

# Instruction manual



## BUG versions



**bug**



VGA **bug**



LCD **bug**

## BUG headband versions



**Flexi headband**



**Firm headband**

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## Introduction

**BCF Technology is the market leader in the development and production of “real time” ultrasound pregnancy scanners for large animal species. One of the main benefits of BCF’s scanners is the versatility and ergonomics of our viewing devices. BUG (BCF Universal Goggles) are available in three versions: BUG, LCD BUG and VGA BUG.**

BCF has utilised the latest **OLED technology in BUG** to deliver the highest quality image.

**LCD technology** is used in both **LCD BUG and VGA BUG**. LCD BUG and VGA BUG provide a soft and more familiar image.

The **BUG** devices are designed and manufactured in Scotland at:

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service@bcftechnology.com  
www.bcftechnology.com

As specialists in providing ultrasound imaging equipment for animal husbandry applications, we understand the importance of using reliable equipment. All BCF products are designed and manufactured to withstand the environments in which they are used. However, should you experience any problems with your BUG, BCF service engineers are available to provide rapid service support and ensure optimum performance of your BCF system.

BUG devices have been designed to operate as a component of BCF ultrasound scanners and as such the combined system conforms with the requirements of European Directive 89/336/EEC relating to electromagnetic compatibility (EMC) and also 2002/95/EC relating to Reduction of Hazardous Substances (RoHS). If you require any further information regarding these directives please contact us directly.

*Note: All BCF Technology products are to be used for animal applications only.*

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## Operator safety

The BUG devices should only be used for BCF ultrasound scanning systems, and only when scanning animals. Please be aware of your own spatial environment to avoid colliding with unseen objects.

Any head mounted viewing device should not be used continuously over a long period of time. Periods of use should not exceed two hours without a break. Mounting the glasses above the line of sight as recommended in this manual will assist your comfort.

# 1 Operating instructions

## 1.1 Connecting to scanner

BUG goggles are available with two different types of connectors. One is screw type and the other is a push fit.

With the screw type, the connector must be screwed tight into the scanner to ensure environmental proofing of the connector and cable.

With the push fit, check the cable plug and the scanner socket are clean and free of debris then push the connector firmly into the scanner.

## 1.2 Display positioning

The displays are designed to allow you to see the ultrasound image in front of your eyes. This ensures maximum animal awareness whilst ensuring a clear view of the image.

**Fig 1. Too close:** head gear is hitting the forehead causing discomfort and limiting adjustment.

**Fig 2. Too far:** Distance from eyes is too great causing a less than optimal image.

**Fig 3. Correct fit (flexi headband only):** To test if the housing is too close, place BUG on your head and press unit into your forehead. If the unit is in the correct position, you should only just be able to press the housing onto your forehead.

**Fig. 4 Correct fit (firm headband only):** To set the goggles as close as possible to your eyes without the housing touching your forehead, adjust the inner headband angle (position on your forehead) and then pivot the outer band for correct display alignment.

**Fig. 5 Raised position (for both headbands):** You can move goggles up and down as you would do with sunglasses when not in use. This positioning is useful when you are not scanning.

If glasses are normally worn then please continue to use glasses. This position will not be affected by glasses.

Fig 1. Too close

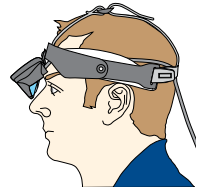


Fig 2. Too far

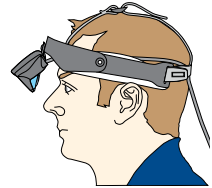


Fig 3. Correct fit  
(flexi headband)

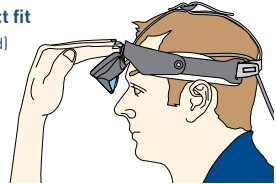


Fig 4. Correct fit  
(firm headband)

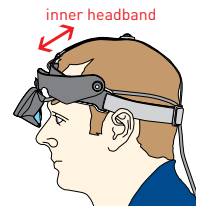
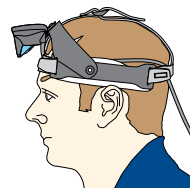


Fig 5.  
Raised position



### 1.3 Strap adjustment (flexi headband)

**Fig 6.** The easiest way to adjust the distance from your eyes is by altering the front two headband tabs. You will have easier access to the tabs if you angle the headgear up. Loosening the front headband will cause the housing (and therefore the image) to move closer to your eyes. Tightening the front headband will cause the housing to move away from your eyes. You should do this if the housing is hitting your head.

**Fig 7.** (1) If you are happy with the position of the BUG housing in relation to your eyes, tighten the back two straps so the housing is securely fitted on your head (overlap the straps if needed).

(2) Then lightly tighten the crown strap.

### 1.4 Strap adjustment (firm headband)

**Fig. 8** Once you have obtained a good position for the display, tension the two straps, first adjusting the back strap by sliding the adjuster (1), and then tension the crown strap (2).

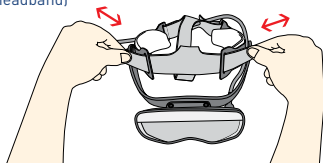
For further video instruction on how to adjust BUG goggles, please visit the "Customer support" section on our website: [www.bcfttechnology.com](http://www.bcfttechnology.com)

### 1.5 Brightness adjustment

When the BUG devices are connected to the newest model of Easi-Scan, the brightness of the image can be adjusted from the scanner's setup menu. Refer to the Easi-Scan user manual for details. This feature is not available when used with Duo-Scan or older versions of Easi-Scan.

