Simplex

4100ESi

Installation guide

LT0618

Issue 1.3

Contents

Cautions, warnings, and regulatory information

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The 4100ESi Fire Alarm System provides a configuration programming facility, which may be accessed via a programming computer using a “dongle”. Because this programming facility allows the user to define in detail the operation of the 4100ESi System being customised, changes may be made by the user that prevent this installation from meeting statutory requirements.

The Company, therefore cannot accept any responsibility as to the suitability of the functions generated by the user using this programming facility.

READ AND SAVE THESE INSTRUCTIONS

Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depends upon proper installation.

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Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify your Simplex product supplier.

SAFETY HAZARD

The 4100ESi CPU Card includes a lithium battery. There is a very low danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ELECTRICAL HAZARD

Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of your local Simplex product supplier.

STATIC HAZARD

Static electricity can damage components. Therefore, handle as follows:

- Earth yourself with a suitable static strap or similar before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.

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Under certain fibre optic application conditions, the optical output of this device may exceed eye safety limits. Do not use magnification (such as a microscope or other focusing equipment) when viewing the output of this device.

RADIO FREQUENCY ENERGY

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits defined in AS/NZS CISPR22:2010. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

SULFURIC ACID WARNING

The batteries contain sulfuric acid, which can cause severe burns to the skin and eyes and can destroy fabric. Replace any leaking or damaged battery while wearing appropriate protective gear. If you come in contact with sulfuric acid, immediately flush skin or eyes with water for 15 minutes and seek immediate medical attention.

SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES

To ensure proper system operation, this product must be tested in accordance with AS 1670.1 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions, known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, should also be tested and proper system operation verified.

SOFTWARE VERSION COMPATIBILITY

Verify 4100ESi System Programmer, Executive, and Slave Software compatibility when installing or replacing system components. Refer to the *Solutions Bulletin SB11002* for more information.

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Simplex fire alarm technology is protected by the following U.S. Patent Numbers:

TrueAlarm analog smoke detection: 5,155,468; 5,173,683 and 5,543,777. IDNet and MAPNET II addressable communications; 4,796,025. TrueAlert addressable notification; 6,313,744 and 6,426,697. SmartSync horn/strobe control; 6,281,789.

Other references

More information about the setup, operation, and maintenance of the 4100ESi Fire Alarm panel can be found in the following documents:

- LT0619 4100ESi Programming Manual – for configuring the system software and site specific data files.
- LT0617 4100ESi Operator Manual – for basic operation of the panel using the touchscreen interface.
- LT0432 4100ESi Australian Wiring Diagrams – for connection of field equipment to the panel and interconnection of panels for networking.
- LT0620 4100ESi Service and Upgrade Manual – for service and maintenance operations, and details on how to upgrade earlier versions of the 4100 series of panels to 4100ESi.

Individual system components such as slave cards, field devices, and detectors are supplied with installation information specific to the component. Some of that information is repeated in this installation manual.

- LT0614 4100ESi Brigade Interface Bracket Installation Instructions – describes fitting the ME0512 Centaur and ME0513 WA/ASE brackets.
- LT0615 Simplex Media Card Installation Instructions – describes fitting and wiring the NIC media cards.
- LT0622 Dual Loop Card Bracket Installation Instructions – describes fitting the ME0516 Dual Loop Card bracket.
- LT0624 NT Brigade Door Installation Instructions – describes fitting and wiring the FP1093 NT 6U Door.
- LT0627 4100ESi 8U and 15U Expansion Cabinet Installation Instructions – describes installing the 8U and 15U expansion cabinets.
- LT0629 4100ESi Remote Fire Brigade Panel Installation Instructions – describes installing and wiring the FP1048 Remote Fire Brigade Panel.
- LT0632 4100ESi 7U Display Door Installation Instructions – describes fitting the 7U display door in various cabinets.
- LT0633 4100ESi Fan Control Setback Bracket Installation Instructions – describes fitting the fan control module in large cabinets.
- LT0638 4100ESi MX Loop Card Installation Instructions
- 579-1236 4100-5013 8 Zone/Relay Install Instructions
- 579-1238 4100-630X Fibre Media Modules Install Instructions

Chapter 1. Introduction

Cabinets overview

The 4100ESi Fire Alarm panel is available in a range of cabinets that are compatible with the 19 in. rack mounting system. The cabinets are referred to using their respective vertical sizes expressed in the units of this rack mounting system (1U = 1.752 in. or 44.5 mm). See Table 1.

Table 1. 4100ESi cabinet sizes

Cabinet	Description	Link to installation details
15U compact cabinet 8U cabinet	· Common size of panel · Titania powder coat ripple finish · Optional window · Compatible color and knockout cable access location	Chapter 2, 4100ESi Compact Panel Chapter 3, 8U and 15U Expansion Cabinets
28U build-to-order cabinet 40U build-to-order cabinet	· Additional display space · Additional internal capacity · Cream wrinkle color	Chapter 5, Large cabinets - 28U or 40U

Hardware overview

The 4100 series of Fire Alarm panels has a modular internal construction. A 4100ESi system consists of one or more cabinets. Each cabinet contains between one and four bays. Each bay contains up to 8 modules. Each module provides a particular function including the following:

- Power supply
- Detector interfaces
- Output relays
- NAC

It is usually possible to fit modules and brackets in any location within a bay or on a gear plate in any cabinet. However, some module and bracket combinations have physical limitations. Some fitting options are recommended, some fitting options are possible with conditions, and some fittings options are impossible. This particularly applies to the 15U panel. These limitations are described in more detail in the relevant sections of this manual.

Each cabinet can contain one or more display doors. There are two types: a hinged 7U InfoAlarm+ touchscreen door, and a hinged 7U LED indicator door. Customisation of the 7U LED indicator door is possible, if required, by replacing some or all of the eight blank sections supplied in the basic panel with alternative function controls, indicators, or modules.

All mandatory controls and indicators must be on one cabinet, or in cabinets mounted adjacent to each other as described in this manual.

It is possible to fill gaps in the front of the cabinets with 3U or 4U blank panels.

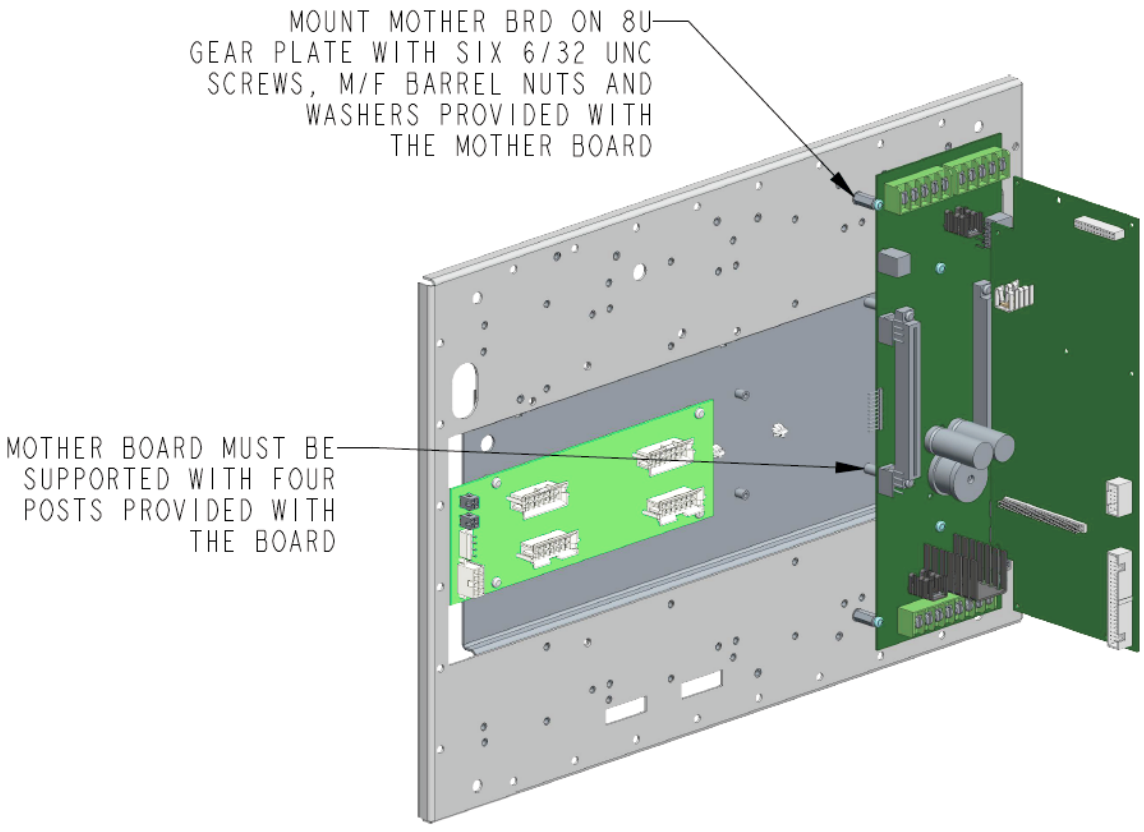
CPU and motherboard features

The core of the 4100ESi system is the CPU card, also known as the master card. This is connected by an internal communications bus to one or more slave cards. The slave cards provide specific functions controlling the overall system operation including the following:

- Power supply
- User interfaces
- Detector circuits
- Output relays
- Notification circuits

Every 4100ESi system has at least one CPU. The CPU card must connect to the CPU motherboard using the edge connector. In NDU systems there may be 2 CPU cards and 2 CPU motherboards, interconnected using Network cards. Refer to drawing 1976-318 sheet 4 in LT0432. Do not connect both motherboards to the PDI backplane or join their 4100 Comms wiring.

Figure 1. Mounting the CPU card and motherboard



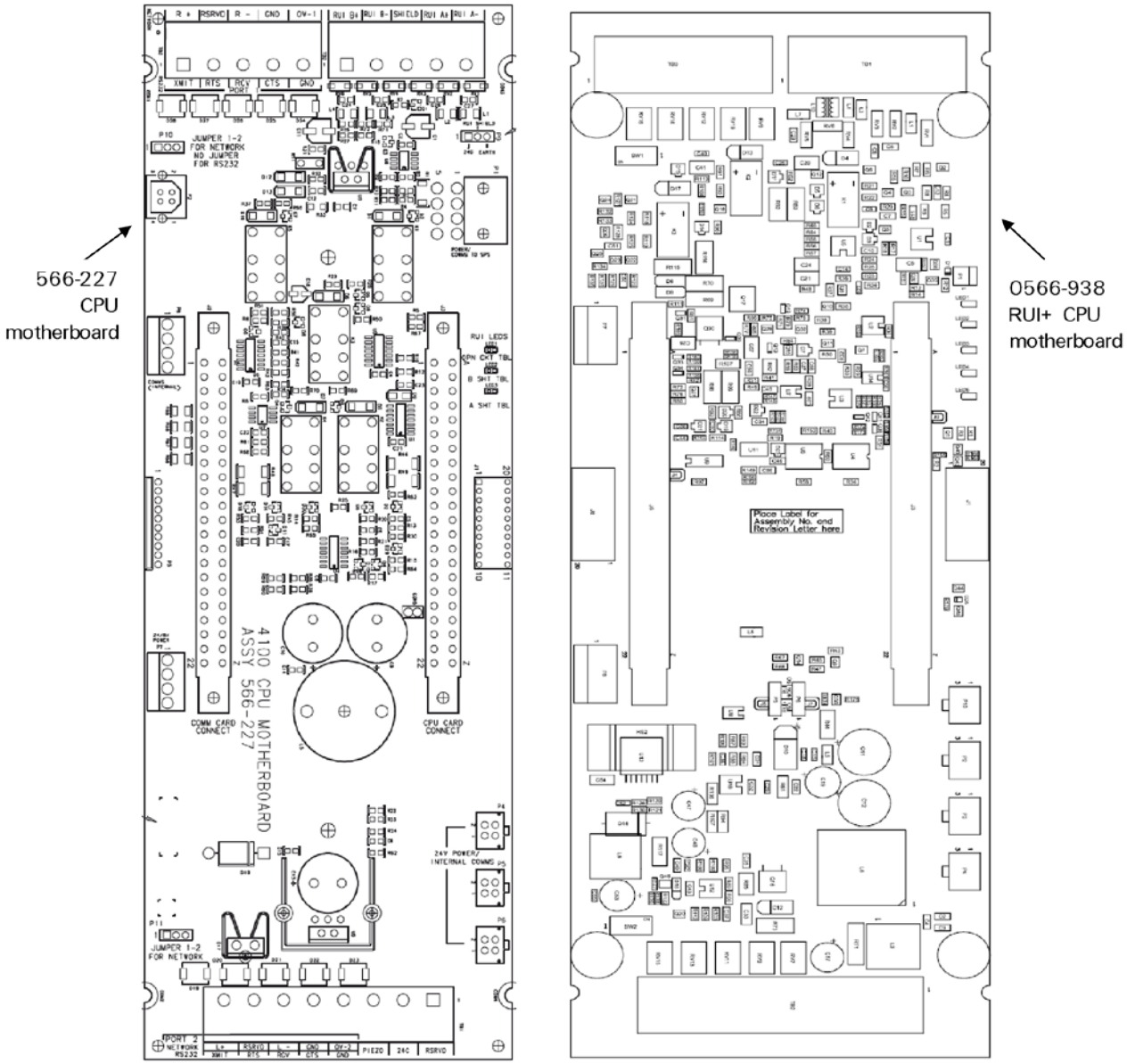
Two versions of CPU motherboard are used in the 4100ESi:

- 566-227 - 4100 CPU motherboard (no longer in production)
- 0566-938 - RUI+ CPU motherboard

Both CPU motherboards provide the same field wiring connections, but a different number of internal four-way 4100 Comms connectors to wire to the PDI backplane or other modules.

- The 566-227 CPU motherboard has three 4100 Comms connectors – P4, P5 and P6.
- The 566-938 RUI+ CPU motherboard has four 4100 Comms connectors – P2, P3, P4 and P10.

Figure 2. 566-227 CPU motherboard and 0566-938 RUI+ CPU motherboard

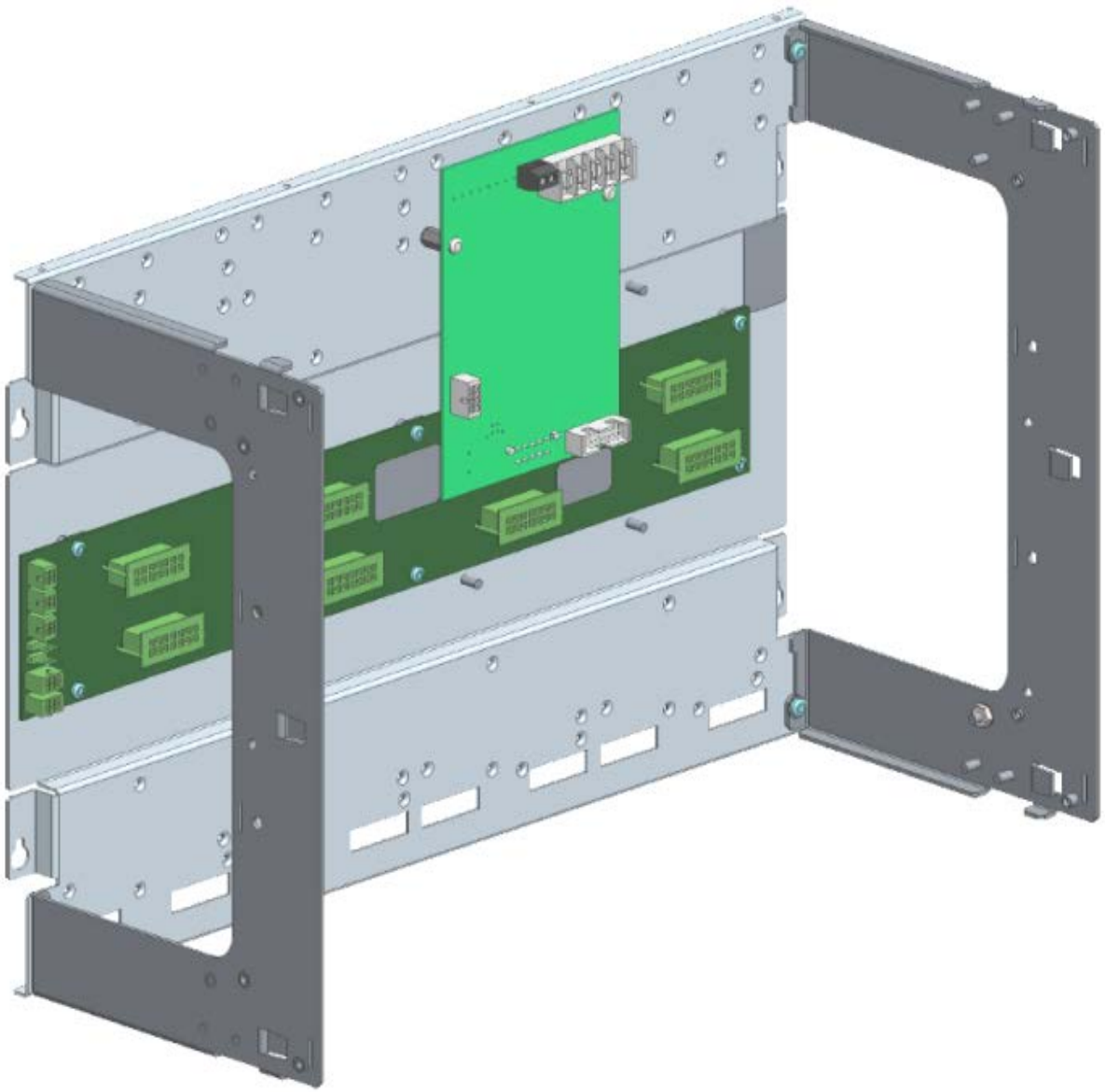


For more information about terminals, links, and indicators on the CPU card and motherboard, see Network card settings.

PDI backplane features

The Power Distribution Interface (PDI) is a backplane running across the width of each bay. The PDI supports the slave cards that use the PDI format. These cards mount flat and connect to the sockets on the PDI backplane for power and communications. PDI slave cards are available in various sizes, based on a minimum size of 4 in. x 5 in.

Figure 3. PDI card mounted on backplane in a bay



The bay back planes are linked together with compatible four-way looms distributing power and communications.

The four-way looms are available in the following lengths:

- 0.6 m, part number 734-008
- 1.3 m, part number LM0592
- 2.4 m, part number 734-075

Legacy card and features

There are four other legacy cards formally listed for use with new 4100ESi systems, as well as a larger number of older legacy cards which are compatible with 4100ESi but are not formally listed for new installations.

Each legacy card has a matching motherboard that is mounted in the same way as the CPU motherboard shown in Figure 1. The motherboards have matching connectors that distribute power and communications signals.

Depending on the type of cabinet, the legacy cards are mechanically secured by retaining bars fitted to the bay ends, to a display door, or to the cabinet.

> **Note:**
> When legacy cards are fitted to a PDI bay containing an APS (PSU), it is necessary to use a central retaining bar that avoids components on the APS.

System features

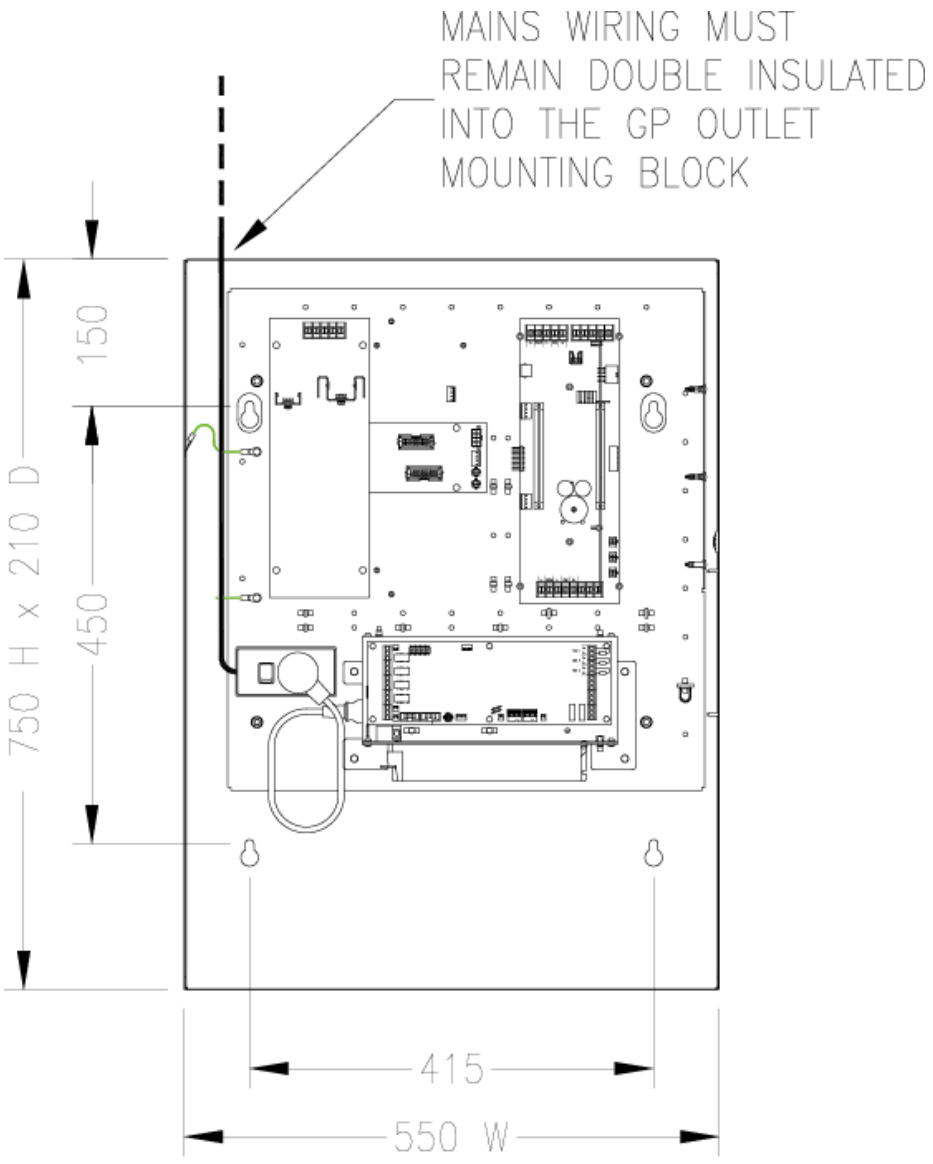
The 4100ESi is an AS7240.2 compliant fire alarm panel. In addition to providing mandatory functions, the 4100ESi also provides a number of optional AS 7240.2 functions, functions relating to other parts of AS 7240, specifically AS 7240.4, and functions that are additional to those required by AS 7240.2. These functions are listed in Appendix H, 4100ESi functions.

Chapter 2. 4100ESi Compact Panel

Mounting the cabinet

Mount the 15U cabinet vertically on four M8 studs or screws. Space the screws or studs 415 mm horizontally and 450 mm vertically.

Figure 4. 15U compact cabinet mounting and mains wiring



AS1670.1 requires a clear space of 1 m in front, and 0.5 m on each side of all cabinets that are to be used by emergency personnel. AS 1670.1 requires that the main touchscreen display (FBP), and all fan controls are between 750 mm and 1850 mm above the floor.

Mains wiring

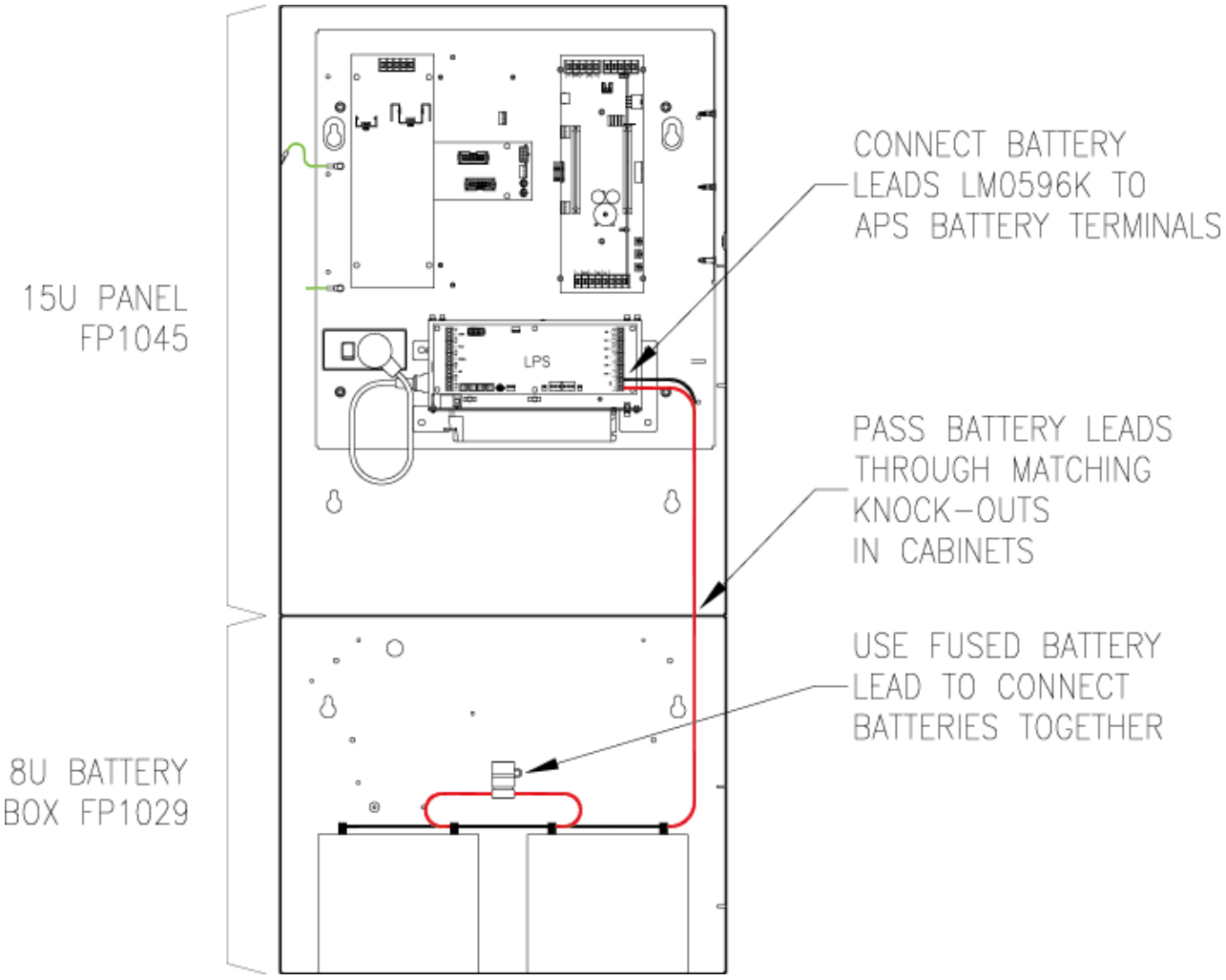
Ensure the 4100ESi is wired with a dedicated current limited mains supply, complying with the requirements outlined in AS/NZS 3000 Wiring Rules. The circuit to a 15U 4100ESi must use a 10 A circuit breaker. Install the incoming mains cable entering the cabinet top or bottom on the left side as shown in Figure 4. To meet the Australian electrical safety requirements, the outside sheath of the mains cable must continue into the body of the mains outlet mounting block.

Batteries

Up to 33 Ah batteries fit in the 4100ESi Compact panel, without restricting the option to fit additional displays or other hardware on the lower display door.

If a larger battery is required to meet standby requirements, mount an expansion cabinet, part code FP1029, below the 15U cabinet to house this battery. This expansion cabinet can hold a battery of up to 80 Ah. Figure 5 shows the battery installation for this situation.

Figure 5. Connection of batteries in the expansion cabinet



Adding a MX Loop card

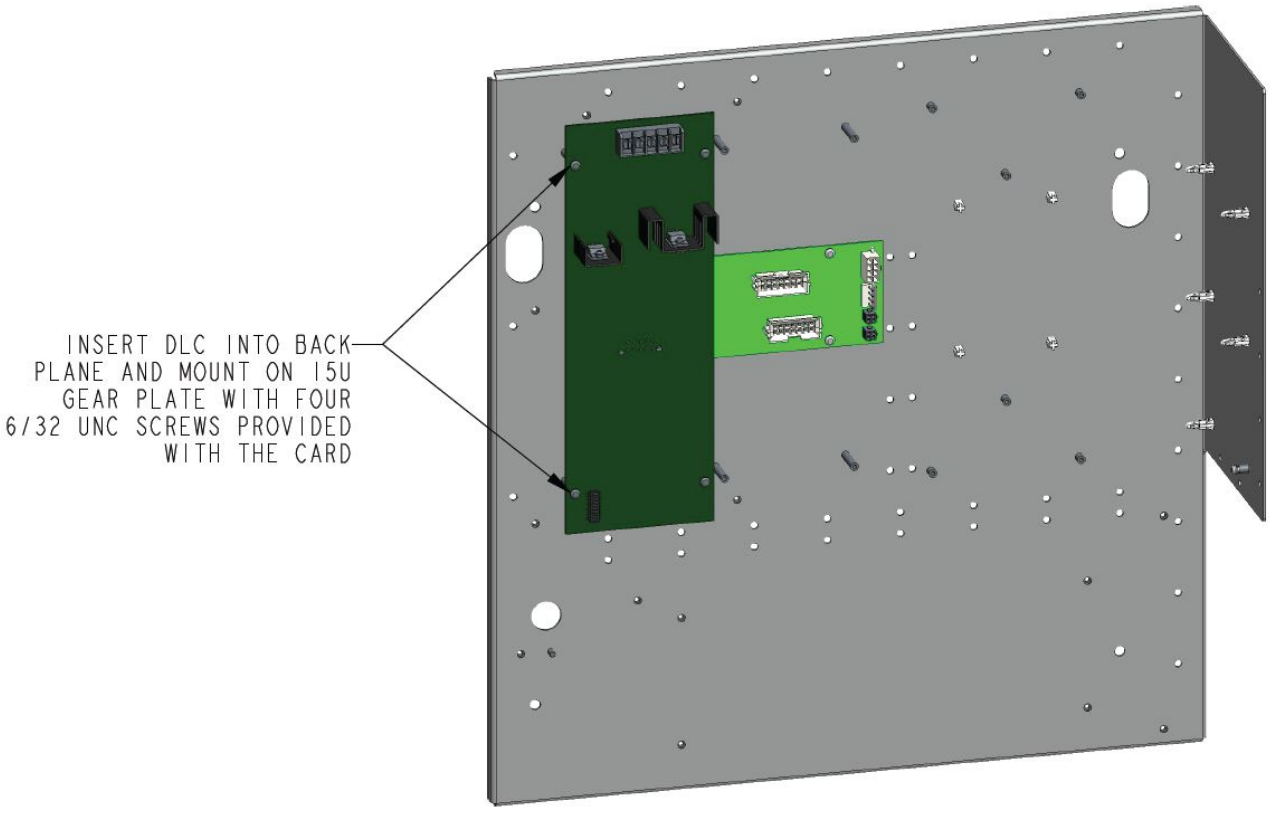
One MX loop card is supplied with the 4100ESi Compact panel as standard. This supports one loop of up to 250 MX addressable devices.

Use part number 4100-6077AU to purchase an additional loop card.

Flat mounting

The MX Digital Loop Card (DLC) mounts on the PDI backplane of the 4100ESi Compact Panel, and is fastened to the support pillars with the screws supplied in the MX DLC kit. Mount the MX DLC in the unused PDI position and match the orientation with the existing MX Loop card. See Figure 6.

Figure 6. MX Loop Card mounted on PDI backplane in the 15U cabinet



Bracket mounting

To fit up to four 4100-6077AU MX loop cards in the 4100ESi Compact panel mount a pair of cards on an ME0516 Dual PDI bracket, see Chapter 4.

The ME0516 Dual PDI bracket can be used for a range of PDI cards. For more information about compatible PDI cards, see Chapter 4.

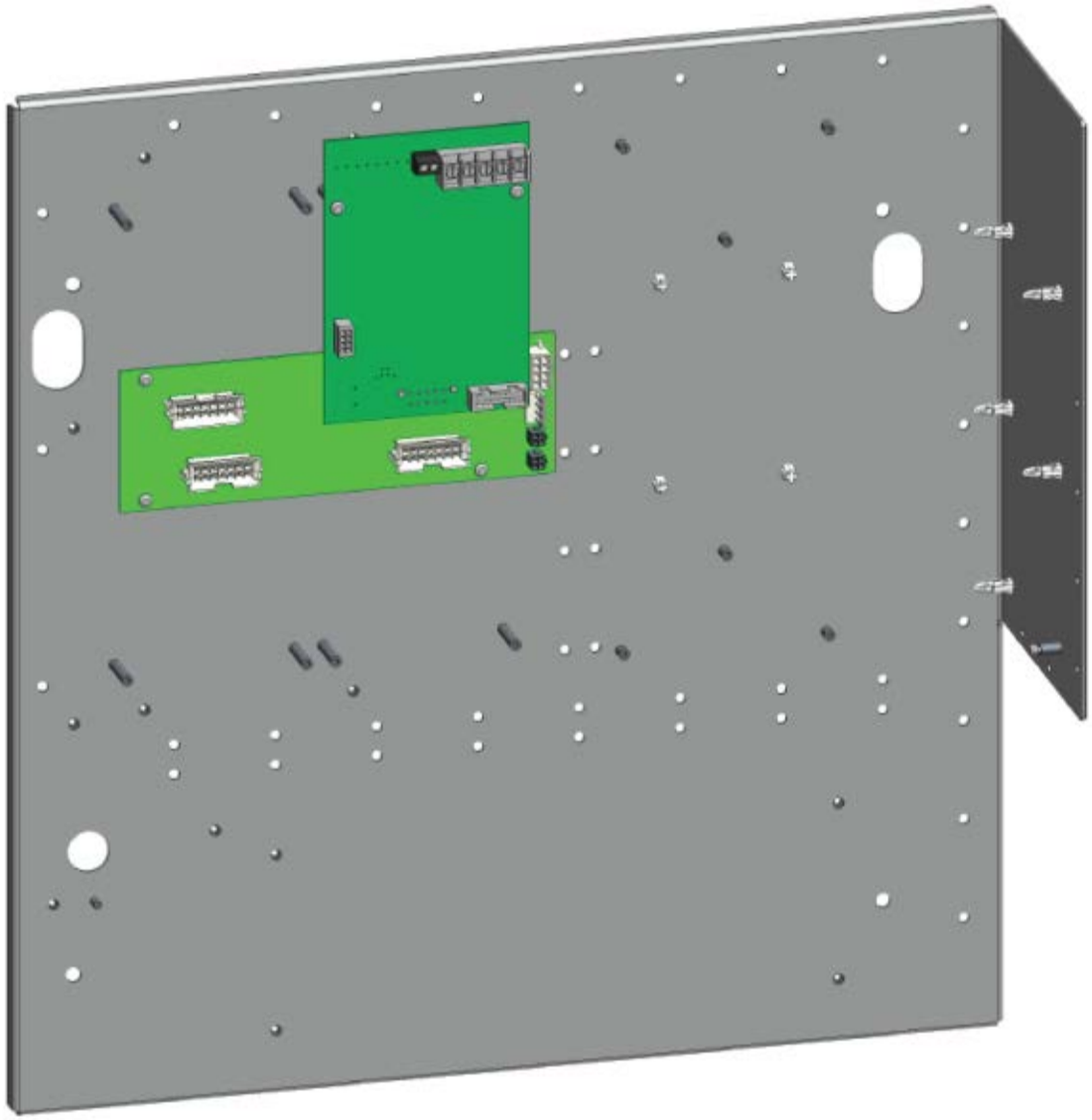
Adding other PDI cards

Other PDI slave cards can fit on the unused PDI backplane positions in the 15U cabinet if required. There is space for two additional standard PDI cards; one up and one down, or a single dual height PDI card such as the 4100-6077AU MX Loop Card. Each card plugs into a socket on the backplane, and is secured with the screws supplied with the card. See Figure 7.

