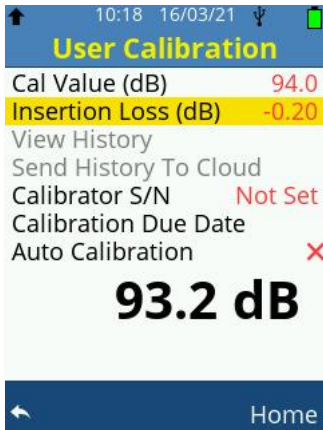
Ensure you have entered the correct Insertion Loss before calibrating

---

# Insertion Loss

---

Insertion Loss is the pressure to free field correction required for the acoustic calibrator and the microphone capsule used with your dBAir.



Adjust the Insertion Loss [dB] value using the **Left** or **Right Arrow** keys between -1.00 and +1.00 in 0.01 dB steps.

Please refer to documentation for your acoustic calibrator for details, however for convenience the corrections for the Castle dBCal acoustic calibrator and supplied microphone capsules are shown below: -

## dBAir Class 1 Instruments

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Manufacturer	Model	Insertion Loss
ACO	7146	-0.3dB

## dBAir Class 2 Instruments

---

Manufacturer	Model	Insertion Loss
ACO	7052	-0.2dB

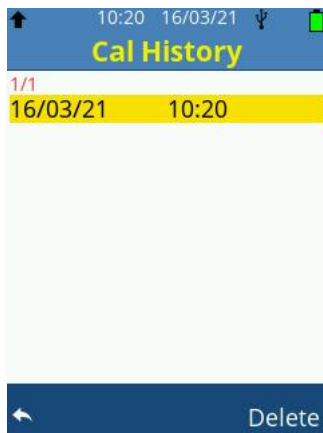
Once the correct Insertion Loss is entered you do not need to change it again unless you change the type of acoustic calibrator used and / or the microphone capsule model.



# View History

---

The dBAir sound level meter will store the time and date of the last 1000 successful calibrations.



Scroll the calibration history using the **Up** or **Down Arrow** keys as required and press **OK** to view detailed history information or **Soft Key 2** labelled **Delete** to delete calibration history records.

## Detailed Calibration History Record

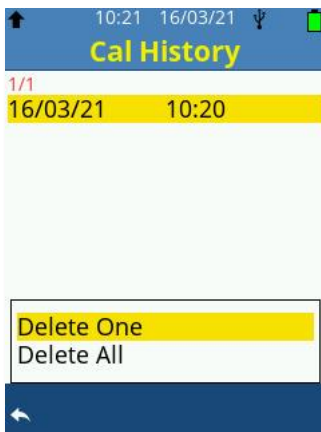
---



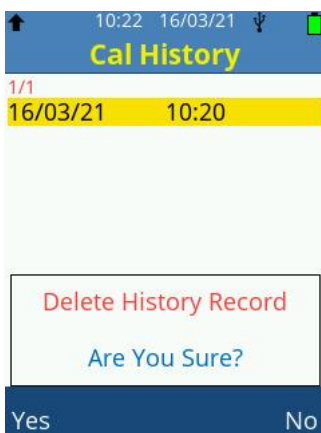
The listed Coefficient figures are purely to indicate any drift in your calibrations.

## Deleting Calibration History Records

Use the **Up** or **Down Arrow** keys and press **OK** to select **Delete One** or **Delete All**.



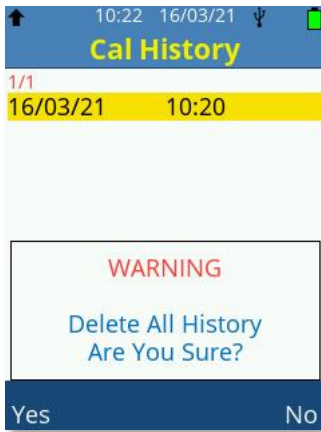
### Delete One



Press **Soft Key 1** labelled **Yes** to delete the highlighted calibration history record.

