

EN 54-17 SC-Isolator Specification (Controllable Isolator)

Maximum Loop Voltage (V max):	40 Vdc
Nominal Loop Voltage (V nom):	40 Vdc
Minimum Loop Voltage (V min):	22 Vdc
Maximum Current Device Isolates, switches from closed to open (I _{so} max):	55 mA
Minimum Current Device Isolates, switches from closed to open (I _{so} min):	15 mA
Maximum Rated Continuous Current with switch closed (I _c max):	1 A
Maximum Rated Switching Current under short circuit conditions (I _s max):	1.6 A
Maximum Leakage Current with switch open (I _L max):	20 µA
Maximum Series Impedance with switch closed (Z _c max)	100 mohms



Hi-Output Voice Range Installation Instructions

Addressable Sounders & VADs

CA446A/SR, CA446A/DR, CA446A/DR/65
CA447A/SR, CA447A/DR, CA447A/DR/65



Product Description

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

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

With a 92 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.

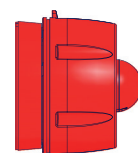
The following variants are available:

Part Number	Description
CA446A/SR	CAST Hi-Output Wall Voice Sounder, Shallow Base, Red Enclosure, IP21C
CA446A/DR	CAST Hi-Output Wall Voice Sounder, Deep Base, Red Enclosure, IP33C
CA446A/DR/65	CAST Hi-Output Wall Voice Sounder, Deep Base, Red Enclosure, IP55C / IP65C*
CA447A/SR	CAST Hi-Output Wall Voice Sounder VAD, Shallow Base, Red Enclosure, IP21C
CA447A/DR	CAST Addressable Hi-Output Wall Voice Sounder VAD, Deep Base, Red Enclosure, IP33C
CA447A/DR/65	CAST Addressable Hi-Output Wall Voice Sounder VAD, Deep Base, Red Enclosure, IP55C / IP65C*

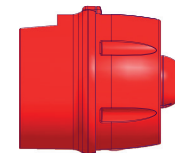
* IP65C compliant with optional O ring fitted (Pt. No. RNU0100054 - supplied).
Non-approved to EN 54 standard by LPCB but independently 3rd party tested.

ADDRESSABLE VOICE SOUNDERS

ADDRESSABLE VOICE SOUNDER VADs



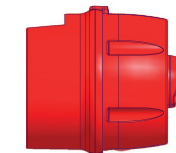
Shallow Base
CA446A/SR (Red)



Deep Base
CA446A/DR (Red)
CA446A/DR/65 (Red)



Shallow Base
CA447A/SR (Red)



Deep Base
CA447A/DR (Red)
CA447A/DR/65 (Red)

The devices offer low current consumption, high sound output, high efficiency VADs, four selectable volume levels, six selectable messages with tones and built-in short-circuit loop isolators. Please note the volume levels and messages/tones can be changed using the panel's programming tools.

The sounder and VAD on the combined devices (CA447A/SR, CA447A/DR, CA447A/DR/65) can be set to operate independently of each other (panel dependent function).

The devices are designed to comply 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).