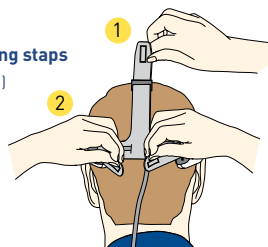
**Fig 6. Strap adjustment**

(flexi headband)



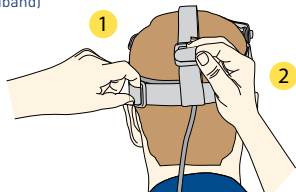
**Fig 7. Securing straps**

(flexi headband)



**Fig 8. Strap adjustment**

(firm headband)



## 2 Care and maintenance

We have built the BUG display headset to be rugged and splash resistant, however it does contain sensitive electronics and optics. With a little care and maintenance you will enjoy many years of excellent imaging.

### Care

The BUG headset may become damaged if you:

- Drop it
- Hose it down
- Wipe the lenses with your thumb

For a long and happy BUG life:

- Treat the lenses as you would treat your favourite glasses/sunglasses.
- Clean immediately after use – before any debris dries solid.  
Disconnect from scanner.
- Grit / mud should first be removed by rinsing gently – do not rub the lenses.
- Dry excess water off the housing with a clean soft cloth – do not rub the lenses.
- Only wipe the lenses with spectacle cleaner fluid and a clean cloth or computer screen wipe – allow to evaporate.
- Store your BUG in a protective carry case once clean and dry.



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## **BUG facts**

We used plastic lenses to ensure lightweight and achieve desired optical properties of the BUG. They can be replaced at your nearest BCF service centre. The headset housing is splash resistant to withstand use in the rain and gentle rinsing. They will not withstand powerful water jets – i.e. tap full on, hose down or immersion in water.

BUG devices are available with two different connector types. The push fit connector is sealed to IP65 and is splash resistant to the same level as the housing. The screw connector is only sealed when properly secured to the scanner but is vulnerable when disconnected. Do not rinse or submerge the connector.

## **Maintenance**

Replacement forehead pads are available in two different thicknesses. Peel the old pad from the 'velcro' on the inner headband and reattach a new one with the absorbent cotton side towards the skin.

Your BUG device is sealed. Do not try to take it apart. Return your headset to your authorised BCF service centre or distributor in your country for an annual check, replace seals, elastics and adjust drive circuits for continued high performance.

## 3 Technical specifications

### BUG specifications

#### Optical lens and display – per eye

|                   |                                 |
|-------------------|---------------------------------|
| Pixel resolution: | SVGA 800 x 600                  |
| Display size:     | 12.78 x 9 mm                    |
| Luminance:        | 850 cd / m <sup>2</sup> (white) |
| Contrast ratio:   | > 300:1                         |

#### Headset

|                         |   |
|-------------------------|---|
| Power consumption:      | 700 mW @ 5 V (Easi-Scan 3) or<br>900 mW @ 6.5 V (Easi-Scan 3 or Duo-Scan) |
| Voltage input:          | 5.0 V to 6.5 V  |
| Environmental proofing: | IP65  |
| Video format:           | NTSC / PAL monochrome – auto detect                                       |
| Temperature range:      | -40 °C to +40 °C (-40 °F to +131 °F)                                      |
| Weight:                 | 300 g   |
| Compatible with:        | Easi-Scan and Duo-Scan  |

### LCD BUG specifications

#### Optical lens and display – per eye

|                   |                                 |
|-------------------|---------------------------------|
| Pixel resolution: | QVGA 320 x 240                  |
| Display size:     | 4.8 x 3.6 mm                    |
| Luminance:        | 180 cd / m <sup>2</sup> (white) |
| Contrast ratio:   | 70:1                            |

#### Headset

|                         |  |
|-------------------------|--|
| Power consumption:      | 600 mW @ 5 V (Easi-Scan 3) or<br>780 mW @ 6.5 V (Easi-Scan2 or Duo-Scan) |
| Voltage input:          | 4.8 V to 10 V  |
| Environmental proofing: | IP65   |
| Video format:           | NTSC/PAL Monochrome-Auto detect  |
| Temperature range:      | -10 °C to +40 °C (+14 °F to +104 °F)                                     |
| Weight:                 | 240 g  |
| Compatible with:        | Easi-Scan and Duo-Scan   |

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## VGA BUG specifications

### Optical lens and display – per eye

|                   |                                 |
|-------------------|---------------------------------|
| Pixel resolution: | VGA 640 x 480                   |
| Display size:     | 9 x 6.8 mm                      |
| Luminance:        | 160 cd / m <sup>2</sup> (white) |
| Contrast ratio:   | 80:1                            |

### Headset

|                         |   |
|-------------------------|---|
| Power consumption:      | 1.2 W   |
| Voltage input:          | 4.8 V to 10 V   |
| Environmental proofing: | IP65  |
| Video format:           | NTSC/PAL Monochrome-Auto detect   |
| Temperature range:      | -10 °C to +40 °C (+14 °F to +104 °F)  |
| Weight:                 | 235 g   |
| Compatible with:        | Easi-Scan. Possible to connect to Duo-Scan, older versions of Easi-Scan with adapter leads, with no brightness control. |

**For further information on care and maintenance of the BUG devices please visit the “Customer support” section of the BCF website [www.bcftechnology.com](http://www.bcftechnology.com)**

## Service centres

If your Easi-Scan requires servicing please contact official authorised service centres below or distributor in your country. Distributors contact details can be found at [www.bcftechnology.com](http://www.bcftechnology.com)

### **In the UK:**

BCF Technology Ltd  
Imaging House, Phoenix Crescent  
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