

FireClass Addressable Fire Alarm Control Panels and Repeaters

**Installation and
Commissioning Guide**

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1 About this Manual

1.1 Keywords and symbols

In this manual symbols are used in the margin to indicate warnings, and also 'hints and tips' type information.

These are explained in Table 1.

Keyword	Symbol	Explanation
DANGER		Warning. Imminent danger. Death or severe injury when disregarded.
WARNING		Warning. Potentially dangerous situation. Death or severe injury possible when disregarded.
CAUTION		Warning. Potentially dangerous situation. Minor injury possible when disregarded.
NOTICE		Warning. Potentially dangerous situation. Material damage possible when disregarded.
		Helpful information.

Table 1: Keywords and symbols in this documentation

1.2 Who this Manual is for

This guide is aimed at suitably qualified technicians experienced in the installation and commissioning of fire detection and alarm systems, who have also received FireClass training.

1.3 What this Manual Covers

This guide is to be used when installing a fire alarm system based on one of the FireClass range of fire alarm control panels.

The guide sets out the necessary steps involved. This includes:

- Installing optional boards into the control panel

- Fitting ancillaries.
- Wiring
- Downloading the configuration
- Testing

Not all the steps are covered in detail, as this would be beyond the scope of the guide, and these details are provided in other documentation (see also "What this Manual does not Cover") below. Rather, the guide provides an overall sequence and context for the installation.

1.4 What this Manual does not Cover

The guide does not provide information on the following:

- System design.

The system must already be designed and planned for the specific site, in terms of cable routing, device selection and layout, mains supply and so on.

- Local regulations.

For example cable specifications and panel siting restrictions are expected to be covered by local regulations, and as these factors should have been incorporated into the design, they are excluded from the guide.

- Installation of detector bases and ancillaries.

These have their own installation (wiring) instructions.

- Installation of optional modules.

These products have their own specific instructions, however this guide does provide supplemental information for installation in the FireClass panel where necessary.

- Procedures covered by another of the guides available for the FireClass fire panel range.

For example in the commissioning chapter there are various tests you perform using operator functions – for details of these refer FireClass User Guide.

1.5 Other Documentation

Other documentation may be required, for example:

- Installation information on optional modules. This documentation will be supplied with the module, in printed form. If this documentation is not specific to the FireClass panel application, then supplementary information is provided in the appropriate section of this document.
- The FireClass User Guide. This is required for details of operator functions. It is shipped on a CD with the panel, in PDF form.

Refer to other FireClass documents that can be downloaded from the fireclass.co.uk website.

1.6 Control Panel Identification

A typical FireClass control panel is shown in Fig. 1. Your panel version may not match this figure exactly, but the same items will be present, although perhaps not in the positions shown.

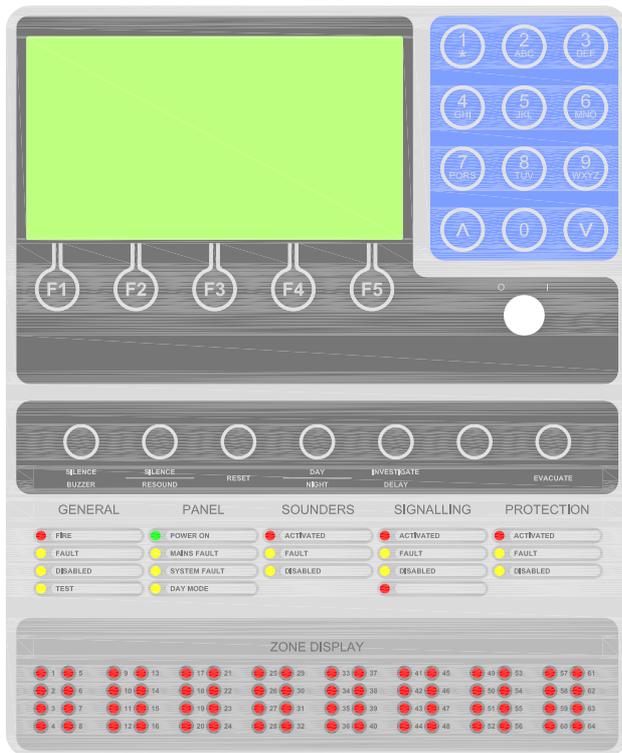


Fig. 1: FireClass Panel (example FireClass64-2, 64-4, 64RA)

For further information, including the specific panel version number, refer to the 'Rating' label illustrated in Fig. 2 (typical example). This will be attached to the side of the panel housing.

Fire Alarm System Control Equipment Ltd



018s/01



0832-CPD-1705



Standards: EN54-2, EN54-4
Product: FIRECLASS 32-1

Part No: 557.200.701

Serial No: 00001-D DoM: 52.11
Input: 230V 50-60Hz 0,9A
Manufactured in Great Britain



Isolate Supply Before Opening Cover
THIS UNIT MUST BE EARTHED

Fig. 2: Rating label

1.7 Installation Overview

This guide leads you through the installation and commissioning procedure as a series of step by step instructions.

The instructions are arranged into major instruction section headings. Most of these sections contain numbered steps, some are single instructions.

To give you an overview, all the sections and steps are shown in Table 2 below. You could use this as a checklist to help keep track of progress.



Note

The next section to follow is not always the next section in the manual.

Directions are given at the ends of procedures on where to go next in the manual.

Step summary	Step on page
Install	-
2.1 "Note Safety Warnings"	11
2.2 "Check the Mounting Location"	11
2.3 "Dismantle for Access"	16
1 Disconnect the door cabling	16
2 Remove the door hinge pins	16
3 Remove the door	16
4 Temporarily re-fit the hinge pins, or store safely	16
5 Disconnect earth wires	16
6 For FireClass 32-1 panels only, disconnect the PSU to FIM lead	16
7 Remove chassis plate(s)	16
8 Ensure safe component storage	16
9 Temporarily re-fit the chassis screws, or store them safely	16
10 Remove knockouts as required	16
2.4 "Mount the Housing"	22
1 Decide on a wall mounting method	22
2 Drill and plug upper mounting point	22
3 Insert a screw and suspend the housing	22
4 Check level and screw into the remaining mounting holes	22
5 Check secure	22
6 Remove debris	22
2.5 "Wire for Testing"	23
1 Install loop wiring	23
2 Feed cables into the housing, using appropriate glands	23
3 Connect loop wires to strip type connectors	23
4 Connect the loop cable screens (if applicable)	23
2.6 "Make Insulation Checks"	23
1 Note the hint to keep records	23
2 Ensure checks will be made at 500 V	23
3 Make usual insulation measurements	23

Table 2: Installing and Commissioning Summary

Step summary	Step on page
4 Remedy low values	23
5 Optionally investigate marginal values	23
2.8 "Wire in Remaining Loop Modules"	24
2.9 "Reassemble"	24
1 Note the hint to record values	24
2 Make the usual resistance measurements	24
3 Assess measurements and remedy if necessary	24
2.10 "Connect the Loops"	24
2.11 "Connect the Local Sounders"(if necessary)	24
1 Connect sounders in Loop or Spur mode	24
2 Terminate the local sounder outputs	24
3 Set the jumpers	24
2.12 "Interface to Conventional Detectors"	27
2.13 "Connect the end of line resistor to the Supervised Input terminals"	28
Fit resistor to enabled but unused Supervised Input	28
2.14 "Terminate the RBus" (if necessary)	28
2.15 "Terminate Ancillaries"	28
2.16 "Make any other Required FIM Board Connections"	28
2.17 "Connect the Mains Cable and Protective Earth"	28
1 Make sure the cable is not live.	28
2 Remove the PSU mains connector cover (if necessary)	28
3 Connect and clamp the mains cable	28
4 Fix the mains cable using the clip near the mains input connector	28
5 Connect the protective earth	28
6 Re-fit the mains connector cover	28
2.18 "Fit Standard Sized Modules" (if necessary)	29
1 Decide on flat or perpendicular mounting	29
2 Clip the module into DIN rail bracket	29
3 Clip the bracket into the mounting plate	29
4 Fit the mounting plate to the control panel (details below)	29
2.19 "Fit an IOB800 Module" (if necessary)	29
1 Fit snap pillars	29
2 Fit the module to the pillars	30
3 Secure with screws	30
4 Follow the procedure described in 'Fit Mounting Plates'	30
5 Configure and connect the module	30
2.20 "Fit a CCU3/C-MXMB or MOXA" (if necessary)	30
1 Screw the CCU3 to the mounting plate	30

Table 2: Installing and Commissioning Summary

Step summary	Step on page
2 Secure the module to the mounting plate	30
3 Fit the mounting plate to the control panel (details below)	30
4 Configure and connect	30
2.21 "Fit Mounting Plates" (required if a module fitted, above)	31
1 Remove FIM mounting screws	31
2 Fit washers and spacers	31
3 Place the mounting plate on the spacers and secure	31
2.22 "Fit a TLI800EN"	32
2.23 "Install the Batteries"	33
1 Remove the battery fuse	33
2 Connect the battery cables to the PMM800	33
3 Place the batteries in the bottom of the panel.	31
4 Connect the battery cables to the batteries	33
5 Fit the battery retaining clamp (if supplied)	33
6 Connect the inter-battery lead	33
7 Tape the thermistor in place.	33
8 Re-fit the battery fuse.	33
9 Label the batteries with the date.	33
2.24 "Connect the Printer(s)" (if necessary)	33
2.25 "Connect Repeater Mains Cable and Protective Earth" (if necessary)	33
1 Make sure the cable is not live.	33
2 Move the outer chassis plate for access (if necessary)	33
3 Remove the PSU mains connector cover (if necessary)	33
4 Feed the mains cable through a knockout.	33
5 Connect and clamp the mains cable	34
6 Connect the protective earth	34
7 Re-fit the PSU mains connector cover	34
8 Re-fit the outer chassis plate, if moved in Step 2." (if necessary)	34
2.26 "Connect the Repeater RBus Wires" (if necessary)	34
1 Connect the RBus wires into their connector	34
2 Double check whether and EOLR is needed	34
3 Insert the RBus connector into the FIM board socket	34
4 Feed RBus wires into repeater housing.	34
5 Connect the RBus cable	34
6 Connect the RBus cable screen to earth	34
7 Set the address and baud rate	34
8 Enable repeater fault sensing (if necessary)	34
2.27 "Connect any other ancillaries"	36

Table 2: Installing and Commissioning Summary

Step summary	Step on page
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Commission	
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3.2 "Make Control Panel Checks"	38
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3 Check fault reporting.	38
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3.4 "Download the Firmware" (or use Autoconfiguration)	38
3.4.1 "Download the Configuration"	39
1 Start FireClass Express and open the .PJD file	39
2 Start a configuration download on your PC	39
3 Remove the link H2 (bottom) of the CPU card	39
4 Restart the control panel	39
5 Reset the control panel	39
6 Silence the buzzer	39
7 Rectify displayed faults	39
3.5 "Use Autoconfiguration" (alternative to downloading the configuration)	39
3.6 "Connect the Loops and Devices"	39
1 Power down the control panel	39
2 Insert the loop connectors	39
3 Set device addresses	39
4 Fit the detectors to their bases	39
5 Power up the control panel and check faults are cleared	39
3.7 "Monitoring Devices"	39
1 Note the hint to check cause and effect while testing.	39
2 Test device activation (for example apply smoke)	39
3 Test the sounders	39
3.7.1 Test the open circuit monitoring	40
3.7.2 Test the short circuit monitoring	40
3.8 "Hand Over to the Customer"	40

Table 2: Installing and Commissioning Summary

2 Install

The installation procedure is presented as step by step instructions.

The instructions are arranged into major instruction section headings. Most of these sections contain numbered sub-steps, some are single instructions.

There is also a summary of the process showing all the steps – see 1.7 “Installation Overview” on page 7. You could use this as a checklist to help keep track of progress.

2.1 Note Safety Warnings

Please note the warnings in the next two sub-sections.

2.1.1 Local Conformance

This guide does not provide details in areas which are covered by local regulations and practice.

Instead, the local regulations must be followed. These are expected to cover such items as:

- Wiring specifications
- Panel siting restrictions
- Provision for mains isolation
- Earthing arrangements
- Environmental conditions
- Qualifications of personnel.

For example there may be a stipulation that the connections for the mains supply and protective earth can only be made by a qualified electrician.

(This is not an exhaustive list.)



WARNING

Failing to follow the local regulations may lead to death, serious injuries, damage to property or prosecution.

Ensure you do not breach the local regulations.

2.1.2 Electrical Safety



DANGER

The FireClass Control Panel contains high voltages, producing a danger of death or serious injury while working on the panel.

Note the dangerous voltage warning sticker on the chassis plate. This is item 6 in Fig. 8.

Follow all steps and note all warnings in this guide relating to electrical safety and earthing.

In addition to any earthing requirements in the local regulations, you must, also follow these stipulations:

- **Fix the mains cable using the clip near the mains input connector.**

2.2 Check the Mounting Location

The control panel is not weatherproof. Check that the location is indoors, dry and free from excessive dust.

Although the control panel mounting position should already have been determined, as a double check, you can check the dimension using the drawings below.

The drawings provide guidance on the cable entry points through the housing walls

Note that the control panel doors have their hinges on the left, and swing fully open, through more than 180°.

Also check whether there is sufficient provision for mounting any ancillary module housings.