Press **Soft Key 2** labelled **No** to cancel.

## Delete All



Press **Soft Key 1** labelled **Yes** to delete all the stored calibration history records.

Press **Soft Key 2** labelled **No** to cancel.



Use extreme caution whilst deleting calibration history records.

Deleted history is not recoverable.

---

## Send History To Cloud

The calibration history can be sent to TheCastleCloud.com where you can also view the history online. The instrument must have Wi-Fi enabled and connected to a network that is within range.

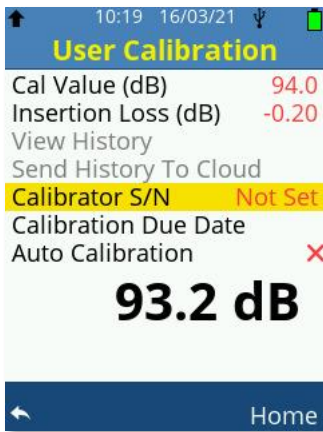
# Calibrator S/N

---

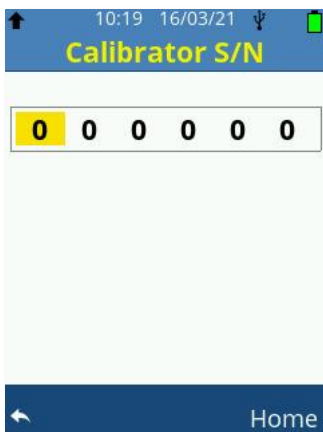
The dBAir allows entry of the acoustic calibrator serial number used for calibration.

Calibration history records include the acoustic calibrator serial number.

Until a serial number has been entered for the acoustic calibrator Not Set will be shown.



Press the **OK** key to enter a serial number.



Use the **Up** or **Down Arrow** keys to select the first digit wanted then press the **OK** key to confirm selection.

Repeat this process until your final digit has been selected then press **OK** to confirm selection and return to the previous menu, confirm the Serial Number is stored by viewing the previous calibration menu, it should now display the correct serial number instead of showing 'Not Set'.



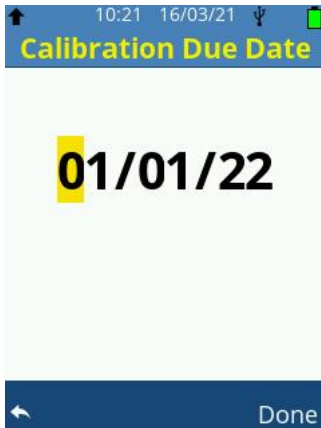
Ensure each digit has been confirmed with the **OK** key.

# Calibration Due Date

The dBAir sound level meter will store the Calibration Due Date of the instrument, this date is for user reference only and does not reflect the factory calibration due date.

The user Calibration Due Date is to be used as a handy reminder for the next annual calibration.

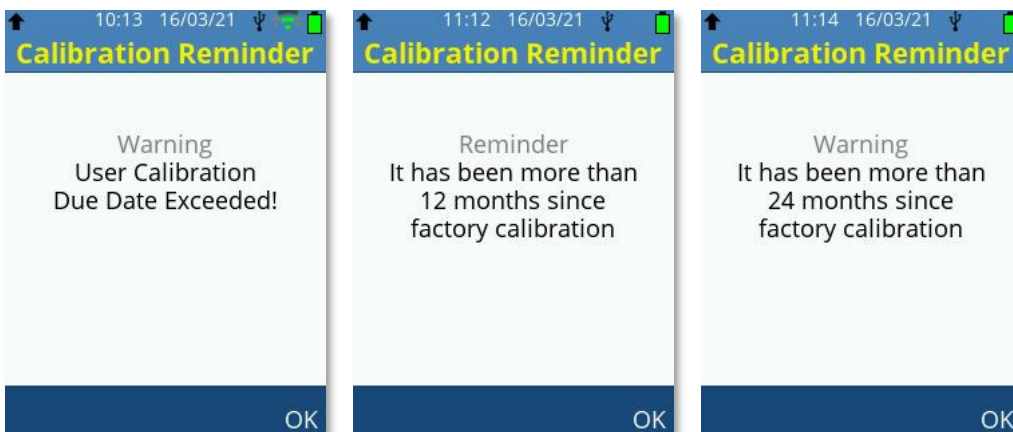
Use the **OK** key to select the Calibration Due Date menu item.



