

# **FireClass FC700 Series Panels**

## **Installation Guide**

**120.515.867\_FC-FC700-P-I**

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# 1 Introduction

Use this guide as a source of useful information when you install a FireClass FC700 series based alarm system.

The guide sets out a recommended series of steps to follow. These correspond to the section headings.

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

## 1.1 Keywords and symbols

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

These are explained in Table 1.






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

Table 1: Keywords and symbols in this documentation

## 1.2 Who this Manual is for

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

## 1.3 What this Manual does not cover

The guide does not provide information on the following:

- **System design.**  
The system must already be designed and planned for the specific site, in terms of cable routing, device selection and layout, mains supply etc.  
For further information see the FireClass FC700 series panels Product Application and Design Information manual. This includes details of optional modules that can be fitted.
- **Local regulations.**  
For example cable specifications and panel siting restrictions are expected to be covered by local regulations, and as these factors should have been incorporated into the design, they are excluded from the guide.  
Local regulations are expected to cover, for example:
  - Wiring specifications
  - Panel siting restrictions
  - Provision for mains isolation
  - Earthing arrangements
  - Environmental conditions
  - Qualifications of personnel.
 For example there may be a stipulation that the connections for the mains supply and protective earth can only be made by a qualified electrician.
- **Installation of detector bases and ancillaries.**  
Refer to the respective installation (wiring) instructions.
- **Installation of optional modules.**  
These products have their own specific instructions; however this guide does provide supplemental information for installation in the FireClass FC700 series panel where necessary.
- **Procedures covered by another of the guides are available for the FireClass FC700 series fire panel range.**  
For example in the FireClass FC700 series Panels Commissioning Instructions, there are various tests to be performed using operator functions as described in the FireClass FC700 series User Manual.

## 2 Read the Installation Notes

There is a section of installation notes in the FireClass FC700 series panels Product Application and Design Information manual. Check these for information possibly affecting your installation, such as the arrangement of multiple slot cards.

## 3 Note Safety Warnings



### DANGER

**The FireClass FC700 series control panel contains high voltages, producing a danger of death or serious injury while working on the panel.**

**Note the dangerous voltage warning sticker on the PSU.**

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

## 4 FC702/708/718 panels

The FireClass FC700 series FC702/708/718 range consists of the following panels:

- **FC702S** - Two loop FireClass panel  
This panel can have two standard power loops or one high power loop with a maximum of 250 addresses. It features a TFT touchscreen display with 16 zonal LEDs. The panel has a compact housing and 5A PSU for 17AH batteries. The FC702S is a networkable panel.
- **FC702D** - Two loop FireClass panel  
This panel can have two standard power loops or one high power loop with a maximum of 250 addresses. It features a TFT touchscreen display with 16 zonal LEDs. The panel has a designer housing and 5A PSU for 38AH batteries. The FC702D is a networkable panel.
- **FC718D** - Four to eight loop FireClass panel  
This panel can have four standard power loops or two high power loops expandable to eight standard power or four high power loops with a maximum of 1000 addresses. It features a TFT display with 16 zonal LEDs. The panel has a designer housing and 5A PSU for 38AH batteries. The FC718D is a networkable panel.
- **FC708D** - Four to eight loop FireClass panel  
This panel can have four standard power loops or two high power loops expandable to eight standard power or four high power loops with a maximum of 1000 addresses. It features a TFT display with 80 zonal LEDs. The panel has a designer housing and

5A PSU for 38AH batteries. The FC708D is a networkable panel.

### 4.1 Mounting a FC702/708/718 panel to the wall

After checking that the mounting location is suitable, you attach the mounting plate of the unit to the wall, then attach the panel to this plate.

- 1 Check the mounting location.
  - The alarm system units are not weatherproof. Check that the location is indoors, dry and free from excessive dust.
  - Determine the mounting positions and as a double check, use the dimensions in Fig. 2 for a FC702 panel and Fig. 3 for a FC708/FC718 panel.
- 2 Fix the mounting plate to the wall



### Note

Ensure that the wall fixings are strong enough to support the weight of the mounting plate and panel. Note that the battery size has an impact on the housing weight.

- Hold the mounting plate up to the wall and mark on the wall a position for the upper mounting hole. Make sure that the plate is the right way up. See the arrow pointing upwards on the mounting plate. Refer to Fig. 1.
  - Drill a hole to accept the supplied wall plug and insert the plug.
  - Fix the plate into the upper drill positions just enough to allow you to mark drill positions on the wall for the two lower holes.
  - Move the mounting plate out of the way and drill the two lower holes.
  - Insert the wall plugs and fix the mounting plate to the wall with the screws.
  - Tighten all of the screws and check that the mounting plate is secure.
- 3 Remove knockouts from the unit housings where necessary, as required by the cabling runs.
    - For example, loop wiring needs access at the top of the panel.
    - You will need to make provision for mains cables, earth cables, DC power cables and battery cables, for example.
    - Fit the knocked out holes with suitable cable glands. To maintain IP30 pass test status, use the M20 cable gland with a locknut.
  - 4 Hang and fix the panel on the mounting plate.
    - Loosely screw the top two bolts on the mounting plate already on the wall.
    - Hang the panel on the loose screws and screw the bottom two bolts. Refer to Fig. 4 or Fig. 6.

- Tighten the four screws until the panel is fitted securely.
- Remove any debris from the housing.

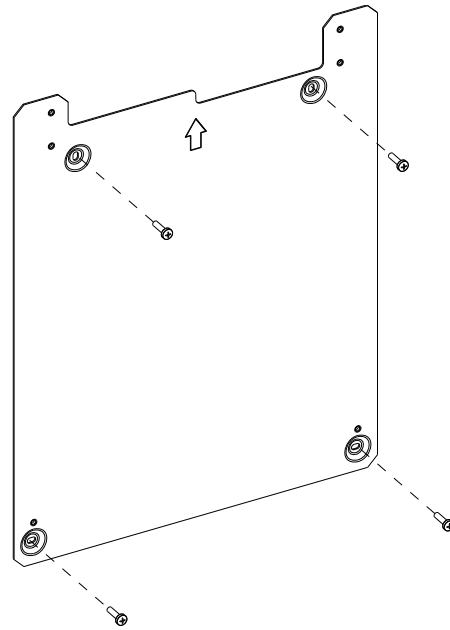


Fig. 1: Fixing the FC702/718/708 panel mounting plate

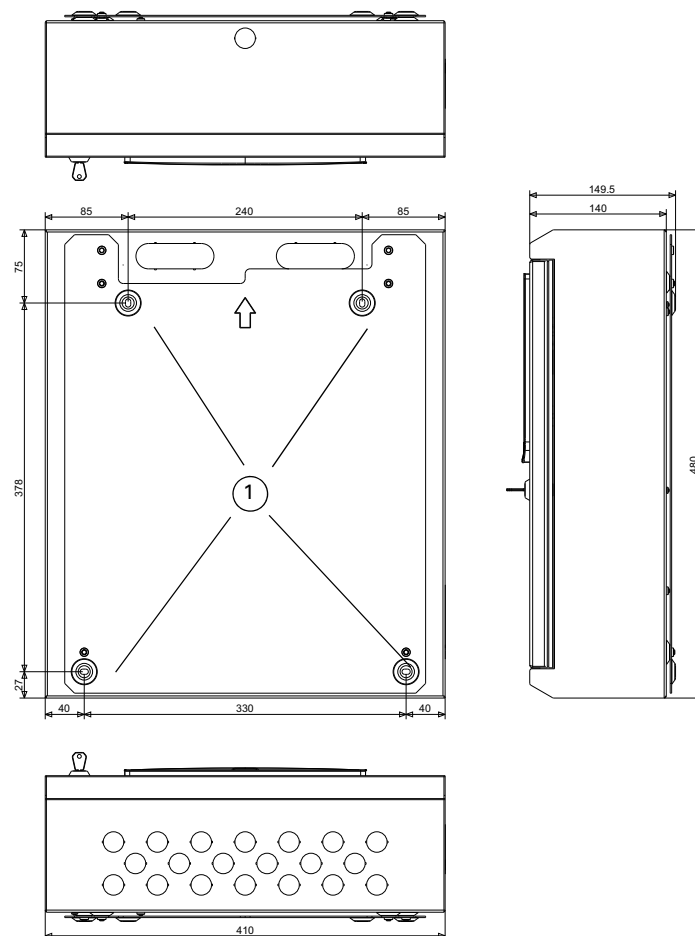


Fig. 2: FC702S - Mounting plate fixing and overall dimensions in mm  
1 – Mounting frame holes

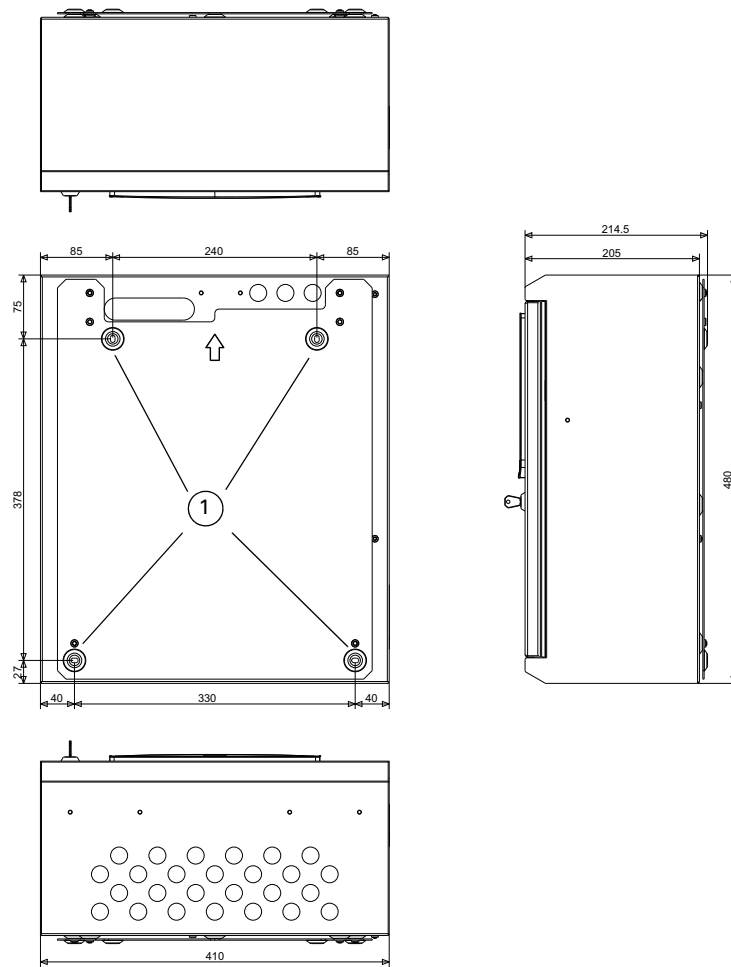


Fig. 3: FC702D, FC718D and FC708D panels - Mounting plate fixing and overall dimensions in mm  
1 – Mounting frame holes



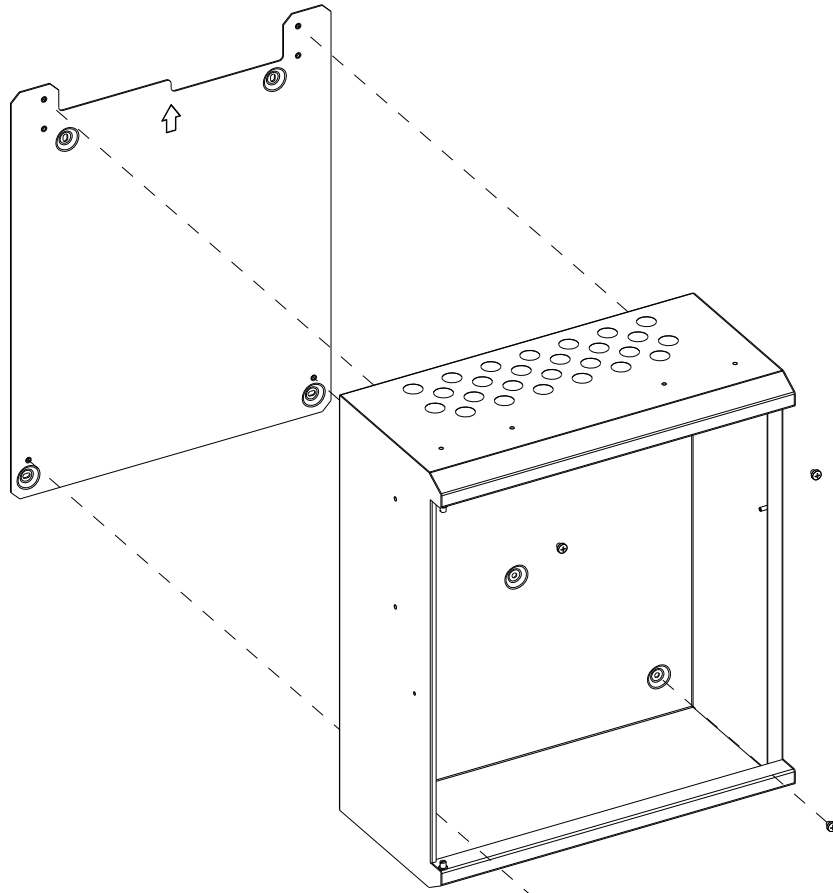


Fig. 4: Fitting the FC702D or FC718/708 panel housing to the deep cover mounting plate - front view

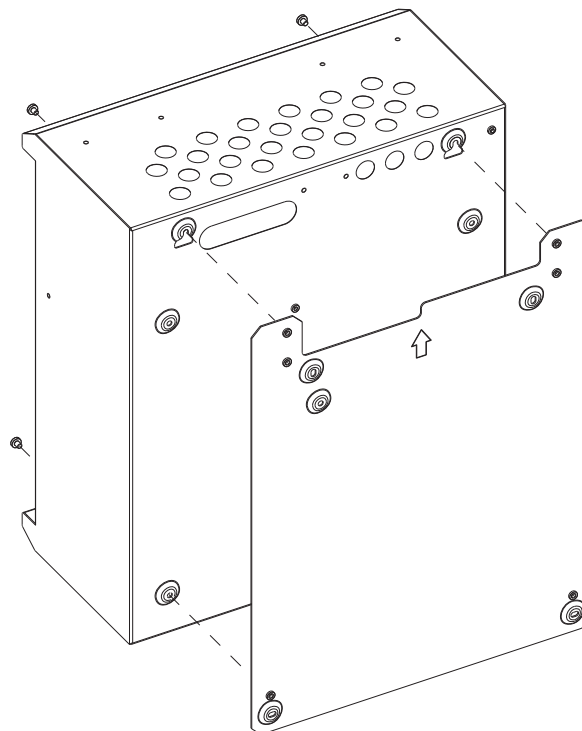


Fig. 5: Fitting the FC702D or FC718/708 panel housing to the deep cover mounting plate - rear view

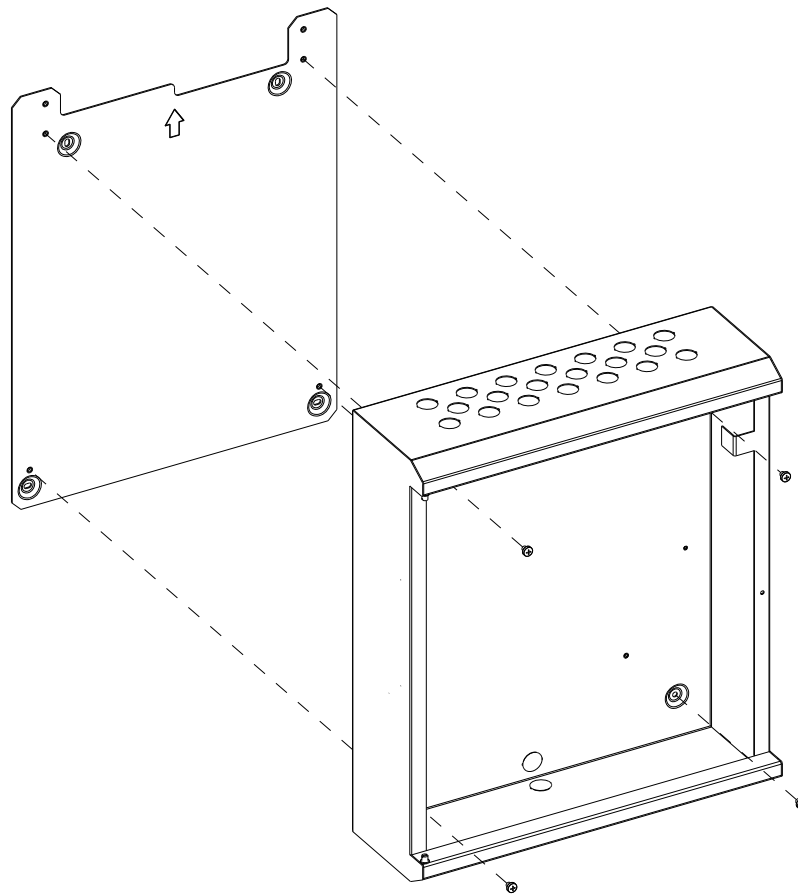


Fig. 6: Fitting the FC702S panel housing to the shallow cover mounting plate - front view

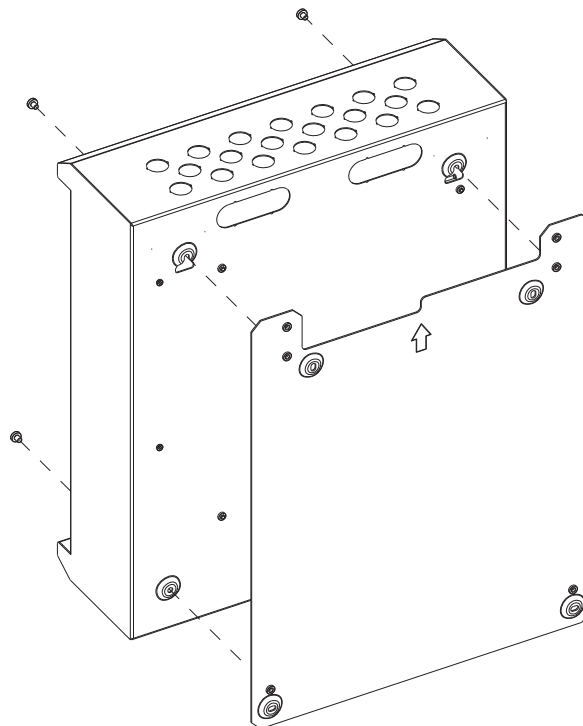


Fig. 7: Fitting the FC702S panel housing to the shallow cover mounting plate - rear view

## 4.2 Connect the Mains Cable and Protective Earths



### DANGER

**Danger of death or serious injury.**

**Before working on the Mains connection, verify that the cabling is not live. Ensure the cabling is not connected to the supply, or that the supply is isolated.**



### DANGER

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

**You must ensure adequate earthing of the system.**

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

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



### WARNING

**To ensure proper operation of the control panel a second earth, separate from the mains lead earth, must be installed. This is described below.**

### How to connect the Mains cable and protective earth

- 1 Make sure the Mains cable is not connected to the supply, or that the supply is isolated.
- 2 On the PSU, locate the Mains connector at the top of the unit. If the protective cover is fitted to this connector, remove it.
- 3 Connect the Mains cable to its connector. Fix the Mains cable using the clip near the Mains connector.
- 4 Connect the protective earth conductor of the Mains to a terminal of the housing earthing point.
- 5 Connect a second earth wire (separate from the mains lead earth) to a terminal of the housing earthing point. This must be 2.5 mm<sup>2</sup> or greater in cross sectional area. Connect this to a suitable earth bonding point.