Note:
Legacy style cards cannot be fitted in the 15U cabinet, except for a CPU and NIC in the single motherboard mounting position, see CPU and motherboard features on page 13.

For information about wiring the cards refer to the appropriate wiring diagrams in *LT0432 4100ESi Field Wiring Diagrams*. See Chapter 7 if fitting a 4100-5013 8 Zone/Relay Card.

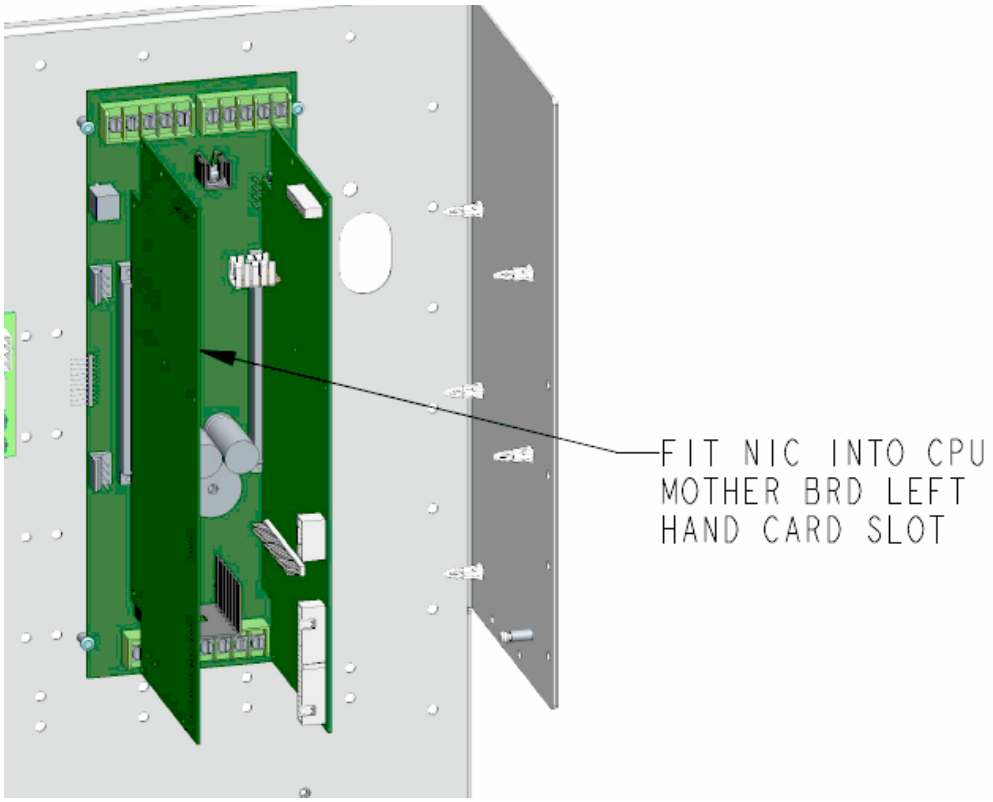
Figure 7. PDI card mounted on backplane in the 15U cabinet



Adding a Network Interface Card

A Network Interface Card (NIC) is required to add the 4100ESi Compact panel to a networked fire alarm system. Install the NIC card in the unused, left hand edge connector position on the CPU motherboard.

Figure 8. 4100-6078 NIC in the 15U cabinet



For more information about installing the media modules and wiring the network cables, see Chapter 6, Network card installation.

Adding a T-GEN 60

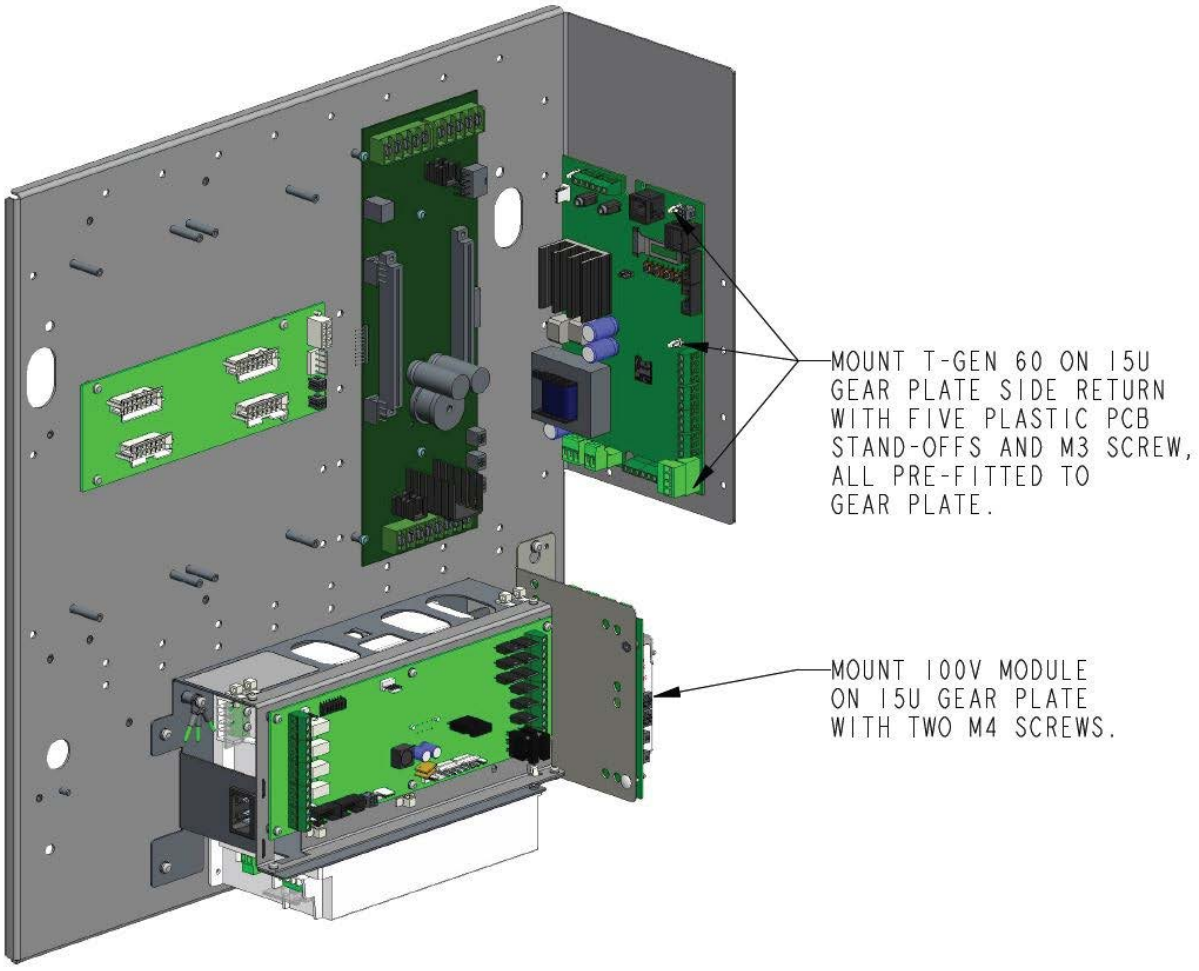
Mounting

The gear plate in the 4100ESi compact panel has a position beside the CPU card for mounting one FP1115 T-GEN 60 and a position in the bottom right hand corner beside the LPS for mounting one FP1117 100 V Switching Module or FP1118 100 V Splitter Module.

The T-GEN 60 is mounted on the side flange beside the CPU card. The 100 V Switching/Splitter Module is mounted beside the LPS.

If the 4100ESi requires more than a single T-Gen2 or a T-Gen2 User Interface consider the use of a larger cabinet 4100 system or a separate BOWS (FP1134/FP1144) or Grade 2 EWS (FP1129).

Figure 9. Mounting of T-GEN 60 and 100 V module on the gear plate



To add a PA/Speech microphone, you can fit either the 4100-ME0512K (WA/Cube) or the 4100-ME0513K (Centaur II) brigade kit to the 7U display door. Both of these include a position to fit an ME0490 microphone (not included), that has a 1m cable that can run to the T-GEN 60 mounted in the cabinet.

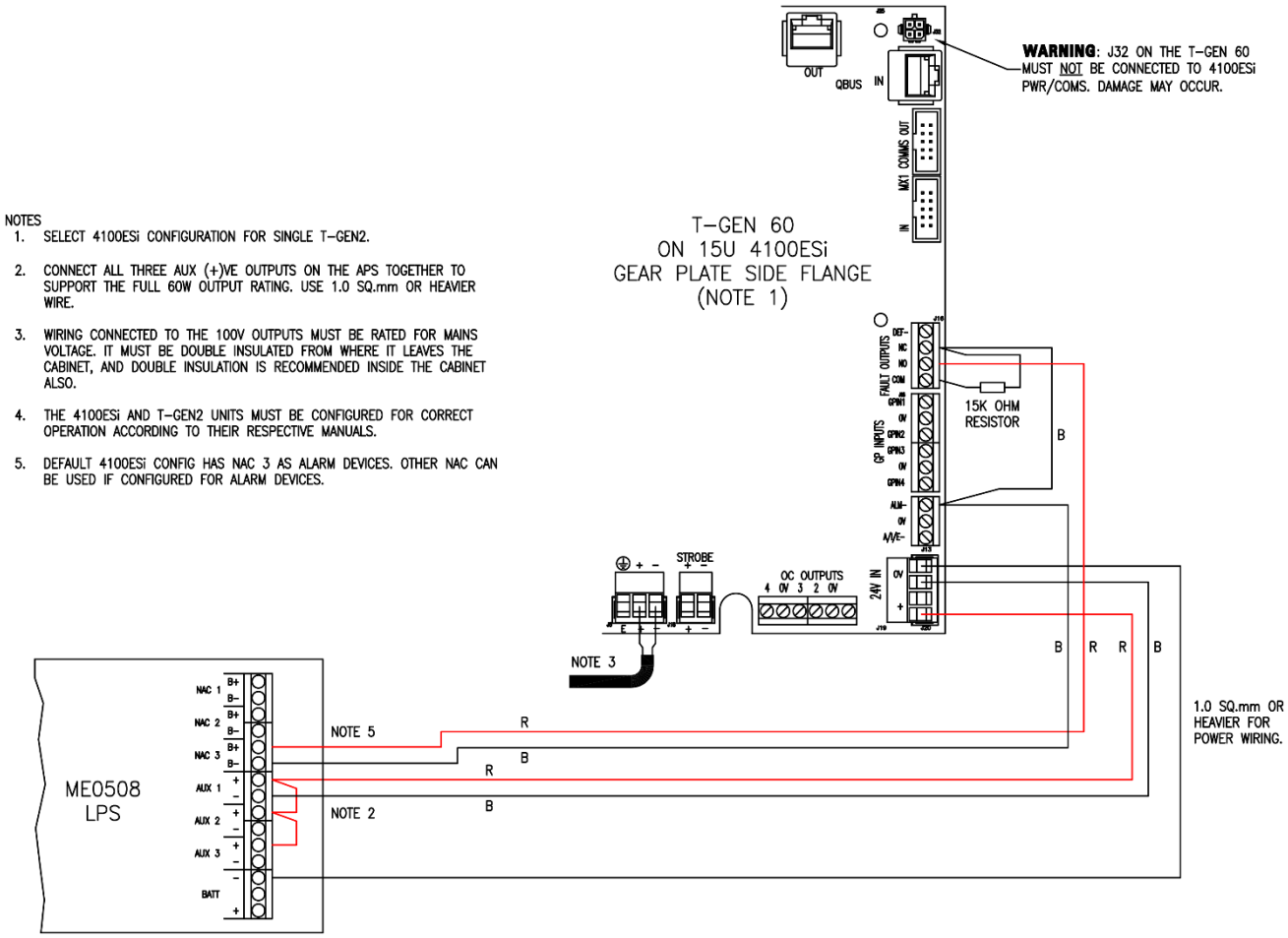
Figure 10. 4100-ME0513K Brigade Kit with ME0490 Microphone

Wiring

The T-GEN 60 must be powered from the LPS VAUX+ outputs. All three VAUX+ outputs must be paralleled up to provide the peak current needed by the T-GEN 60 at full load. If the T-GEN 60 load (including strobes) is less than 20 W, one VAUX output is sufficient, if it is between 20 W and 40 W (including strobes) two VAUX outputs in parallel are sufficient. No special programming of the VAUX outputs is required.

The Alarm Devices NAC output (normally NAC 3) is wired to the T-GEN 60 as shown here.

Figure 11. Wiring diagram for T-GEN 60 in 15U Panel



Wiring for the FP1117 100 V Switching Module is covered in its supplied Installation Instructions (LT0668).

Wiring for the FP1118 100 V Splitter Module is covered in its supplied Installation Instructions (LT0671).

Configuration

The T-GEN 60 must be configured with the 4100ESi configuration using the T-Gen2 OLED and buttons. Refer to the *T-GEN 60 Installation Instructions (LT0667)* for instructions to change the default configuration in the T-GEN 60. For non-standard configurations, use the SmartConfig Windows program (V2.8 onwards) to prepare and download the configuration to the T-Gen2. You can download SmartConfig Lite (SF0323) and its User Manual LT0345 from www.vigilant-fire.com.au.

If preparing a specific configuration using SmartConfig, use the 4100ESi default template as the starting point.

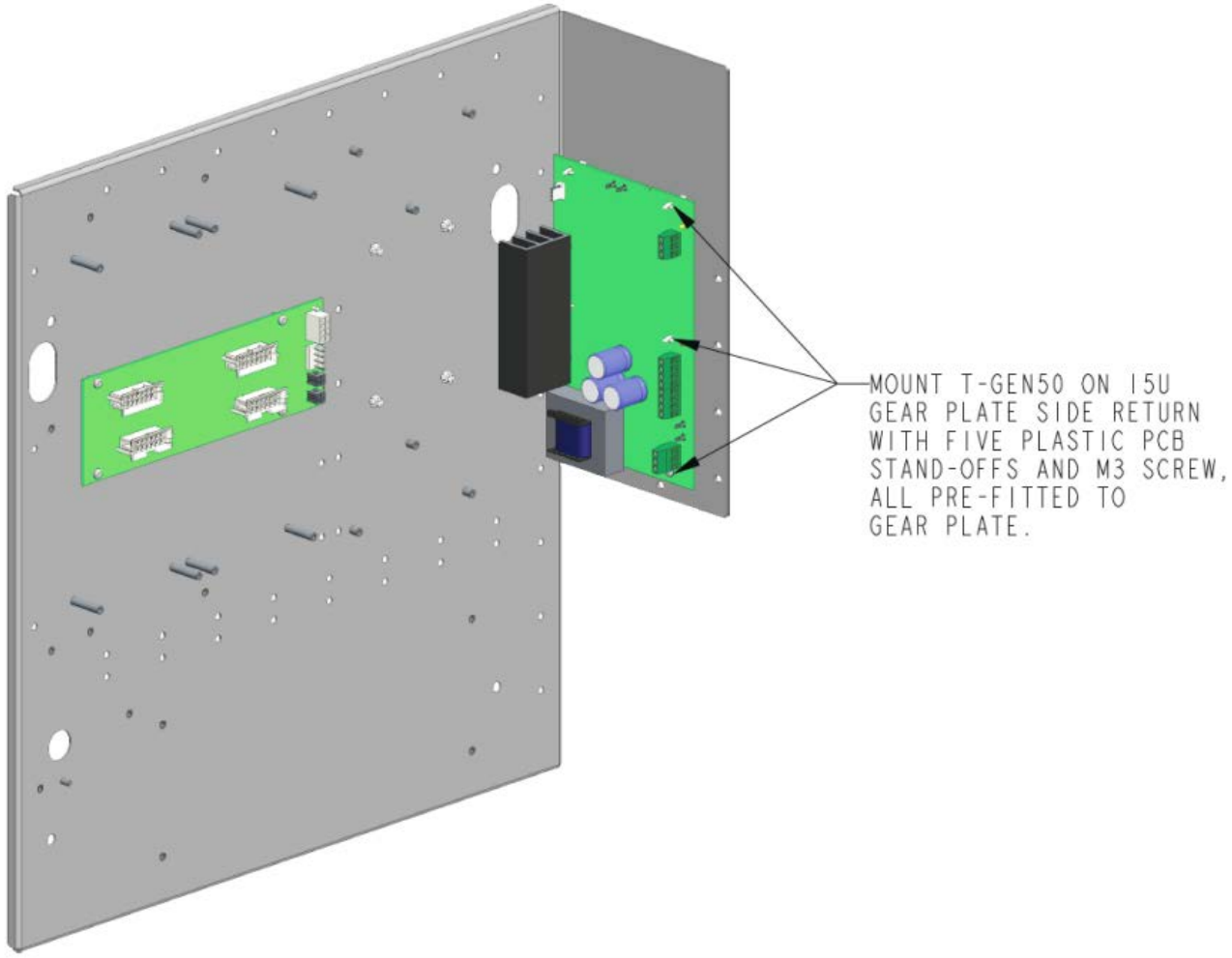
If more power output is required, an additional cabinet and PSU are required to house extra T-Gen2 units, PSUs and batteries. See Adding a T-GEN 60 in an expansion cabinet.

Adding a T-GEN 50

Mounting

The gear plate in the 4100ESi Compact panel has a position beside the CPU card for mounting a PA0766 T-GEN 50 tone generator. Mount the T-GEN 50 as shown in Figure 12, using the M3 screw supplied to earth the module to the metal standoff in the gear plate.

Figure 12. T-GEN 50 installation on a 15U cabinet



Wiring

The T-GEN 50 must be continuously powered from 24 VDC at all times to supervise the 100 V speaker line.

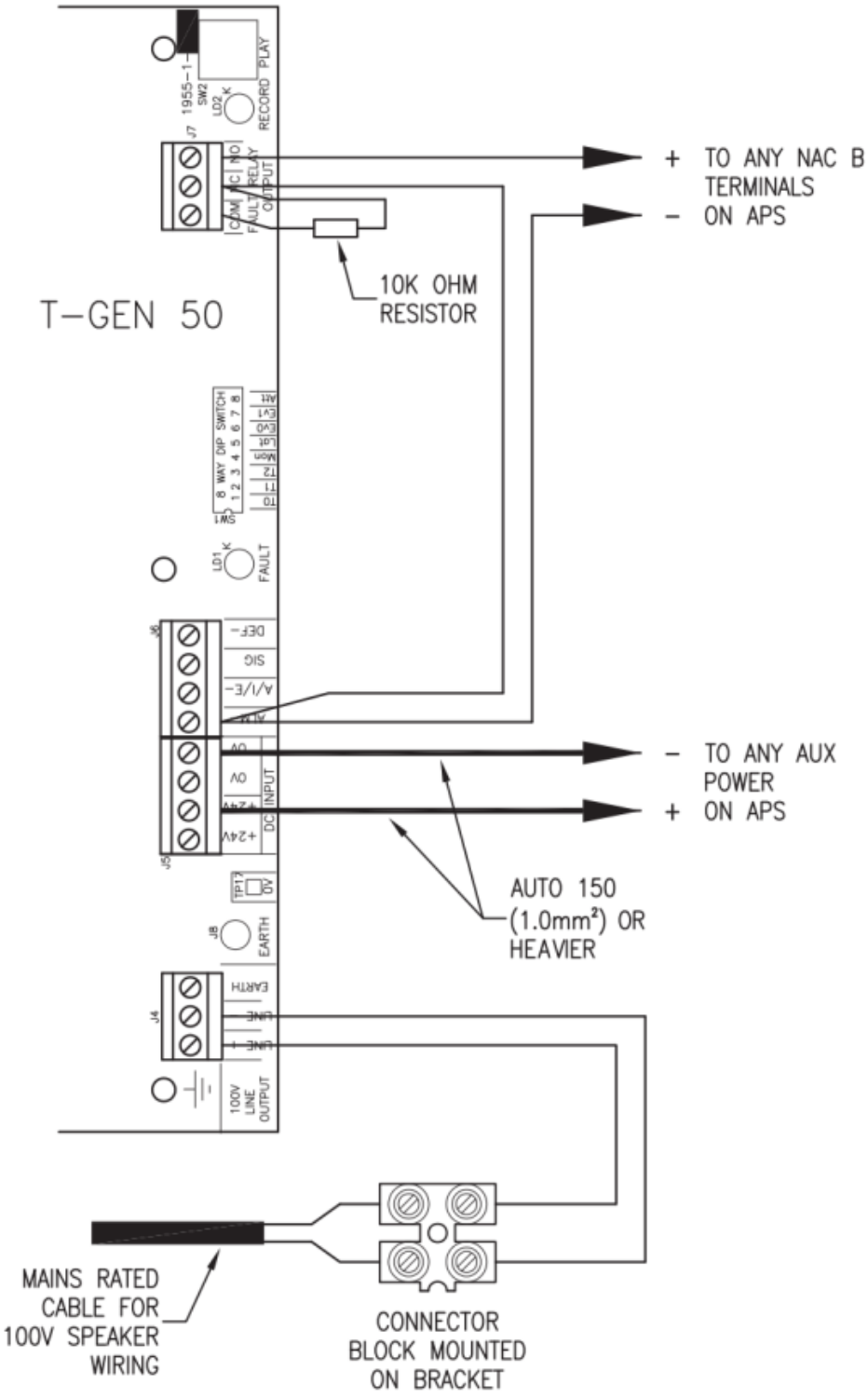
Power the T-GEN 50 from one of the AUX POWER terminals on the power supply. Each output is rated for at least 2 A, which is sufficient to drive one fully loaded T-GEN 50, but with no reserve to power any other equipment from that output.

24 VDC power supply for other ancillary devices must be supplied from one of the other AUX POWER terminals on the power supply.

The T-GEN 50 is controlled from the NAC3 terminals of the power supply. These terminals are configured to operate as an Alarm Devices output and are silenced from the Alarm screen of the touchscreen interface. Wiring a single T-GEN 50 to a NAC output is shown in Figure 13.

Note:
Wire the T-GEN 50 to the NAC3 output, unless another NAC output is programmed for Alarm Devices operation.

Figure 13. T-GEN 50 wiring to the NAC



Configuration

The default programming of the 4100ESi for NAC3 and the AUX POWER outputs is compatible with the T-GEN 50. The T-GEN 50 requires some configuration for correct operation with 4100ESi.

These switch and link settings apply to T-GEN 50 software version 1.7.

Table 2. T-GEN 50 Settings for NAC Operation

Alert to evacuate change over time			
SW1 (TO)	SW2 (T1)	SW3 (T3)	Setting on T-GEN 50
OFF	OFF	OFF	0 s
ON	OFF	OFF	30 s
OFF	ON	OFF	1 min
ON	ON	OFF	1.5 min
OFF	OFF	ON	3 min
ON	OFF	ON	5 min
OFF	ON	ON	10 min
ON	ON	ON	Alert only

Table 3. T-GEN 50 Switch Settings for NAC Operation

Switch	Name	Setting on T-GEN 50
SW 4	ALM I/P Supervision	OFF (Supervision disabled)
SW 5	ALM I/P	OFF (Non-latching)
SW 6	Evac Tone	OFF
SW 7		OFF for AS 2220 tone ON for ISO 8210 + Keywords
SW 8	Evac Message	Off for Evac Message 1 or Field Recorded message ON for Evac Message 2 or Keywords only in ISO 8210

Table 4. T-GEN 50 Link Settings for NAC Operation

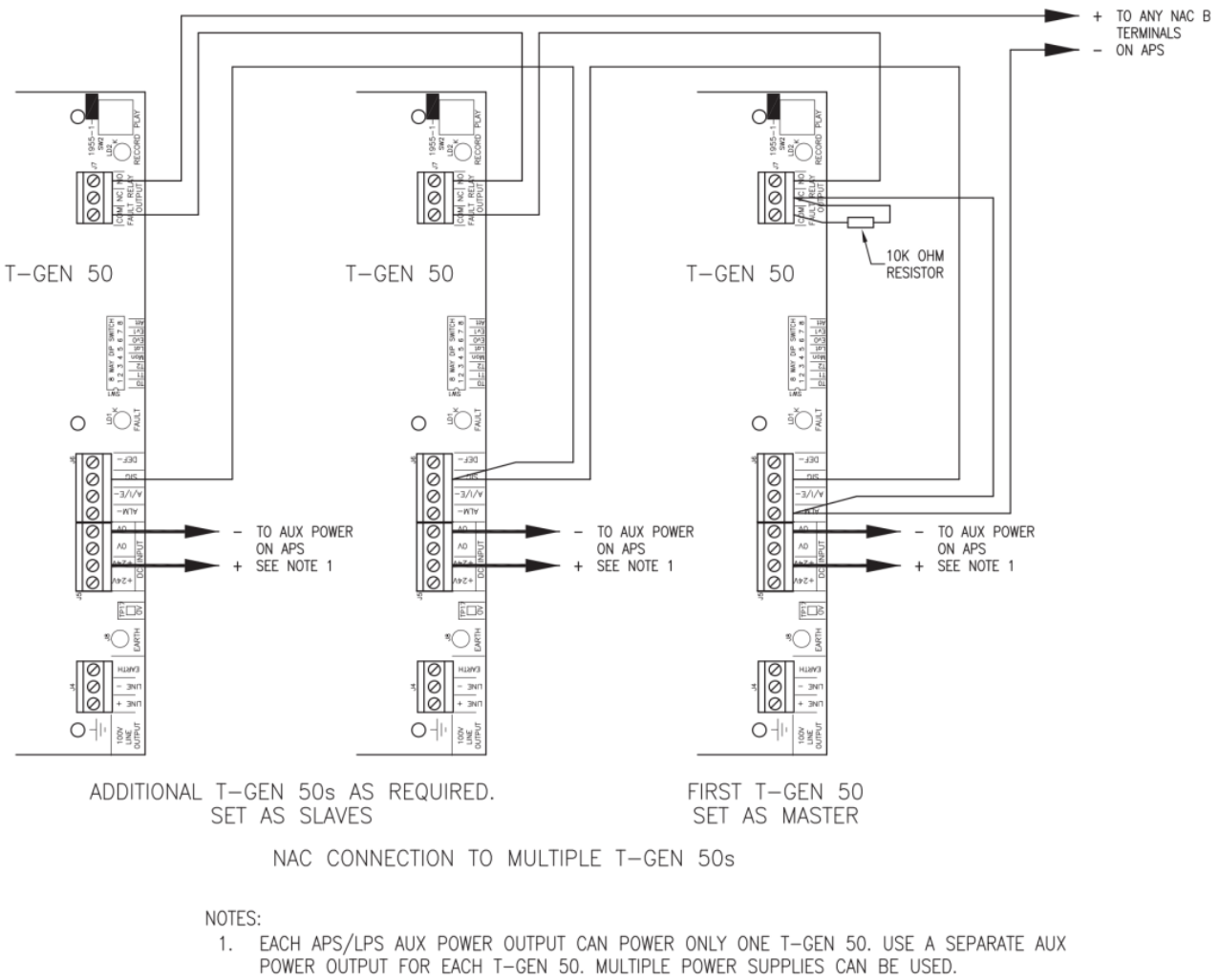
Link	Name	Setting on T-GEN 50
1	BIAS	Can be FITTED if a PA or background Music is not required
2	MASTER	FITTED
3	REC EN	Fit to record message
4	TEST	Fit for test tone during installation
5	SLAVE	NOT FITTED
6	SLAVE/MASTER	MASTER
7	FAULT= DEF-/RELAY	RELAY

More Power

If additional audio power is required, connect additional T-GEN 50 units to the 4100ESi power supply. The two other AUX POWER terminals on the power supply can be used to power additional T GEN 50 units, if the outputs are not being used to power other equipment. See Figure 14. These additional T-GEN 50 units cannot be fitted in the 15U 4100ESi cabinet; a separate expansion cabinet mounted adjacent to the 15U cabinet is required. For information about available expansion cabinets and installation details, see Mounting the cabinet in Chapter 3.

Configure additional T-GEN 50 units as slaves controlled by the first T-GEN 50 as master. See Figure 14.

Figure 14. Multiple T-GEN 50 wiring to the NAC



Adding fan controls or displays

General

The 4100ESi 15U Compact panel is supplied with one 7U display door, in addition to the touchscreen interface. The door is supplied fitted with eight blank plates which completely fill the opening in the display door.

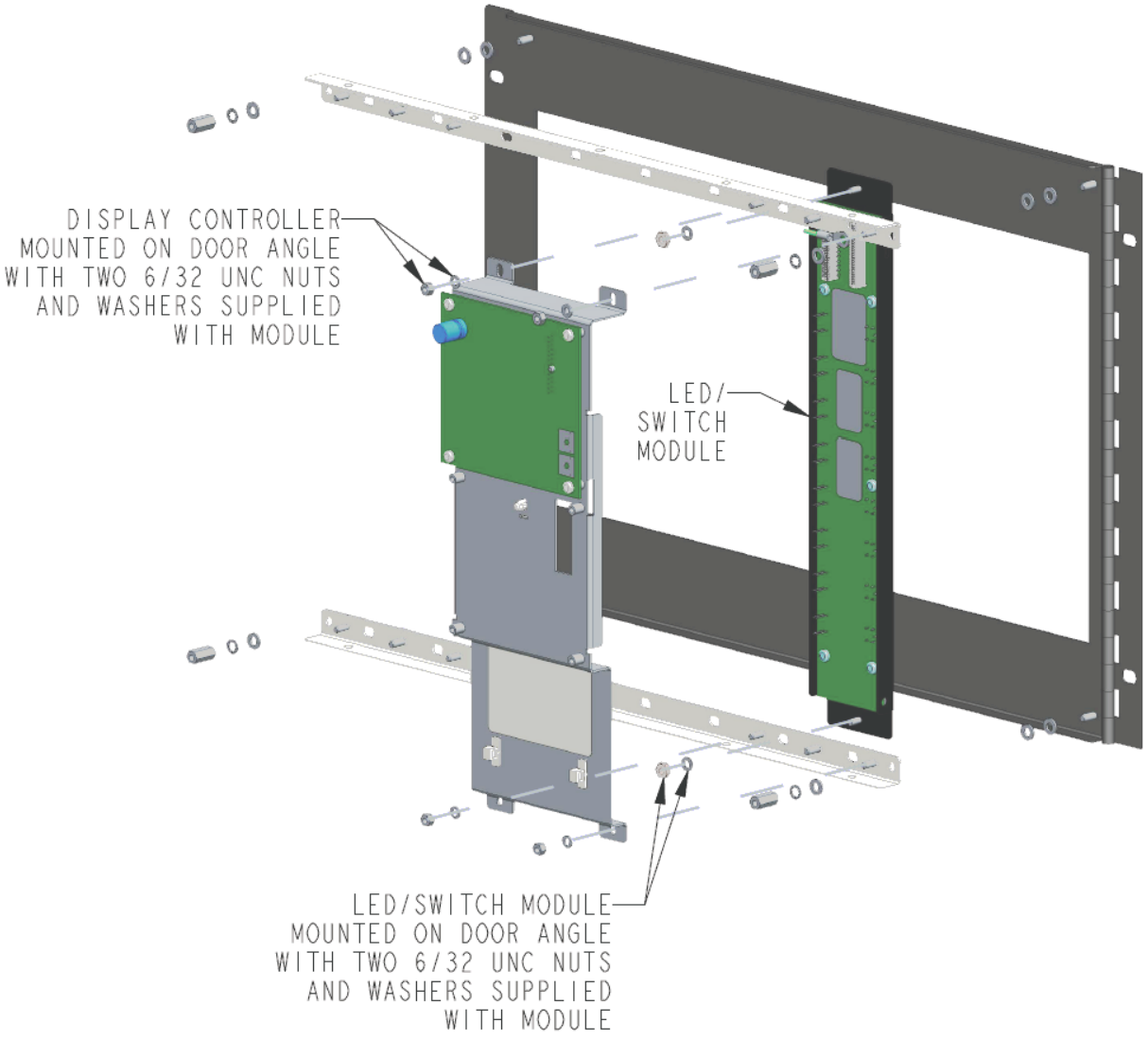
These blank plates can be replaced with alternative modules for various functions, such as:

- Switch/LED indicator modules for displaying the alarm and disable status for eight zones. These can also be used for other display or control functions.
- AS1668 fan controls for four fan systems.
- Mounting plates for the ASE brigade transmission equipment and PA microphone.

The Switch/LED indicator modules are configured using the ES Programmer. Each display module contains between 8 and 24 switches and LEDs that are configured individually. See Appendix F for a list of available display modules.

The Switch/LED indicator modules and the AS1668 fan control modules require a 4100-1288 64/64 LED/Switch Controller Card to be fitted. This card mounts behind the left-most two display modules, viewed from the panel front. See Figure 15.