Use the **Up** or **Down Arrows** to cycle the selection and the **Left** or **Down Arrows** to select the digit you wish to amend.

When finished press **Soft Key 2** labelled **Done** to confirm the new Calibration Due Date.

Typical calibration reminder screens are shown below: -



# Auto Calibration

The dBAir features an Auto Calibration routine, this feature allows the sound level meter to auto detect when a calibrator is applied to the microphone.

After inserting the microphone in to an acoustic calibrator, switch the calibrator on to the applicable **Cal Value (dB)** value and wait for a few seconds.

If the instrument detects a continuous 1kHz tone then automatic calibration is attempted at the set Cal Value plus Insertion Loss.

To enable this feature, select the Auto Calibration menu item by using the **Up** or **Down Arrow** keys and then toggle the setting with the **OK** key or the **Left, Right Arrow** keys.

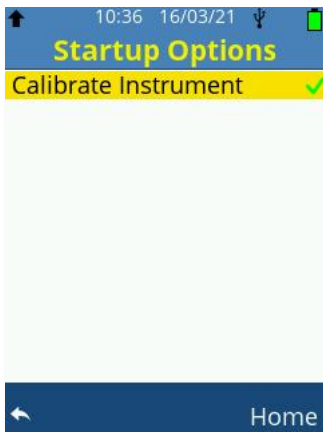
The Auto Calibration feature is active if the menu item has a green tick next to it.



# Startup Options

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Select useful reminders when the dBAir instrument powers on.



Scroll the options using the **Up** or **Down Arrow** keys,

Use the **OK** key or the **Left, Right Arrow** keys to toggle the selection.

## Calibrate Instrument

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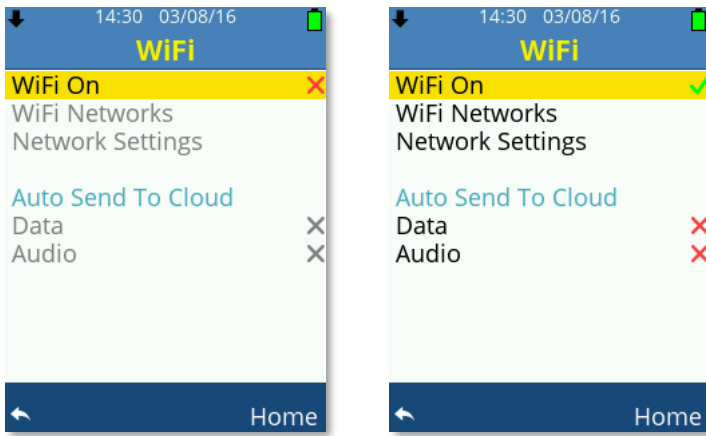
Enable to automatically enter the instrument calibration function during start-up.

It is recommended that this option is enabled.

# WiFi

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To upload data to TheCastleCloud.com directly from the instrument using a Wi-Fi connection, Wi-Fi must be enabled on the instrument and connected to a network that is within range.



Press **OK** or the **Left, Right Arrow** keys to toggle WiFi On.

When WiFi On is enabled then the options for WiFi become available, scroll these options using the **Up** or **Down Arrow** keys.

Press the **OK** key to select WiFi Networks or Network Settings.

Press **OK** or the **Left, Right Arrow** keys to toggle Auto Send To Cloud - Data or Audio.



To reduce interference and keep operating power low, dBAir houses a low power omni directional antenna.