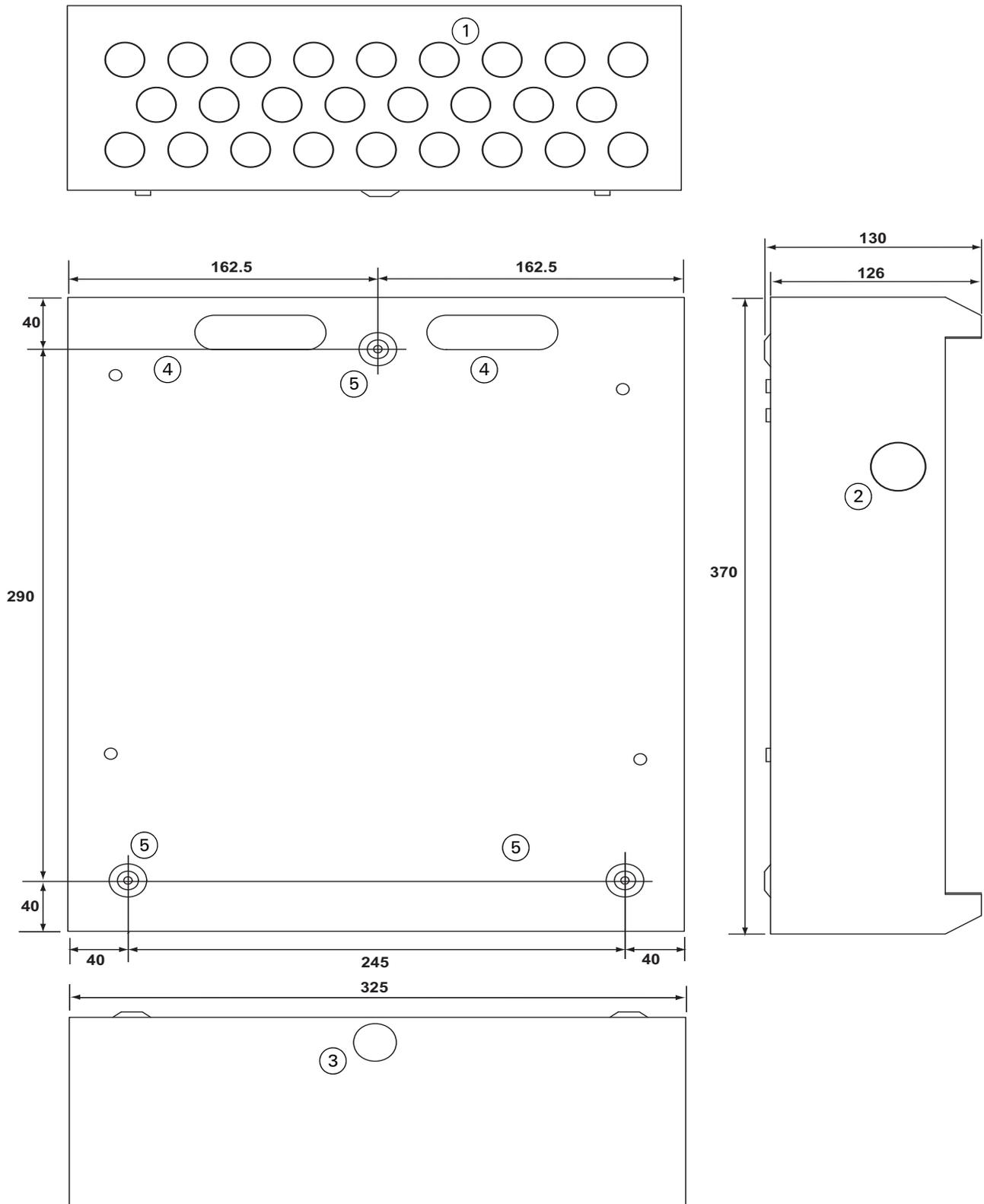


Fig. 3: Overall and Fixing Dimensions – FireClass 32RA Repeater

- 1–Knockouts Ø 20 mm (26x)
- 2–Knockout Ø 25 mm
- 3–Knockout Ø 20 mm
- 4–Knockouts
- 5–Mounting hole Ø 5.5 mm (3x)

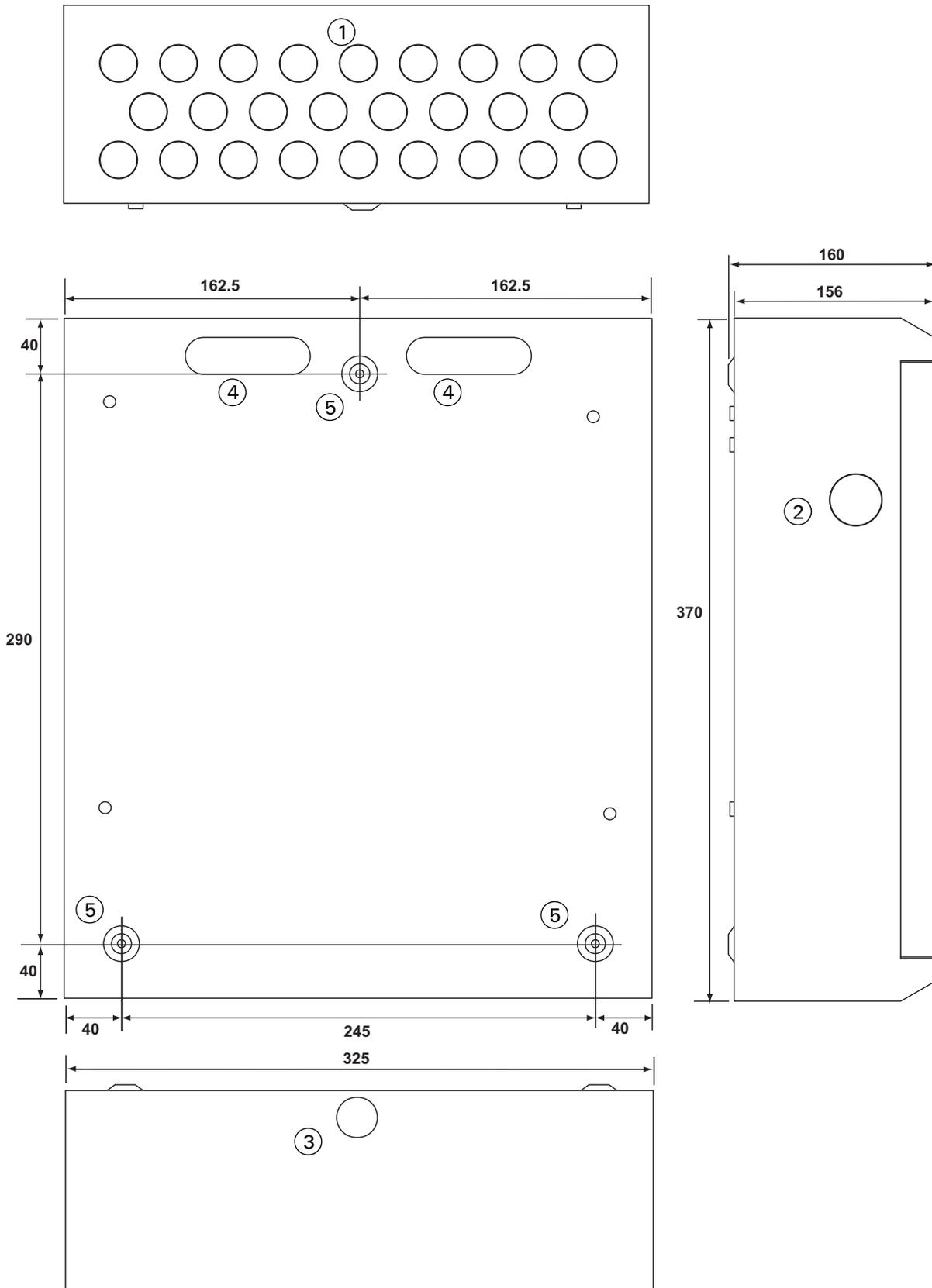


Fig. 4: Overall and Fixing Dimensions – FireClass 32-1

1–Knockouts \varnothing 20 mm (26x)

2–Knockout \varnothing 25 mm

3–Knockout \varnothing 20 mm)

4–Knockouts

5–Mounting hole \varnothing 5.5 mm (3x)

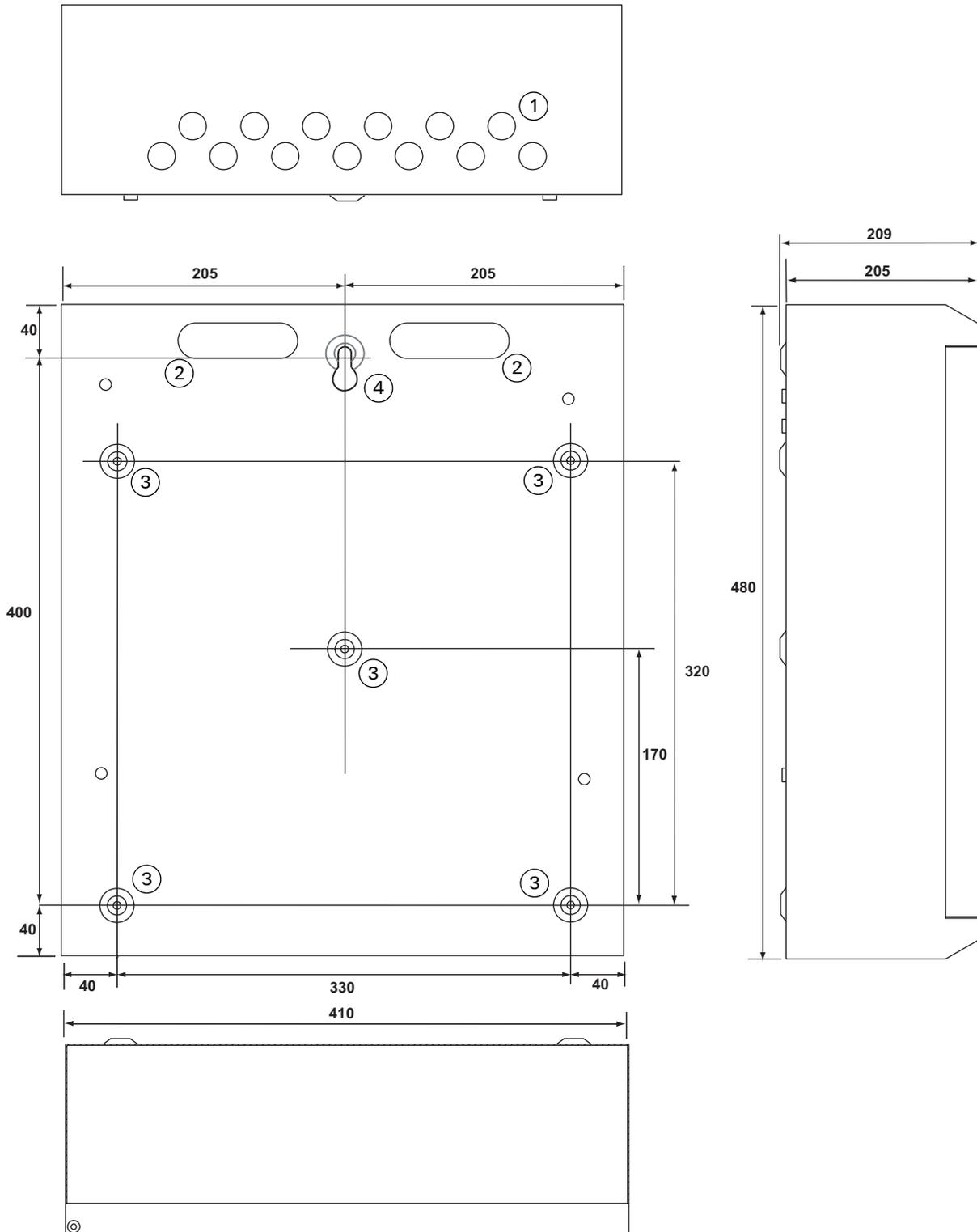


Fig. 5: Overall and Fixing Dimensions – FireClass 64-4 and FireClass 240-4

- 1–Knockouts \varnothing 20 mm (13x)
- 2–Knockouts
- 3–Mounting holes \varnothing 5.5 mm
- 4–Mounting hole \varnothing 7.5 mm

