

CAST ZFP

Analogue Addressable Fire Alarm Control Panel

Standard 1 to 4 Loop Panel



Installation, Maintenance & Programming Manual

Approved Document No. DFU5030000 Rev 5 01/05/22



CAST ZFP Access Levels 1 & 2 Menu Structure

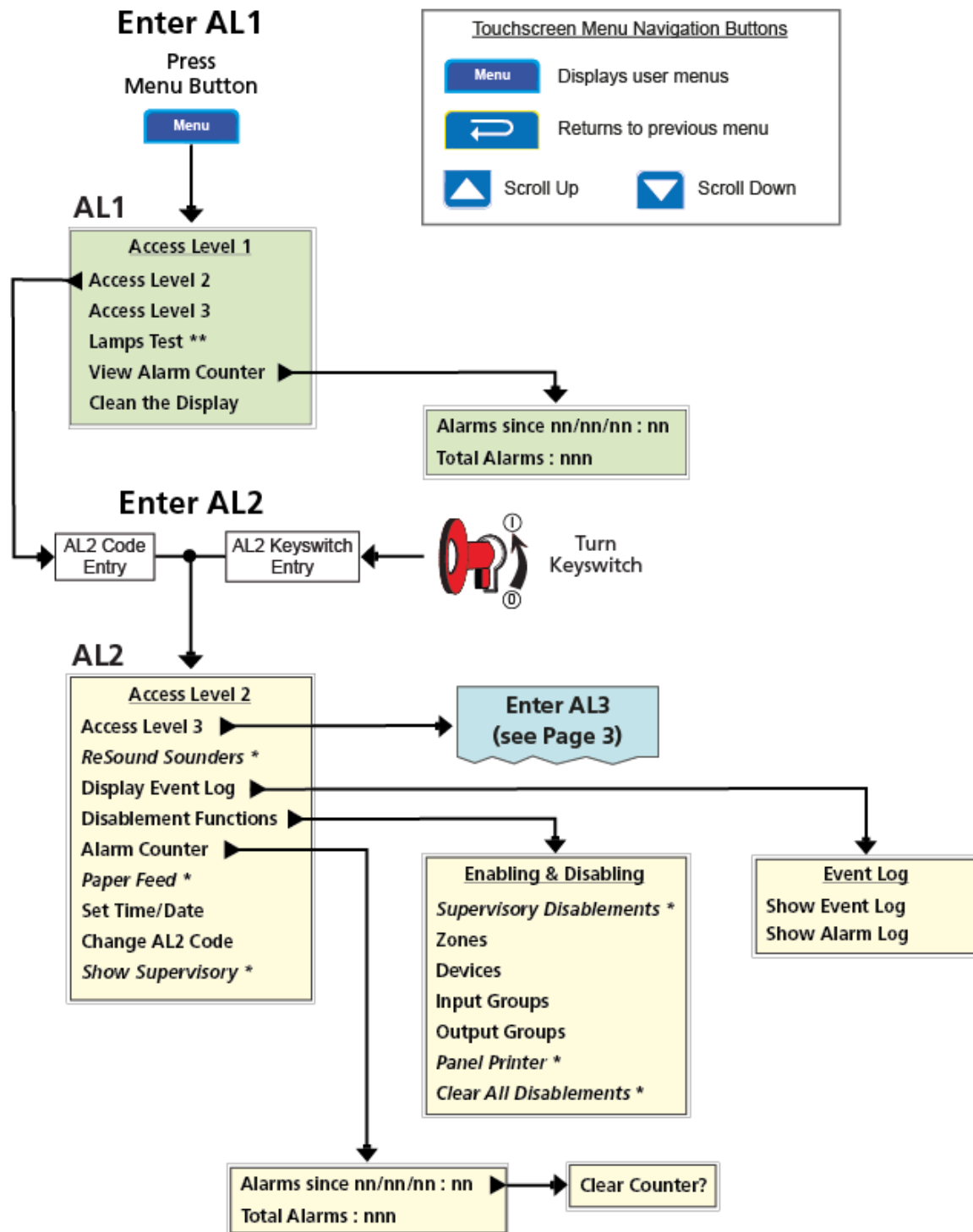
Note: Access Levels 1 & 2 are detailed in the separate User Manual (DFU5030050).

AL1 - Access Level 1 (No Code Required)

AL2 - Access Level 2 (Code 3333)

* Menu option shown will only be available if relevant to the panel's status.

** Pressing 'Lamps Test' button displays the panel's firmware versions.

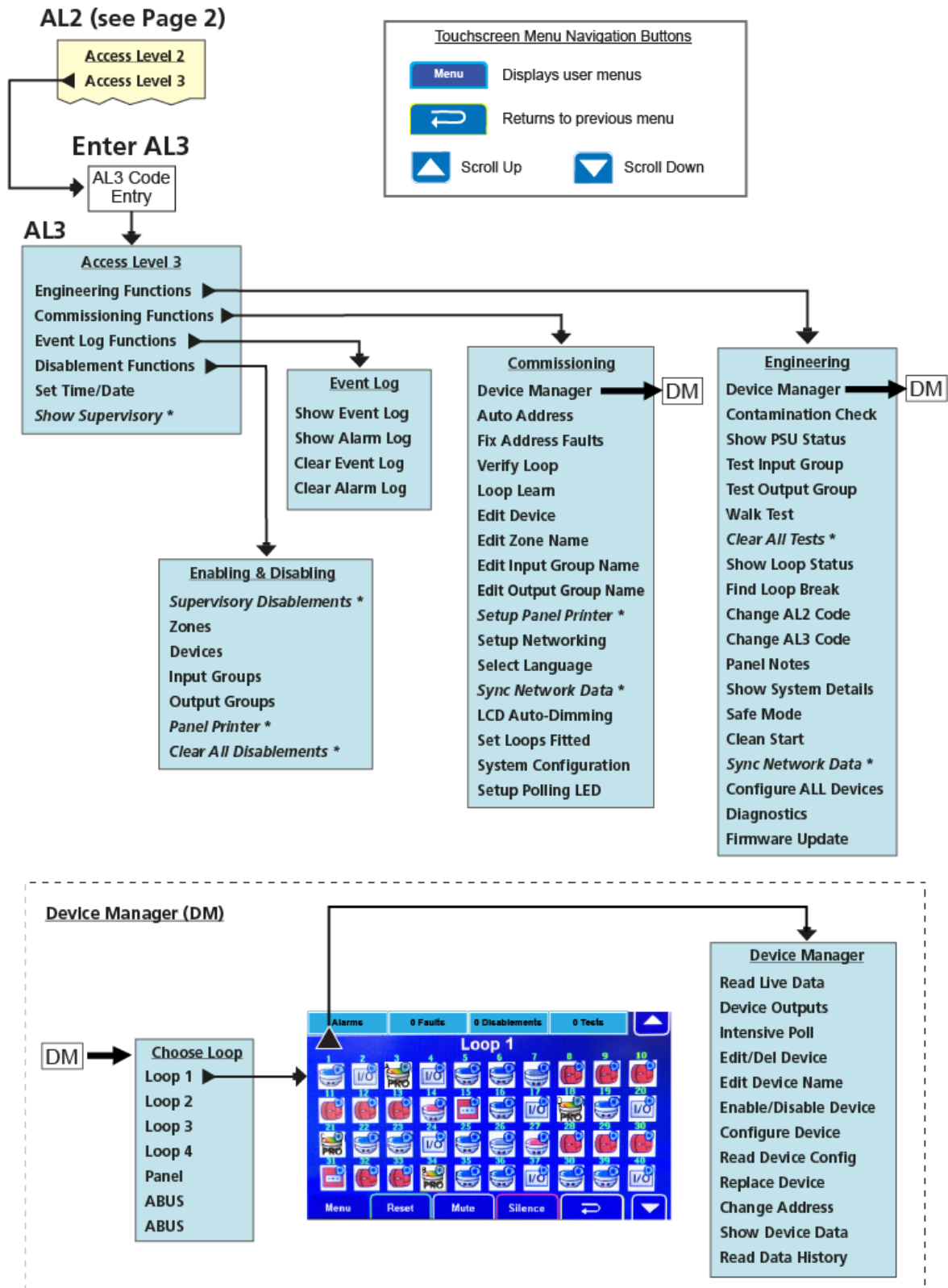


CAST ZFP Access Level 3 Menu Structure

AL2 - Access Level 2 (Code 3333)

AL3 - Access Level 3 (Code 4444)

* Menu option shown will only be available if relevant to the panel's status.





CAUTION !

DO NOT connect or disconnect the panel's internal wiring / looms, or terminate field wiring at the PCBs, with the panel's power applied (either mains or battery). Failure to observe this will destroy the panel's electronic components and the warranty will be void.

Ensure you have attended C-TEC's Authorised Training Course before installing this panel.

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

Symbols



General Warning Sign



Danger Electrical Hazard



Read these instructions thoroughly before installation and operation

1 IMPORTANT NOTES

WARNINGS

DO NOT incorrectly cross the loop wiring on multi-loop panels, e.g. Loop 1 into Loop 2. Too much current will pass through the panel's sensitive protection circuitry and it will stop working.

DO NOT connect or disconnect the panel's internal wiring/looms, or terminate field wiring at the panel with power applied (either mains or battery).

DO NOT use incorrect batteries as there is a risk of explosion. Also, if the battery leads are connected in reverse the battery fuse will blow.

IF THE ABOVE WARNINGS ARE NOT OBSERVED THERE IS A RISK OF DAMAGING THE PANEL AND INVALIDATING THE WARRANTY. THESE FAULTS ARE FACTORY DETECTABLE AND THERE WILL BE A CHARGE FOR THE REPAIR.

For full installation instructions scan the QR code or visit:
www.c-tec.com/info/xfp-cast-resources.html
www.c-tec.com/info/cast-zfp-docs.html

XFP

Cast

ZFP

1.1 Standards



ZFP1/CA	2831-CPR-F4508	0832-UKCA-CPR-F1054
ZFP2/CA	2831-CPR-F4509	0832-UKCA-CPR-F1055
ZFP4/CA	2831-CPR-F4510	0832-UKCA-CPR-F1056
ZFP1/40/CA	2831-CPR-F4511	0832-UKCA-CPR-F1057
ZFP2/40/CA	2831-CPR-F4512	0832-UKCA-CPR-F1058
ZFP4/40/CA	2831-CPR-F4513	0832-UKCA-CPR-F1059

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1.2 Items Supplied

- CAST ZFP Fire Alarm Control Panel, as ordered.
- Installation, Maintenance & Programming manual (this manual) – Explains how to install, commission and maintain the fire alarm control panel. **This manual must not be left accessible to the user.**
- User Manual and Log Book (Document No. DFU5030050) – Gives detailed operational information and details about the panel's touchscreen, indicators and controls for access levels 1 & 2 users.
- Quick start guides for users (Document No. DFU5030060) and engineers (Document No. DFU5030010) – Summarize key information provided in the main manuals.
- Key for unfastening / securing the panel lid (key number 801).
- Electrical accessory pack, containing:
 - 1 x 20mm T 2 A H 230 V ceramic fuse (spare primary fuse)
 - 1 x 7.5 A MINI[®] automotive blade fuse (spare battery fuse)
 - 1 x set of battery link wires and nylon cable ties
 - 4 x 6K8 0.25W EOL resistors for conventional sounder circuits (2) and auxiliary inputs (2)
 - 2 x 470R 0.25W trigger resistors for auxiliary inputs I/P1 & I/P2.

1.3 Notices



WARNINGS!

This equipment must only be installed and maintained by a suitably skilled and technically competent person. Ensure you have attended C-TEC's Authorised Training Course before handling the panel.

This equipment is a piece of Class 1 permanently connected equipment and **MUST BE EARTHED**.

ALWAYS isolate the panel's mains and battery backup supplies before making connections to its PCBs.

Anti-static handling guidelines



Make sure that handling precautions for electro-static devices (ESD) are taken immediately before handling PCBs and other ESD components. Before handling any ESD items, engineers should get rid of any electro-static charge by touching a sound safety earth. Always handle PCBs by their sides and avoid touching any electronic components. PCBs should be stored in a clean, dry place that is free from vibration, dust and excessive heat.

Disclaimer

Errors and omissions excepted (E&OE). No responsibility can be accepted by the manufacturer or distributors of this range of fire panels for any misinterpretation of an instruction or guidance note 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.

1.4 System Design

Fire alarm system design is beyond the scope of this document. A basic understanding of general fire alarm system components and their use is assumed.

Contact the Fire Officer concerned with the property at an early stage in case he has any special requirements. We strongly recommend that a suitably qualified and competent person is consulted in connection with the design of the fire alarm system.

The equipment must be installed, operated and maintained in accordance with these instructions and the appropriate national, regional or local regulations. If in doubt please consult your distributor.

We recommend you read BS 5839-1, Fire detection and alarm systems for buildings: Code of practice for system design, installation and maintenance, available at your local reference library or from the BSI. Other national standards of installation should be referenced where applicable.

1.5 Equipment Guarantee

This equipment is not guaranteed unless the complete installation is installed and commissioned in accordance with the laid down national, regional or local standards (in the UK BS 5839 Part 1) by an approved and competent person or organisation.

2 CAST ZFP KEY FEATURES

2.1 EN54 Compliance Statement

The 'out-of-the-box' fire alarm panel is fully compliant with the requirements of EN54-2 (Fire detection and fire alarm systems, control and indicating equipment) and EN54-4 (Fire detection and fire alarm systems, power supply equipment) and is 3rd party certified as meeting these standards.



Please note, some of the Key Features listed below, go beyond the scope of EN54-2, i.e. **Non-EN54-2 approved**. **DO NOT** affix the EN54 approval label (supplied) to the front of the panel if it has been configured to operate in a way that would make it non-compliant with the requirements of EN54-2.

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Dependant on the model purchased, the CAST ZFP fire alarm control panel includes the following features:

- Certification by the LPCB to EN54 parts 2 and 4
- Full compatibility with C-TEC's CAST® (C-TEC Addressable System Technology) - a powerful, proprietary communication protocol
- Short-circuit protected loop driver (rated at 450mA, 40V), capable of supporting up to 255 addressable CAST detectors and CAST call points per loop, with a maximum of 512 detectors / call points per panel. Each CAST loop device is fitted with a short-circuit isolator
- Three cabinet sizes are available:
 - Standard – 1 chassis c/w 2 modules (1, 2 or 4 addressable loops)
 - Medium – 2 chassis c/w 4 modules (1, 2, 4, 6 or 8 addressable loops). **Non-EN54-2 approved**
 - Large – 3 chassis c/w 6 modules (1, 2, 4, 6 or 8 addressable loops). **Non-EN54-2 approved**
- 5A EN 54-4/A2 PSU and battery charger included in all panels
- Up to 17Ah batteries in a standard cabinet, up to 38Ah in the medium and larger cabinets
- 4.3 inch, 480 x 272 pixel, 24 Bit, 16M colour LCD touchscreen
- Separate distinct LEDs for mandatory EN 54 indications plus programmable LEDs
- One RS232 port - for ancillary devices, e.g. pagers / DECT telephone systems / Graphics Interface
- Two RS485 ports – one for A-Bus (connects peripheral PCBs), one for Graphics Interface / Diagnostics
- Integrated 'galvanically isolated' USB connection to a PC running programming tools
- Two independently programmable 1A conventional sounder circuits – monitored
- Up to 200 programmable and indicatable system zones per panel. **Note:** The panel has been tested and approved as a 40 zone panel; however, the panel is capable of accommodating up to 200 zones.
- 9,999 event memory for all fire, fault and system events
- Three access levels – access level 1 (general user), access level 2 (authorised user) and access level 3 (authorised systems engineer) with keyswitch entry to access level 2
- An investigation delay period function (programmable for length of time and which zone(s) it applies to)
- Individual sensitivity settings for each device
- Real-time clock with automatic daylight saving time
- Upload download software includes facility to upload company logos – even from a.gif file from a camera
- Up to 16 GB internal micro SD memory card.

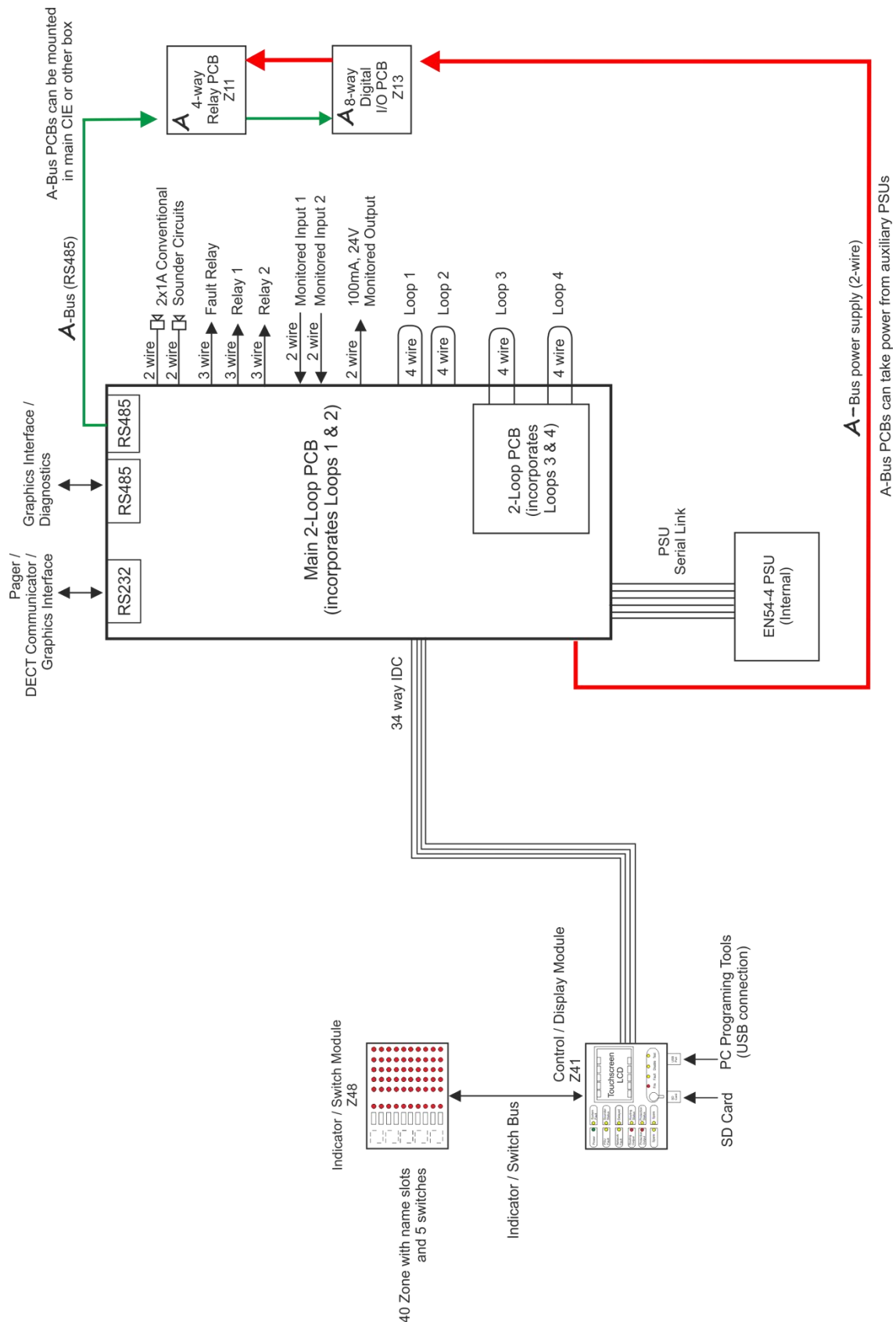


In addition to the mandatory requirements of EN 54-2, the panel meets the following criteria:

- EN 54-2 Clause 7.8 'Output to fire alarm devices (option with requirements)' to enable an audible warning to be sounded throughout the premises upon detection of a fire condition or the operation of a call point.
- EN 54-2 Clause 7.11 'Delays to outputs (option with requirements)' of fire alarm devices (sounders) so that an alarm may be verified before a premises is evacuated.
- A selection of zone dependency functions (EN 54-2 Clause 7.12, Type A or B) as detailed below:
 - Clause 7.12.1 'Type A dependency (option with requirement)' - If there is an alarm from a detector, the panel will look for a confirmatory alarm from the same or another detector in the same zone before a full alarm is established. If there is no confirmatory alarm, the first alarm will automatically reset.
 - Clause 7.12.2 'Type B dependency (option with requirement)' - As Type A except the confirmatory alarm from another detector in the same zone or a different zone.
 - Important Note: Type A & B dependencies should not be selected to operate together at the same panel as the initiation of an alarm in one zone will cause a Type B dependency on another zone, even if a Type A dependency has been set. Dependencies are selected using the panel's ZTOOLS.
- EN 54-2 Clause 7.13 'Alarm counter (option with requirements)' to record the number of instances the panel enters the fire alarm condition.
- EN 54-2 Clause 8.3 'Fault signals from points (option with requirements)'.
- EN 54-2 Clause 9.5 'Disablement of addressable points (option with requirements)'.
- EN 54-2 Clause 10 'Test condition (option with requirements)' to allow the automatic resetting of zones in alarm for testing purposes.

3 TYPICAL 4 LOOP CAST ZFP PANEL BLOCK DIAGRAM

Fig.1 – Typical 4 Loop CAST ZFP Panel Block Diagram



4 CABLING REQUIREMENTS



All installation wiring must be checked and tested before termination at the panel. Always isolate the panel's mains and battery backup supplies before cable termination at the panel.

4.1 Mains Wiring

Mains wiring must be installed in accordance with all applicable national, regional or local standards. In the UK this is BS 7671 IET Wiring Regulations and BS 5839-1, Fire detection and alarm systems for buildings: Code of practice for system design, installation and maintenance.

Mains wiring should be fire resistant and segregated from extra low voltage field wiring.

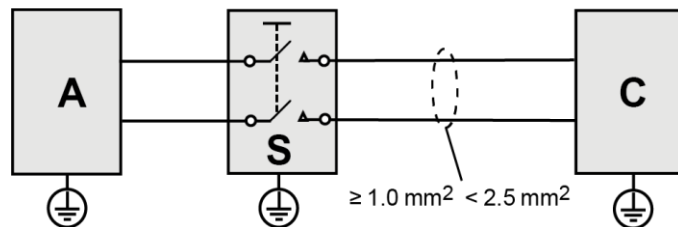
The general requirement for the 230V, 50Hz mains supply to the CAST ZFP panel is fixed wiring, using 3 core cable (no less than 1mm² and no more than 2.5mm²), or a suitable three conductor system fed from an isolating switched fused spur, fused at 3A or a 6A Type B circuit breaker to IEC/EN 60898-1.

The mains supply **MUST** be exclusive to the panel and be reliably earthed at the indicated earthing post.

As an alternative to a switched fused spur, a double-pole isolating switch (S), with 3mm air gaps on the contacts & switching L & N only, may be used in the mains feed from the Main Distribution Board (A) to the Panel (C), providing it meets the appropriate wiring regulations (see drawing below).



Hint! C-TEC's Fire Alarm Control Panel Mains Keyswitch (Part No. BF319) is a lockable, double-pole keyswitch that provides secure switching of mains supply to a fire alarm panel (The BF319 is available @ www.c-tec.com).



