Supplementary Specification

Part Numbers:	BF450A/CX/SW, BF450A/CX/SR	BF451A/CX/SW, BF451A/CX/SR	BF458A/CX/SW, BF458A/CX/SR
Type:	Sounder with isolator	Sounder VAD with isolator	VAD with isolator
Standards:	EN 54-3 (Sounders) EN 54-17 (Short-circuit isolators)	EN 54-3 (Sounders) EN 54-23 (VADs) EN 54-17 (Short-circuit isolators)	EN 54-23 (VADs) EN 54-17 (Short-circuit isolators)
Certificates & Declaration of Performance (DoP):	Intertek Approval Nos.: EN 54-3:2001 + A1:2002 + A2:2006 - 15LHK0082-01; EN 54-17:2005 - 15LHK0083-01; EN 54-23:2010 - 15LHK0089-01. CE Cert. No.: 0359-CPR-00446. DoP: DOP0000042. (Certificates and DoP are available for download on C-TEC's website)		
Protocol:	Apollo Discovery		
Supply Voltage:	17 to 28 Vdc *	17 to 28 Vdc (sounder only) * 21 to 28 Vdc (VAD only) *	21 to 28 Vdc *
Quiescent Current (Typical):	550 µA		
Active Current (Typical):	+4.5 mA (above quiescent) **	+13.5 mA (above quiescent) **	+9 mA (above quiescent) **
Power:	120 mW	340 mW	230 mW
Environment Type (EN 54-3/23):	Type A (EN 54-3)	Type A (EN 54-3 & EN 54-23)	Type A (EN 54-23)
VAD Cat. (EN 54-23) (C-Class):	N/A	C-3-8	C-3-8
(W-Class):	N/A	W-3-3.125	W-3-3.125
VAD Temporal Pattern:	0.5 Hz synchronised		
Cylindrical Volume (C-Class):	N/A	151 m^3	151 m^3
Cuboid Volume (W-Class):	N/A	30 m^3	30 m^3
Flash Rate / Colour:	N/A	0.5 Hz / White	0.5 Hz / White
Nominal SPL at Vmin:	91 dB(A) @ 1 m ***	91 dB(A) @ 1 m ***	N/A
Indicators:	Polling LED (Green) S/C Isolator Active (Amber)		
Dimensions:	102 mm diam.; 57.5 mm deep	102 mm diam.; 63 mm deep	102 mm diam.; 63 mm deep
Weight:	160 g	175 g	170 g
Mounting Type:	Wall / Ceiling		
Polycarbonate Body Colour:	White (BF450A/CX/SW) Red (BF450A/CX/SR)	White (BF451A/CX/SW) Red (BF451A/CX/SR)	White (BF458A/CX/SW) Red (BF458A/CX/SR)
IP Rating (EN 60529):	IP21C		
Operating Temperature:	-10°C to +55°C		
Humidity:	Max. 95% RH (non-condensing)		

* Excluding data pulses
** @ Maximum volume level
*** When set to Tone 1

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

PAIR	TONE 1 - PRIMARY	TONE 2 - SECONDARY
1	Evacuate (550 Hz for 0.5 sec, 825 Hz for 0.5 sec) ****	Alert (1 sec off, 825 Hz for 1 sec)
2	Alternating (925 Hz for 0.25 sec, 626 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 @ Maximum volume level (see Document No. DFU4500007 for SPL measurements).

Compact Range Addressable Sounders & Visual Alarm Devices
Installation Instructions Discovery Compatible

The Compact range of addressable, loop-powered, devices include sounders, visual alarm devices (VADs) and combined sounder VADs. They are designed for indoor use with C-TEC's ZFP/XFP and other Apollo Discovery compatible fire panels. Their purpose is to visually and audibly alert building occupants of a fire alarm.

Independently tested
Intertek
Exclusively tested for
EN 54-3:2001 + A1:2002 + A2:2006 - Sounders
Testing No.15LHK0082-01.
EN 54-23:2010 - Visual alarm devices
Testing No.15LHK0089-01.
EN 54-17:2005 - Short-circuit isolators
Testing No.15LHK0083-01.
www.intertek.de/directory

CE 15
0359-CPR-00446
DOP0000042

The following variants are available:

Product No.	Description
BF450A/CX/SW	Addressable Sounder with isolator, shallow base, white (Discovery)
BF451A/CX/SW	Addressable Sounder VAD with isolator, shallow base, white (Discovery)
BF458A/CX/SW	Addressable VAD with isolator, shallow base, white (Discovery)
BF450A/CX/SR	Addressable Sounder with isolator, shallow base, red (Discovery)
BF451A/CX/SR	Addressable Sounder VAD with isolator, shallow base, red (Discovery)
BF458A/CX/SR	Addressable VAD with isolator, shallow base, red (Discovery)

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 compliant with the 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).

Mounting the Base

THE SYSTEM MUST BE COMPLETELY POWERED DOWN BEFORE INSTALLATION

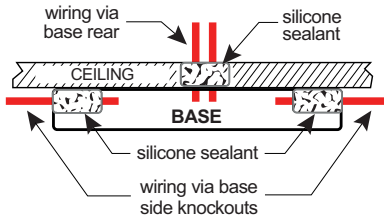
Before installing, fit the optional base accessories (see 'Fitting the Base Accessories' section).