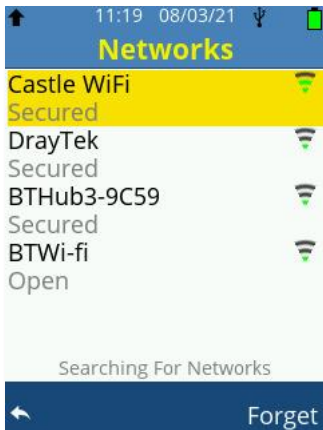
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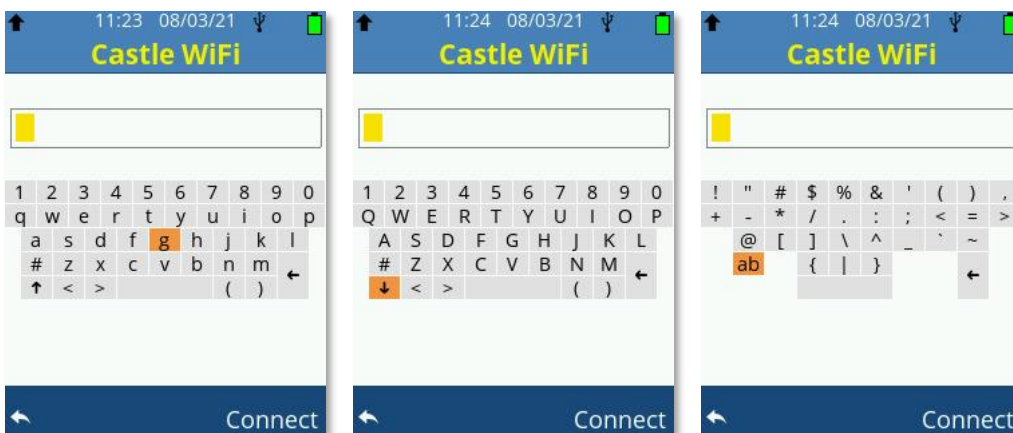
## Wi-Fi Networks

Allow several seconds for your dBAir to discover any networks. The network name is displayed with the connection type or status underneath and the networks signal strength.

Scroll the available networks using the **Up** or **Down Arrow** keys.



Press **OK** to select a network and enter the password up to a maximum of 16 characters if the network requires it: -



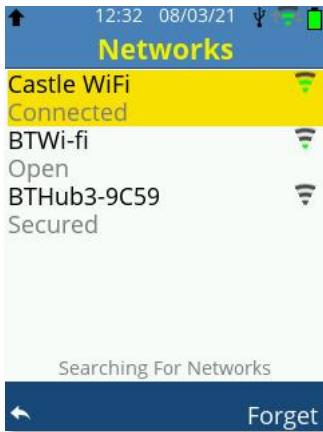
Use the **Arrow** keys to change characters and enter the WiFi password.

Select **↑**, **↓** and **#** to change between upper case, lower case and special characters.

Select **ab** to change from special characters to standard characters.

Use **Soft Key 1** to exit password entry without saving.

When the password is entered correctly use **Soft Key 2** labelled Connect to attempt connection: -



If the connection is successful, **Connected** will be shown under the network name and the WiFi icon will be shown in the top light blue bar.

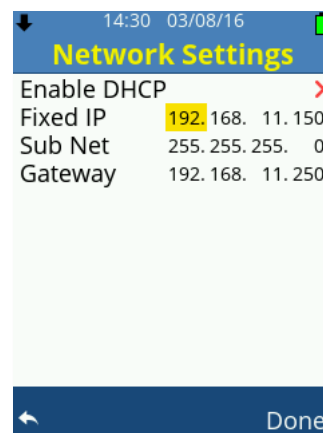
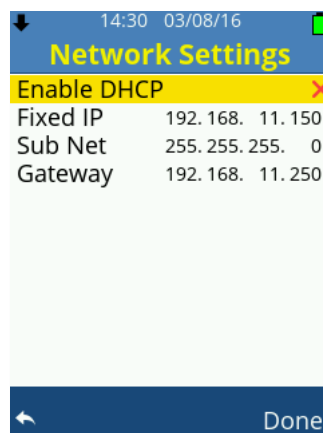


You cannot connect to networks that require a browser login as dBAir does not have a web browser.