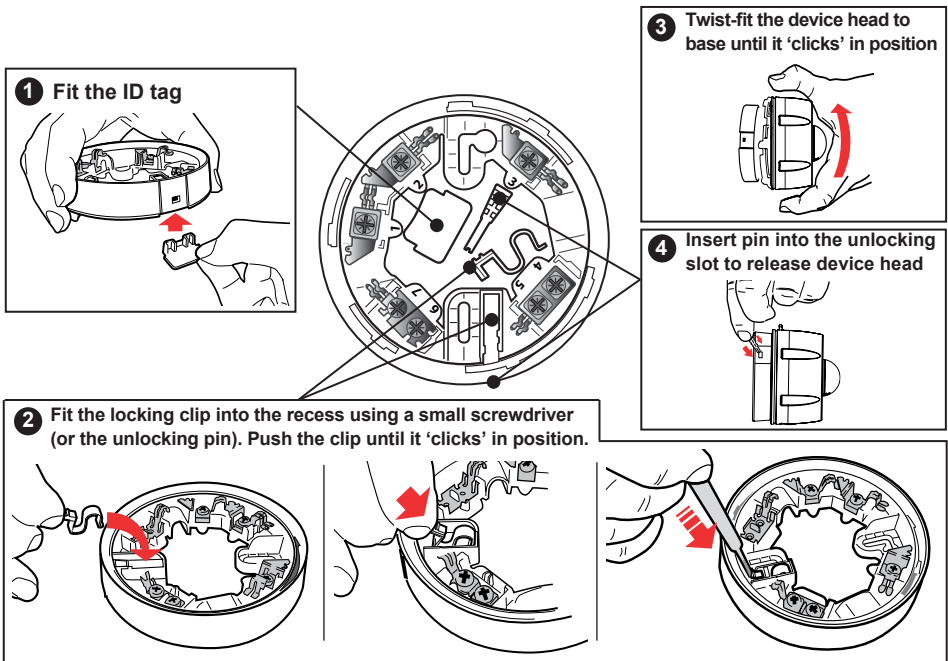
Manufacturer: Computationics Limited (C-TEC), Challenge Way, Martland Park, Wigan, Lancashire WN5 0LD. www.c-tec.com

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 manufacturer's policy is one of continuous improvement and we reserve the right to make changes to product specifications at our discretion and without prior notice.

Base Accessories and Locking Mechanisms

Shallow Base Type

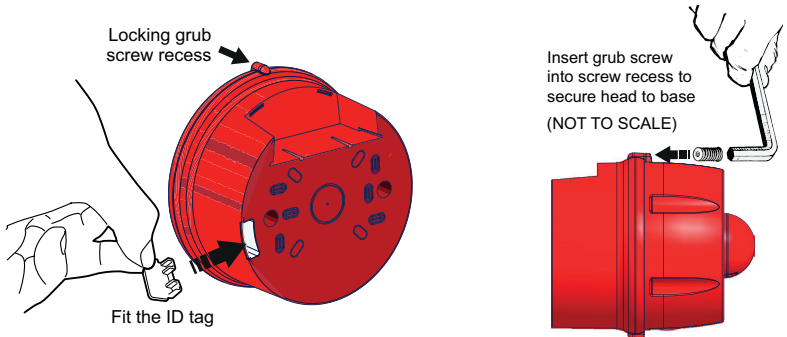
Each shallow base is supplied with a fitted device identification (ID) tag, head-base locking clip and unlocking pin. If required, remove these items from the base and use as shown in steps 1, 2 & 4 below.



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.



Technical Specifications

Supplementary Specification

Part Number:	CA446A/SR	CA446A/DR	CA446A/DR/65	CA447A/SR	CA447A/DR	CA447A/DR/65
Description:	CAST Hi-Output Voice Sounder, Shallow Base Red Enclosure	CAST Hi-Output Voice Sounder, Deep Base, Red Enclosure	CAST Hi-Output Voice Sounder, Deep Base, Red Enclosure	CAST Hi-Output Voice Sounder VAD, Shallow Base, Red Enclosure	CAST Hi-Output Voice Sounder VAD, Deep Base, Red Enclosure	CAST Hi-Output Voice Sounder VAD, Deep Base, Red Enclosure
Relevant 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)		
Communication Protocol:	CAST (C-TEC)					
Supply Voltage:	24 to 40 Vdc (Sounder)			24 to 40 Vdc (Sounder) 27 to 40 Vdc (VAD)		
Quiescent Current (Typical):	470 µA					
Active Current (Typical):	6.0 mA *			13.3 mA *		
Active Current (Max):	10.6 mA *			19.2 mA *		
Power:	240 mW			540 mW		
Environment Type:	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 Category (EN 54-23):	N/A			W-2.75-9 / W-4-4		
VAD Temporal Pattern:	N/A			0.5 Hz synchronised		
Cuboid Volume (W-Class):	N/A			161.5 m³ / 64 m³		
Peak SPL at Vmax:	92 dB(A) @ 1 m ** synchronised					
Indicator:	Polling LED					
Dimensions (incl. 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	
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 +70°C (Type B)		-10°C to +55°C (Type A)	-25°C to +70°C (Type B)	
Humidity:	Max. 95% RH (non-condensing)					

