Technical Specification

Part Number:	BF446C/CC/SR	BF446C/CC/DR	BF446C/CC/DR/65	BF447C/CC/SR	BF447C/CC/DR	BF447C/CC/DR/65
Description:	Hi-Output Voice Sounder, Shallow Base, Red Enclosure	Hi-Output Voice Sounder, Deep Base, Red Enclosure	Hi-Output Voice Sounder, Deep Base, Red Enclosure	Hi-Output Voice Sounder VAD, Shallow Base, Red Enclosure	Hi-Output Voice Sounder VAD, Deep Base, Red Enclosure	Hi-Output Voice Sounder VAD, Deep Base, Red Enclosure
Relevant Standards:	EN 54-3 (Sounders)			EN 54-3 (Sounders) EN 54-23 (VAD)		
Supply Voltage:	18 to 30 Vdc					
(1) Imax:	26.7 mA *			26.9 mA (0.5 Hz) * 42.5 mA (1 Hz) *		
(2) Ityp:	6.5 mA @ 18 Vdc * 7.1 mA @ 30 Vdc *			13.1 mA @ 30 Vdc (0.5 Hz) * 19.1 mA @ 30 Vdc (1 Hz) * 15.2 mA @ 18 Vdc (0.5 Hz) * 24.3 mA @ 18 Vdc (1 Hz) *		
Power @30 Vdc:	210 mW			393 mW		
Environment Type (EN 54-3/23):	Type A (EN 54-3)	Type B (EN 54-3)		Type A (EN 54-3 & EN 54-23)	Type B (EN 54-3 & EN 54-23)	
VAD Cat. (EN 54-23) (W-Class):	N/A			W-2.75-9 / W-4-4		
VAD Temporal Pattern:	N/A			1.0 / 0.5 Hz synchronised		
Cuboid Volume (W-Class):	N/A			161.5 m³ / 64 m³		
Peak SPL at Vmax:	86.9 dB(A) @ 1 m ** synchronised					
Dimensions (including base):	108.3 mm dia., 99.5 mm deep	114 mm diameter, 131.5 mm deep		108.3 mm dia., 99.6 mm deep	114 mm diameter, 131.6 mm deep	
Weight:	215 g	300 g		230 g	315 g	
Mounting Type:	Wall					
Body Material / Colour:	Polycarbonate RAL 3001 Signal Red					
IP Rating (EN 60529):	IP21C	IP33C	IP55C/IP65C***	IP21C	IP33C	IP55C/IP65C***
Operating Temperature:	-10°C to +55°C (Type A)	-25°C to +55°C (Type B)		-10°C to +55°C (Type A)	-25°C to +55°C (Type B)	
Humidity:	Max. 95% RH (non-condensing)					

(1) Imax - Maximum start surge, maximum running pulse current. Ensure that Imax current for all devices on the sounder circuit does not exceed the current limitations of the fire alarm panel.

(2) Ityp - Average running current.

* @ maximum volume level @ 0.5Hz.

** ±3 dB(A) when sounder set to PRIMARY TONE 1.

*** IP65C compliant with optional O ring fitted (Pt. No. RNU0100054 - supplied).

Manufacturer: Compultionics Limited (C-TEC), Challenge Way, Martland Park, Wigan, Lancashire WN5 0LD. www.c-tec.com

E&OE. No responsibility can be accepted by the manufacturer or distributors of these devices for any misinterpretation of this instruction, or for the compliance of the system as a whole. The manufacturers policy is one of continuous improvement and we reserve the right to make changes to product specifications at our discretion and without prior notice.

Hi-Output Voice Range Installation Instructions

Conventional Audio Visual Devices

BF446C/CC/SR, BF446C/CC/DR, BF446C/CC/DR/65
BF447C/CC/SR, BF447C/CC/DR, BF447C/CC/DR/65

Product Description

The ActiV Hi-Output range of conventional voice sounders and combined voice sounder visual alarm devices (VADs) are designed for use with C-TEC's range of conventional fire panels and other compatible third-party panels. However, compatibility testing with third-party panels is recommended to ensure correct operation.