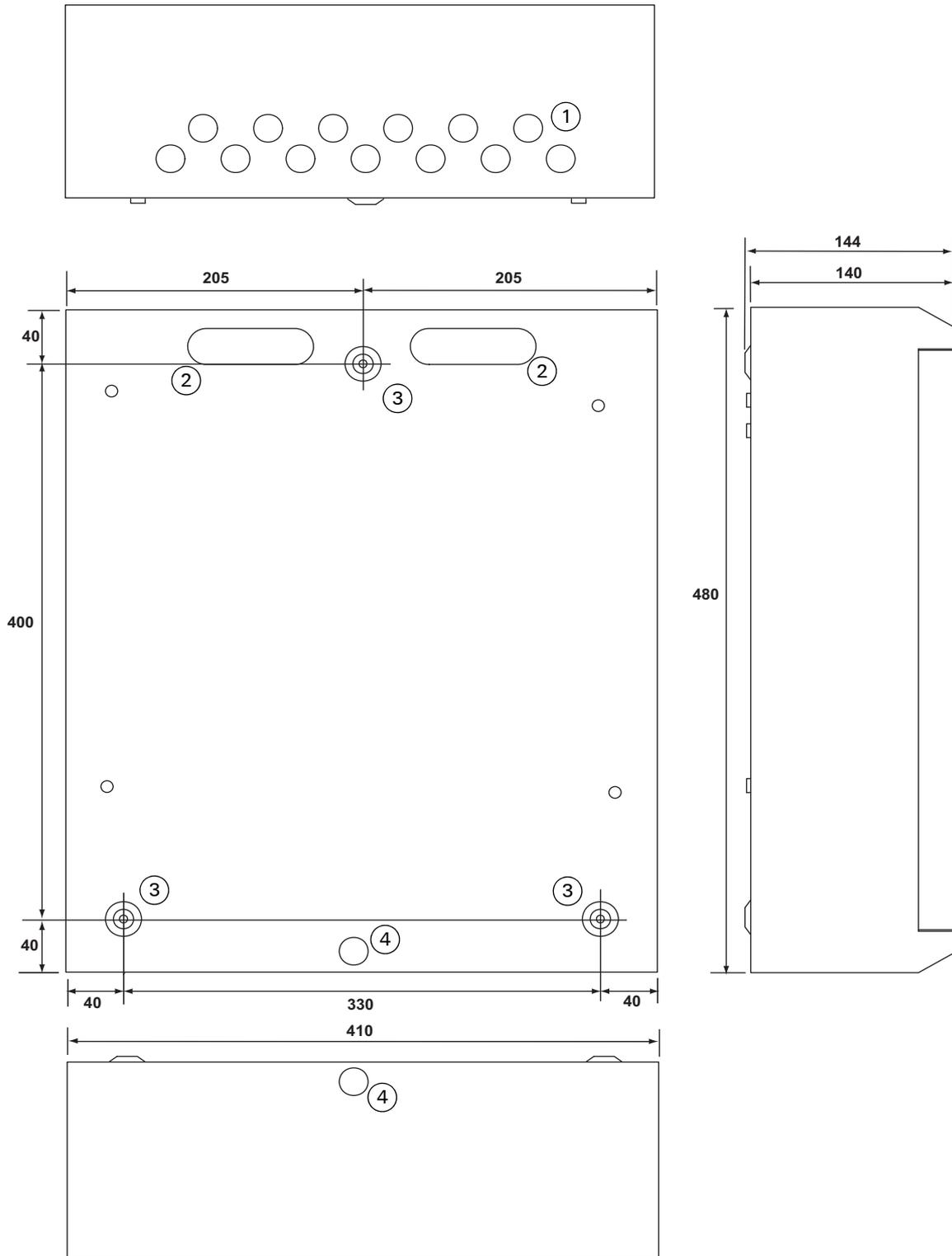


Fig. 6: Overall and Fixing Dimensions – FireClass 64-2 and FireClass 240-2

- 1–Knockouts \varnothing 20 mm (13x)
- 2–Knockouts
- 3–Mounting hole \varnothing 5.5 mm
- 4–Knockouts \varnothing 20 mm

2.3 Dismantle for Access

You will need access to the rear wall of the panel housing, for inserting and tightening the wall fixing screws.

In most cases this will involve some dismantling. (The FireClass 32RA for example does not need dismantling as the holes are always accessible.)

The dismantling involves removing the housing door, and the chassis plate (that holds the PCBs).

How to dismantle the panel

- 1 Note that for the steps in this section refer to Fig. 9 on page 19 for FireClass32-1 control panels, or Fig. 8 on page 18 for all other FireClass control panels.
From the door and door mounted PCBs, disconnect any cables (earth wire, ribbon cable etc.). Disconnect any cable clips or ties. Note the details for re-connection.
- 2 Unscrew the bottom door hinge pin. To do this you need to reach a long screwdriver into the channel formed by the edge of the door pressing.
- 3 Remove the door. First pull out the bottom of the door clear, then drop the door clear of the top hinge pin.
- 4 Take steps for the safe keeping of the hinge pin.
- 5 Disconnect the earth wires. Pull off the earth wire spade terminals from the chassis tags. Disconnect the wires from the housing earth connector (if applicable).
- 6 For FireClass32-1 panels only, disconnect the PSU to FIM lead (item 8 in Fig. 9).
- 7 To remove the chassis plates remove the lower two securing screws. Then slacken the upper screws, slide the plate upwards to clear the keyholes, and remove.
Note that for the FireClass32-1 there are two plates – an inner and outer plate. The procedure is the same for both. First remove the outer plate to gain access to the inner plate.
For the FireClass32-1 make sure you are removing screws that screw through the chassis plate into the housing back wall.
- 8 While disassembled, ensure safe storage of the component parts. Take suitable measures to prevent electrostatic discharge damage (such as keeping handling to a minimum). Store the components safely in a dry environment, preferably in their original packaging.
- 9 Temporarily re-fit the chassis screws for safe keeping.
- 10 Remove the knockouts from the backbox as necessary.

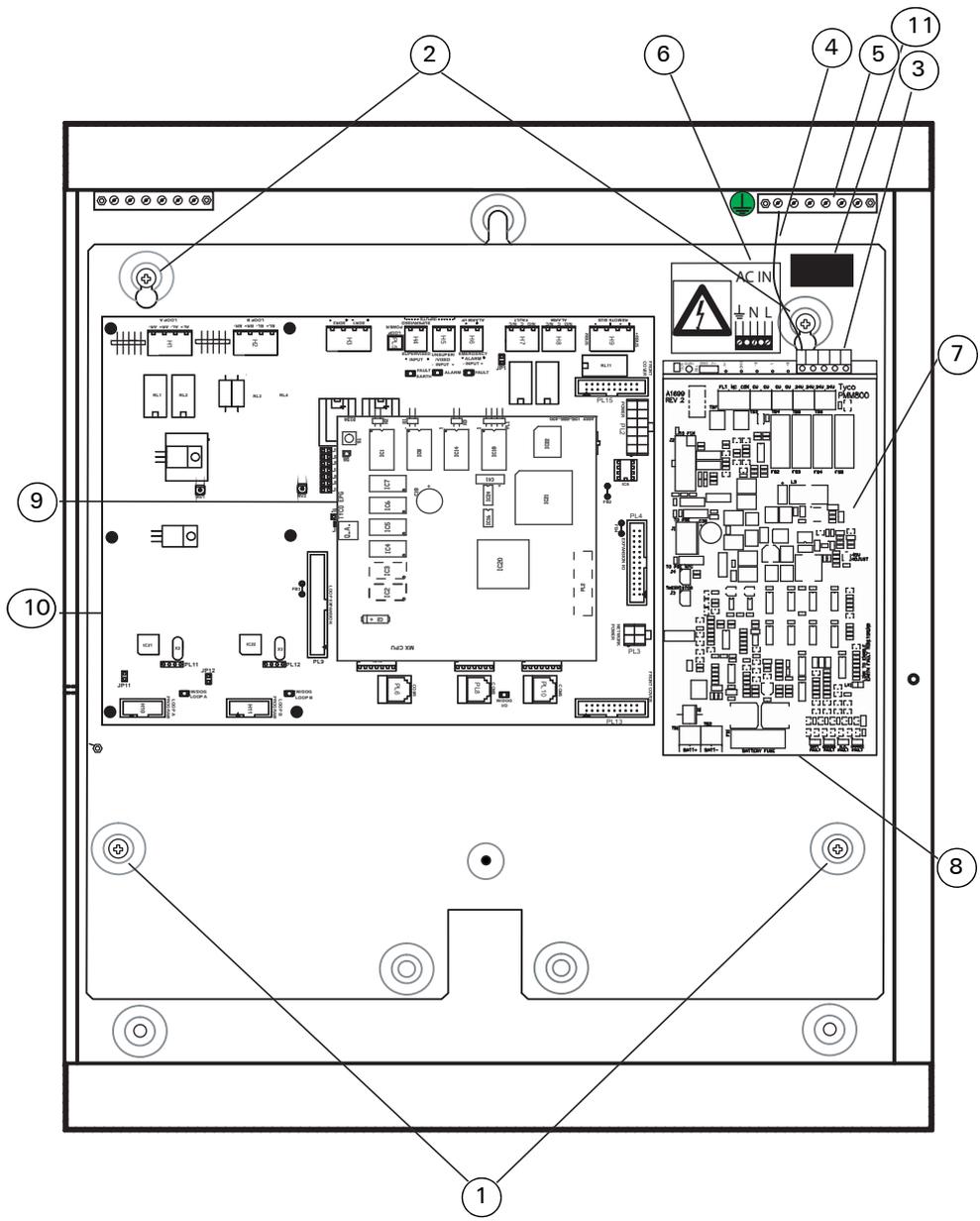


Fig. 7: Housing with chassis plate for FireClass 64-2 and FireClass 240-2
 1–Lower chassis plate securing screws
 2–Upper chassis plate securing screws
 3–Mains input connector
 4–Protective earth wire
 5–Housing earth connector block
 6–Dangerous voltage warning label
 7–PMM800 (mounted on top of PSU)
 8–Battery Fuse
 9–CPU
 10–FIM
 11–Mains cable securing clamp

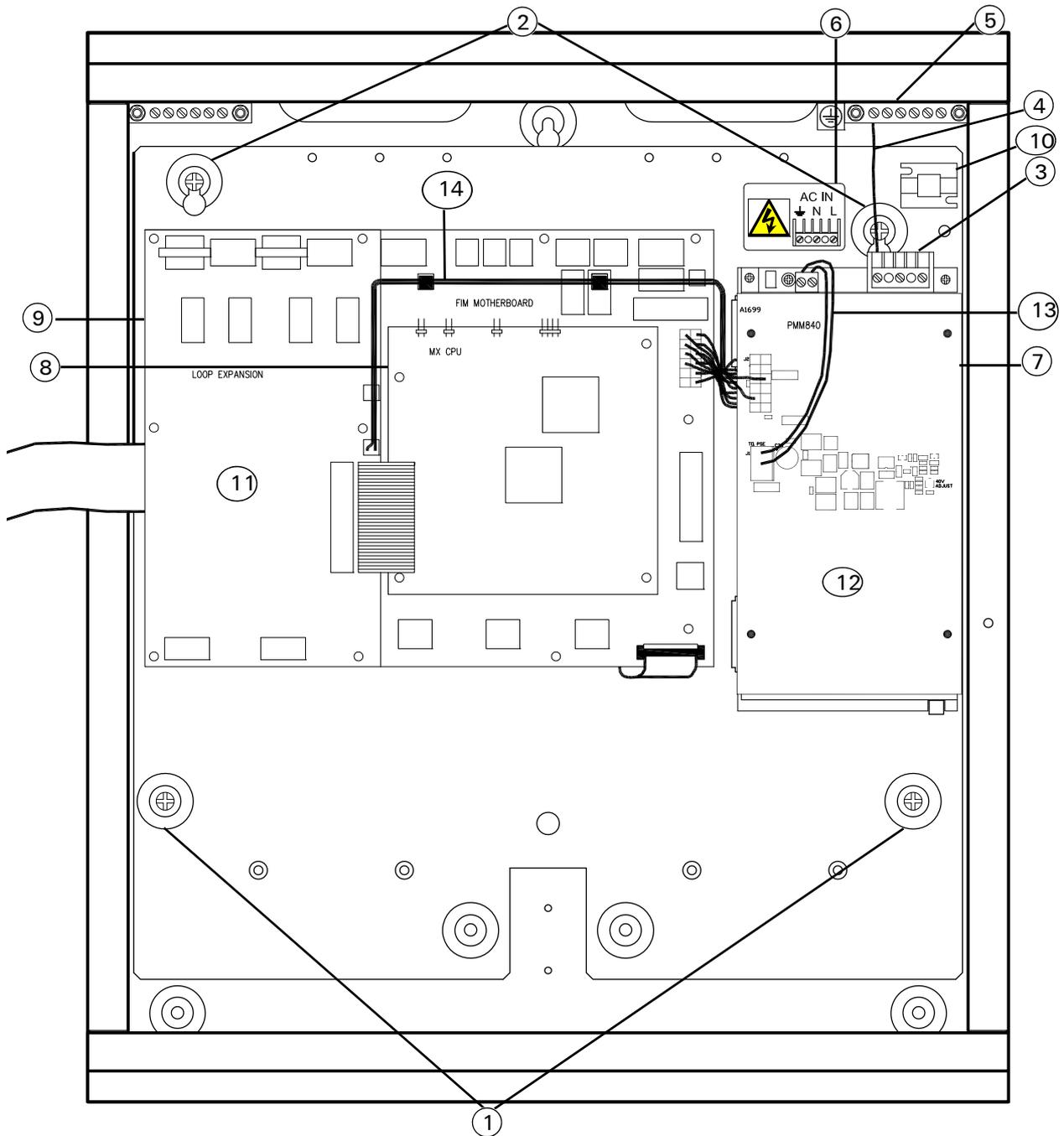


Fig. 8: Housing with chassis plate for FireClass 64-4 and FireClass 240-4

- 1-Lower chassis plate securing screws
- 2-Upper chassis plate securing screws
- 3-Mains input connector
- 4-Protective earth wire
- 5-Housing earth connector block (either a single stud or a multi-terminal bar, depending on the panel variant)
- 6-Dangerous voltage warning label
- 7-PMM800 (mounted on top of PSU)
- 8-CPU
- 9-FIM
- 10-Mains Cable securing Clamp
- 11-XLM800 mounted over FIM800
- 12-PMM840 -40 VDC Supply Board for 3rd and 4th Loop mounted over PMM800
- 13-PMM840 to PMM800 Lead
- 14-XLM800 to PMM840 Lead