**NOTE:** Most AC power distribution systems will include a low impedance protective earth; however IT power distribution systems either have no earth

or high impedance to earth. In these cases, a local low impedance protective earth is required.

- 6 Re-fit the PSU Mains connector cover.
- 7 Make sure system 0 V is not connected to the earth, as there is an earth fault monitoring circuit.

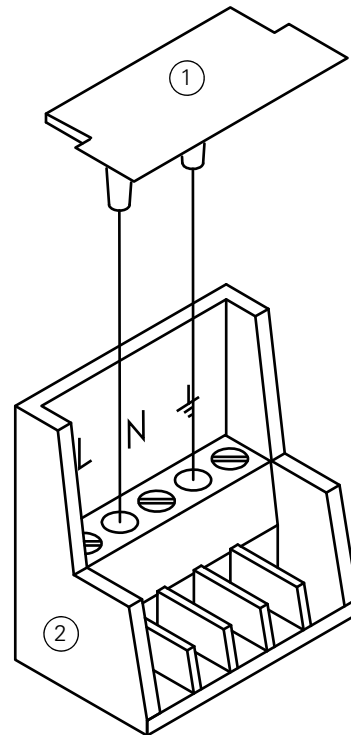


Fig. 8: PSU Mains Connector Cover (detail)

1 – Cover

2 – PSU Mains connector

## 5 Install the Loops

As detailed below, the procedure is to install the loops into the building, making temporary wiring arrangements for testing. Then, once testing has been completed, the final loop connections can be made.

### 5.1 Run and Temporarily Connect the Loops

- 1 Run the loop wiring around the building, and wire in the bases, according to the system plan. Similarly, run any other wiring required for ancillary modules. Clearly label the loop conductors as being positive or negative.

At this stage, do not wire in any isolator bases, or other modules, or fit the detectors. This is to avoid potential damage caused by the high voltage insulation checks. Use strip connectors (Fig. 9) for any temporary connections, to preserve continuity.

For connection details see the individual leaflets or labels provided with the products.

- 2 At the control panel, feed the loop cables through the appropriate knockouts. Use suitable cable glands as needed. To maintain IP30 pass test status, use a M20 cable gland with a locknut. Leave generous tails of wire (approximately 600 mm length).
- 3 Connect the loop wiring tails to a strip type connector block, with screw terminals, as shown in Fig. 9. Leave the wiring loose within the panel.
- 4 Ensure that the loop screens and metal sheath are not connected to the addressable loop conductors and are left floating relative to earth.

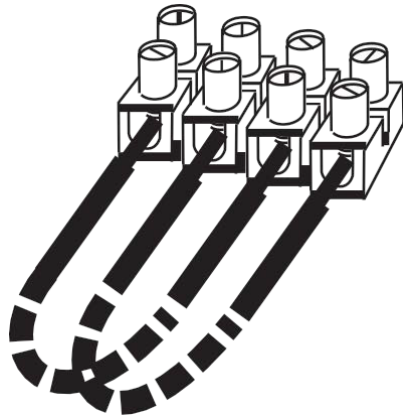


Fig. 9: Temporary Loop Connection  
The dashed lines represent loop wiring

### 5.1.1 Interface Conventional Detectors

If necessary, use a FC410DIM or FC410DDM interface unit to interface conventional detectors on a loop spur. For details refer to the documentation for the FC410-DIM or FC410DDM unit.

## 5.2 Make Insulation Checks



### NOTICE

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

- 1 Note that a record should be made of the measurements below, to be handed over to the customer.

- 2 Ensure your insulation checks will be at 500 V (set your meter accordingly).
- 3 Make the usual insulation measurements. For example measure the resistance between the two wires of the loops, and the resistance between the loop wires and earth.
- 4 For values less than 1 MOhm this is a failure and the panel will not operate. In this case investigate and correct the problem.
- 5 For values between 1 MOhm and 30 MOhm, investigate and try to increase the resistance value to 30 MOhm.

## 5.3 Wire in Remaining Modules

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

## 5.4 Measure Loop Resistance

- 1 Note that a record should be made of the measurements below, to be handed over to the customer.
- 2 Make the usual loop resistance measurements.
- 3 Check whether the values are acceptably close to the anticipated values calculated at the design stage.
- 4 Check that the resistances of the loop positive and negative wires are the same (within acceptable limits). If there is a problem, rectify it.
- 5 Remove the temporary connections that you had made to the connector block, (Fig. 9).

## 5.5 Fully Connect the Loops

- 1 Wire the loop wires into their connectors (Fig. 10). For the pin-out details, use labelling for the loop connections on the board. (The loops are connected to the FC-FI board or the PLX800 board, if fitted).
- 2 Plug the connectors to their board sockets.

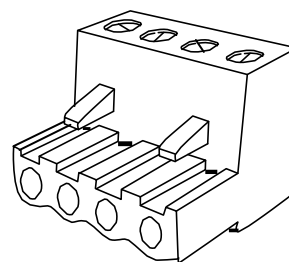


Fig. 10: Loop Wire Connector

## 6 Install the Batteries



### NOTICE

Ensure that the battery complies with the following:

- It is of the valve regulated lead acid (VRLA) type.
- It has an enclosure with flammability class UL94V-1 or better.
- It complies with all applicable standards indicated in paragraph M.2.1 of standard EN 62368-1:2014 Requirements (safety of batteries and their elements); in this case the standards: IEC 60896-21: 2004 and IEC 60896-22: 2004.
- It is replaced by a skilled person.

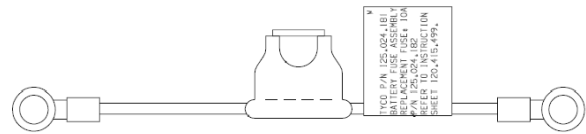


Fig. 11: Battery in-line fuse kit



### DANGER

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

**Take care not to accidentally short the battery terminals, especially when fitting the retaining bracket. The batteries are supplied charged.**



### Battery variations

Your batteries may differ from the ones shown in the illustrations below (which are POWER SONIC 38 Ah batteries).

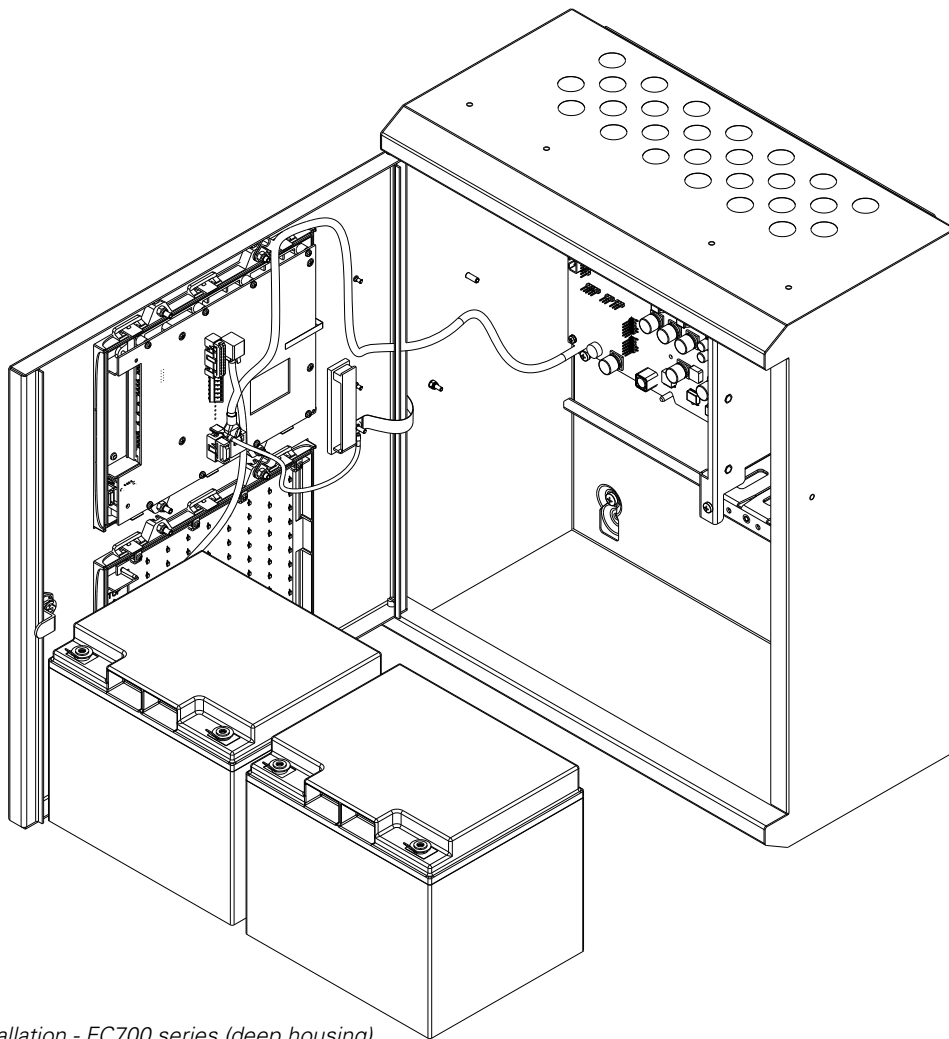


Fig. 12: Battery installation - FC700 series (deep housing)

## 6.1 Install the Batteries - FC700 series

- 1 Connect the battery cables to the terminals marked XT10 **BAT+** and **BAT-** on the FC-FI board. Connect the red cable to positive and the black cable to negative.
- 2 Place the batteries at bottom of the control panel housing.
- 3 Connect the battery cables to the battery +ve to -ve terminals.
- 4 Locate the Fuse Kit in Line (Fig. 11). From the kit, remove the fuse and keep this safely (you will be inserting the fuse later as part of the commissioning procedure). Connect the remaining battery terminals using the kit.
- 5 Identify the temperature monitoring thermistor lead. Connect it to terminals labelled XT10 **TEMP** on the FC-FI board. Tape this thermistor and the other thermistor from the mains PSU, at a convenient location on the top of a battery.
- 6 Re-fit the battery fuse.

- 7 Label the batteries with the current date.

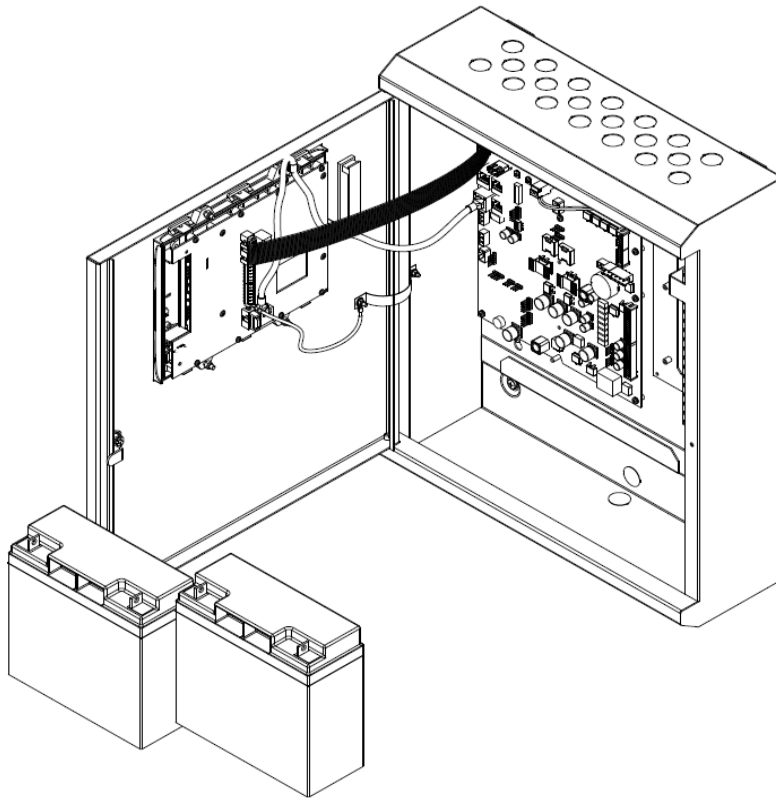


Fig. 13: Battery installation on a FC702S panel (shallow housing)

## 7 Mounting Repeater Panels

Complete the instructions below for mounting FC1DS and FC8AS repeaters.

### 7.0.1 Mount the Housing

#### How to mount the housing

- 1 Decide on a wall mounting method (typically screws into rawl plugs), and assess the required sizes of the fastenings.



#### Note

Ensure that the wall fixings are strong enough to support the weight of the mounting plate and panel.

- 2 Fix the mounting plate to the wall
  - Hold the mounting plate up to the wall and mark on the wall a position for the upper mounting hole. Make sure that the plate is the right way up. See the arrow pointing upwards on the mounting plate. Refer to Fig. 14.
- 3 Remove knockouts from the unit housings where necessary, as required by the cabling runs.
  - Drill a hole to accept the supplied wall plug and insert the plug.
  - Fix the plate into the upper drill positions just enough to allow you to mark drill positions on the wall for the two lower holes.
  - Move the mounting plate out of the way and drill the two lower holes.
  - Insert the wall plugs and fix the mounting plate to the wall with the screws.
  - Tighten all of the screws and check that the mounting plate is secure.
- 4 Hang and fix the panel on the mounting plate.
  - For example, loop wiring needs access at the top of the panel.
  - You will need to make provision for mains cables, earth cables, DC power cables and battery cables, for example.
  - Fit the knocked out holes with suitable cable glands. To maintain IP30 pass test status, use the M20 cable gland with a locknut.
  - Loosely screw the top two bolts on the mounting plate already on the wall.

- Hang the repeater on the loose screws and screw the bottom two bolts.
  - Tighten the four screws until the panel is fitted securely.
- 5 Remove debris from the housing.
  - 6 To connect the repeaters, refer to “Install FCZ4x or FCZ8x Zonal Indicators” on page 47.