## Network Settings

Under most circumstances ensure DHCP is enabled.

If your network does not use DHCP then please see your IT administrator and ask them to set these advanced settings manually based on your particular network.



Always use **Soft Key 2** labelled **Done** to accept any changes made under Network Settings.

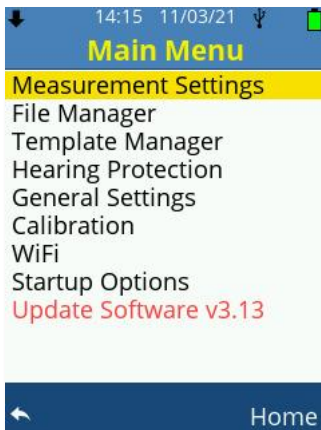
# Updates

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Your dBAir has the ability to update operating software, HPD files and Castle certified templates through Wi-Fi.

Your instrument will check for and download any software updates when the instrument is first turned on with WiFi enabled.

If a later version of software is downloaded the option to install these updates will then appear as a main menu option, as shown below: -



After choosing the option to update software, follow the on-screen instructions and your instrument will reboot with the latest software version installed.

If your instrument has less than 20% battery life remaining, you will be prompted to change your batteries or power through USB before the update can be performed.



HPD files and certified templates are installed silently and independently from the instrument software.

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# Chapter 9

## Measurement Screens

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The dBAir sound level meter can independently and simultaneously record two measurements. Each measurement can have different time weightings and/or frequency weightings. To clearly identify these, they are named Measurement 1 and Measurement 2 on your instrument where any ambiguity may arise.

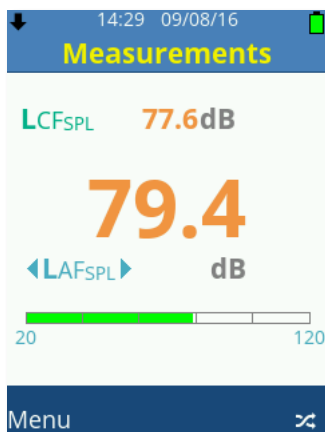
Where fitted, octaves and percentiles are only ever available for Measurement 1.

Scroll the available measurement screens using the **Up** or **Down Arrow** keys.

## Measurements

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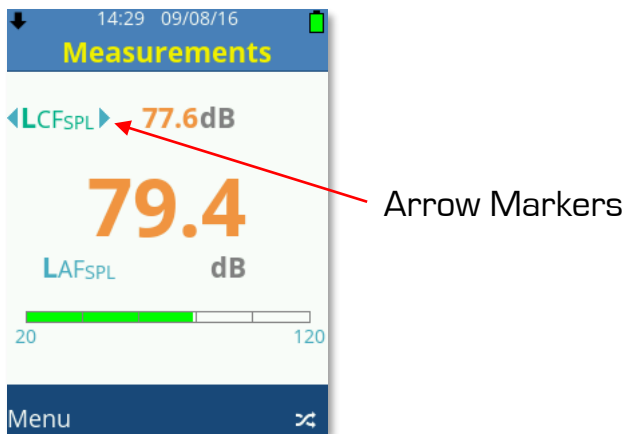
Your dBAir instrument will always start showing the Measurement Screen shown below and is available for all models of the dBAir: -



Measurement 1 on this screen is identified by having the larger font size, required for legislation in certain countries.

The colour coded measurement bar graph is only applicable to Measurement 1, and the values at which the colour banding changes can be amended. See **SPL Bars Levels** under **General Settings** for details.