* @ maximum volume level @ Vmin

** $\pm$ 3 dB(A)

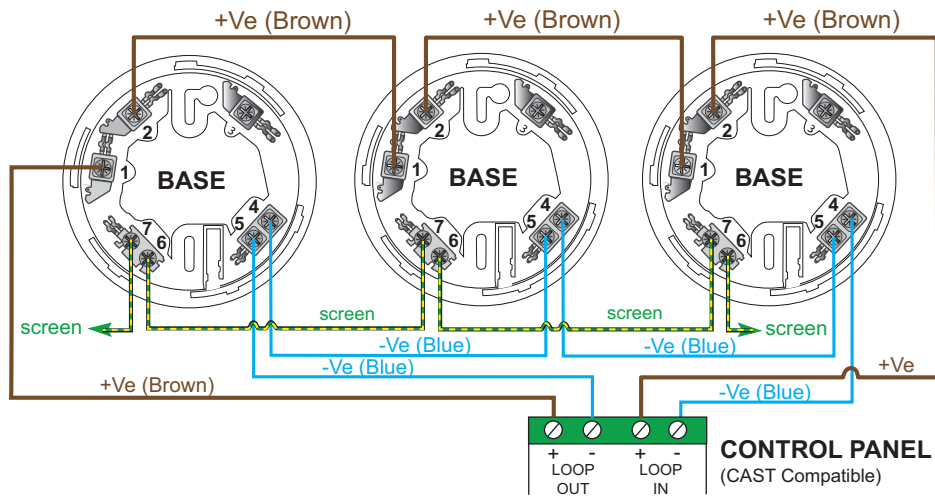
*** IP65C compliant with optional O ring fitted (Pt. No. RNU0100054 - supplied).

Sounder Tone Selection (Tones are selectable at the panel)

SELECTION	TONE	MESSAGE
0		Audio Off
1	Fast Two Tone	Attention please. Attention please. Fire has been reported in the building. Please leave immediately by the nearest exit. (repeated 2x)
2	On-Off Tone	This is a fire alert. This is a fire alert. Await further instructions. (repeated 2x)
3	Fast Two Tone	In the interests of safety please evacuate the building now. (repeated 3x)
4	On-Off Tone	All Clear. The emergency has been resolved. It is safe to resume normal activities. All Clear. (repeated 2x)
5	On-Off Tone	This is a test of the fire alarm system. Please do not take any action. (repeated 2x)
6	On-Off Tone	The fire alarm test is now complete. (repeated 2x)
7 to 31		For Future Use

Wiring the Base

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



Base Contact	Function
1 & 2	+Ve (analogue switch)
4 & 5	0V
6 & 7	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.
- For optimum performance, it is recommended that screened cables are used.