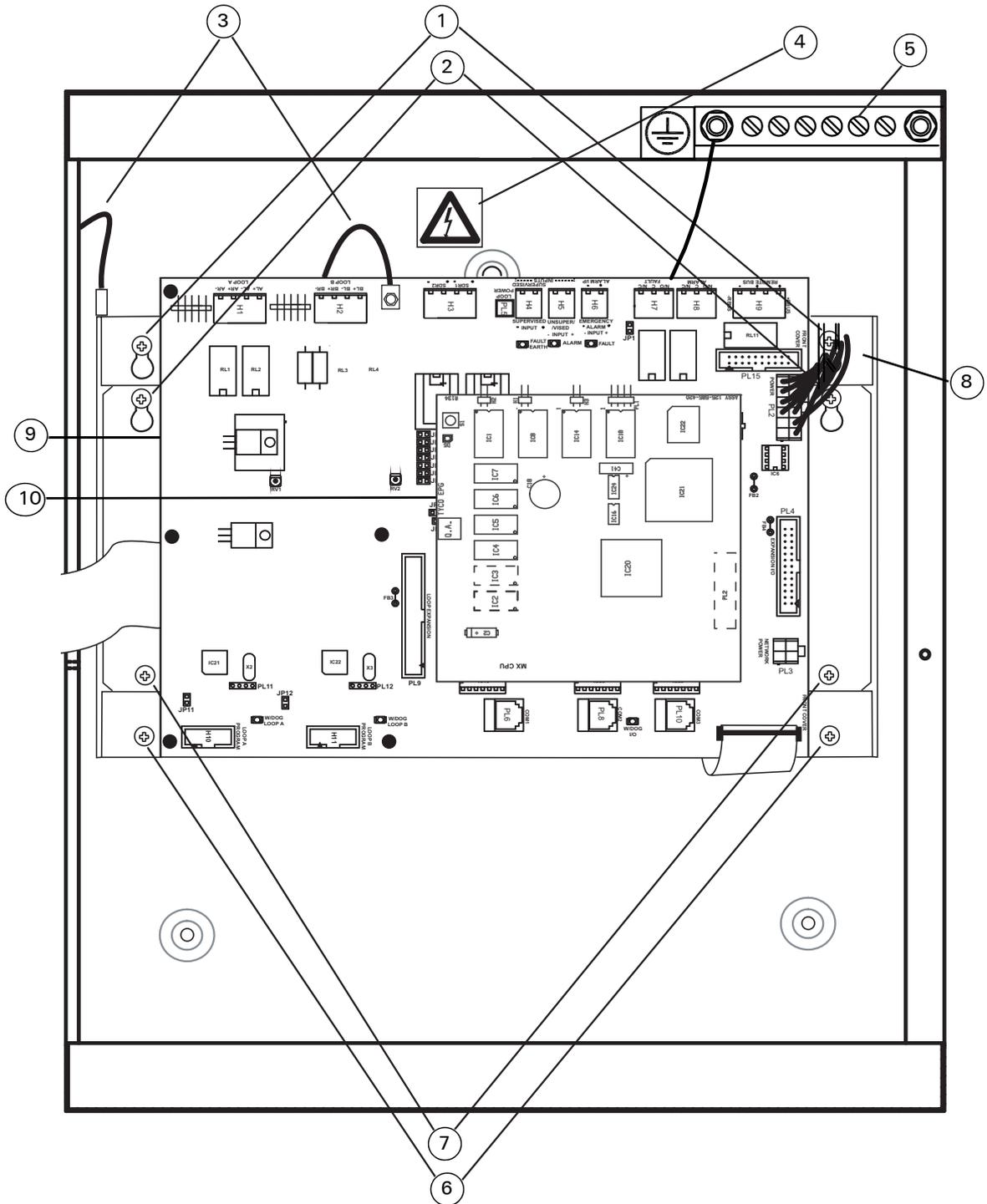


Fig. 9: Housing with Chassis Plate – FireClass32-1

- 1–Inner chassis plate upper mounting screws
- 2–Outer chassis plate upper mounting screws
- 3–Protective earth wires
- 4–Dangerous voltage warning label (mains terminal located below)
- 5–Housing earth connector block (actual location left of centre just below the top edge of the FIM)
- 6–Inner chassis plate lower mounting screws
- 7–Outer chassis plate lower mounting screws
- 8–PSU to FIM lead
- 9–FIM
- 10–CPU

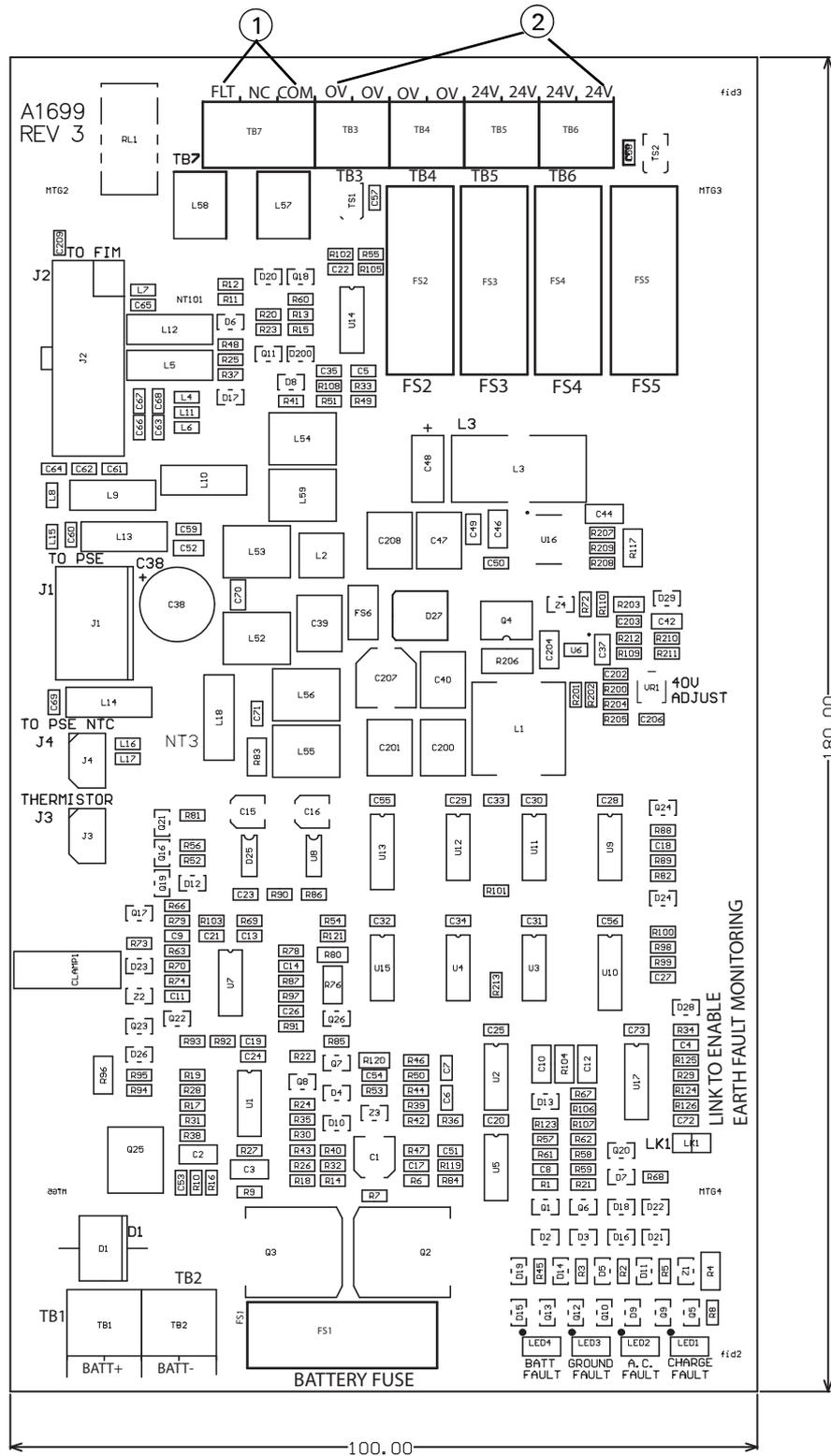


Fig. 10: PMM800 Mounted on top of PSU
 1-Fault Outputs
 2-Aux DC Supply Outputs

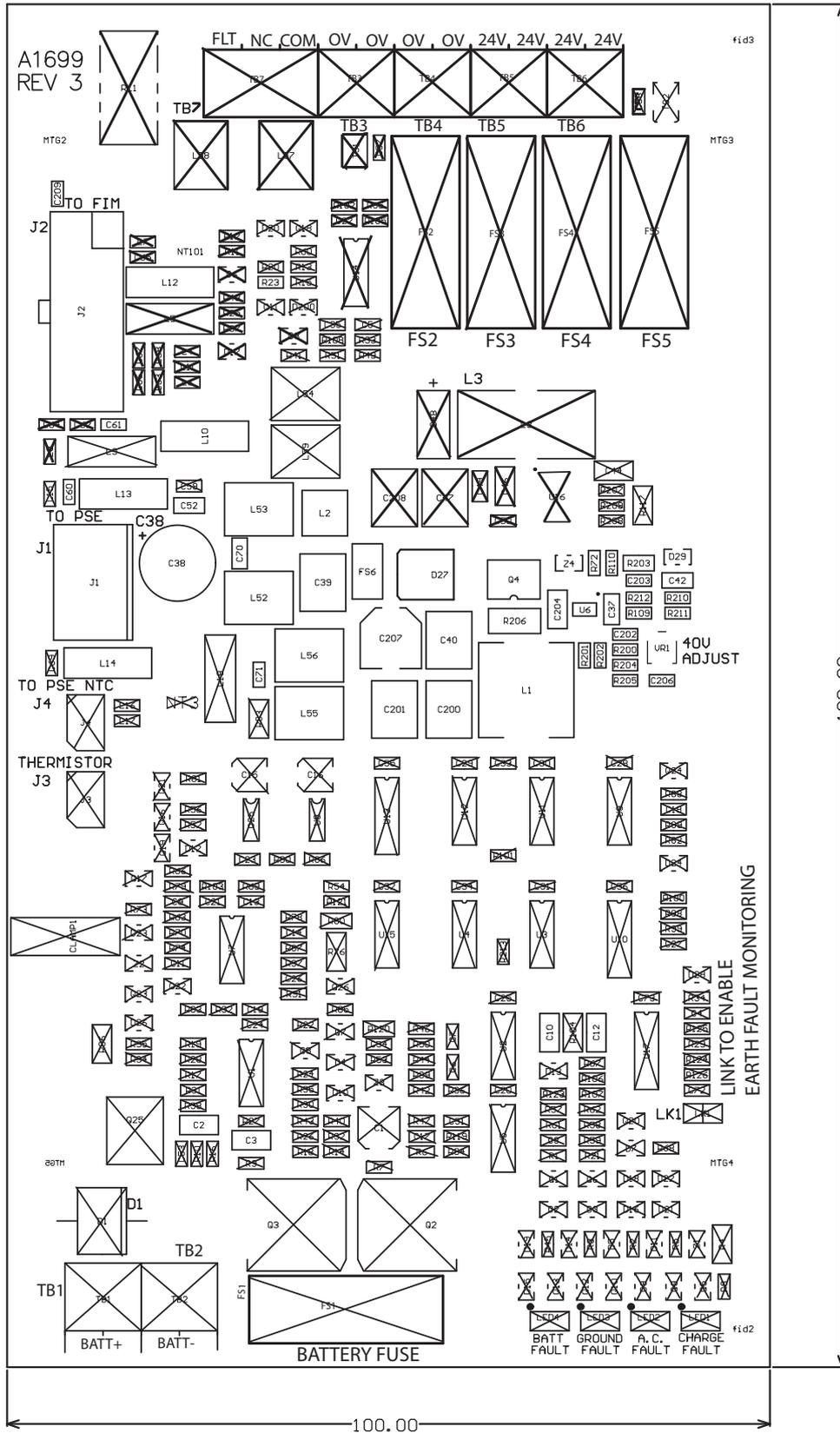


Fig. 11: Differences between PMM800 and PMM840 board indicated by cross marks
 Components indicated by cross marks are not present on the PMM840 board

2.4 Mount the Housing

How to mount the housing

- 1 Decide on a wall mounting method (typically screws into rawl plugs), and assess the required sizes of the fastenings. Take into account the type of wall (solid brick, wood and so on), and the weight of the assembled control panel housing. Typically the size of the batteries will have a large influence on the housing weight.
- 2 For the upper (centre) mounting hole, mark on the wall the drill hole position. This mounting hole is item 1 in Fig 12 on page 22. Now drill and plug this hole.
- 3 Insert a screw to suspend the housing from the upper hole. The housing may feature a "keyhole", as shown in Fig 12. This allows you to insert the screw into the bare wall, then drop the housing onto the screw (rather than screwing with the housing in position, through the back wall).
- 4 Ensure the housing is horizontal, then for the lower mounting holes, mark on the wall the drill hole positions. Drill and plug the bottom fixing holes. Insert screws to complete fixing the housing to the wall.
- For "deep" housings with the larger capacity batteries, it is necessary to also use the upper fixing holes, because of the extra weight.
- 5 Check the housing is physically secure.
- 6 Remove debris from the housing.