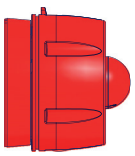
With a 86.9 dB(A) peak sound output @ 1 m, their purpose is to visually and audibly alert building occupants of a fire alarm. Units are supplied with either a shallow or deep base, in a red plastic enclosure.

The following variants are available:

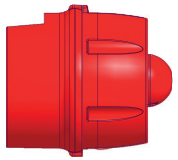
Part Number	Description
BF446C/CC/SR	ActiV Conventional Hi-Output Voice Sounder, Shallow Base, Red Enclosure, IP21C
BF446C/CC/DR	ActiV Conventional Hi-Output Voice Sounder, Deep Base, Red Enclosure, IP33C
BF446C/CC/DR/65	ActiV Conventional Hi-Output Voice Sounder, Deep Base, Red Enclosure, IP55C / IP65C*
BF447C/CC/SR	ActiV Conventional Hi-Output Voice Sounder VAD, Shallow Base, Red Enclosure, IP21C
BF447C/CC/DR	ActiV Conventional Hi-Output Voice Sounder VAD, Deep Base, Red Enclosure, IP33C
BF447C/CC/DR/65	ActiV Conventional Hi-Output Voice Sounder VAD, Deep Base, Red Enclosure, IP55C / IP65C*

* IP65C compliant with optional O ring fitted (Pt. No. RNU0100054 - supplied).
Non-approved to EN 54 standard by LPCB but independently 3rd party tested.

CONVENTIONAL VOICE SOUNDERS



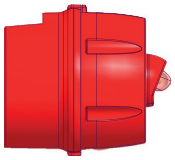
Shallow Base
BF446C/CC/SR (Red)



Deep Base
BF446C/CC/DR (Red)
BF446C/CC/DR/65 (Red)

CONVENTIONAL VOICE SOUNDER VADs

Shallow Base
BF447C/CC/SR (Red)



Deep Base
BF447C/CC/DR (Red)
BF447C/CC/DR/65 (Red)

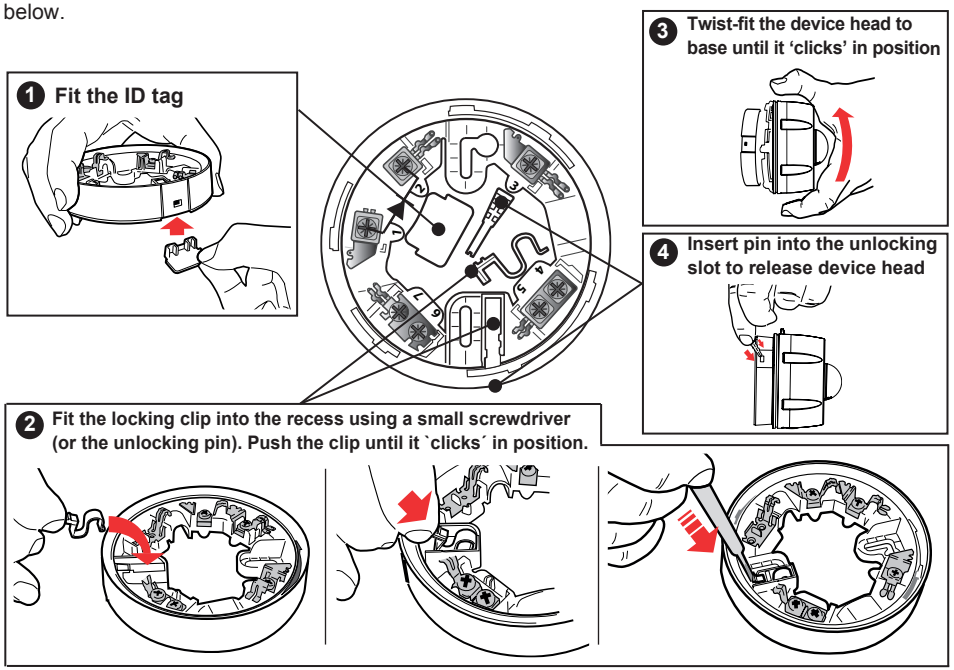
The devices offer low current consumption, high sound output, high efficiency VADs, four selectable tones plus override secondary tones, two selectable evacuation voice messages, two selectable volume levels and three selectable VAD flash rates. Tones, messages, volume levels and VAD flash rates are selected using the device's 8-way DIP switch.

