EN 54-17 Isolator Specification (Autonomous Voltage Sensing Isolator)

Supply Voltage (V min to V max):	17 to 28 Vdc *
Nominal Supply (V nom):	24 Vdc
Maximum Rated Continuous Current (Ic max):	1 A - switch closed
Maximum Switching Current (Is max):	3 A - short circuit condition
Maximum Leakage Current (IL max):	14 mA @ 28 Volts - switch open
Maximum Impedance (Zc max) @ loop startup/recovery condition:	100 mOhm - switch closed
Maximum Isolating Voltage (Vso max):	16.5 Volts - switches from closed to open
Minimum Isolating Voltage (Vso min):	12.5 Volts - switches from closed to open
Maximum Re-connecting Voltage (Vsc max):	13.5 Volts - switches from open to closed
Minimum Re-connecting Voltage (Vsc min):	7.0 Volts - switches from open to closed

* Excluding data pulses

Sounder Tone Pair Details (Tones are selectable at the panel)

PAIR	TONE 1 - PRIMARY	TONE 2 - SECONDARY
1	Evacuate (572 Hz for 0.5 sec, 720 Hz for 0.5 sec) ****	Alert (1 sec off, 825 Hz for 1 sec)
2	Alternating (962 Hz for 0.25 sec, 572 Hz for 0.25 sec) ****	Continuous (925 Hz)
3	Medium Sweep (800 Hz to 970 Hz at 1 Hz)	Continuous (970 Hz)
4	Fast Sweep (2500 Hz to 2850 Hz at 9 Hz)	Continuous (2850 Hz)
5	Dutch Slow Sweep (500 Hz to 1200 Hz for 3.5 sec on, 0.5 sec off) ****	Continuous (825 Hz)
6	DIN Tone Sweep (1200 Hz to 500 Hz for 1 sec)	Continuous (825 Hz)
7	Swedish Fire Tone (660 Hz, 150 msec on, 150 msec off)	All clear continuous (660 Hz)
8	Aus Fast Rise Sweep [3 x (500 Hz to 1200 Hz for 0.5 sec on), 0.5 sec off]	Aus Alert (420 Hz, 0.625 sec, 0.625 sec off)
9	NZ Slow Rise Sweep (500 Hz to 1200 Hz for 3.75 sec on, 0.25 sec off)	NZ Alert (420 Hz, 0.625 sec, 0.625 sec off)
10	US Temporal LF [3 x (970 Hz, 0.5 sec on, 0.5 sec off), 1 sec off]	Continuous (970 Hz)
11	US Temporal HF [3 x (2850 Hz, 0.5 sec on, 0.5 sec off), 1 sec off]	Continuous (2850 Hz)
12	Simulated Bell Continuous	Simulated Bell Intermittent (1 sec off, 1 sec on)
13	Cranford Sweep	Cranford Alert
14	Cranford Continuous	Cranford Alert
15	Cranford Two Tone	Cranford Alert

**** Approved to EN 54-3 (refer to Document No. DFU4300007 for SPL measurements)

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

Hi-Output Range Addressable Sounders & Visual Alarm Devices
Installation Instructions Discovery Compatible

Product Description

The Hi-Output range of addressable, loop-powered devices includes sounders and combined sounder visual alarm devices (VADs).

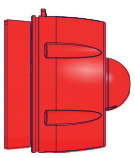
They are designed for use with C-TEC's ZFP/XFP panels and other Apollo Discovery compatible fire panels.

With a 103 dB(A) 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.

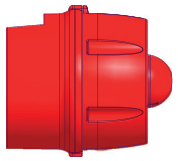
The following variants are available:

Part Numbers	Description
BF430A/CX/SR	Hi-Output Addressable Wall Sounder, shallow base, red, IP21C (Discovery)
BF430A/CX/DR	Hi-Output Addressable Wall Sounder, deep base, red, IP33C (Discovery)
BF433A/CX/SR	Hi-Output Addressable Wall Sounder VAD, shallow base, red, IP21C (Discovery)
BF433A/CX/DR	Hi-Output Addressable Wall Sounder VAD, deep base, red, IP33C (Discovery)

ADDRESSABLE SOUNDERS



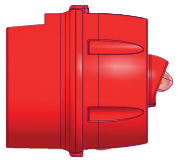
Shallow Base
BF430A/CX/SR (Red)



Deep Base
BF430A/CX/DR (Red)

ADDRESSABLE SOUNDER VADs

Shallow Base
BF433A/CX/SR (Red)



Deep Base
BF433A/CX/DR (Red)

The devices offer low current consumption, high sound output, high efficiency VADs, seven selectable volume levels, 15 selectable tone pairs and built-in short-circuit loop isolators.