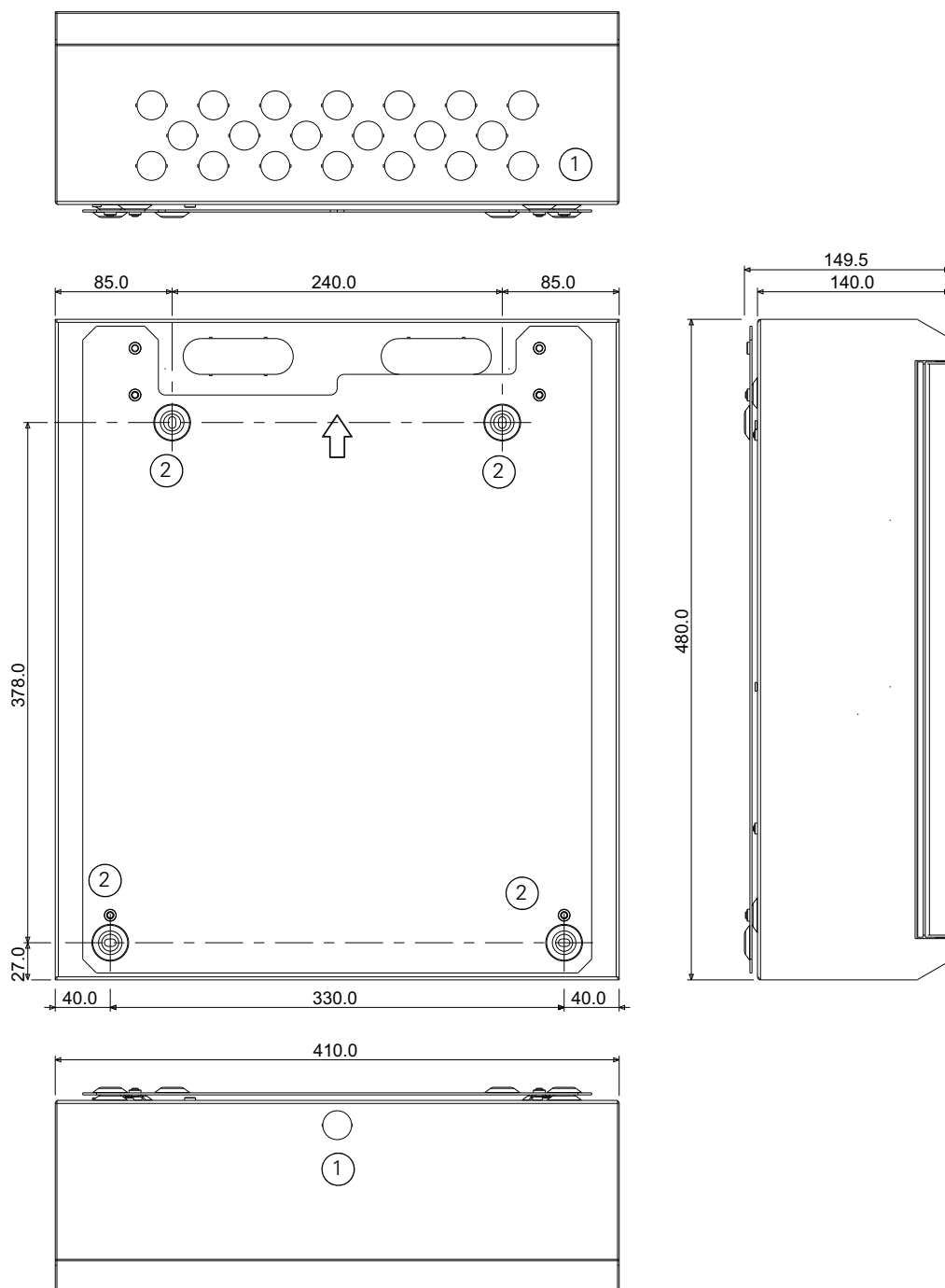


Fig. 14: FireClass Single Loop Panel Shallow and FC8AS FireClass AC Repeater - Overall and Fixing Dimensions Knockouts  $\varnothing 20$  mm (13x)

1– Knockouts

2– Mounting hole  $\varnothing 5.5$  mm



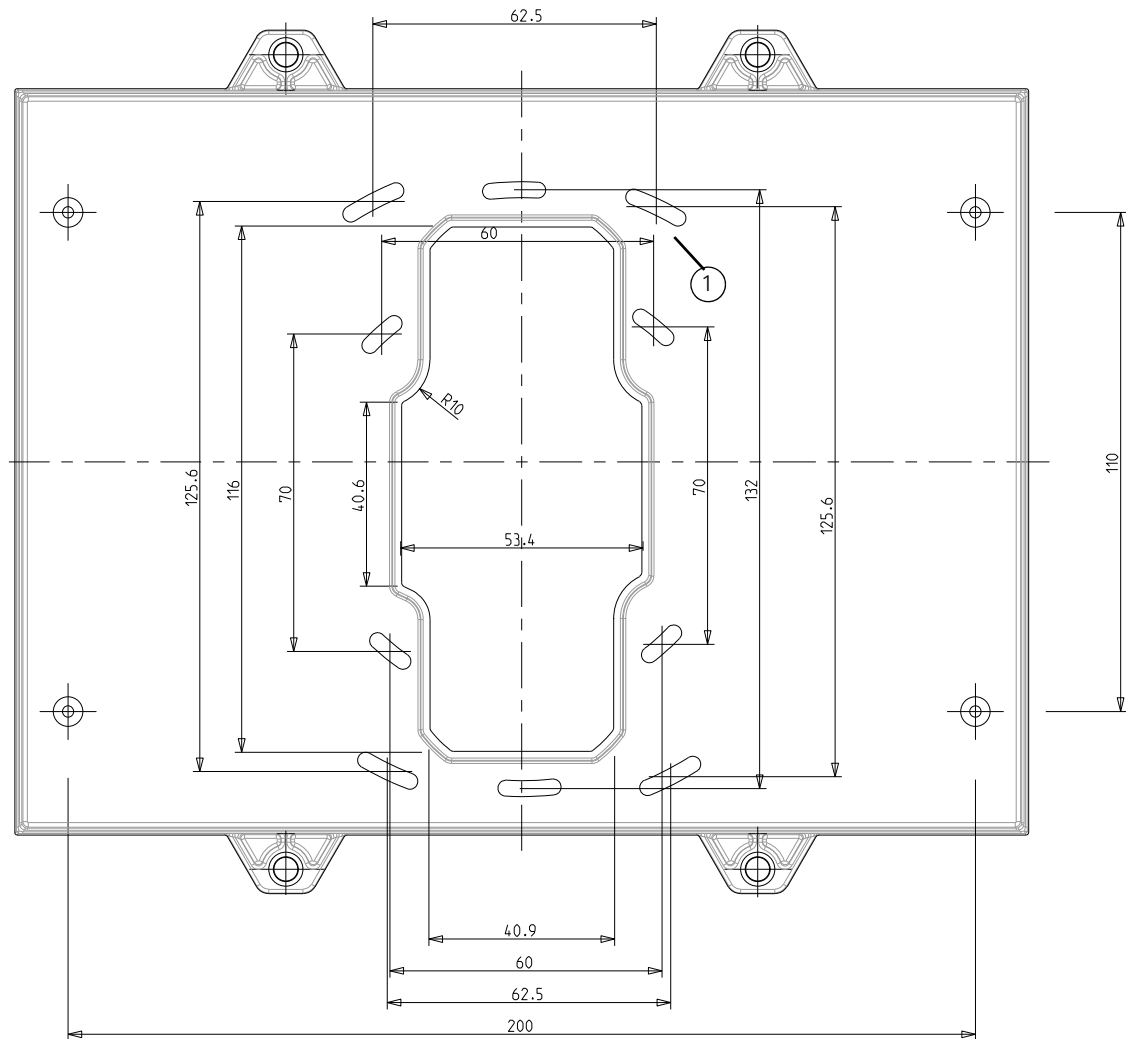


Fig. 15: FC1DS FireClass Compact DC Repeater - Overall and Fixing Dimensions.

## 7.1 Connect repeaters

The FC1DS and FC8AS repeaters connect to the system by Ethernet.

### 7.1.1 Install the Ethernet Switch

For multiple repeaters, or for fibre optic links to the repeaters, an Ethernet switch must be installed.

- ## 7.1 Connect repeaters
- The FC1DS and FC8AS repeaters connect to the system by Ethernet.
- ### 7.1.1 Install the Ethernet Switch
- For multiple repeaters, or for fibre optic links to the repeaters, an Ethernet switch must be installed.
- 1 Mount the Ethernet switch using the screws provided. Refer to item 1 in Fig. 16.
  - 2 Optionally connect an earth cable between the earthing screw and an earth bar on the housing wall.
  - 3 Connect an Ethernet cable to the switch. Connect the other end of the Ethernet cable to the connector marked 'XP15 ETH' on the FC-FI main board PCB. This is at the left hand edge of the board, about half way down.
  - 4 Connect cables to the 24 V connectors of the Ethernet switch. Connect the other ends of the power cables to the connector marked 'XT6 PWR' or 'XT7 PWR' on the FC-FI main board PCB. Alternatively connect these to one of the FB800 fuse board 24 V outputs, if fitted.

- 5 Configure the Ethernet switch as described in its instruction leaflet.

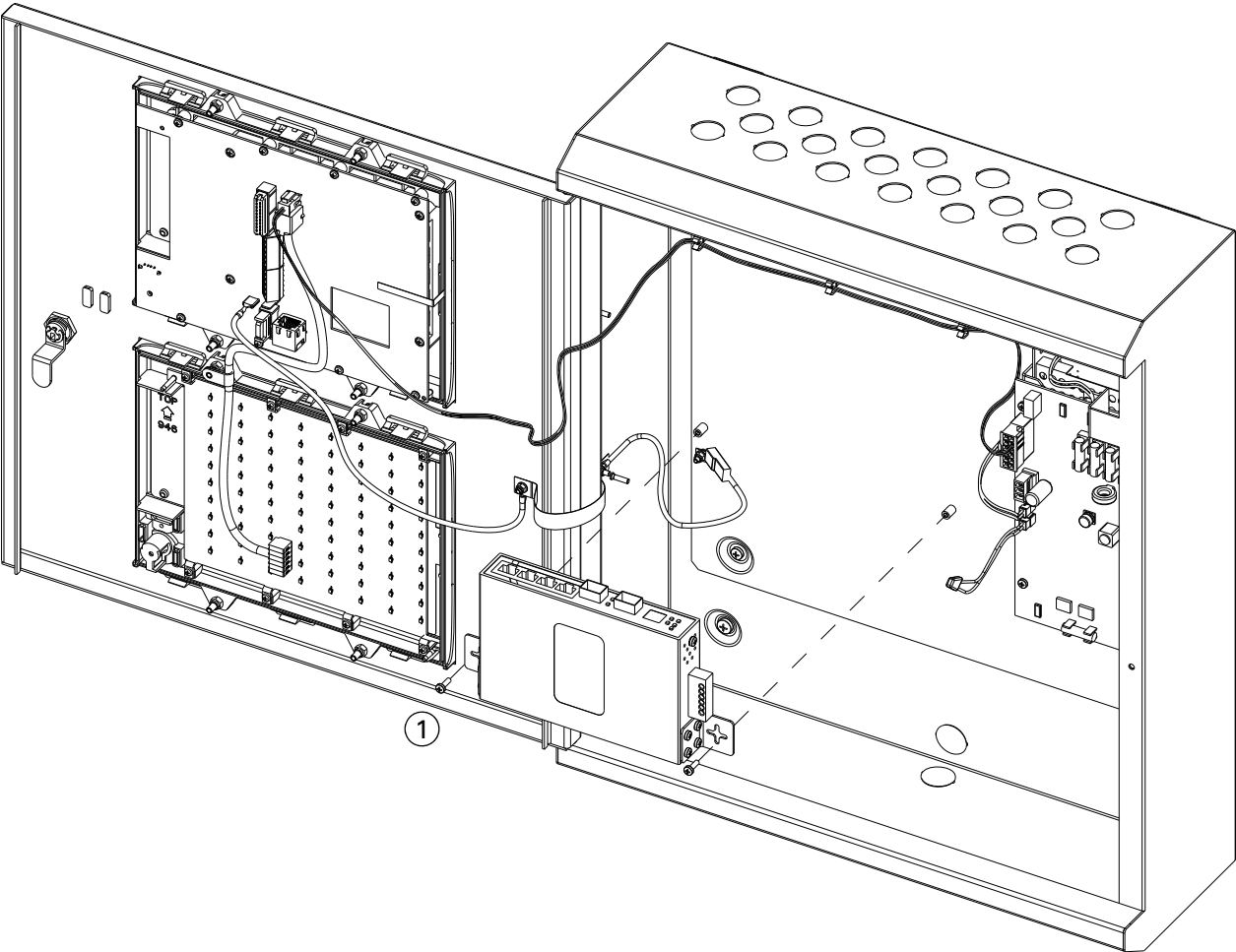


Fig. 16: Mounting a FC8AS repeater with an Ethernet Switch  
1 – Earth cable screw (optional)

7.1.2 FC1DS Compact Repeater connection

How to connect the FC1DS Compact Repeater to the Control Panel

- 1 Connect the FC1DS compact repeater to the control panel via:
  - Ethernet cable from XP15 on the FC-FI card
  - Ethernet cable from standard port on the Ethernet Switch
  - Ethernet fiber optic cable from fiber optic port on the Ethernet Switch using the O-Ring redundant interconnection.
- 2 Connect the mains earth lead to the earth tag.
- 3 Connect the 24 VDC power from FC-FI to the compact repeater using the redundant lines as shown in Table 2.

FC-FI Power Terminals	GUI (Graphical User Interface)- Power Terminals
XT5 (24V OUT1) +	X501 (+24V DC)
XT5 (24V OUT1) -	X501 (0V)
XT5 (24V OUT2) +	X502 (+24V DC)
XT5 (24V OUT2) -	X502 (0V)

Table 2: Compact Repeater- Power connections to FC-FI

7.1.3 FC8AS AC Repeater connection

How to connect the FC8AS AC Repeater to the Control Panel

- 1 Connect the GUI of the FC8AS repeater to the control panel via:

- Ethernet cable from XP15 on the FC-FI card.
  - Ethernet cable from standard port on the Ethernet Switch.
  - Ethernet Fiber Optic cable from fiber optic port on the Ethernet Switch using the O-Ring redundant interconnection.
  - When connecting these cables, use a gland to secure the mains cable and the cable appropriate for the type of repeater (Ethernet cable or Fiber Optic cable) in place.
- 2 Connect the mains earth lead to the mains earth stud/box.
  - 3 Connect the mains leads to the mains terminal block on the housing.

Ensure that the protective earth lead from the front cover is connected to the earthing stud/box of the housing.

## 7.2 Install the batteries - FC8AS

- 1 Remove the battery fuse from the PMM800 board.
- 2 Connect the battery cables to the terminals marked **BATT+** and **BATT-** on the PMM800 board mounted

on top of the PSU). There are two of each type of terminal – use either one. Connect the red cable to positive and the black cable to negative.

- 3 Place the batteries at bottom of the control panel housing.
- 4 Connect the battery cables to the battery +ve to -ve terminals.
- 5 If supplied, fit the battery retaining clamp. For details refer to the instruction leaflet provided with the clamp.
- 6 Connect the inter-battery lead between the batteries (+ve to -ve terminals). Note that the control panel will not start to power up from the batteries without the Mains being powered up.
- 7 Identify the temperature compensation thermistor lead. This is from the connector marked **THERMISTOR J3** on the PMM800 board mounted to the power supply. Tape the thermistor at the end of the lead at a convenient location on the side of a battery.
- 8 Re-fit the battery fuse.
- 9 Label the batteries with the current date.

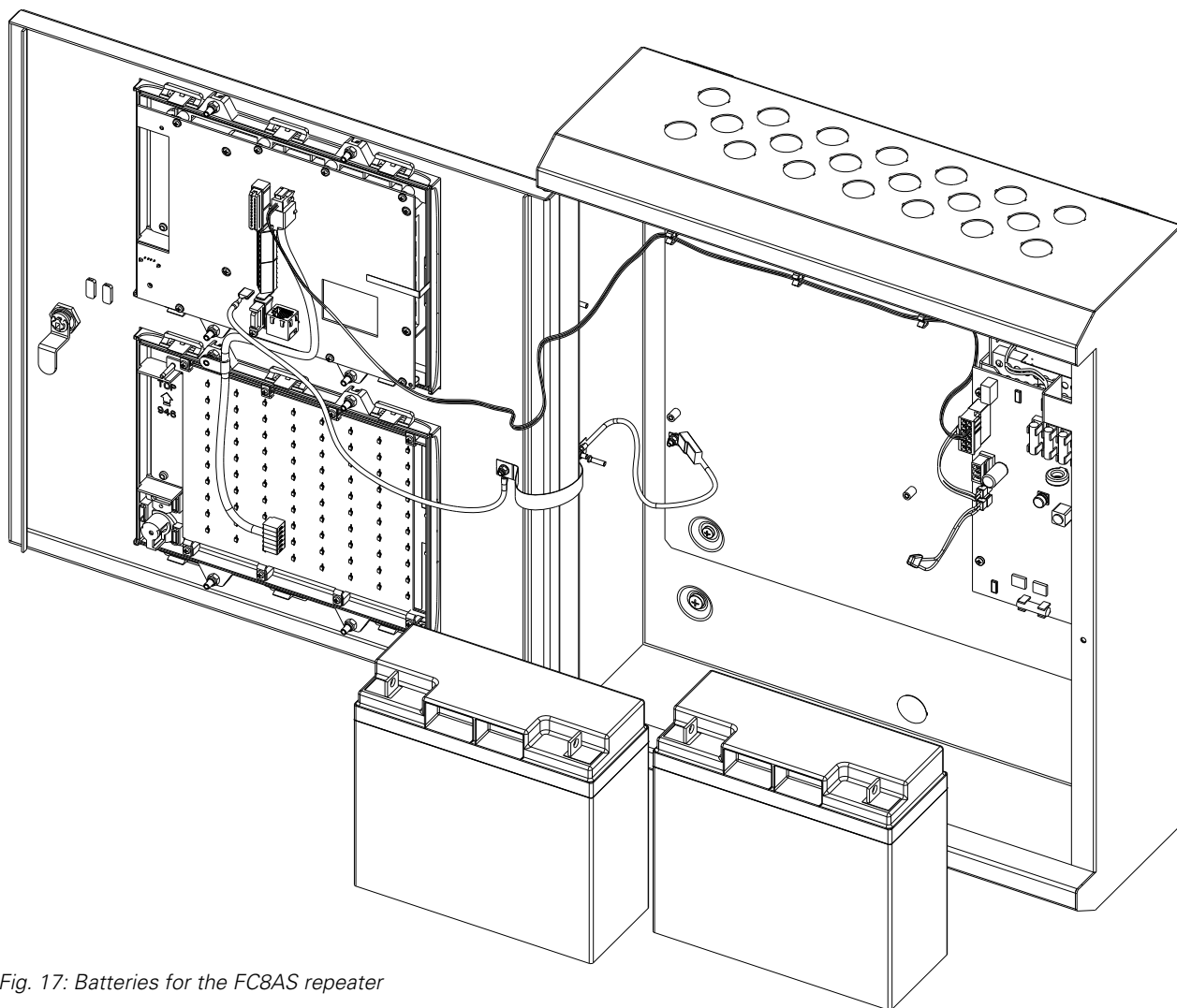


Fig. 17: Batteries for the FC8AS repeater

## 8 Provide Installation Records

Make sure you provide the site personnel with all relevant information, such as cable routing diagrams and wiring test results.

## 9 Make Final Checks

- 1 Make sure all power and signal cabling is connected securely, with the correct polarity.
- 2 Make sure all power and signal cables are neatly routed and arranged in the housings.
- 3 Make sure all the earth cables are connected securely.
- 4 Make sure all installed cables and signal wires are adequately labelled.
- 5 Make sure the housings are clean and tidy – for example, make sure all wiring off-cuts are removed.