Figure 15. LED/switch module and controller on a 7U door

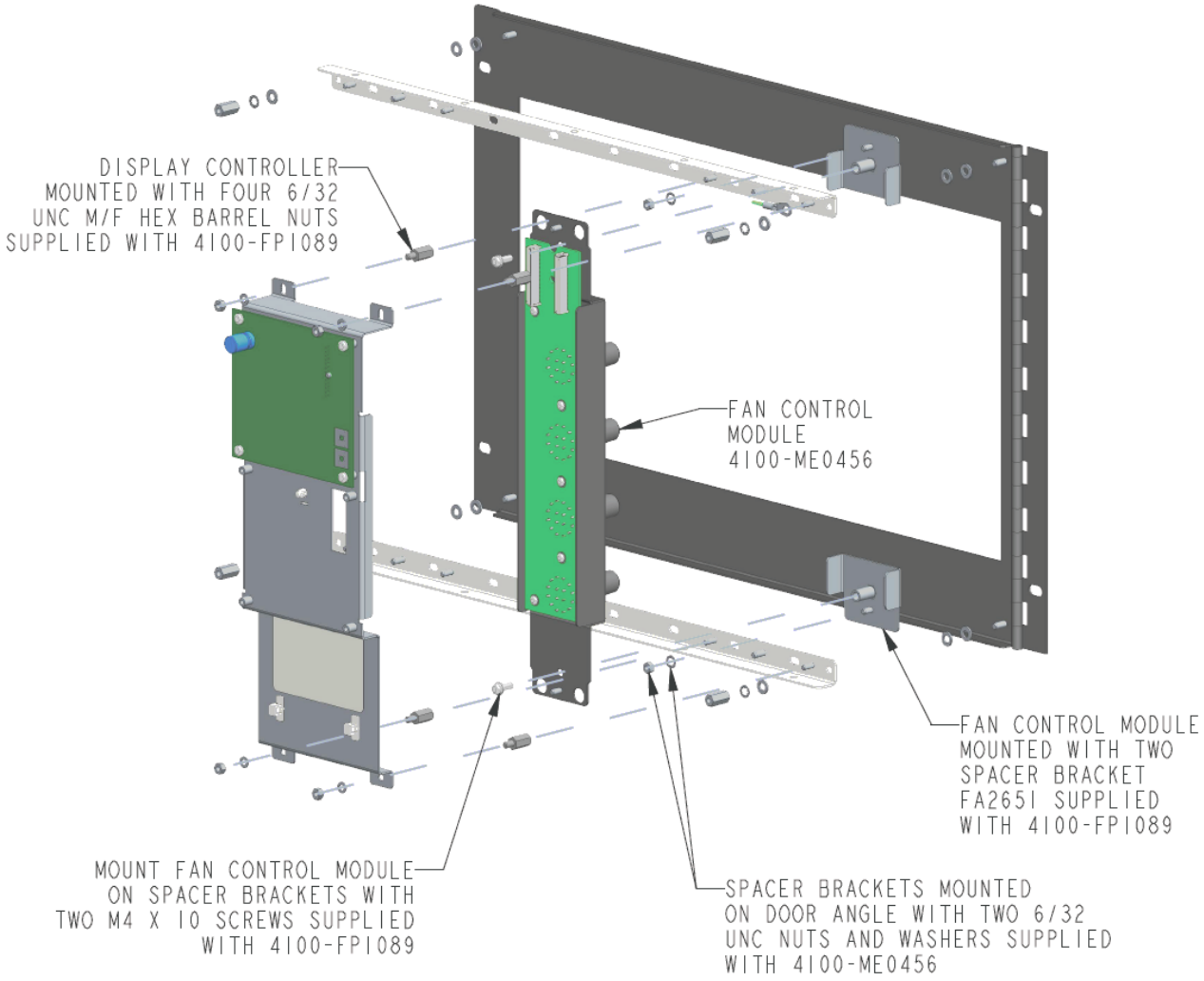


The rotary-switch based AS1668 fan control module (4100-ME0456) uses the same amount of space in the front panel as the LED/switch module shown in Figure 15. The only difference is that the fan control module must be set back when it is mounted in the 15U and 8U cabinets. This is to prevent the control knobs colliding with the shallower door on these cabinets.

To set back the 4100-ME0456 fan control module in the 15U and 8U cabinets, mount it on two spacer brackets, as shown in Figure 16. Similarly, mount the LED/switch controller bracket on barrel nuts to space it behind the fan control module. These brackets and nuts are supplied with the 4100-ME0456 module.

> **Note:**
> The 4100-1287AU module includes four AS1668 controls that use pushbuttons and LEDs. It is normally used when two panels on the same network need to indicate and control the same AS1668 fan systems. The module is two slots wide, but otherwise mounts on the 7U door the same way as the single-slot module in Figure 15.

Figure 16. ME0456 Fan control module and controller on a 7U door in a small cabinet



Complete the following steps to fit new modules to a 7U door:

1. Remove the two fastening screws and open the door.
2. Loosen the two M4 barrel nuts at the top and bottom near the door hinge, and remove the corresponding M4 barrel nuts at the free end of the door. The sub-frame consisting of the mounting rails at top and bottom, and the mounted blank plates or display modules can now swing free of the door.
3. Remove or replace the display modules.
4. Re-fasten the sub-frame to the 7U door securely, using the barrel nuts.
5. Fit the interconnection FRC between each module.
6. Close and fasten the 7U door.

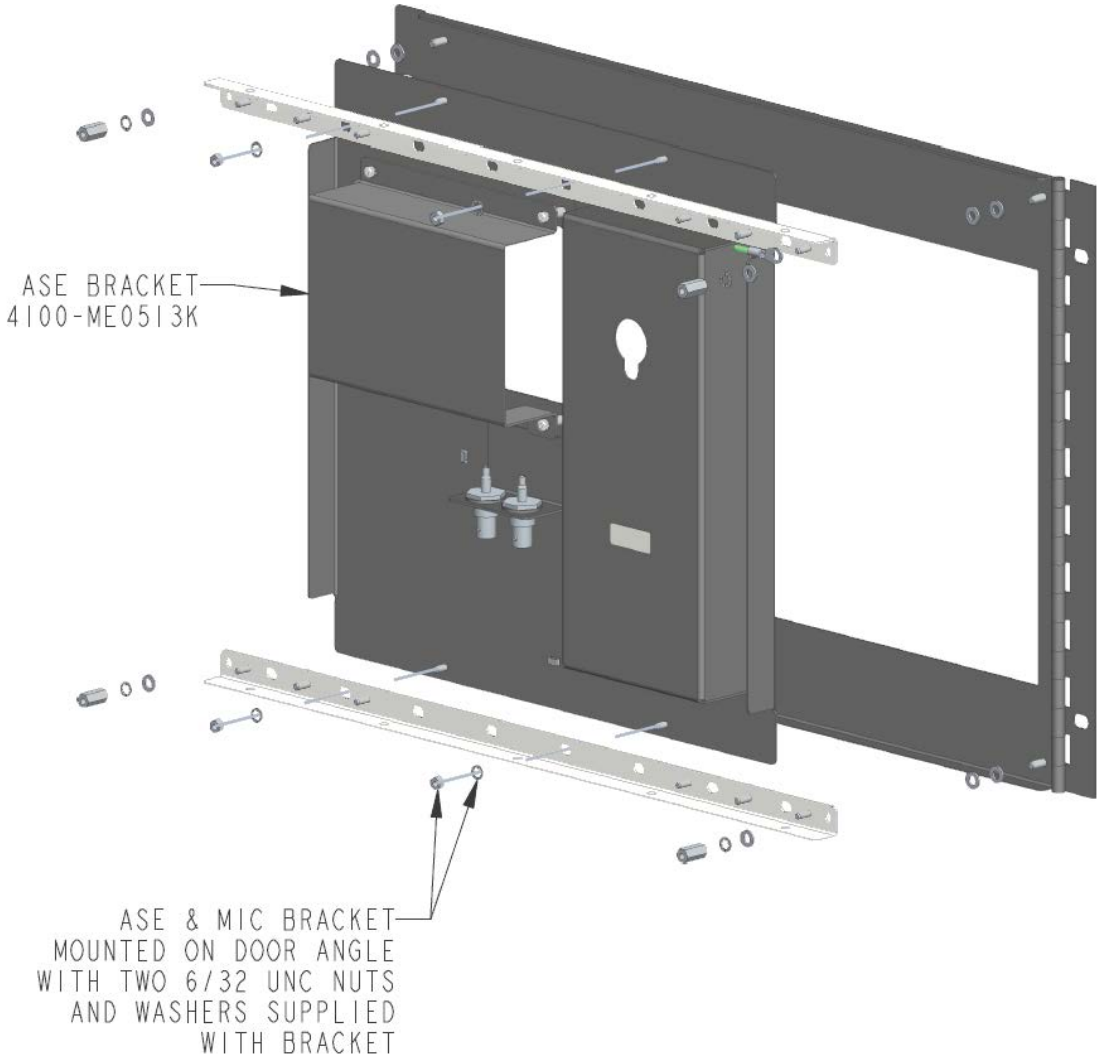
Adding an ASE brigade transmission unit

The mounting plate for the ASE and PA microphone mounts in a similar way to the individual display modules, and must be mounted in the six right-most positions when viewed from the front. This mounting plate does not require a 4100-1288 LED/Switch controller. Figure 17 shows mounting the bracket to the 7U display door. For information about installing the ASE units, refer to LT0614.

Figure 17 shows the 4100-ME0513K mounting plate for Centaur ASEs. The same mounting arrangements apply to the 4100-ME0512K for Cube ASEs or the third party WA ASE.

The 15U and 8U cabinets must use a 4100-ME0513K mounting plate described in the following section. The 28U and 40U cabinets can also use either the FP0935 4U Centaur ASE door, the FP0937 4U Cube ASE door, or the FP1093 NTFast 6U door.

Figure 17. ASE mounting plate on a 7U door



NTFast brigade transmission unit

The NTFast brigade transmission unit cannot be readily mounted in a 15U cabinet due to a clash between the items on the door and the equipment mounted behind this in the cabinet.

To resolve this clash, either use a larger cabinet or fit the NTFast door to an expansion cabinet, for example a 4100-FP1046 8U cabinet.

Chapter 3. 8U and 15U Expansion Cabinets

The following 8U/15U expansion cabinets are available for expanding systems using the 15U compact panel. See Table 5.

Table 5. 8U/15U expansion cabinet types

Sample Text	Door type	Description
8U battery box (FP1029)	Blank door	• Suitable for batteries up to 40 Ah (2 x 12 V). • Suitable for batteries up to 80 Ah (2 x 12 V) if the batteries are stacked.
8U cabinet (FP1046)	Windowed door	• Suitable for fan controls or other displays. • Suitable for PDI cards only, not suitable for legacy cards.
8U cabinet (FP1086)	Blank door	• Suitable for PDI and legacy cards.
15U cabinet (FP1088)	Windowed door	• Suitable for fan controls or other displays. • Suitable for PDI cards only, not suitable for legacy cards.
15U cabinet (FP1087)	Blank door	• Suitable for PDI cards. The only legacy cards usable in the 15U cabinet are the CPU and NIC cards. • Includes a LPS 10 A power supply.

Note:
Only PDI cards fit in the 15U cabinet, legacy cards do not fit. 8U cabinets fit a combination of legacy cards and PDI cards, but legacy cards do not fit behind fan controls or other displays in the windowed 8U cabinet.

Mounting the cabinet

Mount expansion cabinets for the 15U compact panel adjacent to the main cabinet. See Figure 18 and Figure 19 for mounting arrangements.

The recommended cabinet wall fixing is M8 screws or studs.

When mounting cabinets side by side, a minimum gap of 25 mm is required to ensure the right hand cabinet door opens fully.

Remove the knockouts in matching positions on the cabinets. Protect the cables with plastic bushes or cable glands.

Figure 18. Mounting expansion cabinets; internal cabinet view

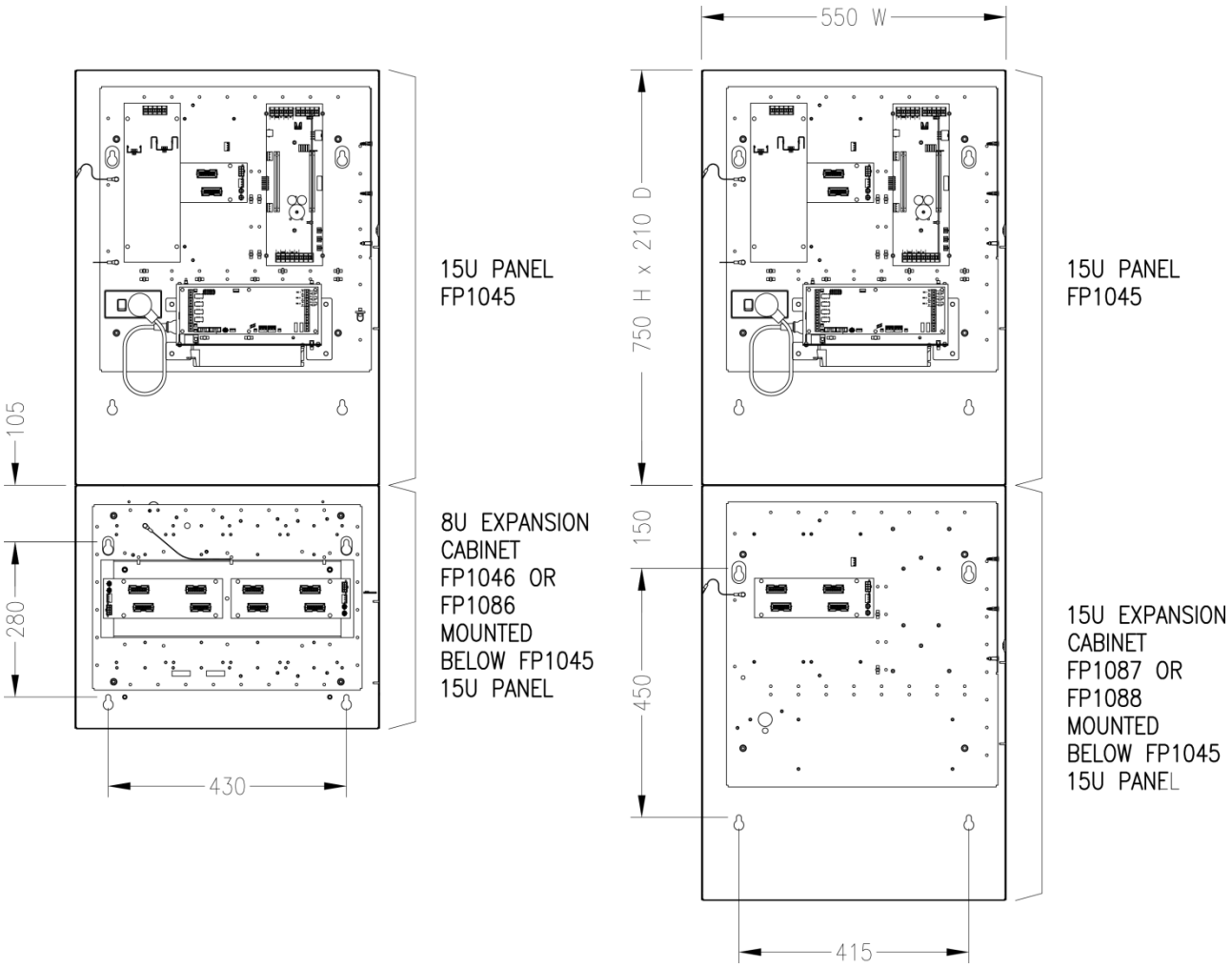
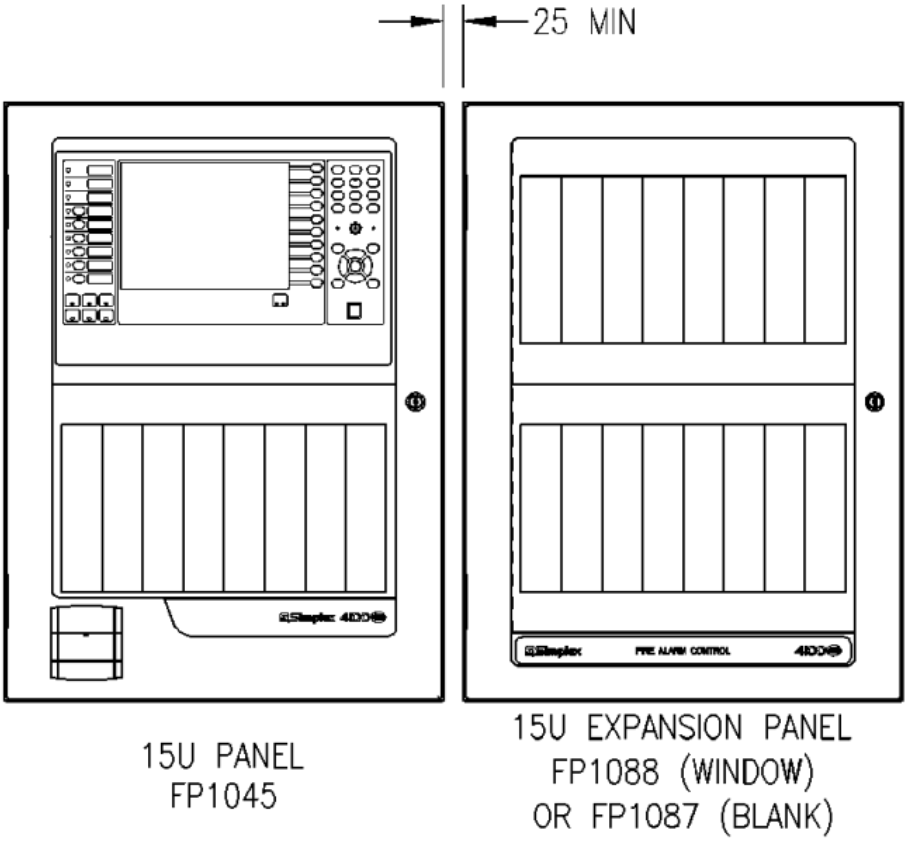


Figure 19. Mounting cabinets side by side



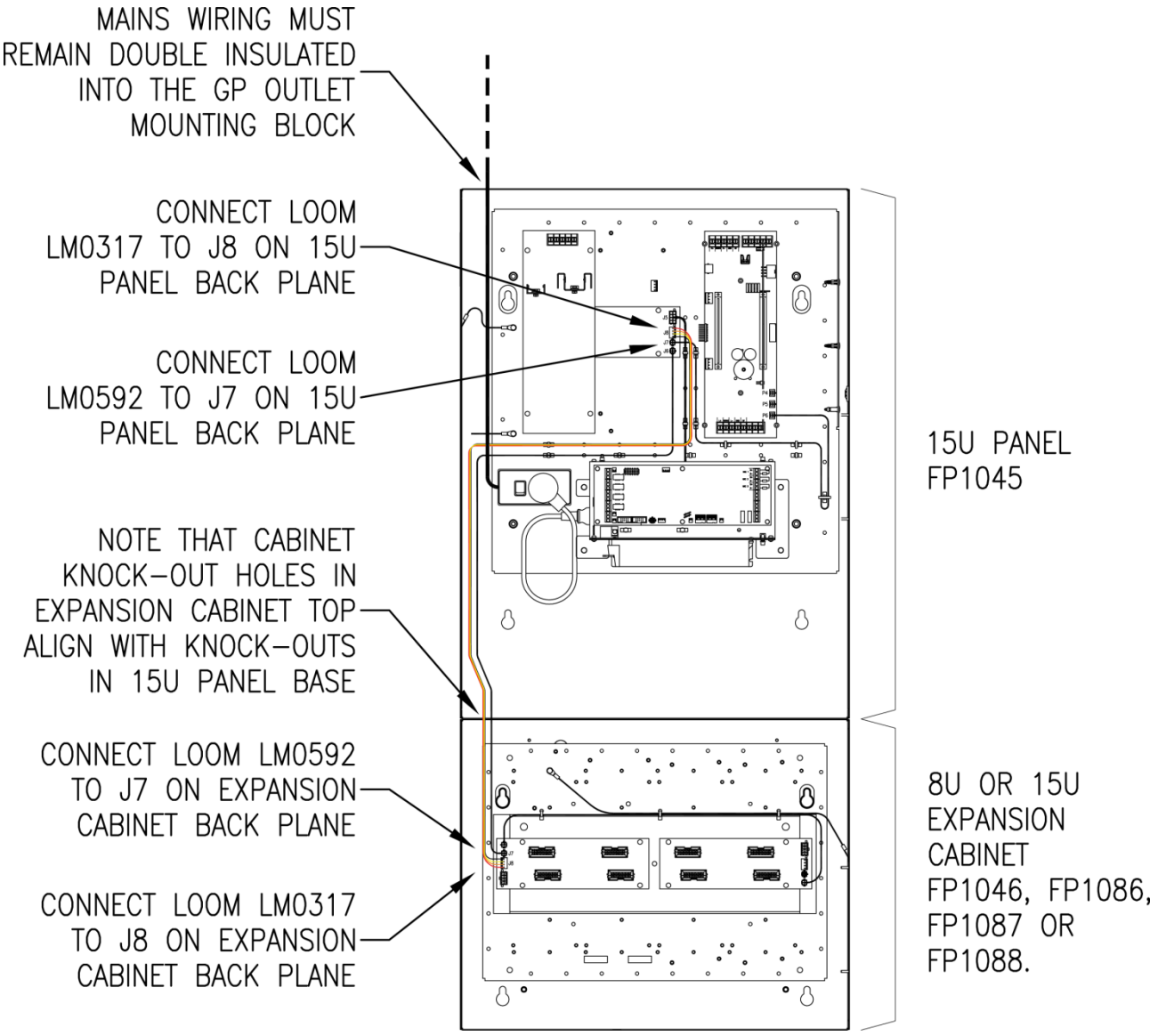
Connecting to the main panel

Two power interconnection looms, LM0317 and LM0592, are supplied with each expansion cabinet.

LM0317 transfers 24 V signal power to the expansion cabinets, and LM0592 transfers 24 V card power and communication to the expansion cabinet. See Figure 20 for information about wiring the looms between two cabinets.

Warning: LM0317 and LM0592 are not interchangeable.

Figure 20. Installing the looms



Use LM0596K battery leads to connect the APS Battery Terminals to the batteries in a battery box. Pass the leads through matching knockouts in the battery box and 15U cabinet. Use the fused battery lead to connect the batteries together.

Adding a MX Loop Card

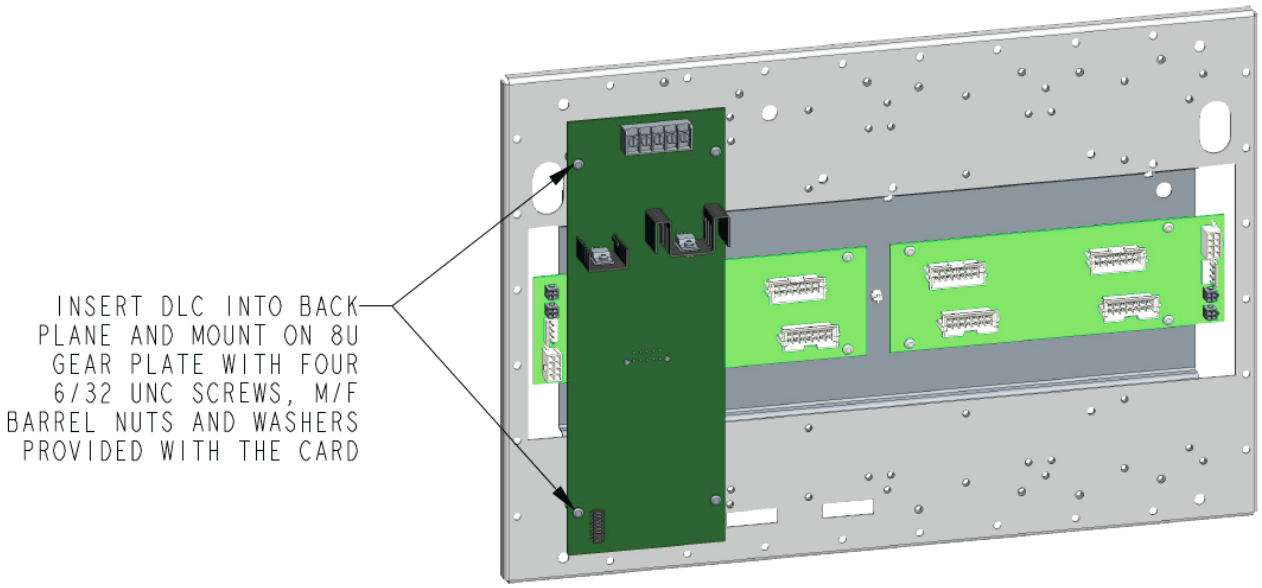
It is possible to add additional MX Loop Cards to the expansion cabinets.

Purchase additional loop cards using part number 4100-6077AU.

Flat mounting

Flat mount up to two MX loop cards in an expansion cabinet. Mount the MX Digital Loop Card, in either orientation, on the PDI backplane that has the LM0317 power interconnection loom connected. Fasten it to the support pillars with the screws supplied in the MX Digital Loop Card kit. The MX Loop Card requires card power and signal power for operation. The signal power is from the LM0317.

Figure 21. Mounting a 4100-6077AU assembly on the PDI backplane in the 8U cabinet



Bracket mounting

It is possible to fit up to four 4100-6077AU MX Digital Loop Cards in the expansion cabinet using an ME0516 Dual PDI bracket. See Figure 28. Suitable interconnecting wiring between the brackets is necessary.

When the ME0516 Dual PDI Bracket is installed with two 4100-6077LIM assemblies, up to two assemblies (four 4100-6077LIM) fit in an 8U expansion cabinet, as long as no other modules are fitted in the cabinet.

> **Note:**
> An APS or LPS power supply can support a maximum of five fully loaded MX Loop Cards.

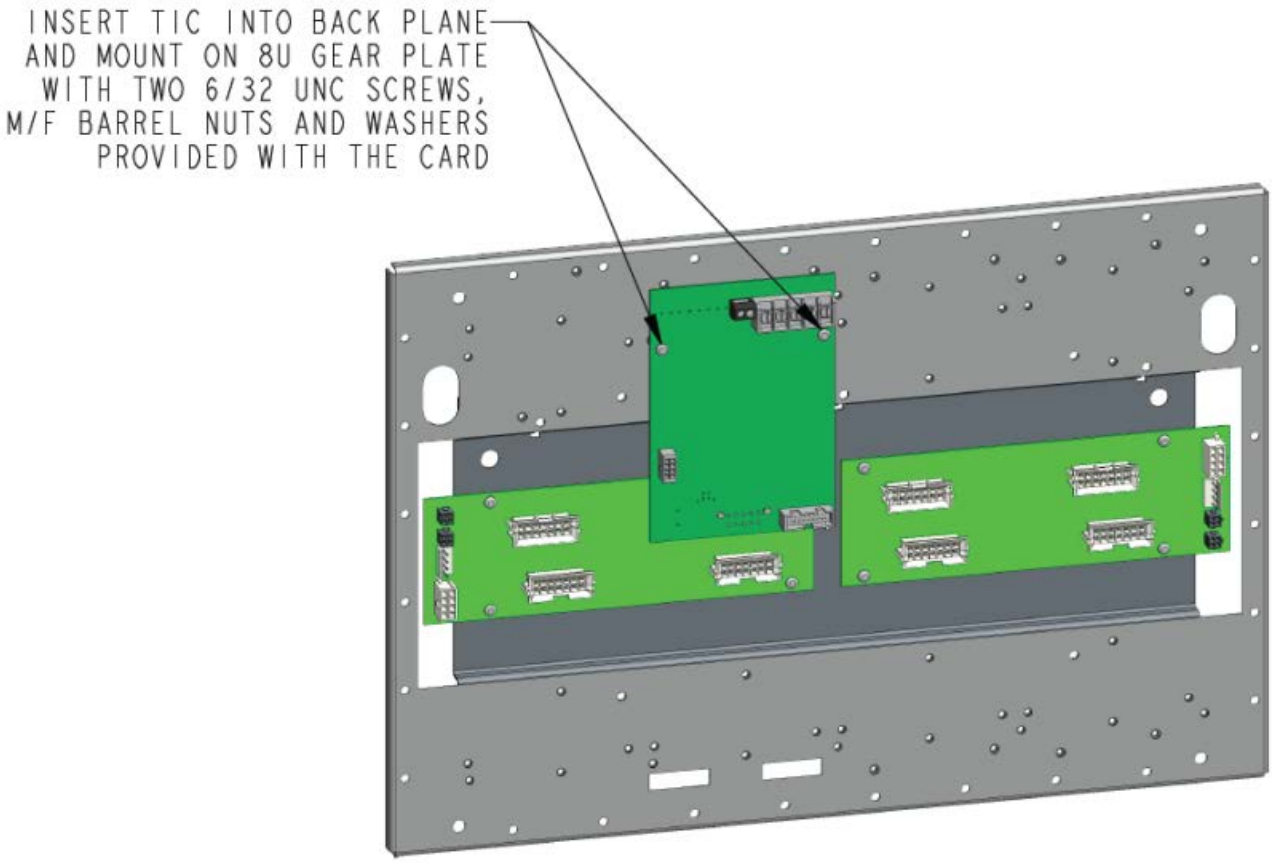
Adding other PDI cards

Up to eight standard PDI cards fit in the unused PDI backplane positions of the expansion cabinet.

Fit the standard PDI cards one up-one down, or fit a dual height PDI card, such as the 4100-6077AU MX Loop Card, or a combination of the two.

> **Note:**
> For information about fitting the 4100-5013 8 Zone/Relay Card, see Chapter 7.

Figure 22. Mounting a PDI card on the PDI backplane in the 8U cabinet



Plug the card into the socket on the backplane, and secure it with the two screws supplied with the card. The card draws power and communications from the PDI backplane. For information about field wiring, refer to *LT0432 Field Wiring Diagrams*.

Adding legacy cards

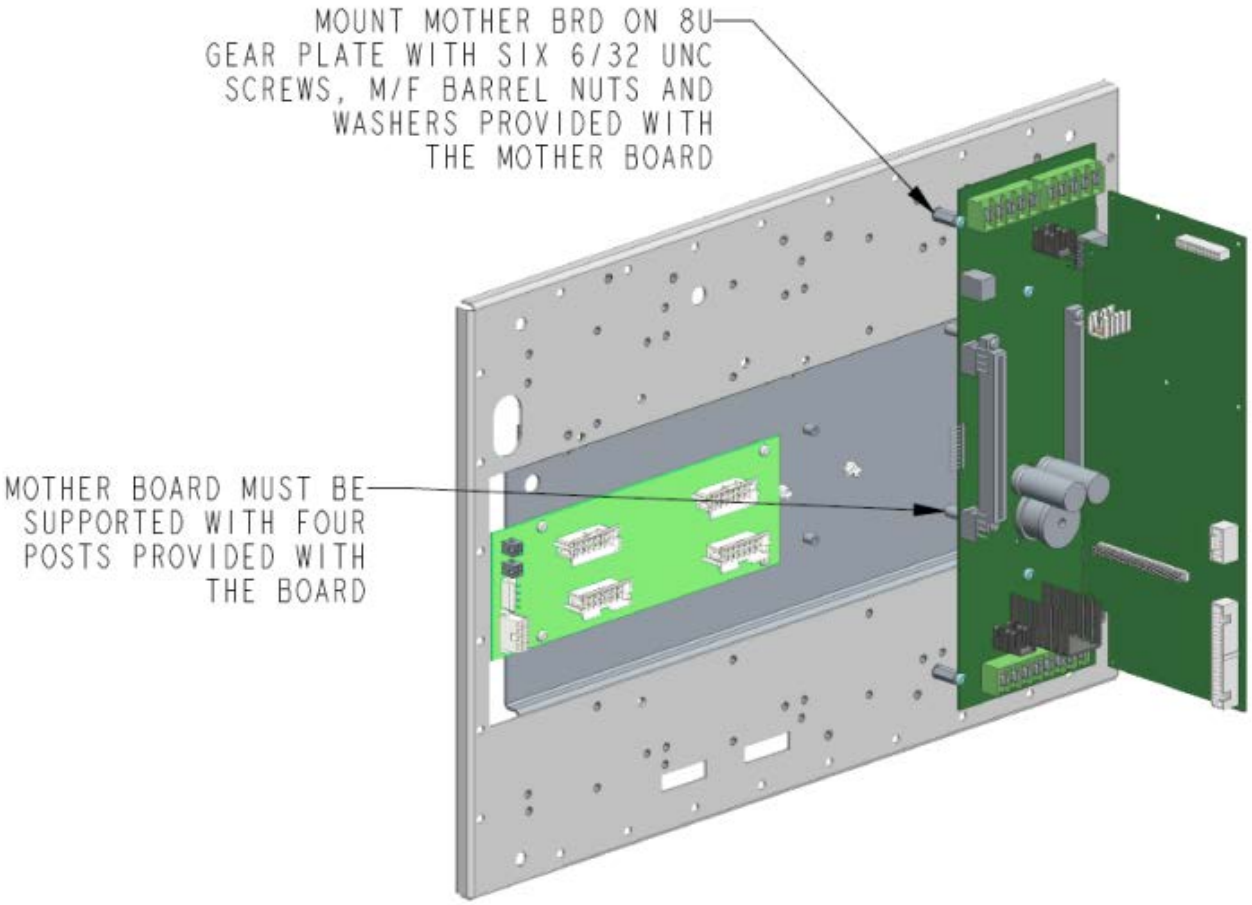
The 8U expansion cabinet supports up to eight Legacy format cards when a display door is not fitted. Each legacy card consists of a specific motherboard and a specific plug-in daughter card.

The 15U expansion cabinet supports legacy CPU and NIC cards and the 4100-0766K T-GEN 50 bracket, but does not support any other legacy cards. If CPU or NIC cards are fitted in a 15U cabinet with a blank door, a retaining bar must be fitted, as shown in Figure 25.

Mount the motherboard over the top of the PDI backplanes. See Figure 23 and Figure 24.

It is necessary to cut off the interconnecting pins on the left side of a legacy motherboard when it is in the leftmost position in the cabinet to avoid clashes with the PDI power connectors.

Figure 23. Mounting a legacy card and motherboard in the 8U cabinet



Legacy cards require a retaining bar to hold them in place. Use the 1U retaining bar, supplied with the blank door cabinets, for the 8U and 15U cabinets, as shown in Figure 24 and Figure 25.

Legacy motherboards in a bay share power and communications through the interconnecting pins, but are not connected directly to the PDI backplane. The group of legacy motherboards in the expansion cabinet is connected to the CPU motherboard in the main cabinet for power and communications using one of the following legacy power looms:

- The 733-525 Harness 4100 34 in. Power and Comms
- The 733-542 Harness 4100 96 in. Power and Comms

The black and blue wire set in each loom connect to the upper header P2 on the motherboards. The black and white wire set in the loom connect to the lower header P3 on the motherboards.