All devices are designed to comply with the relevant sections of the fire alarm device standards EN 54-3 (Sounders) and EN 54-23 (Visual alarm devices - VADs).

Base Accessories and Locking Mechanisms

Shallow Base Type

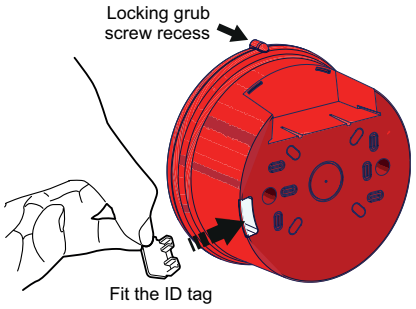
Each shallow base is supplied with a fitted device identification (ID) tag, head-base locking clip and unlocking pin. If required, remove these items from the base and use as shown in steps 1, 2 & 4 below.

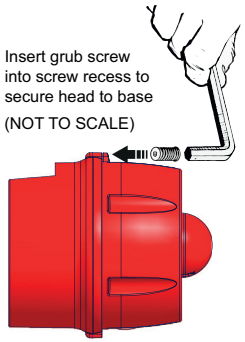


Deep Base Type

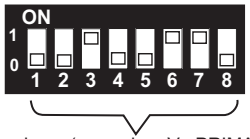
Important Note: For a deep base, only the ID tag detailed in step 1 above, may be fitted.
DO NOT USE THE LOCKING CLIP AND UNLOCKING PIN detailed above, otherwise the head will be permanently locked in position.

The base is secured to the head using a locking grub screw (M3x10) and Allen key, as shown below.





DIP Switch Operation



Each device's operation is set using Bits 1 to 8 on its DIP switch.
DIP switch up (ON) = 1, DIP switch down (OFF) = 0.
Use a small screwdriver to set the switches and refer to the tables below for settings. Ensure the switches are set before installation and fully pushed up or down.

Example above (assuming -Ve PRIMARY is wired to the base):
DIP Switch Setting = 0 0 1 0 0 1 1 0
PRIMARY TONE 0 (Slow Two Tone)
Message 1 'Attention please...'
Volume Level High
VAD Flash Rate W-2.4-8.2 / W-4-4, 0.5 Hz

Sounder Tones (DIP Switches 1 & 2)

PAIR	PRIMARY TONE	SECONDARY TONE	DIP SWITCH 1 2
0	Slow Two Tone	Slow Two Tone	0 0
1	Fast Two Tone	Fast Two Tone	1 0
2	Sweep	Sweep	0 1
3	On-Off Tone	On-Off Tone	1 1

Messages (DIP Switches 3, 4 & 5)

PAIR	PRIMARY MESSAGE	SECONDARY MESSAGE	DIP SWITCH 3 4 5
0	No Message *	No Message	0 0 0
1	Attention please. Attention please. Fire has been reported in the building. Please leave immediately by the nearest exit. (x2)	This is a fire alert. This is a fire alert. Await further instructions. Await further instructions. (x2)	1 0 0
2	In the interest of safety please evacuate the building now. (x3)	This is a fire alert. This is a fire alert. Await further instructions. Await further instructions. (x2)	0 1 0
3	Spare	Spare	1 1 0
4	Spare	Spare	0 0 1
5	Spare	Spare	1 0 1
6	Spare	Spare	0 1 1
7	Spare	Spare	1 1 1

* When 'No Message' is selected the preceding Sounder Tone is turned off.