## 10 Install the FC-FI - Field Interface Board

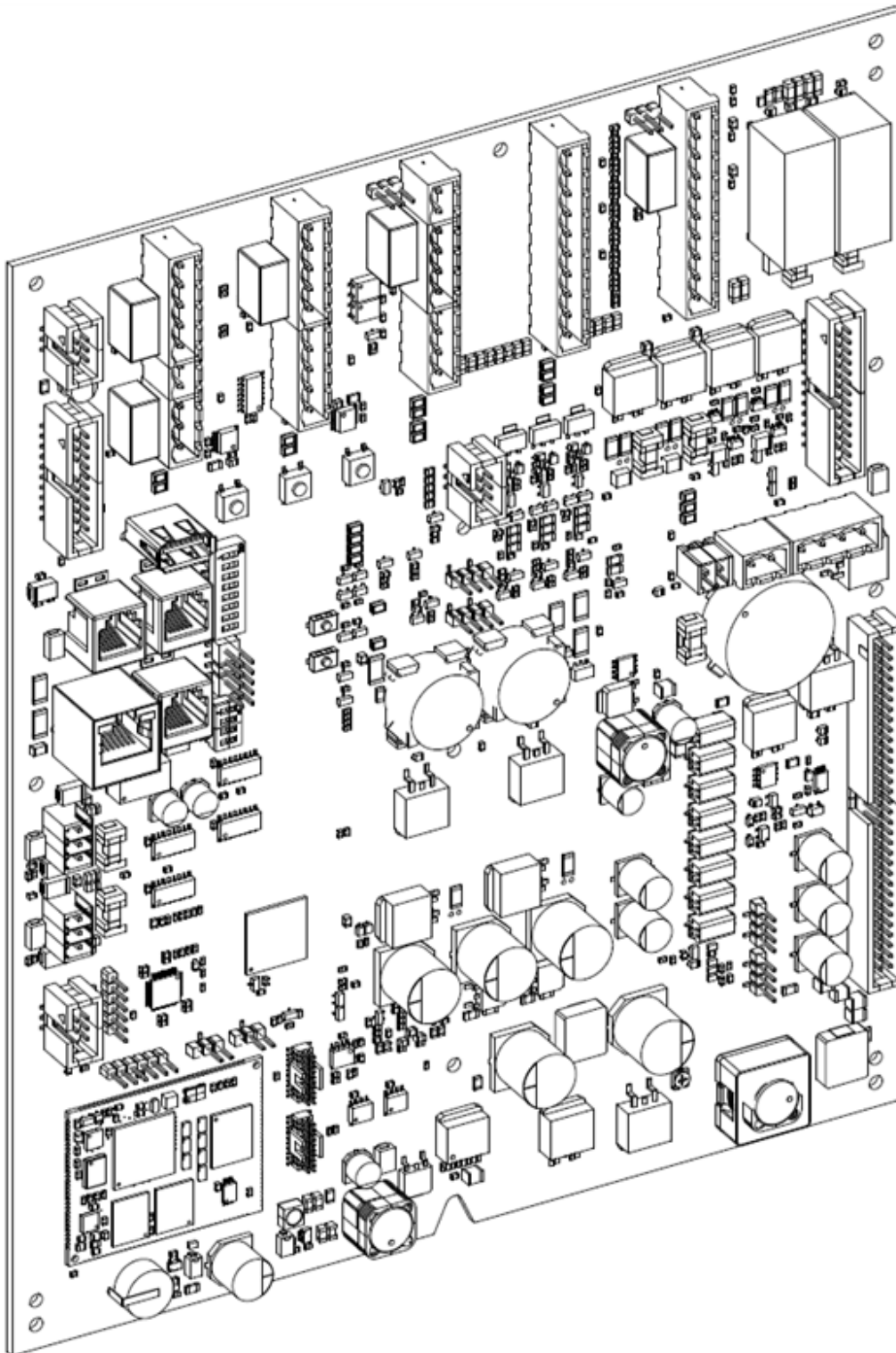


Fig. 18: FC-FI - Field Interface Board.

## 10.1 Make Local FC-FI Board Connections



### NOTICE

**There is a danger of signal interference between cable runs.**

**Take care when laying out transmission lines to avoid the potential for cross-coupling between them.**

---

## 10.2 Connect Local Sounders

“Local sounders” are sounders connected directly to the FC-FI board, as opposed to sounders on the addressable loop.

Connect the sounders as shown in Fig. 19 (Item 4). The figure only shows one sounder, but multiple sounders can be connected in parallel.

The terminating capacitors are included in the shipment. Fit the capacitors beyond the furthest sounder. The capacitors can be connected with either polarity. If a control panel sounder output is not required, connect the capacitor directly across the sounder output terminals (it is safest to fit the capacitor(s), as this will ensure no faults are reported).

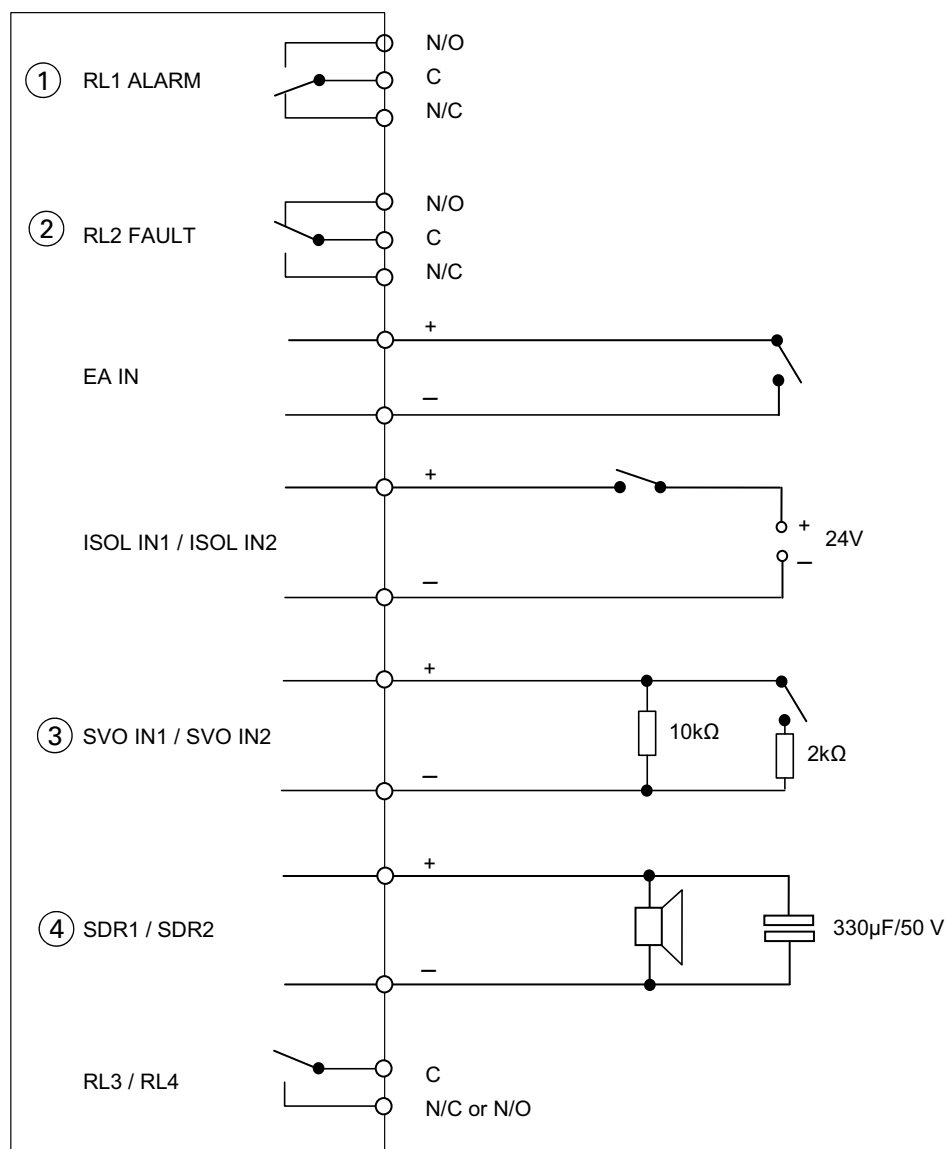


Fig. 19: FC-FI - Inputs and Outputs. The labels are as printed on the PCB.

1–ALARM relay. Shown in the "normal" position (no alarm).

2–FAULT relay. Shown in the "normal" position (no fault).

3– See Section "Connect Supervised Inputs" on page 23.

4– See Section "Connect Local Sounders" on page 22.

### 10.3 Connect Supervised Inputs

The Supervised Input is active when the resistance applied between the input + and - terminals goes low (when a shorting switch closes for example). Resistors are used to enable short and open circuit detection in the switch wiring.

Only connect to the Supervised Input if it is set up in the configuration (open the configuration in FireClass Express for example).

Connect the switch using series and parallel resistors as shown in Fig. 19. The resistors are supplied. The switch

must be externally sourced.

If you are not sure if the Supervised Input is used or not, just connect the 'end of line' 10 kΩ resistor directly across the terminals (this will prevent a fault condition).

## 10.4 Check the FC-FI Connections

The FC-FI connections are shown in Fig. 20. Not all of these are covered in this guide. For the numbered items '2' and '3', these should have been connected in earlier steps, (which cross-references to this figure).

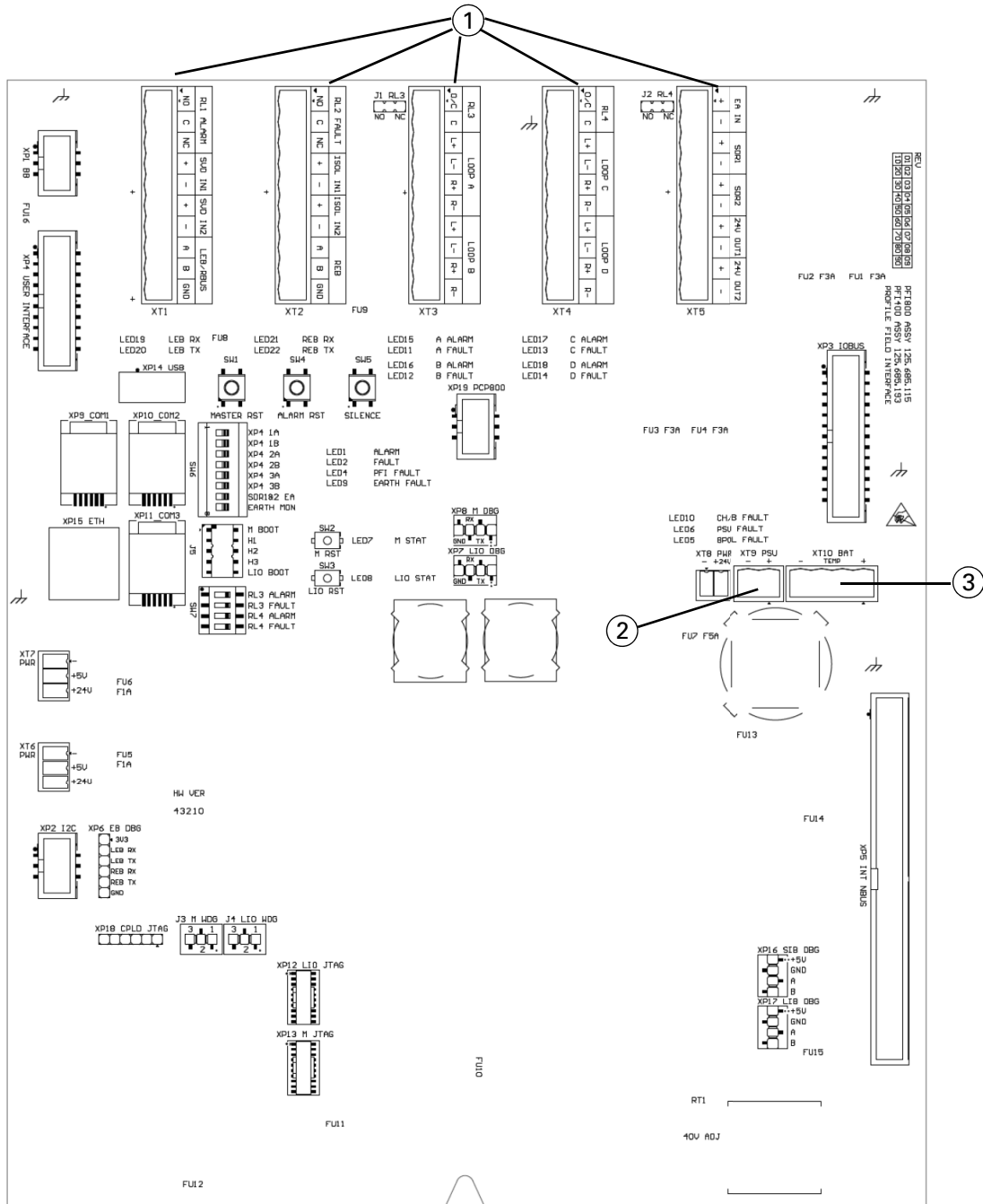


Fig. 20: FC-FI Connections

1–Loops, supervised input 1, supervised input 2, sounder, alarm and fault relay, 24V, emergency alarm (EA).

2–DC cable (black, twin conductor). Marked 'XT9 PSU' on the PCB.

3– To the batteries. Marked 'XT10 BAT' on the PCB. See Section "Install the Batteries - FC700 series" on page 14.



## 10.5 Note FC-FI Switches and Jumper Positions

The FC-FI board has many connectors, jumpers and configuration switches. These are used, for example, when diagnosing problems and when configuring the board for additional modules. It is outside the scope of this installation guide to provide details of these, and the factory settings will be applicable in most situations. Where necessary details will be found in other guides, such as installation leaflets.

## 10.6 Make Jumper and DIP Switch Settings

Most jumpers and DIP switches on the GUI, FC-FI board optional slot cards are already at the required settings as supplied. For example Debug mode is disabled, Boot mode is disabled, and so on. The default factory settings are marked by \* in the following tables.

Some special operational setting should be implemented under the specific project.

PCB Label	Function
SW1	Master RESET button
SW2	MCPU RESET button
SW3	LIOMCU RESET button
SW4	Alarm RESET Button
SW5	Silence Button
SW6	See Table 6, 7 and 8.
SW7	See Table 9, 10, 11 and 12.
J1	See Table 5.
J2	See Table 5.
J3	See Table 5.
J4	See Table 5.
J5	See Table 5.
XT1	Terminals: Alarm Relay 1, Supervised Inputs 1 and 2, Left External N-Bus/R-Bus
XT2	Terminals: Fault Relay 2, Isolated Input 1, Isolated Input 2, Right External N-Bus/ R Bus
XT3	Terminals: Relay 3, Loop A, Loop B
XT4	Terminals: Relay 4, Loop C, Loop D
XT5	Terminals: Emergency Alarm Input, Sounder Output 1, Sounder Output 2, 24V Power Outp 1, 24V Power Output 2

Table 3: FC-FI DIP Switches and Connector Functions

PCB Label	Function
XT6	Terminals: 24V and 5V Power for Third Party Cards
XT7	Terminals: 24V and 5V Power for Third Party Cards)
XT8	Terminals: 24V Power for FB800 Fuse Board
XT9	Terminals: PSU connection
XT10	Terminals: Battery and Battery Thermistor connection
XP1	Connector: Black Box front panel LEDs: Alarm, Fault, System Fault)
XP2	Connector: I2C interface and 5V Power
XP3	Connector: IO-Bus
XP4	Connector: to the internal GUI
XP6	Connector: External N-Bus for debugging
XP7	Connector: LIOMCU Debug port RS232
XP8	Connector: MCU Debug port RS232
XP9	Connector: COM1 Printer
XP10	Connector: COM2 FCExpress, FCChecker
XP11	Connector: COM3 Printer and FCNET third party interfaces
XP12	Connector: Auxiliary JTAG for LIOMCU
XP13	Connector: Auxiliary JTAG for MCU
XP14	Connector: USB interface
XP15	Connector: ETHERNET interface
XP16	Connector: Internal N-Bus Service Channel signals for debugging
XP17	Connector: Internal N-Bus Loop Channel signals for debugging
XP18	Connector: Auxiliary JTAG for CPLD
XP19	Connector: interconnection of external N-Bus interface with Redundant MCU slot card

Table 3: FC-FI DIP Switches and Connector Functions

### 10.6.1 Configuration of a FC700 series panel RBus interface

The routing of the RBus is controlled by the DIP switches XP4 1A/1B, 2A/2B, 3A/3B. The switches are in pairs as the A and B lines of the RBus are switched separately.

The combination of these switches controls the routing of the RBus to the front door GUI or external devices. The front door GUI communicates with the panel over Ethernet, but may be configured to use RBus in Standby Emergency Mode should there be a failure of the main panel CPU.

The GUI and panel both have built in terminating resistors, so external terminating resistors should not be fitted to the panel. The table below shows all the switch combinations.

The recommended configurations, depending on what devices are connected to the RBus, are highlighted in grey in Table 4.

Refer to Figure 21 to see the electrical layout of the switches.

XP4 1A/1B	XP4 2A/2B	XP4 3A/3B	Configuration
OFF	OFF	OFF	No RBus.
OFF	OFF	ON	RBus only to internal GUI.
OFF	ON	OFF	RBus only to external devices.
OFF	ON	ON	RBus routed to internal GUI and external devices. RBus will have double termination resistors at panel end.
ON	OFF	OFF	No RBus.
ON	OFF	ON	RBus routed to external devices through internal GUI.
ON	ON	OFF	RBus routed to internal GUI and external devices. RBus will have double termination resistors at panel end.
ON	ON	ON	Invalid configuration. This will result in RBus errors.

Table 4: RBus and DIP switch combinations

The recommended configurations are highlighted in grey.