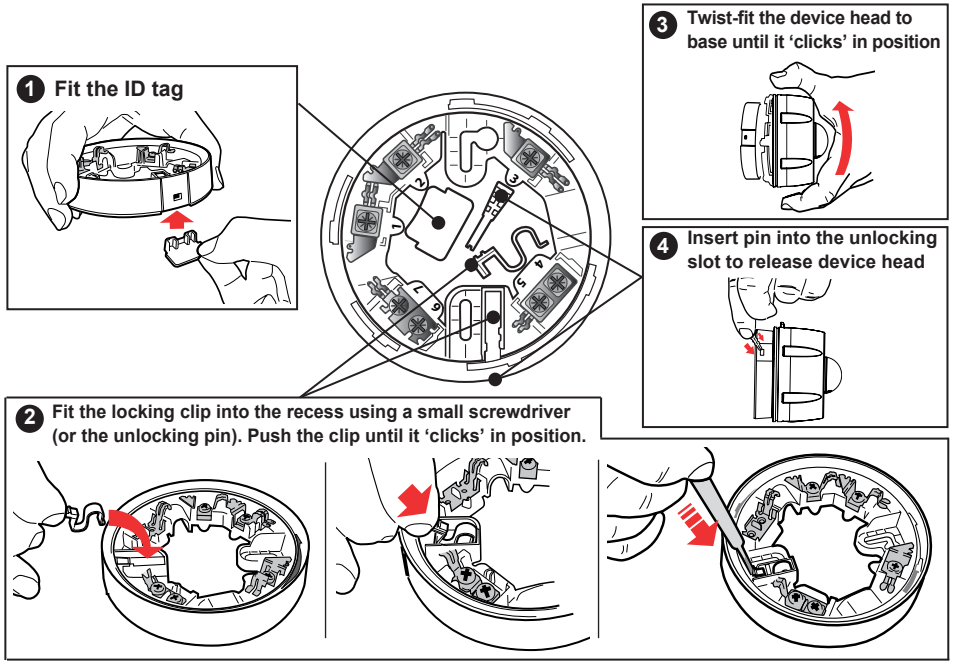
The sounder and VAD on the combined device can be set to operate independently of each other (panel dependent function).

All devices are fully certified with all relevant sections of the fire alarm device standards EN 54-3 (Sounders), EN 54-23 (Visual alarm devices - VADs) and EN 54-17 (Short-circuit isolators).

Base Accessories and Locking Mechanisms

Shallow Base

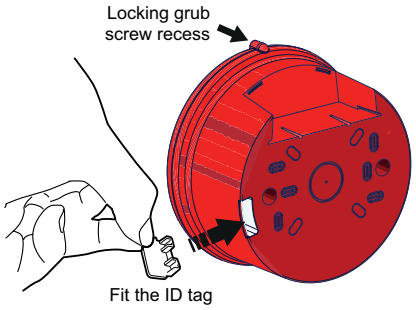
Each shallow base is supplied with a fitted device identification (ID) tag, head-base locking clip and unlocking pin. If required, remove these items from the base and use as shown in steps 1, 2 & 4 below.

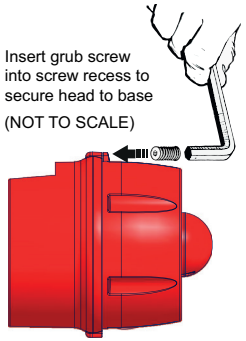


Deep Base

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.