4.2 Field Wiring

Separated or Safety Extra-Low Voltage (SELV) field wiring includes loop circuits, sounder circuits and auxiliary inputs/outputs. SELV field wiring must be installed in accordance with the relevant national, regional or local regulations (in the UK this is the IET Wiring Regulations BS 7671 and BS 5839 Part 1).

Fire resistant, screened cable should be used throughout the installation. This not only shields the data moving up and down the cables from outside interference but is essential to ensure compliance with EMC regulations. All screens must only be terminated to the earth bar provided in the panel's back box.

Screened cables such as FP 200™, Firetuff™, Firecel™ and MICC may be acceptable provided they meet national standards / the system specification as applicable. Consult Clause 26 of BS 5839 Part 1 for more detailed information on cables, wiring and other interconnections.

4.3 Testing of Field Wiring

Check the continuity of the loops (including screens), loop earth faults, loop crossover faults, the resistance of the conventional sounder circuits and all other field wiring as appropriate to ensure they are free from faults.

Note: Only the continuity on the negative (-ve) line of the device loop can be tested to ensure it is fault free. Loop isolators are in the positive (+ve) line, therefore continuity cannot be tested.



DO NOT test wiring with an insulation tester (Megger) with any electronic equipment connected as the 500V test will destroy the devices and invalidate the warranty.

5 INSTALLATION



Note: See section 8.2 for a recommended shortform installation procedure.

5.1 Enclosure Description

The panel's enclosure comprises of a hinged steel lid and a steel back box which houses a power supply unit (PSU) and several printed circuit boards (PCBs) mounted on a metal chassis, as shown in Fig.2 below. Space is available inside the back box for the backup batteries.

The panel can be surface or semi-flush wall mounted (a bezel is required for semi-flush mounting). The standard ZBOXS, 1 to 4 loop version enclosure, is shown below.

Fig.2 – Location of Standard 1 to 4 Loop Version Components

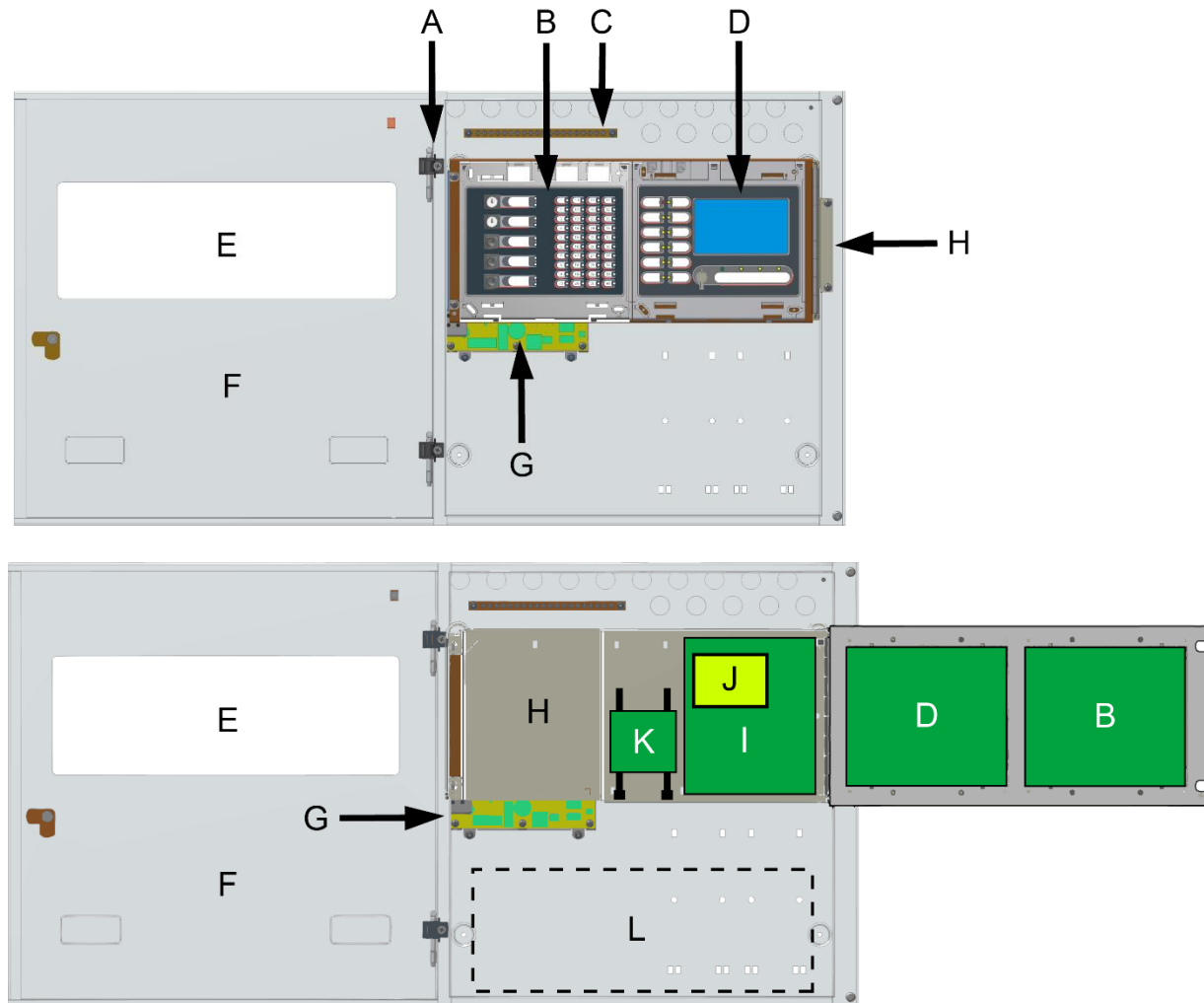


Fig.2 key:

A	Lid Hinge Pins – 2 off	G	PSU
B	Module (Part No. Z48) 40 zone, 5 switches, 10 LEDs	H	PCB Stepped Chassis
C	20-way heavy duty brass earth bar. DO NOT operate equipment without connecting cable screens to this bar.	I	Main 1/2-Loop PCB
D	Control/Display Module (Part No. Z41) incorporates the touchscreen	J	2-Loop Expansion PCB (Part No. Z02LOOP/CA) adds two additional loops. Note: Not available for the 1 loop panel.
E	Lid Aperture	K	A-Bus PCB. Optional. ZHN Network PCB. Optional.
F	Lid (requires Key No. 801)	L	Space for up to 2 x 12V, 17Ah batteries

5.2 Mounting Location

Each panel must wall mounted, indoors and positioned to avoid accidental damage, and **MUST NOT** be subjected to excessive dust, conductive or corrosive gases or liquids, nor subject to temperatures, input voltages and electrical loads outside the stated operating range. They should be sited at an easily accessible height and in a prominent position within the building. The ambient light and sound levels should allow the indicators and touchscreen to be clearly visible and the internal buzzer clearly heard. Typical locations for the panel are in the entrance foyer / hallway at ground floor level (the first and most obvious point of contact for emergency services) or in a permanently manned security office.

5.3 Removing the Lid and PCB Chassis

To protect the panel's electronic components from damage and also to expose the back box mounting holes, the panel's lid and PCB chassis should be removed prior to initial installation. **Note:** The PSU should not be removed.

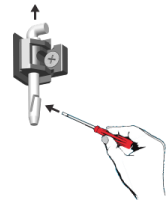
All removed panel components should be stored in a clean, dry place which is free from vibration, dust and excessive heat.



Hint! Retaining the components in a suitable cardboard box will also guard them against mechanical damage.

To remove the lid:

- Use the supplied key to unlock the lid (key number 801).
- Open the lid 180° to the left (do not overbend the hinges), then disconnect the lid's earth strap.
- By hand, or by using a screwdriver, push out the lid's two plastic hinge pins (shown right) and lift off the lid.



To remove the PCB chassis:



See 'Anti-static handling guidelines' in section 1.3

- Disconnect the earth strap from the PCB chassis. Remove the four retaining screws that secure the PCB chassis in the back box and carefully remove the chassis to expose the PSU.

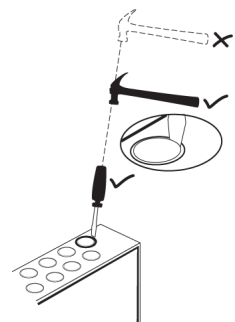
5.4 Planning the Cable Layout in the Panel and Removing Knockouts

Mains wiring should be segregated from extra low voltage field wiring. Leave sufficient tails inside the panel to ensure straightforward connection of wiring to the panel's terminals.

All cables should be fed into the panel through the knockouts provided in the back box.

Knockouts should be removed with a sharp, light tap using a 6mm flat-bladed screwdriver as shown in the diagram (right). Ensure any swarf is removed from the enclosure.

Always ensure if a knockout is removed, the hole is filled with a good quality 20mm strain relief, cable gland. Any unused knockouts must be securely blanked off.



5.5 Wall Mounting the Back Box

Note: The panel can be surface or semi-flush mounted on a wall (note optional bezels are available for semi-flush mounting).



CAUTION: The enclosures are heavy! Therefore, use suitable screw fixings for wall mounting the enclosures.

Securely fix the panel to a vertical wall, ≤2m mounting height, using the four (Ø4.7mm) mounting holes provided in the back box. The mounting holes are suitable for use with countersunk screws.

See Appendix 1 for enclosure fixing details.

Always assess the condition and construction of the wall and use suitable screw fixings for the in-service weight of the product. Any dust or swarf created during the fixing process must be removed from the inside of the back box. Ensure there is sufficient space to allow the lid to be fitted / removed when the panel is wall mounted.

5.6 Reinstalling the PCB Chassis and Lid

Refit the panel's PCB chassis and lid by following the removal procedure (section 5.3) in reverse order.

Note: Connections to the panel's PSU will have to be made before the chassis is refitted. See Connecting Mains – section 5.16 and Connecting the Standby Batteries – section 5.17.

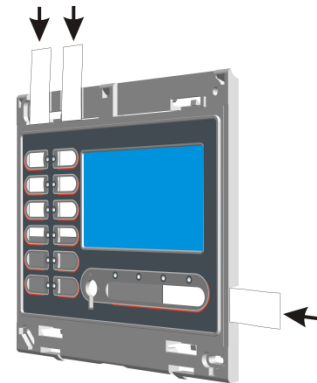
5.7 Inserting the 'slide-in' labels

A 'slide in' label system is employed by the CAST ZFP for customizing language labels and description of zones / programmable LEDs. The label inserted for the module's control buttons depends on how the unit has been configured.

Insert the slide-in labels (supplied in the accessory pack) for the ancillary modules), as shown right.

Important Note:

Before inserting the horizontal 'Fire/Fault/Disablement/Test' label in the Z41 Control/Display module, create a 'slight' bend (NOT A FOLD!) at the left-hand side of the label (approx. 20mm). Gently push the label through the slot provided into its housing using the hinge on the module's rack to assist with finding its path, as shown below.

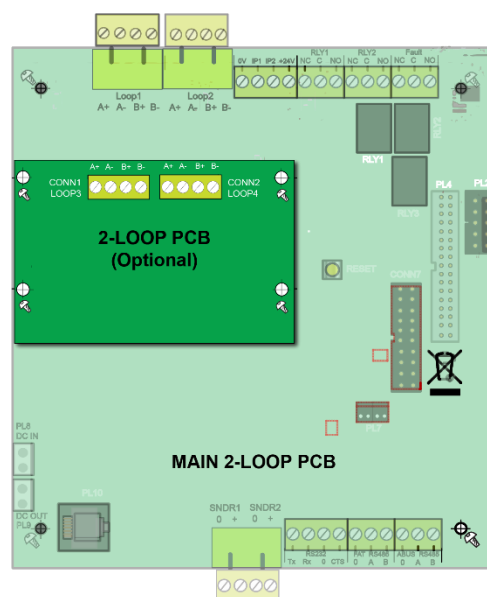


5.8 Fitting the 2-Loop Expansion PCB (Optional)

An optional 2-Loop Expansion PCB (Part No. Z02LOOP/CA) provides the panel with two additional analogue loop connections (Loop3 & Loop4) if required. **Note:** This PCB is not available for the 1 loop panel version.

With reference to the diagram below:

- Take the 2-Loop Expansion PCB and carefully align its holes up with the four mounting holes on the Main 2-Loop PCB.
- Insert the four PCB 'plug-on' pillars (supplied with the 2-Loop Expansion PCB) through the holes on the 2-Loop Expansion PCB into the holes on the Main 2-Loop PCB. Push the pillars until they click and lock in position.
- Refer to section 5.10, Fig.4 for analogue loop connections.



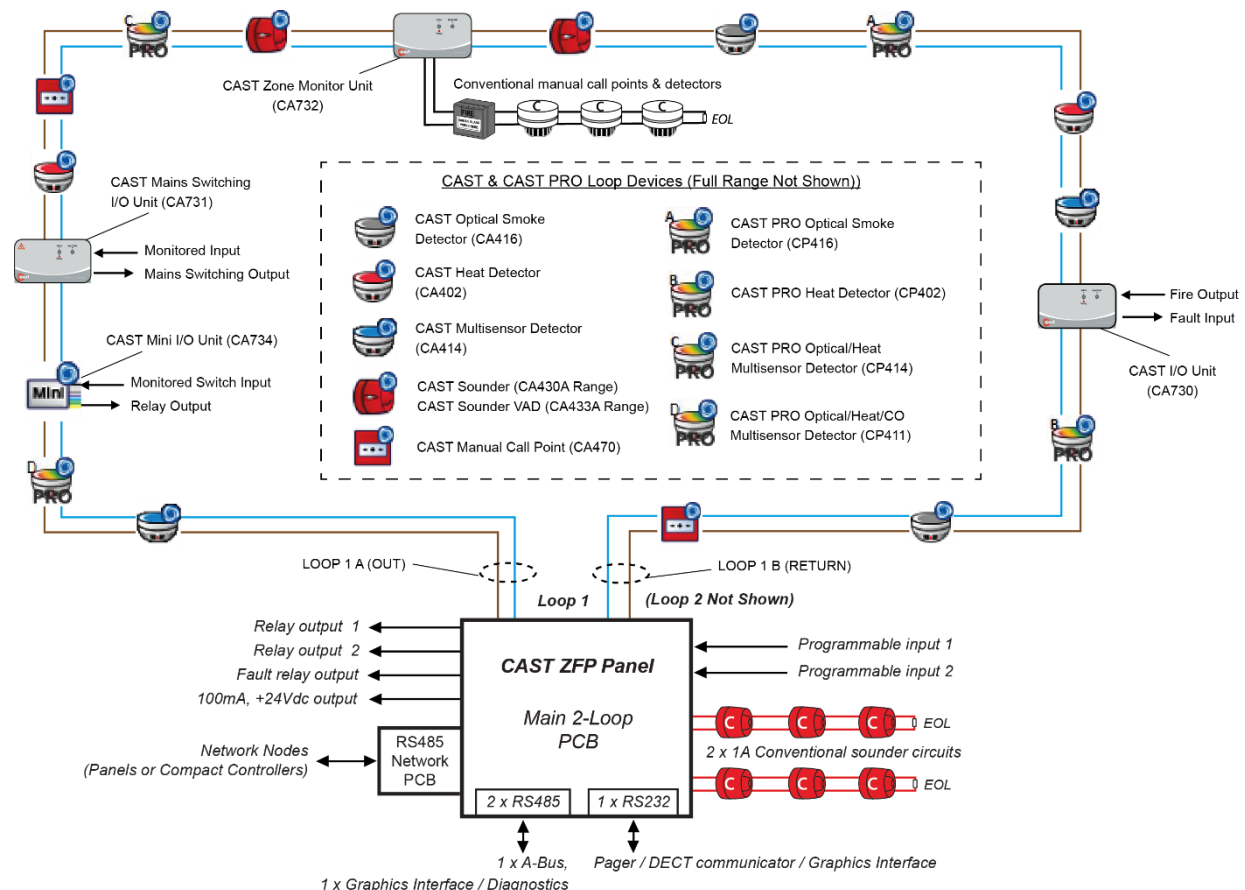
5.9 Analogue Addressable Loop Wiring

Fig.3 below shows a typical analogue addressable loop complete with detectors, manual call points, loop-powered sounders and ancillary devices. Connect the loop to the relevant connector block on the panel's Main 1/2-Loop PCB (dependent on model) and terminate screens at the panel's earth bar as shown in section 5.10, Fig.4.

Fig.3 – Typical Analogue Addressable Loop Overview



Hint! Refer to www.c-tec.com for C-TEC's CAST range of compatible devices.



Design issues - reducing faults and their consequences

To ensure a reliable system, it should be designed and maintained to local design and installation regulations. The CAST ZFP panel has a short circuit protected loop driver fitted and also short circuit isolators fitted in every CAST loop device. A single short circuit or open circuit fault will have no detrimental effect on the operation of the system.

Note a critical design issue with any analogue fire system is the combined effect of loop resistance, loop capacitance and the current demand of loop devices. Factors that influence this include loop length, cable diameter, cable type and the number/type of devices. There are no strict rules regarding these factors as every situation is unique. However, if the following general rules of thumb are followed, the loop WILL almost certainly work.

- **Maximum loop length = 1km using either 1mm² or 1.5mm² cable.**
- **Maximum of 255 devices per loop (maximum of 512 detectors / call points per panel)**
- **If sounders are used DO NOT fit more than the maximum circuit rating detailed in the technical specification (see Appendix 6).**



Hint! ZFP Loop & Battery Calculator Tools are available for download on C-TEC's website in the Support Hub to assist with system designs (available @ www.c-tec.com).

Important Note: Remember to isolate the panel's mains and battery backup supplies before terminating wiring at the panel.

5.10 Analogue Addressable Loop(s) Wiring

Two analogue loop connections (Loop1 & Loop2) are available on a Main 2-Loop PCB, as shown in Fig.4 below. One analogue loop connection (Loop1) is available on a Main 1-Loop PCB.

An optional 2-Loop Expansion PCB (not available for the 1 loop panel version) provides the panel with two additional analogue loop connections (Loop3 & Loop4), if required (see section 5.8).

The maximum number of addressable detectors and call points per loop is 255 with a maximum of 512 devices per panel. This includes a maximum of 40 sounders per loop, or 30 sounder VADs per loop.

Plug-on 5mm connectors accept up to 2.5mm² cable.

The loop's earth screens should be adequately insulated and **ONLY** terminated at the earth bar in the back box to ensure earth continuity. Check for loop earth faults and loop crossover faults.



The back box earth bar is provided for terminating earth screens or drains and is **NOT** the panel's main earth point. The installer must review the external earth bonding (if required) with respect to the national, regional or local wiring rules. If the installation requires protective earth bonding, then this must be applied externally and in conjunction with the type of earth system employed on site.

Fig.4 – Analogue Addressable Loop Connections

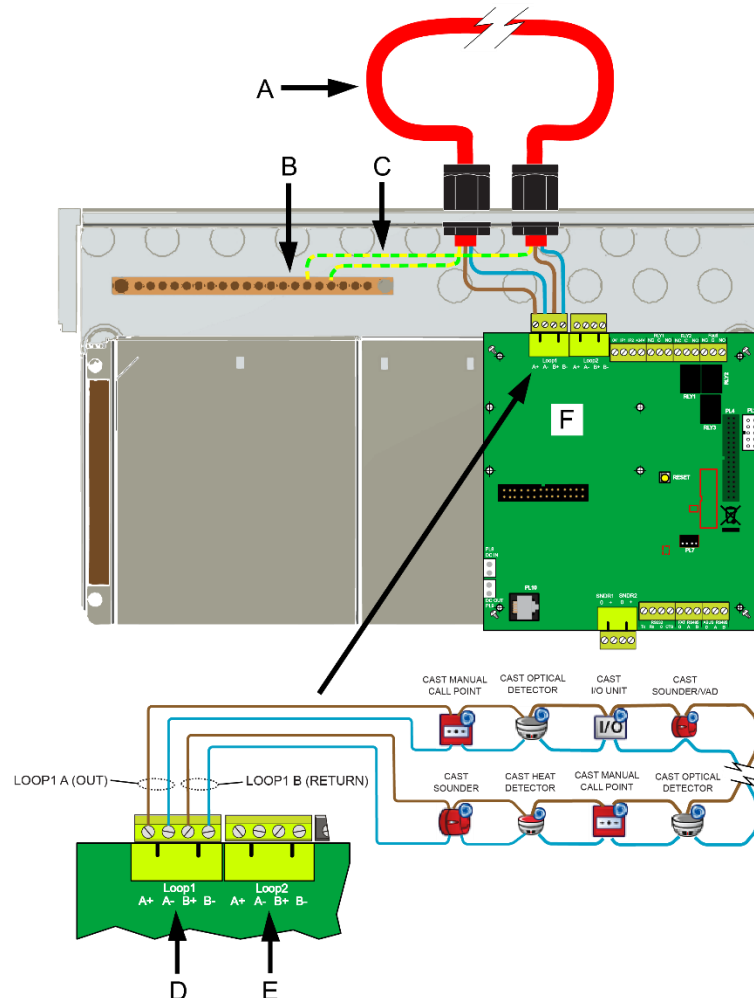


Figure 4 key:

A	Analogue Loop 1 Cable (fire resistant).	D	Analogue Loop 1 Connector (A+, A-, B+, B-). Plug-on connector type.
B	20-way heavy duty brass earth bar. DO NOT operate the equipment without connecting cable screens to this bar.	E	Additional Analogue Loop 2 Connector (A+, A-, B+, B-). Plug-on connector type. Wiring not shown. NOT APPLICABLE FOR A 1 LOOP PANEL.
C	Cable Earth Screens.	F	Main 2-Loop PCB.