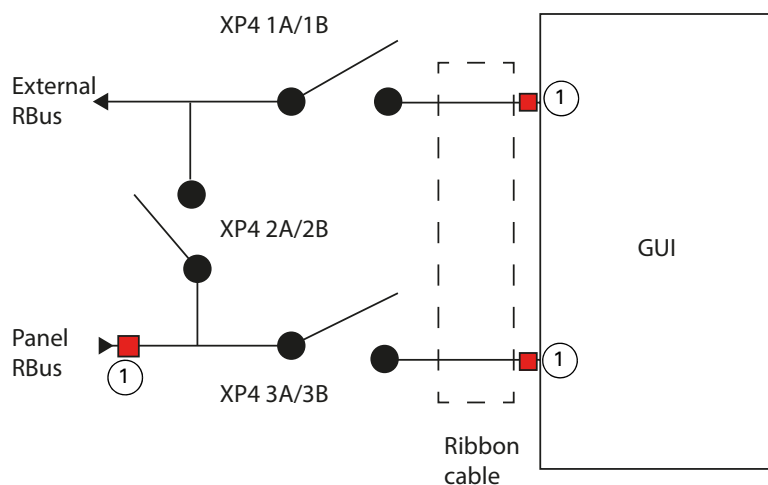


Fig. 21: XP4 switches electrical diagram

1 – Termination resistor

Jumper	1-2	2-3	OPEN
J1 – Relay 3	Normally Closed <sup>[1]</sup>	Normally Open	N/A
J2 – Relay 4	Normally Closed <sup>[1]</sup>	Normally Open	N/A
J3 – MCPU Watchdog	Enabled <sup>[1]</sup>	Active (MCPU in reset)	Enabled
J4 – LIOMCU Watchdog	Enabled <sup>[4]</sup>	Active (LIOMCU in reset)	Disabled
J5 – MCPU Boot Mode <sup>[2]</sup> ■ H1 Header ■ H2 Header ■ H3 Header ■ LIOMCU Boot Mode <sup>[3]</sup>	Enabled Enabled Enabled Enabled Enabled	- - - - -	Disabled <sup>[1]</sup> Disabled <sup>[1]</sup> Disabled <sup>[1]</sup> Disabled <sup>[1]</sup> Disabled <sup>[1]</sup>

Table 5: FC-FI - Jumper settings

[1] Default.

[2] For updating the MCPU Boot Loader. The mode is entered after an MCPU reset.

[3] For updating the LIOMCU firmware. The mode is entered after a LIOMCU rest. The LIOMCU Watchdog has to be disabled during update of firmware.

[4] Default. Disable this before a firmware update.

Header	Function
H1, H2, H3 not fitted	Standard operational mode or Configuration Download mode.
H1 fitted	-
H2 fitted	Clear the stored data when the panel is restarted.
H3 fitted	Panel configuration download from USB memory stick mode.

Table 6: FC-FI - Header H1, H2, H3 Functions

SW6	Sounders activated by External Alarm
Position 7 <sup>[1]</sup>	
OFF *	Disabled
ON	Enabled

Table 7: Sounders activated by Emergency Alarm setting

\* Default

[1] The number 7 is located on the switch, not on the PCB.

SW6	Earth Fault Monitoring
Position 8 <sup>[1]</sup>	
OFF	Disabled
ON *	Enabled

Table 8: FC-FI - Earth Fault Monitoring setting

\* Default

[1] The number 8 is located on the switch, not on the PCB.

SW7	RL3 activated by ALARM
Position 1	
OFF *	Disabled
ON	Enabled

Table 9: FC-FI - RL3 relay activated by ALARM setting

\* Default.

SW7	RL3 activated by FAULT
Position 2	
OFF *	Disabled
ON	Enabled

Table 10: FC-FI - RL3 relay activated by FAULT setting

\* Default.

SW7	RL4 activated by ALARM
Position 3	
OFF *	Disabled

Table 11: FC-FI - RL4 relay activated by ALARM setting

\* Default

SW7	RL4 activated by ALARM
Position 3	
ON	Enabled

Table 11: FC-FI - RL4 relay activated by ALARM setting (cont.)  
\* Default

SW7	RL4 activated by FAULT
Position 4	
OFF *	Disabled
ON	Enabled

Table 12: FC-FI - RL4 relay activated by FAULT setting  
\* Default

## 10.7 Changing a Fuse on the FC-FI

The FC-FI has seven user changeable fuses. See Table 13 for more information.



### CAUTION

Ensure that you turn the panel off before changing fuses.

Fuse number	Current	Voltage	Type
FU1	3A	125V	Bel Fuse 0679L3000 Littlefuse 0453003
FU2	3A	125V	Bel Fuse 0679L3000 Littlefuse 0453003
FU3	3A	125V	Bel Fuse 0679L3000 Littlefuse 0453003
FU4	3A	125V	Bel Fuse 0679L3000 Littlefuse 0453003
FU5	1A	125V	Bel Fuse 0679L1000 Littlefuse 0453001
FU6	1A	125V	Bel Fuse 0679L1000 Littlefuse 0453001
FU7	5A	125V	Bel Fuse 0679L5000 Littlefuse 0453005

Table 13: Characteristics of the FC-FI changeable fuses

To change fuses, complete these steps:



### Note

Replacement fuses are not supplied. Purchase replacement fuses separately.

- 1 Identify the blown fuse on the board visually or by checking for continuity with a multimeter. Ensure that the fuse is one of the user replaceable fuses listed in Table 13.
- 2 Insert a screwdriver under the centre of the fuse and pull it out.

- 3 Check that the replacement fuse is of the correct current rating.
- 4 Put the replacement fuse on top of the connector, taking care that the current number is facing upwards, and press it down firmly.



### DANGER

**Ensure that the replacement fuse is of the correct current rating. Failure to insert the correct fuse can lead to injuries and damage to the equipment.**

**If the fuse is not listed in Table 13, it cannot be replaced. Send the board for repair.**

## 11 Install Optional Cards and Modules

At this stage connect any optional cards and modules into the system. These might include, for example:

- Slot cards such as a PLX800 loop expansion card.
- The MOXA or CCU3 modules.
- Printers.
- Repeaters.

For a general impression of what is involved in mounting slot cards, see Fig. 22.

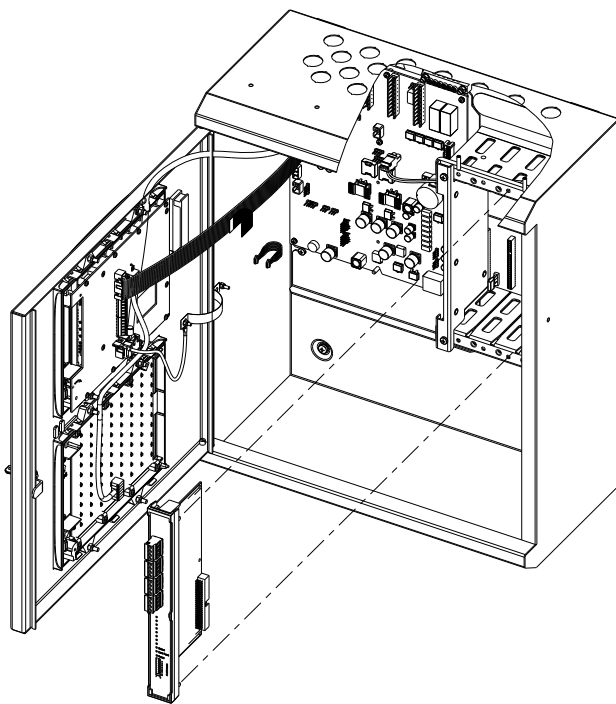


Fig. 22: Slot card installation

### 11.1 Obtain Slot Card Addresses

When you install slot cards as described in later sections of this guide, you may need to set the addressing DIP switches of these cards.

Here is an example of how to obtain the address to set:

- 1 Start the configuration software, we will assume this is FireClass Express.
- 2 Open the system configuration.
- 3 Go to 'Point Regions'.
- 4 Look down the list to the 'Slot Card' entries.
- 5 Find a slot address number that is populated with the type of card you are installing (a PLX800 for example). There is a maximum of 1 PLX800 slot card and 1 PNI800 slot card fitted. The addresses are:  
PLX800: address 1  
PNI800: address 2

- 6 Make sure this address number has not already been allocated – you might have to read the DIP switch settings of already installed cards.
- 7 If the address number is free, note this to be set on the card's DIP switch, as covered in a later section below.

## 12 Install the PLX800 - Loop Expansion Card

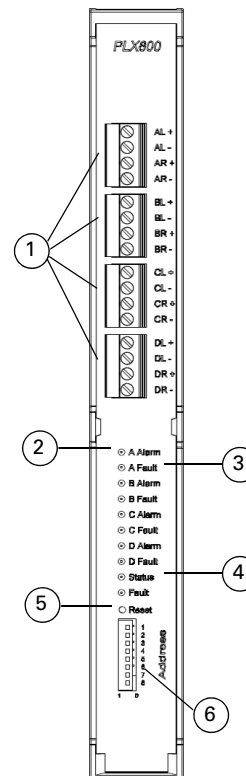


Fig. 23: PLX800 Loop Expansion Card

- 1– Loop connector plugs
- 2– Loop A Alarm optical indicator (similarly for the other loops).
- 3– Loop A Fault optical indicator (similarly for the other loops)
- 4– Status indicator
- 5– Reset switch
- 6– Addressing DIP switch

- 1 Assemble the slot card components as shown in Fig. 24.
- 2 Check whether the card needs a firmware upgrade and if so, refer to the relevant Technical Information Bulletin (TIB).
- 3 Obtain the address number to set on the card's addressing DIP switch – see Section "Obtain Slot Card Addresses". For PLX800, the address number is 1 and there can be a maximum of one PLX800 fitted.
- 4 While obtaining the address, also check if a loop actually needs connecting. In 'Loop Regions', if

'Loop E' (for example) has 'No addresses' (zero addresses allocated to it), then you should not connect that loop.

- 5 Set jumper J1 to the "Pin 1 shorted to Pin 2" position. The 'J1' label is on the PCB.
- 6 Set the addressing DIP switches to the chosen card address number (see Item 5 in Fig. 23). For a settings look up chart see Table 50.
- 7 From the card remove the loop connector plugs (Item 1 in Fig. 23).
- 8 Insert the card into the appropriate slot in a slot card cage (see Fig. 22). This may be in the main panel housing, or in an expansion housing. See section "Obtain Slot Card Addresses". Push the card firmly until it clicks into place.
- 9 Connect the loop cable bare core wires into the loop connector plug screw terminals. Check for correct polarity.

The loop connector labels will not correspond with the loop labels in the configuration – you will need to map them across. For example with one PLX800 in the system, the card 'Loop A' connector will correspond to 'Loop E' of the configuration (Loop A to Loop D being the standard loops on the PLX800 main board).

- 10 Insert the loop connector plugs into the card.
- 11 Once the panel is powered up, check the optical indicators to ensure correct operation – no indicators should be active apart from the 'Status' indicator, which should be switching active to inactive every 0.5 seconds.

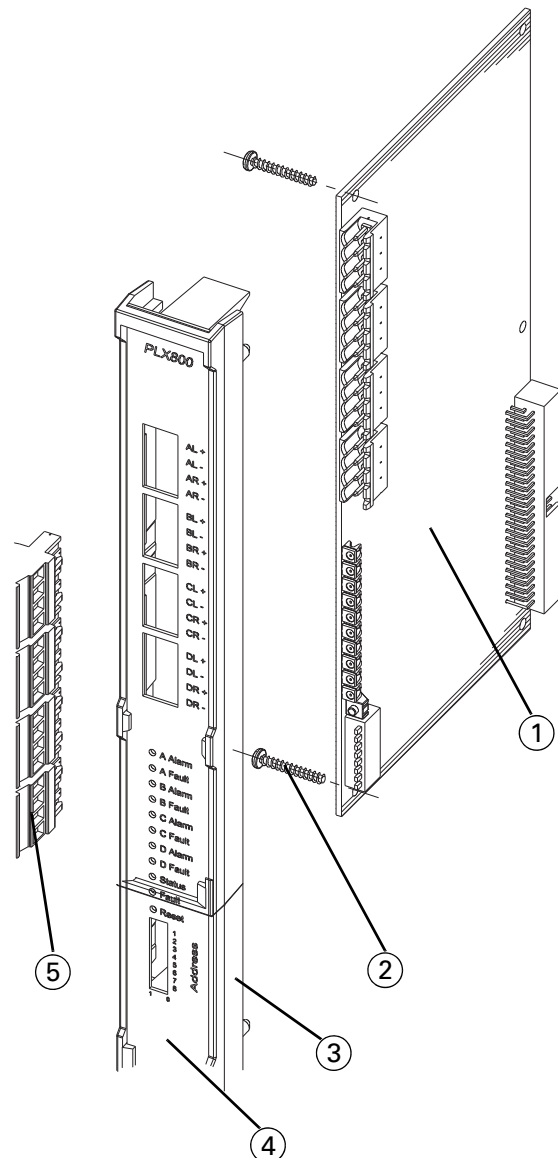


Fig. 24: Slot Card Assembly

1– PCB

2– Screw 2.9x19

3– Panel

4– Insert

5– Loop Connector Plug

## 12.1 PLX800 Loop Expansion Card Details

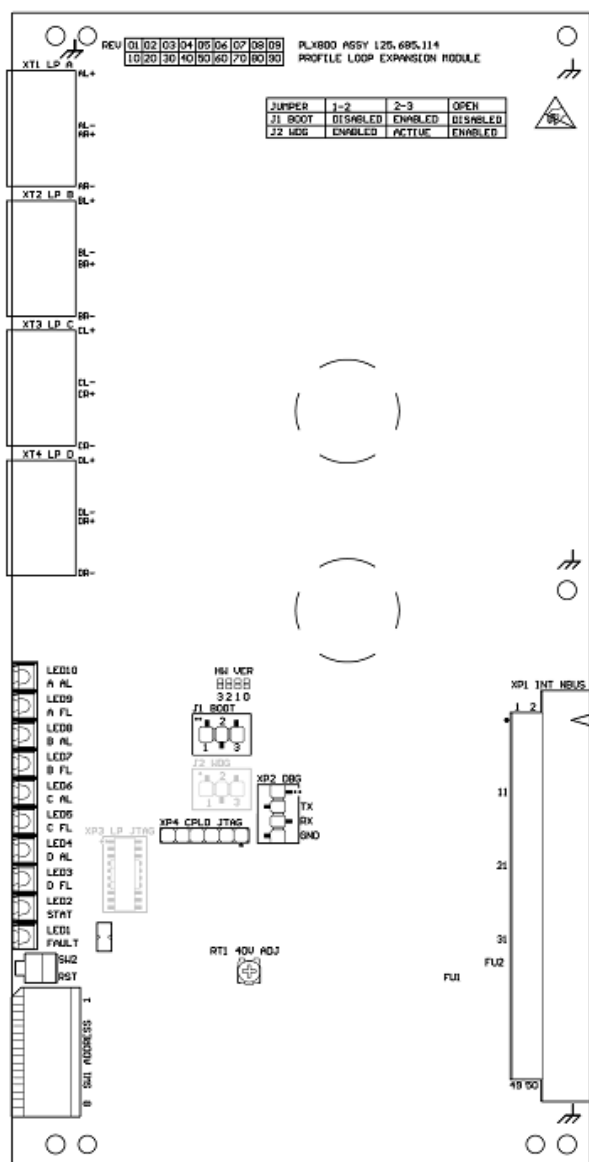


Fig. 25: PLX800 - Jumper, switch and terminal Positions

Item	Function
J1	Boot Mode jumper
J2	Watchdog Options jumper
SW1	DIP switch (Internal N-BUS address)
SW2	Reset button
XP1	Slot backplane (Internal NBUS) connector
XP2	Debug Port (RS232) connector
XP3	Auxiliary JTAG port for Loop microprocessor
XP4	Auxiliary JTAG port for CPLD
RT1	Rheostat for loop 40V adjustment
XT1	Loop A connector
XT2	Loop B connector
XT3	Loop C connector
XT4	Loop D connector

Table 14: PLX800 Jumper, Connector and Switch Functions

Jumper	1-2	2-3	OPEN
J1Boot Mode	Disabled *	Enabled (use this when updating firmware)	Disabled
J2Watchdog	Enabled *	Active (microprocessor in reset)	Disabled (use this setting when updating firmware)

Table 15: PLX800 - Jumpers setting

\* Default

State	Condition
Fixed On	Microprocessor failed

Table 16: PLX800 Microprocessor Status Optical Indicator

State	Condition
Blinking On/Off 0.5 seconds/0.5 seconds	Normal function

Table 16: PLX800 Microprocessor Status Optical Indicator

State	Condition
Blinking On/Off 0.1seconds /0.9 seconds	Firmware update mode
Blinking On/Off 0.9 seconds /0.1 seconds	Configuration mode
Blinking On/Off 0.1seconds /0.1 seconds	Stand alone mode
Fixed Off	5V or 3.3V is missing

Table 16: PLX800 Microprocessor Status Optical Indicator

State	Condition
ON	Fault
OFF	No fault

Table 17: PLX800 Microprocessor Fault Status Optical Indicator

### 13 Install the PNI800 - Network Interface Card

Install any PNI800 Network Interface Slot Cards according to the steps below.

- 1 Check whether the card needs a firmware upgrade and if so, refer to the relevant Technical Information Bulletin (TIB).
- 2 Obtain an address number to set on the card's addressing DIP switch – see Section “Obtain Slot Card Addresses”. For PNI800, the address number is 2 and there can be a maximum of one PNI800 fitted.
- 3 Set the addressing DIP switches to the address number. For a settings look up chart see Table 50.
- 4 Insert the card into the appropriate slot in the slot card cage (see Fig. 22). This may be in the main panel housing, or in an expansion housing. See section “Plan Slot Card Arrangement” on page 29. Push the card firmly until it clicks into place.
- 5 When the panel is powered up, check the optical indicators to ensure correct operation.