Ensure the devices are installed in accordance with applicable local or national regulations.
All units are designed for indoor use only, wall or ceiling mounting in any orientation. Do not mount bases on uneven surfaces.

The base has screw terminals for the field wiring (see 'Wiring the Base' section) and includes mounting slots for standard electrical termination boxes. As an alternative to using termination boxes, both single and double cable knockouts are provided in the sides of the base (if required). Securely fix the base to a wall or ceiling using two screws in the mounting slots provided.

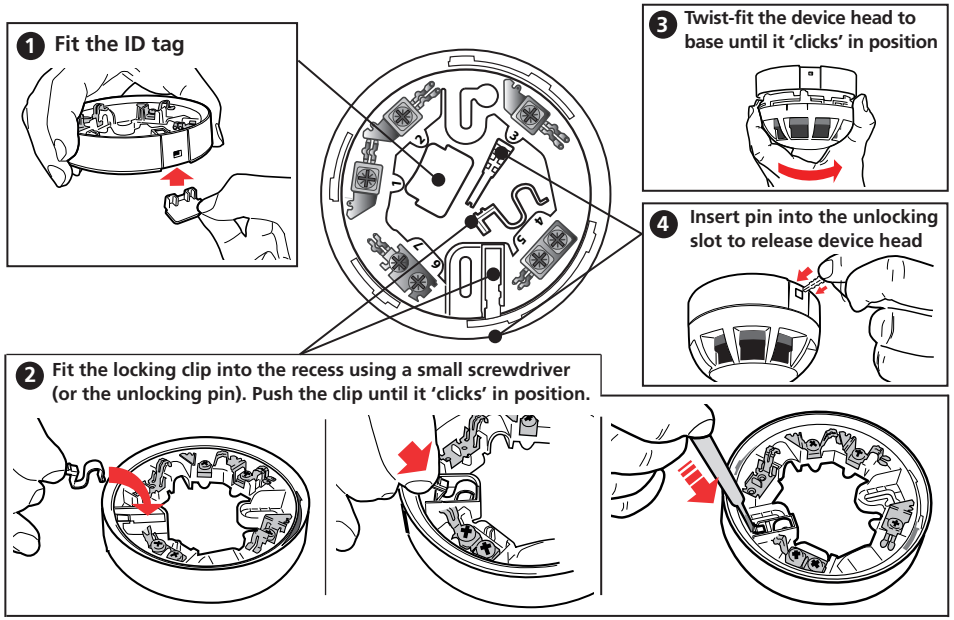
Ingress Protection

Where installers might have a water/moisture ingress occurrence (to meet IP21C), a standard sealing method is shown right. To protect against ingress, ensure all cable entry points and cable glands are adequately sealed using standard neutral cure building silicone (clear).
Note: When wall mounting a device, an IP protection plate (Part No. BFIPPLATE) must be used to maintain the IP rating. Refer to Document No. DFU4500020 for details.

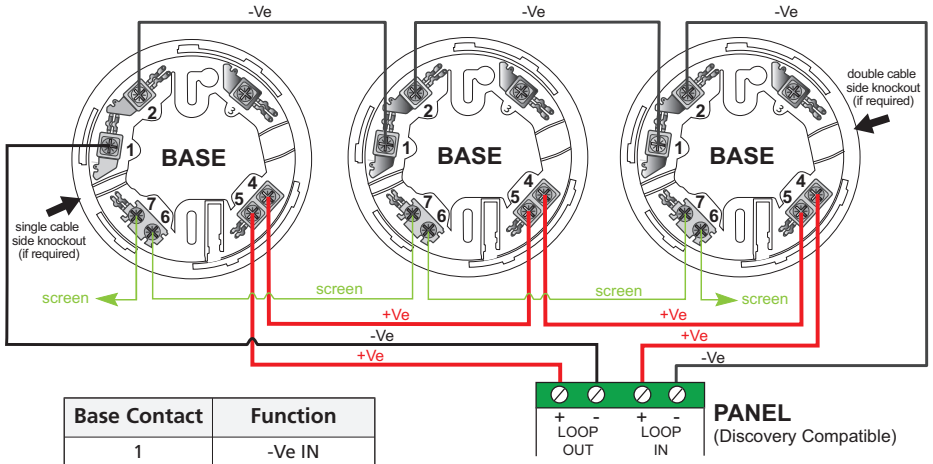


Fitting the Base Accessories (Optional)

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



Wiring the Base

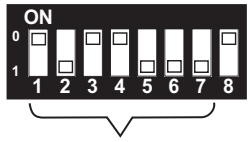


Base Contact	Function
1	-Ve IN
2	-Ve OUT
4	+Ve OUT
5	+Ve IN
6 & 7	cable screen

- All wiring must conform to local or national regulations.
- Correct polarity must be observed.
- Terminals can accept 0.25 mm² to 2.5 mm² wiring.
- Screened cables must be used.

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 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.

Technical Specifications

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) within normal supply range: **Maximum Impedance (Zc max) @ loop startup/recovery condition:**	80 mOhm @ 1 A - switch closed 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