Figure 24. Legacy card retaining bar in the 8U cabinet

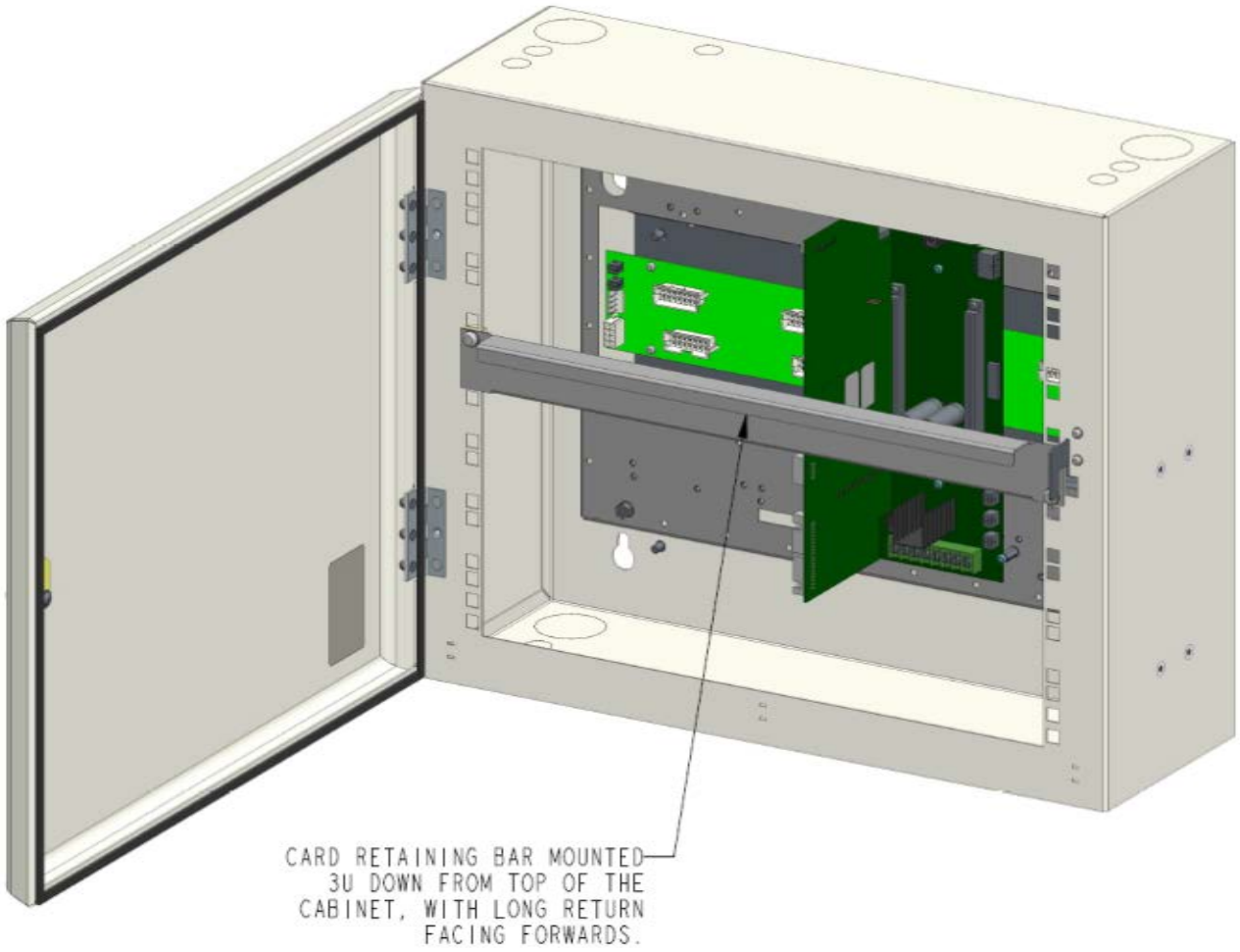
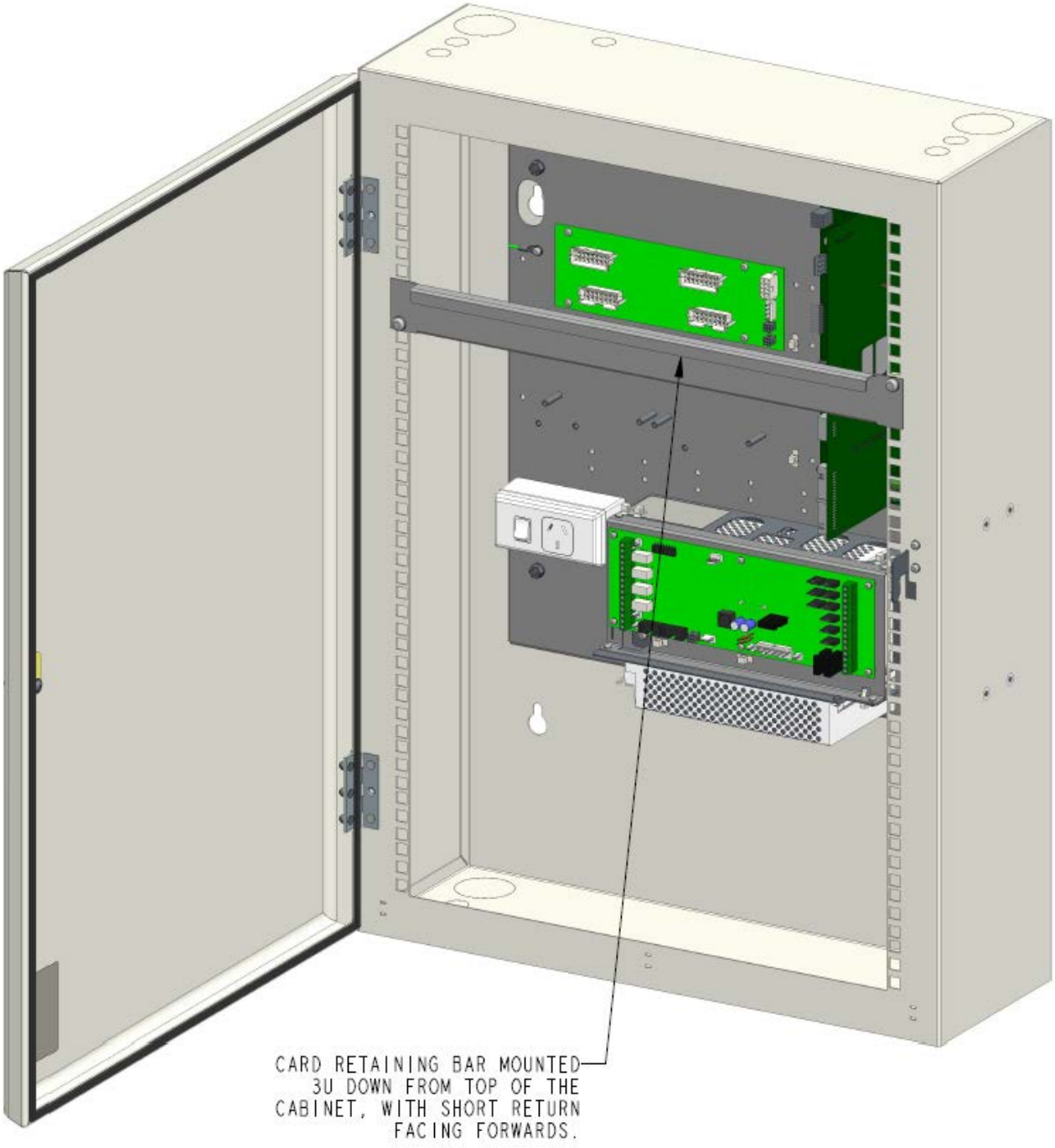


Figure 25. Legacy card retaining bar in the 15U cabinet



Note:
Ensure you fit the bar correctly, it has a deeper side for the 15U cabinet and a shallower side for the 8U cabinet.

Adding a T-GEN 60 in an expansion cabinet

Mounting in 15U expansion cabinet

An FP1115 T-Gen 60 can be added to a 15U expansion cabinet by mounting it on the right hand side flange. An FP1117 100 V Switching Module or FP1118 100 V Splitter Module can also be added to the 15U expansion gear plate in the lower right corner. See Adding a T-GEN 60 for details.

Mounting in 8U expansion cabinet

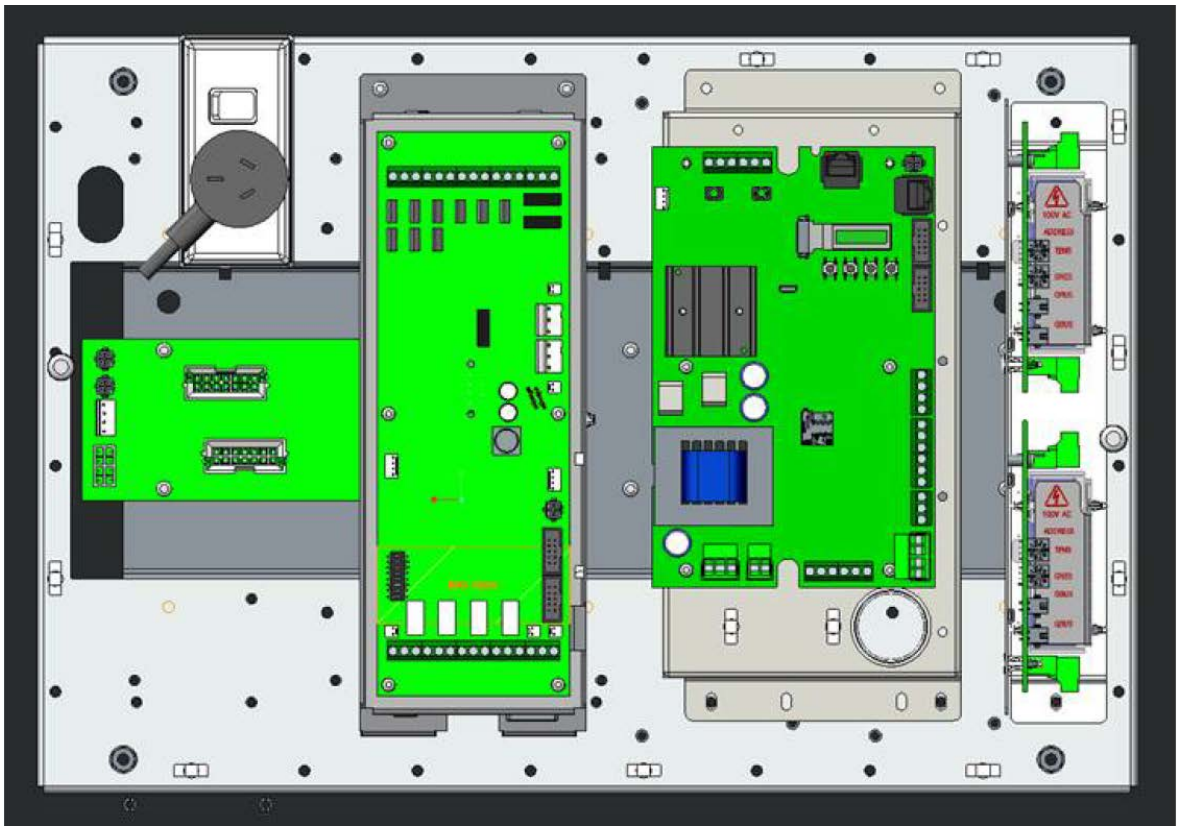
To mount the T-Gen2 and 100 V Switching/Splitter Modules in PDI-based cabinets two specific mounting brackets are required in addition to the T-GEN and 100 V modules:

FP1119 FP, 4100ESi, T-GEN 60/120 BRKT, C/W POWER LOOM & LIT

FP1120 FP, 4100ESi, 2 X 100V SWT MODULE BRKT, C/W LIT & MTG

The FP1086 8U cabinet with blank door can contain one T-Gen 60 or T-Gen 120 mounted on an FP1119 bracket, plus two 100 V Switching/Splitter Modules mounted on an FP1120 bracket, as well as an ME0504 10A APS. Figure 26 shows the necessary arrangement.

Figure 26. T-GEN 60 and 100 V Switching Modules in 8U cabinet with APS



If more than one T-GEN 2 module is required for a small 4100ESi panel, it is usually more practical to use a BOWS cabinet with its own PSU (FP1134 or FP1144).

The FP1119 T-Gen2 bracket is mounted to the gear plate according to the installation instructions (LT0669).

The FP1120 100 V Module Bracket is mounted to the RHS of the frame using the legacy bracket mounting positions in the PDI gear plate according to the installation instructions (LT0670).

Wiring

In the 8U cabinet, you cannot use the PDI backplane to provide 24 V signal power to the T-GEN 60. For Grade 3 systems, power the T-GEN 60 and 100V modules from the APS VAUX outputs paralleled together as detailed in the installation instructions LT0667, LT0668 and LT0671.

Adding a T-GEN 50 on a legacy bracket

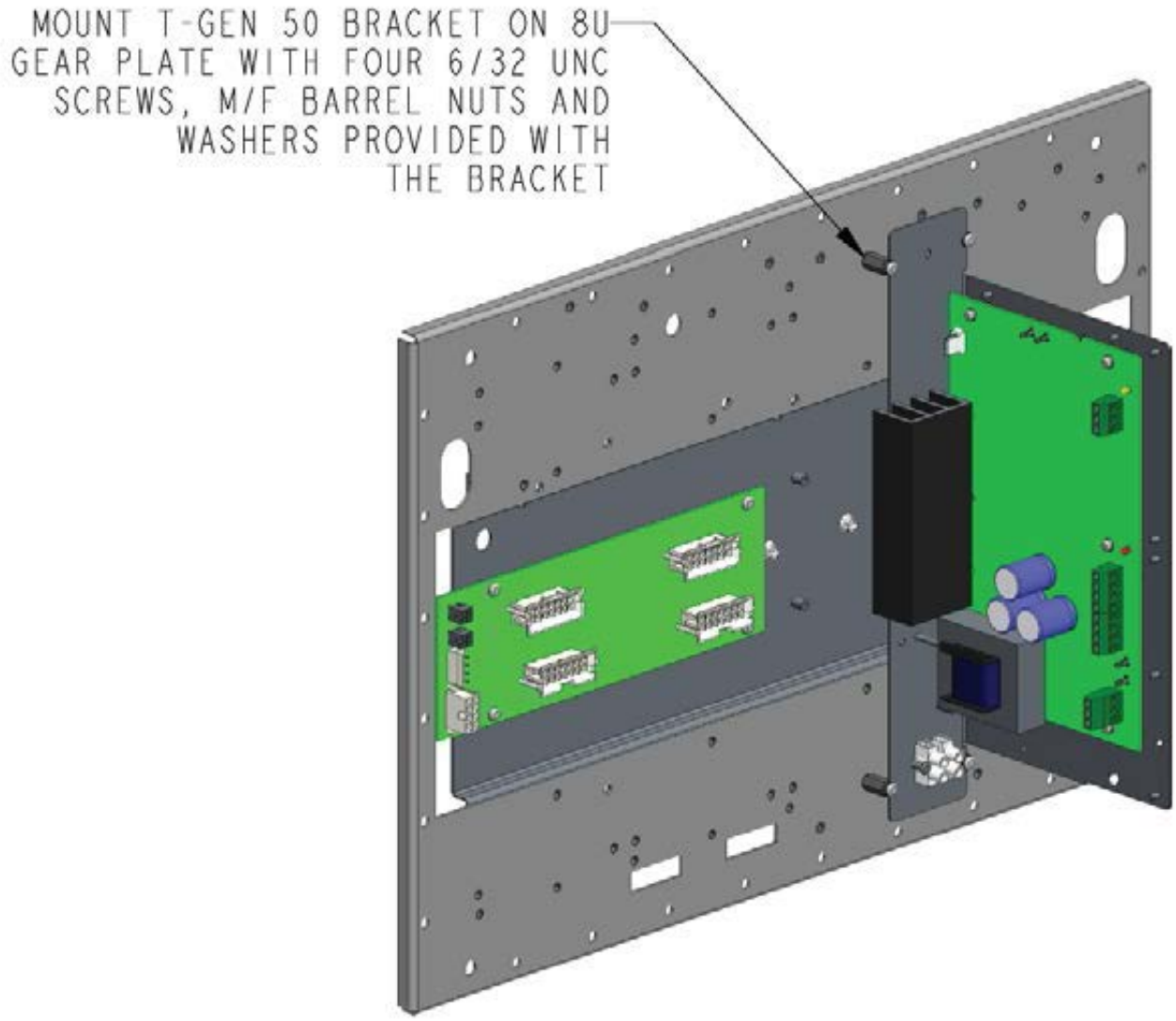
Use the 4100-0766K module to mount a T-GEN 50 tone generator in the 8U or 15U expansion cabinets.

Mount the module in a legacy motherboard position, using the screws and barrel nuts supplied.

The 4100-0776K module is self-supporting and does not require a retaining bar. If a retaining bar is already fitted, the 4100-0776K module is compatible with it.

> **Note:**
> Because of the width of the T-GEN 50, the 4100-0766K bracket occupies two legacy card positions.

Figure 27. Mounting the T-GEN 50 bracket on an 8U gear plate



Chapter 4. Using the Dual PDI bracket

Use the ME0516 Dual PDI Card Bracket to mount a pair of PDI format cards in a 4100ESi cabinet. The two PDI cards do not need to be of the same type or size. The Dual PDI Card Bracket uses two PDI spaces.

Table 6 shows the PDI format cards that mount on the bracket, the looms required for connection to the 4100ESi Panel, and any mounting limitations.

Table 6. Dual PDI card bracket usage

PDI Card	Looms Required	Mounting Limitations
4100-6077AU MX Loop Card	LM0317 & 734-008	15U and 8U cabinets only.
4100-6072/73 SM Fibre Modem	2 x 734-008	Left hand side of bay or 8U gear plate or 15U gear plate, see the note after this table.
4100-6047 BNIC Card	1 x 734-008	Any position, any cabinet.
4100-6079 SafeLINC Card		
Other PDI cards		
4100-3107 IDNet+	Cannot be used with this bracket.	
4100-6077LIM		

Note:
Fitting the Single Media Fibre Modems on the left hand side of a 15U gear plate is possible, but careful management of the fibre optic cable is required as they are physically close to the mains termination block and switch. The modems cannot be fitted to the centre of the gear plate as suitable access to the fibre optic connectors is not possible.

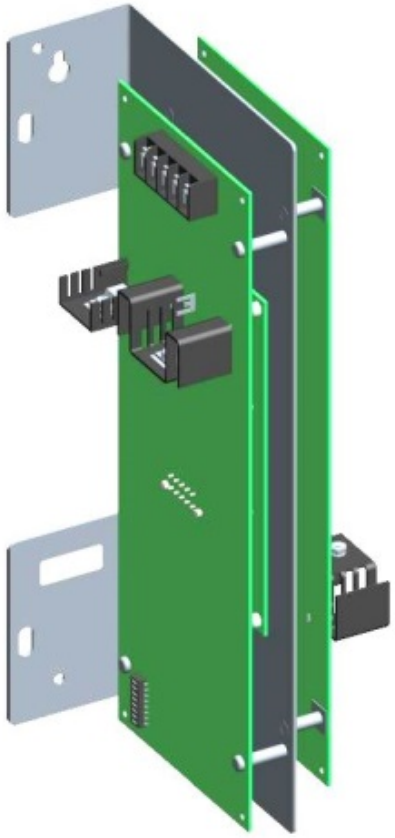
To fit the maximum number of PDI cards, mount 4x10 in. double height PDI cards. Single height PDI cards can also be mounted on the bracket.

Note:
The positions of the PDI connectors on the bracket's PCB determines whether a PDI card is mounted "pointing up" or "pointing down". See Figure 28 to Figure 31 for examples.

PDI card mounting options

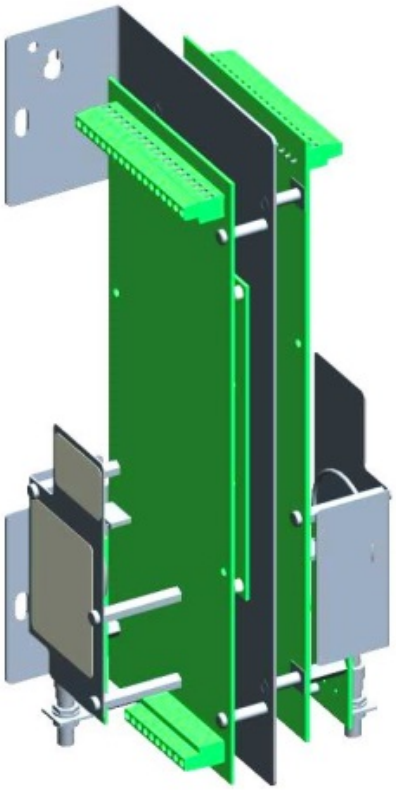
Figure 28 through to Figure 31 show examples of PDI format card mounting options and their mounting orientation on the bracket. Fit any combination of these cards on the bracket.

Figure 28. Mounting two 4100-6077 AU MX Loop cards



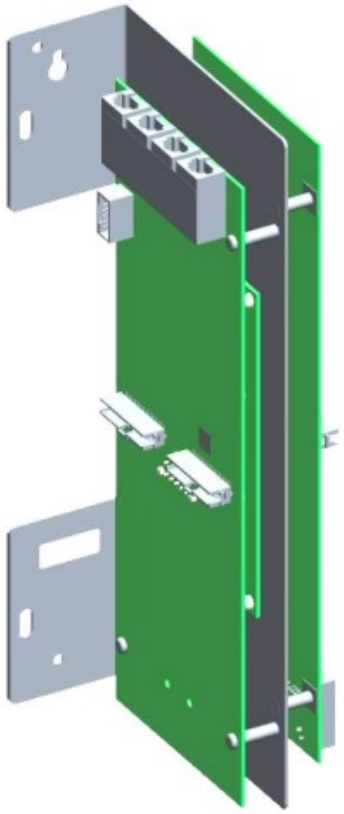
The card on the left has the loop terminals at the top and the card on the right has the loop terminals at the bottom.

Figure 29. Mounting two 4100-6072/6073 SM fibre modems



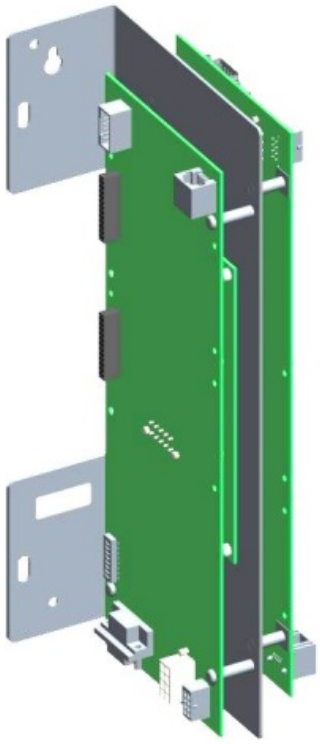
Mount both cards with the fibre connectors pointing downward. Because of the size of this mounting arrangement, and the overhang of the modem cards, the best mounting position in the bay is the left side.

Figure 30. Mounting two 4100-6047 BNIC Cards



The card on the left card has the Ethernet connectors at the top and the card on the right has the Ethernet connectors at the bottom.

Figure 31. Mounting two 4100-6079 SafeLINC Cards

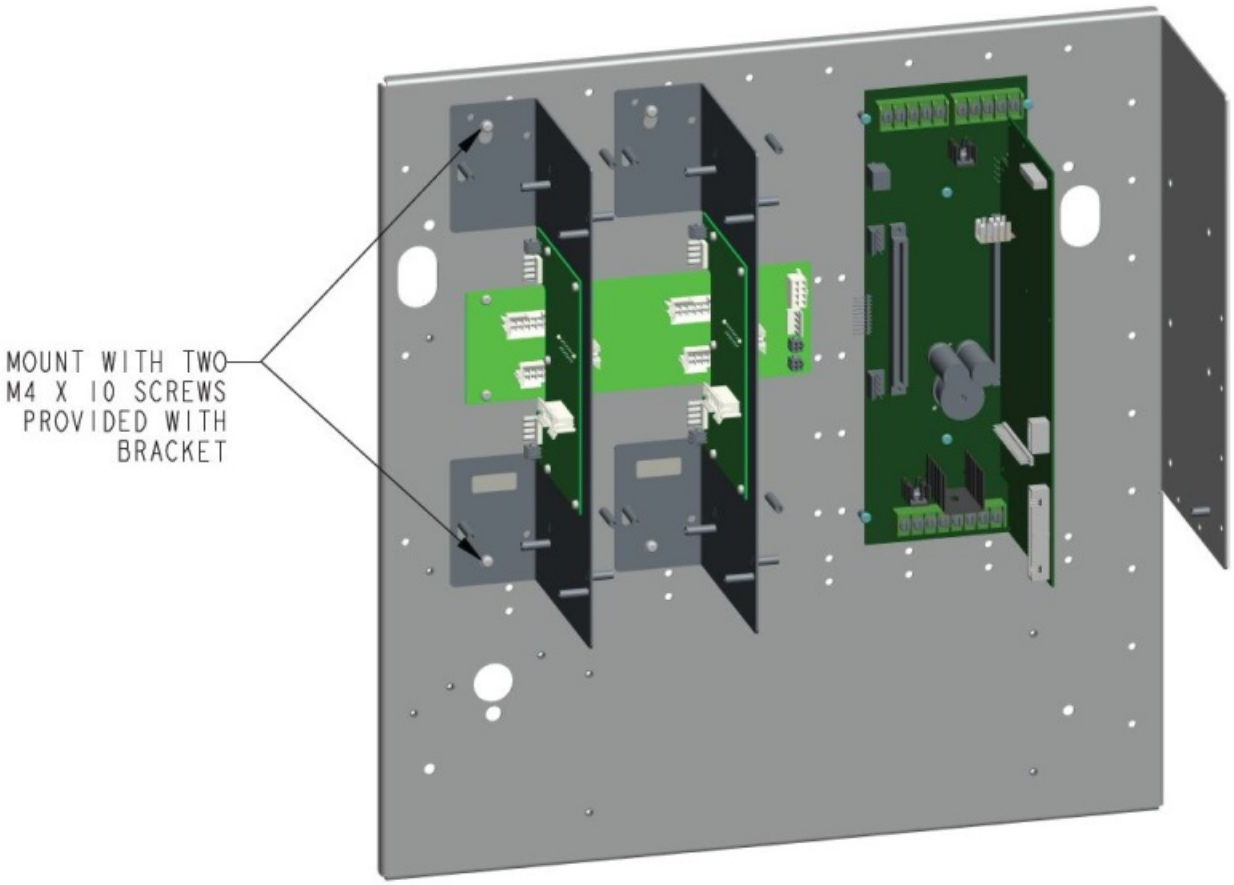


The card on the left has the Ethernet connector at the top and the card on the right has the Ethernet connector at the bottom.

Bracket mounting options

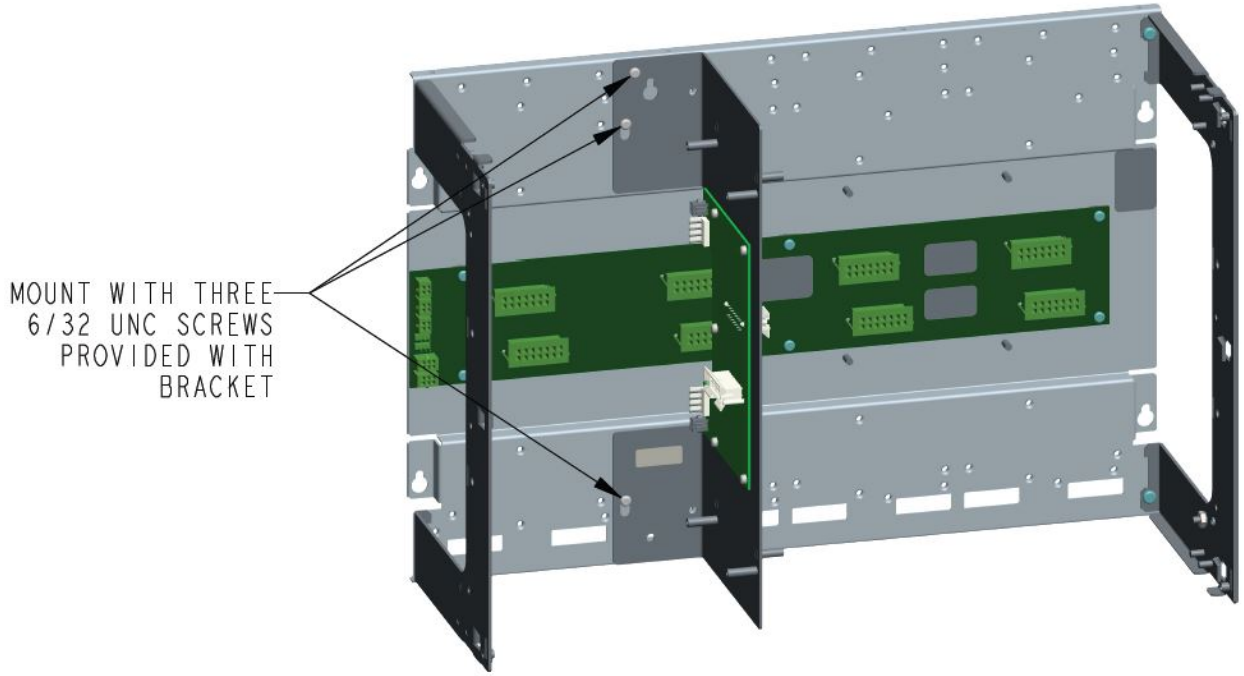
Figure 32 through to Figure 35 show examples of the 4100ESi Dual PDI Card Bracket mounting options on a 15U Panel gear plate, and in expansion bays.

Figure 32. 15U panel gear plate mounting



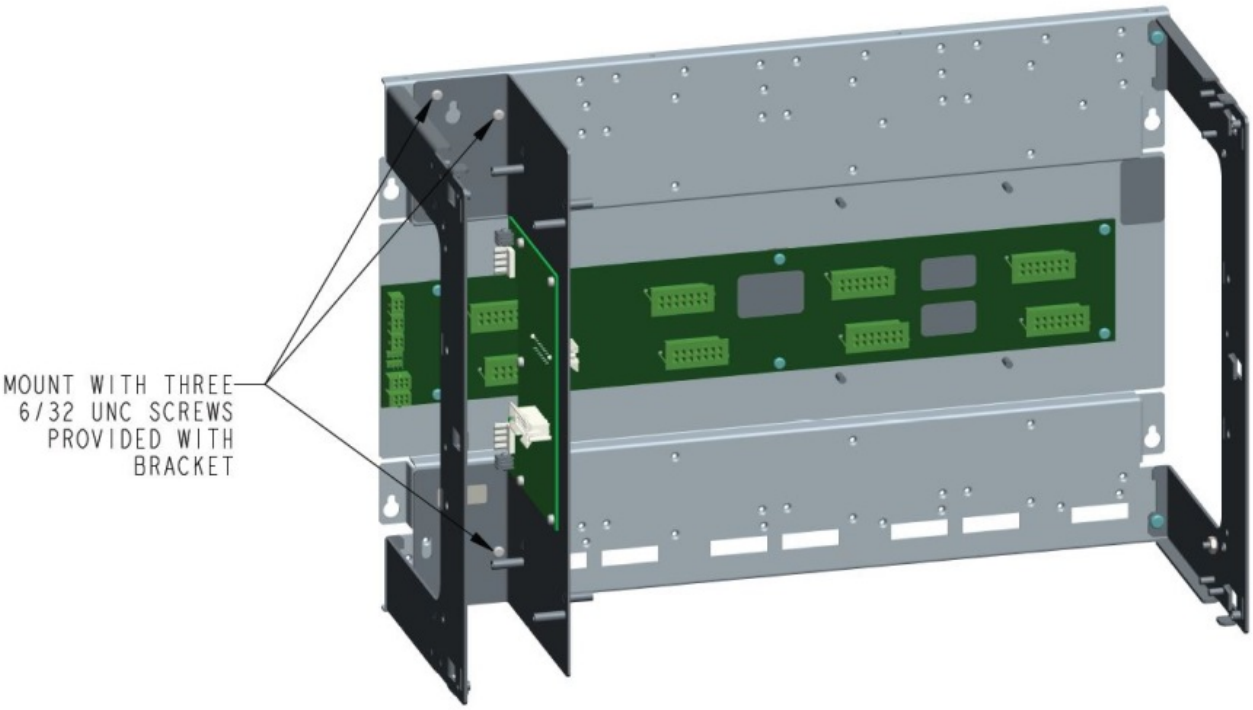
Mounting for all cards, with two possible positions.

Figure 33. Expansion Bay mounting



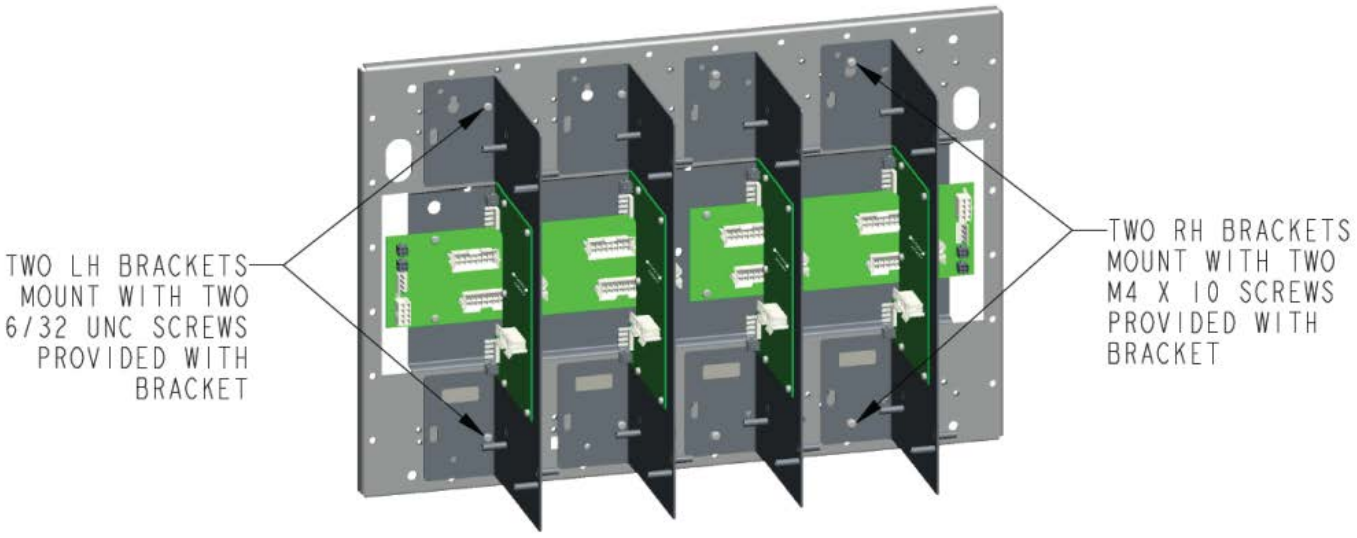
Expansion bay mounting in four possible positions. The recommended expansion bay mounting for 4100-6072/6073 SM Fibre Modems is at the left to avoid colliding with other cards due to the overhang. See Figure 34.

Figure 34. Expansion Bay mounting for 4100-6072/6073 SM Fibre Modems



Mount the 4100-6072/6073 SM Fibre Modems on the left side of the expansion bay for best packing of the equipment.