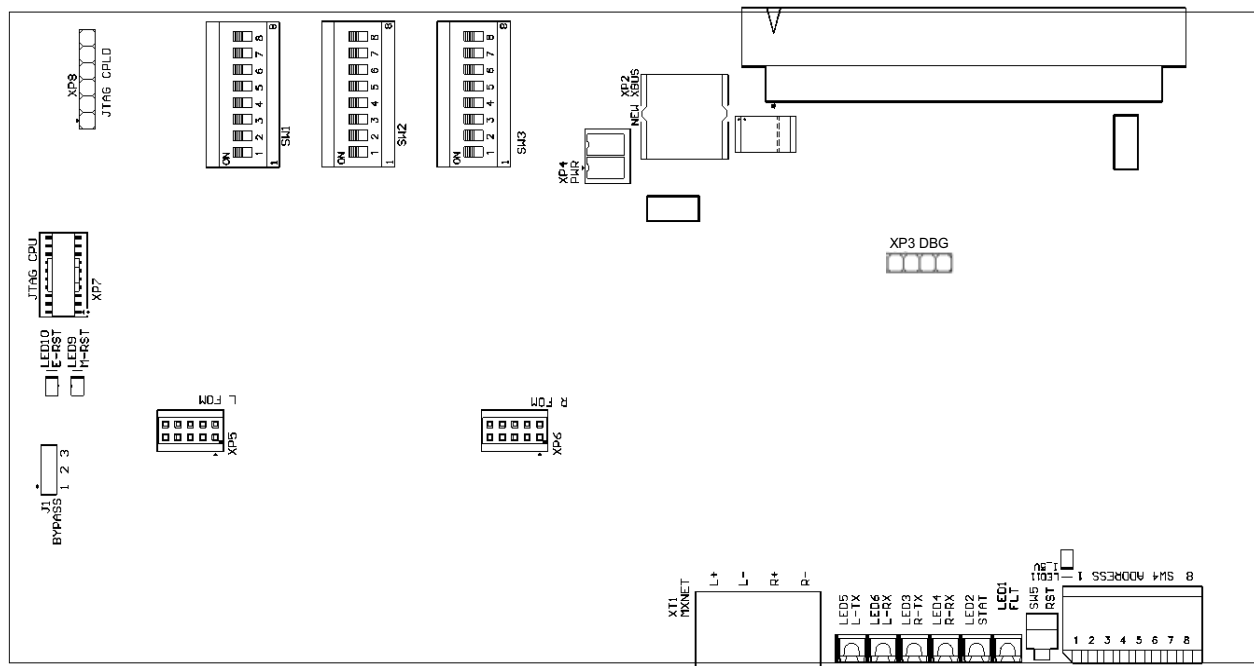


Fig. 26: PNI800 - Jumper, switch and terminal positions



Item	Function
J1	See Table 19.
SW1	See Table 20, 21, 22, and 23.
SW2	See Table 24, 25, 26, and 27.
SW3	See Table 28 and 29.
SW4	See Table 30. DIP switch (Internal N-BUS address)
SW5	Reset button
XT1	FCNET connector
XP1	Slot backplane (Internal N-BUS) connector
XP2	Auxiliary Zonal LED panel connector (e.g. for PNI800 in box)
XP3	Debug Port (RS232) connector
XP4	Auxiliary power supply connector (e.g. for PNI800 in box)
XP5	Left fibre optic module
XP6	Right fibre optic module
XP7	Auxiliary JTAG port for CPU
XP8	Auxiliary JTAG port for CPLD

Table 18: PNI800 - Jumper, switch and terminal functions

Jumper	1-2	2-3
J1Bypass	Normal Mode*	Node Bypassed <sup>[2]</sup>

Table 19: PNI800 - J1 jumper setting  
\* Default.

[2] The MX-Network left and right channels are hardware-connected. Set this only if the PNI800 slot card is non-operational (due to a fault or not being powered up for example).

SW1 Position		Application
1	2	
OFF	OFF	Gateway
ON	OFF	Bridge
ON	ON	Hub
OFF	ON	Reserved

Table 20: PNI800 - Application setting

SW1 Position			Network Baud Rate
3	4	5	
ON	ON	ON	9600
OFF	ON	ON	19200
ON	OFF	ON	38400
OFF	OFF	ON	57600
ON	ON	OFF	76800
OFF	ON	OFF	115200*
ON	OFF	OFF	Reserved
OFF	OFF	OFF	Reserved

Table 21: PNI800 - Network baud-rate setting  
\* Default.

SW1 Position 6	Network Topology
Position 6	
ON	BUS
OFF	RING*

Table 22: PNI800 - Network topology setting  
\* Default.

SW1 Position 8	MAIN MCU FW upgrade mode
Position 8	
ON	Enabled. Mode is activated after RESET
OFF	Disabled*

Table 23: PNI800- Main MCU FW upgrade mode enable  
\* Default.

SW2 Position 1	Host Interface
Position 1	
ON	RS232
OFF	NBUS*

Table 24: PNI800 - Host Interface setting  
\* Default.

SW2 Position 2	Emergency Display
Position 2	
ON	Enabled
OFF	Disabled*

Table 25: PNI800 - Emergency display setting  
\* Default.

<b>SW2</b>	<b>Emergency MCU FW Upgrade Mode</b>
<b>Position 8</b>	
ON	Enabled. Mode is activated after RESET
OFF	Disabled*

Table 26: PNI800 - Emergency MCU FW upgrade mode enable  
\* Default.

#### Changing a Fuse on the PNI800

<b>SW2 Position</b>			<b>Network Left and Right Terminator</b>
<b>3</b>	<b>4</b>	<b>5</b>	
OFF	OFF	OFF	Left and Right Enabled* (default)
OFF	ON	OFF	Left Disabled
OFF	OFF	ON	Right Disabled
OFF	ON	ON	Left and Right Disabled
ON	OFF	OFF	Reserved
ON	OFF	ON	Reserved
ON	ON	OFF	Reserved
ON	ON	ON	Reserved

Table 27: NI800 - Network Interface Terminator setting for metal cable

\* Default setting in normal operation for Bus and Ring network topology

<b>SW3</b>	<b>Network address</b>
<b>Position 1 to 7</b>	
ON	Binary coded network address SW 3.1=LSB SW 3.7=MSB ON=1 OFF=0
OFF	

Table 28: Network Address Setting

<b>SW3</b>	<b>Test Mode</b>
<b>Position 8</b>	
ON	Enabled
OFF	Disabled*

Table 29: PNI800 - Test Mode setting  
\* Default.

<b>SW4</b>	<b>NBUS address</b>
<b>Position 1 to 7</b>	
ON	Binary coded NBUS address SW 4.1=LSB SW 4.7=MSB ON=1 OFF=0
OFF	

Table 30: PNI800- NBUS address setting

<b>SW4</b>	<b>Mode</b>
<b>Position 8</b>	
ON	Commissioning Mode

Table 31: Mode setting

## 13.1 Changing a Fuse on the PNI800



### CAUTION

Ensure that you turn the panel off before changing a fuse.

The PNI800 has two fuses. Only one of the fuses is user replaceable. See Table 32 for more information.

<b>Fuse number</b>	<b>Current</b>	<b>Voltage</b>	<b>Type</b>
FU1	0.5A	125V	SSTC500

Table 32: User changeable fuse on a PNI800

To replace the FU1 fuse, complete these steps:



### Note

Replacement fuses are not supplied. Purchase replacement fuses separately.

- 1 Identify the blown FU1 fuse on the board visually or by checking for continuity with a multimeter.
- 2 Insert a screwdriver under the centre of the fuse and pull it out.
- 3 Check that the replacement fuse is of the correct current rating.
- 4 Put the replacement fuse on top of the connector, taking care that the current number is facing upwards, and press it down firmly.

**DANGER**

**Ensure that the replacement fuse is of the correct current rating. Failure to insert the correct fuse can lead to injuries and damage to the equipment.**

**If fuse FU2 needs replacing, send the board for repair.**

## 14 Install IOB800 and FB800 boards

Older style boards such as the IOB800 and the FB800 are mounted using a dedicated slot card adapter (the slot card adapter differs between panel types).

A maximum of three boards can be mounted together using spacers, all using the same slot card adapter.

Combina- tion	IOB + IOB				One IOB	
	First IOB800		Second IOB800		IOB800	
S2 Position	1	2	1	2	1	2
Setting	OFF	ON	ON	ON	OFF	ON

Table 34: IOB800 S2 DIP switch settings

### 14.3 Mounting the IOB800 and FB800 boards

#### How to mount boards on FC702D/718/708 panels

The FireClass FC702D/718/708 panels come supplied with a slot card adapter to mount a maximum of three boards per panel. The FC702S panel can also support up to three boards but these are mounted differently, using pillars to separate the boards. See the "How to mount boards on FC702D/718/708 panels" section. You can mount the IOB800 and the FB800 boards on the slot card adapter of the FC702D/718/708 panels by using the spacers and screws supplied. Refer to Fig. 27 and complete these steps:

**Note**

If the IOB800 is mounted with other boards, note the board positions in Table 33. Before you undertake this procedure, power down the panel by isolating the mains and removing the battery fuse.

### 14.1 Decide on a Layer Order

To mount a number of boards on the one slot card adapter, use the board positions in Table 33.

Left	Middle	Right
IOB800 or FB800	-	-
IOB800	IOB800	-
FB800	IOB800	-

Table 33: FB800 and IOB800 layer positions

### 14.2 Set the S2 DIP Switches

IOB800 boards feature a two position DIP switch labelled 'S2'. For the positions of the switches see Table 35.

If you are using more than one IOB800 board, set the switches as shown in Table 34.

- 1 Unplug any boards that are already fitted to the slot card adapter. Note the positions of the cables connected to the boards.
- 2 Remove the slot card adapter from the slot card carrier frame by unscrewing it. If there are cables connected to the front of the IOB800 board, leave them connected as they will be inaccessible when the IOB800 is fitted.
- 3 Remove the mounting screws from the other boards one at a time and replace them with the 30mm spacers provided. Refer to item 2 in Fig. 17. Repeat until you fit spacers in all five screw positions.
- 4 Fit the IOB800 board to the spacers using the screws and washers provided.
- 5 Connect the supply cable to the XP4 position on the IOB800 board. Refer to Fig. 29.

**Note**

Ensure that you observe the correct polarity when connecting cables. Use sufficient torque on the screw terminals to ensure a secure connection.

- 6 Slide the slot card adapter into the slot card carrier frame and screw it into position.

- 7 Reconnect any cables that you disconnected in step 1.
- 8 Connect the supply cable from the IOB800 to the XT8 connector on the FC-FI board.
- 9 Connect any cables to power auxiliary equipment.
- 10 Power up the panel by replacing the battery fuse and reconnecting the mains power.

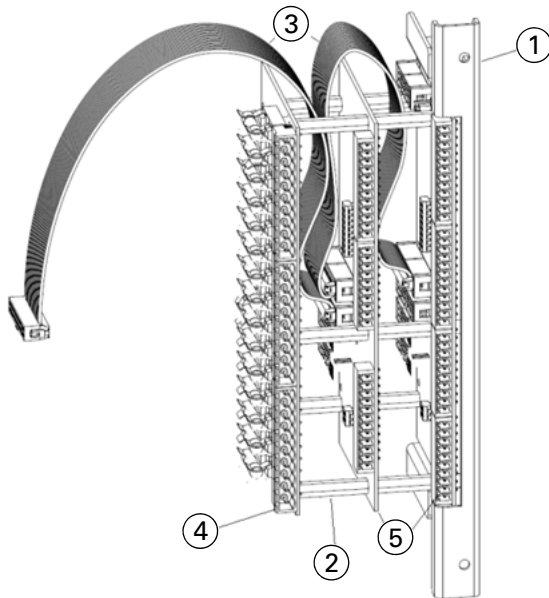


Fig. 27: Example of a fixing arrangement on a slot card adapter with a maximum of three boards fitted.

- 1– Slot card adapter
- 2– Spacers - 30mm long, use five per stack
- 3– Ribbon cables in a suggested connection arrangement
- 4– Other boards (for example, the FB800)
- 5– IOB800 board

### How to mount boards on a FC702S panel

You can mount the PNI800, IOB800, and the FB800 boards on the FC702S panel using the pillars, washers and nuts that are supplied with the boards. A maximum of three of these boards can be fitted. Ensure that you fit the larger boards (such as the PNI800) before small boards (IOB and FB800). The old cards holder (120.008.130) is supplied with the optional P-EXP Panel Expansion Kit (557.202.807). Refer to Fig. 28 and complete these steps:

- 1 The larger type of boards are supplied with a plastic bezel that must be removed in this arrangement. To do this, remove the two self-tapping screws that secure this part.
- 2 If fitting a PNI800, connect the larger 64way connector of the ribbon cable to XP5 INT NBUS on the FC-FI. Lead the cable across the mounting plate at the back of the housing toward the PSU. Position the cable so that it is not trapped between the mounting pillars and the PCB.
- 3 Put the first board on top of the pillars provided (item 1 in Fig. 28). Secure the board using washers and screws if this is the only board being used, or a pillar, if you are inserting more boards. If fitting a PNI800, connect the 50way connector closest to the FC-FI to the connector on the PNI800 PCB. If you fit a second board of this type, use the next 50way connector for this board.
- 4 If you are using one or more small boards (for example, the IOB800 or FB800), use the adapter plate (item 3 in Fig. 28). Screw the adapter plate into the last big board in the sequence, or directly onto the back wall of the housing panel if there are no larger boards. Use the washers and screws provided.
- 5 The smaller board can then be mounted on to the adapter plate. Keep it in place using either a screw or a pillar, if more boards are necessary. You can stack up to three boards in total in this way

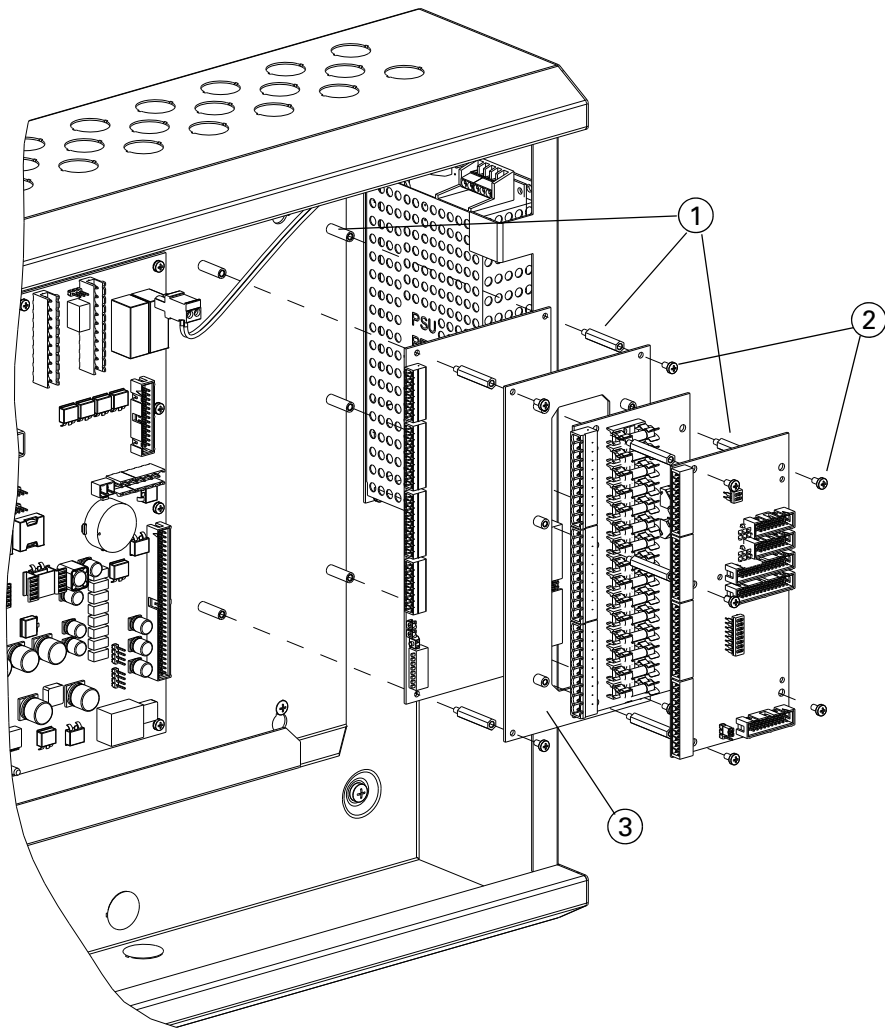


Fig. 28: Mounting Boards on a FC702S Panel

- 1– Pillars
- 2– Screws
- 3– Adapter plate

14.3.1 IOB800 Input Output Expansion Card Details

Installing the IOB800 is covered in Section “Install IOB800 and FB800 boards”. Below are more details about the IOB800 card.

Item	Function
S1	See Table 36
S2	This is a DIP switch. “IOB800 S2 DIP switch settings”.
XP1	IO-BUS Input connector.
XP2	IO-BUS Output connector.