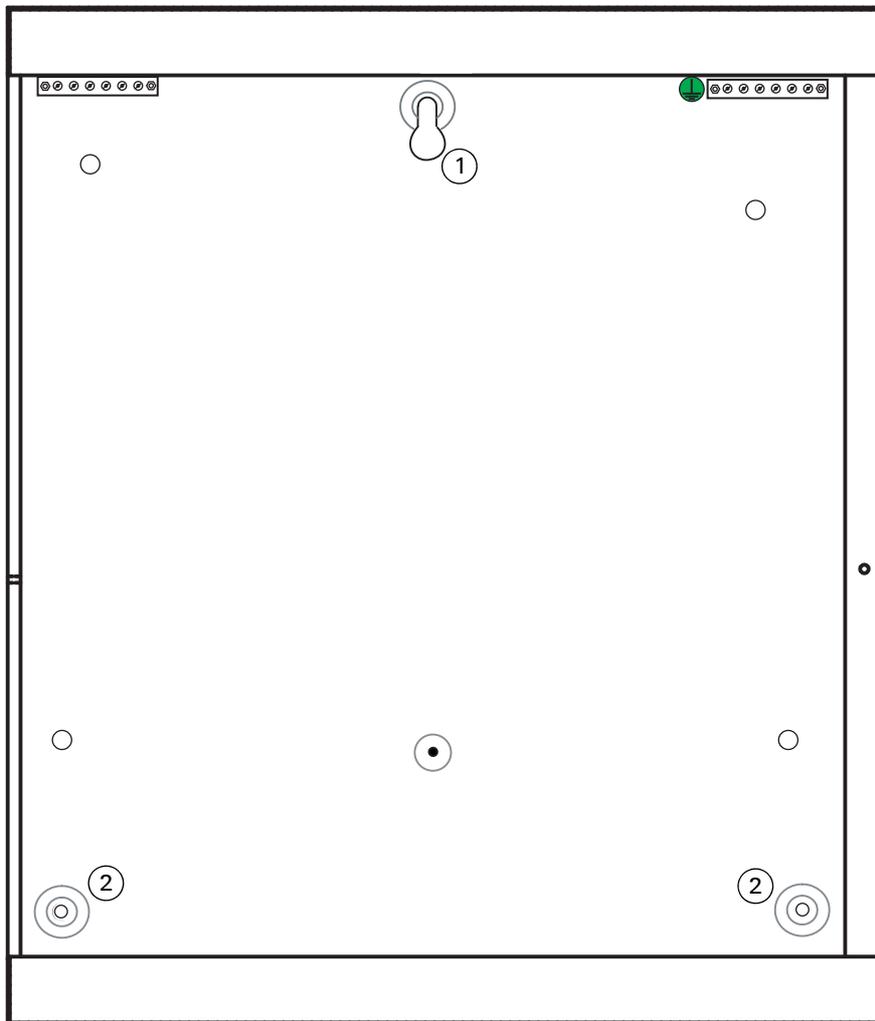


Fig. 12: FireClass 64-2, 64-4, 240-2 and 240-4
 1–Upper (centre) mounting hole
 2–Lower mounting holes

2.5 Wire for Testing

You need to make temporary connections so that you can test the wiring for continuity, insulation and so on.

Depending on the model of fire panel and options fitted, there may be between one and four addressable loop circuits, Sounders to be installed.

How to wire for testing

- 1 Install the loop wiring in the building, and wire in the bases, according to the system plan. Run any other wiring required for ancillary modules.

Clearly label the + and - conductors. Connect these to the matching terminals of the detector bases.

At this stage, do not wire in any isolator bases, or any other modules, or fit the detectors. This is because these items will be damaged by the high voltage insulation checks. Use strip connectors (see Fig 13 on page 23) for any temporary connections, to preserve continuity.

Details of wiring individual items are provided with the items themselves. For example, the wiring details for detector bases are included as part of the base packaging labelling.

At this stage do not make the final connections at the control panel, as you will be testing the wiring, and need free ends of wire.

- 2 At the control panel, feed cables through the appropriate knockouts. Use glands as appropriate. Leave generous tails of wire (approximately 600 mm length).
- 3 Connect the loop wiring tails to a strip type connector block, with screw terminals, as shown in Fig. 13. Place this loosely in the housing.
- 4 Connect loop cable screen (if applicable). The recommendation is to electrically join the screens from each section of loop cable, making connections within the loop devices, for example, then connect this to the housing earth connector (item 5 in Fig. 8 on page 18).

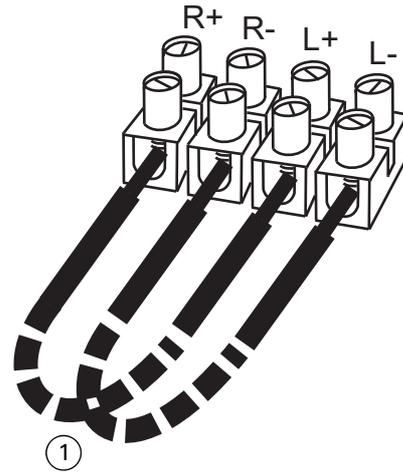


Fig. 13: Loop Wiring for Testing
1 – Dashed lines represent loop wiring

2.6 Make Insulation Checks



NOTICE

Danger of damage to equipment.

Before using a high-voltage insulation tester ensure that no devices liable to be damaged are fitted to the circuit. This includes isolator bases and ancillary modules.

How to check the wiring insulation

- 1 Note that a record should be made of the measurements below, to be handed over to the customer.
- 2 Ensure your insulation checks will be at 500 V (set your meter accordingly).
- 3 Make the usual insulation measurements. For example measure the resistance between the two wires of the loops, and the resistance between the loop wires and earth.
- 4 If any values are less than 1 MOhm, this is a failure as the control panel will not operate. You must investigate and remedy this.
- 5 For values more than 1 MOhm, but less than 30 MOhm, you might still want to investigate this, and try to increase the resistance value to 30 MOhm.

2.7 Check Circuit Resistance

How to measure the circuit resistance

- 1 Note that a record should be made of the measurements below, to be handed over to the customer.
- 2 Make the usual circuit resistance measurements.
- 3 Check whether the values are acceptably close to the values calculated at the design stage. Check that the resistances of the loop positive and negative wires are the same (within acceptable limits). If there is a problem, rectify this.
- 4 Remove the temporary connector block connections that you made to the connector block as shown in Fig. 13.

2.8 Wire in Remaining Loop Modules

At this stage wire the remaining modules and isolator bases into the loops.

2.9 Reassemble

Now re-assemble the boards and modules into the housing, following the reverse of the procedure “How to dismantle the panel” on page 16.

2.10 Connect the Loops

At this stage wire the addressable loop wires into their connectors. See Fig. 14 for a connector illustration.

For the pinout details use the labelling for the loop connections on the board. (You will be connecting to the FIM board, and also the XLM800 board, if fitted). For an FIM board to quickly locate these labels, use Fig. 15 on page 26.

Do not plug the connectors to their board sockets at this stage. This will be covered later, in the commissioning process.

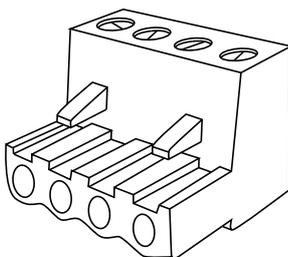


Fig. 14: Loop Wire Connector

2.11 Connect the Local Sounders

The “local sounders” are the sounders connected directly to the FIM board, as opposed to sounders on an addressable loop.

Note that local sounders may not be configured into your system.

How to connect the local sounders

- 1 Connect the sounders in Loop mode or Spur mode, as shown in Fig. 16.

For the positions and pinout details of the connectors, use the labelling on the FIM circuit board.

To quickly locate these, refer to Fig. 15 on page 26.

- 2 For Spur mode make sure you have fitted the 2.7 kOhms terminating EOL resistors. These must be fitted to the furthest sounder on the spur from the control panel.

If a control panel sounder output is not required, but the output is enabled in the configuration, connect an EOL resistor directly across the sounder output (that is between the SDR1 + and SDR1 – terminals).

If you are not sure about the configuration, it is safest to fit the resistor(s), as this will always ensure normal operation.

- 3 Set the jumpers as appropriate for Spur or Loop mode, as shown in table 3.

Jumper	Spur Mode	Loop Mode
JP6	Not fitted	Fitted
JP5	Fitted	Not fitted
JP4	Fitted	Not fitted
JP3	Not fitted	Fitted
JP2	Not fitted	Fitted
JP8	Not fitted	Fitted (doubles overcurrent shut down limit)
JP9	Not fitted	Fitted (doubles overcurrent shut down limit)

Table 3: Sounder mode jumper settings on FIM board



NOTICE

JP9 (above) is partially covered by the CPU800 board. However you are not recommended to remove the CPU800 due to the difficulties in re-fitting it (it is easy to mis-align the 64 way board to board connector).

The Jumper settings as described in table 4 are shown in Fig. 15 on the FIM board.

Jumper	Description	
	Fitted	Not Fitted
JP7	Emergency Alarm will turn on sounders	Emergency Alarm has no effect on sounders (standard setting).

Table 4: Jumper Settings available on FIM

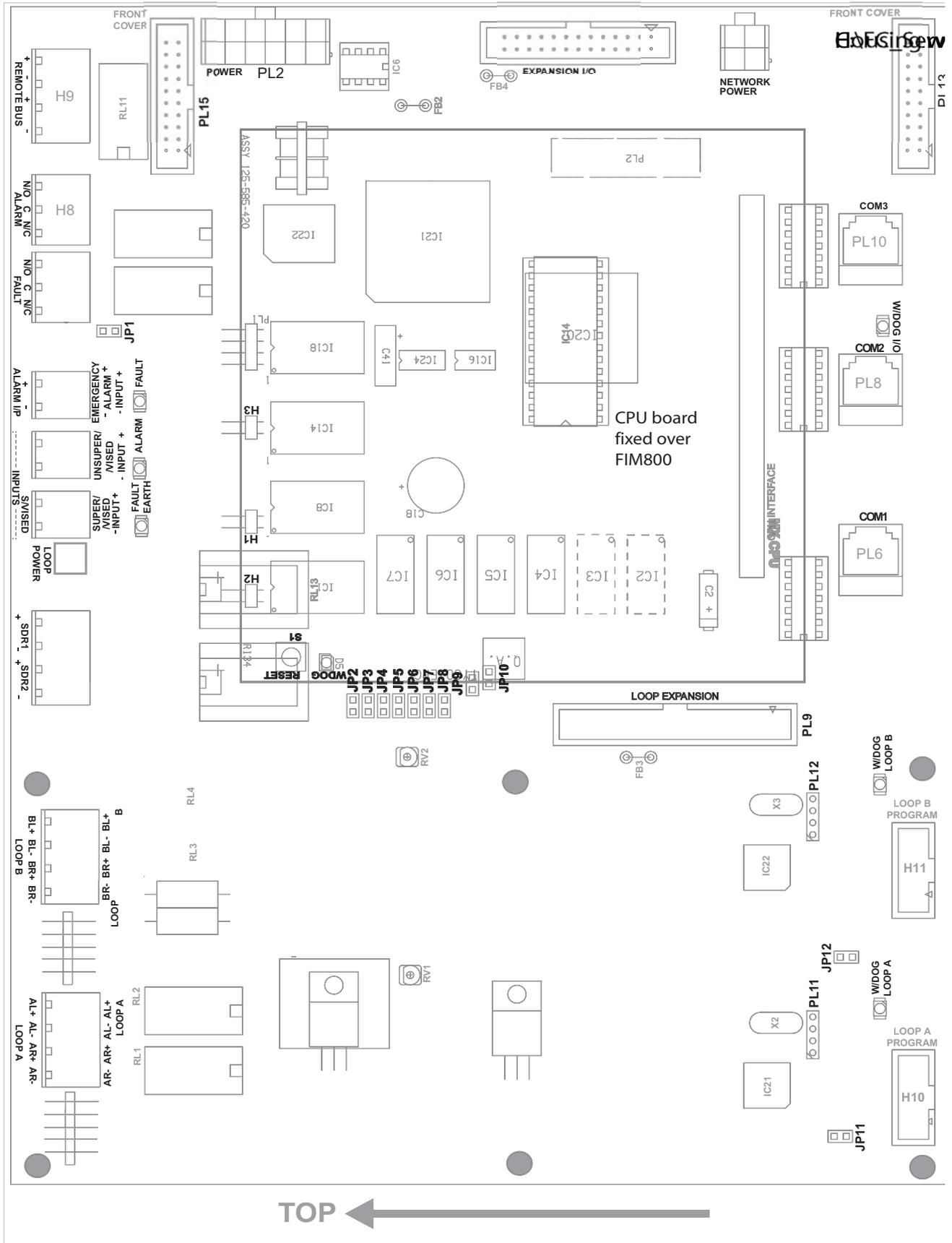


Fig. 15: FIM board labelling (most useful labels in black)

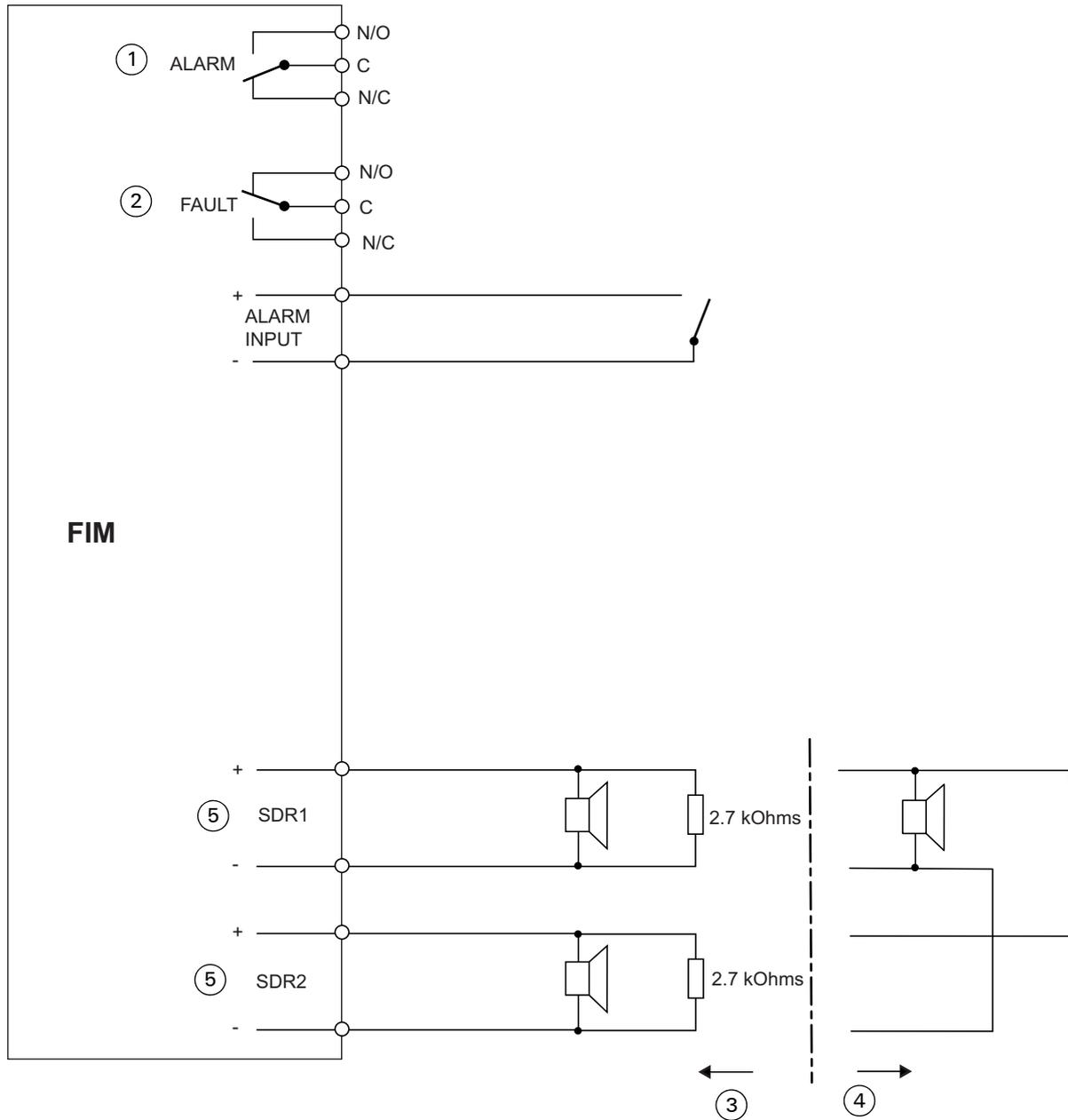


Fig. 16: FIM local input and output (the labels match those on the FIM board)

- 1- Shown in "normal" position (no alarm)
- 2- Shown in "normal" position (no fault)
- 3- Spur sounder mode
- 4- Loop sounder mode
- 5- Note that sounders must be polarised and suppressed

2.12 Interface to Conventional Detectors

It may be necessary to interface with existing conventional detectors in the building.