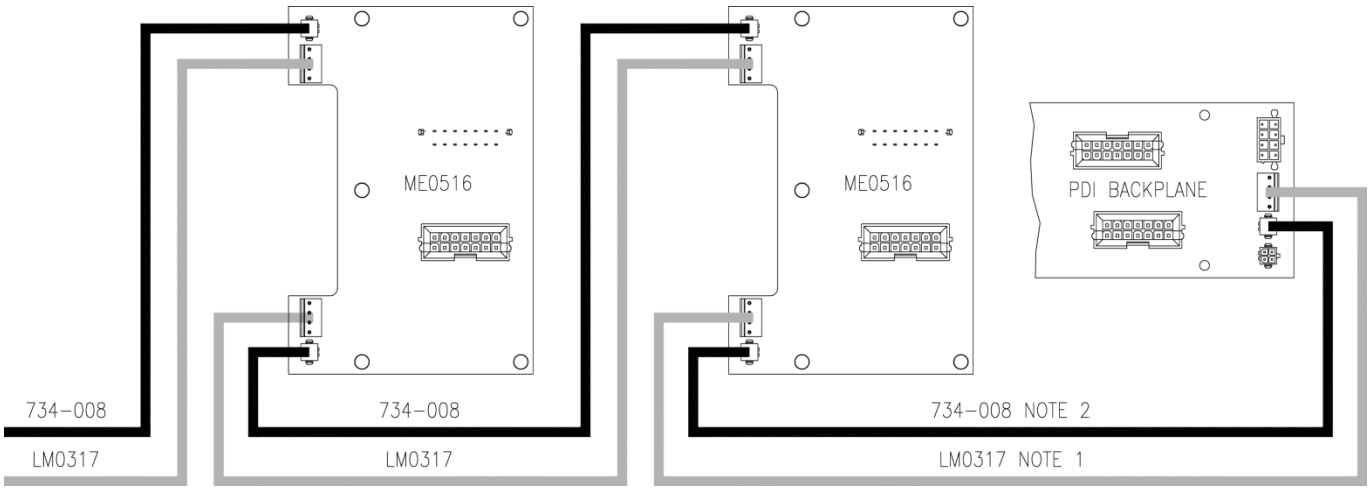
Figure 35. 8U Panel gear plate mounting



There are four possible mounting positions for the ME0516 in an 8U expansion cabinet. The recommended mounting position for the 4100-6072/6073 SM Fibre Modem is at the left. See Figure 34.

Panel connection

Figure 36. Connection of Dual PDI Card Brackets to a panel backplane in 15U or 8U cabinets



Notes:

1. A LM0317 Signal Power Loom is required to power 4100-6077AU MX Loop Cards. It is not required for other cards. It is compatible with 15U and 8U cabinets. The PDI backplane in the expansion bay of large rack cabinets is not compatible with the LM0317 Signal Power Loom.
2. A 734-008 Power/Comms loom connects to the ME0516 PCB for all PDI cards except the 4100-6072/6073 SM Fibre Modem. A 734-008 Power/Comms loom connects directly to 4100-6072/6073 SM Fibre Modems. A second 734-008 loom is required to link between two SM modem cards. These cards must be at the end of a daisy chain connection because the communications signals are not connected through the modem cards.

Chapter 5. Large cabinets - 28U or 40U

The 4100ESi large cabinets, 28U and 40U, hold more cards internally, and support more display and control doors than the smaller 8U and 15U cabinets.

The 28U and 40U cabinets are available as factory build-to-order systems. Use the 4100 Cost tool to determine the cabinet size and panel contents.

Mounting the cabinet

Ensure the following when mounting a 28U or 40U cabinet:

- The operator can access the cabinet.
- Ensure that all fan controls and the Fire Brigade Interface are between 750 mm and 1850 mm above the floor.
- There is sufficient space to fully open the cabinet door, particularly for cabinets used by emergency personnel.
- There is access to the cable entry points for field wiring.

Fire panel height requirement and minimum access requirements are outlined in AS 1670.1. The recommended cabinet wall fixing is M8 screws or studs.

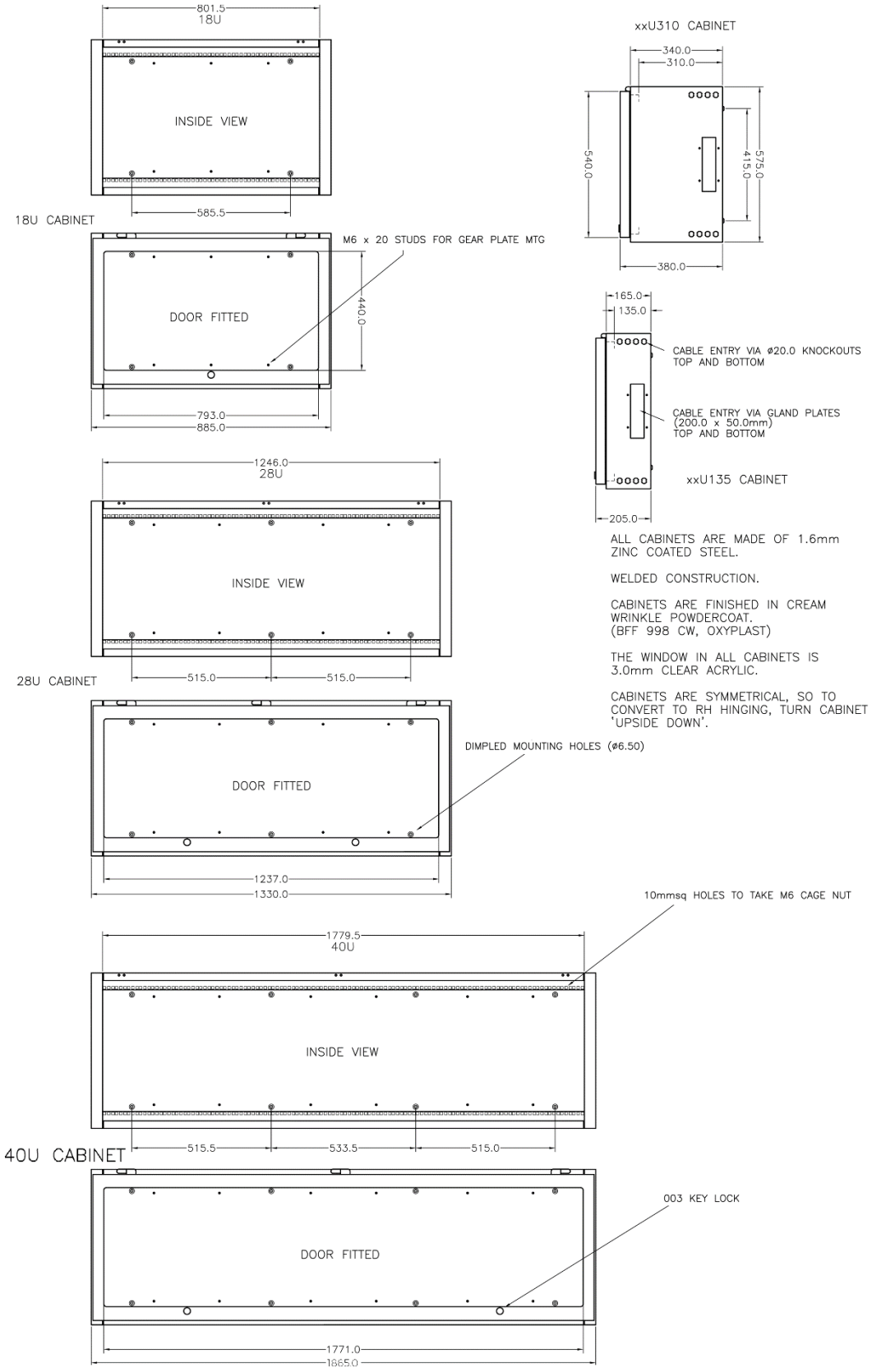
28U cabinets are wall mounted. There are six dimpled mounting holes in the rear of the cabinet. The mounting holes are accessible from inside the cabinet when the APS and CPU bays are removed.

40U cabinets are floor mounted, and secured to the wall using the dimpled mounting holes in the rear of the cabinet. The mounting holes are accessible from inside the cabinet when the APS and CPU bays, and lowest Expansion bay are removed.

The standard door opening is to the left, but the cabinets can be ordered or adjusted on site to open to the right.

> **Note:**
> 40U cabinets may require a plinth to ensure that all controls and indicators are positioned adhering to height restrictions.

Figure 37. Mounting BTO cabinets



Mains wiring

Ensure the 4100ESi is wired with a dedicated current limited mains supply, complying with the requirements outlined in AS/NZS 3000 Wiring Rules.

A mains 10 A circuit breaker is required for systems with up to three power supplies. On installations with four or more power supplies, a circuit breaker of 16 A is required.

To meet the Australian electrical safety requirements, the outside sheath of the mains cable must continue into the body of the mains outlet mounting block.

Adding a MX Loop Card

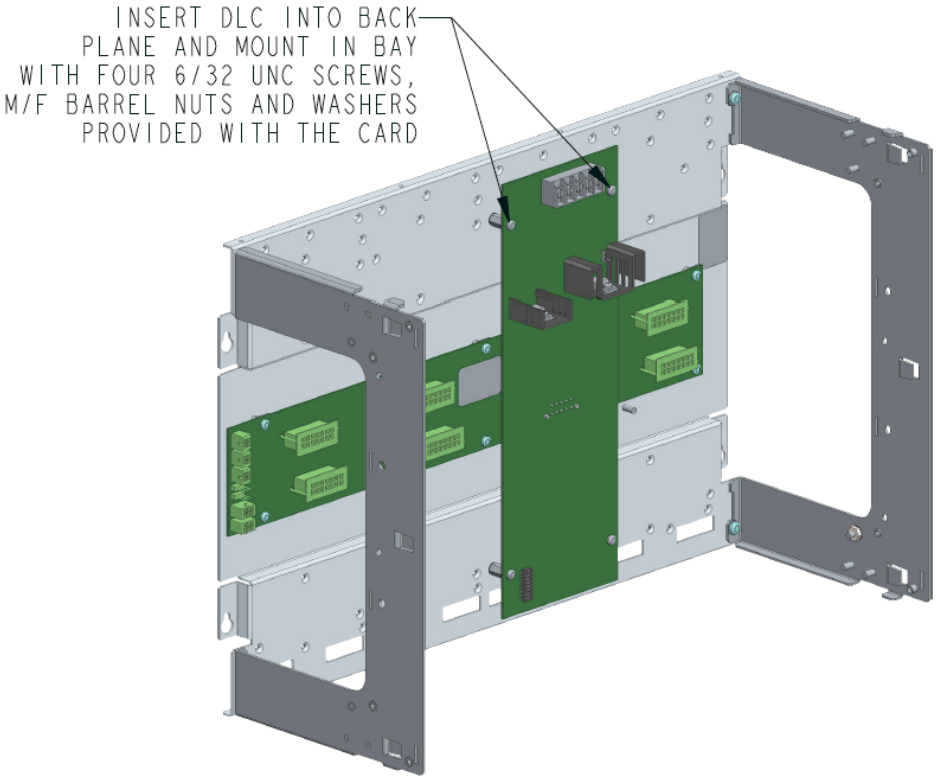
The 28U and 40U 4100ESi panels are supplied pre-fitted with the number of MX loop cards ordered. Each loop card supports one loop of up to 250 MX addressable devices. If space is available, it is possible to fit additional MX loop cards to increase this capacity. It is also possible to fit additional MX loop cards into an expansion cabinet.

Purchase additional loop cards using part number 4100-6077AU. There is mounting space for up to four MX Loop cards in an expansion bay.

Flat mounting

The MX Digital Loop Card mounts in a bay in a 28U or 40U cabinet, and connects to the PDI backplane. It is fastened to the support pillars with the screws supplied in the MX Digital Loop Card kit. Mount the MX Digital Loop Card in a suitable position on one of the PDI backplanes.

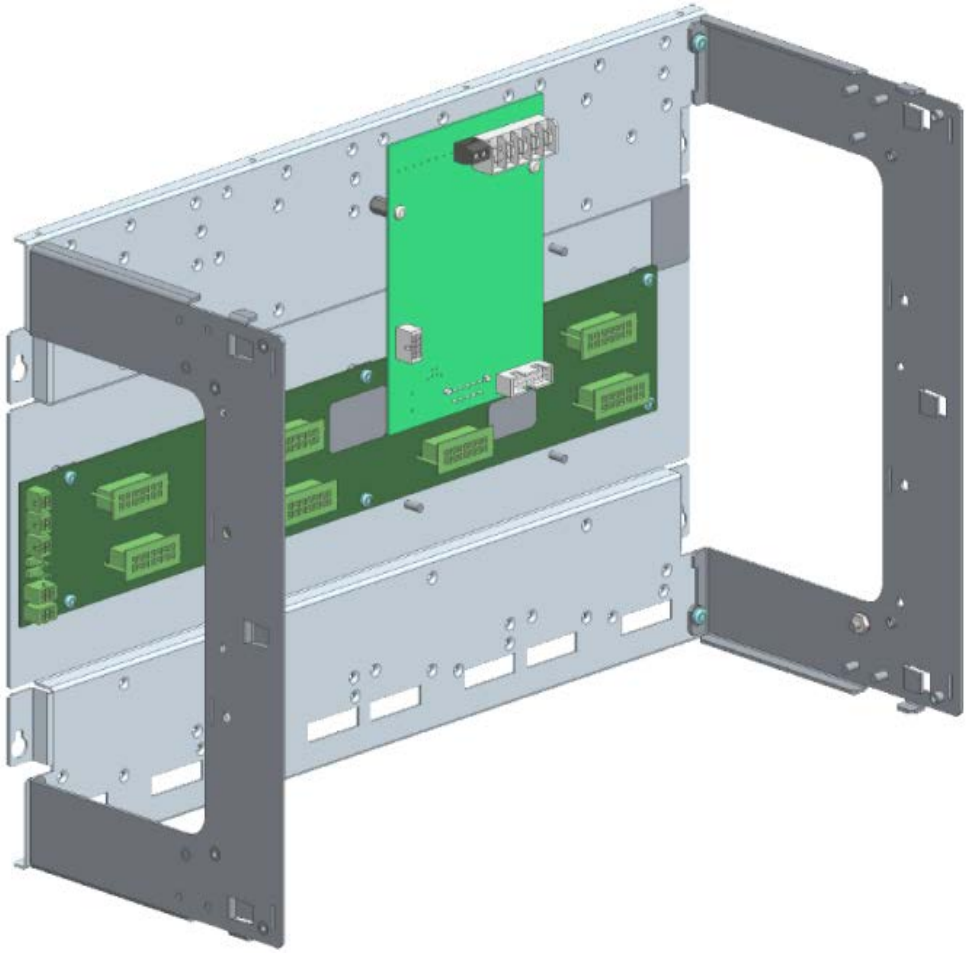
Figure 38. Mounting a MX Digital Loop Card on the backplane in a bay



Adding other PDI cards

Up to eight standard PDI cards can fit in the unused PDI backplane positions of the bay. Fit the cards one up-one down, or fit dual height PDI cards, such as the 4100-6077AU MX Loop Card.

Figure 39. Mounting a PDI card on a backplane in a bay



Plug the card into the socket on the backplane, and secure it with two screws supplied with the card. For information about field wiring, refer to the appropriate drawings in *LT0432 4100ESi Field Wiring Diagrams*. Information about using the 4100-5013 8 Zone/Relay Card are in Chapter 7.

Adding legacy cards

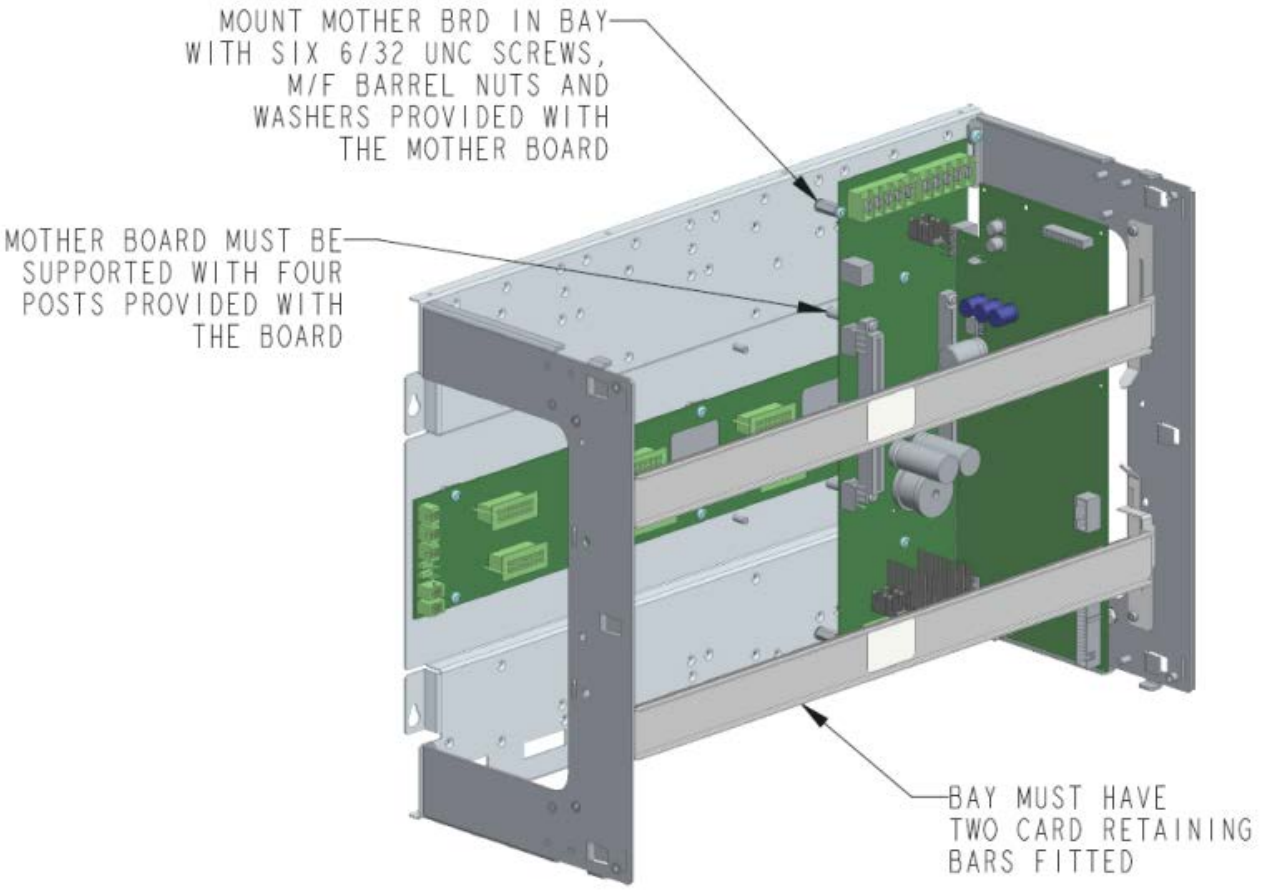
Each bay supports up to eight legacy format cards. Each legacy card consists of a specific motherboard and a specific plug-in daughter card.

Mount the motherboard over the PDI backplane in the bay, using the metal standoffs and screws supplied with the card.

To avoid clashing with the PDI power connectors, it is necessary to cut off the interconnecting pins on the left side of a legacy motherboard when it is in the leftmost position in the bay.

Plug the daughter card into the motherboard.

Figure 40. Mounting a legacy card and a motherboard in a bay



Legacy cards require bars to hold them in place. You can use a pair of retaining bars as shown in Figure 40, or a single central retaining bar (ME0565). The central bar is required when legacy cards and an APS power supply are located in the same bay. The retaining bars are supplied with the bays in BTO systems.

Legacy motherboards in a bay share power and communications through the interconnecting pins, but are not connected directly to the PDI backplane. The group of legacy motherboards in a bay in the expansion cabinet is connected to the CPU motherboard in the main cabinet, or an intermediate set of legacy motherboards in another bay for power and communications using one of the following legacy power looms:

- The 733-525 Harness 4100 34 in. Power and Comms
- The 733-542 Harness 4100 96 in. Power and Comms

The black and blue wire set in each loom connect to the upper header P2 on the motherboards. The black and white wire set in the loom connect to the lower header P3 on the motherboards.

Adding a power supply

ME0504 APS

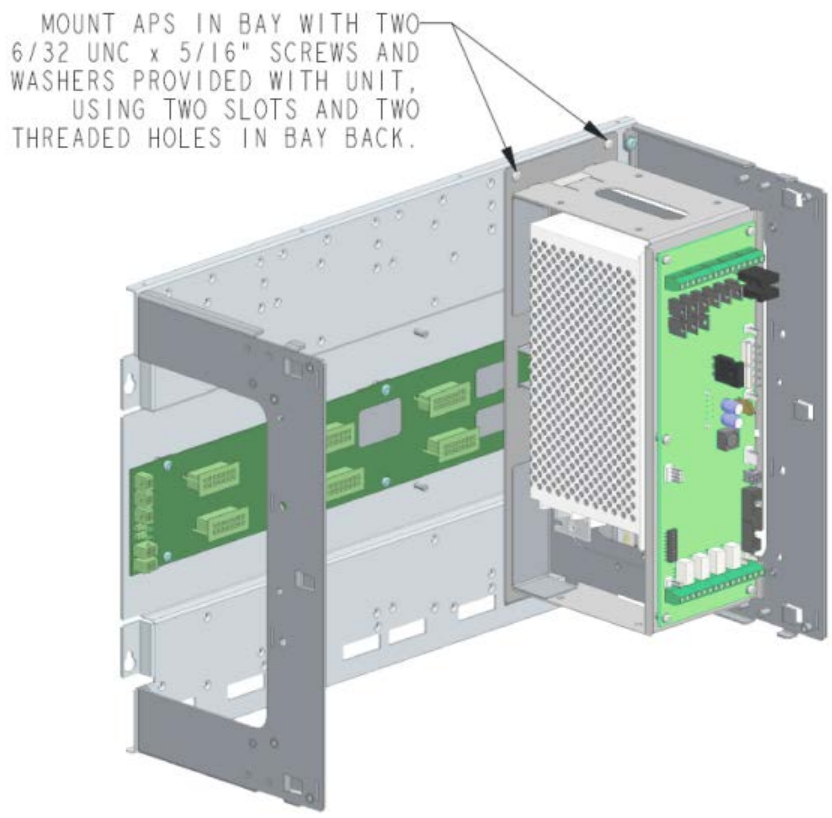
The APS occupies two PDI positions, one above the other, and supplies power directly to the PDI backplane for use by other 4100ESi PDI cards. Other system loads can be wired to the APS VAUX (1-3) outputs and the NAC (1-3) outputs. Refer to *LT0432 4100ESi Field Wiring Manual* sheet 707 for wiring details.

The 734-301 signal power loom can be used to connect signal power from one PDI backplane to another. It connects between a PDI socket, located behind the APS unit, to a PDI socket on the other PDI backplane.

To install the ME0504 APS in a bay, complete the following steps:

1. Insert the tabs at the bottom of the power supply into the slots in the bay.
2. Pivot the ME0504 APS up to fit correctly onto the PDI connector underneath it.
3. Fasten the top of the power supply to the bay using the screws and washers included in the kit.
4. Set the address switch of the APS to match the configuration in the 4100ESi. For programming information to configure the additional APS, refer to *LT0619 4100ESi Programming Manual*.
5. Plug the mains lead into the IEC socket on the bottom of the APS, and plug the three pin plug into the mains outlet in the panel.
6. If necessary, fasten the mains lead to the outside end of the bay to secure any excess cable.

Figure 41. Mounting the APS in a bay

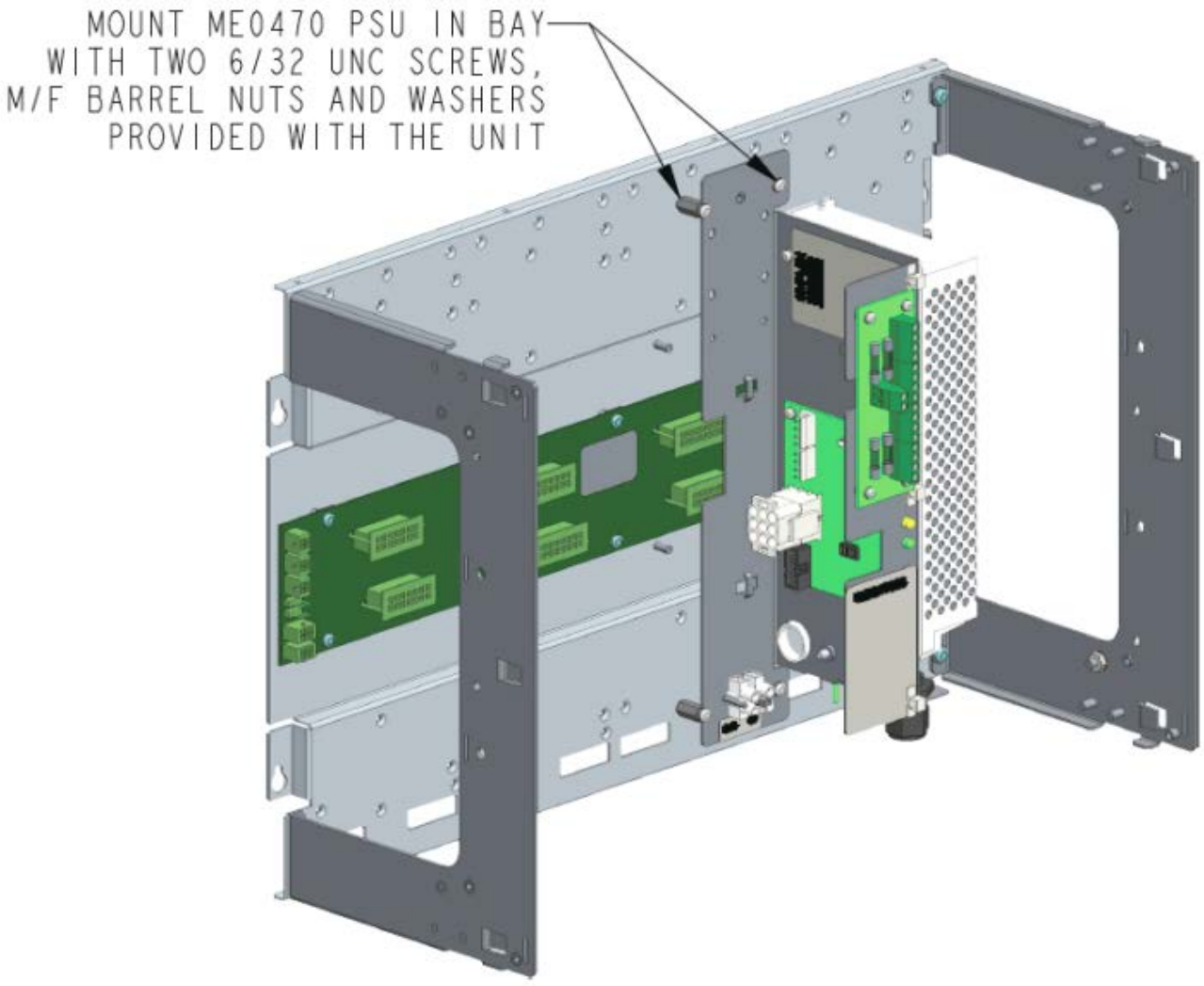


ME0470 auxiliary supply

Mount the ME0470 in a bay using by using the module support posts, screws and star washers supplied. The ME0470 requires two legacy card positions. A Fused Distribution board, with 3 A 20x5 fuses, supplies fused power from the ME0470. The fuses are not monitored directly. It may be necessary to monitor these fuses using the connected equipment, or a normally energized relay.

> **Note:**
> As the ME0470 does not comply with AS 7240.4, it is not a permitted power supply for systems that are installed to comply with AS 1670.1:2018.

Figure 42. Mounting the ME0470 PSU in a bay



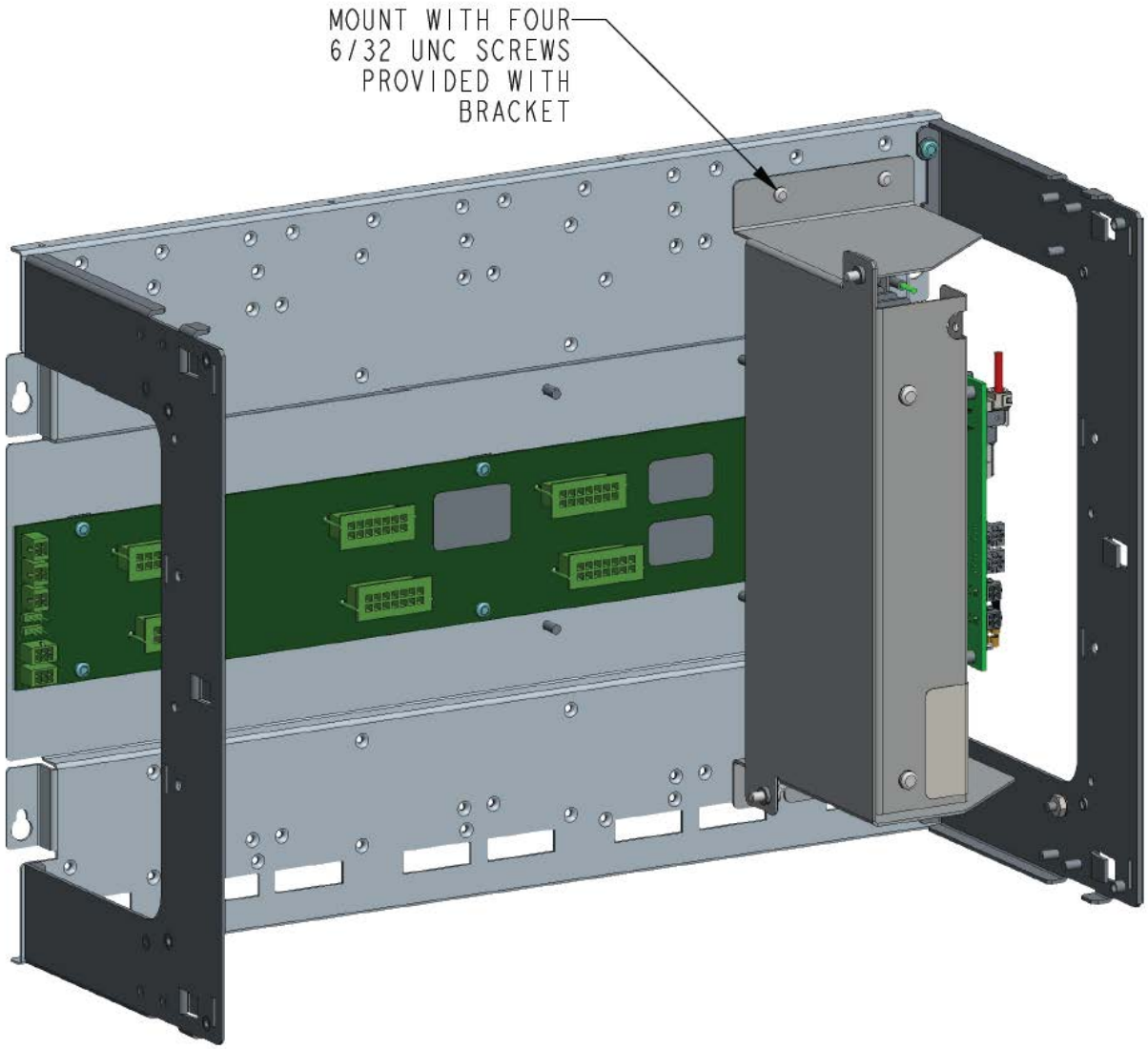
For information about configuring the ME0470 and for connection to the 4100ESi, refer to *LT0432 4100ESi Field Wiring Manual* drawings 702 and 705.

FP1139 14A PSE

Mount the FP1139 14A PSE in the bay with the T-Gen2 equipment it powers. Use the FP1142 bracket to mount the FP1139 on the right-most side of the bay. See Figure 43. Mounting the FP1139 in a bay

For information about installing the FP1139, refer to LT0690.

Figure 43. Mounting the FP1139 in a bay



Adding a T-GEN 60 or T-GEN 120

Mounting in an expansion bay

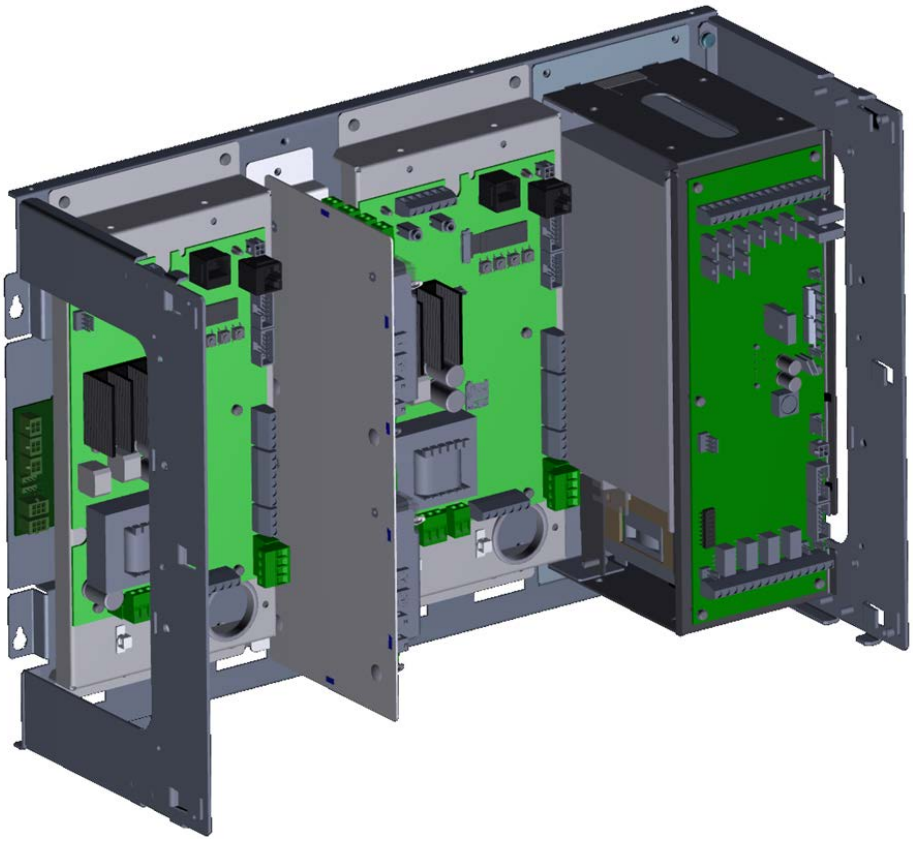
T-GEN 2 equipment can be mounted in an expansion bay.
An expansion bay can contain up to:

- Two FP1119 T-GEN 2 mounting brackets with a T-GEN 60 or T-GEN 120 on each
- One FP1120 100 V Switching/Splitter mounting bracket with two 100 V Switching Modules or 100 V Splitter Modules
- One APS Power Supply to provide power
- FP1139 14A PSE mounted on a FP1142 mounting bracket (required for any Grade 2 systems)

The FP1119 T-GEN 2 mounting brackets are somewhat limited in their possible positions in the bay. The FP1120 bracket for the 100 V Switching modules mounts on legacy card fastening points. If used in a bay with other legacy cards, it occupies two card positions.

The FP1139 14A PSE fitted to the FP1142 bracket must be mounted at the right hand side of the bay.

Figure 44. Fully equipped expansion bay with 2 x T-Gen 60, 2 x 100 V switching modules and APS



Wiring in the Bay

The APS provides Signal Power directly to the PDI backplane, which is used to power each T-GEN via the plug-in loom provided with the FP1119 mounting kit.

You can control the Master T-Gen2 from the NAC 3 output on the adjacent APS or on another APS in the cabinet, as required. If a different NAC output is going to be used then it must configured for alarm devices. The necessary wiring is shown in Figure 45 and Figure 46. Alternatively a T-Gen2 HLI module (FP1143) could be used. See Adding an HLI board in this document.