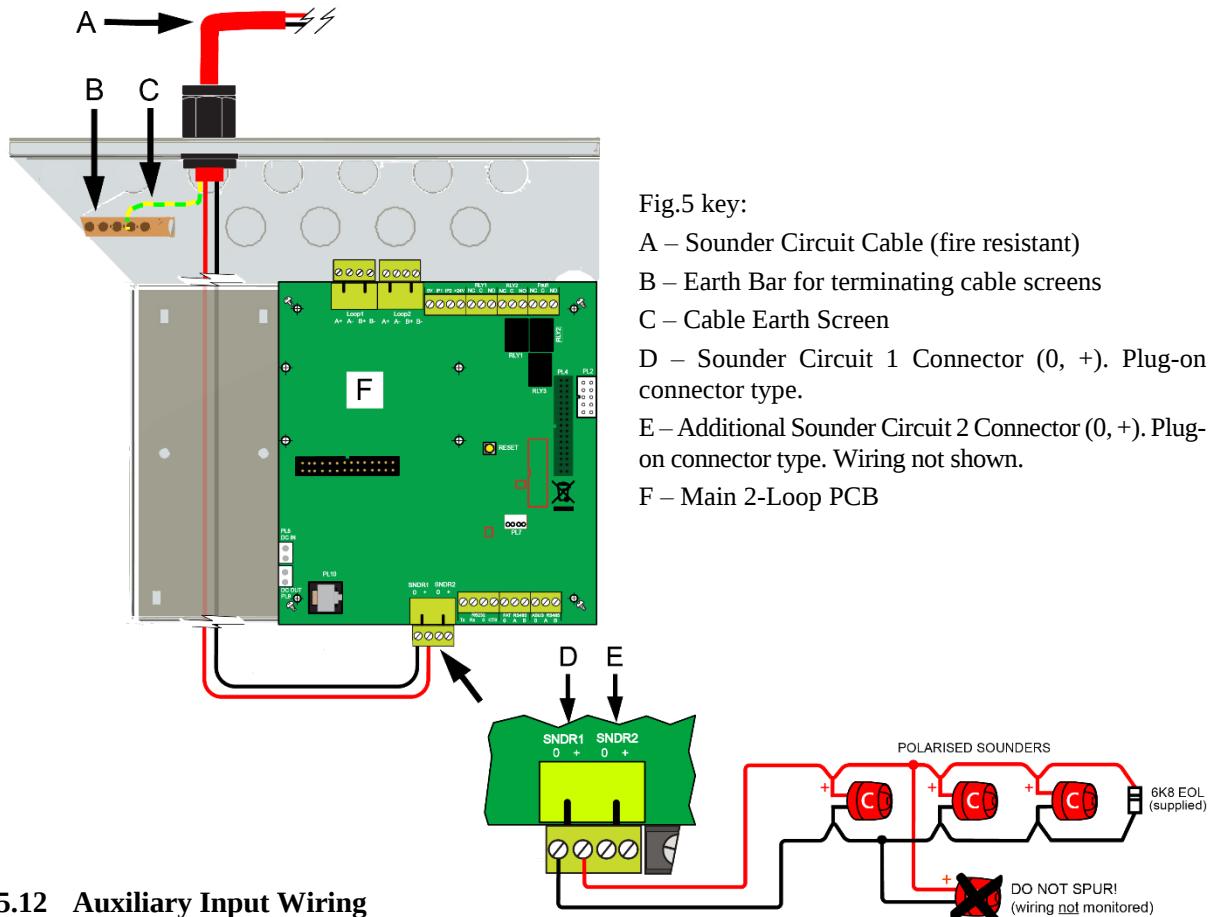
5.11 Conventional Sounder Circuit(s) Wiring

Two conventional sounder circuits are provided on the Main 1/2-Loop PCB (dependent on model), each circuit has a maximum rating of 1A. If a full complement of sounders are to be used, split them equally across both circuits.

Each sounder circuit should be connected to the terminals marked SNDR1 & SNDR2 as shown in Fig.5 below and its earth screens terminated at the back box earth bar. Plug-on 5mm connectors are provided that accept up to 2.5mm² cable.

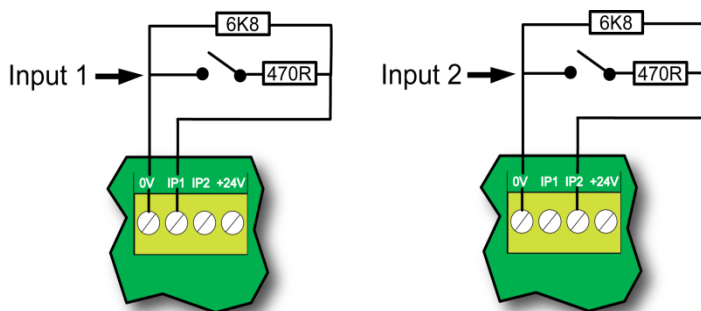
Note: ALWAYS make sure the two 6k8 EOL resistors (supplied) are fitted across the terminals of the last sounder on each circuit to allow the wiring to be monitored for open and short circuit faults. If a sounder circuit is unused, you must still connect the resistor at the panel terminals.

Fig.5 – Conventional Sounder Circuit Connections



5.12 Auxiliary Input Wiring

Fig.6 – Auxiliary Input Connections



Two programmable auxiliary input connections are provided on the Main 1/2-Loop PCB (which are set up standard as Class Change & Alert).

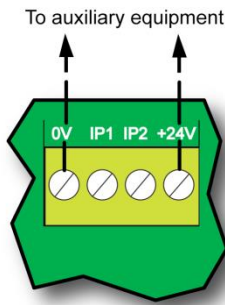
The wiring for each input should be connected to the terminal block marked IP/1 & IP/2 with a 470R 0.25W trigger resistor (supplied) in each leg, as shown in Fig.6, left.

If required, input wiring screens can be terminated at the earth bar in the same way as the analogue loop earth screens.

Note: ALWAYS make sure the two 6k8 EOL resistors (supplied) are fitted across the terminals of the last device on each input to allow the wiring to be monitored for open and short circuit faults. If an input is unused, you must still connect the resistor at the panel terminals.

5.13 24V Auxiliary Power Output

Fig.7 – 24V Auxiliary Output Connections



One fused 24Vdc output, rated at 100mA, is provided on the Main 1/2-Loop PCB and can be used for supplying power to ancillary fire alarm equipment, e.g. relays. The output wiring should be connected to the terminal block marked +24V, as shown in Fig.7 left.

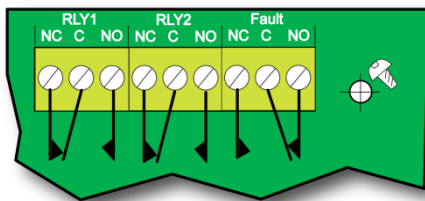
5.14 Relay Output Wiring

Three volt-free relay output connections are provided on the Main 1/2-Loop PCB - a failsafe Fault output* which switches under any fault condition or total power failure and two programmable auxiliary relay outputs (RLY1 & RLY2). All three relays are capable of switching 1A @ 30Vdc.

DO NOT use the relays for switching mains voltages.

* In the event of a total power loss to the panel (when in a normal, quiescent state), the fault relay will change state.

Fig.8 – Relay Output Detail



Note: The two auxiliary outputs can be programmed using CAST ZFP Programming Tools (Part No. ZTOOLS) to operate as required but their default operations are:

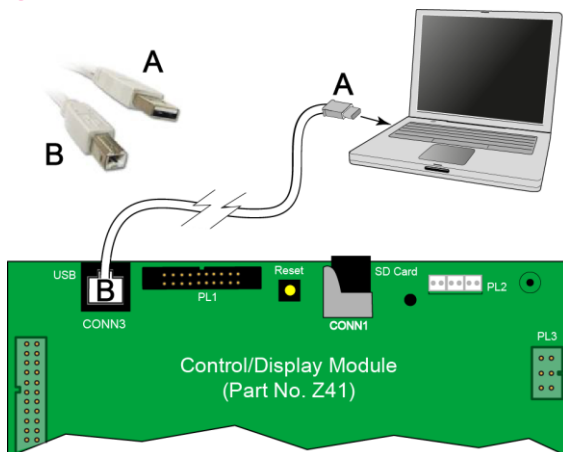
RLY1: Switches when any zone goes into fire; switches back when the panel is silenced.

RLY2: Switches when any zone goes into fire; switches back when the panel is reset.

The wiring for each output should be connected to the relevant connector block on the Main 1/2-Loop PCB (dependent on model), as shown in Fig.8 above.

5.15 Remote PC Connection

Fig.9 – PC Connection



A 'galvanically - isolated' USB connector (CONN3) is provided on the Control/Display Module PCB for the connection of a Windows based PC, running programming software.

The recommended cable is a USB Type A male connector to USB Type B male connector.

CAST ZFP Programming Tools (Part No. ZTOOLS) are available that allow quick and easy input of data, cause and effect programming, device and zone naming.

5.16 Connecting Mains to the Panel's PSU



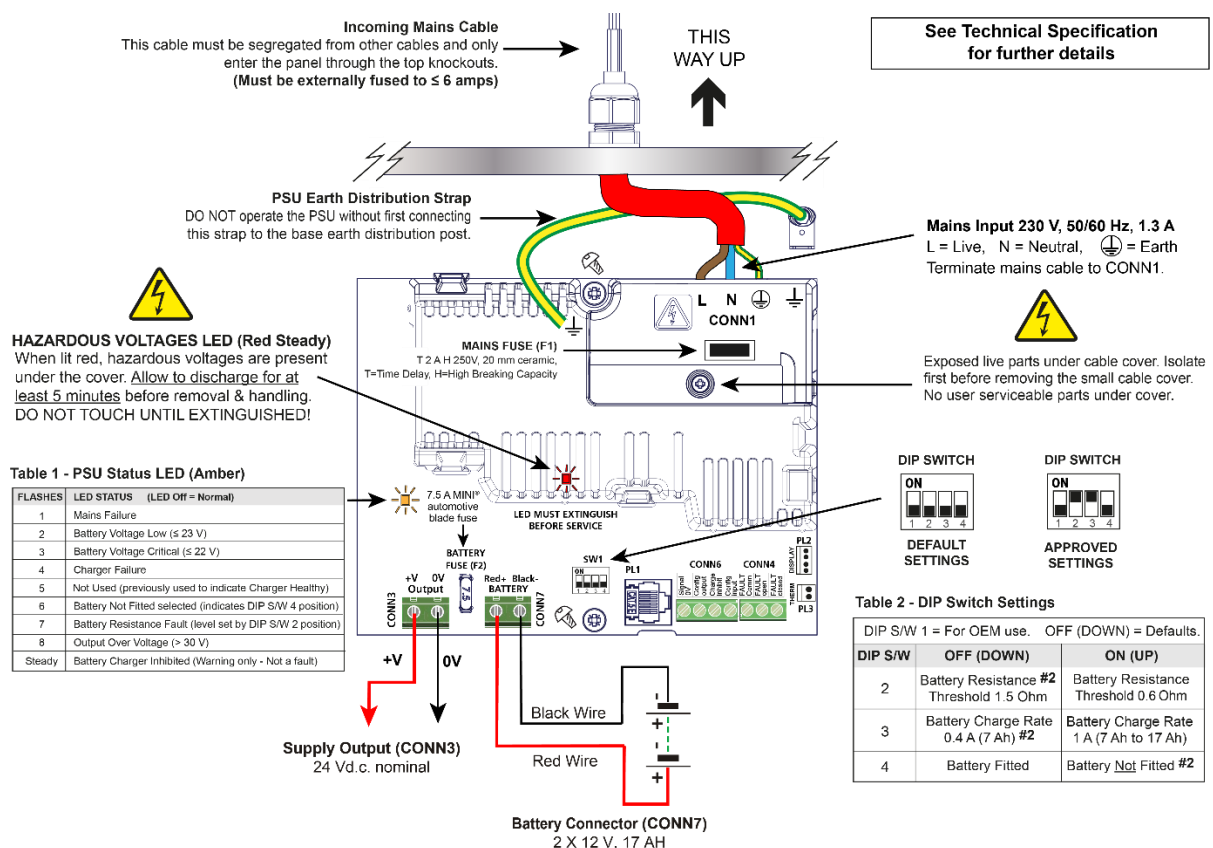
THE PSU IS CLASS 1 EQUIPMENT AND MUST BE EARTHED.

The panel's EN 54-4 PSU is a mains to regulated DC power supply providing 5A @ 24Vdc nominal. Combining the functions of a PSU, battery charging unit and battery monitoring unit, it is fully compliant with EN 54-4:1997 + A1:2002 + A2:2006. For compliance with EN 54-4 the PSU must be closely coupled with the CIE.

Remove the protective cover of the PSU and terminate the mains cable at the power supply's PCB connector block CONN1 (see Fig.10 below). After terminating, refit and secure the cover.

DO NOT CONNECT MAINS SUPPLY TO THE PSU UNTIL THE INSTALLATION IS COMPLETE AND THE PANEL IS READY TO BE TESTED.

Fig.10 – 5A PSU Layout and Mains Connection Details



#2 – Non-certified setting

Note 1: On a standard 'as-supplied' unit, DIP Switch 4 is OFF (DOWN) and a fault will occur on initial power-up if fully charged batteries are NOT connected. See Table 2 - DIP Switch Settings.

Note 2: Taking a load current of 4.6A (DIP Switch 3 OFF) or 4A (DIP Switch 3 ON) will temporarily reduce the battery charge current.

5.17 Connecting the Standby Batteries



CAUTION: There is a risk of explosion if an incorrect battery type is used. Always dispose of used batteries in accordance with the battery manufacturers' instructions.

Do not make the final battery connections until the installation wiring is complete and the panel is ready to be tested. One method of isolating battery power is to disconnect the battery link wire.

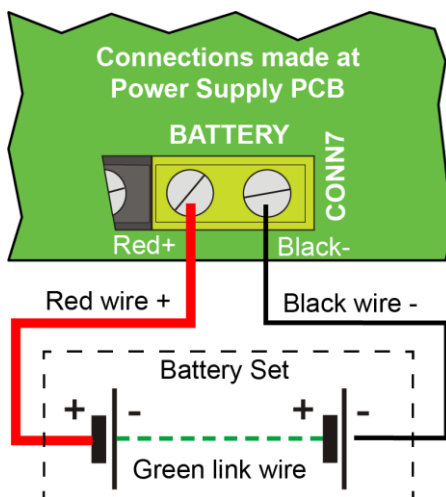
Two new, good quality and fully charged 12V valve regulated lead acid (VRLA) batteries are required as the emergency standby power supply for the panel.

The batteries should be connected in series and located in the bottom of the panel's enclosure, as shown in Fig.11 below. Connect the 'Red' (+ve) and 'Black' (-ve) battery wires from the battery terminals to connector block CONN7 on the power supply's PCB. The (red and black) battery wires, (green) link wire and nylon cable ties are supplied in the panel's accessory pack. Secure the batteries into position using the cable ties.

The panel's sophisticated battery monitoring unit protects the batteries against deep discharge by activating a cut off circuit when the standby supply voltage reaches 21V approx. If batteries are not fitted, are discharged or in poor condition, a PSU fault will show at the panel.

The capacity of the batteries used will depend upon the required standby time. To calculate the batteries required for any given standby period, see the battery calculation guide in Appendix 5.

Fig.11 – Battery Connection Details



CAUTION! Inferior and New Batteries stored over 6 months.

The panel's PSU is an EN 54-4/A2 power supply and as such measures accurately the internal battery resistance down to a fraction of an ohm. The fault threshold is a function of EN 54-4 and as such cannot be changed, otherwise, it would not be a certifiable power supply.

Batteries stored for long periods of time before use (especially new ones), suffer a progressive degradation of internal resistance the longer they are kept off charge after manufacture. They do not recover this degradation once re-charged. In order for the battery to recover it **MUST** be discharged and charged several times (more than once), each time you will see a reduction in the internal resistance.

Therefore, if you install inferior batteries and it shows a fault and the batteries are not discharged & charged the fault will not go away. In this instance it is not the charger at fault, it is the batteries.

6 A-BUS (Optional)

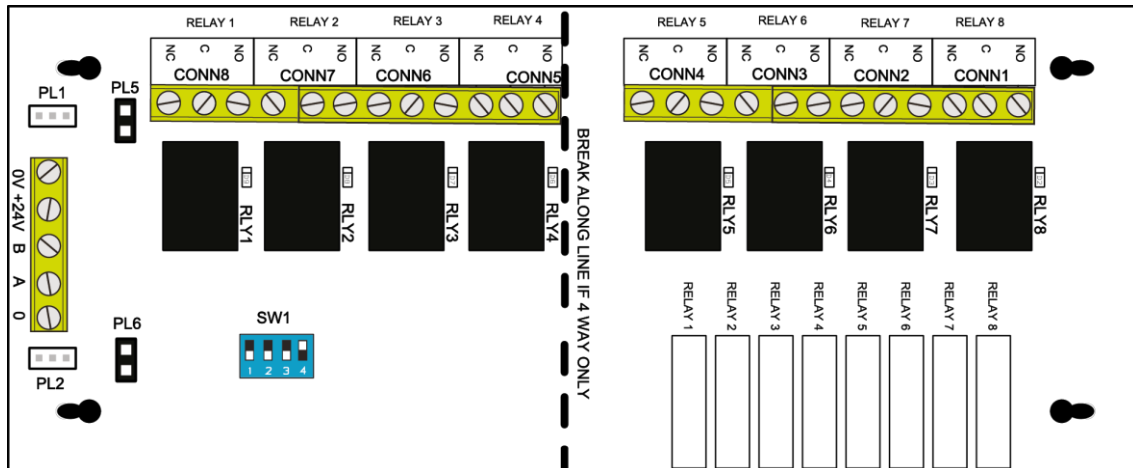
A-Bus enhances the functionality of the CAST ZFP system by connecting peripheral PCBs which provide additional relay outputs, digital I/O, sounder circuits and detection zones.

The A-Bus RS485 network protocol allows the connection of up to 15 A-Bus PCBs per panel using 2 core screened cable (plus 2 core for power). A-Bus PCBs are normally installed within a CAST ZFP panel but can also work up to a distance of 1km for non-EN 54-2 functions. Two A-Bus PCB sizes are available; full and half size. If required, a full size PCB (Relay & Digital I/O only) can be scored in the middle to produce a half size PCB.

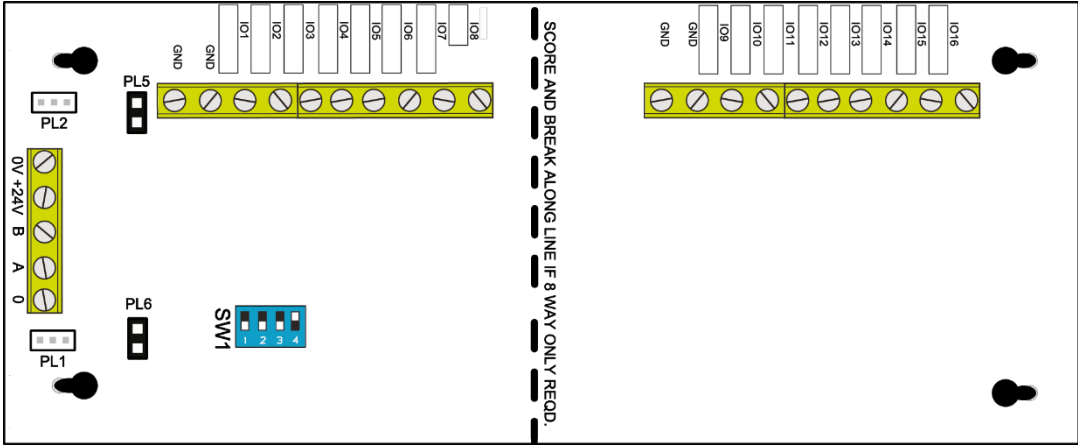
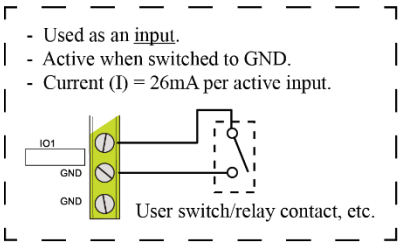
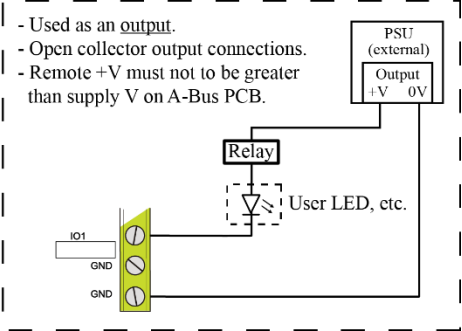
Note: The A-Bus PCBs are programmed using CAST ZFP Programming Tools (Part No. ZTOOLS).

6.1 Z11/Z12 Relay PCB and Z13/Z14 Digital I/O PCB Features

Feature	Details
A-Bus PCBs:	CAST ZFP 4-way Relay PCB (half size). Part No. Z11. CAST ZFP 8-way Relay PCB (full size). Part No. Z12. Non-EN54-2 approved. CAST ZFP 8-way Digital I/O PCB (half size). Part No. Z13. CAST ZFP 16-way Digital I/O PCB (full size). Part No. Z14. Non-EN54-2 approved.
Cabling:	2 core screened cable (plus 2 core for power).
Protocol:	RS485, 19200 BAUD, 8 Data, no Parity, 1 stop bit.
Installation:	PCBs normally installed within a CAST ZFP panel but may be extended up to 1km for non-EN 54-2 functions.
Number of PCBs:	Connect up to 15 A-Bus PCBs per panel.
PCB sizes (mm):	Half size: 80 w x 70 h x 30 d. Full size: 80 w x 150 h x 30 d.
Powered from:	Panel's PSU or an external AUX EN 54-4/A2 PSU (<u>not supplied</u>).
Common features:	24V supply inputs. - A-Bus RS485 connections (B, A, 0) to Main 1/2-Loop PCB. - Comms connections (PL1/PL2); Power In/Power Out connections (PL5/PL6). 15 available addresses (set using DIP switch SW1, see section 6.2). - Isolated RS485 multi drop. - LED indication for polling and power. - Standard 5mm fixed PCB connectors, accept up to 2.5mm² cable.
Relay PCB (Z11/Z12) features: (8-way PCB shown below)	- Common features (as above). 1A 30V single pole contacts. - Full size PCB can be scored in the middle to produce a half size PCB. - Full size provides 8-way option; half size provides 4-way option. - Each relay output is programmable using CAST ZFP Programming Tools. - Separate LED indication provided for each relay.

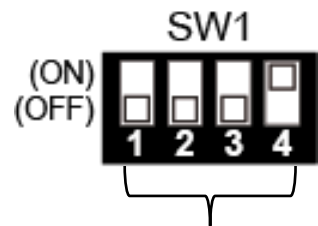


CAST ZFP Analogue Addressable Fire Alarm Panel

Feature	Details
Digital I/O PCB (Z13/Z14) features: (16-way PCB shown below) 	- Common features (as above). - Open collector outputs (100mA sink). - Full size PCB can be scored in the middle to produce a half size PCB. - Full size provides 16-way option; half size provides 8-way option. - Each I/O is programmable using CAST ZFP Programming Tools. 1 LED for any input; 1 LED for any output.
Digital I/O Terminations Note: Terminations to 'IO1' is shown as an example below, other I/O terminals to be wired similarly. - Used as an input. - Active when switched to GND. - Current (I) = 26mA per active input.  - Used as an output. - Open collector output connections. - Remote +V must not to be greater than supply V on A-Bus PCB. 	

6.2 A-Bus DIP Switch Address Settings

Each PCB's address is set using Bits 1 to 4 on the 4-way DIP switch (SW1).
 DIP switch up (ON) = 1, DIP switch down (OFF) = 0. DO NOT use address 0.
 Use a small screwdriver to set the switches and ensure the switches are fully pushed home, up or down.
 Refer to table below for address settings.