Technical Specifications

Supplementary Specification

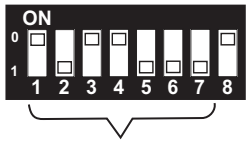
Part Numbers:	BF430A/CX/SR	BF430A/CX/DR	BF433A/CX/SR	BF433A/CX/DR
Description:	Hi-Output Addressable Wall Sounder, Shallow Base, Red	Hi-Output Addressable Wall Sounder, Deep Base, Red	Hi-Output Addressable Wall Sounder VAD, Shallow Base, Red	Hi-Output Addressable Wall Sounder VAD, Deep Base, Red
Certificated Standards:	EN 54-3:2014 + A1:2019, EN 54-3:2001 + A1:2002 (Sounders) EN 54-17:2005 (Short-circuit isolators)		EN 54-3:2014 + A1:2019, EN 54-3:2001 + A1:2002 (Sounders) EN 54-23 (VADs) EN 54-17:2005 (Short-circuit isolators)	
LPCB Certificate Numbers:	176e/01	176e/02	176f/01	176f/02
CPR Certificate Numbers:	2831-CPR-F0942	2831-CPR-F0943	2831-CPR-F0944	2831-CPR-F0945
UKCA Certificate Numbers:	0832-UKCA-CPR-F0760	0832-UKCA-CPR-F0761	0832-UKCA-CPR-F0773	0832-UKCA-CPR-F0774
Declaration of Performance (DoP):	DoP0000043 (Certificates and DoPs are available for download on C-TEC's website)			
Communication Protocol:	Apollo Discovery			
Supply Voltage:	17 to 28 Vdc *		17 to 28 Vdc (Sounder only) * 21 to 28 Vdc (VAD only) *	
Quiescent Current (Typical):	680 µA			
Active Current (Typical):	5.5 mA **		13.9 mA **	
Active Current (Max):	6.7 mA **		15.1 mA **	
Power:	160 mW		390 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-2.4-8.2	
Cuboid Volume (W-Class):	N/A		161.5 m^3 / 64 m^3	
VAD Temporal Pattern:	N/A		0.5 Hz, synchronised	
Nominal SPL at Vmax:	103 dB(A) @ 1 m ***			
Indicators:	Polling LED (Green) S/C Isolator Active (Amber)			
Dimensions (including base):	108.3 mm diameter, 99.5 mm deep	114 mm diameter, 131.5 mm deep	108.3 mm diameter, 99.6 mm deep	114 mm diameter, 131.6 mm deep
Weight:	215 g	300 g	230 g	315 g
IP Rating (EN 60529):	IP21C	IP33C	IP21C	IP33C
Body Material / Colour:	Polycarbonate RAL 3001 Signal Red			
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)			

* Excluding data pulses
** @ Maximum volume level @ Vmin
*** ±3 dB(A) when set to Tone 1 (Pair 2)

Setting the Device Address

Each device's address is set using Bits 1 to 7 on the DIP switch in the device's head. Bit 8 is not used.
DIP switch up (ON) = 0, DIP switch down (OFF) = 1.
DO NOT use addresses 0 or 127.

Use a small screwdriver to set the switches and refer to the chart below for address settings. Ensure the switches are set before installation and fully pushed up or down.



Use Bits 1-7 on the DIP switch to select the device's address (114 in above example).