Press **Soft Key 2** to swap between the selection of Measurement 1 and Measurement 2. The selected Measurement is identified by having arrow markers encapsulating the parameter: -



Use the **Left** or **Right Arrow** keys to scroll the available parameters on either Measurement 1 or 2.

To disable or enable the parameters available on the **Measurements** Screen see **Results Selection** in the **Measurement Settings** menu.

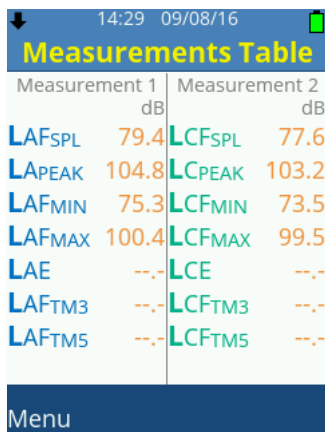
Only parameters specific to the model of dBAir sound meter owned are available, see **dBAir Models & Features** for specific parameter availability as required.



You can upgrade your dBAir sound level meter remotely from your office in a matter of minutes. Call us on +44 (0) 1723 584250.

# Measurements Table

The Measurements Table screen shows all standard parameter values available on your dBAir sound meter conveniently on one screen for both Measurement 1 and Measurement 2. The Measurement Table is available for all models of the dBAir: -



The screenshot shows the 'Measurements Table' screen with the following data:

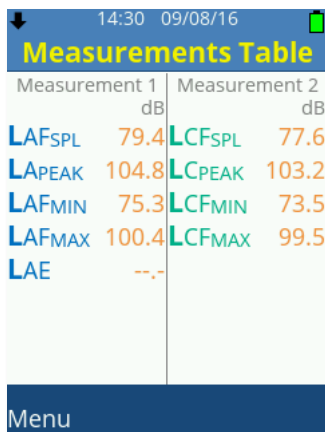
Measurement 1	Measurement 2
dB	dB
LAFSPL 79.4	LCFSPL 77.6
LAPEAK 104.8	LCPEAK 103.2
LAFMIN 75.3	LCFMIN 73.5
LAFMAX 100.4	LCFMAX 99.5
LAE --	LCE --
LAFTM3 --	LCFTM3 --
LAFTM5 --	LCFTM5 --

Menu

To disable or enable the parameters available on the **Measurements Table** Screen see **Results**.

Only parameters specific to the model of dBAir sound meter owned are available, see **dBAir Models & Features** for specific parameter availability as required.

An example of the Measurements Table is shown below which has fewer parameters selected: -



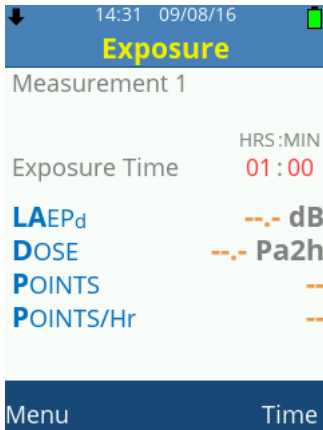
The screenshot shows the 'Measurements Table' screen with the following data:

Measurement 1	Measurement 2
dB	dB
LAFSPL 79.4	LCFSPL 77.6
LAPEAK 104.8	LCPEAK 103.2
LAFMIN 75.3	LCFMIN 73.5
LAFMAX 100.4	LCFMAX 99.5
LAE --	

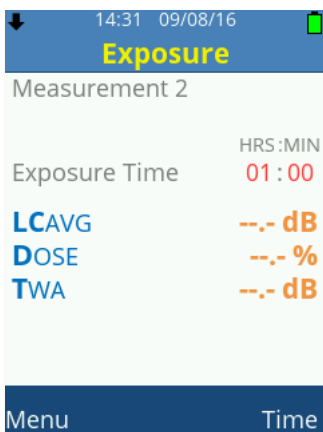
Menu

# Exposure

The Exposure screen is only available for dBAir sound level meters fitted with this option and can either be calculated from Measurement 1 or Measurement 2. See **Exposure & HPD** in **Measurement Settings** for details on how to change the calculated Measurements.