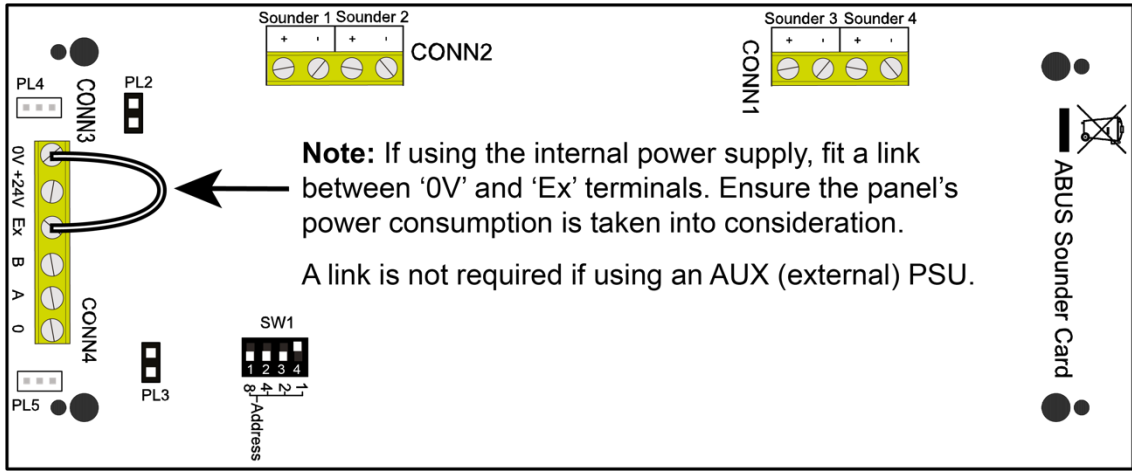
Address	DIP position	Address	DIP position
	1 2 3 4		1 2 3 4
0	DO NOT USE	8	1 0 0 0
1	0 0 0 1	9	1 0 0 1
2	0 0 1 0	10	1 0 1 0
3	0 0 1 1	11	1 0 1 1
4	0 1 0 0	12	1 1 0 0
5	0 1 0 1	13	1 1 0 1
6	0 1 1 0	14	1 1 1 0
7	0 1 1 1	15	1 1 1 1

Use Bits 1-4 on the DIP switch to select the PCB's address (address 1 set in above example).

Note: The DIP switch address setting for each PCB (maximum of 15 addresses) should be the same address allocated using the CAST ZFP Programming Tools (Part No. ZTOOLS).

6.3 Z15 Sounder PCB Features

Feature	Details
A-Bus PCB (Z15):	CAST ZFP 4-way Conventional Sounder PCB (full size). Part No. Z15.
Cabling:	2 core screened cable (plus 2 core for power).
Protocol:	RS485, 19200 BAUD, 8 Data, no Parity, 1 stop bit.
Powered from:	Note: We recommend an Aux EN 54-4/A2 PSU (external to the CAST ZFP panel – <u>not supplied</u>). The PCB terminal labelled 'Ex' is used to report a fault from the Aux PSU. It is triggered from an active IO signal from an open collector (O/C), or volt-free (with 0V common) relay O/P.
No. of Sounder Circuits:	4 x 1A Conventional sounder outputs. Programmable and monitored.
Installation:	PCBs normally installed within a CAST ZFP panel but may be extended up to 1km for non-EN 54-2 functions.
Number of PCBs:	Connect up to 15 A-Bus PCBs per panel.
PCB size (mm):	67 w x 165 h x 17 d.
Common features:	• 24V supply inputs. • A-Bus RS485 connections (B, A, 0) to Main 1/2-Loop PCB. • Comms connections (PL4/PL5); Power In/Power Out connections (PL2/PL3). • 15 available addresses (set using DIP switch SW1, see section 6.2). • Isolated RS485 multi drop. • LED indication for polling and power. • Standard 5mm fixed PCB connectors, accept up to 2.5mm² cable.
Sounder PCB (Z15) features: (shown below) 	• Common features (as above). • 4 x 1A Monitored, conventional sounder circuits. • Each sounder output is programmable using CAST ZFP Programming Tools. • Note: The Z15 DOES NOT have the facility to 'pulse sounders'. • Separate LED indication provided for each sounder circuit.

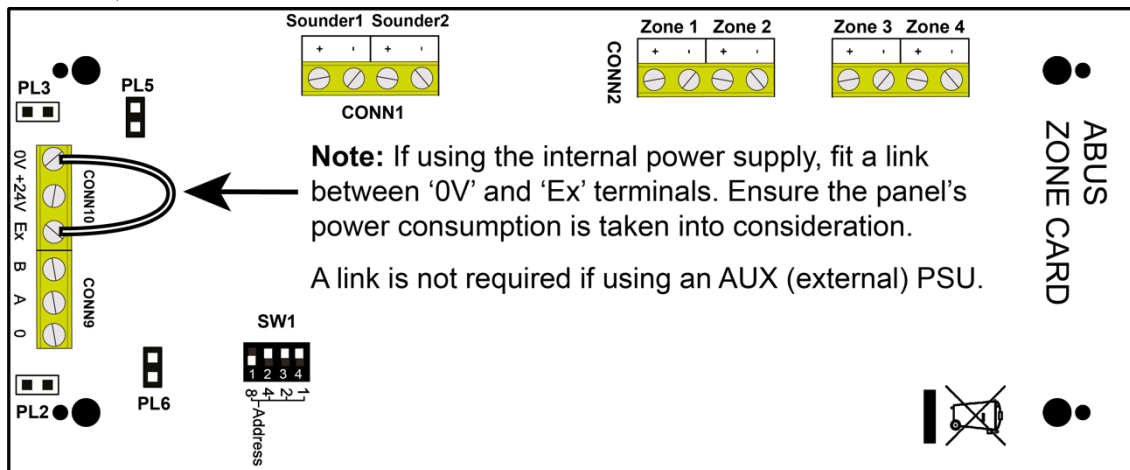


Note: If using the internal power supply, fit a link between '0V' and 'Ex' terminals. Ensure the panel's power consumption is taken into consideration.

A link is not required if using an AUX (external) PSU.

6.4 Z16 Zone & Conventional Sounder PCB Features

Feature	Details
A-Bus PCB (Z16):	CAST ZFP Detection Zone & Conventional Sounder PCB (full size). Part No. Z16.
Cabling:	2 core screened cable (plus 2 core for power).
Protocol:	RS485, 19200 BAUD, 8 Data, no Parity, 1 stop bit.
Powered from:	Note: We recommend an Aux EN 54-4/A2 PSU (external to the CAST ZFP panel – <u>not supplied</u>). The PCB terminal labelled 'Ex' is used to report a fault from the Aux PSU. It is triggered from an active IO signal from an open collector (O/C), or volt-free (with 0V common) relay O/P.
No. of Detection Zones:	4 x Conventional detection zones, each with a maximum of 10 conventional devices.
No. of Sounder Circuits:	2 x 1A Conventional sounder outputs. Programmable and monitored.
Installation:	PCBs normally installed within a CAST ZFP panel but may be extended up to 1km for non-EN 54-2 functions.
Number of PCBs:	Connect up to 15 A-Bus PCBs per panel.
PCB size (mm):	67 w x 165 h x 17 d.
Common features:	• 24V supply inputs. • A-Bus RS485 connections (B, A, 0) to Main 1/2-Loop PCB. • Comms connections (PL2/PL3); Power In/Power Out connections (PL5/PL6). • 15 available addresses (set using DIP switch SW1, see section 6.2). • Isolated RS485 multi drop. • LED indication for polling and power. • Standard 5mm fixed PCB connectors, accept up to 2.5mm² cable.
Zone Sounder PCB (Z16) features: (shown below)	• Common features (as above). • 4 x Conventional zone inputs. • 2 x 1A Monitored, conventional sounder outputs. • Each circuit is programmable using CAST ZFP Programming Tools. • Note: The Z16 DOES NOT have the facility to 'pulse sounders'. • Separate LED indication provided for each zone and sounder circuit.



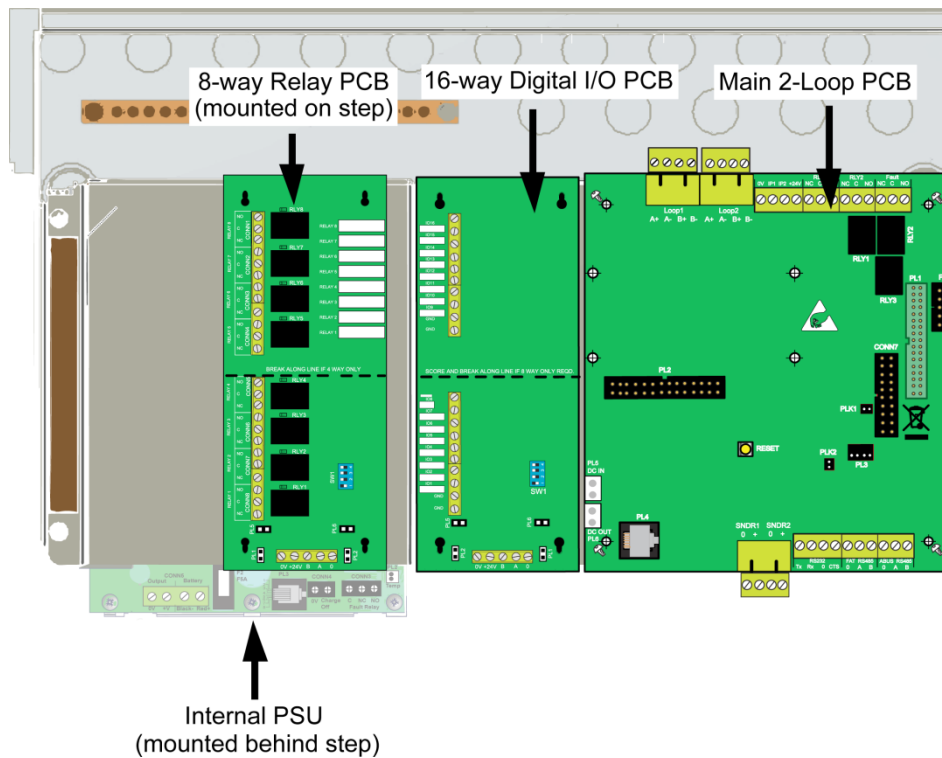
6.5 Fitting A-Bus PCBs

Important Note: Before installing the PCBs, isolate the mains supply and disconnect the panel's battery back-up supply.

Fit the A-Bus PCBs as shown in the example below. Items supplied with the PCB include plastic mounting rails and retaining screws.

Stepped Chassis Layout Example (shown below)

Note that a Main 2-Loop PCB, Relay PCB and Digital I/O PCB are shown in the example below.



Note 1: On a standard 1 slot cabinet, only a stepped chassis can be used.

Note 2: Only one full size PCB can be fitted on a step (an 8-way Relay PCB is shown in the example above).

Note 3: Ensure the installed A-Bus PCBs are programmed using CAST ZFP Programming Tools (Part No. ZTOOLS).

6.6 A-Bus Wiring

A-Bus wiring must be installed in accordance with all applicable national, regional or local standards. In the UK this is BS 7671 IET Wiring Regulations and BS 5839-1, Fire detection and alarm systems for buildings: Code of practice for system design, installation and maintenance. See Cabling Requirements, section 4.

Note that alternative power supply connections to those shown below are available on the A-Bus PCBs.

Fig.12 – Z11/Z12 Relay PCB and Z13/Z14 Digital I/O PCB Wiring

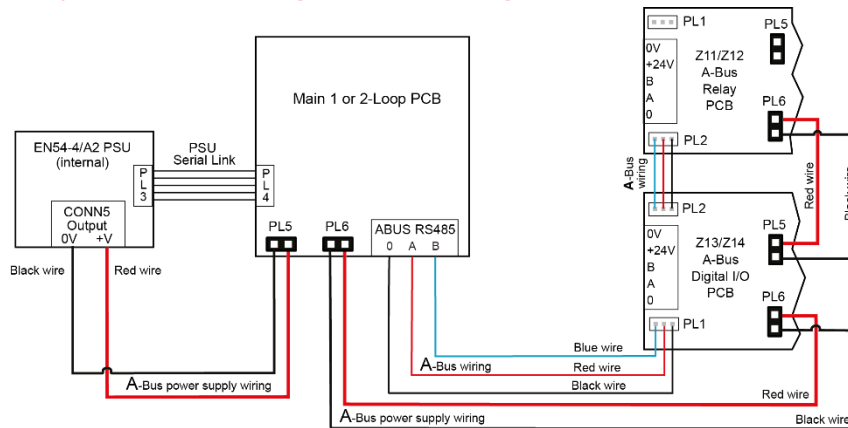
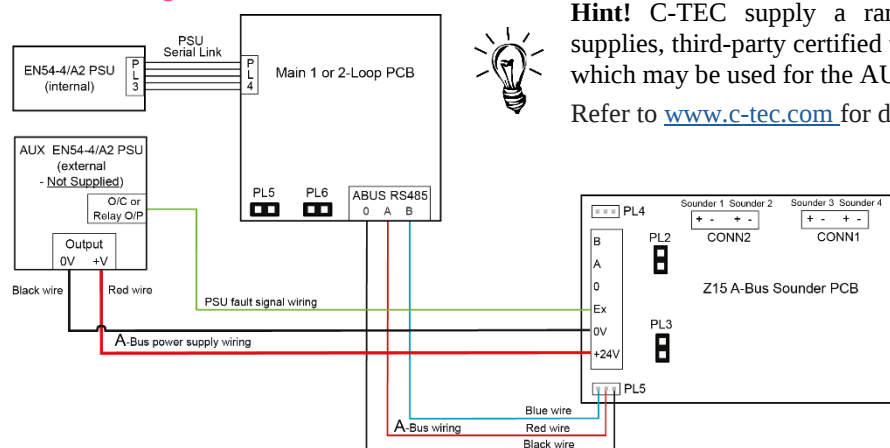


Fig.13 – Z15 Sounder PCB Wiring



Hint! C-TEC supply a range of power supplies, third-party certified to EN 54-4/A2 which may be used for the AUX PSU.

Refer to www.c-tec.com for details.

Note: The Z15 terminal labelled 'Ex' is used to report a fault from the AUX (external) PSU. It is triggered from an active IO signal from an open collector (O/C), or volt-free (with 0V common) relay O/P. **If an AUX (external) PSU is not used, a link must be fitted between PCB terminals labelled 'Ex' and '0V'.** Correct polarity must be observed.

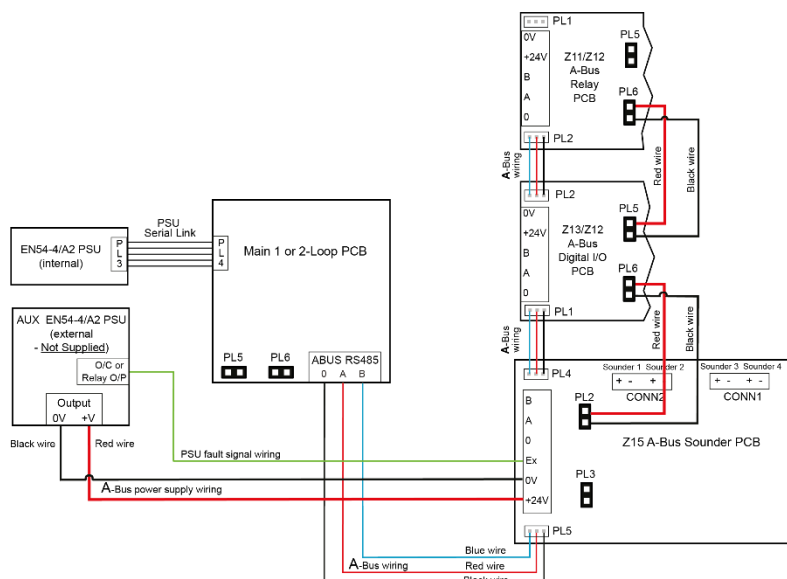
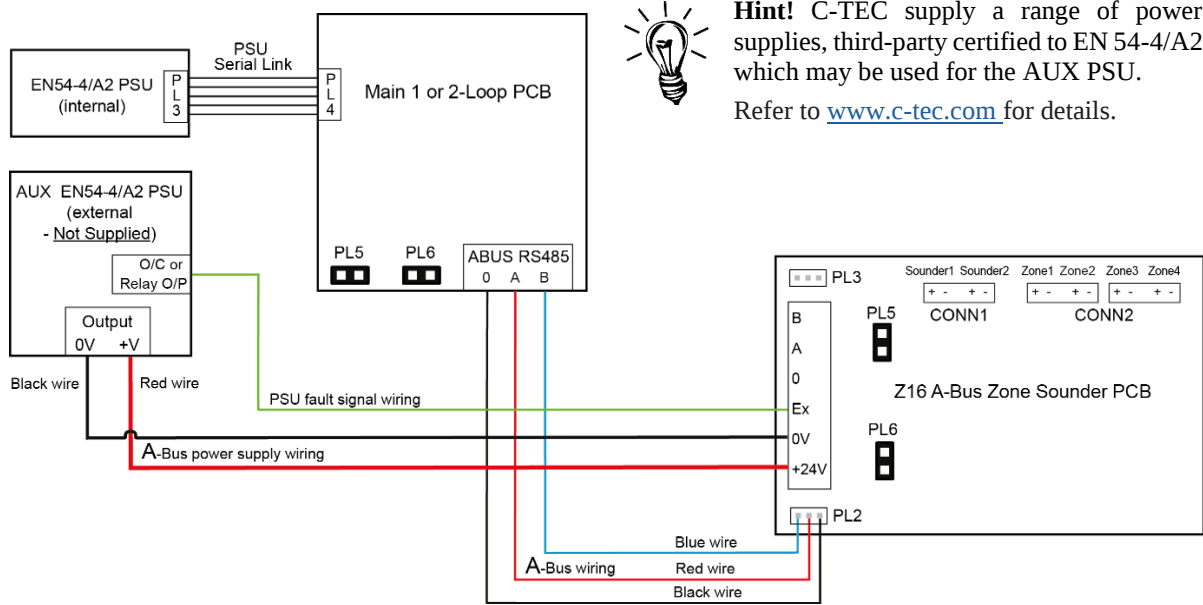


Fig.14 – Z16 Zone Sounder PCB Wiring



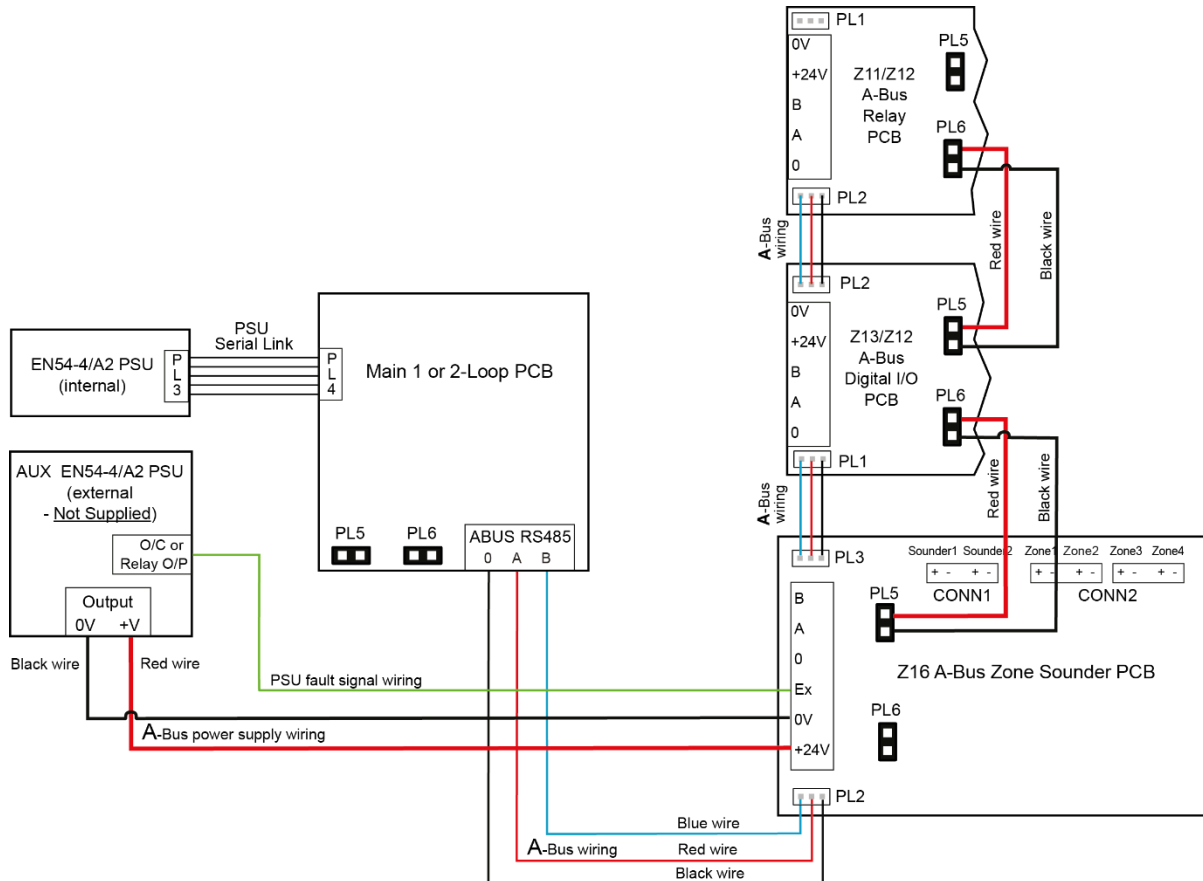
Hint! C-TEC supply a range of power supplies, third-party certified to EN 54-4/A2 which may be used for the AUX PSU.

Refer to www.c-tec.com for details.

Note: The Z16 terminal labelled 'Ex' is used to report a fault from the AUX (external) PSU. It is triggered from an active IO signal from an open collector (O/C), or volt-free (with 0V common) relay O/P.

If an AUX (external) PSU is not used, a link must be fitted between PCB terminals 'Ex' and '0V'.

Correct polarity must be observed.



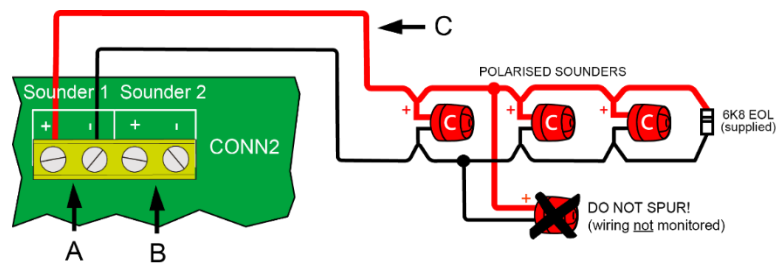
6.7 Z15 and Z16 Conventional Sounder Circuit(s) Wiring

Four conventional sounder circuits are provided on the Z15 A-Bus Sounder PCB and two conventional sounder circuits are provided on the Z16 A-Bus Zone Sounder PCB. Each circuit has a maximum rating of 1A. IF A FULL COMPLEMENT OF SOUNDERS ARE TO BE USED, THEY MUST BE EQUALLY SPLIT ACROSS ALL SOUNDER CIRCUITS.

Connect each sounder circuit to the terminals labelled Sounder 1 (Z15 & Z16), Sounder 2 (Z15 & Z16), Sounder 3 (Z15 only) & Sounder 4 (Z15 only), as shown in Fig.15 below, and terminate earth screens at the back box earth bar.

Note: ALWAYS make sure the 6k8, EOL resistors (supplied) are fitted across the terminals of the last sounder on each circuit to allow the wiring to be monitored for open and short circuit faults. If a sounder circuit is unused, you must still connect the resistor at the PCB terminals.

Fig.15 – Z16 Conventional Sounder Circuit Connections



- A – Conventional Sounder 1 circuit connector (+, -).
- B – Additional Sounder 2 circuit connector (+, -). Wiring not shown.
- C – Sounder circuit cable (fire resistant).