Table 35: IOB800 - Switch, terminal and connector functions

Item	Function
XP3	Open Collector outputs 1 to 8, inputs 1 to 8 and power +5V connector.
XP4, XP6	MX-BUS Input connector (not applicable).
XP5, XP7	MX-BUS Output connector (not applicable)
XT1	Isolated Inputs 1 to 5 connector.
XT2	Isolated Inputs 6 to 8 and power 24V connector
XT3	Relay Output 1 to 4 connector
XT4	Relay Output 5 to 8 connector

Table 35: IOB800 - Switch, terminal and connector functions

S1 Position	Setting	Activation by Emergency Alarm
1. (XT3.1,2,3Relay_1)	OFF * / ON	Disabled / Enabled
2. (XT3.4,5,6Relay_2)	OFF * / ON	Disabled / Enabled
3. (XT3.7,8,9Relay_3)	OFF * / ON	Disabled / Enabled
4. (XT3.10,11,12Relay_4)	OFF * / ON	Disabled / Enabled
5. (XT4.1,2,3Relay_5)	OFF * / ON	Disabled / Enabled
6. (XT4.4,5,6Relay_6)	OFF * / ON	Disabled / Enabled
7. (XT4.7,8,9Relay_7)	OFF * / ON	Disabled / Enabled
8. (XT4.10,11,12Relay_8)	OFF * / ON	Disabled / Enabled

Table 36: IOB800 - Relay Output Activations by Emergency Alarm setting  
 \* Default

## IOB800

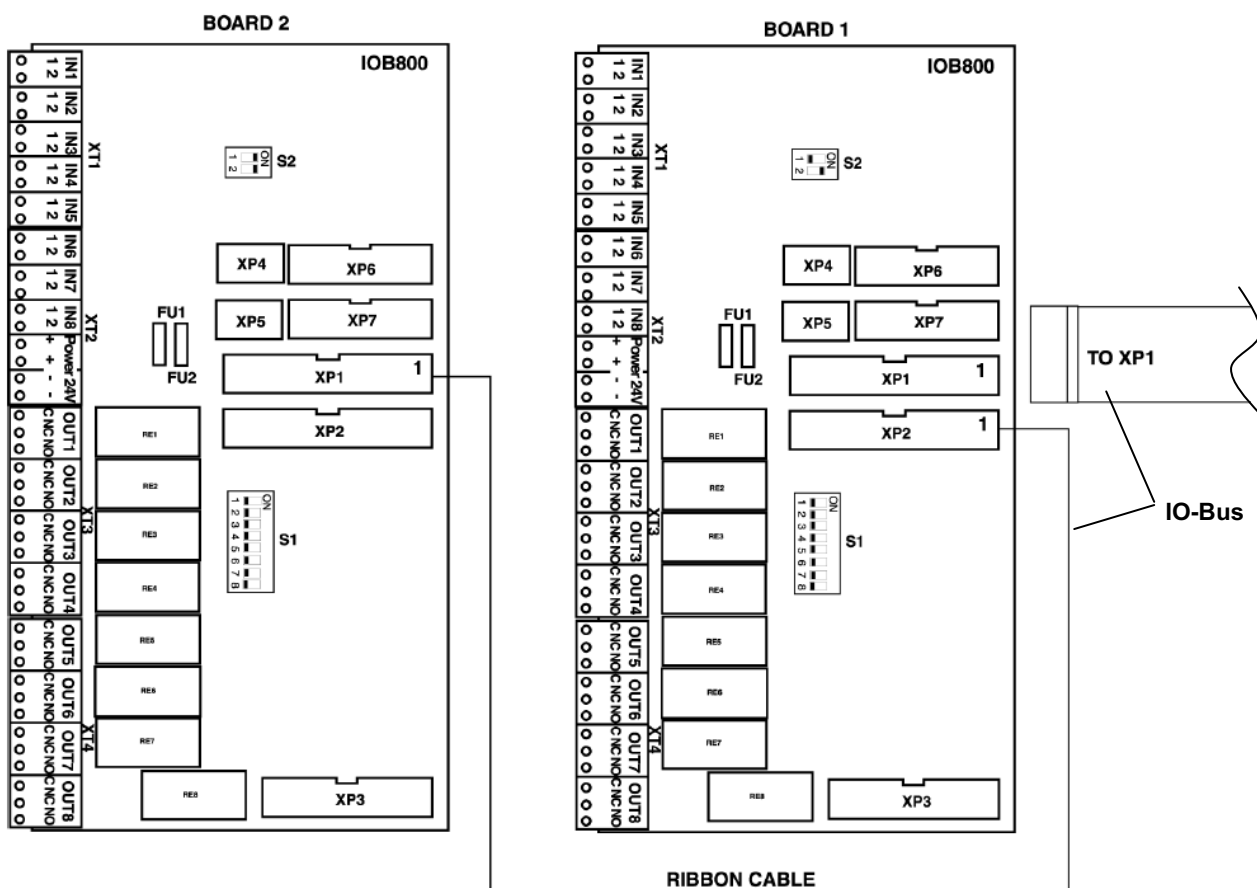


Fig. 29: IOB800 - Switch, terminal and connector positions.

## 14.4 FB800 Fused 24V Outputs Board Details

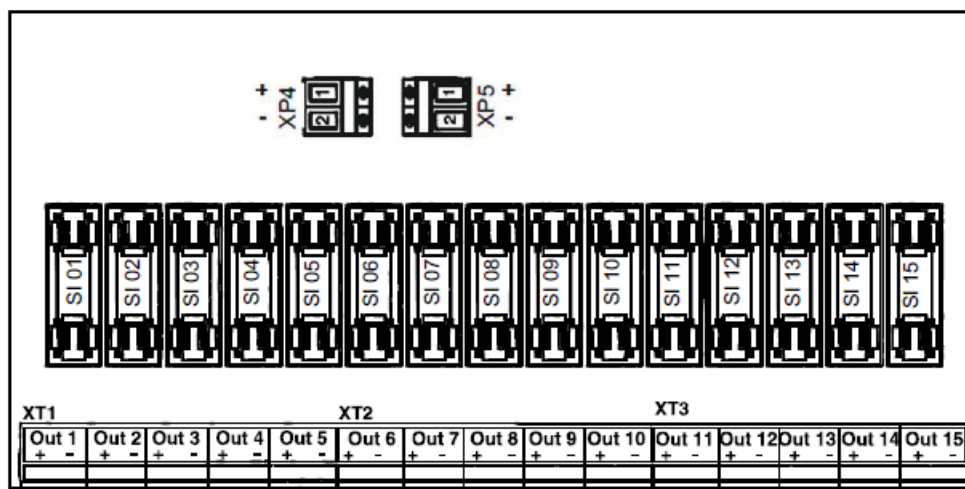


Fig. 30: FB800 Terminal Positions

Connector	Function
XT1	Power 24V fused Outputs 1 to 5
XT2	Power 24V fused Outputs 6 to 10
XT3	Power 24V fused Outputs 11 to 15
XP4	Power 24V Input
XP5	Power 24V Output

Table 37: FB800 Terminal Functions

### 14.4.1 Mount the Units in the Slot Card Cage

- 1 Assemble the layers of units with the mounting bracket, as shown in Fig. 31. Use the layer positions you determined in the section "Decide on a Layer Order". Use the provided stand-off pillars.
- 2 Fix the assembly into the slot card cage as shown in Fig. 31.

- 3 Connect the IOB ribbon cable to the connector on the FC-FI main board marked 'XP3 IOBUS' – this is on the right hand of the FC-FI board, about one third down from the top.
- 4 Connect the ribbon cable from the FC-FI to the left-hand IOB800 unit. On the unit connect to the connector marked 'XP1' on the PCB.
- 5 If applicable, chain on the IOB to further units. Chain from 'XP1' on the left hand unit to 'XP2' on the next one to the right. Route the IOB ribbon cable above the upper edge of the mounting bracket.
- 6 For an FB800 fuse board, connect the earths and power etc.
- 7 Connect the ribbon cable from the FC-FI to the left-hand IOB800 unit. On the unit connect to the connector marked 'XP1' on the PCB.

If applicable, chain on the IOB to further units. Chain from 'XP1' on the left hand unit to 'XP2' on the next one to the right. Route the IOB ribbon cable above the upper edge of the mounting bracket.

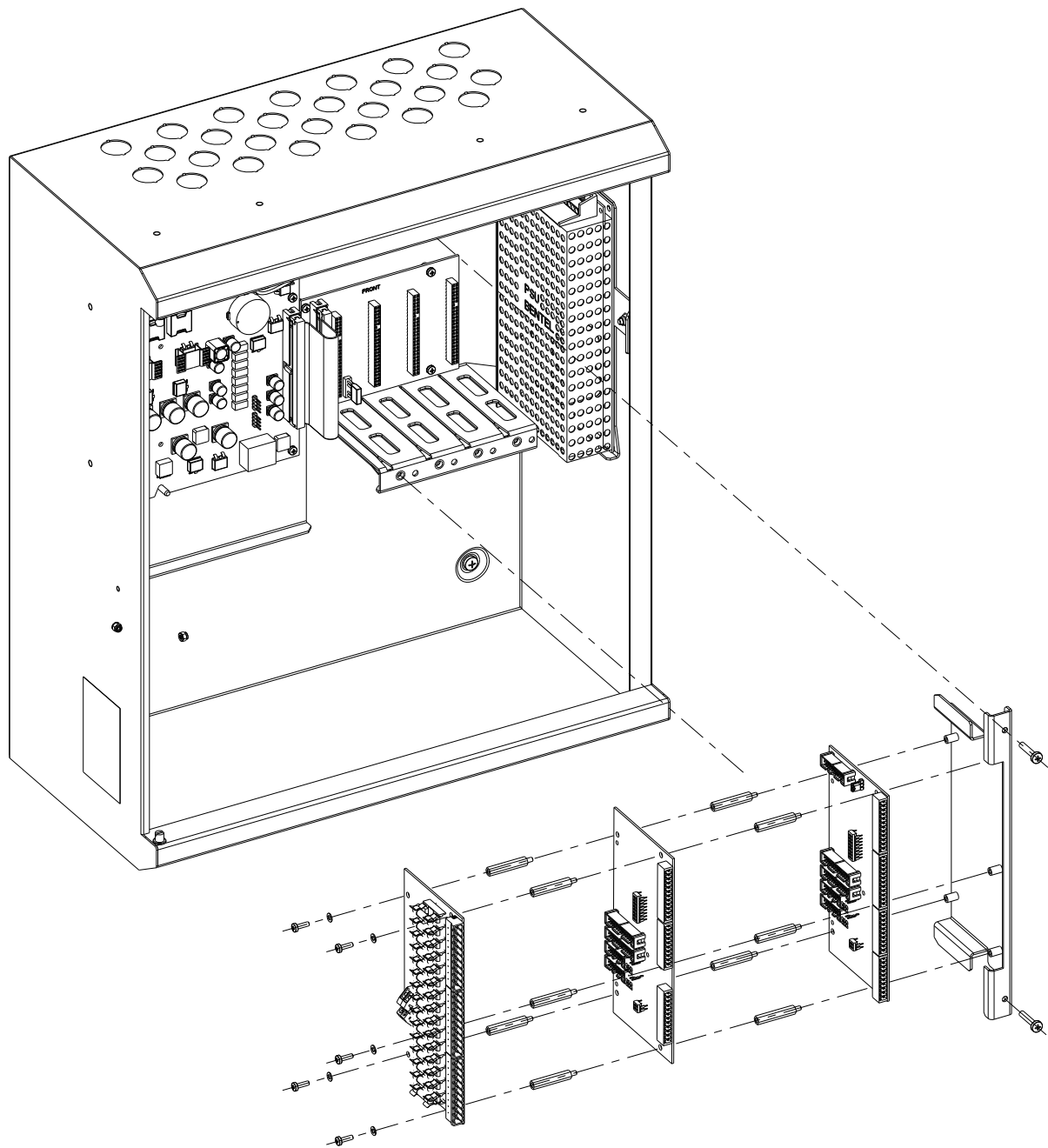


Fig. 31: FB800 and IOB800 - Fitting to Backplane Cage



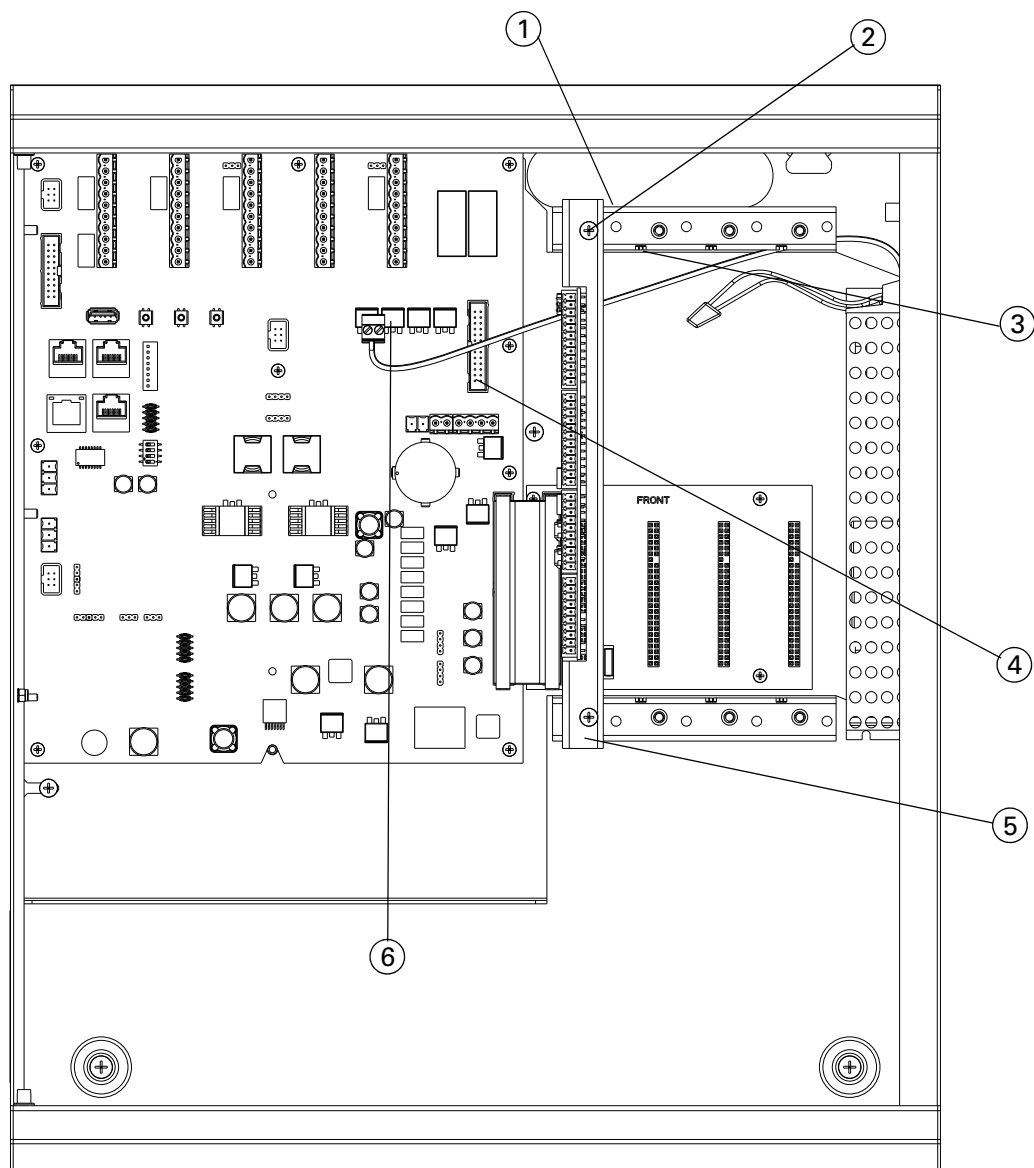


Fig. 32: FB800 and IOB800 - Fitting to FC700 series panels - Part 2

1– Iron mounting plate

2– Screw for fixing the iron mounting plate

3– Second position (second IOB800)

4– XP3 IO-BUS interface on FC-FI for connection of IOB800 boards

5– First position (FB800 or First IOB800)

6– XT8 Power 24V terminals on FC-FI for connection of FB800

## 15 Installing the CSG Connected Services Gateway

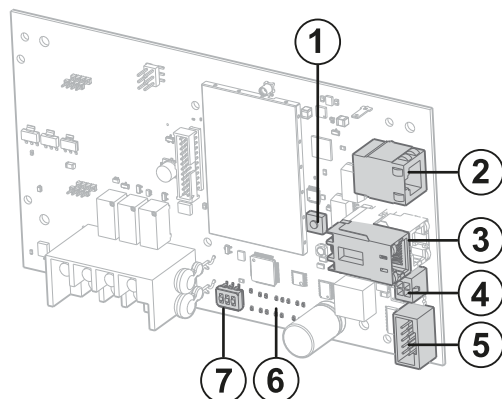


Fig. 33: Connected Services Gateway module

Callout	Description
1	Reset switch
2	LAN Ethernet: connects to the building LAN <b>Note:</b> Use a Cat 6 shielded Ethernet cable.
3	Panel-side Ethernet half: fire panel side Ethernet ports: connects to fire panel
4	4-pin power connector
5	Serial port (not used)
6	Status LEDs
7	Configuration DIP switches (not used)

### Mounting boards on the FC702D or FC718/708 panel

- 1 Use M3 screws, item 4 in Fig. 34, to attach the CSG PCBA, item 3, to an A16381C5EY mounting plate, item 1.
- 2 Slide the assembly into the left hand position in the slot card rack.
- 3 Use two M4 screws, item 2, to secure it.

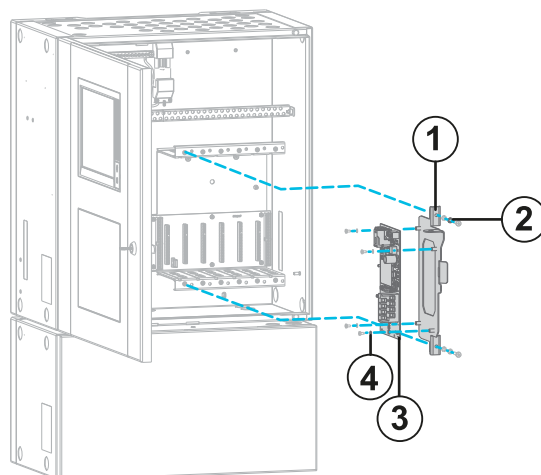


Fig. 34: Mounting boards on the FC702D or FC718/708 panel

Callout	Description
1	A16381C5EY mounting plate
2	M4 screws
3	CSG PCBA module
4	M3 screws and washers

### Mounting boards on the FC702S panel

- 1 Attach an A16381TMRV mounting plate, item 2 in Fig. 35, to the pillars in the CIE case using five M3 screws, item 3. If there are other cards in the stack, they might also need the M3 x 25 pillars.
- 2 Attach the CSG PCBA, item 4, to the plate using M3 screws, item 3.

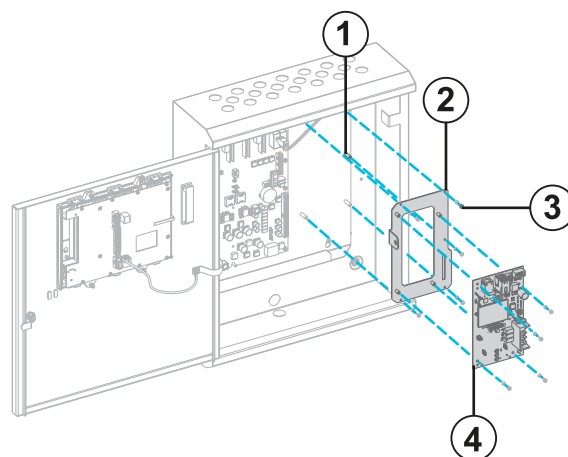


Fig. 35: Mounting boards on the FC702S panel

Callout	Description
1	Mounting pillars in the CIE case
2	A16381TMRV mounting plate
3	M3 screws and washers
4	CSG PCBA

## 15.1 Optional: Mounting the cellular module and antenna

If you use the optional cellular module, consult the *Connected Services Gateway Cellular Module and Antenna Installation Instructions 579-1459* for mounting instructions. Do this before you connect the CSG to the fire alarm control panel.