Maintenance

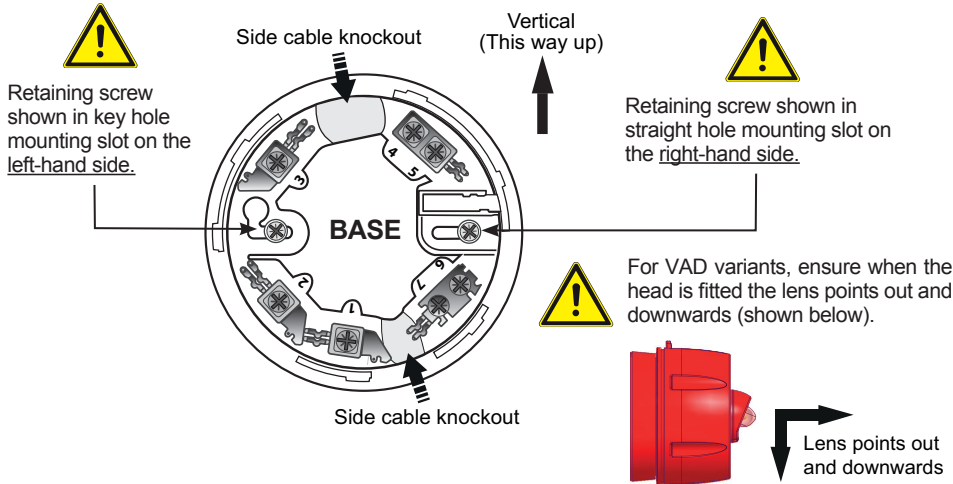
Periodic inspection, testing and maintenance of fire detection systems should be carried out in accordance with national, regional or local standards. In the UK the relevant standard is BS 5839-1 Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning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

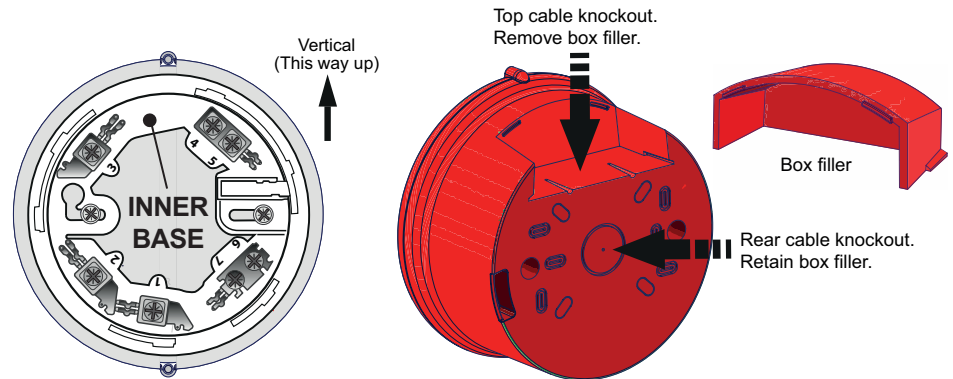
Important Note: It is good practice to horizontally align the two mounting slots in the shallow and deep bases. This ensures that VAD variants are correctly orientated when fitted and illuminate in the correct plane. See diagrams below (base accessories not shown).

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 available IP protection plate (Part No. BFIPPLATE) may be used with the shallow base models to maintain the IP rating.

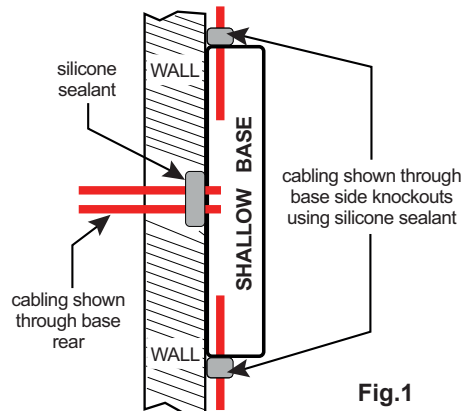


Fig.1

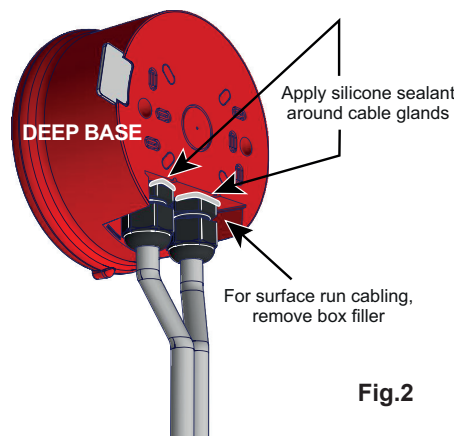


Fig.2

* 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 (Pt. No. RNU0100054)

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.