6.8 Z16 Conventional Zone Circuit(s) Wiring

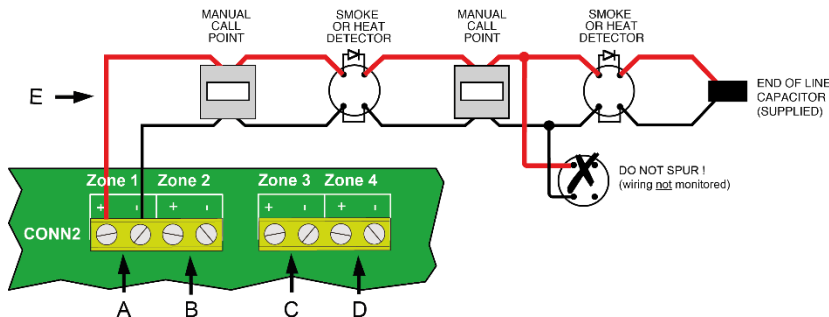
Four conventional zone circuits are provided on the Z16 A-Bus Zone Sounder PCB, each circuit may have a maximum number of 10 devices fitted.

Connect each zone circuit to the terminals marked Zone 1, Zone 2, Zone 3 & Zone 4, as shown in Fig.16 below, and terminate earth screens at the back box earth bar.

Note: ALWAYS make sure the four, 0.47µF 50V, end-of-line (EOL) capacitors (supplied) are fitted across the terminals of the last device on each circuit to allow the wiring to be monitored for open and short circuit faults. If a zone circuit is unused, you must still connect the capacitor at the PCB terminals.

Detector bases with integral continuity diodes must be used to ensure manual call points remain operational when a detector head is removed from its base. Manual call points with integral resistors must be used to prevent a short circuit fault occurring instead of a fire condition when activated.

Fig.16 – Z16 Conventional Zone Circuit Connections



- A – Conventional Zone 1 circuit connector (+, -).
- B – Additional Zone 2 circuit connector (+, -). Wiring not shown.
- C – Additional Zone 3 circuit connector (+, -). Wiring not shown.
- D – Additional Zone 4 circuit connector (+, -). Wiring not shown.
- E – Zone circuit cable (fire resistant).

7 TOUCHSCREEN, INDICATORS & CONTROLS

Note that information on the panel's touchscreen, indicators and controls can be found in the separate User Manual (Document No. DFU5030050).

8 COMMISSIONING & PROGRAMMING

8.1 EN54 Compliance Statement

THIS COMPLIANCE STATEMENT IS FOR AUTHORISED SYSTEM ENGINEERS FAMILIAR WITH ANALOGUE FIRE ALARM SYSTEMS AND FIRE ALARM STANDARDS. ENSURE YOU HAVE ATTENDED C-TEC'S AUTHORISED TRAINING COURSE BEFORE USING THE PANEL'S CAST ZFP Programming Tools (Part No. ZTOOLS).

The 'out-of-the-box' fire alarm panel is fully compliant with the requirements of EN54-2 (Fire detection and fire alarm systems, control and indicating equipment) and EN54-4 (Fire detection and fire alarm systems, power supply equipment) and is 3rd party certified as meeting these standards.



Please note, the Engineering Functions listed below, go beyond the scope of EN54-2. DO NOT affix the EN54 approval label (supplied) to the front of the panel if it has been configured to operate in a way that would make it non-compliant with the requirements of EN54-2.

- A single delay time shall not exceed 10 minutes. However, it is possible to build delays upon delays that can exceed 10 minutes in total. This is non-compliant with EN54-2 Clause 7.11.1 c).
- It is recommended that any Input Group configured to apply delays to outputs (as defined in EN54-2 Clause 7.11), shall contain at least one MCP for the purposes of overriding any delay in order to comply with EN54-2 Clause 7.11.1 d).
- A panel can be configured to automatically silence and reset from the alarm condition. This is non-compliant with EN54-2 Clause 7.8 c).
- The time it takes to automatically reset from the alarm condition can be configured to be less than 5 minutes. This is non-compliant with EN54-2 Clause 7.12.2 d).
- It is possible for MCPs to be included in Dependencies A & B. This is non-compliant with EN54-2 Clauses 7.12.1 & 7.12.2.
- Setting the operation mode of an Input Group to '2 Devices' creates a double-knock scenario that could potentially make the panel non-compliant with EN54-2.
- Caution should be taken when programming any Action Sequence other than the 10 defaults provided, as it is possible to program an action that is non-compliant with EN54-2.
- When utilising Function Switches it is important to note that the CIE is driven by the event as opposed to the state. As a result, the use of multiple Function Switches to change the panel's mode of operation may result in some confusion if care is not taken to reset the state of the Function Switch(es).

8.2 Recommended Shortform Installation & Commissioning Procedure

Note: DO NOT connect mains or battery power to the panel until the installation is complete, i.e. panel PCBs are fitted and field wiring has been tested and connected to the panel.

- Remove the panel's lid and chassis – see section 5.3
- Fit the panel's back box to a wall – see section 5.5.
- Gland field cables to the panel and terminate screens to the earth bar in the back box – see section 5.10.
- Test field cables and ensure they are fault-free, i.e. check continuity of cable runs (including screens). Check the continuity on the negative (-ve) line of the device loop to ensure it is fault free. Loop isolators are in the positive (+ve) line, therefore continuity cannot be tested. Check the resistance of the conventional sounder circuits (if used) and all other field wiring to ensure they are fault free. **DO NOT MEGGER!** Remove all electronic devices if 500V testing is demanded – see section 4.3.
- Connect external mains cable to the panel (with mains isolated) – see section 5.16.
- Connect panel's internal batteries (with battery supply isolated) – see section 5.17.
- Refit the panel's chassis and lid– see section 5.6.
- Connect analogue loop(s) wiring to the panel – see section 5.10.
- Connect conventional sounder circuit(s) to the panel – see section 5.11.
- Connect additional field wiring to the panel – see sections 5.12 to 5.14.
- Apply mains and battery supply to power up the panel.
- Investigate and rectify any messages reported as faults on the panel's touchscreen.
- After all faults have been cleared commission the panel by entering access level 3 and performing an auto address or loop learn.
All the loop devices connected to the panel need to have an address assigning to them. In addition, the panel needs to read all the fitted devices and identify their address.

There are two recommended options to do this:

Option 1 (AUTO ADDRESS): Enter **AL3 (4444) > COMMISSIONING FUNCTIONS > AUTO ADDRESS** menu option. This will automatically assign an address to each loop device in sequentially wired order. See section 8.6.2 for details.

Option 2 (LOOP LEARN): First, use a CAST Handheld Programmer (Part No. CAPROG) to manually assign an address to each loop device. Second, enter **AL3 (4444) > COMMISSIONING FUNCTIONS > LOOP LEARN** menu option. See section 8.6.5 for details.

- Rectify any problems resulting from the auto address or loop learn, e.g. double addresses, missing devices, etc.
- After all faults have been cleared carry out necessary panel tests.
- Proceed to program the panel using the CAST ZFP Programming Tools (Part No. ZTOOLS). This includes naming loop devices, naming zones and assigning devices to input and output groups.
- When you are satisfied the panel has been programmed and is working correctly, secure the panel lid and instruct the client / customer in the operation of the system.
- Complete and hand over all necessary manuals and other documentation prior to leaving site.



Hint! CAST ZFP Programming Tools (Part No. ZTOOLS) are available that allow quick and easy input of data, cause and effect programming, device and zone naming, etc. Contact your distributor for details.

8.3 Access Level 3 Menu Structure

Fig.17 shows the menu options available at access level 3.

Three ‘access levels’ are available at the panel; general user (access level 1), authorised user (access level 2) and authorised systems engineer (access level 3). This manual focuses on the programming functions available at access level 3 only; access levels 1 & 2 are covered in the separate User Manual (DFU5030050), including information on how fire, fault, disablements and test conditions are reported and dealt with.

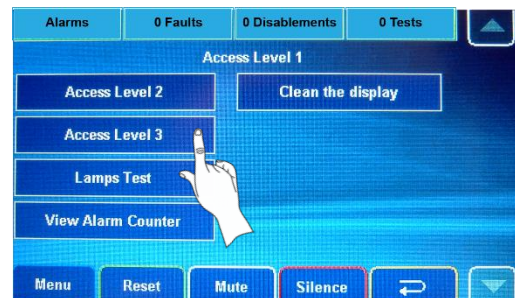
At access level 3 you can:

- View any active fires, faults, disablements or test conditions that are displayed on the touchscreen.
- Enter the panel’s access level 2 menu options.
- Access a wide range of engineering functions (see section 8.5) and commissioning functions (see section 8.6).
- View and reset the panel’s alarm counter (see separate User Manual DFU5030050 for details).
- Display or clear the panel’s event log (see section 8.7).
- Enable or disable zones, Input Groups, Output Groups and loop devices (see section 8.8).
- Set the panel’s time and date (see section 8.9).

8.4 How to Enter Access Level 3 (AL3)

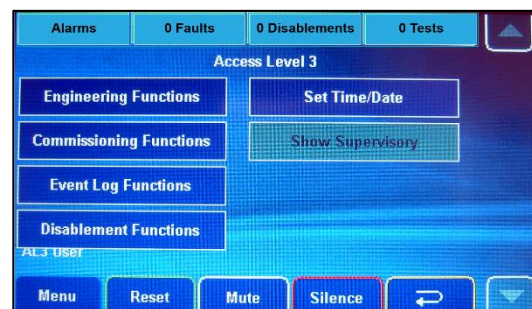
• Entry to AL3 using the panel’s touchscreen

With the panel operating under normal conditions (shown below left), press the **Menu** button on the panel’s touchscreen to show the access level 1 menu options (shown below right).



Press the **Access Level 3** button and the display shown below left appears.

Using the touchscreen’s numeric keypad, enter the four-digit access level 3 code. The default code is: **4444**. When the code has been entered correctly, the access level 3 menu options are displayed (shown below right). Note that the panel will automatically exit access level 3 after 20 minutes if the touchscreen is not pressed.



• Entry to AL3 using the panel’s keyswitch and touchscreen

With the panel operating under normal conditions, turn the panel’s keyswitch anticlockwise to the horizontal position to display the access level 2 menu options. As detailed above, press the **Access Level 3** button and input the four-digit access level 3 code.

8.5 Engineering Functions

The Engineering Functions menu is used to access the panel's comprehensive test functions and display important system status information.

Enter **AL3 (4444)** press the **Engineering Functions** button and the window shown below left appears.

Scroll down ▼ to view additional engineering menu options (shown below centre and right).



Engineering functions are listed in sections 8.5.1 to 8.5.19.

8.5.1 Device Manager

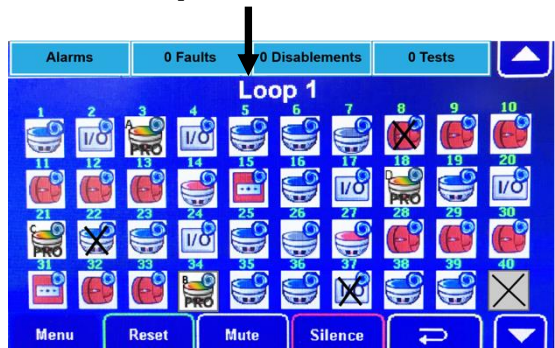
Using this function you can display, edit and test all the addressable devices stored in the panel's memory which include loop devices, system devices and A-Bus devices.

Enter **AL3 (4444) > Engineering Functions** press the **Device Manager** button and a window similar to the one shown below (for a 4 loop panel) appears.



Loop 1 is shown selected as an example.

Loop 1 shown selected



Loop devices window

Displays loop addresses (up to 255 devices per loop).

Displays loop device icons, see Fig.18 for list.

☒ - denotes unpopulated 'no device fitted'.

🔒 - denotes device is currently disabled.

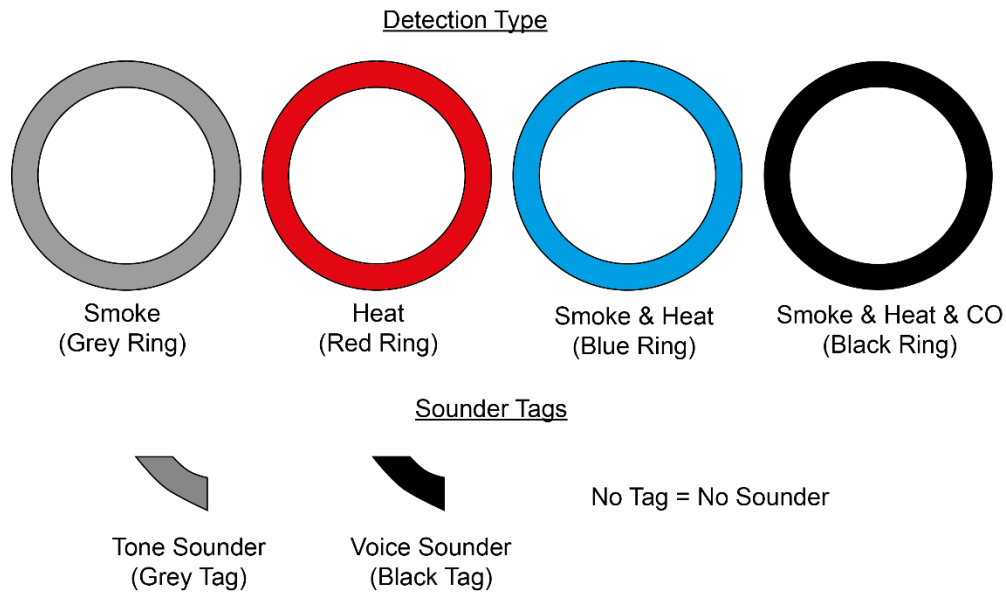
To view all the devices on the loop, use the ▲ and ▼ buttons to scroll through all the devices.

CAST ZFP Analogue Addressable Fire Alarm Panel

Fig.18 – List of CAST & CAST PRO Loop Devices

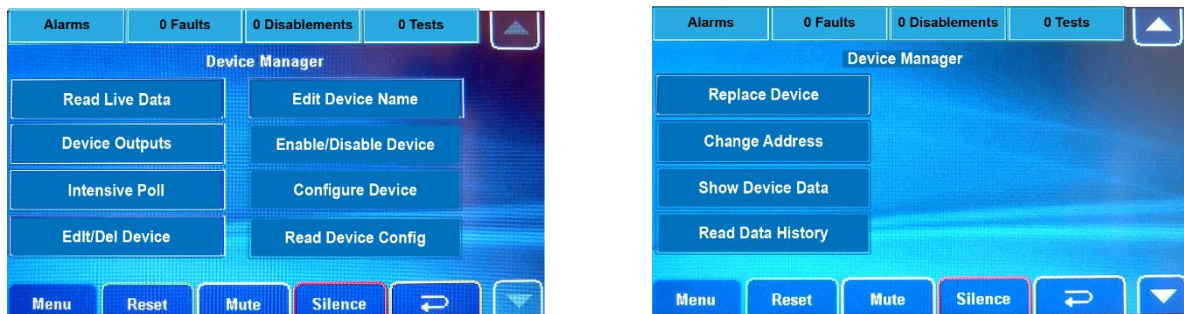
Icon	CAST Device (Ring Colour)	Part No.	Icon	CAST PRO Device (Ring & Tag Colour)	Part No. (White Plastics)	Part No. (Black Plastics)
	CAST Optical Smoke detector (Grey Ring)	CA416		CAST PRO Optical Smoke detector (Grey Ring)	CP416	CP416B
	CAST Heat detector (Red Ring)	CA402		CAST PRO Heat detector (Red Ring)	CP402	CP402B
	CAST Multisensor detector (Blue Ring)	CA414		CAST PRO Optical/Heat Multisensor detector (Blue Ring)	CP414	CP414B
	CAST Manual Callpoint	CA470		CAST PRO Optical/Heat/CO Multisensor detector (Black Ring)	CP411	CP411B
	CAST Sounder	CA430A, CA431A, CA450A		CAST PRO Optical/Heat Multisensor detector plus Tone- Sounder (Blue Ring plus Grey Tag)	CP414T	CP414BT
	CAST Sounder VAD	CA432A, CA433A, CA451A, CA456A		CAST PRO Optical/Heat/CO Multisensor detector plus Tone- Sounder (Black Ring plus Grey Tag)	CP411T	CP411BT
	CAST VAD	CA458A, CA459A, CA460A		CAST PRO Optical/Heat Multisensor detector plus Tone- Sounder plus VAD c/w clear lens (Blue Ring plus Grey Tag)	CP414TV	CP414BTV
	CAST Voice VAD	CA455A, CA457A, CA447A		As above c/w red VAD lens	CP414TVR	CP414BTVR
	CAST Voice Sounder	CA454A, CA446A		CAST PRO Optical/Heat/CO Multisensor detector plus Tone- Sounder plus VAD c/w clear lens (Black Ring plus Grey Tag)	CP411TV	CP411BTV
	CAST I/O Unit	CA730		As above c/w red VAD lens	CP411TVR	CP411BTVR
	CAST I/O Mains Switching Unit	CA731		CAST PRO Optical/Heat Multisensor detector plus Voice- Sounder (Blue Ring plus Black Tag)	CP414V	CP414BV
	CAST I/O Mini Unit	CA734		CAST PRO Optical/Heat/CO Multisensor detector plus Voice- Sounder (Black Ring plus Black Tag)	CP411V	CP411BV
	CAST 1 Way Sounder Controller	CA738		CAST PRO Optical/Heat Multisensor detector plus Voice- Sounder plus VAD c/w clear lens (Blue Ring plus Black Tag)	CP414VV	CP414BVV
	CAST 4 Way Sounder Controller	CA739		As above c/w red VAD lens	CP414VVR	CP414BVVR
	CAST HS2 Unit	HP733/CA		CAST PRO Optical/Heat/CO Multisensor detector plus Voice- Sounder plus VAD c/w clear lens (Black Ring plus Black Tag)	CP411VV	CP411BVV
	CAST Zone Monitor Unit	CA732		As above c/w red VAD lens	CP411VVR	CP411BVVR

CAST PRO Ring & Tag Colour



Device Manager (continued)

When an individual loop device icon is pressed the Device Manager window appears (shown below) allowing the user to perform additional functions which are listed below.



8.5.1.1 Read Live Data

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Read Live Data.**

This function allows you to read live sensor readings for detectors. During this test, the panel temporarily disables the point being monitored and also the panel from reporting fires, pre-alarms and faults. Therefore, use this function with care.

Note 1: The analogue values returned will differ dependent on whether the device is a detector, sounder, I/O unit or MCP.

Note 2: The information displayed will assist C-TEC Technical Dept. (available @ www.c-tec.com) to identify the cause of any problems.

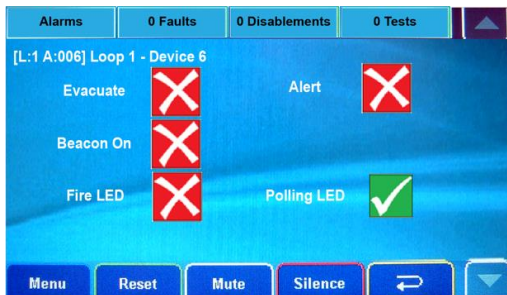
8.5.1.2 Device Outputs

This function allows you to turn ON/OFF individual device's outputs.

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device)** and press **Device Outputs** button. A typical display (shown below) appears allowing you to turn ON/OFF the selected device's outputs.



In the example shown left, options to turn ON/OFF the detector's 'Fire LED' or 'Polling LED' are available.



In the example shown left, options to test a sounder's audio visual functions are available.

Note: If you exit this function the panel will retain the settings. To reset the outputs to their normal settings re-enter Device Manager, select the loop device and select Device Outputs. Outputs are automatically reset by the panel.

8.5.1.3 Intensive Poll

This function allows you to monitor a specific addressable point on the system to see how it responds to intensive, repeated polls from the panel. During this test, the panel temporarily disables the point being monitored and also the panel from reporting fires, pre-alarms and faults. Therefore, use this function with care.

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Intensive Poll** to start the test and a device description display (shown below) appears showing the polling results.



Note 1: The running total of the number of good and bad polls between the panel and monitored device appears in the top right corner of the display.

In this example '72' (denotes good polls) / '0' (denotes bad polls).

Note 2: The information displayed will assist C-TEC Technical Dept. (available @ www.c-tec.com) to identify the cause of any problems.

Press the device description display (shown above) and the next display allows you to turn ON/OFF the selected device's outputs (see section 8.5.1.2 - 'Device Outputs').

8.5.1.4 Edit/Delete Device



Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop device & select a device) > Edit/Del Device**.

This function allows a selected device's parameters to be edited including:

- Device type
- Zone
- Input or Output Group
- Device name (same function as section 8.5.1.5)

8.5.1.5 Edit Device Name



Enter AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Edit Device Name.

This function allows the text description assigned to specific devices to be created, or amended.

When selected, use the touchscreen's QWERTY keyboard to change the text description.

8.5.1.6 Enable/Disable Device

Enter AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Enable/Disable Device.

Press the device description displays (shown below) to toggle the state of a specific device between 'ENABLED' and 'DISABLED'.



Note: The loop devices window in Device Manager (section 8.5.1) will change to show an 'X' over the device which is currently disabled, either individually or as part of a Group/Zone as shown below.



8.5.1.7 Configure Device

Enter AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Configure Device.

This function allows you to resend the current device configuration parameters to the selected device. To globally configure all loop devices see section 8.5.17.

8.5.1.8 Read Device Configuration

Enter AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Read Device Config.

This function displays the configuration data for the selected device including the device's Unique ID (UID), type code and device firmware version.

Note 1: The configuration data displayed will differ dependent on whether the device is a detector, sounder, I/O unit or MCP.

Note 2: The information displayed will assist C-TEC Technical Dept. (available @ www.c-tec.com) to identify the cause of any problems.

8.5.1.9 Replace Device

NB: THIS MENU OPTION HAS TO BE SELECTED BEFORE A LOOP DEVICE IS REPLACED.

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Replace Device.**

This function may be used, for example, to replace a faulty loop device without requiring a new loop learn.

The panel will display the following, for example, with Loop 1, Device 1 selected:



Replace the selected loop device.

When the device has been replaced the panel will auto-address the new device.

WAIT FOR THE AUTO ADDRESS PROCESS TO FINISH AND ANY FAULTS TO CLEAR. THIS MAY TAKE SOME TIME DEPENDENT ON THE NUMBER OF DEVICES ON THE LOOP.

ONCE LEARNED, WAIT FOR AT LEAST 5 MINUTES TO ALLOW THE SYSTEM TO SYNC WITH THE DEVICES.



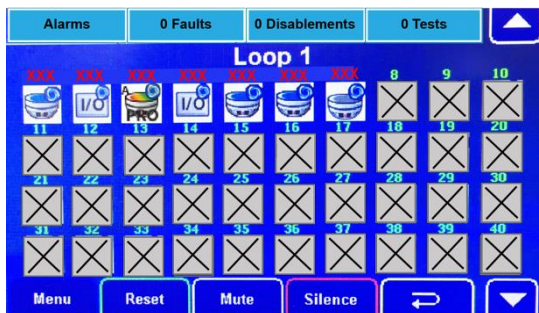
8.5.1.10 Change Address

This function is used to easily change device addresses at the panel rather than having to gain access to devices in the field, for example, saving the use of ladders for device accessibility.