In this case a FC4 10DIM or FC4 10DDM interface unit will be inserted into the loop. The conventional detectors will then be connected to the interface unit, to form a spur to the loop.

For details refer to the FC4 10DIM or FC4 10DDM instructions.

2.13 Connect the end of line resistor to the Supervised Input terminals

The Supervised and Non Supervised Inputs are not used. An end of line resistor must be fitted to the Supervised Input terminals to prevent a fault condition being indicated on the panel.

How to connect the end of line resistor to the Supervised Input terminals

- Connect the 10 kOhms EOL resistor directly across the supervised input + and – terminals of the FIM board.

2.14 Terminate the RBus

The RBus 'loops through' the control panel, so on the FIM board there are two pairs of RBus + and - terminals. There can be devices connected to either one, or both, pairs.

For an unused pair of connectors, connect a 150 Ohm resistor across this.

For a used pair, find the device at the end of the RBus, and beyond this, connect a 120 Ohm resistor across the wire pair.

All resistors are supplied.

2.15 Terminate Ancillaries

At this stage fit the required EOL resistors to ancillaries. For details see the documentation on the particular ancillary.

2.16 Make any other Required FIM Board Connections

There may be other optional ancillaries and modules in the system that need connecting. Connect these at this stage.

For a general overview of the possible connections, see Fig. 16 on page 27.

2.17 Connect the Mains Cable and Protective Earth



DANGER

Danger of death or serious injury.

Before working on the mains connection, make sure the cabling is not live. Ensure the cabling is not connected to the supply, or that the supply is isolated.



DANGER

The FireClass Control Panel contains high voltages, producing a danger of death or serious injury.

You must ensure adequate earthing of the system.

In addition to any earthing requirements in the local regulations, you must, also follow these stipulations:

- **All exposed metalwork and cabling conduits must be returned to earth at the control panel.**
- **The control panel housing must be earthed, following the procedures in this guide.**

How to connect the mains cable and protective earth

- 1 Make sure the mains cable is not connected to the supply, or that the supply is isolated.
- 2 On the PSU locate the mains connector, at the top of the unit. If the protective cover is fitted to this connector, remove it. For details of the cover and connector see Fig. 17 on page 29.
- 3 Connect the mains input cable to its connector (item 3 in Fig. 7 on page 17 and item 3 in Fig. 8 on page 18).
- 4 Fix the mains cable using the clip near the mains input connector.
- 5 Connect the protective earth conductor of the mains to an unused terminal of the housing earthing block. This block is item 5 in Fig. 7 and item 5 in Fig. 8 marked with an earth symbol. Do not use the terminal occupied by the power supply earth conductor.
- 6 Re-fit the PSU mains connector cover.

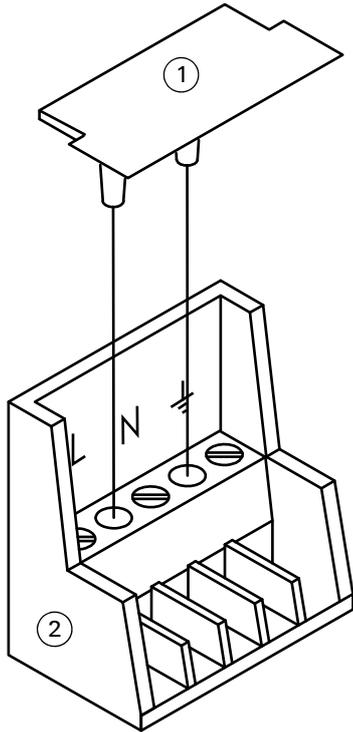


Fig. 17: PSU Mains Connector Cover (detail)
 1–Cover
 2–PSU mains connector

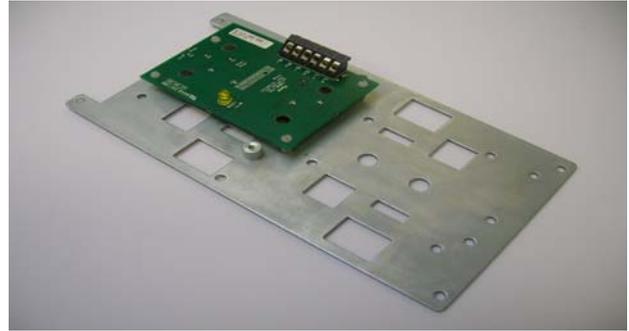


Fig. 18: Standard sized module flat on mounting plate



Fig. 19: FC4 10LIM fitted to DIN Rail Mounting Bracket

2.18 Fit Standard Sized Modules

i FireClass 32-1 panel
 For the FireClass 32-1 panel, it is not possible to use the standard sized modules.

At this stage fit any standard size modules (such as a FC4 10LIM isolator) that may be required.

How to fit a standard sized module

- 1 Decide whether to mount the module “flat” or “perpendicular”. For “perpendicular” (up to four modules), jump to Step 2 now. For “flat” (one or two modules), mount the modules as shown in Fig. 18 on page 29. Jump to Step 4 now.
- 2 Clip the module into the DIN rail mounting bracket, as shown in Fig. 19. Do this by pressing the module over the nylon pegs.
- 3 Clip the DIN rail mounting bracket to the mounting plate as shown in Fig. 20.
- 4 Carry out section 2.2.1 “Fit Mounting Plates” on page 31.

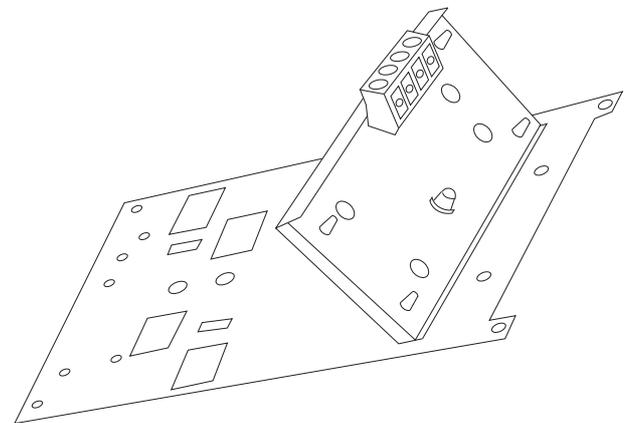


Fig. 20: FC4 10LIM on Ancillary Mounting Plate

2.19 Fit an IOB800 Module

At this stage fit the IOB800 module, if required.

How to fit an IOB800

- 1 Locate the mounting plate, part number 557.201.5 19. To this mounting plate fit 8 mm snap-in

- 1 pillars. Fit the pillars in the locations shown as item 1 in Fig. 21.
- 2 Fit the IOB800 to the pillars.
- 3 Secure using an M3 x 6 mm screw, at Item 2 in Fig. 20 on page 29.
- 4 Carry out section 2.21 “Fit Mounting Plates” on page 31.
- 5 Configure and connect the module, as described in the module’s installation document.

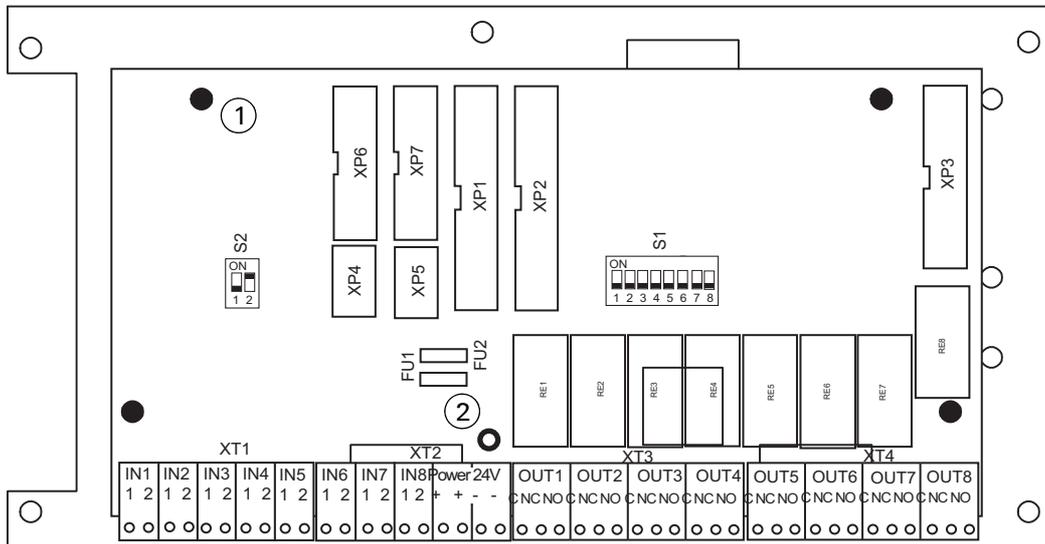


Fig. 21: IOB800 on Ancillary Mounting Plate
 1– Snap-in pillar locations (4 similar)
 2– Fixing screw location

2.20 Fit a CCU3/C-MXMB or MOXA

If required, at this stage fit the MOXA (BACnet converter) and CCU3/C-MXMB (MODBUS interface) modules.

How to fit a CCU3/C-MXMB or MOXA Module

- 1 Locate the mounting plate. The plate common to both units, and is shown in Fig. 22. The mounting plate is ordered separately under the order code 557.201.519 (Accessory mounting plate for CCU3).
- 2 Secure the module to the mounting plate using the screws provided. The mounting hole positions are shown in Fig. 22. For the MOXA module, use the inner set of holes in the plate. For the CCU3/C-MXMB use the outer set of holes.
- 3 Carry out section 2.21 “Fit Mounting Plates”.
- 4 Configure and connect the module as described in the module’s installation document.

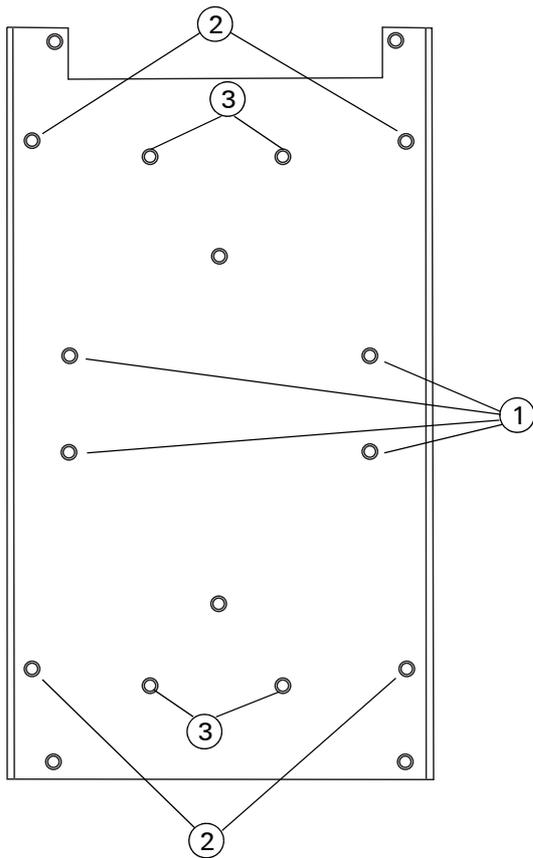


Fig. 22: CCU3/C-MXMB and MOXA Mounting Plate
 1 – MOXA mounting holes
 2 – MPM800 mounting holes
 3 – CCU3/C-MXMB

2.21 Fit Mounting Plates

Optional modules fitted within the control panel housing are fitted using an intermediate mounting plate.

Only follow this section on fitting the mounting plate if you are directed to it from one of the previous sections on fitting an optional module. On reaching this section the module should already be assembled on the plate.

The mounting plates differ, depending on the particular module, but the procedure is the same.

How to fit a mounting plate

- 1 Remove the FIM mounting screws at the locations shown in Fig. 23 on page 32.
- 2 In place of the screws, fit six M3 x 30 mm male/female spacers (only four for CCU3).
- 3 Place the mounting plate on the spacers and secure using six M3 washers and M3 x 6 mm screws.