Volume Level (DIP Switch 6)

VOLUME LEVEL	DIP SWITCH 6
Low Volume	0
High Volume	1

VAD Flash Rate (DIP Switches 7 & 8)

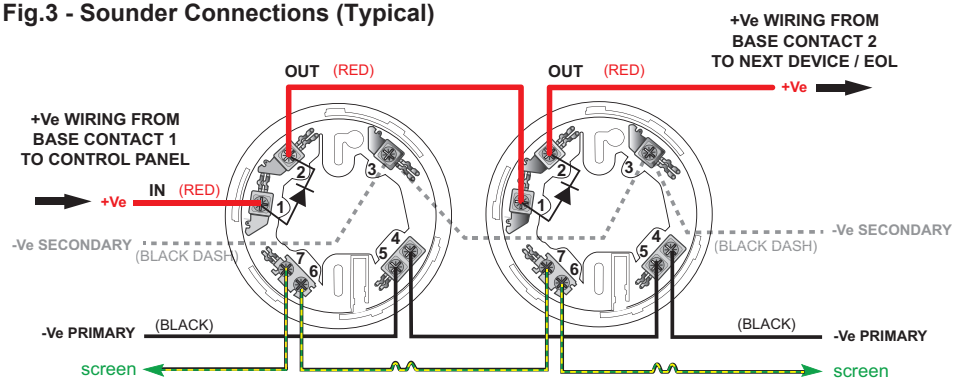
FLASH RATE	DIP SWITCH 7 8
Off	0 0
W-2.75-9 / W-4-4, 0.5 Hz	1 0
W-2.75-9 / W-4-4, 1 Hz	0 1
Power Save, 0.5 Hz	1 1

Connections

Connect incoming and outcoming line cables to the base's screw terminals, as shown in Fig.3.
Note: The bases incorporate a diode to allow detection of a sounder/VAD head removal and still allow operation of devices (downstream) in alarm.

For correct operation, wire the +Ve connector wiring from contact 1 to the control panel and wiring from contact 2 to the next device/End of Line (EOL).

Fig.3 - Sounder Connections (Typical)



Base Contact	Function
1	+Ve (IN)
2	+Ve (OUT)
4 & 5	-Ve PRIMARY
3	-Ve SECONDARY
6 & 7	cable screen

- Correct wiring to IN & OUT terminals is imperative.
- Terminals can accept 0.25 mm² to 2.5 mm² wiring.
- It is recommended that screened cables are used to reduce electrical noise and lower eletromagnetic radiation.
- Diode base MUST be used to maintain correct monitoring.

Note: The selection of secondary tones is made by wiring to the '-Ve SECONDARY' connections (see base contact 3, Fig.3). Optional secondary wiring provides override secondary sounder tones. This wiring configuration is dependent on the host fire panel having secondary wiring capability. Contact C-TEC Technical for further information about secondary wiring.