Note: The CAPROG Handheld Programmer can be used to manually change the address of a device, but this will also require a loop learn to be carried out.

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Change Address.**

The selected device's LED will light and the loop devices window will be displayed (see example below):



Scroll through the devices in the loop devices window (and select an unpopulated 'no device fitted' loop address denoted

by icon 

The panel will request confirmation of the address change, for example:



Press the green 'tick' button to confirm.

In this example the panel will auto-assign address 1 to address 8.

8.5.1.11 Show Device Data

This function allows you to read the selected device's data record including loop address, device type, and debug information.

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Show Device Data.**

Note: The information displayed will assist C-TEC Technical Dept. (available @ www.c-tec.com) to identify the cause of any problems.

8.5.1.12 Read Data History

This function lists selected device's event and alarm log. This includes fire, fault and system events.

Enter **AL3 (4444) > Engineering Functions > Device Manager (select a loop & select a device) > Read Data History.**

8.5.2 Contamination Check

This function tests all detection devices on a loop for contamination. When new, the devices should read close to 0% contamination. This will increase over time due to dust and contaminants but the algorithm in the detector compensates for this.



Enter **AL3 (4444) > Engineering Functions > Contamination Check.**

The display allows the contamination threshold value to be set (0% minimum, 100% maximum).

Select the threshold and which loop(s) to test and press the **GO!** button to start the loop contamination check.

WAIT FOR THE PROCESS TO COMPLETE.

After the check is completed, any detection devices that fall above the threshold value will be listed on the touchscreen, otherwise the display will confirm all devices are 'OK' and return to the Engineering menu.

8.5.3 Show PSU Status

This function allows you to view information regarding the state of the panel's PSU and its standby batteries.

Enter **AL3 (4444) > Engineering Functions > Show PSU Status.**

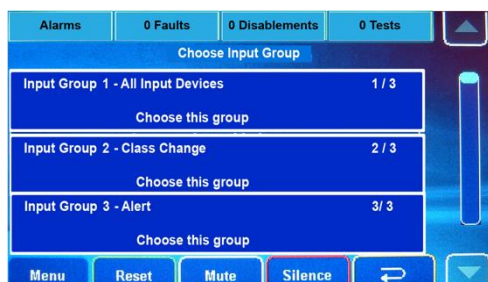
Note: The information displayed will assist C-TEC Technical Dept. (available @ www.c-tec.com) to identify the cause of any problems.

8.5.4 Test Input Group

This function allows you to perform tests on the panel's Input Groups.

By default, Input Groups include All Input Devices (detectors, MCPs, inputs of I/O units, panel keyswitches, inputs of A-Bus PCBs, monitored inputs), Class Change and Alert.

Enter **AL3 (4444) > Engineering Functions** press the **Test Input Group** button and choose the Input Group to be tested from the list of available groups, shown below:



By default, three Input Groups are available, i.e. All Input Devices, Class Change & Alert. The default input groups can be modified using CAST ZFP Programming Tools (Part No. ZTOOLS). Contact your distributor for details.

In the next window choose the type of test to be performed on the Input Group by changing the state from NORM to TRIGgered.

8.5.5 Test Output Group

This function allows you to perform tests on the panel's Output Groups.

By default, Output Groups include All Output Devices (loop sounders, conventional sounders, VADs, outputs of I/O units, outputs of A-Bus PCBs, panel relays), Panel Relay 1 and Panel Relay 2.

Enter **AL3 (4444) > Engineering Functions** press the **Test Output Group** button and choose the Output Group to be tested from the list of available groups.



By default, three Output Groups are available, i.e. All Output Devices, Panel Relay 1 & 2. The default output groups can be modified using CAST ZFP Programming Tools (Part No. ZTOOLS). Contact your distributor for details.

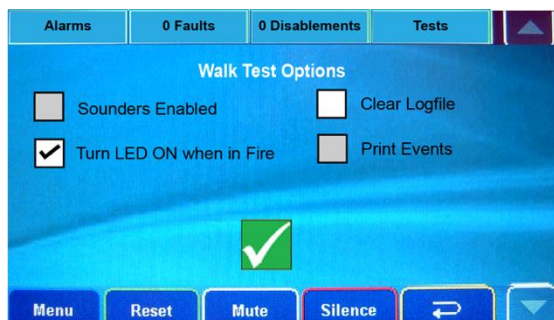
In the next window choose the type of test to be performed on the Output Group by changing the state from OFF to ON or PULSED.

8.5.6 Walk Test

This function allows you to put one or more of the system's detection zones into walk test mode.

When a zone is in walk test mode any device triggered on the selected zone will turn their LED on for a brief period. Output groups (including sounders) are disabled for the zone in test.

Enter **AL3 (4444) > Engineering Functions** and press the **Walk Test** button.



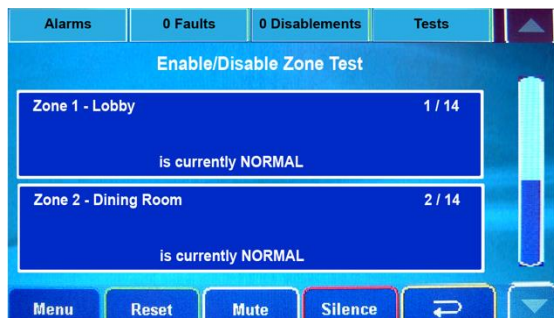
Confirm 'Turn LED ON when in Fire' checkbox is ticked.

Note that the 'Sounders Enabled' checkbox is displayed but is not selectable, i.e. sounders are disabled during a walk test.

To test the sounders refer to section 8.5.1.2 (Device Outputs) or section 8.5.5 (Test Output Group).

Press the  button and in the windows shown below, enable the zone(s) you wish to put into walk test mode by pressing the zone selection display(s).

Note that pressing the zone selection display toggles the zone's state between 'NORMAL' and 'ON TEST'.



Pressing the yellow 'Tests' button at any time shows a list of devices that have yet to be tested, example shown below:

CAST ZFP Analogue Addressable Fire Alarm Panel



The test list, shown left, shows one Zone plus 13 devices ON TEST.

The 'Tests' list shows the devices that have yet to be tested.

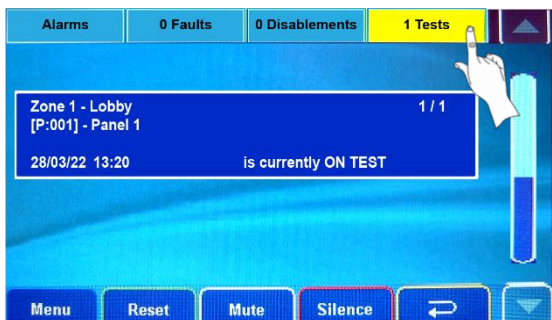
For the zone(s) in test, the engineer walks around the site and activates each device on the test list, e.g. using a smoke detector tester, manual call point test key, etc. and checks the device LED lights briefly to indicate activation.



At the panel, the engineer checks the device alarms are displayed, shown left, and also checks as each device is tested it is removed from the test list.

The 'Alarms' list shows the devices that have been tested.

The zone(s) in the walk test condition WILL NOT be removed from the test list, i.e. at the end of your Walk Test the only items left in the test list should be the Zones ON TEST (shown below).



At the end of the walk test remove the cause of the alarm at each device, e.g. by clearing the test smoke from the detector or resetting the manual call point.

Remove the panel from walk test mode and reset the system by pressing the **Silence** and **Reset** buttons.

To clear all tests from the display refer to section 8.5.7 (Clear All Tests).

Note: A list of tested devices can be uploaded to the PCTOOLS and a report generated.

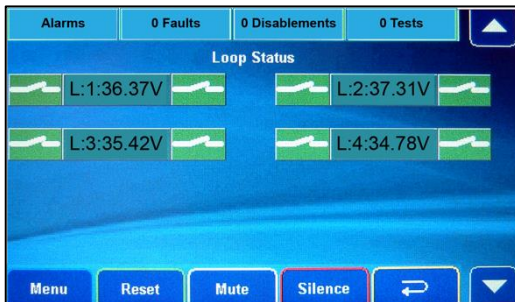
8.5.7 Clear All Tests

This function globally clears all active tests on the system, e.g. Walk Test. The button is greyed out when there are no tests on the system.

Enter AL3 (4444) > **Engineering Functions** > **Clear All Tests**.

8.5.8 Show Loop Status

This function allows you to view the voltage level of the addressable loops and check the loop isolator condition.



Enter **AL3 (4444) > Engineering Functions** press the **Show Loop Status** button and a window similar to the one shown left appears.

If there is a fault on one of the loops the background colour of the switch will change from green to yellow.

The actual loop voltage will depend upon the number of devices connected on a loop.

8.5.9 Find Loop Break

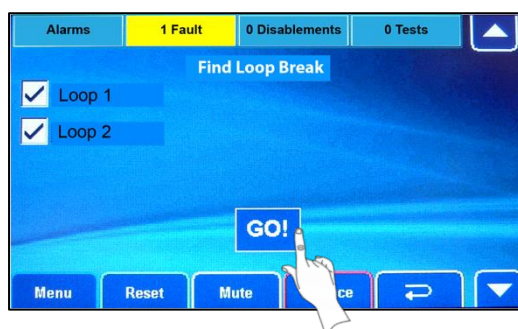
This function assists in pinpointing the precise location of a loop open circuit or loop short circuit.

The following faults may have been displayed at the panel, for example:



Enter **AL3 (4444) > Engineering Functions > Find Loop Break**.

The following is displayed, for example:



Select the loop(s), e.g. Loops 1 & 2 and press **GO!** button.

The panel will initialize both ends of the selected loop(s).

A PROGRESS BAR WILL BE DISPLAYED. WAIT FOR THE PROCESS TO COMPLETE!

Assuming there is an open or short circuit fault on the loop, the device LEDs on either side of the fault will be lit steady red when the process is completed.

The panel display will identify the precise location of the loop break between loop devices 'X + Y', for example:



Note that short and open circuit are latching faults.

Fix the open or short circuit at the location identified by the panel.

Enter **AL3 (4444)** or **AL2 (3333)** press **Reset** button.

The panel returns to normal if the fault is fixed.

8.5.10 Change Access Level 2 (AL2) Code

Enter **AL3 (4444)** > **Engineering Functions** press the **Change AL2 Code** button and the window below appears:



Use the touchscreen's numeric keypad buttons to enter the new access level 2 code. After the fourth digit has been entered, the panel will request you confirm the new code by re-entering it.

Enter the code again by pressing the buttons in the same sequence. If the two codes match, the panel will accept the code and you will be taken back to the engineering menus. If you type an incorrect confirmation code you will be prompted to start the new code entry sequence again.

8.5.11 Change Access Level 3 (AL3) Code

This function is used to change the four-digit code needed to enter the panel's access level 3 menu options.

Enter **AL3 (4444)** > **Engineering Functions** press the **Change AL3 Code** button.

Follow the same procedure as detailed in section 8.5.10.

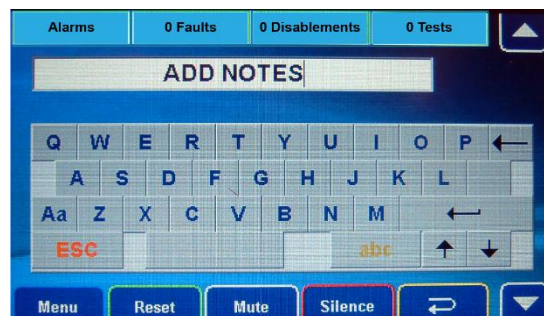
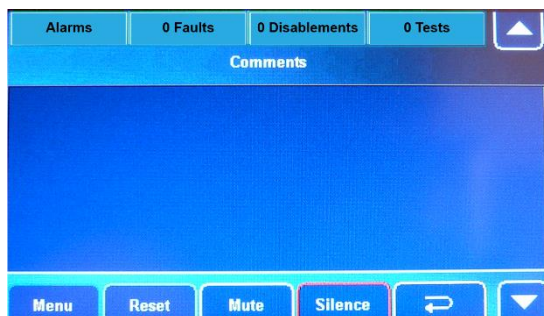
Note: If the code is lost or not known, the building owner will need to email C-TEC Technical Dept. (available @ www.c-tec.com) to request a new code generating.

8.5.12 Panel Notes

Enter **AL3 (4444)** > **Engineering Functions** > **Panel Notes**.

This function allows panel specific comments to be written by an authorised systems engineer. The comments are editable.

When selected, press anywhere in the Comments window (shown below left) and in the next window that appears use the touchscreen's QWERTY keyboard to add pertinent notes about the panel (shown below right).



8.5.13 Show System Details

Enter AL3 (4444) > Engineering Functions > Show System Details.

This function lists system details including:

- panel bootloader version number
- main module and loop driver firmware version numbers
- internal SD memory card information
- number of A-Bus devices fitted
- node name and site data version

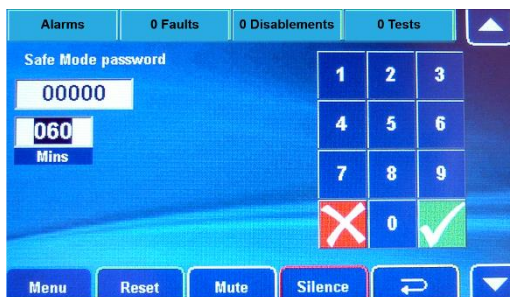
Note: The information displayed will assist C-TEC Technical Dept. (available @ www.c-tec.com) to identify the cause of any problems.

8.5.14 Safe Mode

Enter AL3 (4444) > Engineering Functions > Safe Mode

This function disables all of the panel outputs whilst tests are being performed on the system. When selected you will be requested to enter the five-digit safe mode password and time period.

Note: The default password is: **12345**.



Note: Entering a time period of '000' minutes will permanently place the panel in safe mode.

8.5.15 Clean Start

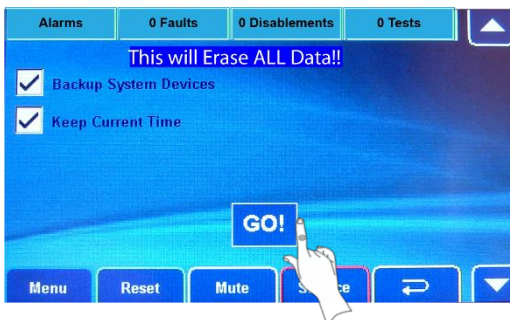


CAUTION: This function is for trained engineers only. Performing a clean start **COMPLETELY ERASES** the panel's memory held on the internal SD memory card. Therefore, use this function with extreme care. Ensure a system config file is downloaded **BEFORE** performing a clean start so that it may be retrieved.

Enter AL3 (4444) > Engineering Functions > Clean Start

This function allows engineers only to clear the panel's memory back to its factory default settings.

When selected, you will be requested to enter the five-digit security code.



Note: The default code is: **32767**

8.5.16 Sync Network Data

This function only applies to networked panels.

8.5.17 Configure ALL Devices

Enter **AL3 (4444) > Engineering Functions > Configure ALL Devices**

This function allows you to globally resend the current device configuration parameters to all the loop devices. To configure individual devices see section 8.5.1.7.

The panel will request confirmation before carrying out this command.

8.5.18 Diagnostics

This function is for specially trained engineers only and is not detailed in this manual.

Note: Contact C-TEC Technical Dept. (available @ www.c-tec.com) for more information.

8.5.19 Firmware Update

This function allows the panel to appear as a removable drive on a PC and can be used for re-flashing the CAST ZFP firmware using the internal SD card.

Note: Contact C-TEC Technical Dept. (available @ www.c-tec.com) to obtain a valid code quoting the Update Code '12345'.

8.6 Commissioning Functions

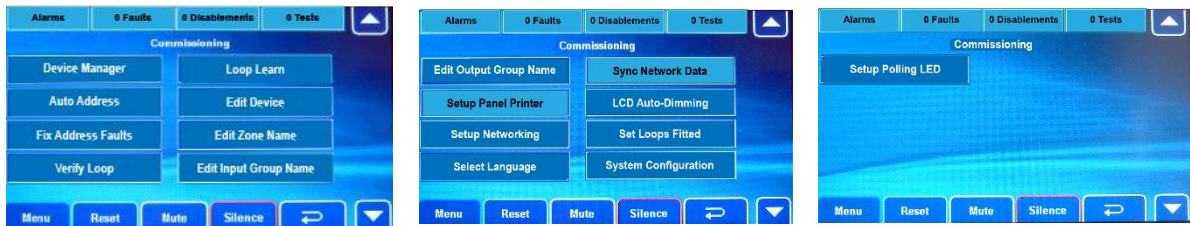
The Commissioning Functions menu is used to carry out numerous commissioning tasks including an auto address, loop learn, assign detectors / call points to Input Groups and sounders/VADs to Output Groups.



Hint! CAST ZFP Programming Tools (Part No. ZTOOLS) are available that allow quick and easy input of data, cause and effect programming, device and zone naming, etc. Contact your distributor for details.

Enter **AL3 (4444)** press the **Commissioning Functions** button and the window shown below left appears.

Scroll down  to view additional commissioning menu options (shown below right).



Commissioning functions are listed in sections 8.6.1 to 8.6.17.

8.6.1 Device Manager

Enter **AL3 (4444)** > **Commissioning Functions** press the **Device Manager** button.

The functions are identical to those previously listed the Device Manager section 8.5.1.

8.6.2 Auto Address

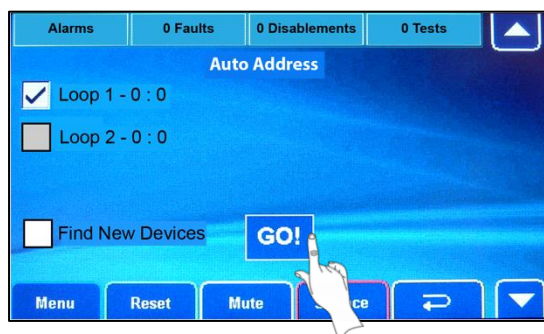
An alternative function to Auto Address is the LOOP LEARN menu option (see section 8.6.5 for details).

During an auto address the panel automatically assigns an address to each loop device in sequentially wired order.

CAUTION: USING THIS OPTION WILL COMPLETELY ERASE THE PANEL'S DATABASE OF STORED LOOP DEVICE INFORMATION. THEREFORE, USE WITH EXTREME CARE.

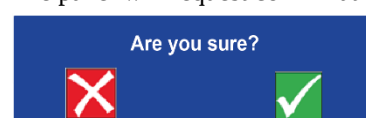
Only select this option if the panel has not previously been programmed, or if you want to program an existing system as if it were a new, clean system and you are confident to proceed.

Enter **AL3 (4444) > Commissioning Functions** press the **Auto Address** button.



Note: When one loop is selected the remaining loops are 'greyed out' and not selectable, i.e. you can only auto address one loop at a time. Press the **GO!** button.

The panel will request confirmation twice.



Press the 'tick'  button each time to proceed.

A progress bar will be shown during the learning process.

DEPENDING ON THE SIZE OF THE INSTALLATION, THE AUTO ADDRESS MAY TAKE SOME TIME. WAIT FOR THE PROCESS TO COMPLETE.

ONCE LEARNED, WAIT FOR AT LEAST 5 MINUTES TO ALLOW THE SYSTEM TO SYNC WITH THE DEVICES.



When the 'auto address' process is completed Device Manager (see section 8.5.1) is automatically displayed allowing the loop configuration to be checked.

If any fault messages are displayed at the panel, enter **AL3 (4444)** or **AL2 (3333)** and press **Reset** button to clear.

Repeat the auto address function for the remaining loops, e.g. loop 2, 3 & 4.

AFTER A SUCCESSFUL AUTO ADDRESS YOU WILL HAVE A "ONE OUT, ALL OUT" FIRE ALARM SYSTEM.

SEE TABLE 1 BELOW FOR DEFAULT ASSIGNMENT FOLLOWING AN AUTO ADDRESS.

DEVICE	DEFAULT ASSIGNMENT
Detectors (smoke, heat, multi), MCPs, inputs of I/O units, panel keyswitches, inputs of A-Bus PCBs, monitored inputs.	Input Group 1
Loop sounders and conventional sounders, VADs, outputs of I/O units, outputs of A-Bus PCBs, panel relays.	Output Group 1

Table 1: Default Device Assignment

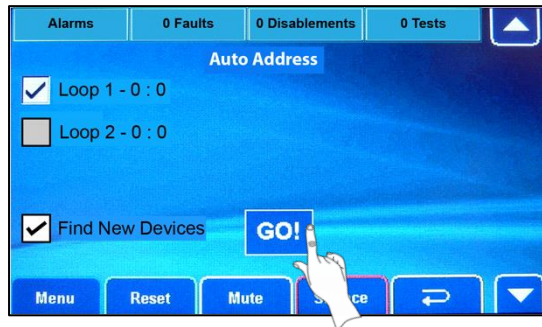
Default Cause & Effects (C&E): Input Group 1 activates Output Group 1 using Action Sequence 1.

This ensures that all of the system's sounders will activate in the event of a fire condition anywhere in the building, i.e. one out, all out. No special cause and effects events are assigned. The default settings can be modified using CAST ZFP Programming Tools (Part No. ZTOOLS). Contact your distributor for details.

Find New Devices Function

The Find New Devices function may be used to add a new device to a loop and you do not want to erase the stored loop device data. New devices should be installed and connected to a loop BEFORE selecting this function. A CAPROG handheld programmer may be used to manually allocate an address for the new device, or the panel can automatically allocate a new address using this function.

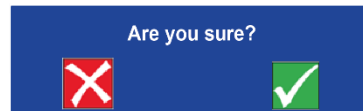
Enter **AL3 (4444) > Commissioning Functions > Auto Address (select Find New Devices checkbox).**



Note: When one loop is selected the remaining loops are 'greyed out' and not selectable, i.e. you can only find new devices on one loop at a time.

Press the **GO!** button.

The panel will request confirmation twice.



Press the 'tick'  button each time to proceed.

The panel will start to learn the loop from the last known address in its memory. Existing data will not be overwritten, e.g. device names, zone and group allocation, etc., will remain unchanged. The panel will only find new devices which it will automatically allocate to the next available 'unpopulated' loop address.

DEPENDING ON THE SIZE OF THE INSTALLATION, THE AUTO ADDRESS MAY TAKE SOME TIME. WAIT FOR THE PROCESS TO COMPLETE.

ONCE LEARNED, WAIT FOR AT LEAST 5 MINUTES TO ALLOW THE SYSTEM TO SYNC WITH THE DEVICES.



When the 'find new devices' process is completed Device Manager is automatically displayed allowing the updated loop configuration to be checked.

If any fault messages are displayed at the panel, enter **AL3 (4444)** or **AL2 (3333)** and press **Reset** button to clear.