Addr	DIP position 1234567	Addr	DIP position 1234567	Addr	DIP position 1234567	Addr	DIP position 1234567	Addr	DIP position 1234567
1	1000000	26	0101100	51	1100110	76	0011001	101	1010011
2	0100000	27	1101100	52	0010110	77	1011001	102	0110011
3	1100000	28	0011100	53	1010110	78	0111001	103	1110011
4	0010000	29	1011100	54	0110110	79	1111001	104	0001011
5	1010000	30	0111100	55	1110110	80	0000101	105	1001011
6	0110000	31	1111100	56	0001110	81	1000101	106	0101011
7	1110000	32	0000010	57	1001110	82	0100101	107	1101011
8	0001000	33	1000010	58	0101110	83	1100101	108	0011011
9	1001000	34	0100010	59	1101110	84	0010101	109	1011011
10	0101000	35	1100010	60	0011110	85	1010101	110	0111011
11	1101000	36	0010010	61	1011110	86	0110101	111	1111011
12	0011000	37	1010010	62	0111110	87	1110101	112	0000111
13	1011000	38	0110010	63	1111110	88	0001101	113	1000111
14	0111000	39	1110010	64	0000001	89	1001101	114	0100111
15	1111000	40	0001010	65	1000001	90	0101101	115	1100111
16	0000100	41	1001010	66	0100001	91	1101101	116	0010111
17	1000100	42	0101010	67	1100001	92	0011101	117	1010111
18	0100100	43	1101010	68	0010001	93	1011101	118	0110111
19	1100100	44	0011010	69	1010001	94	0111101	119	1110111
20	0010100	45	1011010	70	0110001	95	1111101	120	0001111
21	1010100	46	0111010	71	1110001	96	0000011	121	1001111
22	0110100	47	1111010	72	0001001	97	1000011	122	0101111
23	1110100	48	0000110	73	1001001	98	0100011	123	1101111
24	0001100	49	1000110	74	0101001	99	1100011	124	0011111
25	1001100	50	0100110	75	1101001	100	0010011	125	1011111
								126	0111111

Maintenance

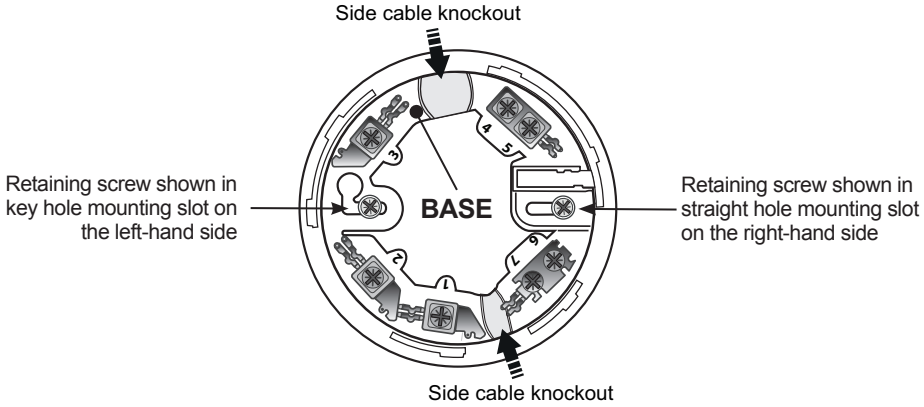
Periodic inspection, testing and maintenance of fire detection systems should be carried out in accordance with national, regional or local standards. In the UK the relevant standard is BS5839-1 Fire detection and alarm systems for buildings: Code of practice for system design, installation & maintenance.

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 third-party fire alarm maintenance organisation.

Wall Mounting Orientation

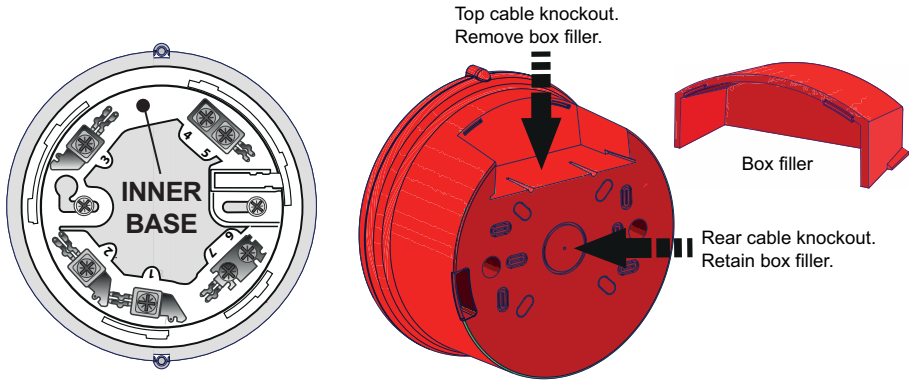
Important Note: The two mounting slots in the shallow and deep bases must be horizontally aligned to ensure devices are correctly orientated and compliant when fitted.
Refer to the diagrams below (base accessories not shown).

Shallow Base - Orientation & Rear/Side Cable Entry



Deep Base - 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 - 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.