The next step is to configure and connect the module, as described in the module's installation document.

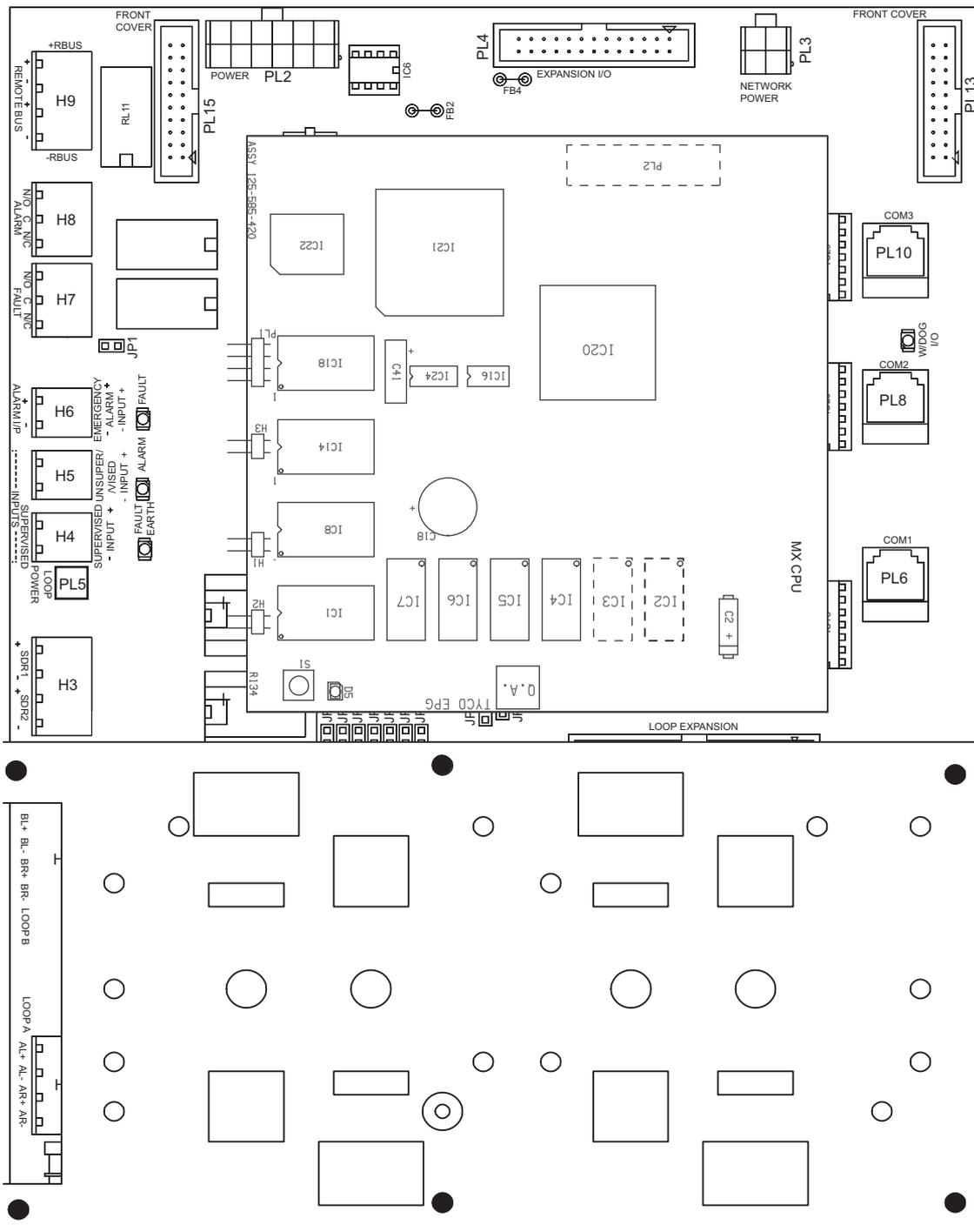


Fig. 23: Ancillary Mounting Plate Hole Locations on FIM (in black - re-use screw holes)

2.22 Fit a TLI800EN

The TLI800EN fits “piggyback” style onto the CPU. For TLI800EN installation, refer to the TLI800EN Fixing Instructions Guide.

2.23 Install the Batteries



WARNING

The standby batteries can deliver high current, producing a danger of injury and equipment damage while working on the panel.

Take care not to accidentally short the battery terminals, especially when fitting the retaining bracket.

The batteries are supplied charged.

How to install the batteries

- 1 Remove the battery fuse from the PMM800 board (Item 8 in Fig. 8).
- 2 Connect the battery cables to the terminals marked **BATT+** and **BATT-** on the PMM800 board (the PMM is Item 7 in Fig. 8 on page 18, mounted on top of the PSU). There are two of each terminal – use either one. Connect the red cable to positive, the black cable to negative.
- 3 Place the batteries in the bottom of the control panel housing.
- 4 Connect the battery cables to the battery +ve to -ve terminals.
- 5 If supplied, fit the battery retaining clamp. For details refer to the instruction leaflet provided with the clamp.
- 6 Connect the inter-battery lead between the batteries (+ve to -ve terminals). Note that the control panel will not start to power up from the batteries without the mains being powered up.
- 7 Identify the temperature compensation thermistor lead. This is from the connector marked **THERMISTOR J3** on the PMM800 board mounted to the power supply. Tape the thermistor at the end of the lead at a convenient location on the side of a battery.
- 8 Re-fit the battery fuse.
- 9 Label the batteries with the current date.

2.24 Connect the Printer(s)

At this stage, connect any printers of the system.

Printers can be directly connected to COM1 of the FIM board. Problems can arise with this method if the connecting cable is too long (the maximum length is 15 m).

2.25 Connect Repeater Mains Cable and Protective Earth

At this stage any repeaters should be ready to be connected into the system.

For mains powered repeaters, connect the mains to the repeater as described below.



DANGER

Danger of death or serious injury.

Before working on the mains connection, make sure the cabling is not live. Ensure the cabling is not connected to the supply, or that the supply is isolated.



DANGER

The FireClass repeater contains high voltages, producing a danger of death or serious injury.

You must ensure adequate earthing of the system.

In addition to any earthing requirements in the local regulations, you must, also follow these stipulations:

- **All exposed metalwork and cabling conduits must be returned to earth at the control panel.**
- **The control panel housing must be earthed, following the procedures in this guide.**

How to connect the repeater mains cable and protective earth

- 1 Make sure the mains cable is not connected to the supply, or that the supply is isolated.
- 2 For certain repeaters you will need to move the outer chassis plate. For an illustration, this will be similar to Fig. 9: "Housing with Chassis Plate – FireClass32-1" on page 19, except that the outer chassis plate will only carry connectors, not PCBs.
Remove the screws holding the outer chassis plate and slide this downwards. Slide the plate far enough to allow access to the PSU mains connector beneath.
- 3 On the PSU locate the mains connector. If the protective cover is fitted to this connector, remove it. For details of the cover and connector see Fig. 17 on page 29.
- 4 Feed the mains input cable into the housing through a suitable knockout, using a gland if necessary.

- 5 Connect the mains input cable to its connector (item 3 in Fig. 8 on page 18). Fix the mains cable using the clip near the mains input connector.
- 6 Connect the protective earth conductor of the mains to an unused terminal of the housing earthing block. This block is marked with an earth symbol. Do not use the terminal occupied by the power supply earth conductor.
- 7 Re-fit the PSU mains connector cover.
- 8 Re-fit the outer chassis plate, if moved in Step 2.

2.26 Connect the Repeater RBus Wires

How to connect the repeater RBus

- 1 Wire the “control panel end” of the RBus wires into their connector. The connector is similar to the loop connector, shown in Fig. 14 on page 24. For the pinout details see the connector’s labelling on the control panel FIM board. (To quickly locate these labels, use Fig. 15 on page 26.)
- 2 Double-check whether an EOLR resistor needs to be fitted to the connector – see 2.14 “Terminate the RBus” on page 28.
- 3 Insert the RBus connector into its socket on the FIM board. This socket is labelled “Remote Bus”.
- 4 Now at the repeater, feed the RBus wires through the appropriate knockout, using glands as necessary.
- 5 Connect the RBus wires to the connector block. The connectors are labelled **RBUS +** and **RBUS -**.
- 6 Connect the RBus cable screen to the housing earth connector. (Do not earth the screen at the repeater end, it must only be earthed at one end.)
- 7 Set the address and baud rate using the DIP switch of the DCM board of each repeater to the same address as set in the FireClass Express configuration file. Make the baud rate setting according to Table 6. Make the address setting according to Table 5. For the address, set the switch to OFF for binary 0, or ON for binary 1.

There is only one DIP switch fitted to the board. For the location, refer to the appropriate figure, as follows:

 - For a DCM832R, refer to Fig. 24. There is no circuit board label.
 - For a DCM864R refer to Fig. 25. The switch is labelled **S23** on the circuit board.

You will probably want to use a small screwdriver to move the switch sliders.

Address	Binary Switch Position			
	1	2	3	4
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

Table 5: Repeater address setting

Baud Rate	DIP Switch position 5	DIP Switch position 6
4800	ON	OFF
9600	OFF	ON
19200	ON	ON

Table 6: Repeater baud rate setting



Baud Rate

For Repeater, the Baud rate is factory set to 19200 and no setting by the installation technician is required.

The processor fault is factory set to off and should not be altered by the installation technician as this function is not available for use at the Repeater.

- 8 If the Processor Fault Sensing option is required, set S28-8 to ON (See item 1 in Fig. 24).