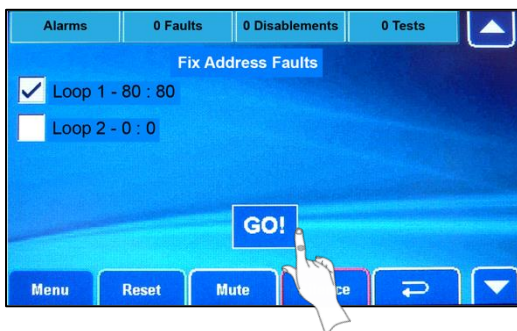
Repeat the find new devices function for the remaining loops, e.g. loop 2, 3 & 4.

8.6.3 Fix Address Faults

This function helps to locate and fix devices with duplicate (double) addresses. A fault may have been displayed at the panel stating 'MISSING' or 'DOUBLE ADDRESS', example shown below:



Enter **AL3 (4444) > Commissioning Functions > Fix Address Faults** and the example window shown below appears:



Select the loop(s) you want the panel to check (Loop 1 is shown selected left), then press the **GO!** button.

The panel will reinitialise and check the loop.

DEPENDING ON THE SIZE OF THE INSTALLATION, THIS PROCESS MAY TAKE SOME TIME. WAIT FOR THE PROCESS TO COMPLETE. ONCE LEARNED, WAIT FOR AT LEAST 5 MINUTES TO ALLOW THE SYSTEM TO SYNC WITH THE DEVICES.



After checking the loop, the panel will automatically re-allocate any duplicate addresses to the next available 'unpopulated' loop addresses thereby removing any duplicate addresses.

When the process is complete, enter **AL3 (4444) > Commissioning Functions > Device Manager** to check the updated loop configuration.

The devices which have been re-allocated a new address by the panel can now be changed by either of the following options:

- performing an Auto Address function (see section 8.6.2),
- or, by using Device Manager > Change Address menu option (see section 8.5.1.10),
- or, by manually using the CAPROG Handheld Programmer.

8.6.4 Verify Loop

Enter **AL3 (4444) > Commissioning Functions > Verify Loop**.

This function re-initializes the selected loop and displays any loop configuration faults. This may be used, for example, if there is a problem with a missing or faulty device.

8.6.5 Loop Learn

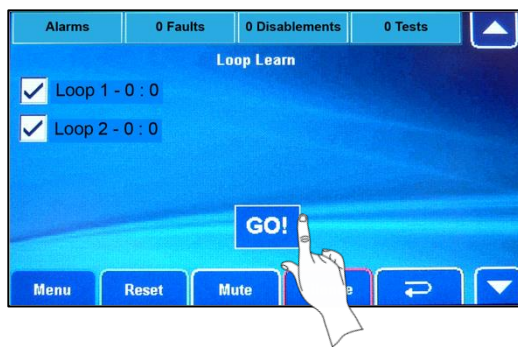


NB! LOOP LEARN WILL NOT AUTO ADDRESS DEVICES. LOOP LEARN IS ONLY FOR PRE-ADDRESSED DEVICES, E.G. USING THE CAPROG HANDHELD PROGRAMMER.

An alternative function to Loop Learn is the AUTO ADDRESS menu option (see section 8.6.2 for details).

During a loop learn, the panel interrogates every pre-addressed device on the loop to see if an addressable unit is present and, if so, find out what type of device it is. Before performing a loop learn ensure the loop devices have been assign an address using the CAST Handheld Programmer (Part No. CAPROG).

Enter **AL3 (4444)** > **Commissioning Functions** press the  button and the window shown below appears, for example.



Select the loop(s) you want the panel to learn (Loop 1 and Loop 2 are shown selected), then press the  button.

A progress bar will be shown during the learning process.

DEPENDING ON THE SIZE OF THE INSTALLATION, THE LOOP LEARN MAY TAKE TIME. WAIT FOR THE PROCESS TO COMPLETE. ONCE LEARNED, WAIT FOR AT LEAST 5 MINUTES TO ALLOW THE SYSTEM TO SYNC WITH THE DEVICES.



When the 'loop learn' process is completed Device Manager is automatically displayed allowing the loop configuration to be checked.

If any fault messages are displayed at the panel, enter **AL3 (4444)** or **AL2 (3333)** and press  button to clear.

AFTER THE FIRST SUCCESSFUL LOOP LEARN YOU WILL HAVE A “ONE OUT, ALL OUT” FIRE ALARM SYSTEM.

SUBSEQUENT LOOP LEARNS WILL NOT ALTER THE DEVICES’S CONFIGURATION, UNLESS THE DEVICE TYPE HAS CHANGED.

SEE TABLE 1, SECTION 8.6.2 FOR THE DEFAULT ASSIGNMENT FOLLOWING A LOOP LEARN.

8.6.6 Edit Device

This function is identical to the Edit/Delete Device function in Device Manager (see section 8.5.1.4).



Enter **AL3 (4444) > Commissioning Functions > Edit Device**.

This function allows a selected device's parameters to be edited including:

- Device type
- Zone
- Input or Output Group
- Device name

8.6.7 Edit Zone Name

This function allows the text description assigned to a zone to be edited.

Enter **AL3 (4444) > Commissioning Functions** press the **Edit Zone Name** button and a window similar to the one shown below left appears.

To change a zone's name, press the zone description display ('Zone 1' is shown as an example) and the window shown below right appears. Amend the text using the touchscreen's standard QWERTY keyboard controls.

To select a different zone for editing, either press the zone number field (001 shown below left) and use the  and  buttons to scroll through the zones, or enter the zone number directly into the zone number field using the touchscreen's numeric keypad.



8.6.8 Edit Input Group Name

This function allows text descriptions for Input Groups to be edited. By default, three Input Groups are available, i.e. All Input Devices, Class Change & Alert.

Enter **AL3 (4444) > Commissioning Functions** press the **Edit Input Group Name** button and a window similar to the one shown below appears.



Amend the text descriptions by following the same operating procedure detailed in section 8.6.7.

8.6.9 Edit Output Group Name

This function allows text descriptions for Output Groups to be edited. By default, three Output Groups are available, i.e. All Output Devices, Relay 1 & Relay 2.

Enter **AL3 (4444) > Commissioning Functions** press the **Edit Output Group Name** button and a window similar to the one shown below appears.



Amend the text descriptions by following the same operating procedure detailed in section 8.6.7.

8.6.10 Setup Panel Printer

This function only applies to panels with an integrated printer fitted.

8.6.11 Setup Networking

This function only applies to networked panels.

8.6.12 Select Language

This function changes the text language of the touchscreen buttons and menus. The default language is English.

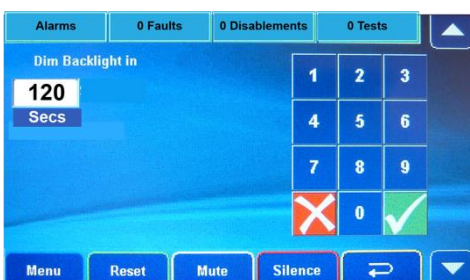
8.6.13 Synchronise Network Data

This function only applies to networked panels.

8.6.14 LCD Auto-Dimming

This function adjusts the touchscreen's power save mode.

Enter **AL3 (4444) > Commissioning Functions** press the **LCD Auto-Dimming** button and the window shown below appears.



In this example, if the touchscreen is not pressed the LCD backlight will dim after 120 seconds, then switch off after another 120 seconds.

To select a different dimming time stage press the 'Secs' field and use the ▲ and ▼ buttons to adjust, or enter the time directly into the field using the touchscreen's numeric keypad.

8.6.15 Set Loops Fitted

Enter **AL3 (4444) > Commissioning Functions > Set Loops Fitted**

This function sets the number of loops the panel's firmware assigns to a panel.

Note: The actual physical number of loops that can be connected to a panel is dependent on the number of loop driver modules fitted, i.e. Main 1-Loop PCB, Main 2-Loop PCB, or 2-Loop Expansion PCB.

8.6.16 System Configuration

Enter **AL3 (4444) > Commissioning Functions > System Configuration**.

The display below shows the system's default configuration settings.



Option	Description
New Fire causes Resound	If checkbox is ticked the alarm sounders will resound if a new fire alarm condition occurs in the same zone.
New Fire in Input Group	If checkbox is ticked the alarm sounders will resound if a new fire alarm condition occurs in the same input group.
Ignore Type Code Faults	If checkbox is ticked device type codes faults will be temporarily ignored which may prove useful during commissioning. You should rectify the problem as soon as possible before unticking this checkbox.
Ignore Loop Config Changed	If checkbox is ticked loop configuration changes will be temporarily ignored which may prove useful during commissioning. You should rectify the problem as soon as possible before unticking this checkbox.
Ignore Position Changed	If checkbox is ticked device position changes will be temporarily ignored which may prove useful during commissioning. You should rectify the problem as soon as possible before unticking this checkbox.
Ignore Earth Fault	If checkbox is ticked the panel's earth fault monitoring circuitry will be temporarily disabled which may prove useful during commissioning. Note: Setting this option will make the panel non-compliant with the requirements of EN54-2.
Enable Weekly Test Reminder	If checkbox is ticked a weekly reminder to test the fire alarm system will appear on the touchscreen if a test has not been performed for > 10 days.

8.6.17 Setup Polling LED

Enter **AL3 (4444) > Commissioning Functions > Setup Polling LED**.

This function configures the polling LEDs of all loop devices to globally stop flashing during normal polling. For example, a customer may require polling LEDs to be turned off in a hotel.

Note: The LEDs of individual devices can be turned OFF or ON, see section 8.5.1.2 – 'Device Outputs'.

8.7 Event Log Functions

This function lists and clears the panel's event or alarm log. Also, a hard copy of each log may be printed if an integrated printer is fitted.

Enter **AL3 (4444)** press the **Event Log Functions** button and the window shown below appears:



The **Show Event Log** button, when pressed, lists both the panel's event and alarm log (up to 9,999 events). This includes fire, fault and system events.

The **Show Alarm Log** button, when pressed, lists only the panel's alarm log. Typically, alarm events include activated fire alarms, panel silenced and panel reset.

The **Clear Event Log** and **Clear Alarm Log** buttons, when pressed, clears the respective log from the panel's memory. To ensure a log is not erased by mistake, a five-digit security code requires entering using the touchscreen's numeric keypad. The default code is: **32767**.



The window shown left is a typical list of saved events.

Press the ▲ and ▼ buttons (or use the scroll bar) to scroll through the list. Events are listed in chronological order with the most recent listed first. When the log is full, the oldest record is deleted and replaced by the newest record.

Event log display (displays both panel events and alarms). Press an event log display to print the event log (integrated printer required).

8.8 Disablement Functions

Disabling functions are available at AL2 & AL3 and allows you to enable or disable parts of the system including zones, individual devices, sounders, Input Groups, Output Groups and the panel's integrated printer (if fitted).

Remember, any active disablement(s) can be viewed (and cleared) at any access level by pressing the yellow **n Disabilities** button on the top line of the touchscreen.

Note: It is strongly recommended all disabling are regularly reviewed and immediately cleared when no longer necessary as they can have a major effect on how the system works.

Enter **AL3 (4444)** press the **Disabling Functions** button and a window similar to the one shown below will appear.

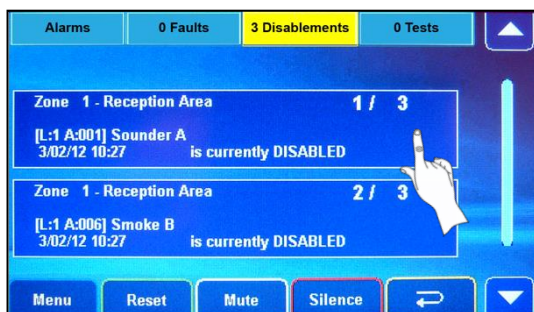
Note: If a function is unavailable it will be 'greyed' out, e.g. the **Panel Printer** button.



8.8.1 Supervisory Disabling

This function is only available when there are hidden 'supervisory' disabling on the system, which are programmed by an authorised systems engineer. Supervisory events include non-fire, non-fault related events, e.g. class change, gas shut off valve operated, emergency lighting system signals, etc.

Enter **AL3 (4444) > Disabling Functions** press the **Supervisory Disabling** button and a window similar to the one shown below will appear detailing the type and location of the disabling. **Note:** The total number(n) of disabling is also shown on the yellow **n Disabilities** button ('3' shown in example below).



If there are more than one disabling, the top right corner of the window will show, for example "1 / 3" and can be scrolled through using the and buttons, or by using the scroll bar.

To cancel a specific disabling, press the individual disabling display (Disabled Sounder A located in Zone 1 – Reception Area is shown in this example). A small **Cancel Disabling?** button appears (shown below).

Press this button to confirm the cancellation.



8.8.2 Enable/Disable Zones

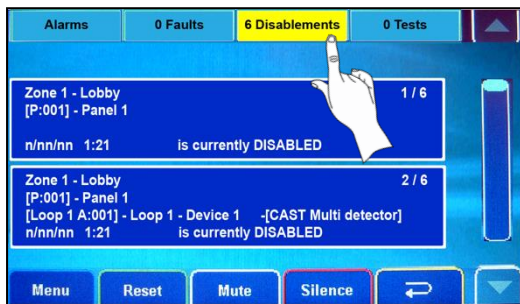
This function allows you to disable (and re-enable) selected zones (including zone devices) from reporting fires, faults, pre-alarms, etc., and is normally used to temporarily disable detectors and manual call points in a selected zone. For example, in areas where work is being carried out that could trigger an erroneous fire alarm.

Enter **AL3 (4444) > Disablement Functions** press the **Zones** button and a window similar to the one shown below left will appear.



Press the and buttons (or use the scroll bar) to scroll the display through all available zones.

Toggle a selected zone's enabled/disabled state by pressing the individual zone description display (Zone 1 status is changed from 'Enabled' to 'Disabled' in the example above).



Pressing the yellow Disablements button will list the disabled zone plus the detectors and call points within that zone. Sounders and I/O units are not listed.

Pressing on the display allows individual system devices to be enabled.

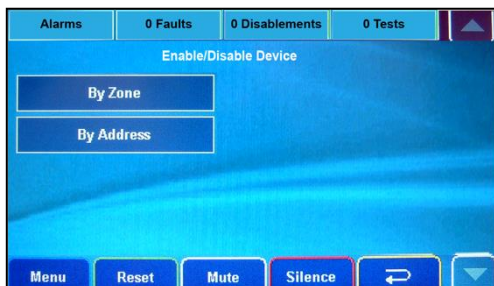
After changing a zone's status, press the button to escape.

Note: The panel will retain the disablement settings until they are manually reset to their normal settings. It is strongly recommended all disablements are cleared when no longer necessary.

8.8.3 Enable/Disable Devices

This function allows individual system devices to be disabled (and re-enabled) from reporting fires, faults, pre-alarms, etc., and is normally used to temporarily disable detectors/manual call points that are nuisance tripping.

Enter **AL3 (4444) > Disablement Functions** press the **Devices** button and the window shown below will appear:



Press the **By Zone** button to disable individual loop devices within a specific zone.

Press the **By Address** button to disable both loop and panel devices.

Follow the same operating procedure previously listed in section 8.8.2.

8.8.4 Enable/Disable Input Groups

This function is used to disable (and re-enable) one or more Input Groups from activating.

By default, Input Groups include All Input Devices (detectors, MCPs, inputs of I/O units, panel keyswitches, inputs of A-Bus PCBs, monitored inputs), Class Change and Alert.

Enter **AL3 (4444) > Disabling Functions** press the  button and follow the same operating procedure previously listed in section 8.8.2.

8.8.5 Enable/Disable Output Groups

This function is used to disable (and re-enable) one or more Output Groups from activating.

By default, Output Groups include All Output Devices (loop sounders, conventional sounders, VADs, outputs of I/O units, outputs of A-Bus PCBs, panel relays), Panel Relay 1 and Panel Relay 2.

This function is typically used to disable, for example, auto-diallers and other ancillary equipment from activating during routine maintenance.

Enter **AL3 (4444) > Disabling Functions** press the  button and follow the same operating procedure previously listed in section 8.8.2.

8.8.6 Enable/Disable Panel Printer

This function only applies to panels with an integrated printer fitted.

8.8.7 Clear All Disabling Functions

This function is used to globally clear all current disabling functions on the system.

Enter **AL3 (4444) > Disabling Functions** press the  button.

8.9 Set the Panel's Time and Date

This function is available at AL2 & AL3 and used to set the panel's time and date, which is required for accurate logging of events in the panel's log. The panel has a real-time 24 hour clock with default time and date settings. An automatic DST (Daylight Saving Time) checkbox is available which will automatically adjust the panel's clock one hour forward on the last Sunday in March and one hour backward on the last Sunday in October.

Enter **AL3 (4444)** press the  button and a window similar to the one shown below appears.



Adjust the time and date using the touchscreen's numeric keypad and   buttons. Also, set/unset the daylight saving time by pressing the **DST** checkbox.

When correct, press the  button to return to the main access level 3 menus.

8.10 Show Supervisory Events

This function is available at AL2 & AL3 only available if relevant to the panel's status, i.e. supervisory events have been programmed by an authorised systems engineer.

Enter **AL3 (4444)** press the  button. The display shows all non-fire, non-fault related events, e.g. class change, gas shut off valve operated, panel keyswitch activated, emergency lighting system signals, etc.

9 MAINTENANCE

Periodic/routine maintenance should be carried out in accordance with all applicable national, regional or local regulations, standards and working practices. Maintenance of equipment external to the control panel will be detailed in the appropriate manufacturer's literature. The following is recommended as a guideline only.

Daily (Authorised User Responsibility)

- ✓ Check the panel's indicators and touchscreen indicate normal operation and no faults are present on the system.
- ✓ Ensure the Fire Alarm Log Book is kept up to date by recording fire signals, fault signals, work on the system, etc.

Weekly (Authorised User Responsibility)

- ✓ Testing fire alarms should be done by the owner of the building.

Monthly (Authorised User Responsibility)

- ✓ At least one manual call point or detector (from different zones each month) should be operated to test the fire panel and any connected alarm/warning devices. This operation should be carried out on a rotating basis, so that all devices are checked at least once over a period of 3 months.
- ✓ Where permissible, any link to the fire brigade or remote manned centre should be operated.
- ✓ Any defects should be recorded in the Fire Alarm Log Book and reported to the maintenance provider.

Quarterly (Authorised Service Personnel Responsibility)

- ✓ Check entries in the Fire Alarm Log Book and inspect the panel's event log, taking appropriate corrective action where necessary.
- ✓ Check the alarm, fault and ancillary functions of the panel.
- ✓ Visually inspect the exterior of the enclosure for any signs of damage or loose cable glands and rectify any faults found. Inspect the panel interior for any moisture ingress or other deterioration. Examine the printed circuit boards for signs of over-heating or damaged tracks. Replace any defective items.
- ✓ Enquire if any structural alterations have been made which could affect the operation of call points, detectors or sounders, if so carry out a visual inspection.
- ✓ Any defects should be recorded in the Fire Alarm Log Book and corrective action taken.

Half yearly (Authorised Service Personnel Responsibility)

- ✓ 'Walk Test' the system and check that each detector operates in accordance with the manufacturer's recommendations.

Yearly (Authorised Service Personnel Responsibility)

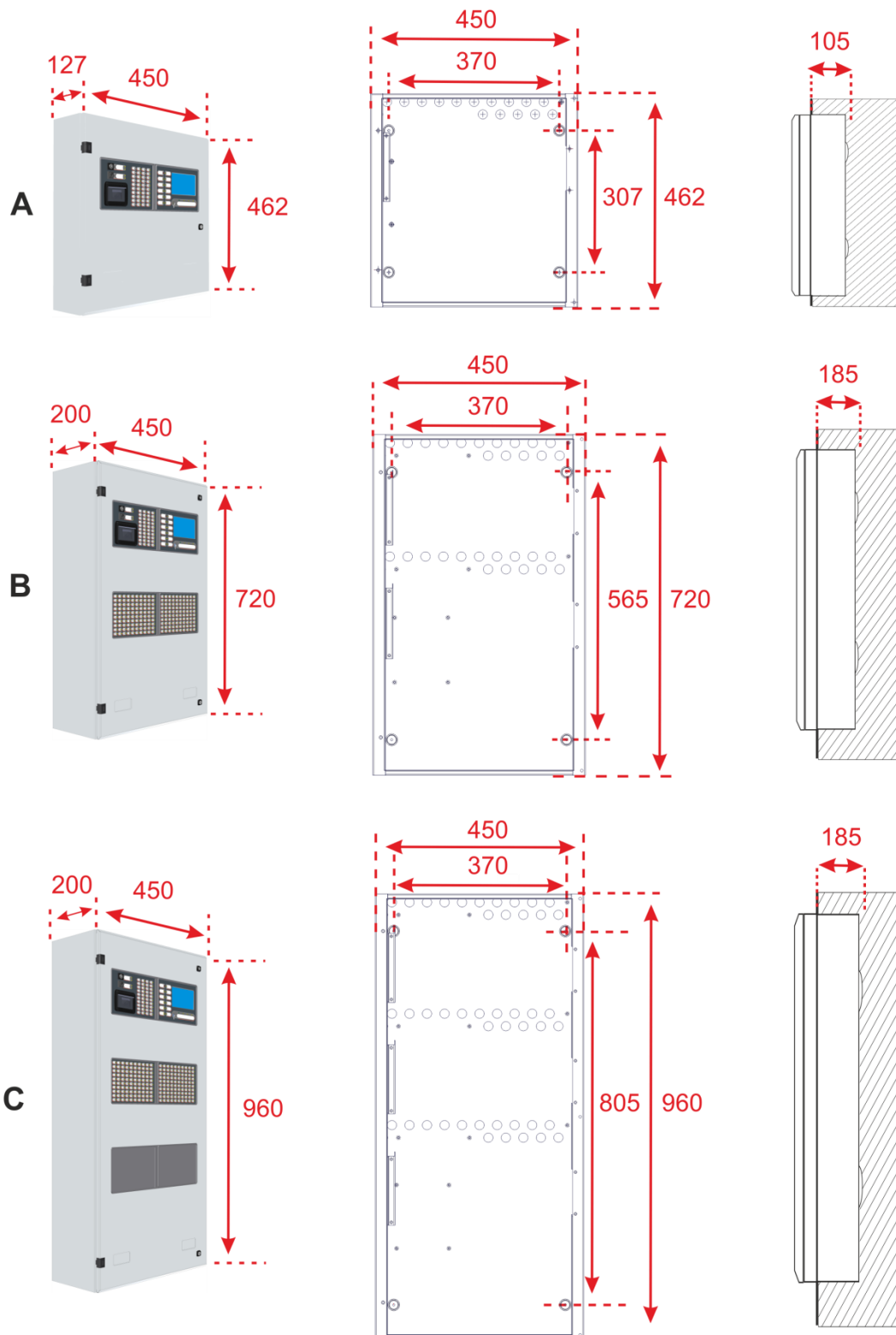
- ✓ Carry out the recommended daily, weekly, monthly and quarterly maintenance schedules.
- ✓ Visually inspect all cable fittings and ensure equipment is secure, undamaged and adequately protected.
- ✓ Examine the panel's standby batteries for integrity of the connections, signs of corrosion. Perform a periodic load test with the mains supply disabled to ensure adequate battery capacity. The batteries are maintenance free and therefore should only be replaced if there is any doubt about their integrity.



CAUTION: There is a risk of explosion if an incorrect battery type is used. Always dispose of used batteries in accordance with the battery manufacturers' instructions.