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, both single and double cable knockouts are provided in the sides of the shallow base (if required).
Deep bases include a box filler that can be removed to accept surface cabling that runs vertically along the wall.

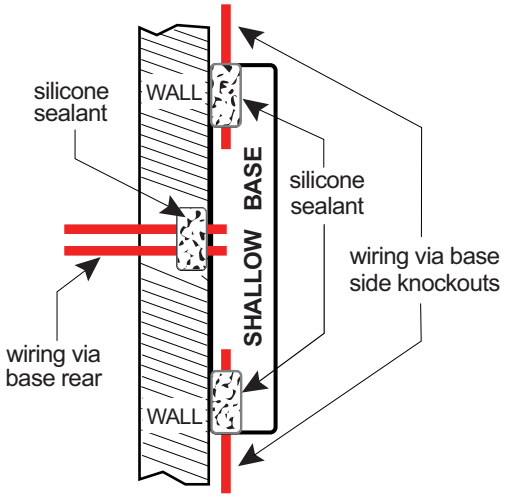
Securely fix the base to a wall using two retaining screws in the mounting slots provided.

Ingress Protection

Shallow base models are Type A, IP21C rated, whereas deep base models are Type B, IP33C rated.

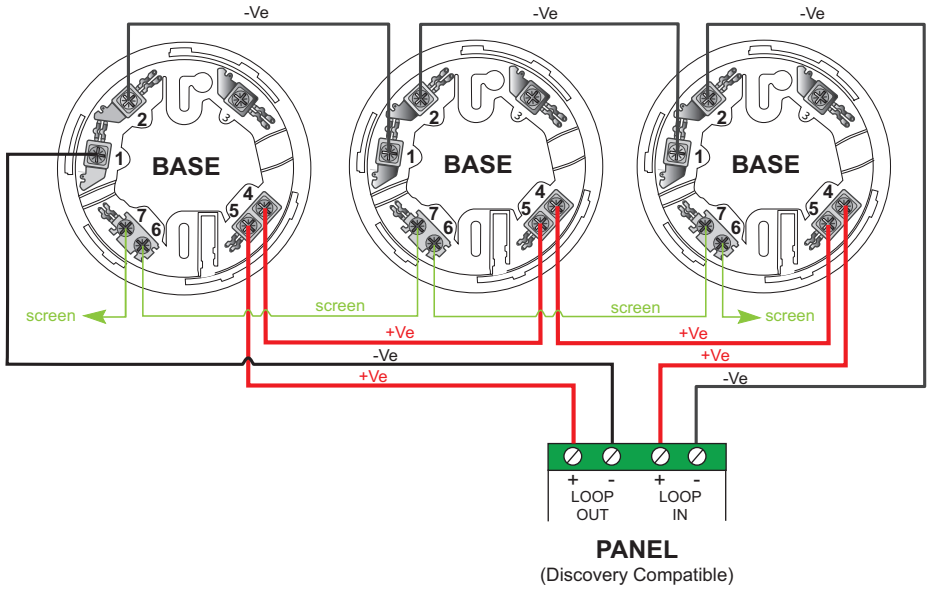
Where installers might have a water/moisture ingress occurrence, a suggested sealing method for shallow base models (to meet IP21C) is shown in the diagram below. To protect against ingress, ensure all cable entry points and cable glands are adequately sealed using standard neutral cure building silicone (clear).
Note: An IP protection plate (Part No. BFIPPLATE) must be used with the shallow base models to maintain the IP rating. Refer to Document No. DFU4500020 for further details.

For deep base models (to meet IP33C), use sealed glands for cabling. For surface run cabling, remove the filler cap and fit suitably rated cable glands. For rear cable entry, use suitable sealing methods.



Wiring the Base

The base has screw terminals for field wiring, as shown below. Note the orientation of the bases shown is for cabling illustrative purposes only.



Base Contact	Function
1	-Ve IN
2	-Ve OUT
4	+Ve OUT
5	+Ve IN
6 & 7	cable screen

- All wiring must conform to local or national regulations.
- Correct polarity must be observed.
- Terminals can accept 0.25 mm^2 to 2.5 mm^2 wiring.
- It is recommended that screened cables are used.