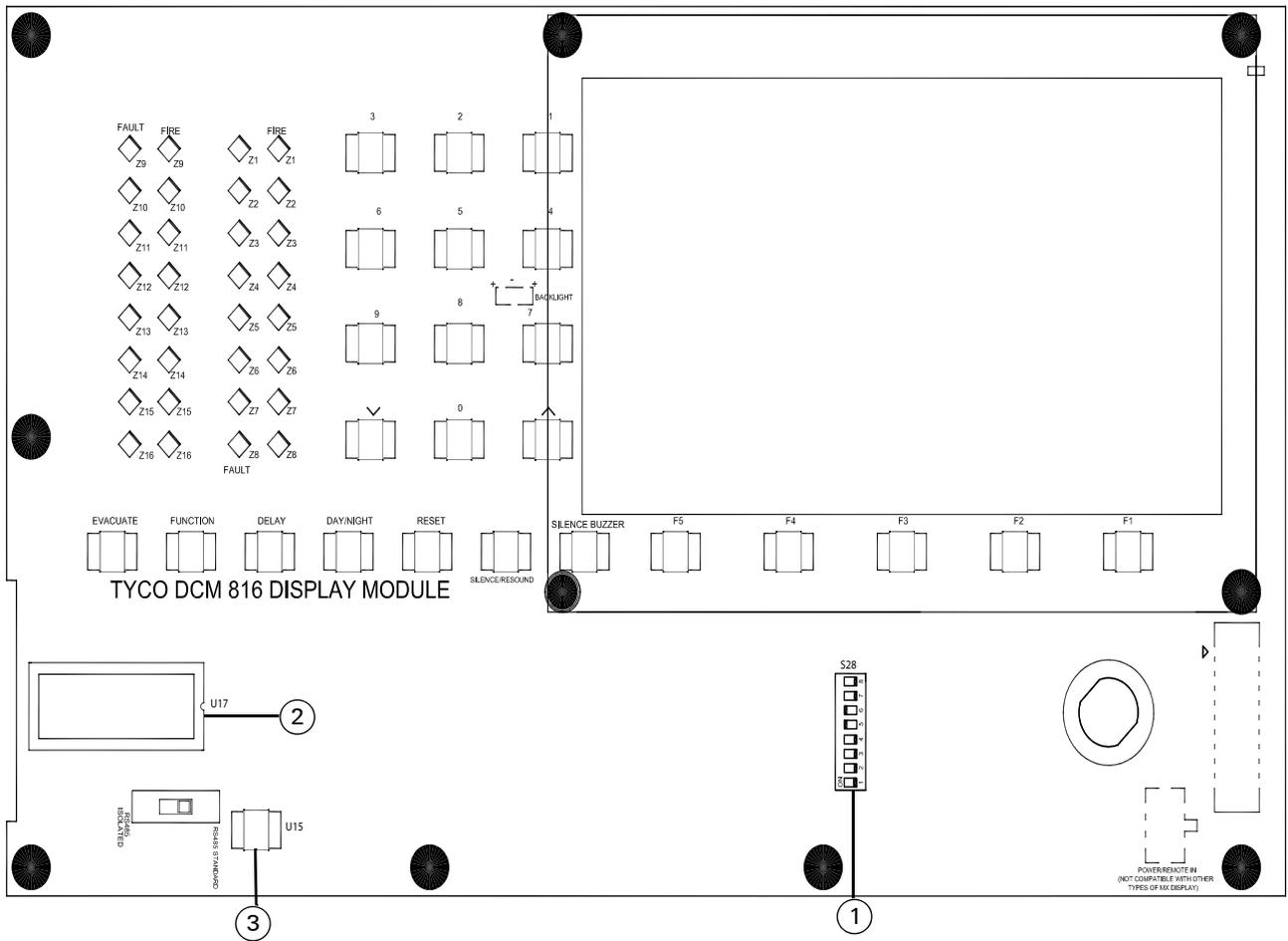


Fig. 24: S28 Position - DCM832R

- 1-S28
- 2-U17
- 3-U15

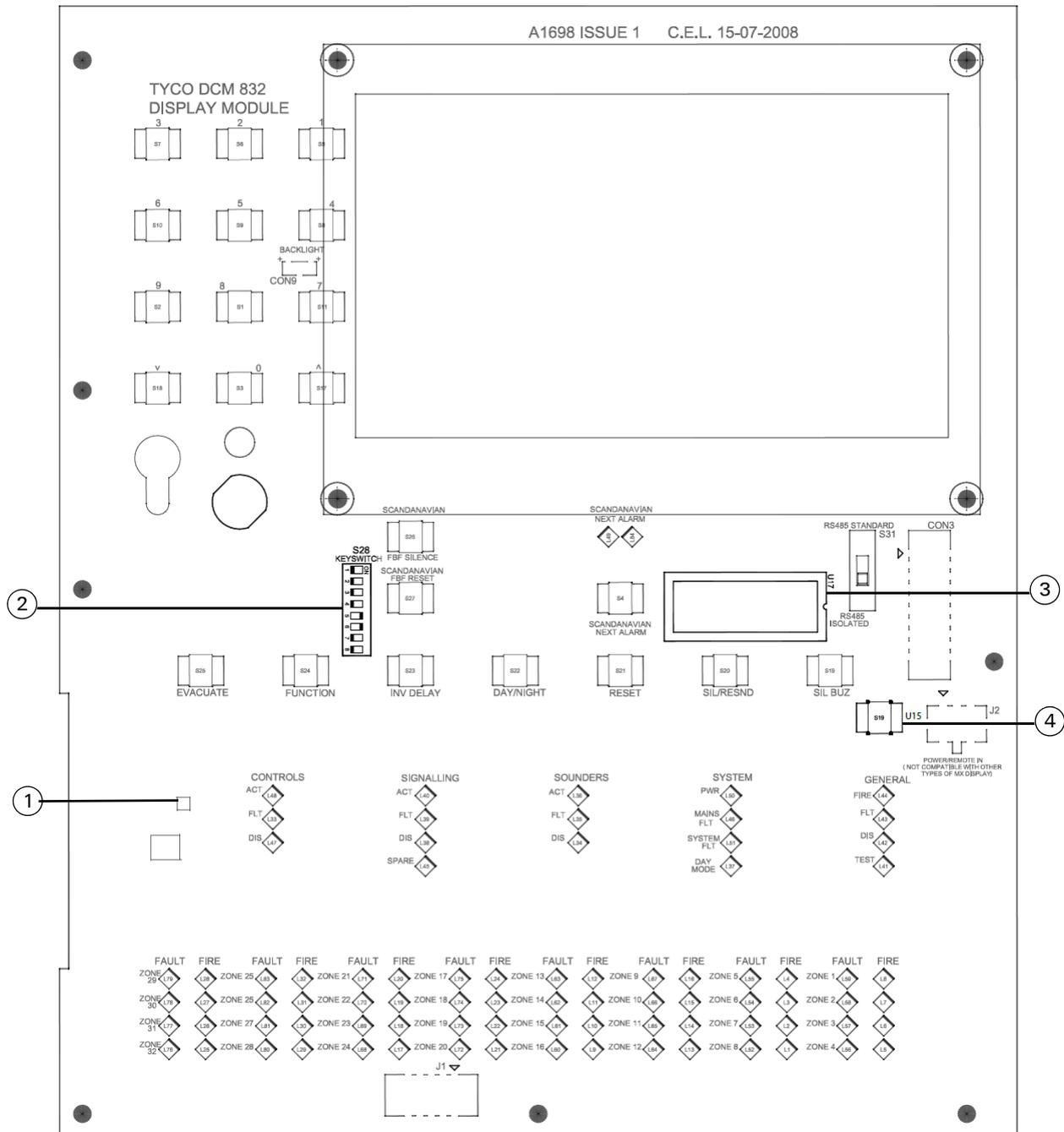


Fig. 25: S28 Position - DCM864R and DCM8240R
 1-Reset button
 2-S28
 3-U17
 4-U15

2.27 Connect any other ancillaries

At this stage connect any other ancillaries of the system. After completing the installation move on to the "Commission" chapter.

2.28 Make Customer Records

At this stage make copies of the cable routing diagrams and the wiring test results to be handed over to the customer.

3 Commission

At this stage the complete system hardware (wiring, ancillary boards and so on) should be in place.

The next stage is commissioning, as covered in this chapter. Basically, this involves configuring and testing the system.

A fully comprehensive test procedure cannot be provided. This is because the testing must be in accordance with local regulations and practice. Also, sites differ in terms of the system design, including the “cause and effect” logic built into the system configuration. This means the tests must be individually planned to suit the specific site requirements.

Instead of a comprehensive test procedure, this chapter provides guidelines in the form of an example procedure.



DANGER

Incorrect commissioning of the fire protection system produces a danger of failure, possibly leading to death or serious injury, in the event of a fire.

You must fully test the system, according to the system configuration, and any local regulations in force.



CAUTION

Strongly recommend that the appropriate local regulations are consulted for full details.

Minimum recommendations for assistance. Entire system should be inspected and tested to ensure correct operation including:

- Correct functioning of all MCPs and detection devices.
- Correct zonal indication (and device text) at each panel/repeater.
- Correct sound pressure levels obtained throughout premises.
- Correct operation of fire/fault signalling systems through to receiving station.
- Cause and effect functions tested and checked against design requirements.
- All devices correctly sited.
- Correct operation of PSU when running on mains or battery.
- System loads measured and capacities of PSU and battery confirmed.
- Control and indication equipment correctly sited.

3.1 Power Up the Panel

How to power up the panel

- 1 Connect the mains to power up the control panel.
- 2 Check that the **WDOG** LED of the CPU board lights continuously (for the location of this LED see Fig 15 on page 26).
- 3 The internal buzzer might now sound to alert you to faults. To silence the buzzer press the **Silence Buzzer** key.

3.2 Make Control Panel Checks

How to make control panel checks

- 1 Use the control panel's Battery Test operator function (In the main menu, choose the options Service | Maintenance | Battery Test) to check that the batteries are connected and charging.
- 2 On the control panel, use the **Test Buzzer, LEDs & Display** operator function. The buzzer and all LEDs and indicators all now activate. If any of these do not activate, investigate the fault.
- 3 On the control panel, check that the appropriate faults are reported. At this stage you have not connected the loops, so you should at least see the **Fault** LED lit, and "No Response" device fault events. For further details, refer to FireClass Fire Alarm Control Panels Fault Finding Information for Version 2.1 firmware.

3.3 Set the Time and Date

At this stage set the control panel time and date.

3.4 Download the Firmware

The following procedure gives a step by step instructions on how to replace the FireClass firmware and FireClass Configuration.

How to download the firmware

- 1 Make link **H3** (top) on the CPU card, ensure that the links H2 and H1 are not set.
- 2 Press and hold the red reset button on the CPU card until the green watchdog led on the CPU card turns off momentarily.
Consequently, the panel beeps rapidly and the **processor fault LED** on the front cover will illuminate (Refer to "Processor").
- 3 Press the red reset button **S8** on the DCM (inside front cover). This will stop the rapid beeping and the processor fault led will go off.
The panel will now beep at less regular intervals and after approximately 15 seconds the LCD display will go blank except for the message **RS-485 Comms Error**.
- 4 With your download lead plugged into COM2 on the FIM, start a Firmware download from your PC by

choosing **Transfer** and then **Firmware**. You will be presented with a selection box displaying the **FireClass version *.*.dwn**.

- 5 Highlight the file **FireClass version *.*.dwn** by clicking on it and pressing the open button on the bottom right hand-side of the panel. This will start the firmware download.
This download will take approximately 6 minutes. During this time, the panel will continue to beep slowly and continue to display the message **RS-485 Comms Error** on the LCD display.
- 6 While the firmware download is taking place, make the link **H2** on top of the CPU card.
- 7 On completion of the firmware download, the PC will display the message **Remove Header link H3 to restart the panel**.
- 8 As prompted, remove the link **H3** on top of the CPU card and confirm you have done this by clicking on OK.
- 9 The panel will once again start to beep rapidly and the **processor fault LED** on the front cover will illuminate.
- 10 Press the red reset button **S8** on the DCM (inside the front cover). This will stop the rapid beeping and the **processor fault LED** will go off. The panel will now beep less regular intervals and will continue to display the message **RS-485 Comms Error** on the LCD display.



Processor

Pressing the reset button on the CPU card momentarily down powers the processor. The processor will then read the link settings you have made when it switches back on.

Turning the panel off completely and then turning it back on has exactly the same effect. It may in some instances, be preferable to use this method because you will re-initialise not only the CPU but also the FIM.



File location

If the file present in the selection box is incorrect, the correct dwn file can be found by selecting the following path on the selection box, C:\ProgramFiles\TSP FC\FireClass Consys v*.*.

3.4.1 Download the Configuration

As an alternative to this step you might want to jump to Section 3.5 "Use Autoconfiguration".

How to download the configuration

- 1 Start FireClass Express and open the appropriate project (.PJD) file. This contains the system configuration.
- 2 With your download lead still plugged into COM2 on the FIM, start a configuration download on your PC by selecting **Transfer** and then **Download Configuration**.
By default this will be a full download, as you will not get the option to simply download modifications. You may also be asked if you wish to synch the panel time to the time on your PC. To do this press OK.
- 3 While the configuration download is in progress, remove the link **H2** (bottom) of the CPU card.
- 4 On completion of the configuration download, the PC will ask if you wish to perform a panel restart. Click OK to restart. The message is displayed that the **panel restart request has been sent**. Click OK again.
After a few seconds, you will see the LCD display re-write and the panel starts to initialise with your new firmware download configuration.
- 5 Press the red reset button on the reverse of the DCM (inside the front cover).
When the download is complete, follow the prompt to reset the control panel.
- 6 On the control panel front panel press the **SILENCE BUZZER** key if you need to silence the internal buzzer.
- 7 Rectify all the displayed faults.

If problems occur, refer to the section 3.9 "Clearing the RAM" on page 40.

3.5 Use Autoconfiguration

This step is an alternative to Section 3.4 "Download the Firmware".

The FireClass controller has a loop auto-configuration option, which, when a loop or spur circuit(s) is working correctly allows the controller to learn basic information, such as what devices are connected to the loop.

You can then upload this basic information into FireClass Express, and add further details.

Alternatively, you can make configuration changes at the control panel. For further details see the FireClass Service and Maintenance guide.

3.6 Connect the Loops and Devices



NOTICE

Making loop wiring changes inappropriately may damage the control panel.

Before making loop wiring changes, or connecting the loop to the controller, follow these stipulations:

- Make sure you have tested the wiring and ensured that there is no fault.
- Power down the controller.

How to connect the loops and devices

- 1 Power down the control panel.
- 2 At the control panel insert the loop connectors into their FIM board sockets.
- 3 Set device addresses, using an FC490ST Service Tool (for example). If appropriate apply the devices' address labels.
- 4 Fit the detectors to their bases. Make sure all other addressable loop devices are in place.
- 5 Power up the control panel again and check that all faults are now cleared.

3.7 Monitoring Devices

How to test devices

- 1 Note that as you are performing the checks, be aware of any "cause and effect" rules in the control panel's configuration. You need to check for the correct system responses to the your tests, as you make them.
For example the panel it may be the intention that activating a call point activates all sounders and door release mechanisms in the zone. You would need to make sure this actually happens.
- 2 On the control panel check that each device will activate correctly (for example test call points by inserting the activate key, test smoke detectors with a smoke aerosol can). You might want to use the control panel's printing facilities to produce a hard copy check list.
- 3 Test the sounders (local and loop). To do this press the control panel **Evacuate** key (this issues an alarm). Then check that each sounder is actuated. After the test press the **SILENCE/RESOUND** key, then the **RESET** key. Be aware of the possible nuisance caused by the alarms, and take any required measures.

3.7.1 Test the Spur Open and Short circuit Monitoring

This procedure is applicable only if your system has, for example, spur connected local sounders.

How to test the spur open and short circuit monitoring

- 1 Test the open circuit monitoring for devices in spur configuration. To do this either disconnect any EOL resistors or associated circuits in the system to ensure that the control panel reports the appropriate faults. Afterwards, restore the system to normal.
- 2 Test the short circuit monitoring for devices. To do this either replace any EOL resistors or associated circuits in the system with a short circuit to ensure that the control panel reports the appropriate faults. Afterwards, restore the device to normal.

3.7.2 Test the Open and Short circuit Monitoring in Addressable Loops

How to test the open and short circuit monitoring in addressable loops

- 1 Test the open circuit monitoring in the loop. To do this, disconnect the loop wiring at a device to ensure that the control panel reports the appropriate faults. Afterwards, reconnect the loop wiring for normal functioning.
- 2 Test the short circuit monitoring in the loop. To do this, remove a device and apply a short-circuit across the right and left sides of the loop to ensure that the control panel reports the appropriate faults. Afterwards, restore the loop to normal.

3.8 Hand Over to the Customer

Hand over to the customer in accordance with standard Company instructions.

Ensure the following:

- The customer is provided with a copy of the cable routing diagrams and test results you made earlier.
- The customer knows how to operate the panel, and is aware of any local regulations in force.
- The customer knows the User IDs and associated access codes for the panel.
- The customer has access to the FireClass Control Panels User Guide.
- No documentation is left in the Controller housing or any other associated housing.

3.9 Clearing the RAM

Only follow this section if referred here from elsewhere in the guide.

Try clearing the non-volatile RAM if the control panel displays the following symptoms:

- The **SYSTEM FAULT** LED is lit (on the front panel)
- The LCD indicates `RS-485 COMMS ERROR`.
- No keys are operative.

How to clear the RAM

- 1 Fit jumper **H2** on the CPU board (for the location see Fig. 15 on page 26).
- 2 Press and hold the CPU Reset button (for the location see Fig. 15). Once the Watchdog LED flashes, release the Reset button.
- 3 Wait for 15 seconds.
- 4 Remove **H2** and repeat step 2.

If the fault occurs again, replace the CPU800.

Italy

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**Further information about FIRECLASS
can be found on the Internet at
www.fireclass.co.uk**

Company stamp