Figure 45. Wiring for T-GEN 60 and T-GEN 120 (with no switching modules)

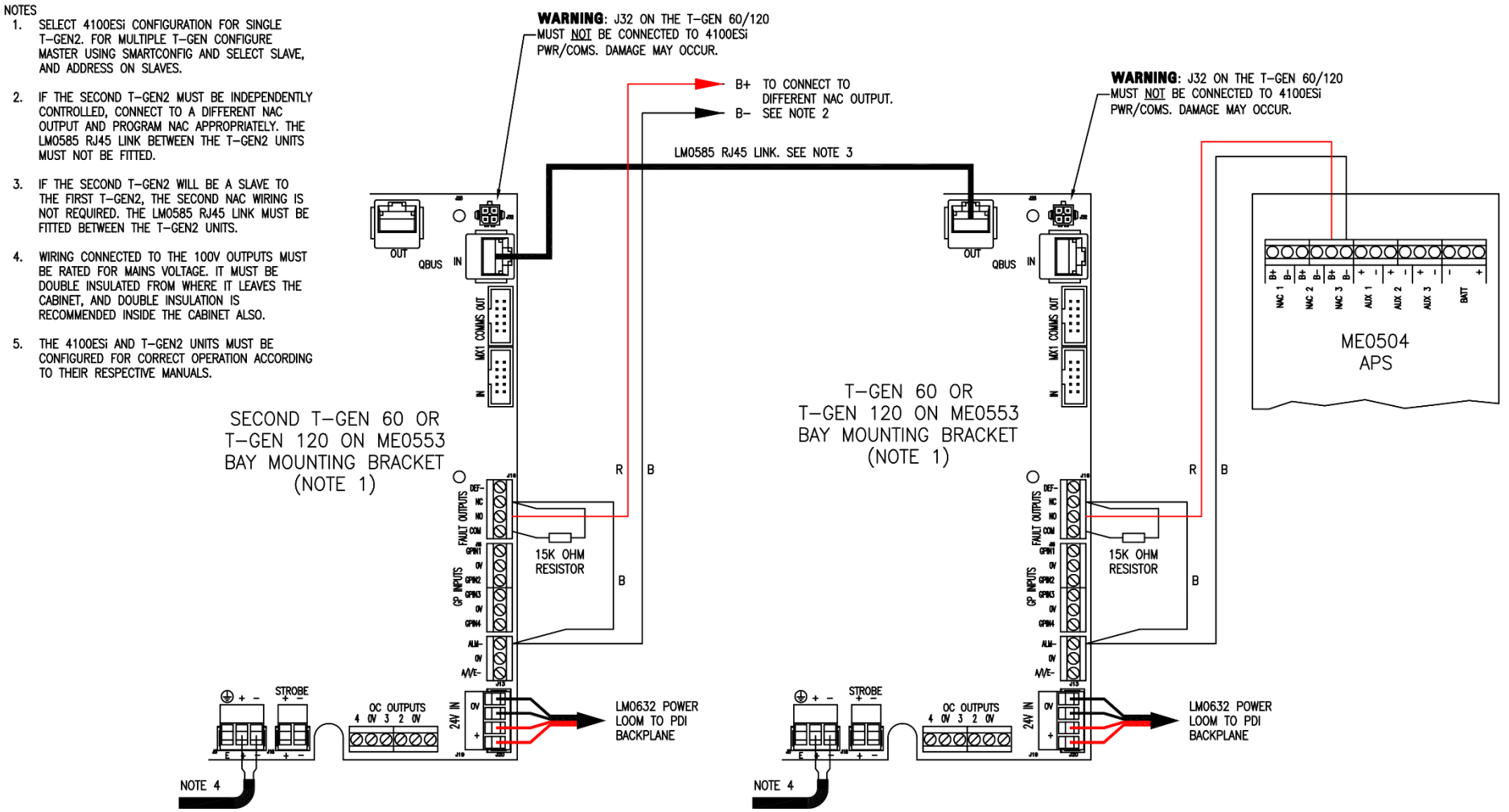
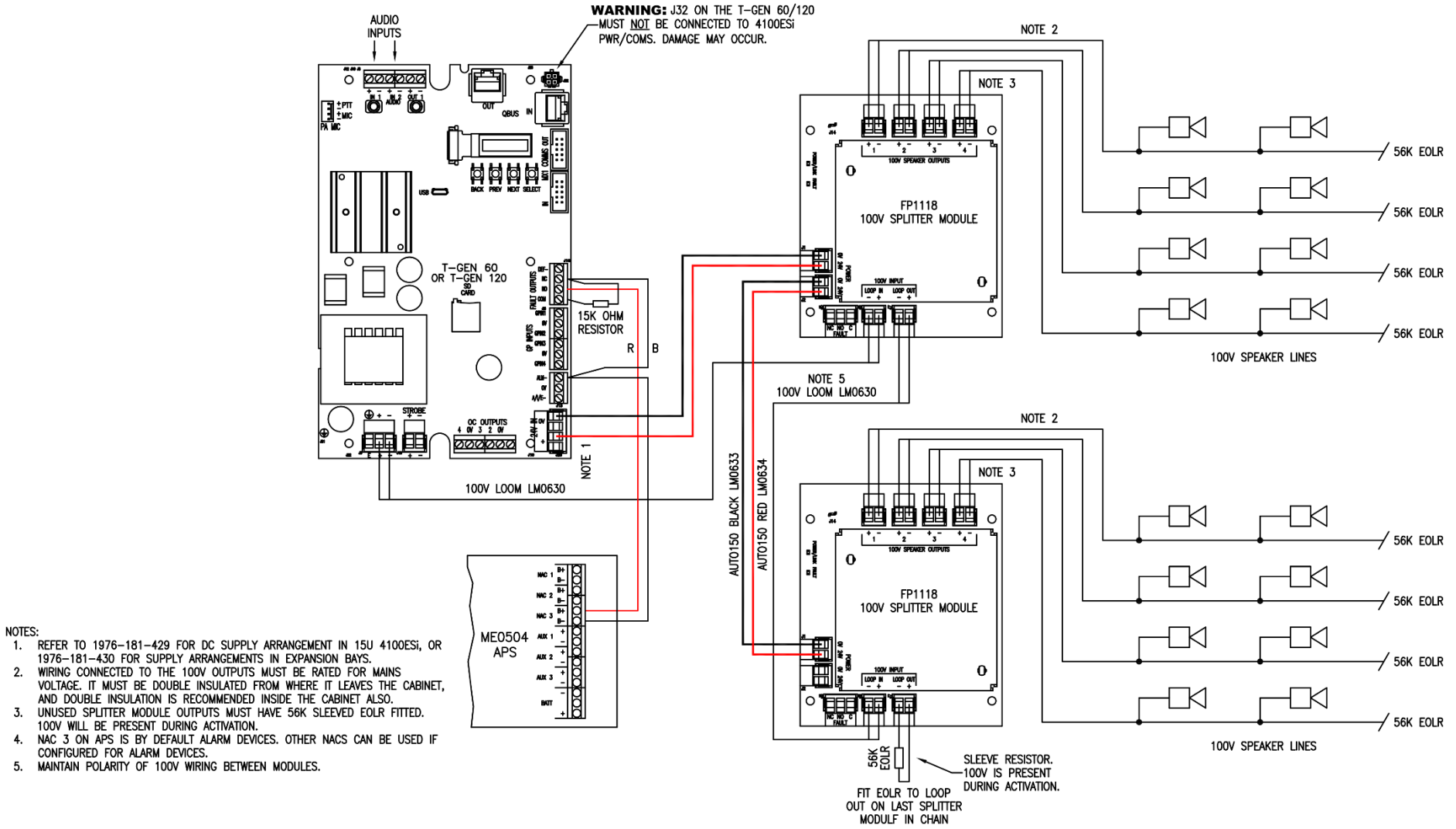


Figure 46. Wiring for T-GEN 60 and T-GEN 120 with switching modules



NOTES:

1. REFER TO 1976-181-429 FOR DC SUPPLY ARRANGEMENT IN 15U 4100ESi, OR 1976-181-430 FOR SUPPLY ARRANGEMENTS IN EXPANSION BAYS.
2. WIRING CONNECTED TO THE 100V OUTPUTS MUST BE RATED FOR MAINS VOLTAGE. IT MUST BE DOUBLE INSULATED FROM WHERE IT LEAVES THE CABINET, AND DOUBLE INSULATION IS RECOMMENDED INSIDE THE CABINET ALSO.
3. UNUSED SPLITTER MODULE OUTPUTS MUST HAVE 56K SLEEVED EOLR FITTED. 100V WILL BE PRESENT DURING ACTIVATION.
4. NAC 3 ON APS IS BY DEFAULT ALARM DEVICES. OTHER NACS CAN BE USED IF CONFIGURED FOR ALARM DEVICES.
5. MAINTAIN POLARITY OF 100V WIRING BETWEEN MODULES.

Mounting a T-GEN User Interface

The FP1123 T-Gen2 User Interface provides a Grade 3 User Interface for controlling T-GEN 2, and a microphone for making paging or emergency speech announcements. It is connected to the master T-GEN 2 using the cables included.

You can add a Grade 2 system to the 4100ESi panel using the PDI bays and installing the Grade 2 User Interfaces to the front panel on any free 3U slot.

If only the PA microphone is needed, then either of the 4100-ME0512K or 4100-ME0513K brigade kits can be fitted in a 7U display door (see Adding an ASE), or an FP0935 / FP0937 4U Brigade Door can be fitted to the cabinet. From each of these options, the ME0490 microphone is wired to the master T-Gen2.

Adding an HLI Board

The FP1143 T-Gen2 HLI board is connected to the master T-Gen2 and uses the 4100 Comms interface of the 4100ESi panel to exchange Alarm signals and Status information between the systems. You can mount the HLI board on the FP1120 bracket instead of a 100 V Switching / Splitter Module.

The HLI board must have LK1, LK2, LK3, and LK4 set to the 4100 Comms position. Use the four way cable supplied to connect the HLI board from its J1 4100 Comms connector to any available 4100 Comms connection in the 4100ESi, for example:

- P2, P3, P4, or P10 on the RUI+ CPU Motherboard (0566938)
- P4, P5, or P6 on the 4100U CPU Motherboard (566-227)
- P2 or P3 on the PDI backplane (or a spare connector on some slave cards)

Refer to drawing 1976-181 sheet 614.

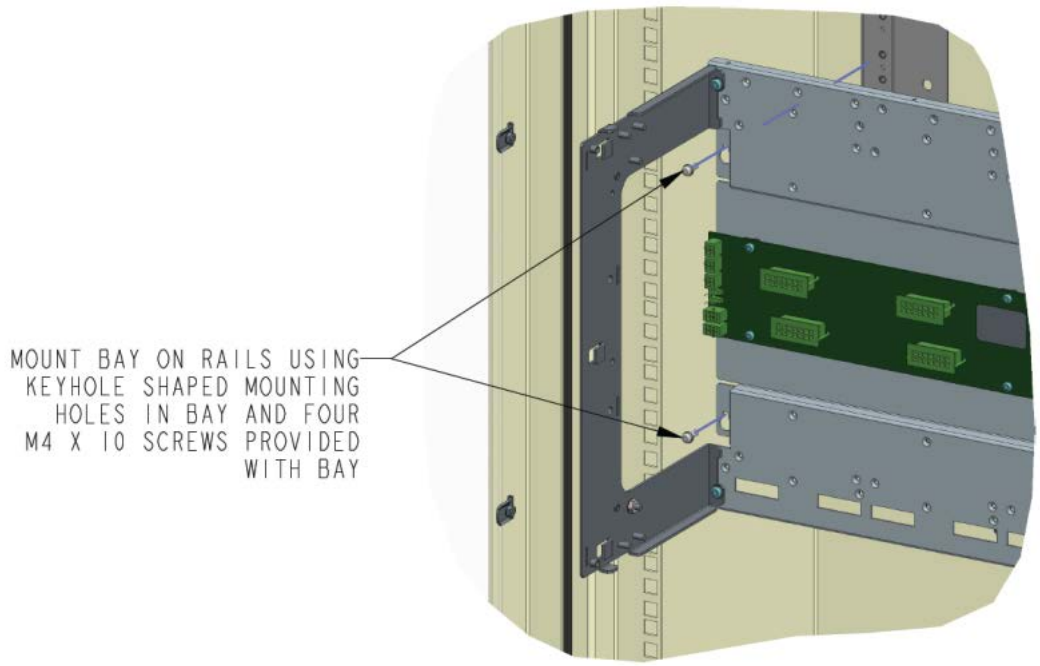
Refer to *LT0619 4100ESi Programming Manual* for more information about programming the 4100ESi for use with the HLI.

Adding a bay

Use part number 4100-KT0446 to order additional bays to fit to an existing cabinet.

For the 4100ESi panel, mount the bays to the rear of the cabinet. Fit the four M4 screws supplied to the correct holes in the mounting rails on the back of the cabinet. Hang the expansion bay on the screws and tighten.

Figure 47. Mounting the expansion bay in a BTO cabinet



Network card installation

Multiple 4100ESi and other 4100 series panels can be interconnected to form a networked fire alarm system.

For information about mounting and configuring the different network and media cards see Chapter 6.

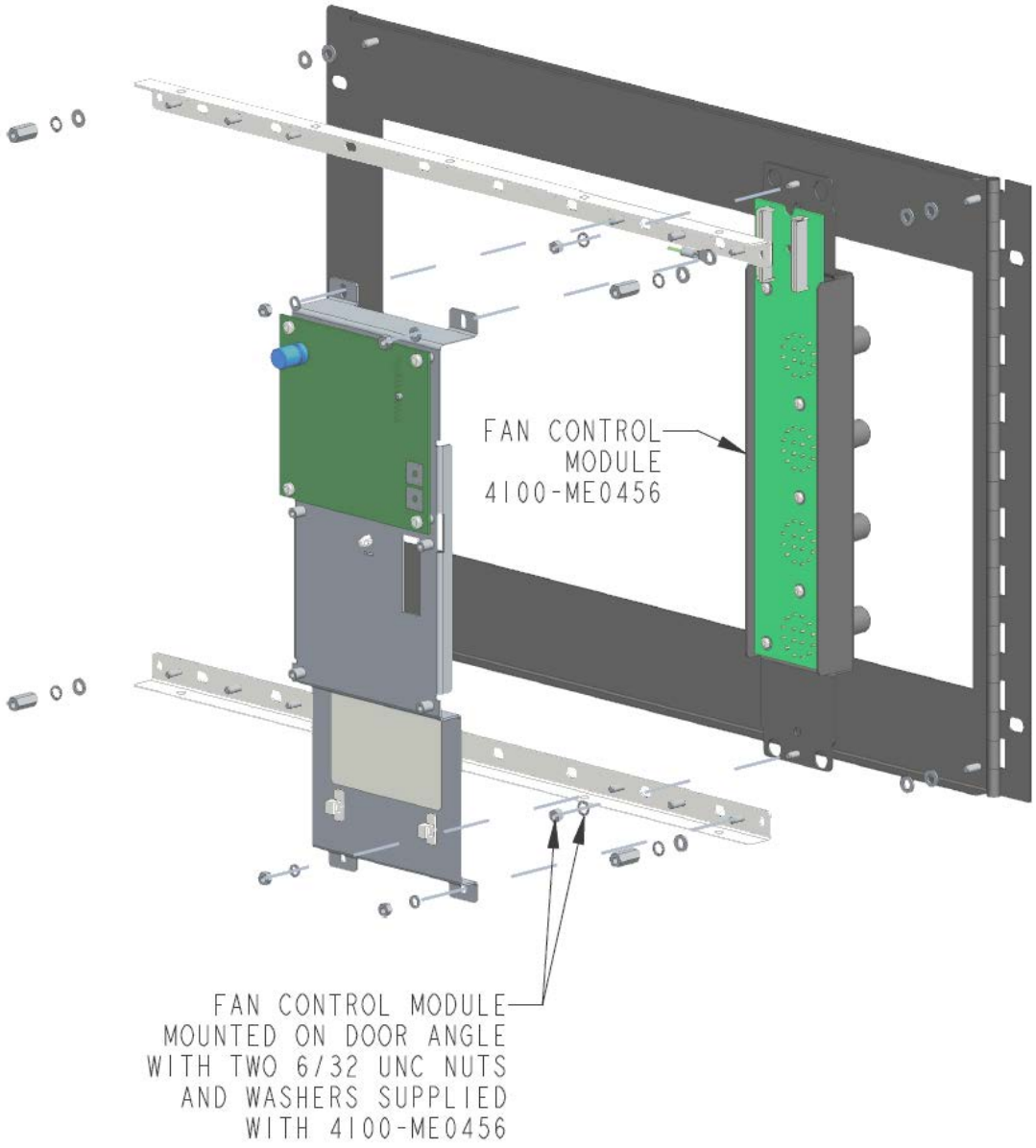
Adding fan controls or displays

4100ESi panels are supplied with one or more 7U display doors, in addition to the touchscreen interface. These additional doors are supplied fitted with eight blank plates, filling the opening in the display door. These blank plates can be replaced with other modules with indicators or controls.

For information about fitting alternative modules to these display doors, see Adding fan controls or displays.

> **Note:**
> Set-back brackets required for mounting the 4100-ME0456 fan control modules in the shallow 8U and 15U cabinets are not required in the deeper 28U and 40U cabinets. The fan control modules can be mounted in the same way as the LED/switch modules, as shown in Figure 48.

Figure 48. Mounting fan controls on a 7U door in a 28U or 40U cabinet



Adding an ASE

See Adding an ASE brigade transmission unit.

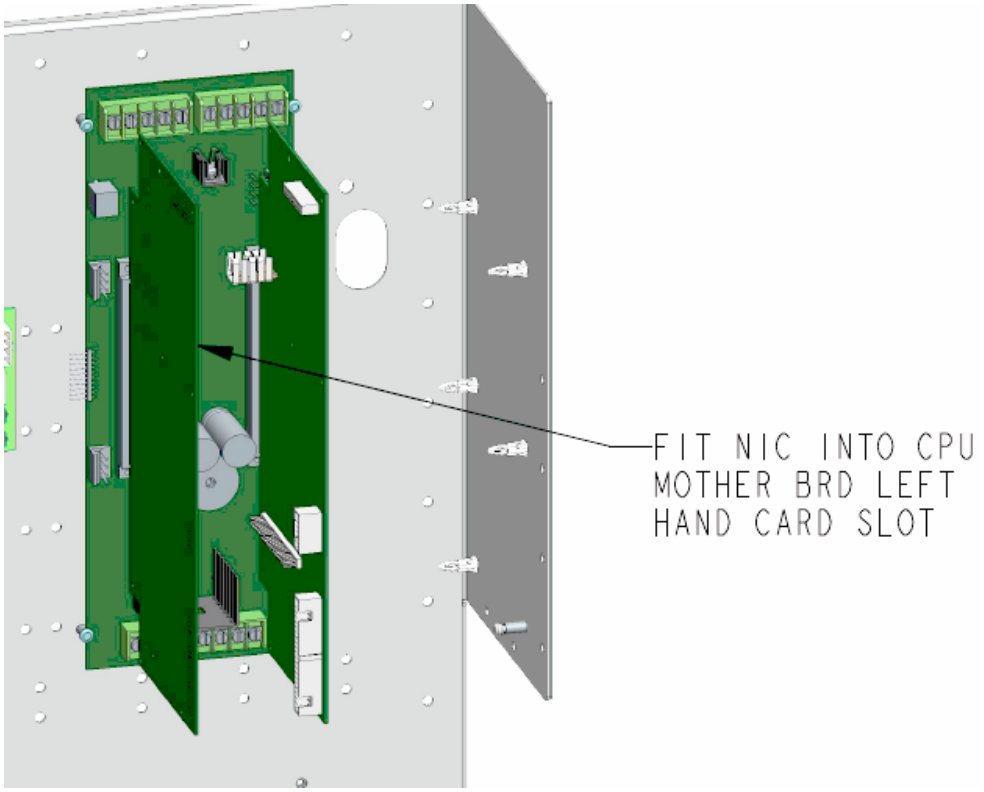
Chapter 6. Network card installation

Adding a 4100-6078 network card

Multiple 4100ESi and other 4100 series panels can be interconnected to form a networked fire alarm system. The connections between panels may be paired copper cable, a single multi-mode or single-mode fibre optic cable, or dual multi-mode fibres. A 4100-6078 Network Interface Card (NIC) must be installed in each panel, and each NIC must have two media cards installed to connect to the fire alarm network.

The NIC is a legacy format card that fits in the vacant connector on the CPU motherboard as shown in Figure 49. If the NIC is to have fibre media cards fitted, then the CPU Motherboard should not be fitted in the top bay of the cabinet because the space for bending the optical fibres may be too tight.

Figure 49. NIC on a CPU motherboard



Before fitting the NIC, set the jumper settings on the NIC, the CPU motherboard, and the media cards correctly. Refer to *LT0615 Media Card Installation Instructions* for details on mounting the media cards on the NIC, and then install the NIC on the CPU motherboard.

Four types of media cards are compatible with the NIC.

- The 4100-6056 Wired Media Card for RS485 connections.
- The 4100-6057 Fibre Media Card for multi-mode fibre optic connections using two fibres.
- The 4100-6301 and 4100-6302 single-mode left/right media cards for use with one single-mode fibre-optic cable.

- The 4100-6303 and 4100-6304 multi-mode left/right media cards for use with one multi-mode fibre-optic cable.

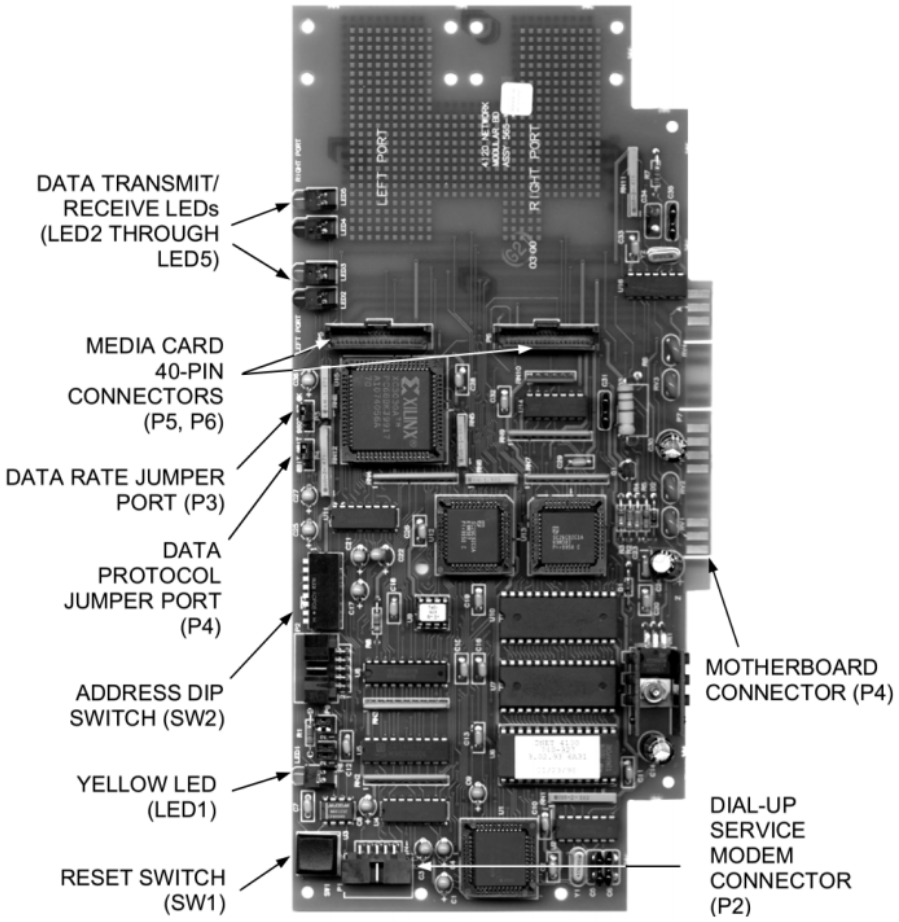
Mount two media cards of the required type to the NIC. The media cards do not need to be the same type, but must match the connection type of the next node.

The NIC has two ports; left and right. The network is wired in a ring topology; the left port on one NIC connects to the right port on the next NIC. This pattern continues around the loop.

Network card settings

Set the NIC card and CPU motherboard jumpers according to the position of switches and links on the NIC shown here:

Figure 50. NIC indicators, controls, and connectors



On the CPU motherboard

Links P10/P11 on the CPU motherboard are fitted in position 1–2. This is the default setting.

On the NIC

Use SW2 to set the NIC card address. This address must match the address set for the NIC in the configuration file for the panel.

There are two jumpers on the NIC. All setting options are labelled on the card.

P3: Determines the NIC data transmission rate. All NICs in a networked fire alarm system must be set to the same data transmission rate.

Position 1 – 2 (the right two pins) jumpered: 57.6 kilobits/s. This is the default setting.

Position 2 – 3 (the left two pins): 9600 bits/s.

P4: Determines the data protocol that the NIC is using. All NICs in a networked fire alarm system must be set to the same protocol.

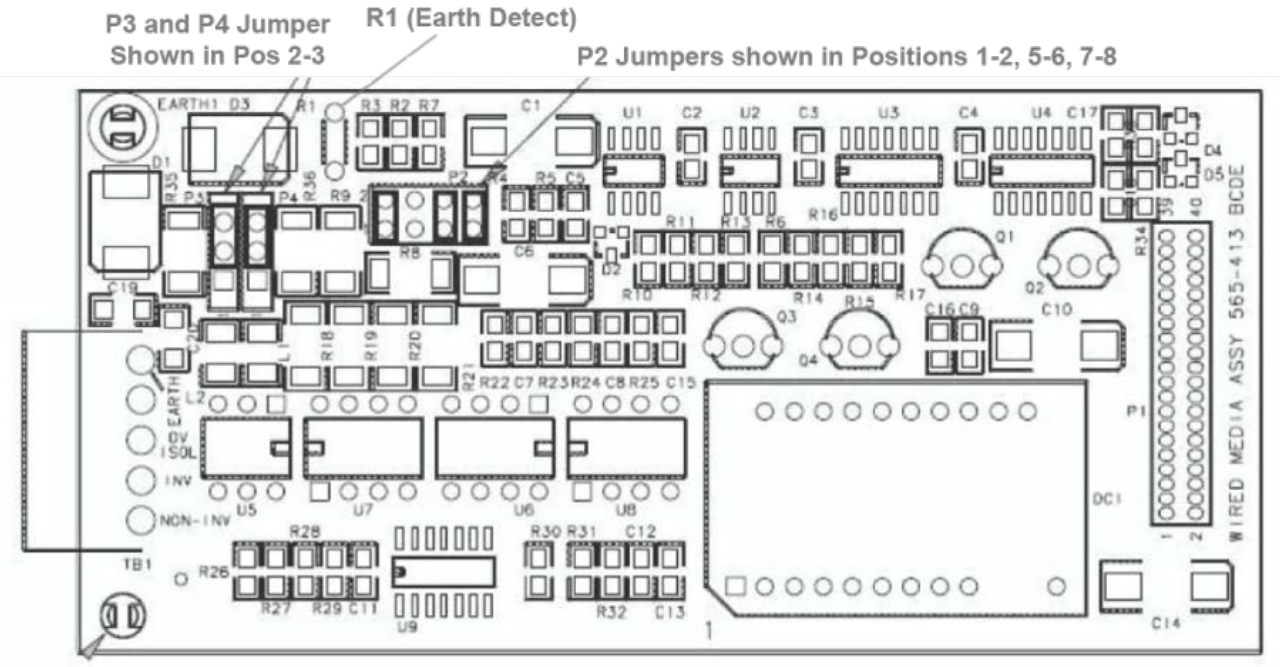
Position 1 – 2 (the right two pins) jumpered: 9 bit. This is the default setting.

Position 2 – 3 (the left two pins): 8 bit.

Wired Media card settings

The Wired Media card (4100-6056) has two jumpers that select the cable termination type.

Figure 51. 4100-6056 wired media card



P2: Selects the wire type. Fit positions 1–2, 5–6, and 7–8 for 1.0 mm^2 or heavier paired wiring. Remove all jumpers for twisted pair telephone cable wiring.

P3 and P4: Rev C and later versions. For wired connections 1.5 km or less, fit jumpers in position 2–3. For longer lines, install jumpers in position 1–2.

> **Important:**
> The wired media card does Earth fault detection on the LEFT port only. Cut and remove R1 from the wired media card on the right port.

Fibre optic media card settings

Multi-mode fibre connections using two fibres use the 4100-6057 (746-109) fibre optic media card. The 565-261 and 566-376 cards are older cards installed in some existing systems. The 565-261 and 566-376 cards do not have adjustable settings.

On the 746-109 card, link JW1 adjusts the optical output power to suit the path loss. See Table 7.

Figure 52. 4100-6057 Fibre optic media card

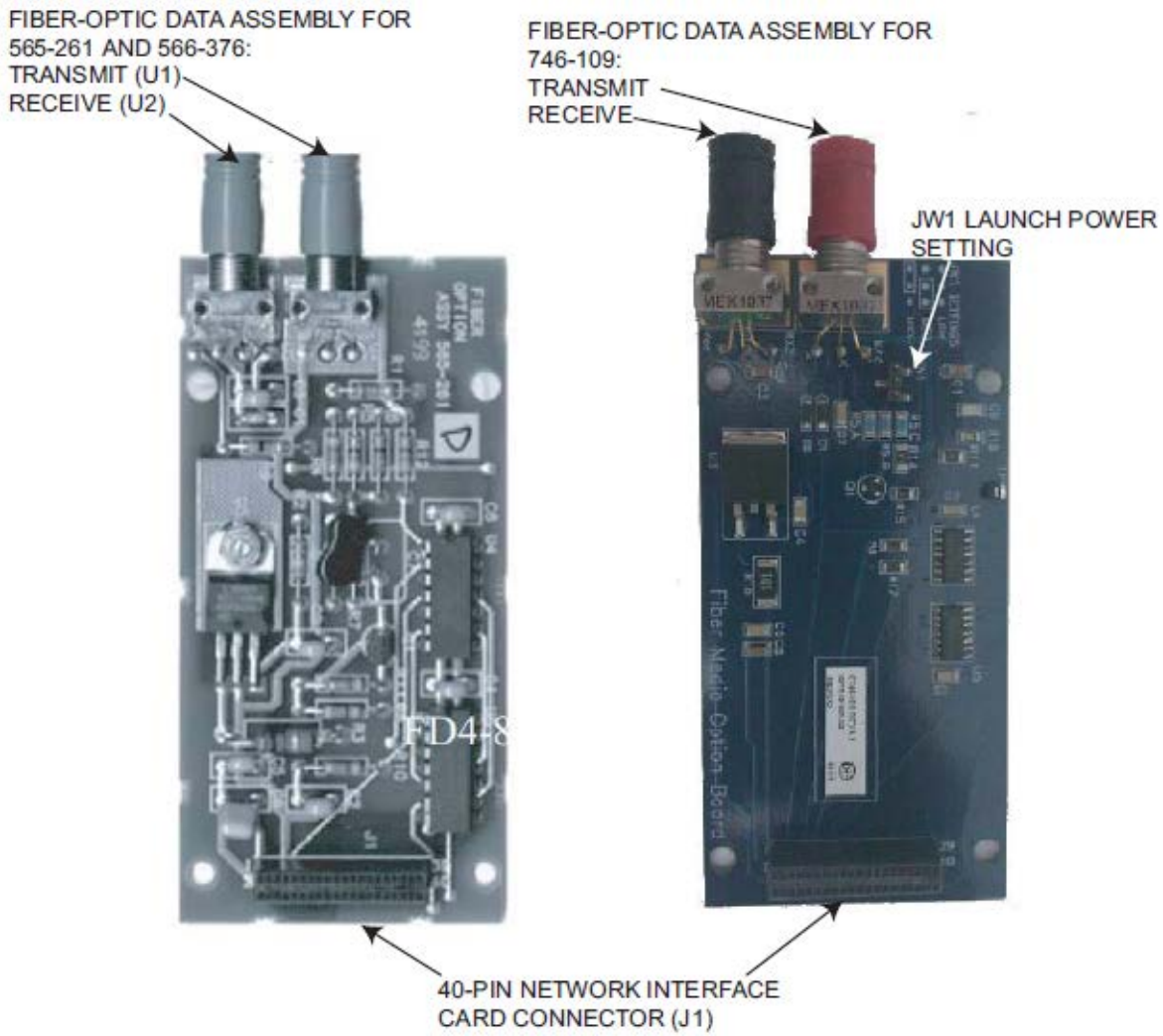


Table 7. Optical outputs on 746-109 card

JW1 settings	Path Loss	
	62.5µm fiber	50µm fiber
Low	11dB	6dB
Medium	16dB	12dB
High	20dB	17dB

4100-6301/4100-6302/4100-6303/4100-6304 fibre media cards

The 4100-6301/4100-6302/4100-6303/4100-6304 fibre media cards use a single fibre-optic cable to provide 4120 network connections. These media cards must be paired left or right at the two ends. To install the media cards on the NIC cards, match the left or right media cards to the left or right port of the NIC.

- 4100-6301 Single -mode left media card
- 4100-6302 Single-mode right media card
- 4100-6303 Multi-mode left media card
- 4100-6304 Multi-mode right media card

The fibre and connector types required are:

- Single-mode 9/125 µm fibre with SC connectors
- Multi-mode 50/125 µm or 62.5/125 µm fibre with SC connectors

The allowed losses/distances are:

- Single-mode – 22 dB (<25 km)
- Multi-mode – 18 dB (<5 km)

For normal operation, the dipswitches of SW2 must all be ON.

Mounting media cards

Each media card mounts in a connector with two standoff supports located at the top end of the NIC. Refer to *LT0615 Media Card Installation Instructions* for details on mounting the media cards on the NIC and fitting the required cable tie restraint.

> **Note:**
> Mount the left card of the 4100-6301/4100-6302/4100-6303/4100-6304 on the left port of the NIC and the right card of the 4100-6301/4100-6302/4100-6303/4100-6304 on the right port of the NIC.

Chapter 7. 8 Zone/Relay Card

The 4100-5013 8 Zone/Relay Card is a single height PDI card that provides 8 circuits that can be configured for wiring as either:

- A conventional detector circuit, or
- A normally open or normally closed relay output.

In the conventional detector circuit mode, you can connect a range of detectors with the quantities shown in Appendix C, along with any of three different EOL resistor values. The default EOL is a 3.3K Ω. resistor, but values of 2.7K Ω. and 2K Ω. are also supported.

If only clean contact devices are connected (no electronic detectors), use an EOL value of 6.8K Ω. This reduces the quiescent current consumption on the circuit.

The 4100ESi Programmer specifies the actual EOL to use in the circuit programming, refer to LT0619 for more information.