Maintenance

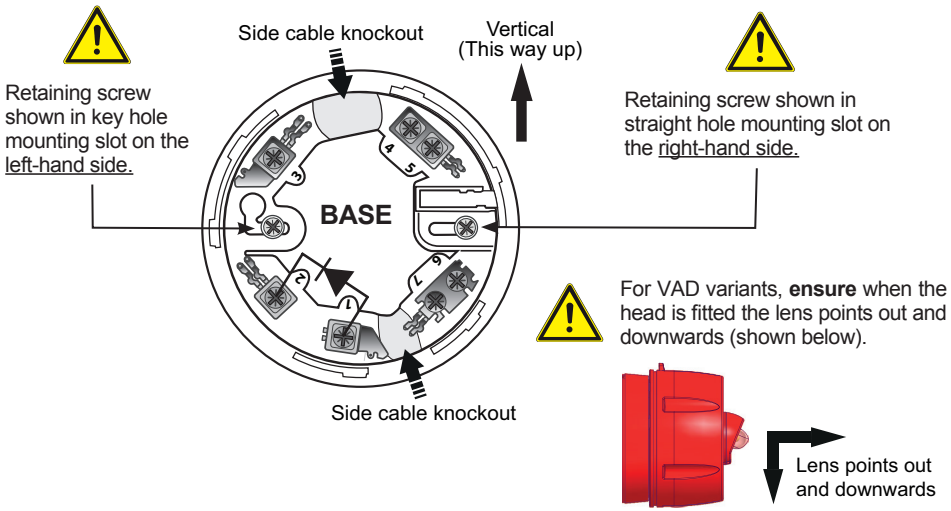
Periodic inspection, testing and maintenance of fire detection systems should be carried out in accordance with national, regional or local standards. In the UK the relevant standard is BS 5839-1 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.

Inspection and maintenance of the system should only be carried out by a competent person with specialised knowledge of fire detection and alarm systems. This is normally a competent service provider appointed to maintain the system.

Wall Mounting Orientation

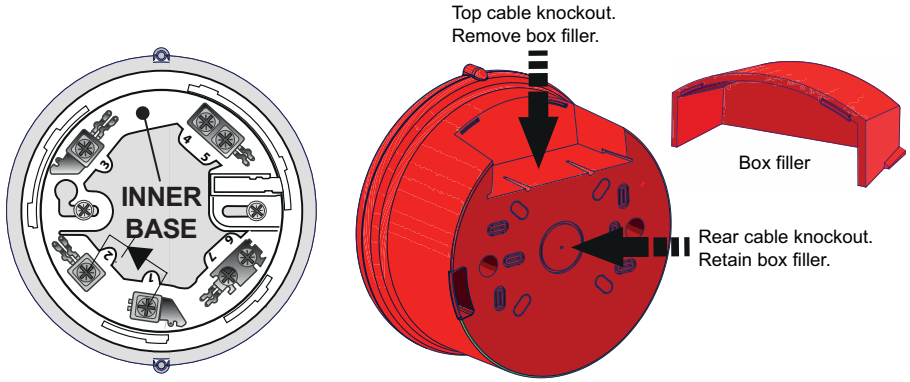
Important Note: It is good practice to horizontally align the two mounting slots in the shallow and deep bases. This ensures that VAD variants are correctly orientated when fitted and illuminate in the correct plane. See diagrams below (base accessories not shown).

Shallow Base Type - Orientation & Rear/Side Cable Entry



Deep Base Type - Orientation & Top/Rear Cable Entry

The deep base is factory built for top cable entry and supplied with a box filler, as shown below.



Deep Base Type - Bottom Cable Entry

If bottom cable entry is needed, remove the two inner base retaining screws, then rotate the inner base 180 degrees and re-secure. This ensures that VAD variants are correctly orientated when fitted. Note when mounted on an outside wall, cables should enter the deep base from below and not from the top (unless under cover).

Mounting the Base

THE SYSTEM MUST BE COMPLETELY POWERED DOWN BEFORE INSTALLATION

Before installing, fit the optional base accessories (refer to `Base Accessories...' section) and ensure the devices are correctly orientated (refer to `Wall Mounting Orientation' section). Each base has two mounting slots for standard electrical termination boxes.

Ensure the devices are installed in accordance with applicable local or national regulations and do not mount bases on uneven surfaces.

Shallow bases are ideal for applications where the loop cable is buried into the wall as they have a large, rear, access hole through which the cable can be fed. As an alternative to using termination boxes, cable knockouts are provided in the sides of the shallow base (if required).

Deep bases are ideal for applications requiring higher IP ratings. They include a box filler that can be removed to accept surface cabling that runs vertically up/down the wall.
Note when mounted on an outside wall, cables should enter the deep base from below and not from the top (unless under cover). See Fig.2 below and refer to page 3 for rotating the inner base 180 degrees.