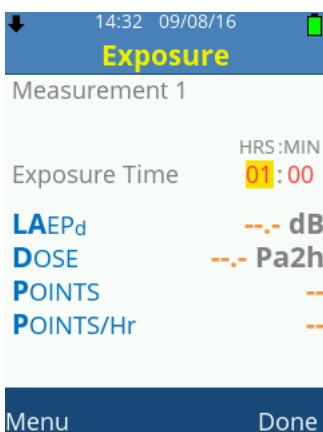


To comply with legislation for various countries the instrument can be set to UK/EU settings as shown above or for USA using OSHA or NIOSH settings as shown below: -



Custom settings may also be set, see **Exposure & HPD** in **Measurement Settings** for instructions on how to change the Exposure settings.

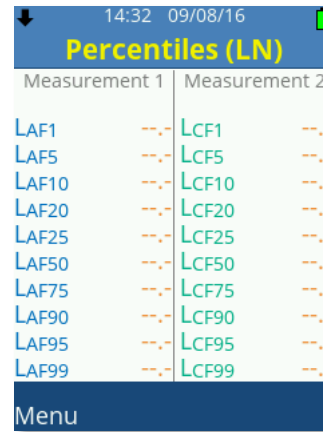
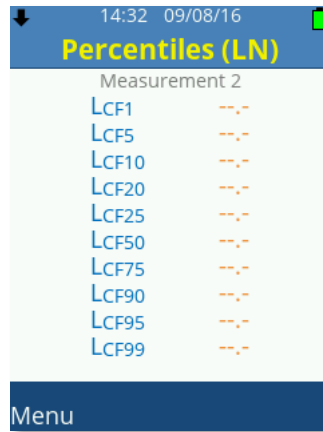
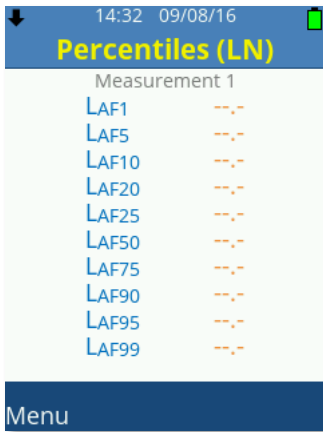
To edit the Exposure Time value, press **Soft Key 2** to highlight HRS, use the Up/Down Arrow keys to adjust the value, Left/Right to move and **Soft Key 2** to confirm: -



# Percentiles (LN)

The Percentiles (LN) screen is only available for dBAir sound level meters fitted with this option.

Percentiles can be turned Off and the percentile level changed. See **Percentiles (LN)** in **Measurement Settings, Statistics** for further details.





# Lden

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The Lden screen is only available for dBAir sound level meters fitted with this option and only calculated from Measurement 1.

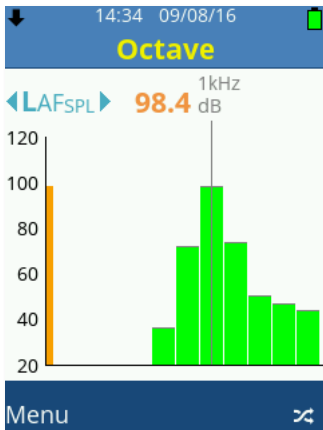
Lden parameters can be turned Off and the times and penalties amended. See **Lden** in **Measurement Settings, Statistics** for further details.



# 1/1 Octave

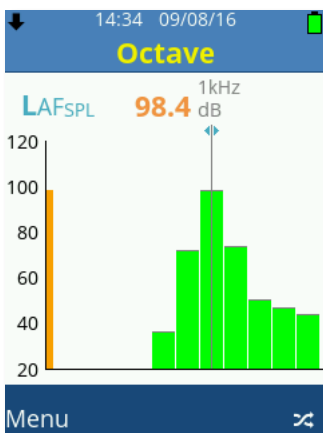
The 1/1 Octave screen is only available for dBAir sound level meters fitted with this option and only calculated from Measurement 1.