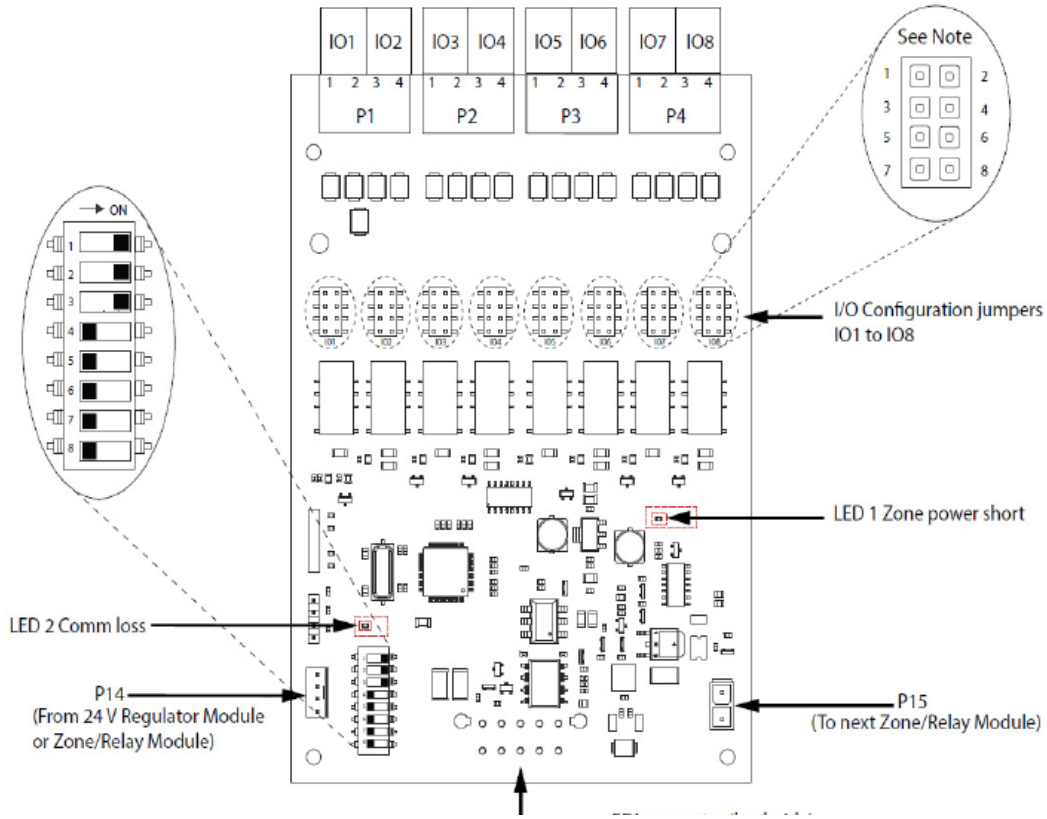
The wiring arrangement and details are shown on drawings 1976-181 sheets 209 and 101 in LT0432.

In Relay Output mode, each output provides either a normally open or normally closed volt-free contact that can be used to signal or control other equipment. Use the 4100ESi Programmer to configure the operation of each output by including the point in an output zone list, or control it directly using custom control.

The wiring and details for relay output mode are shown in drawing 1976-181 Sheet 435 in LT0432.

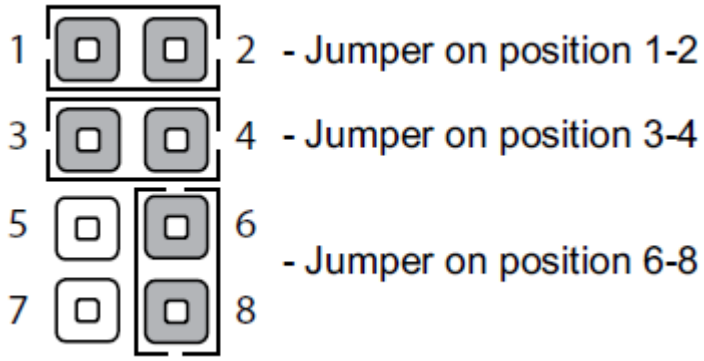
Configure each circuit for its operating mode using jumpers on the 8 Zone/Relay Card. See Figure 53.

Figure 53. 4100-5013 8 Zone/Relay link settings



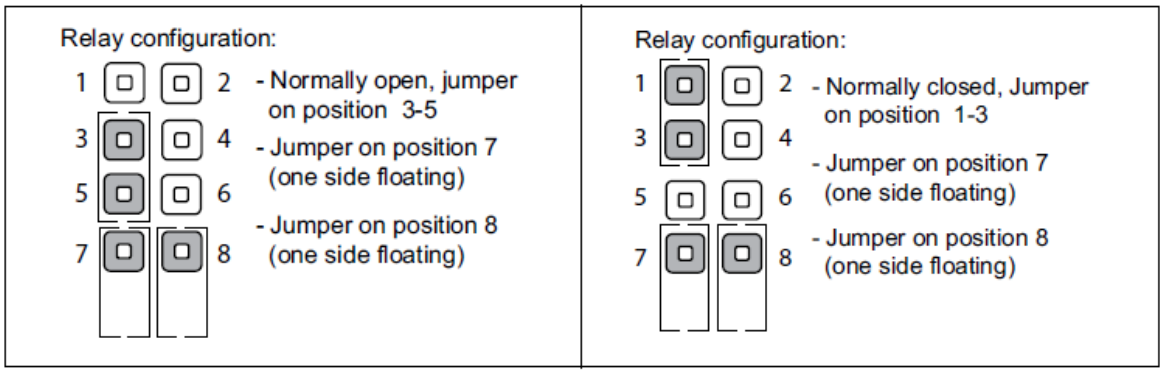
Note:
For conventional detector operation, select Class B operation by fitting one jumper on or across pins 1–2, one on or across pins 3–4,and one on or across pins 6–8.

Figure 54. Jumper positions for conventional detector operation



For relay output operation, fit one jumper on or across pins 3–5 for a normally open output and on or across pins 1–3 for a normally closed output.

Figure 55. Jumper positions for relay output configuration



Leave circuits that are not used unprogrammed in the 4100ESi Programmer (Device Type = None). Set the links for Class B Conventional detector mode with no EOL fitted.

Set the Address Switch to match the required address. See Appendix E.

Mount the 8 Zone/Relay Module on the PDI backplane in 8U, 15U and larger cabinets, or on each side of an ME0516 Dual PDI Card Bracket. Wiring to P14 and P15 is not required. Suitable power is obtained from the PDI backplane as long as the factory-supplied jumpers remain fitted to P14.

The field wiring to detectors must include a ferrite bead on each cable pair. See Figure 62.

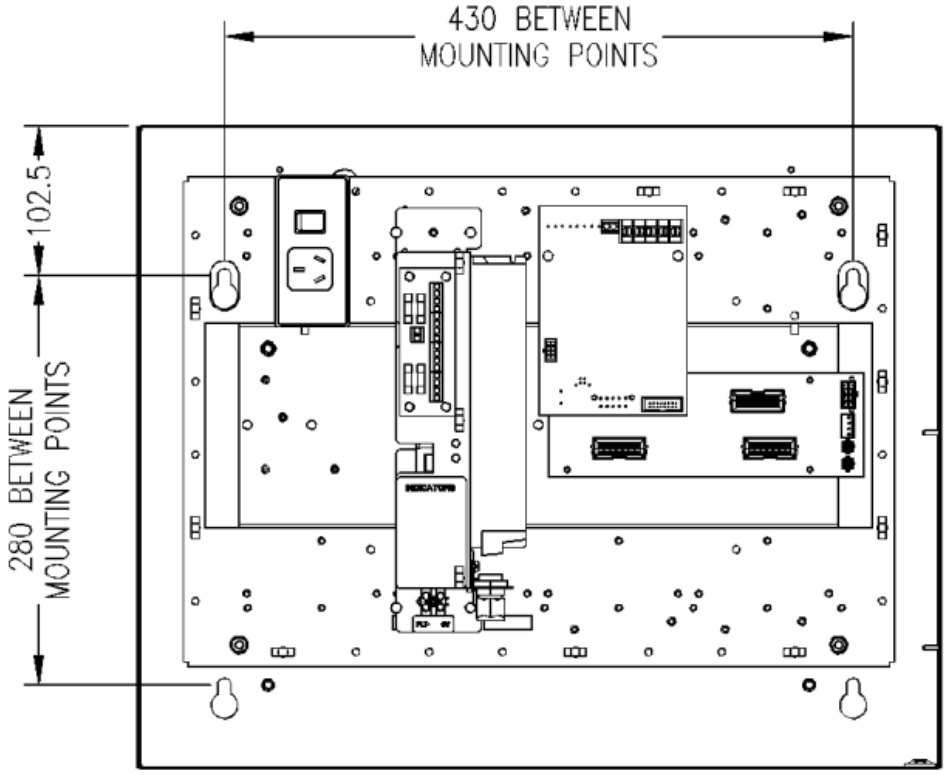
Chapter 8. Remote Fire Brigade Panel

The Remote Fire Brigade Panel is a specialised Remote Transponder Unit (RTU). The Remote Fire Brigade Panel provides one or more remote user interfaces to a 4100ESi system for use by Fire Brigade members, local building supervisors, or service personnel.

Mounting the cabinet

Mount the 8U cabinet on a wall using four M8 screws or studs. Space the screws or studs 430 mm horizontally and 280 mm vertically.

Figure 56. Mounting the remote Fire Brigade panel cabinet

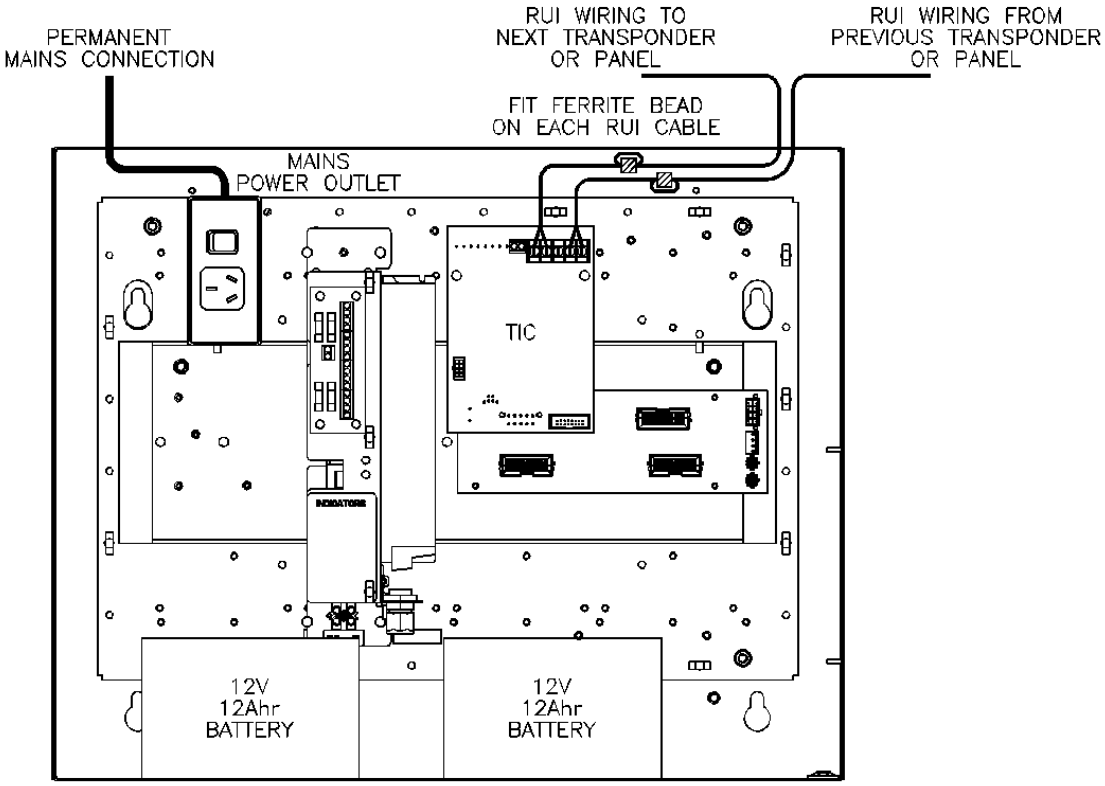


Cabinet connections

Mains power

Wiring the FP1048 Remote Fire Brigade Panel to the mains outlet must be installed by a suitably qualified person. Ensure the 4100ESi is wired with a dedicated current limited mains supply, complying with the requirements outlined in AS/NZS 3000 Wiring Rules. Ensure the outer sheath of the mains cable extends into the mounting block of the mains outlet. The earth wire connects to the earth terminal on the gear plate.

Figure 57. Remote Fire Brigade panel mains and RUI communications



RUI communications

To provide fault tolerance, Class A loop wiring is required for RUI communications wiring from the 4100ESi host panel to the Remote Fire Brigade Panel. The communications wiring connection is 1.5 mm² shielded twisted pair cable. The maximum distance around the loop is 1200 m. Remote Transponders, including the Remote Fire Brigade Panel, are connected to the loop in any order.

LT0432 4100ESi Wiring diagrams sheet number 600 shows the wiring between the 4100ESi and the Remote Fire Brigade panel (Transponder unit).

Commissioning

The Transponder Interface Card (TIC) address is set using the eight position DIP switch on the TIC. Set the InfoAlarm+ display address using the touchscreen. These addresses must match the programmed addresses in the host 4100ESi panel.

To provide 24 hour standby operation, two 12 V12 Ah batteries are connected to the Remote Fire Brigade Panel as a back up to the ME0470 mains power supply. Battery leads are supplied with the Remote Fire Brigade Panel.

The TIC monitors the power supply fault output, and fault signals pass to the host 4100ESi panel for indication. Open the InfoAlarm+ display door to access the inside of the cabinet; this shows more detailed information about any faults using a flashing pattern on the yellow indicator on the power supply. Refer to the information label on the power supply for detail of the fault. The power supply does not require any configuration or adjustment during commissioning.

Chapter 9. Remote Transponder Unit (RTU)

An RTU is a remotely located cabinet containing slave modules controlled by a 4100ESi master panel. The RTU uses a TIC, not a CPU card. A TIC provides data interconnection between the 4100ESi host panel and remote locations. It is possible to fit a display to the RTU if required. An RTU is supplied in 8U, 15U or larger cabinets. This section describes 8U and 15U RTUs. For information about larger cabinets see page 49.

The 15U RTU has four PDI blocks on the backplane. One PDI block is used by the TIC. Any PDI cards can be fitted in the vacant blocks. Use an ME0516 Dual PDI bracket to fit additional PDI cards if necessary. See Chapter 4, Using the Dual PDI bracket, for more information about the Dual PDI bracket.

A LPS 10A supply is supplied with the 15U RTU. There is battery space at the bottom of the cabinet for at least 33 Ah batteries. The LPS provides three NAC outputs, four relay outputs, three controllable 24 V outputs and two supervised inputs. This reduces the need for additional cards.

The 8U RTU is supplied with an APS and a TIC, leaving room for up to four additional PDI blocks, or two legacy slots, or a combination. The TIC occupies one PDI block. The cabinet provides limited space for batteries.

In the 8U RTU, the PSU can be one of the following:

- An APS using PDI style mounting, and providing three NAC outputs, three AUX supplies, four relay outputs and two inputs.
- Using an ME0470 5 A unit legacy style mounting with the TIC wired to monitor the Fault output.

Mounting the cabinet

The recommended cabinet wall fixing is M8 screws or studs.

Mount an RTU without a display at any height. RTUs with displays must adhere to the mounting heights specified in AS1670.1.

Figure 58 and Figure 59 show the recommended path for connection of mains power wiring.

Figure 58. Mounting an 8U cabinet RTU

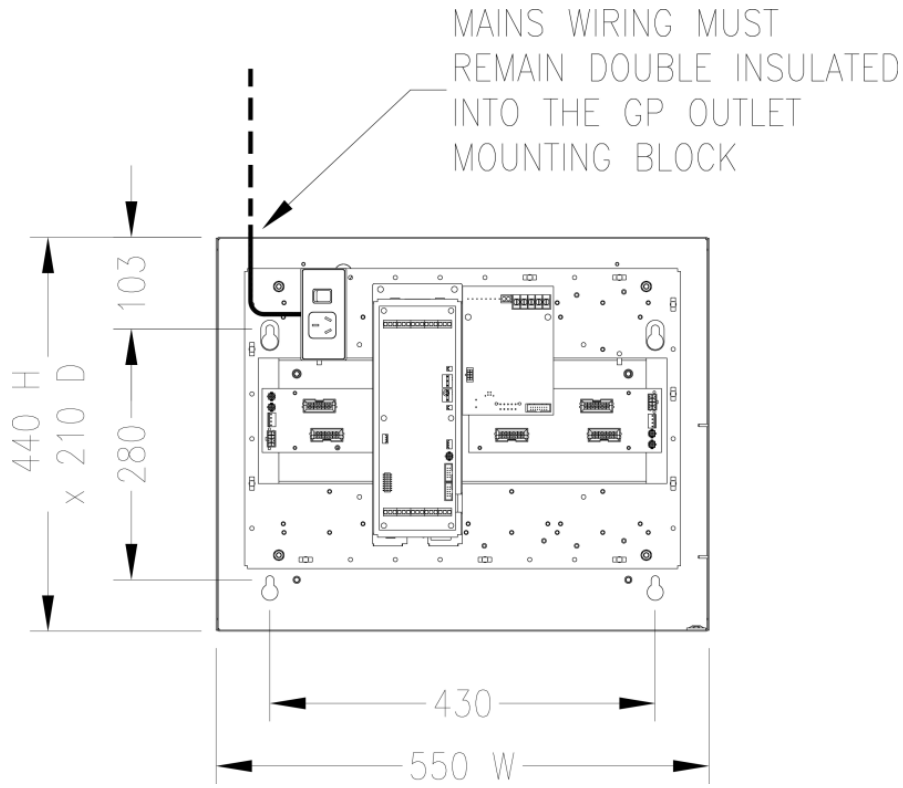
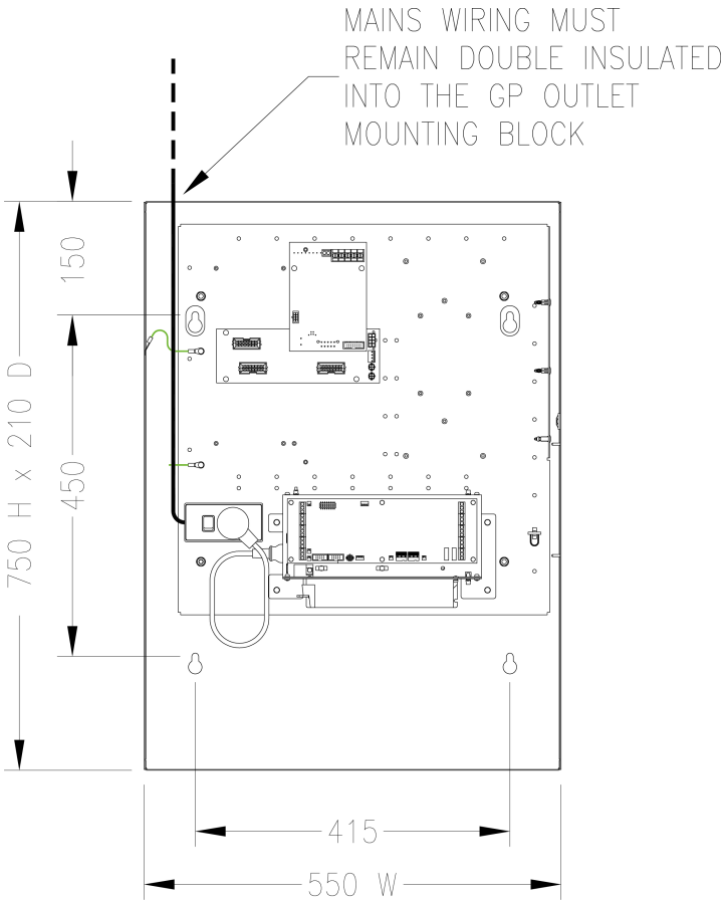


Figure 59. Mounting a 15U cabinet RTU



Cabinet connections

Mains power

Wiring to the mains outlet inside the RTU must be installed by a qualified person. Ensure the 4100ESi is wired with a dedicated current limited mains supply, complying with the requirements outlined in AS/NZS 3000 Wiring Rules.

A mains 10 A circuit breaker is required for systems with up to three power supplies. On installations with four or more power supplies, a circuit breaker of 16 A is required.

To meet electrical safety requirements, ensure the outer sheath of the mains cable extends into the mounting block of the mains outlet. The incoming earth wire must be connected to the earth terminal on the gear plate.

RUI communications

Class A loop wiring is required for RUI communications wiring from the 4100ESi host panel to the RTU, providing fault tolerance. The communications wiring is 1.5 mm² shielded twisted pair cable. The maximum distance around the loop is 1200 m. RTUs are connected to the loop in any order.

See Figure 62. Ferrite bead wiring for information about fitting the ferrite beads.

Commissioning

Set card addresses on the eight position DIP switch on the TIC, the APS/LPS, and any other cards in the RTU. Match the address to the programmed address in the host 4100ESi panel.

To provide 24 hour standby operation, connect two 12 V batteries to the RTU as a backup to the LPS or APS power supply. Battery leads are supplied with the RTU.

The LPS/APS monitors power supply faults, and fault signals pass to the host 4100ESi panel for indication. The indicators on the LPS/APS give a basic go/no go indication of fault status.

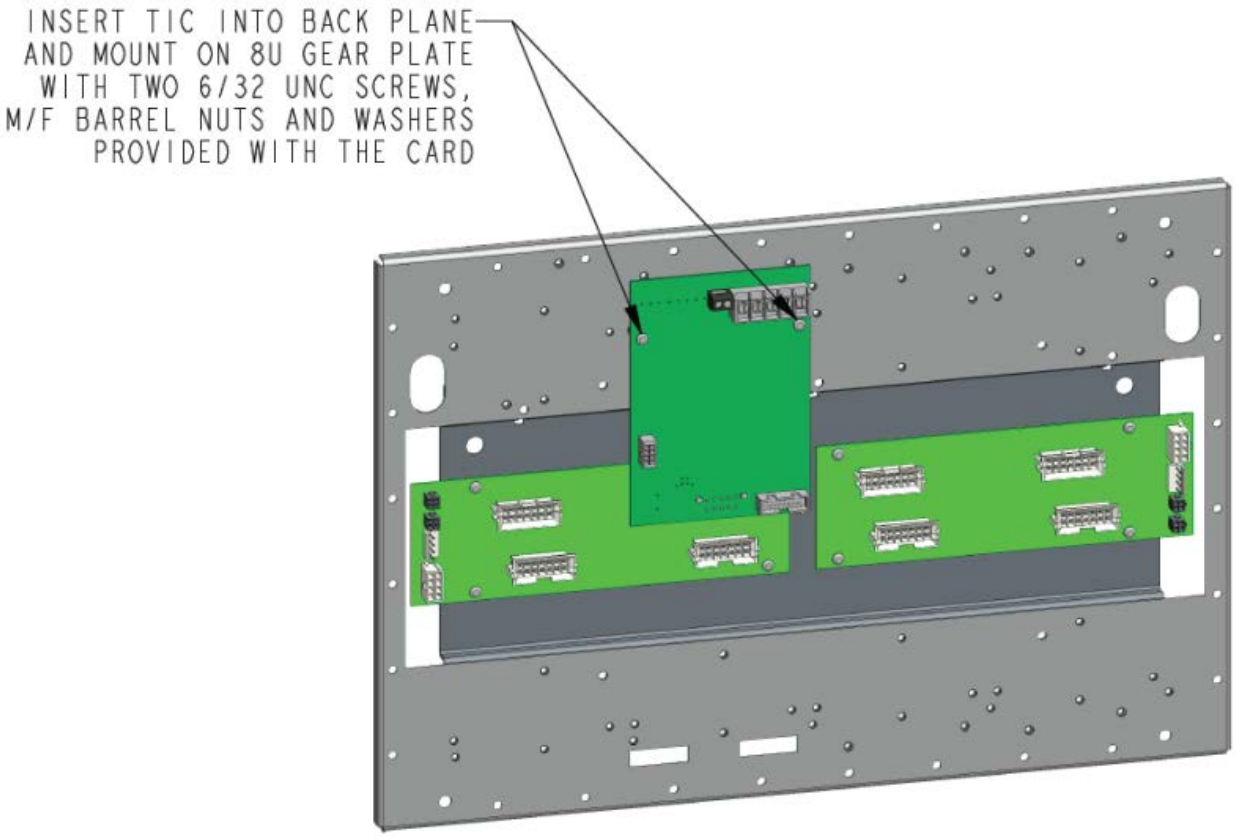
The power supply does not require any adjustment during commissioning.

Adding PDI cards

Up to four additional standard PDI cards, two dual height PDI cards, two dual PDI brackets, or a combination of these, fit in the unused PDI blocks in the 8U RTU cabinet.

> **Note:**
> In an 8U cabinet, a Dual PDI bracket mounted on the gear plate physically clashes with any LED Switch controller, LED Pushbutton modules, or fan control modules fitted to a display door directly in front of the bracket. Careful positioning is required.

Figure 60. Mounting a PDI card on the PDI backplane in the 8U cabinet



In the 15U RTU, there is space for three additional PDI cards on the backplane.

Adding legacy cards

If the right side of the cabinet is not in use by PDI cards, the 8U RTU cabinets with blank outer doors supports up to four legacy format cards,

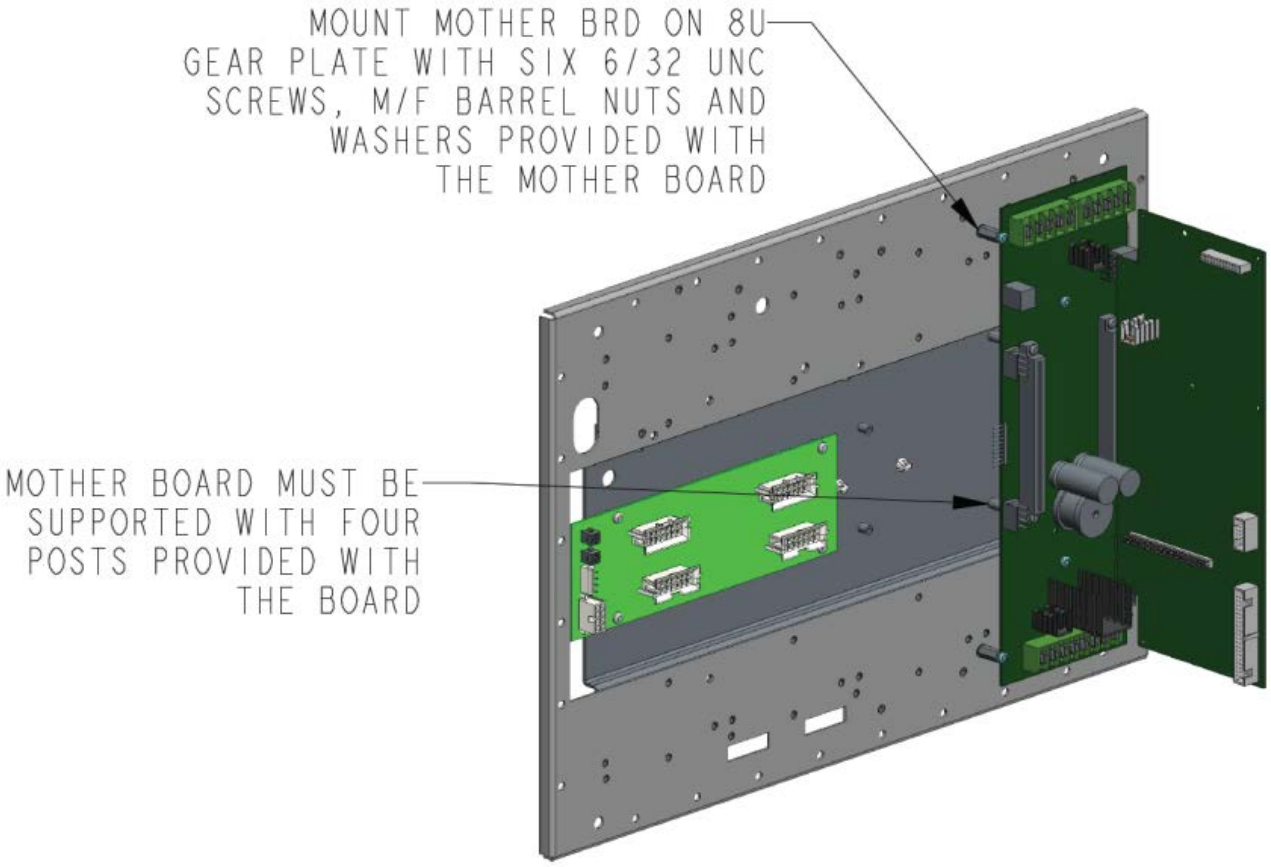
Mount legacy motherboards over the PDI backplane using the metal standoffs and screws supplied with the card.

24 V and 8 V power to legacy cards is supplied from the TIC card using the 734-078 wiring loom. This loom connects P1 on the TIC to the following:

- P2 for black and blue wire pairs on any legacy motherboard.
- P3 for black and white wire pairs on any legacy motherboard.

> **Note:**
> Inner display doors in the 8U cabinets prevent legacy cards being fitted.

Figure 61. Mounting a legacy card and motherboard in the 8U cabinet



A retaining bar is required to hold legacy cards in place. See Figure 24 and Figure 25.

Appendix A System specifications

Panel type	Includes
Standard 4100ESi Series Fire Alarm Panels	
4100-FP1045	Compact 4100ESi- CPU, 10A PSU, 1 MX Loop, 15U Titania CAB, MCP, 1x8 Slot Display
4100-FP1046	8U expansion CAB, window, Titania, suits PDI or legacy cards
4100-FP1086	8U expansion CAB blank door, Titania, suits PDI or legacy cards
FP1029	8U battery box, Titania
4100-FP1087	15U expansion CAB blank door, Titania, with 10A PSU
4100-FP1088	15U expansion CAB full window, Titania, 15U gear plate, 2x8 slot display doors
Build to Order 4100ESi Series Base Fire Alarm Panels	
15U Base panel	4100ESi-CPU, InfoAlarm+, 10 A PSU, 15U, MCP, 1x8 slot display door (Titania) (no MX loop)
28U Base panel	4100ESi-CPU, InfoAlarm+, 10 A PSU, 2x8 slot display doors (Cream Wrinkle) (no MX loop)
28U NDU	4100ESi NDU-2xCPU, InfoAlarm+, 10 A PSU, 3x8 slot display doors (Cream Wrinkle) (no MX loop)
40U Base Panel	4100ESi-CPU, InfoAlarm+, 10 A PSU, 3x8 slot display doors (Cream Wrinkle) (no MX loop)
40U NDU	4100ESi NDU-2xCPU, InfoAlarm+, 10 A PSU, 3x8 slot display doors (Cream Wrinkle) (no MX loop)
Build to Order 4100ESi Series Base Data Gathering panels (DGPs)	
15U Base DGP	15U 4100ESi DGP-CPU, Network Card (no media) 10 A PSU blank door
28U Base DGP	28U 4100ESi DGP-CPU, Network Card (no media), 10 A PSU, blank door, 3x rear bays, (Cream, Wrinkle)
40U Base DGP	40U DGP-CPU, Network Card (no media), 10 A PSU, blank door, 4x rear bays, (Cream, Wrinkle)
Build to Order 4100ESi Series Base Remote Transponder Units (RTUs)	
8U Base RTU	8U RTU TIC, 10 A PSU, blank door (Titania), (fits 4x legacy cards or 5 PDI cards, needs battery box)
28U Base RTU	28U RTU TIC, 10 A PSU, blank door, 3x rear bays, (Cream, Wrinkle)
40U Base RTU	40U RTU TIC, 10 A PSU, blank door, 4x rear bays, (Cream, Wrinkle)
Custom Build to Order Panels	
8U, 15U, 28U, 40U	Custom panels can be configured to suit the site requirements.
38U, 40U, IP65 or stainless steel	Custom stainless steel or IP65 cabinets can be configured to suit site requirements.

Cabinet sizes	
8U	440 mm H x 550 mm W x 210 mm D
15U	750 mm H x 550 mm W x 210 mm D
28U	1300 mm H x 575 mm W x 380 mm D
40U	1865 mm H x 575 mm W x 380 mm D

Environmental specifications	
Operating	0°C to +45°C
Operating humidity	Up to 93% RH, non-condensing
IP Rating	All cabinets rated to IP30, except SZxxxx IP65 cabinets (special order)

Power supply			
APS power supply ME0504 LPS power supply ME0508	Input power	195-264 VAC 50-60 Hz	2.4 A
	Total power supply output rating	10 A maximum @ nominal 27.3 VDC (7A long term as per AS7240.4 rating method)	Output switches to battery backup during mains AC failure or brownout conditions. Load current is sum of Card power, Signal power, NAC power, switched output, ASE and battery charging.
	NAC outputs		3 x outputs rated at 2 A maximum @ nominal 27.3 VDC.
	Switched power outputs		3 x 2 A maximum @ nominal 27.3 VDC.
	Battery Capacity Range		6.2 Ah to 75 Ah; 1.8 A or 3.5 A charging current.
	Charger characteristics and performance		Temperature compensated, dual rate, recharges depleted batteries within 24 hours per AS 7240.4 and AS1670.1.
VIGILANT expansion power supply 4100-ME0470 (Not approved to AS 7240.4)	Input Power	195-264 VAC 50-60 Hz	1.2 A
	Total Power Supply Output Rating	5 A max. @ nominal 27.3 VDC	Output switches to its own (optional) battery backup during mains AC failure or brownout conditions.

Compatible actuating devices, cards, and peripherals are listed in Appendix C and Appendix F.

Panel power loads and PSU/battery capacity requirements are calculated using the 4100 Cost tool.

Model	4100-6077AU or 4100-6077LIM	
MX Loop output reference		
MX Loop output	Voltage	40 VDC maximum
	Current	500 mA maximum
Number of addresses	250 maximum	
4100ESi panel capacity	Up to 30 4100-6077 MX Digital Loop Cards	
Loop distance	2000 m maximum	
Loop resistance	150 Ω maximum	
Loop capacitance	0.2 µF maximum	
Loop inductance	1.5 mH maximum	
Module power requirements		
Voltage range	24 VDC nominal, supplied from the control panel power supply.	
Card power consumption	30 mA for module only.	
Signal power	1200 mA maximum, fully loaded at 250 devices; actual current depends on connected devices and state, for example Sounders on.	

Appendix B Cable characteristics

MX Addressable Loop

MX cabling should be arranged in Class A loop style, but this loop can have Class B spur wiring connected to it. To comply with AS 1670.1 requirements, each spur must not cover more than a single detection zone, or have devices serving more than one function.

The MX loop wiring for each MX Loop Card should not exceed these limits:

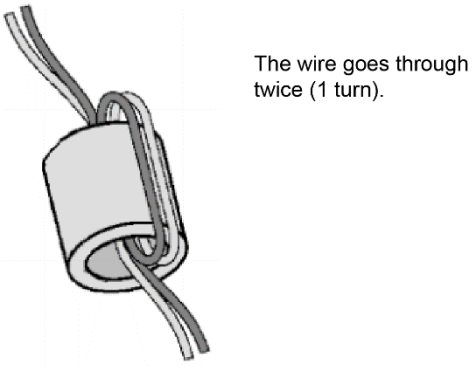
- Devices per loop: up to 250
- Wire size 0.8-3.3 mm²
- Wiring distance not more than 2000 m around the loop
- Cable resistance not more than 150 Ω, capacitance not more than 0.2 µF, inductance not more than 1.5 mH
- Cable screen should be earthed only at the loop card

MX Loop characteristics:

- Maximum loop voltage: 40 VDC
- Maximum loop current: 500 mA peak
- Earth fault detection: 10K Ω
- All loop wiring is supervised.
- All loop wiring is power limited.