Securely fix the base to a wall using two retaining screws in the mounting slots provided.

Ingress Protection (IP)

Shallow base models are Type A, IP21C rated and deep base models are Type B, either IP33C or IP55C / IP65C* rated.

Where installers might have a water/moisture ingress occurrence, suggested sealing methods for shallow and deep base models are shown in Fig.1 & Fig.2 below.

To protect against ingress, ensure all cable entry points and cable glands are adequately sealed using standard neutral cure building silicone (clear).

Note: A separately supplied IP protection plate (Part No. BFIPPLATE) may be used with the shallow base models to maintain the IP rating.

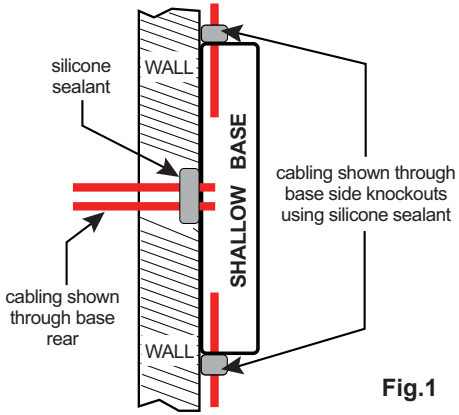


Fig.1

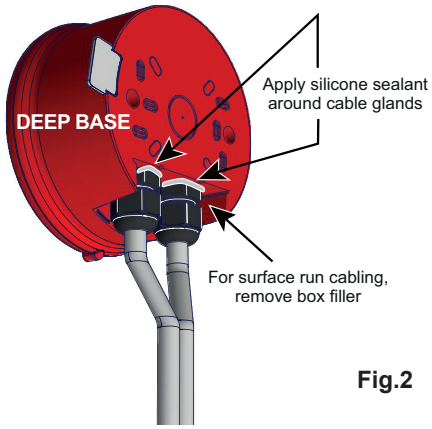


Fig.2

* For IP65C rated models, carefully remove the factory fitted IP55C O ring from the deep base and carefully fit the supplied IP65C O ring (Pt. No. RNU0100054). It is important to use a plentiful amount of silicone based lubrication on the O ring to assist fitting the sounder to its base.

Important Note about Ingress Protection (IP) and fitting the supplied O rings

During test & commissioning do not fit any O ring in the deep base unit until the installer is satisfied the sounder is working correctly. The factory fitted IP55C O ring should be carefully removed and safely stored.

The installer needs to fit the correct O ring for the environment the deep base units are being installed in.

The table below is a simple explanation of what the IP numbers actually mean to help the installer decide. For full details refer to EN 60529 (Degrees of Protection Provided by Enclosures).

IP Rating	First Number (Solids)	What the first number means	Second Number (Liquids)	What the second number means	O ring information
IP55C	5	Dust Protected	5	Protected against water jetting (hose pipe)	Supplied fitted on the unit (thinner O ring)
IP65C	6	Dust Tight	5	Protected against water jetting (hose pipe)	Supplied separately with the unit

The additional letter 'C' means protection against access with a tool.

Therefore:

- If you use the **IP55C O ring** (the one fitted on the unit), you have a deep base unit that is **Dust Protected** and protected against **water jetting – hose pipe**.
- If you fit the **IP65C O ring** (the one supplied separately), you have a deep base unit that is **Dust Tight** and protected against **water jetting – hose pipe**.

Please be aware, the IP55C O ring is a very tight fit when fitted with the deep back box. Only fit the O ring when the deep back box is securely fixed in its final position and test & commissioning is complete.

Please be aware, the IP65C O ring is an even tighter fit than above when fitted with the deep back box. Only fit the O ring when the deep back box is securely fixed in its final position and test & commissioning is complete.

It is important to use a plentiful amount of silicone based lubrication on the O rings to assist fitting.