The 1/1 Octave can be turned Off if required. See **Octave Analysis** in **Measurement Settings** for further details.



To change parameter, ensure the parameter name is selected, identified by having arrows markers encapsulating the parameter and then use the **Left** or **Right Arrow** keys to scroll the available parameters.

Press **Soft Key 2** to swap between the parameter selection and frequency bands.



When the 1/1 octave bands are selected use the **Left** or **Right Arrow** keys to change the selected frequency band.

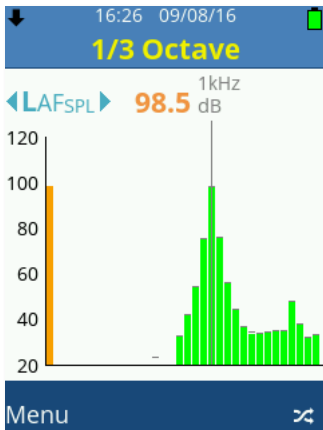
The orange band can also be selected and shows the value calculated across the whole first octave band range.

Only parameters specific to the model of dBAir sound meter owned are available, see **dBAir Models & Features** for specific parameter availability as required.

# 1/3 Octave

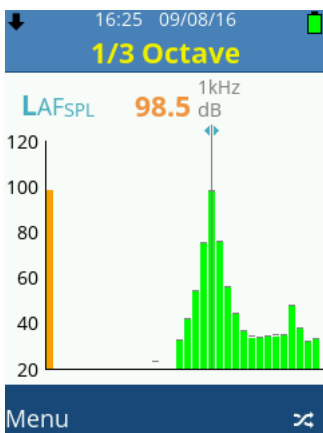
The 1/3 Octave screen is only available for dBAir sound level meters fitted with this option and only calculated from Measurement 1.

The 1/3 Octave can be turned Off if required. See **Octave Analysis** in **Measurement Settings** for further details.



To change parameter, ensure the parameter name is selected, identified by having arrows markers encapsulating the parameter and then use the **Left** or **Right Arrow** keys to scroll the available parameters.

Press **Soft Key 2** to swap between the parameter selection and frequency bands.



When the 1/3 octave bands are selected use the **Left** or **Right Arrow** keys to change the selected frequency band.

The orange band can also be selected and shows the value calculated across the whole third octave band range.

Only parameters specific to the model of dBAir sound meter owned are available, see **dBAir Models & Features** for specific parameter availability as required.

# Chapter 10

## Accessories

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Item	Order Code
Kit Case for dBAir & Accessories	KA017
Multi-Level Acoustic Calibrator Class 1	GA611
Multi-Level Acoustic Calibrator Class 2	GA612
Weatherproof Enclosure (48 Hours)	KA022
▪ Spare 12V / 12Ah Lead Acid Battery	01KA021BATT
Weatherproof Enclosure (4 Days)	KA023
Weatherproof Enclosure (8 Days)	KA024
▪ Spare 12V / 22Ah Lithium Battery	01KA023BATT
Microphone Extension Cable (1 to 10m)	ZL141-SOx
USB Cable 1m (A to micro B)	ZL1109-01
USB Wall Plug (UK)	PSU6
Rubber Protective Sleeve - Blue	dB001B
Rubber Protective Sleeve - Yellow	dB001Y
Rubber Protective Sleeve - Grey	dB001G
Techno Line NiMH Battery Charger (UK)	01BATTCHARGER
Eneloop Pro AA Rechargeable Batteries (Pack 4)	01AANiMH-ENELOOP
Class 1 Microphone 50mV/Pa	MK75
Class 2 Microphone 25mV/Pa	MK79
Pre-Amplifier Assembly (Microphone Not Included)	MK141
Hand Strap	70MIS02525