- ✓ Any defects should be recorded in the Fire Alarm Log Book and corrective action taken.

Appendix 1 – Enclosure Dimensions and Fixing Details

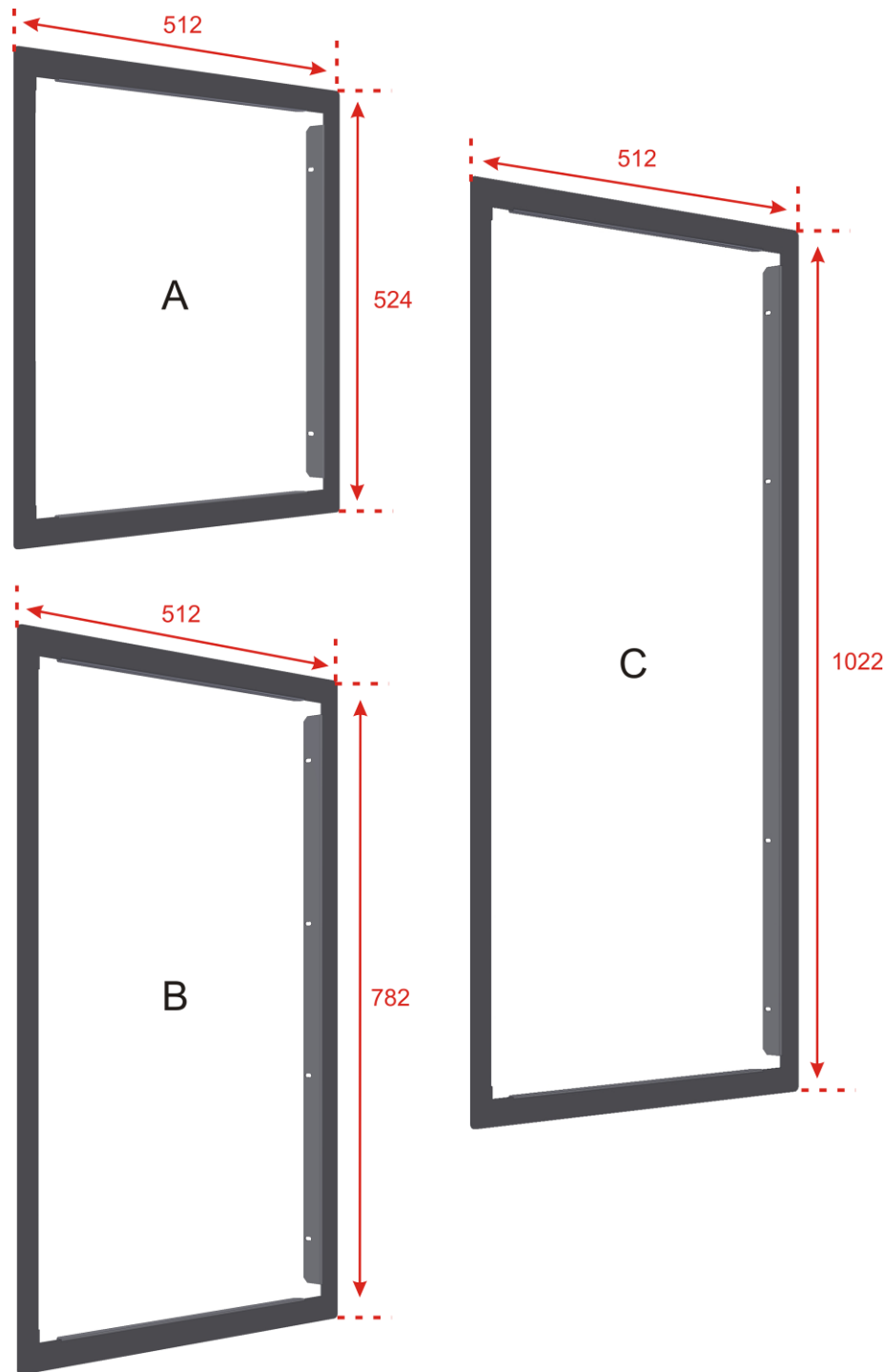


All dimensions in mm. Drawings not to scale.

A	Standard Shallow Enclosure. 1, 2 or 4 loops (fits up to 2 x 17Ah batteries). Part No. ZBOXS.
B	Medium Deep Enclosure. 1, 2, 4, 6 or 8 loops (fits up to 2 x 38Ah batteries). Part No. ZBOXM.
C	Large Deep Enclosure. 1, 2, 4, 6 or 8 loops (fits up to 2 x 38Ah batteries). Part No. ZBOXL.

Appendix 2 – Bezels (Flush-Mount)

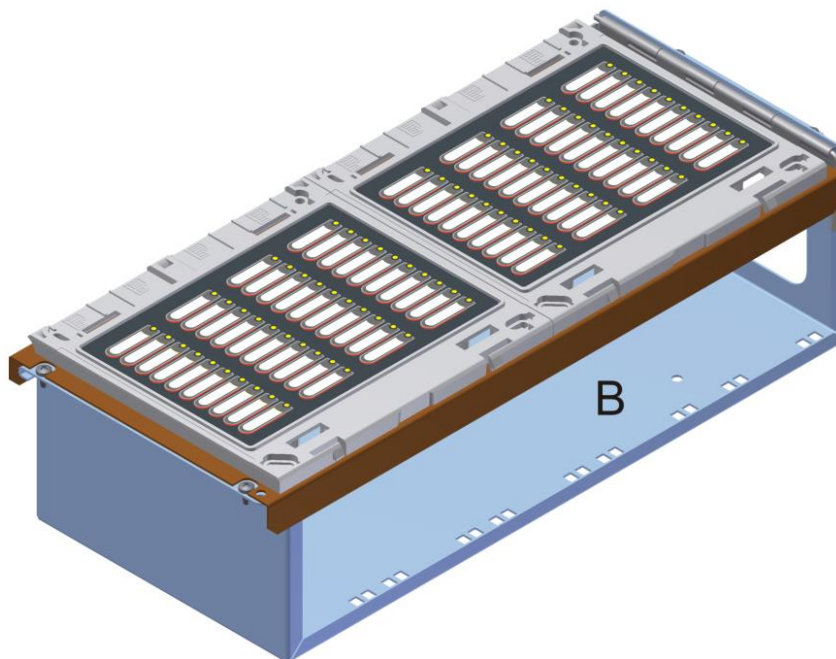
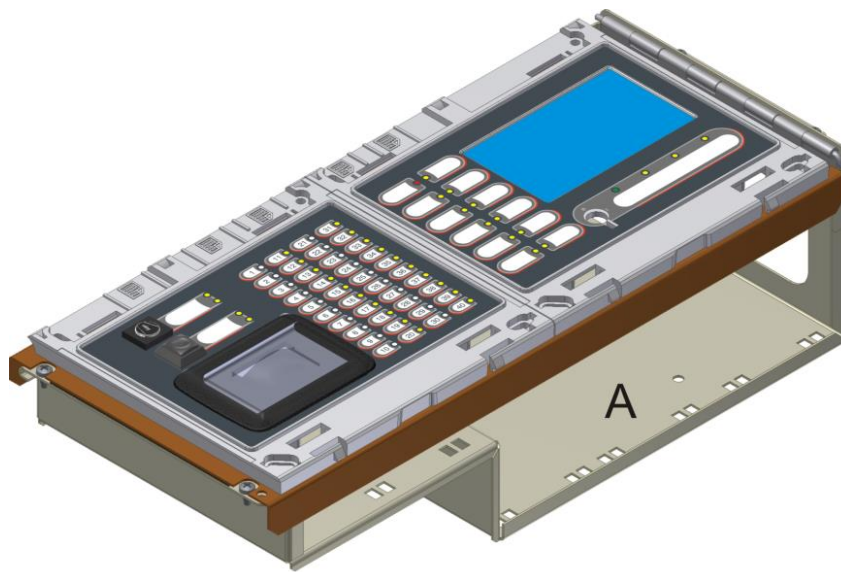
Three bezel sizes are available for the ZFP range of panels allowing the panels to be flush-mounted on a wall.



All dimensions in mm. Drawings not to scale.

A	Standard Flush-Fit Bezel. Depth 30mm, Thickness 1.2mm. Part No. ZBEZS.
B	Medium Flush-Fit Bezel. Depth 30mm, Thickness 1.2mm. Part No. ZBEZM.
C	Large Flush-Fit Bezel. Depth 30mm, Thickness 1.2mm. Part No. ZBEZL.

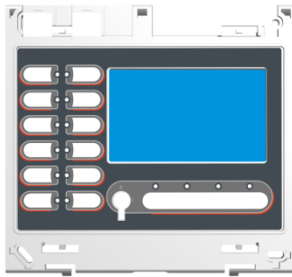
Appendix 3 – Chassis



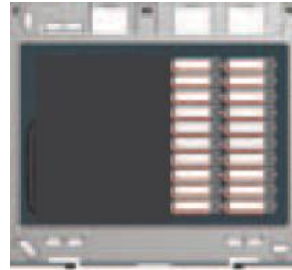
All dimensions in mm

A	Stepped Chassis. Part No. ZCHA1.
B	Flat Chassis. Part No. ZCHA2.

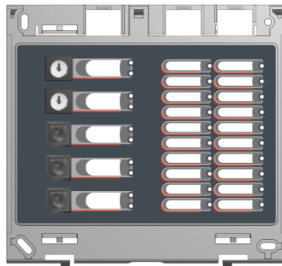
Appendix 4 – List of Modules



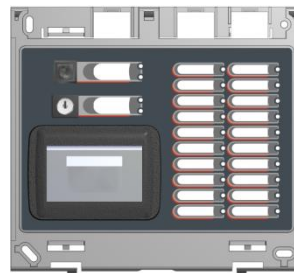
Control/Display module
c/w 4.3" touchscreen,
keyswitch, 16 LEDs
- Part No. Z41



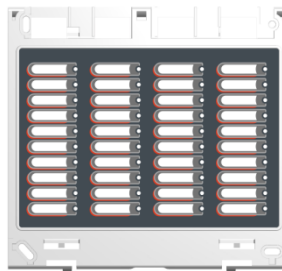
20 zone indicator
module c/w name slots
- Part No. Z44



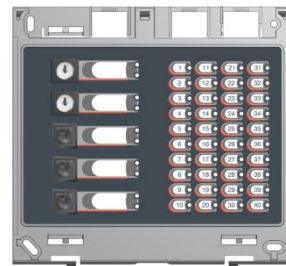
20 zone indicator
module c/w name slots,
5 switches, 10 bi-colour
function LEDs
- Part No. Z45



20 zone indicator
module c/w name slots,
printer, 2 switches, 4 bi-
colour function LEDs
- Part No. Z46



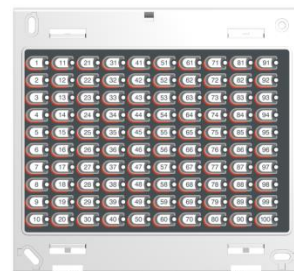
40 zone indicator
module c/w name slots
- Part No. Z47



40 zone indicator
module c/w 5 switches,
10 bi-colour function
LEDs
- Part No. Z48



40 zone indicator
module c/w printer, 2
switches, 4 bi-colour
function LEDs
- Part No. Z49



100 zone indicator
module (numbered 1-
100)

- Part No. Z50/1-100

100 zone indicator
module (numbered 101-
200)

- Part No. Z50/101-200



Printer module
- Part No. Z51



Blank module
- Part No. ZBLANK

Appendix 5 – Standby Battery Calculation Guide

The standby time of the fire alarm panel, after the mains has failed, depends on the quiescent and alarm loading of the panel and the capacity of the batteries. To determine the capacity of batteries required for any given stand-by period the following formula should be used:



Hint! ZFP Loop & Battery Calculator Tools are available for download on C-TEC's website (available @ www.c-tec.com).

$$\text{Battery Capacity in Ah} = 1.25 \times [(T \times (A + L \times 1.5)) + H \times (P + Z \times 1.5)]$$

Alarm Capacity

Quiescent Capacity

The multiplier 1.25 is present to account for lost capacity over the life of the batteries.

H = Number of hours standby required (e.g. 24Hrs).

P = Quiescent current of the panel. 4 loop panel = 120mA (0.12A).

This value is with the mains failed, beeper silenced and the Supply Present and General Fault indicators lit. If there are other quiescent drains on the panel then these must be added in.

Z = Total quiescent current of all loop devices

As an approximate, the total quiescent current of all addressable devices for a 4 loop panel with 80 devices per loop is typically 136mA (0.136A).

To obtain accurate values consult the device manufacturers' own specifications.

A = Total alarm current of panel sounders and activated relays. As an approximate, conventional sounder load is 250mA (0.25A), a panel relay consumes 20mA (0.02A) when activated.

L = Total alarm current of loop devices per loop (sounders, etc.). As an approximate is 150mA (0.15A).

T = Amount of time in hours required for the alarm (e.g. half an hour, 0.5Hrs).

Example calculation for a 4 loop panel:

The 4 loop panel has 80 devices per loop (320 in total) with a total quiescent current of 136mA (0.136A) for all loop devices. In alarm, the alarm current per loop is 0.15A (0.6A in total), 2 panel relays activated at (0.02A each), and a conventional sounder load of 0.25A. The required standby time is 24 hours and the required alarm time is 0.5 hours.

Calculate the alarm capacity: $= T \times (A + L \times 1.5)$

$T = 0.5\text{Hrs}; A = 0.25 + 2 \times 0.02 = 0.29\text{A}; L = 0.15 \times 4 = 0.6\text{A}$

Therefore, the alarm capacity is: $= 0.5 \times (0.29 + 0.6 \times 1.5)$
 $= 0.595\text{Ah}$

Calculate the quiescent capacity: $= H \times (P + Z \times 1.5)$

$H = 24\text{Hrs}; P = 0.12\text{A}; Z = 0.136\text{A}$

Therefore, the quiescent capacity is: $= 24 \times (0.12 + 0.136 \times 1.5)$
 $= 7.776\text{Ah}$

Total Battery Capacity: $= 1.25 \times (0.595 + 7.776)$
 $= \underline{10.464\text{Ah}}$

Appendix 6 – CAST ZFP Technical Specification

STANDARD CABINET	
Power Supply and Charger	
Mains supply operating voltage	230V ~ 50/60Hz
Rated current	1.3A r.m.s.
Battery charge capacity (C)	7Ah min. to 17Ah max.
Max. VRLA battery size	2 x 12V, 17Ah
Power rating	'I max a' = 0.84A 'I max b' = 3.1A 'I min' = 0.2A
Max. internal battery resistance (Ri max.)	600 mΩ if DIP Switch 2 OFF (DOWN) - Normal Operation [Approved for EN54-4 applications.] 480 mΩ if DIP Switch 2 ON (UP) - Maintenance Only. [Not approved for EN54-4 applications.]
Maximum power output voltage 'V max'	30V
Minimum power output voltage 'V min':	20 V ± 2% with mains On 21 V ± 2% with mains Off
Output ripple voltage (peak-to-peak)	≤ 320 mV over the full input and output range of the PSU
Mains supply/battery charger monitored for failure	√ Yes
Batteries monitored for disconnection and failure	√ Yes
Earth fault monitoring	√ Yes
Loop Driver Specification (programmable & monitored)	
Number of loops	1 to 4
Connector block type	Plug-on type, largest acceptable cable size 2.5mm ²
Loop driver PCB type	Main 1-Loop PCB, Main 2-Loop PCB, 2-Loop Expansion PCB
Max. output current per loop	450mA (Voltage: 40V max.)
Communication Protocols	C-TEC's CAST
Maximum number of addressable devices	255 devices per loop (maximum of 512 detectors / call points per panel). Maximum of 40 loop sounders per loop, or 30 loop sounder VADs per loop.
Type of cable / Max. cable length per loop	Fire resistant screened cable, min. size 1mm ² / 1km max. length
Max. allowable loop impedance (each conductor)	< 10 ohm
Max. cable capacitance	.27μF
Auto-polling from each loop end	√ Yes
Line monitored for o/c and s/c faults	√ Yes
Conventional Sounder Circuits (programmable & monitored)	
Number of circuits	2 x 1A outputs. Protected by resettable overload circuit.
Connector block type	Plug-on type, largest acceptable cable size 2.5mm ²
EOL resistor (supplied)	6800 ohm, 5% tolerance, 0.25W
Output voltage	19.5V min.; 28V max.
Type of cable / Max. cable length per circuit	Fire resistant screened cable, min. size 1mm ² / 1km max. length
Line monitored for o/c and s/c faults	√ Yes
Auxiliary Inputs (programmable & monitored)	
Number of auxiliary inputs	2 (Connect to 0V to trigger, Max. input voltage 27Vdc non-latching)
EOL resistors (supplied)	6800 ohm, 5% tolerance, 0.25W
Trigger resistors (supplied)	470R, 0.25W
Line monitored for o/c and s/c faults	√ Yes
Relay Outputs (programmable)	
Number of relay outputs	2 x programmable auxiliary relays; 1 x failsafe fault relay; 1 x 24Vdc (100mA) aux power output
Relay type	Volt-free, single pole changeover
Relay output	1A, 30Vdc (max.)
Fault relay	Active when faults are present or on total power failure
24Vdc auxiliary power output	19.5V minimum, 28V maximum, Max. current 100mA.
Fuses (compliant to IEC EN60127 Pt2)	
Primary fuse (F1)	T 2 A H 230 V, 20 mm ceramic (T = Time Delay; H = High Breaking Capacity)
Battery fuse (F2)	7.5 A MINI [®] automotive blade fuse
Communication Buses	
Pager (ESPA protocol) / DECT telephone system / Graphics Interface	1 x RS232 connector
Graphics Interface / Diagnostics	1 x RS485 connector
Peripheral Bus (A-Bus)	1 x RS485 connector. Allows the connection of A-Bus PCBs (15 maximum per panel)
PC interface	Galvanically isolated USB connector (provided on the Z41 Control/Display module)
A-Bus PCBs	
A-Bus peripheral PCBs	See Section 6 for a summary of features
Indicators and Controls	
Standard provision	All models include a Z41 Control/Display module which comprises a full colour 4.3 inch touchscreen, all mandatory EN 54 indicators, 3 spare LEDs and a keyswitch allowing direct access to AL2.
Display	LCD Touchscreen, 4.3 inch, 480 x 272 pixel, 24 bit, 16M RGB colour.
Zonal indicators	Up to 40 separate programmable LEDs available via Switch & Indicator expansion modules.
Switches	Multiple switches available via Switch & Indicator expansion modules.
Switch & Indicator module capacity (one of these must be a Z41 Control/Display module)	2
CAST ZFP Modules	
Control / Switch & Indicator Modules	Control/Display module c/w LCD, touchscreen, keyswitch, 16 LEDs. Part No. Z41. 40 zone indicator module c/w 5 switches, 10 LEDs. Part No. Z48.
Mechanical	

CAST ZFP Analogue Addressable Fire Alarm Panel

STANDARD CABINET	
Dimensions (lid & back box) H x W x D mm	462 x 450 x 127
Fixing Centres (back box) H x W mm	4 holes at 307 x 370
Enclosure material (lid & back box)	Mild steel / zintec 1.2mm thick
Case Colours	
Paint finish	Light grey texture (RAL7035) epoxy paint
Environmental	
Operating Temperature	-10°C to +40°C
Maximum Humidity	95 % non-condensing
IP Rating (to EN 60529)	IP30
Conditions	The enclosure designed for indoor use only. The components are selected to operate within their specification when the environmental conditions outside the enclosure comply with class 3k5 of the latest edition of IEC 721-3-3.

Standards Compliance					
Model No.	Standard(s) Tested To	LPCB Reference No.	CPR Certificate No.	UKCA Certificate No.	Description
ZFP1/CA	EN54-2: 1997 + A1: 2006 & EN54-4: 1997 + A1: 2002 + A2: 2006	176b/29	2831-CPR-F4508	0832-UKCA-CPR-F1054	ZFP 1 Loop Analogue Addressable Panel, 5A PSU, Standard Cabinet
ZFP2/CA		176b/30	2831-CPR-F4509	0832-UKCA-CPR-F1055	ZFP 2 Loop Analogue Addressable Panel, 5A PSU, Standard Cabinet
ZFP4/CA		176b/31	2831-CPR-F4510	0832-UKCA-CPR-F1056	ZFP 4 Loop Analogue Addressable Panel, 5A PSU, Standard Cabinet
ZFP1/40/CA		176b/32	2831-CPR-F4511	0832-UKCA-CPR-F1057	ZFP 1 Loop Analogue Addressable Panel, 5A PSU, 40 zone indication, Standard Cabinet
ZFP2/40/CA		176b/33	2831-CPR-F4512	0832-UKCA-CPR-F1058	ZFP 2 Loop Analogue Addressable Panel, 5A PSU, 40 zone indication, Standard Cabinet
ZFP4/40/CA		176b/34	2831-CPR-F4513	0832-UKCA-CPR-F1059	ZFP 4 Loop Analogue Addressable Panel, 5A PSU, 40 zone indication, Standard Cabinet

Appendix 7 – Glossary of Terms

Addressable System: A fire alarm and detection system that contains addressable control devices.

AL1: Access Level 1 (for general users).

AL2: Access Level 2 (for authorised users).

AL3: Access Level 3 (for authorised systems engineers).

BS 5839-1: Fire detection and alarm systems for buildings: Code of practice for system design, installation and maintenance.

BS 7671: IET Wiring Regulations.

BS EN 54-2: Fire Detection and Fire Alarm Systems. Control and Indicating Equipment.

BS EN 54-4: Fire Detection and Fire Alarm Systems. Power Supply Equipment.

DST: Daylight Saving Time.

EOL: end-of-line resistor.

Input Device: Any device that can signal an event such as ‘fire’, ‘fault’, etc. to the fire alarm and detection system, e.g. fire detectors, manual call points, I/O units.

Input Group: Comprise of grouped input devices and used in the C&E programming (max. 550). *By default, Input Groups include All Input Devices (detectors, MCPs, inputs of I/O units, panel keyswitches, inputs of A-Bus PCBs, monitored inputs), Class Change and Alert.*

Input Supergroups: Comprise of selected Input Groups and used in the C&E programming (max. 32).

I/O: Input/Output (device) - device that is connected to a fire alarm and detection system and is used to receive and/or transmit information within the system.

N/C: Normally closed (relay contact).

N/O: Normally open (relay contact).

Output Device: Any device that can act on a command from the fire alarm and detection system, e.g. sounder, VAD, relay, I/O units.

Output Group: Comprise of grouped output devices and used in C&E programming (max. 550). *By default, Output Groups include All Output Devices (loop sounders, conventional sounders, VADs, outputs of I/O units, outputs of A-Bus PCBs, panel relays), Panel Relay 1 and Panel Relay 2.*

Output Supergroups: Comprise of selected Output Groups and used in C&E programming (max. 32).

SD: Secure Digital (memory card). A non-volatile micro memory card fitted internally at CONN1 on the Control/Display Module PCB.

Supervisory Event: Non-fire related action, e.g. open a door, start a fan, etc.

System Devices: Include panel sounder, panel relay, panel keyswitch, panel touchscreen, etc.

Zones: Geographical location of a device (max. 200 zones per panel).

