

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 | | 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.: 0905-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).

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.

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. 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).

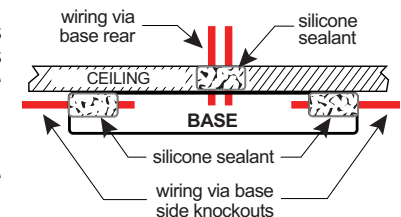
Ensure the devices are installed in accordance with applicable local or national regulations. All units are designed for indoor use only, wall or ceiling mounting in any orientation. Do not mount bases on uneven surfaces.

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

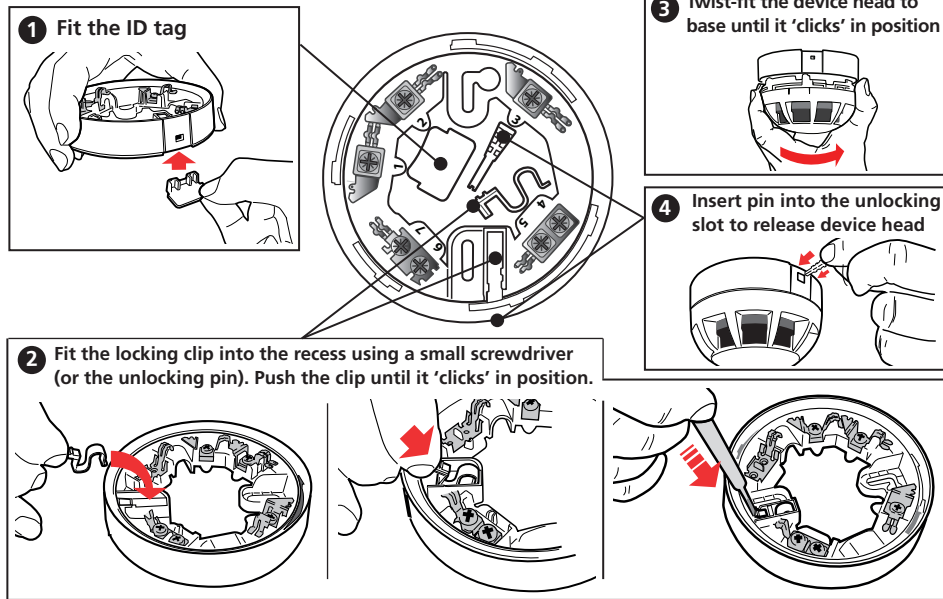
Where installers might have a water/moisture ingress occurrence (to meet IP21C), a standard sealing method is shown right. To protect against ingress, ensure all cable entry points and cable glands are adequately sealed using standard neutral cure building silicone (clear).

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.

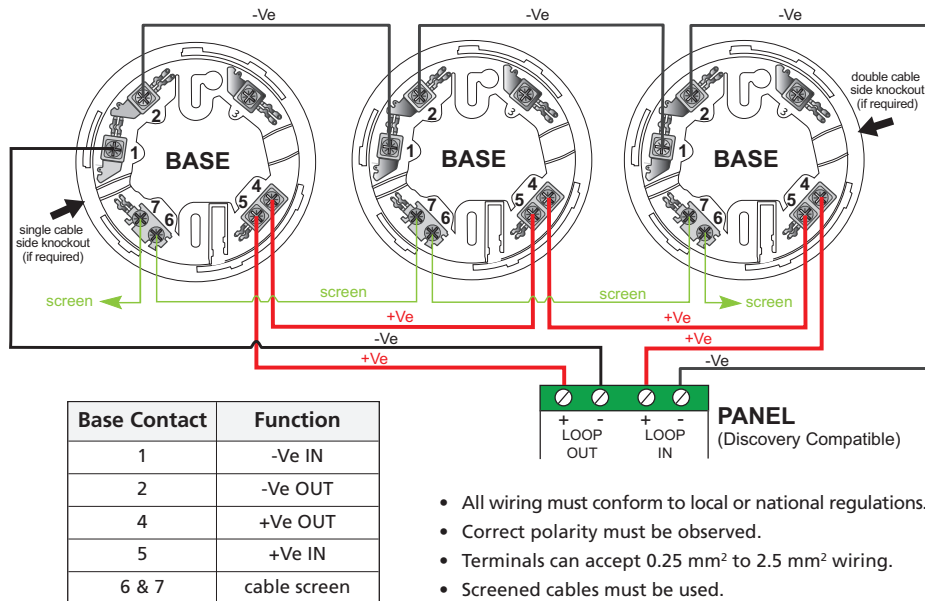


Fitting the Base Accessories (Optional)

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



Wiring the Base



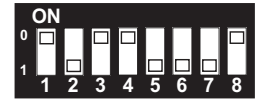
Setting the Device Address

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