Use ferrite beads on each pair of wires leaving the 4100ESi cabinet. See Figure 62.

Figure 62. Ferrite bead wiring



RUI

RUI cabling can be accomplished either through Class A or loop wiring, and Class B or spur wiring.

Using Class A wiring, transponder cabinets can communicate with the host panel even in the event of a single open or short circuit somewhere in the loop.

Class B is not recommended.

AS 1670.1 specifies performance of the system if wiring (transmission path) faults occur. This usually requires Class A wiring.

RUI wiring does not require end-of-line resistors, because each TIC communicates directly to the CPU.

- All wiring is between a minimum of 0.75 mm² and a maximum of 2.5 mm².
- All wiring is supervised and power-limited.

Class A operation

- The maximum cable distance around the loop is 760 m. "T" spurs are not valid on Class A wiring.
- Annunciators and transponder interface cards support loop operation when the system is Class A wiring.
- Up to 31 transponder units can be controlled from the 4100ESi Control Panel.

4120 Network

Copper line characteristics

Wired network, formerly called RS 485 Communication wiring, must be 0.75 mm² shielded twisted pair (STP), or 0.22 mm² twisted pair (TP). Shielded cable is recommended for new installations. When shielding is used, the shield is connected to the Earth, at the Left Port end of the span only.

You cannot use spurs, or T tapping on network cabling. Network wiring is point to point only.

The maximum line lengths between ports at 57,600 and 9600 bits per second are shown in the table below.

Table 8. Maximum transmission distances for a wired network

	Maximum wiring distance	
Communication speed	0.75 sq.mm STP. Maximum capacitance between conductors is 174pF/m.	0.22 sq.mm twin. Maximum capacitance between conductors is 66 pF/m.
57,600 bps	3,000 m	2,300 m
9,600 bps	5,600 m	4,000 m

Using single fibre with 4100-6301/4100-6302/4100-6303/4100-6304

The 4100-6301/4100-6302/4100-6303/4100-6304 fibre media cards use a single-mode or multi-mode fibre that uses SC connectors to provide networking interconnections. Pair the left/right ports of the correct media cards to match the fibre type used.

No physical strain should be put on the cables. Allow a bend radius of at least 50 mm when routing the cable around corners and inside the cabinet.

The fibre cable types and maximum distances are as follows:

- Single-mode 9/125 µm fibre up to 25 km
- Multi-mode 50/125 µm or 62.5/125 µm fibre up to 5 km

The allowable losses are 22 dB for single-mode and 18 dB for multi-mode.

Actual loss calculations need to be conducted for long cables involving any joints, splices, or extra joining leads.

Using dual fibres with 4100-6057

All fibre cables must be multimode, graded index. ST style connectors must be used. No physical strain should be put on the cables. There must be no cable bends of less than a 50 mm radius.

Two methods are available for joining fibre cable. Splices provide a permanent, low loss, fibre-to-fibre connection. Couplers provide temporary connection between two ST style connectors with a loss of 1.2 dB. Both methods are valid on a fibre network.

The characteristics of the 4100-6057 fibre optic media card are as follows:

- The minimum Launch Power into a 50/125 µm cable is 50 µW (13 dBm).
- The minimum Launch Power into a 62.5/125 µm cable is 109.5 µW (-8.6 dBm).
- The maximum value for the minimum input sensitivity of the receiver is 1.0 µW (30 dBm).

The maximum line lengths for 50/125 and 62.5/125 cable are shown in the table below.

Table 9. Maximum distance for fibre optic cable

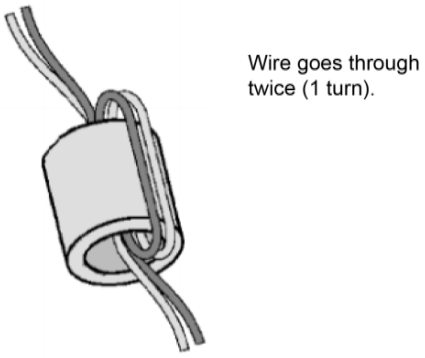
Fiber cable	Loss per kilometer	Power margin	Maximum distance
50/125 µm	4 dB	4 dB	3,050 m
50/125 µm	3 dB	3 dB	4,500 m
62.5/125 µm	4 dB	4 dB	4,000 m
62.5/125 µm	3.75 dB	3 dB	4,500 m

The information above is based on the minimum launch power of the transmitter into the specified cable, and the maximum value of the minimum input sensitivity of the receiver.

IDNet

Use ferrite beads on each pair of wires leaving the 4100ESi cabinet. See Figure 63.

Figure 63. Ferrite bead wiring



Shielded cable is recommended in electrically noisy environments.

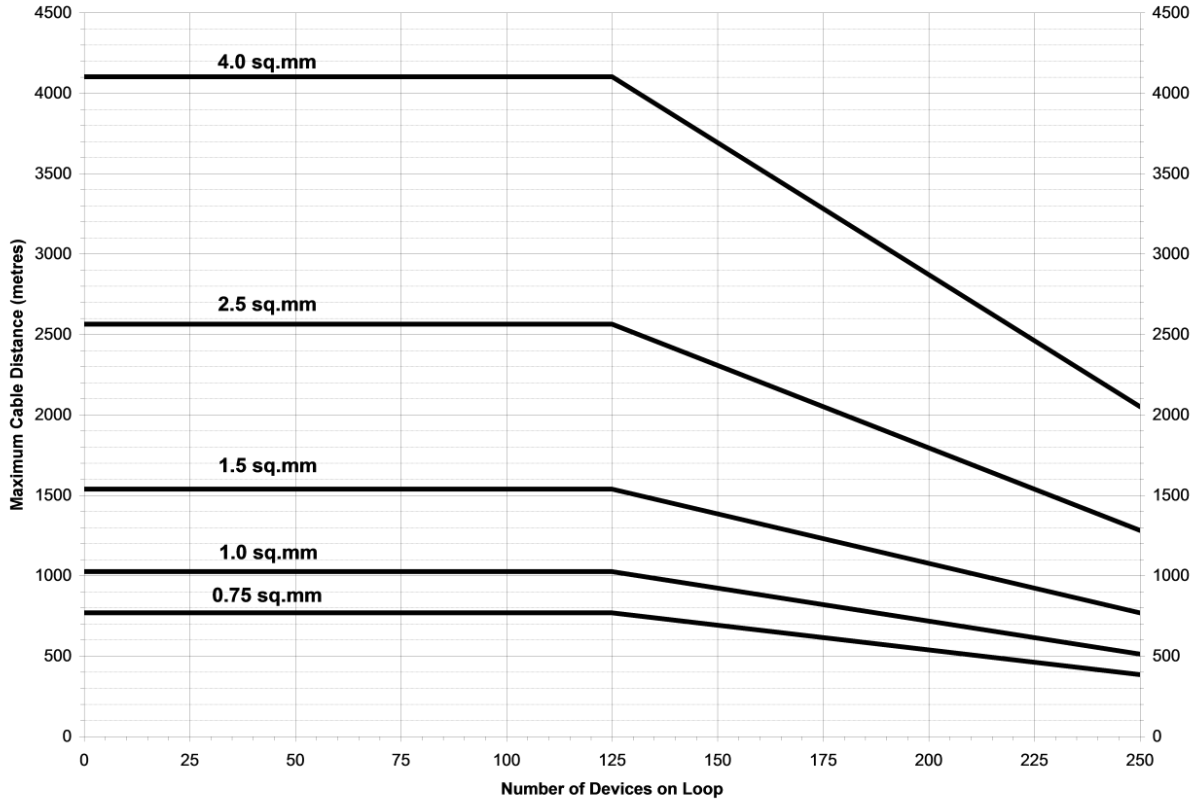
Do not run IDNet cabling adjacent to other cabling, especially non-fire system cabling such as mains.

The limiting factors on the length of the twin core cable connecting the IDNet devices to the IDNet card are cable capacitance; attenuates the superimposed coms signal, and resistance; causes voltage drop of the supply voltage and comms signals.

The maximum capacitance of 0.58 µF core to core must include the mutual capacitance of core to earth. Shielded cable has a higher capacitance to earth than unshielded cable.

See Figure 64 to check that cable distances are acceptable. For a Class A loop circuit, cable distance refers to the full distance around the loop. For a Class B spur circuit, cable distance refers to the distance from the panel to the furthest end of the cable.

Figure 64. IDNet cable distance and device limits for common cable sizes



IDNet sounder bases and 6 point I/O modules do not draw their alarm load from the loop; they are powered from separate 24 V terminals.

Where devices such as sounder bases are supplied from a 24 V source, and cover more than one zone, the power cable must be isolated between zones by a 4090-9117AU Power Isolator Module.

Appendix C Compatible actuating devices

MX Addressable Devices

The 4100ESi supports a maximum of 250 MX devices on a loop, and 2000 points on a CPU.

The number of devices on an MX loop can be limited to less than 250 devices depending on the characteristics and loading of the devices configured. Use the 4100Cost tool to validate a loop design.

MX Addressable Detectors		Maximum number of devices on a loop
516.850.051.E	850PH Photoelectric Smoke and Heat detector – SCI	250
516.850.052.E	850P Photoelectric Smoke – SCI	250
516.850.053.E	850H Heat detector – SCI	250
516.600.054.E	850PC Photoelectric Smoke, Heat, CO detector – SCI	250

MX Addressable Field Devices		Maximum number of devices on a loop
CP820	CP820 Call Point	250
514.800.604.Y	CP830 Call Point	250
514.800.611	MCP820 Call Point with SCI	250
514.800.612	MCP830 Call Point with SCI	250
MIM800	MIM800 Monitored Input Module	250
CIM800	CIM800 Contact Input Module	250
RIM800	RIM800 Relay Output Module	250
SNM800	SNM800 Sounder Notification Module	250
DIM800	DIM800 Detector Input Module	250
577.800.006	DDM800 Detector Device Module	7
555.800.065	MIO800 Multi-I/O Module	125
516.800.014	VIO800 VESDA Interface	125
545.800.004	LIM800 Loop Isolator Module	250

MX Addressable Sounders and Beacons		Maximum number of devices on a loop
516.800.957	LPSB3000 Sounder Base	191
516.800.958	LPAV3000 Sounder-Beacon Base	87
516.800.960	LPSY800R Symphonic Sounder Red	147
516.800.961	LPSY800W Symphonic Sounder-White	147
516.800.962	LPSY865 Symphonic Sounder IP65	147
516.800.963	LPAV800R Symphonic Sounder Beacon-Red	76
516.800.964	LPAV800W Symphonic Sounder Beacon-White	76
516.800.965	LPAV865 Symphonic Sounder IP65	76

Conventional (collective) Detectors

Johnson Controls Conventional Detector Type	DIM800 MX Monitor ZAM (24 VDC powered)	DDM800MX Monitor ZAM (Loop powered, low voltage detectors)	4100-5004 8 Zone Module	4100-5013 8 Zones/Relay*1
614CH CO/Heat Detector	32	21	37	37
614I Ionization Detector	38	25	40	40
614P Photo-electric Detector	25	25	28	28
T614 Heat Detector Type A,B, C, D	23	17	30	35
885WP-B Heat Detector				40

Hard contact devices	DIM800 MX Monitor ZAM (24 VDC powered)	DDM800MX Monitor ZAM (Loop powered, low voltage detectors)	4100-5004 8 Zone Module	4100-5013 8 Zones/Relay*2
T54B, B111, etc.	40	40	40	40
OSID, Vesda, etc. *1	40	40	40	40
*1 It is recommended that these hard contact devices are limited to one device on a circuit.				

The 4100-5013 supports a range of EOL values from 6.8K Ω. down to 2K Ω. The specific EOL for each circuit is configured in the 4100ESi programmer.

*1 The 4100-5013 can be used with a 3.3K Ω., 2.2K Ω., or 2K Ω. EOL with these quantities of detectors.

*2 The 4100-5013 can be used with any of the EOL choices with these quantities of detectors.

Remote Indicators

The Johnson Controls E5xx range of Remote Indicators is suitable for use with the Johnson Controls MX addressable and conventional actuating devices.

Compatible devices for upgrades

The MX devices listed above must be used for AS7240 compliant installations.

For upgrades or additions to existing sites the 4100ESi is compatible with a range of legacy IDNet and MAPNET addressable sensors and devices.

The DDM800, DIM800, and 4100-5013 conventional interface cards are compatible with a range of conventional detectors manufactured by Johnson Controls and other manufacturers.

For a complete list of compatible devices refer to the *TSP-LT001 Device Compatibility Guide*.

For information about upgrading legacy 4100 sites refer to the *LT0620 4100ESi Service and Upgrade Manual*.

Both documents are available on http://www.vigilant-fire.com.au or call 1300 725 688 to speak to a customer service representative.

Compatible special hazard devices

The 4100ESi has undergone an in-house compatibility assessment on a range of special hazard devices.

The 4100ESi has not been independently appraised by CSIRO for compatibility with these devices.

The current special hazard devices assessed are Johnson Controls barriers, conventional 600 series detectors, and the FV411 flame detector, as outlined in the *TSP-LT001 Device compatibility Guide*.

For a complete list of compatible and legacy peripherals refer to the *TSP-LT001 Device Compatibility Guide*. This document is available on http://www.vigilant-fire.com.au or call 1300 725 688 to speak to a customer service representative.

Appendix D Compatible batteries

The following VRLA/SLA batteries are compatible with the 4100ESi:

- Power Sonic PS12 Series
- Century Power Sonic PS12 series
- Sonnenschein A200 Series
- Sonnenschein A300 Series
- Century Yuasa NP Series
- Auscell CJ12 series
- Power Block PB12 series

The following battery sizes fit in the 4100ESi cabinets:

- 15U: 33 Ah max
- 8U battery box: 40 Ah max
- 8U expansion cabinet: up to 12 Ah but depends on other installed cards
- 8U Remote Fire Brigade Panel:12 Ah max
- 28U cabinet: 75 Ah
- 40U cabinet: 75 Ah

Appendix E Card configuration DIP switch

Overview

Addressable cards include a bank of eight DIP switches. From left to right, these switches are designated as SWx-1 through SWx-8. See Figure 65. The function of these switches is as follows:

- SWx-1. This switch sets the baud rate for the internal 4100 communications line running between the card and the CPU. Set this switch to ON.
- SWx-2 through SWx-8. These switches set the card's address within the 4100 FIP. Refer to Table A-1 for a complete list of the switch settings for all of the possible card addresses.

> **Note:**
> You must set these switches to the value assigned to the card by the ES Programmer.

Figure 65. Setting the DIP switches

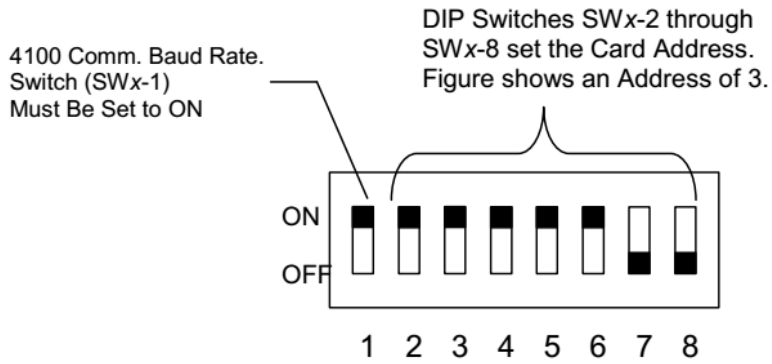


Table 10. Card addresses

Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8
1	ON	ON	ON	ON	ON	ON	OFF	61	ON	OFF	OFF	OFF	OFF	ON	OFF
2	ON	ON	ON	ON	ON	OFF	ON	62	ON	OFF	OFF	OFF	OFF	OFF	ON
3	ON	ON	ON	ON	ON	OFF	OFF	63	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	ON	OFF	ON	ON	64	OFF	ON	ON	ON	ON	ON	ON
5	ON	ON	ON	ON	OFF	ON	OFF	65	OFF	ON	ON	ON	ON	ON	OFF
6	ON	ON	ON	ON	OFF	OFF	ON	66	OFF	ON	ON	ON	ON	OFF	ON
7	ON	ON	ON	ON	OFF	OFF	OFF	67	OFF	ON	ON	ON	ON	OFF	OFF
8	ON	ON	ON	OFF	ON	ON	ON	68	OFF	ON	ON	ON	OFF	ON	ON
9	ON	ON	ON	OFF	ON	ON	OFF	69	OFF	ON	ON	ON	OFF	ON	OFF
10	ON	ON	ON	OFF	ON	OFF	ON	70	OFF	ON	ON	ON	OFF	OFF	ON
11	ON	ON	ON	OFF	ON	OFF	OFF	71	OFF	ON	ON	ON	OFF	OFF	OFF
12	ON	ON	ON	OFF	OFF	ON	ON	72	OFF	ON	ON	OFF	ON	ON	ON
13	ON	ON	ON	OFF	OFF	ON	OFF	73	OFF	ON	ON	OFF	ON	ON	OFF
14	ON	ON	ON	OFF	OFF	OFF	ON	74	OFF	ON	ON	OFF	ON	OFF	ON
15	ON	ON	ON	OFF	OFF	OFF	OFF	75	OFF	ON	ON	OFF	ON	OFF	OFF
16	ON	ON	OFF	ON	ON	ON	ON	76	OFF	ON	ON	OFF	OFF	ON	ON
17	ON	ON	OFF	ON	ON	ON	OFF	77	OFF	ON	ON	OFF	OFF	ON	OFF
18	ON	ON	OFF	ON	ON	OFF	ON	78	OFF	ON	ON	OFF	OFF	OFF	ON
19	ON	ON	OFF	ON	ON	OFF	OFF	79	OFF	ON	ON	OFF	OFF	OFF	OFF
20	ON	ON	OFF	ON	OFF	ON	ON	80	OFF	ON	OFF	ON	ON	ON	ON
21	ON	ON	OFF	ON	OFF	ON	OFF	81	OFF	ON	OFF	ON	ON	ON	OFF
22	ON	ON	OFF	ON	OFF	OFF	ON	82	OFF	ON	OFF	ON	ON	OFF	ON
23	ON	ON	OFF	ON	OFF	OFF	OFF	83	OFF	ON	OFF	ON	ON	OFF	OFF
24	ON	ON	OFF	OFF	ON	ON	ON	84	OFF	ON	OFF	ON	OFF	ON	ON
25	ON	ON	OFF	OFF	ON	ON	OFF	85	OFF	ON	OFF	ON	OFF	ON	OFF
26	ON	ON	OFF	OFF	ON	OFF	ON	86	OFF	ON	OFF	ON	OFF	OFF	ON
27	ON	ON	OFF	OFF	ON	OFF	OFF	87	OFF	ON	OFF	ON	OFF	OFF	OFF
28	ON	ON	OFF	OFF	OFF	ON	ON	88	OFF	ON	OFF	OFF	ON	ON	ON
29	ON	ON	OFF	OFF	OFF	ON	OFF	89	OFF	ON	OFF	OFF	ON	ON	OFF
30	ON	ON	OFF	OFF	OFF	OFF	ON	90	OFF	ON	OFF	OFF	ON	OFF	ON
31	ON	ON	OFF	OFF	OFF	OFF	OFF	91	OFF	ON	OFF	OFF	ON	OFF	OFF
32	ON	OFF	ON	ON	ON	ON	ON	92	OFF	ON	OFF	OFF	OFF	ON	ON
33	ON	OFF	ON	ON	ON	ON	OFF	93	OFF	ON	OFF	OFF	OFF	ON	OFF
34	ON	OFF	ON	ON	ON	OFF	ON	94	OFF	ON	OFF	OFF	OFF	OFF	ON
35	ON	OFF	ON	ON	ON	OFF	OFF	95	OFF	ON	OFF	OFF	OFF	OFF	OFF
36	ON	OFF	ON	ON	OFF	ON	ON	96	OFF	OFF	ON	ON	ON	ON	ON
37	ON	OFF	ON	ON	OFF	ON	OFF	97	OFF	OFF	ON	ON	ON	ON	OFF
38	ON	OFF	ON	ON	OFF	OFF	ON	98	OFF	OFF	ON	ON	ON	OFF	ON
39	ON	OFF	ON	ON	OFF	OFF	OFF	99	OFF	OFF	ON	ON	ON	OFF	OFF
40	ON	OFF	ON	OFF	ON	ON	ON	100	OFF	OFF	ON	ON	OFF	ON	ON
41	ON	OFF	ON	OFF	ON	ON	OFF	101	OFF	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF	ON	102	OFF	OFF	ON	ON	OFF	OFF	ON
43	ON	OFF	ON	OFF	ON	OFF	OFF	103	OFF	OFF	ON	ON	OFF	OFF	OFF
44	ON	OFF	ON	OFF	OFF	ON	ON	104	OFF	OFF	ON	OFF	ON	ON	ON
45	ON	OFF	ON	OFF	OFF	ON	OFF	105	OFF	OFF	ON	OFF	ON	ON	OFF
46	ON	OFF	ON	OFF	OFF	OFF	ON	106	OFF	OFF	ON	OFF	ON	OFF	ON
47	ON	OFF	ON	OFF	OFF	OFF	OFF	107	OFF	OFF	ON	OFF	ON	OFF	OFF
48	ON	OFF	OFF	ON	ON	ON	ON	108	OFF	OFF	ON	OFF	OFF	ON	ON
49	ON	OFF	OFF	ON	ON	ON	OFF	109	OFF	OFF	ON	OFF	OFF	ON	OFF
50	ON	OFF	OFF	ON	ON	OFF	ON	110	OFF	OFF	ON	OFF	OFF	OFF	ON
51	ON	OFF	OFF	ON	ON	OFF	OFF	111	OFF	OFF	ON	OFF	OFF	OFF	OFF
52	ON	OFF	OFF	ON	OFF	ON	ON	112	OFF	OFF	OFF	ON	ON	ON	ON
53	ON	OFF	OFF	ON	OFF	ON	OFF	113	OFF	OFF	OFF	ON	ON	ON	OFF
54	ON	OFF	OFF	ON	OFF	OFF	ON	114	OFF	OFF	OFF	ON	ON	OFF	ON
55	ON	OFF	OFF	ON	OFF	OFF	OFF	115	OFF	OFF	OFF	ON	ON	OFF	OFF
56	ON	OFF	OFF	OFF	ON	ON	ON	116	OFF	OFF	OFF	ON	OFF	ON	ON
57	ON	OFF	OFF	OFF	ON	ON	OFF	117	OFF	OFF	OFF	ON	OFF	ON	OFF
58	ON	OFF	OFF	OFF	ON	OFF	ON	118	OFF	OFF	OFF	ON	OFF	OFF	ON
59	ON	OFF	OFF	OFF	ON	OFF	OFF	119	OFF	OFF	OFF	ON	OFF	OFF	OFF
60	ON	OFF	OFF	OFF	OFF	ON	ON								

Appendix F List of spare parts

This following table lists the ordering codes for the spare parts needed to maintain this 4100ESi panel. The first column lists the expected numbers that are readily visible on the part being replaced as an aid to identifying what the part is.

Table 11. Order codes for 4100ESi panel parts

Possible markings on the part	Description	Order code for replacement spare part
CPU Card and Motherboard		
0566719 578-643	4100ES NXP CPU Upgrade Kit	4100-7158K
566-227	4100ES/4100U CPU Motherboard only	0566938
0566938	RUI+ CPU Motherboard	0566938
Front display doors and display modules		
ME0510	INFOALARM+ 7U Door, AU Spare	4100-ME0510K
None	7U ZONE LED Door Empty Spare	4100-KT0549K
4100-1288 566-060 741-206	64/64 LED/Switch Controller and mounting frame (1st controller in a bay)	4100-1288
566-060 741-206	64/64 LED/Switch Controller (2nd controller in a bay)	4100-1289
4100-1277 742-983	8 Red and 8 Yellow LED Module	4100-1277
4100-1280 742-509	8 Pushbutton 8 Red LED Module	4100-1280
4100-1284 742-407	8/16 Push Button/Red-Green LED Module	4100-1284
4100-1282 742-408	8/16 Push Button/Red-Yellow LED Module	4100-1282
4100-1281 742-508	8 Pushbutton 8 Yellow LED Module	4100-1281
1976-149 PA1029	4 x AS1668 Control Module	4100-ME0456
4100-1279 742-519	Single Blank Display Cover (4100ES or 4100U)	4100-1279
4100-1287AU 742-506	24 Switch/24 LED AS1668 Module	4100-1287AU
Internal slave modules		
4100-6077	MX Digital Loop Card	4100-6077AU (external MX isolators are not required)
4100-6077LIM	MX Digital Loop Card with integral loop isolators	
562-789	4100 24 Point Graphic I/O PCB with standard motherboard	4100-0302K
562-789	4100 24 Point Graphic I/O PCB with relay motherboard	4100-3024K
566-403	4100 8 point Aux Relay PCB (PDI/flat)	4100-3206
566-401	4100 4 point Aux Relay PCB (PDI/flat)	4100-3204
565-226	4100 8 Zone Monitor / Security PCB (5004 Card)	4100-5004K
565-452	4100 6 Circuit Signal PCB	4100-4321K
565-453	4100 6 Circuit Signal PCB-current model	4100-4321K

565-217	4100 RUI PCB	4100-0304K
Possible markings on the part	**Description**	**Order code for replacement spare part**
Internal slave modules, continued		
565-415	4100 RS232 Modem Ready PCB	4100-6046
565-744, 4100-6046V	4100 VESDA High Level Interface Card	4100-6046V
566-035	4100ES Basic TIC Module	4100-0620
566-044 741-754 742-146 SF0373	IDNet Module for PDI bus (250 points) - Australian Software	4100-3101AU obsolete
566-675 742-146	IDNet+ Module for PDI bus (4 loops, 246 points) - Australian Software	4100-3107AU obsolete
None	IDNet2 Module for PDI bus (2 loops 246 points) - Australian Software	4100-3109AU
None	IDNet2 Module for PDI bus (4 loops 246 points) - Australian Software	4100-3111AU
562-976	4100 Mapnet II Transceiver Board	4100-0110K
565-158	4100 Mapnet Quad Isolator PCB	4100-0111K
ME0455 1976-99 PA0987	Legacy Adaptor bracket	4100-KT0496
None	BACPac Ethernet Portal	4100-6069
566-355	Fire Panel Internet Interface Module (SafeLINC)	4100-6079K
0566-1189	8 Zone/Relay Module	4100-5013
Power supply parts		
ME0504	AS7240 APS Power Supply (bay mounting)	ME0504K
ME0508	AS7240 LPS Power Supply (gear plate mounting)	ME0508K
4100-9848AU	Australian XSPS Power Supply (AS4428)	4100-9848AU
002-109	Australian SPS fuse board	4100-KT0448
566-058	Alarm Relay Module for SPS (AS4482)	4100-6033
ME0470	5A Auxiliary Power Supply bay mounting (AS4428)	4100-ME0470
Tone generator parts		
PA1120	T-GEN2 60W Tone Generator	FP1115
PA1121	T-GEN2 120W Tone Generator	FP1116
None	T-GEN/4100U PA MIC with extended lead	ME0490
4120 Networking modules		
565-407 565-516 4100-6014	4100 Modular Network Interface card	4100-6078
565-413	4100 RS485 Wired Media Module	4100-6056
565-261	4100 Fibre Optic Media Module	4100-6057
4100-6072 743-716	Fibre Optic MODEM Left port Single-mode	4100-6072
4100-6073 743-717	Fibre Optic MODEM Right port Single-mode	4100-6073
0566-1198	Single-mode Left Media Card	4100-6301
0566-1197	Single-mode Right Media Card	4100-6302
0566-1200	Multi-mode Left Media Card	4100-6303
0566-1199	Multi-mode Right Media Card	4100-6304

Looms, bays and wiring parts		
734-008	2 ft 4 way PDI Bay to PDI Bay Harness	734-008
734-075	8 ft 4 way PDI Cabinet to PDI Cabinet Harness	734-075
Possible markings on the part	Description	Order code for replacement spare part
Looms, bays and wiring parts		
733-996	LPS to PDI backplane loom	733-996
734-301 4100-0642	Bay to bay Signal Power link	734-301
LM0317	Signal Power link - cabinet to cabinet or short PDI to short PDI backplane	LM0317
733-525	34 in. 8 way Legacy Bay to Legacy Bay Harness	733-525
733-542	96 in. 8 way Legacy Cabinet to Legacy Cabinet Harness	733-542
733-952	SPS to Alarm Relay board Harness	733-952
733-996	SPS to CPU Motherboard Harness	733-996
734-078	TIC to Legacy Card Power/Comms Harness	734-078
None	Expansion Bay (PDI) for 19 in. Cabinet (new style rear mount)	4100-KT0446
None	Legacy motherboard mounting kit	4100-KT0468
None	Ferrite Bead single	740-836
None	Ferrite Beads (set of 3)	4100-5129

Appendix G Checking system wiring

This appendix contains instructions on how to use a volt/ohm meter to check the field wiring to the 4100ESi.

Using the Volt/Ohm Meter

When using the volt/ohm meter to check each circuit, ensure that the following notes and instructions are adhered to:

Notes:

- Ensure that no power is applied to the 4100ESi fire alarm panel and that all internal panel wiring is properly connected, such as terminal blocks, LED/switch module ribbon cables, and so on.
- Use the earth stud in the control panel as the earth connection for all measurements to ground.
- Disconnect the wires for each circuit from the 4100ESi terminals before testing it.
- Measuring resistances between 4100ESi terminals or to ground gives meaningless results.

To check each circuit using a volt/ohm meter, complete the following steps:

1. Disconnect the wires for each circuit from the terminals on the 4100ESi panel before testing it. If it is a Class A, loop type of circuit, for example, MX or IDNet loop, ensure that both ends of the loop are disconnected from the 4100ESi.

2. Check each circuit for extraneous voltage by setting the volt/ohm meter to a 300 VAC range. Place the meter probes so that the black probe is on the "-" wire and the red probe is on the "+" wire. The meter readings must show less than 1 V.

3. Set the volt/ohm meter to a 60 VDC range and repeat step 2. The meter must read less than 0.5 V.

4. Set the volt/ohm meter to OHMS and place the meter probes as described in step 2. Check the circuits using the resistance measurements in Table 12. Locate and correct any abnormal conditions at this time.

   Note:
   If the reading indicates an open circuit in a detector circuit, ensure that the smoke detector heads are properly mounted and seated. The circuit may also be open if smoke detector power is not present, and if separately powered 4-wire devices are used.

5. To verify that each circuit is free of grounds and extraneous voltages, repeat steps 1 to 4 for all field wiring.

Table 12. Meter readings

Circuit Type	Meter Reading
Class B (spur) Detector Circuit	
From zone + to zone – (each zone)	3.3K Ω, 2.2K Ω or 2K Ω (EOLR)
From zone + to ground	Open circuit
From zone - to ground	Open circuit
Class B (spur) Notification Appliance Circuit (each signal circuit)	
From + to ground	Open circuit
From - to ground	Open circuit
Resistance across circuit: · In one direction · In the opposite direction	 10K Ω (EOLR) Low resistance (Load)
Class A (loop) Notification Appliance Circuit (each signal circuit)	
From + to ground	Open circuit
From - to ground	Open circuit
From + OUT to + IN	Less than 50 Ω
From - OUT to – IN	Less than 50 Ω
Resistance across circuit: · In one direction · In opposite direction	 Open circuit Low resistance (Load)
Shielding	
Shield to ground	Open circuit
Shield to -	Open circuit
Shield to +	Open circuit
MAPNET/IDNet Loops	
From MX/IDNet/MAPNET + to ground	Open circuit
From MX/IDNet/MAPNET - to ground	Open circuit
Note: Measuring from MAPNET/IDNet B+ to A+, or B- to A- reads as an open circuit due to the channel isolators in the loop.	
MX Loops	
From MX+ one end to MX+ other end of the loop	Less than 75 Ω
From MX- one end to MX- other end of the loop	Open circuit, loop isolators are open
From MX+ to MX- one end of the loop	Open circuit
From MX+ to MX- other end of the loop	Open circuit

Appendix H 4100ESi functions

This appendix lists the following 4100ESi panel functions:

- The AS 7240.2 optional functions with requirements that are and are not supported.
- The functions relating to other parts of AS 7240.
- The ancillary functions not required by AS 7240.2.

Optional functions in AS7240.2

This section cross references the relevant sections in AS 7240.2:

7. Fire alarm condition.

7.8 Output to fire alarm devices — Optional function (see also 9.2.5 and 10.4.2) YES.

7.9 Control of fire alarm routing equipment — Optional function (see also 9.2.5) YES.

7.10 Output to fire protection equipment — Optional function [see also 9.2.4 f) and 10.4.1 b)] YES.

7.11 Delays to outputs — Optional function (see also Annex E) NO.

7.12 Dependency on more than one alarm signal — Optional function.

7.12.1 Type A dependency YES.

7.12.2 Type B dependency NO.

7.12.3 Type C dependency NO.

7.13 Alarm counter — Optional function NO.

7.14 Output of standard emergency evacuation signal — Optional function NO.

8 Supervisory signal condition NO.

9 Fault warning condition (see also Annex F).

9.3 Fault signals from points — Optional function YES.

9.4 Total loss of the power supply — Optional function YES.

9.9 Output to fault warning routing equipment — Optional function [see also 10.4.1 c)] YES.

10 Disabled condition — Optional function YES including 10.5 Disablement of addressable points.

11 Test condition — Optional function NO

12 Standardized input/output interface- Optional function NO

ANNEX ZB – Alarm Acknowledgment Facility NO.

ANNEX ZC – Dry heat Steady State (OPERATIONAL) YES – the nominated temperature is 55°C.

ANNEX ZD – Ancillary Control Function NO

Functions in other parts of AS 7240

AS 7240.4: Power Supply Equipment

The 4100ESi power supply units provide all the functions required by AS 7240.4, as applicable to integrated p.s.e.

Ancillary functions not required by AS 7240.2

Monitor function – 4100ESi has a function to monitor and report non-fire statuses.

Force Alarm function – 4100ESi forces an alarm condition onto a zone, to confirm operation of the zone and its outputs.

Control functions for general fire related I/O control - 4100ESi can control outputs and provides isolation facilities for those control outputs.

Fire Fan functions for Smoke Control – 4100ESi can provide user controls and indications and interfaces to Fire Fan systems for the purposes of smoke control.

Control functions for Fire Protection such as Deluge Systems - 4100ESi can provide user controls and indications and interfaces to Fire Protection systems.

Service Functions - 4100ESi has a number of service functions available, including review of zone, point, and internal card status, review of history logs, review of software versions, and setting the time/date for the real time clock.