## 15.2 Connecting the CSG to the fire alarm control panel using an Ethernet connection

Connect the CSG to the fire alarm control panel using the Ethernet port or, if the Ethernet port is in use, an Ethernet switch.



### Note

An Ethernet switch is needed in the FC700 panels as the fire panel Ethernet interface is required for its internal user interface.

- 1 Ensure that a fire-approved Ethernet switch is installed inside the fire alarm control panel.
- 2 Connect the Ethernet switch to the Ethernet port of the fire alarm control panel.
- 3 Use another Ethernet cable to connect the panel-side Ethernet half of the CSG to a port on the Ethernet switch.

## 15.3 Connecting the CSG to the power supply

The CSG is powered through the power harness included with the product. To connect the CSG to the power supply, complete the following steps:

- 1 Connect the power harness to the 4-pin power connector on the CSG. See item 4 in Fig. 33.
- 2 Connect the other end of the power harness to the fire alarm control panel 24 V supply by following the

wire sequence red wire to panel 24 V supply and black wire to 0 V.

### Notes

- The CSG takes a high inrush current when hot-plugged and can blow a 1 A fuse. This means, for example, that connectors XT6 and XT7 on the FC-FI are not suitable. The 24V OUT 1 and 2 outputs on the FC-FI field connectors are suitable.
- Trim off any excess cable from the unterminated end of the power cable. Do not coil up and tie off excess cable in the CSG housing.

## 15.4 Optical indicators

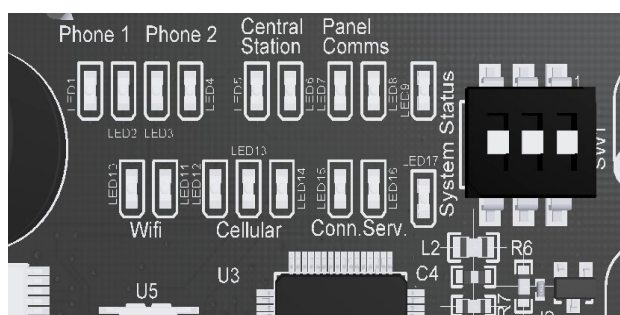


Fig. 36: Location of the LEDs on the CSG

Status	Green LED	Red LED
No power	Off	Off
Power connected: software not running; Manual reset; System failure	On	On
Power connected: software booting or restarting	On	Off
Normal: CSG application running	Blinking	Off

Table 38: System status LEDs

Status	Green LED	Yellow LED
Normal: connected to the fire panel	On	Off
Not connected to the fire panel	Off	On
Mismatch	Off	Blinking

Table 39: Fire alarm control panel communication LEDs

Status	Green LED	Yellow LED
Normal: connected to the enterprise server	On	Off
Not connected to the enterprise server, connected to an external network only	Off	Blinking
Not connected to an external network	Off	On
Failure or error	Blinking	Blinking
Disabled	Off	Off

Table 40: LAN connection LEDs

Status	LED behaviour
Link up	On
Activity	Blinking
Not connected	Off

Table 41: Ethernet port LED

Status	Green LED 1	Green LED 2	Yellow LED
High quality signal	On	On	Off
Moderate quality signal	On	Blinking	Off
Low quality signal	On	Off	Off
Very poor quality signal	Blinking	Off	Off
Not connected	Off	Off	Blinking
Fault or error	Off	Off	On
Disabled	Off	Off	Off

Table 42: Cellular LEDs

## **16 Install CCU3 and MOXA modules**

### **16.1 Fit DIN Rail Modules**

You need to fit the DIN rail to the left side of the panel housing, at the top, as shown in Fig. 39. You need to purchase the DIN rail, the M4 Nyloc nut and the M4 washer separately. The recommended slotted DIN rail size is 180 mm.

#### **16.1.1 Fitting a DIN Rail in a FC702D or FC718/708 panel**

To mount the DIN rail in a FC702D/718/708 panel, refer to Fig. 39 and complete these steps:

- 1 Place the DIN Rail (item 1 in Fig. 39) vertically on the top left corner of the panel, fitting the holes through the screws in the side of the box.
- 2
- 3 Fit a washer (item 2 in Fig. 39) through the screw and fasten with a nut (item 3 in Fig. 39).
- 4 Repeat to fit the other screws.

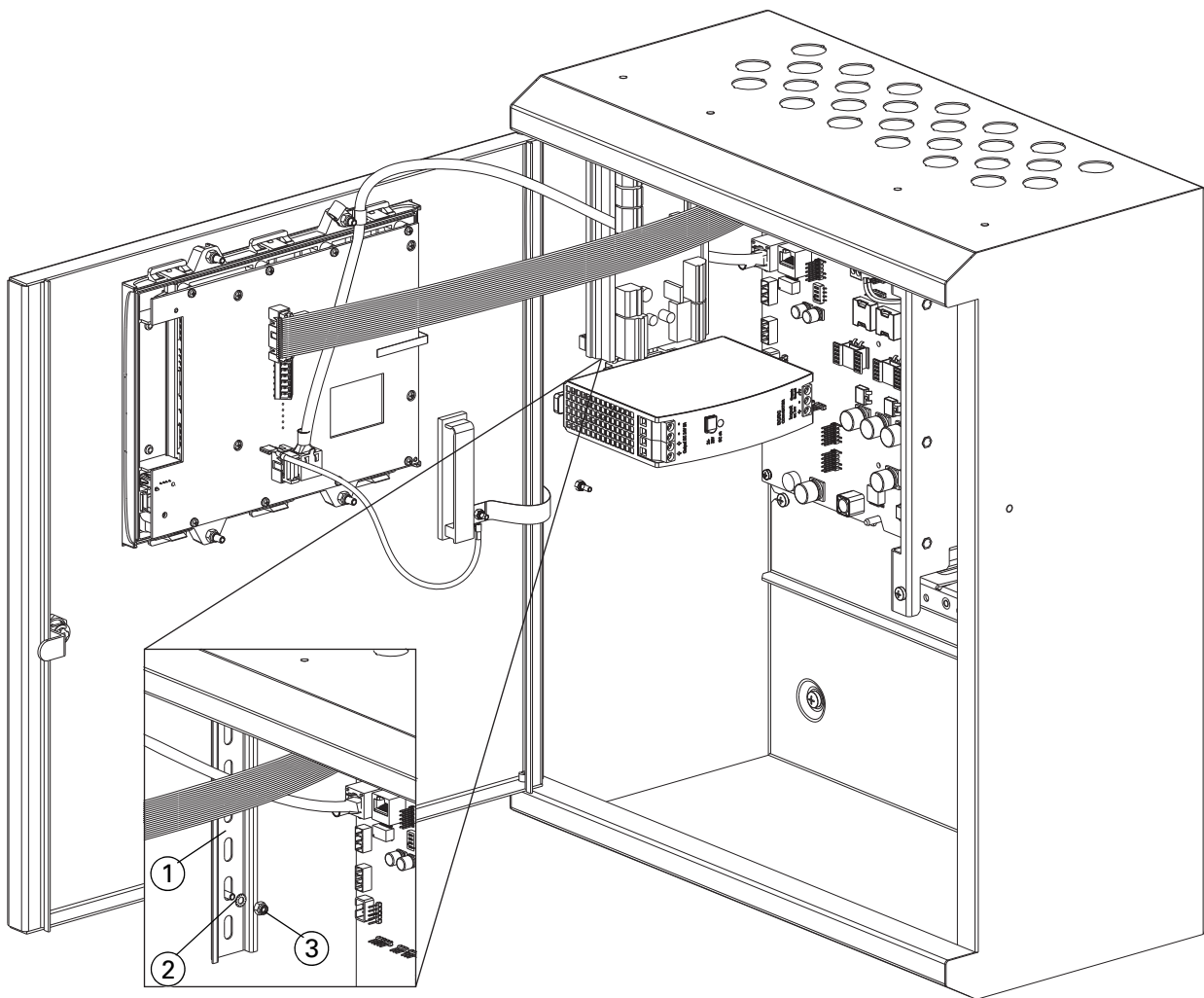


Fig. 39: DIN rail devices on a FC702D, FC718 or a FC708 panel

1–DIN rail

2–M4 shake proof washer

3–M4 Nyloc nut



<b>SW100</b>	<b>Address-Part B</b>
<b>Position 3 and 4</b>	
ON	Binary coded address SW100.3=Bit.1 SW100.4=Bit.2
OFF *	ON=0 OFF=1

Table 45: FCZ8DS - Address setting-Part B  
\* Default.

<b>SW100</b>	<b>Dimming Part A</b>
<b>Position 6</b>	
ON	Enable
OFF *	Disable

Table 46: FCZ8DS - Dimming -Part A  
\* Default.

<b>SW100</b>	<b>Dimming Part B</b>
<b>Position 6</b>	
ON	Enable
OFF *	Disable

Table 47: FCZ8DS - Dimming setting-Part B  
\* Default.

- Address defines the position of Zonal LED Panel on the New X-BUS I2C interface. Up to four Zonal LED Panels can be theoretically connected to the I2C interface (the Part A and Part B addresses should be the same).
- Dimming causes the lower lightening intensity of Zonal LED Panel. It can be set differentially for each Part A and Part B.



## 18 FC1DS Graphical User Interface (GUI) Details

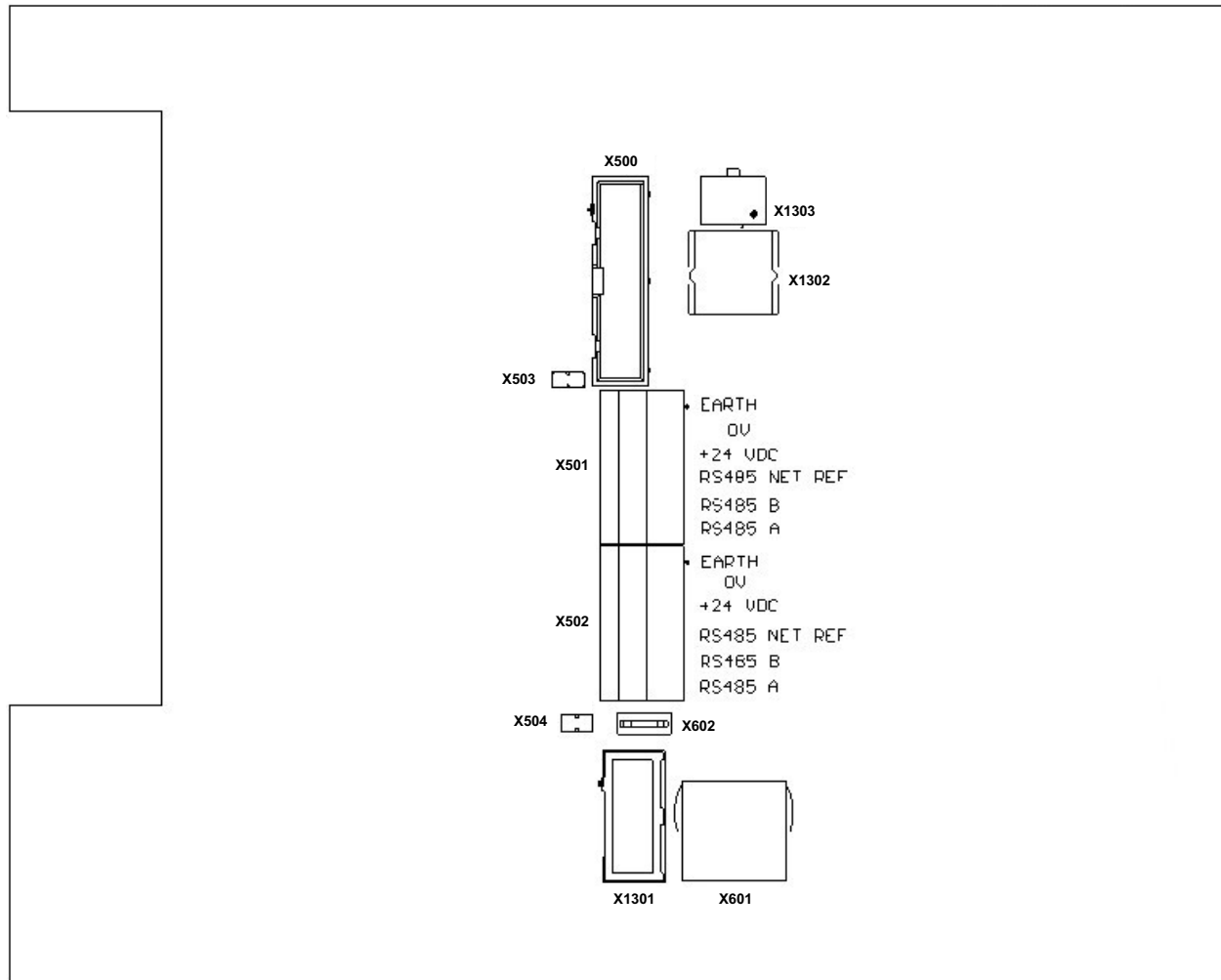


Fig. 41: FC1DS - Jumper and terminal positions

Item	Function
X500	FC-FI interface connector
X501	Left FCNET / N-BUS (RS485) and Power (24V) terminals
X502	Right MXNET / N-BUS (RS485) and Power (24V) terminals
X503	Bypass Jumper for +24V*
X504	Bypass Jumper for GND*
X601	Ethernet interface connector
X602	Earth fast on connector
X1301	Swiss Firemen Interface connector
X1302	New X-BUS Interface connector (Zonal LED Panel connection)
X1303	AC Repeater Panel Interface connector <sup>[2]</sup>

Table 48: FC1DS - Jumper and terminal functions

\* Fit these if there is more than one GUI supplied by the 24 V output.

[2] Powers the GUI from any 24V connection on the FC-FI board

- Address defines the position of Zonal LED Panel on the New X-BUS I2C interface. Up to four Zonal LED Panels can be theoretically connected to the I2C interface (the Part A and Part B addresses should be the same).
- Dimming causes the lower lightening intensity of Zonal LED Panel. It can be set differentially for each Part A and Part B.

Item	Function
X1	Connector for interconnection with XP1 BB on FC-FI card
LED2	Alarm
LED4	Fault
LED5	System Fault

Table 49: BBI800 Connector and LED Functions

## 19 Binary DIP Switch Lookup Table

Table 50 below shows the binary equivalents of decimal numbers, with the binary most significant bit on the right. Use this when setting slot cards addresses – for

example as detailed in Section “Install the PLX800 - Loop Expansion Card”.

Dec	Position 1.....8	Dec	Position 1.....8	Dec	Position 1.....8	Dec	Position 1.....8
0	00000000	37	10100100	74	01010010	111	11110110
1	10000000	38	01100100	75	11010010	112	00001110
2	01000000	39	11100100	76	00110010	113	10001110
3	11000000	40	00010100	77	10110010	114	01001110
4	00100000	41	10010100	78	01110010	115	11001110
5	10100000	42	01010100	79	11110010	116	00101110
6	01100000	43	11010100	80	00001010	117	10101110
7	11100000	44	00110100	81	10001010	118	01101110
8	00010000	45	10110100	82	01001010	119	11101110
9	10010000	46	01110100	83	11001010	120	00011110
10	01010000	47	11110100	84	00101010	121	10011110
11	11010000	48	00001100	85	10101010	122	01011110
12	00110000	49	10001100	86	01101010	123	11011110
13	10110000	50	01001100	87	11101010	124	00111110
14	01110000	51	11001100	88	00011010	125	10111110
15	11110000	52	00101100	89	10011010	126	01111110
16	00001000	53	10101100	90	01011010	127	11111110
17	10001000	54	01101100	91	11011010	128	00000001
18	01001000	55	11101100	92	00111010	129	10000001
19	11001000	56	00011100	93	10111010	130	01000001
20	00101000	57	10011100	94	01111010	131	11000001
21	10101000	58	01011100	95	11111010	132	00100001
22	01101000	59	11011100	96	00000110	133	10100001
23	11101000	60	00111100	97	10000110	134	01100001
24	00011000	61	10111100	98	01000110	135	11100001
25	10011000	62	01111100	99	11000110	136	00010001
26	01011000	63	11111100	100	00100110	137	10010001
27	11011000	64	00000010	101	10100110	138	01010001
28	00111000	65	10000010	102	01100110	139	11010001
29	10111000	66	01000010	103	11100110	140	00110001
30	01111000	67	11000010	104	00010110	141	10110001
31	11111000	68	00100010	105	10010110	142	01110001
32	00000100	69	10100010	106	01010110	143	11110001
33	10000100	70	01100010	107	11010110	144	00001001
34	01000100	71	11100010	108	00110110	145	10001001
35	11000100	72	00010010	109	10110110	146	01001001
36	00100100	73	10010010	110	01110110	147	11001001

Table 50: Decimal to binary conversion

Dec	Position 1.....8	Dec	Position 1.....8	Dec	Position 1.....8
148	00101001	185	10011101	222	01111011
149	10101001	186	01011101	223	11111011
150	01101001	187	11011101	224	00000111
151	11101001	188	00111101	225	10000111
152	00011001	189	10111101	226	01000111
153	10011001	190	01111101	227	11000111
154	01011001	191	11111101	228	00100111
155	11011001	192	00000011	229	10100111
156	00111001	193	10000011	230	01100111
157	10111001	194	01000011	231	11100111
158	01111001	195	11000011	232	00010111
159	11111001	196	00100011	233	10010111
160	00000101	197	10100011	234	01010111
161	10000101	198	01100011	235	11010111
162	01000101	199	11100011	236	00110111
163	11000101	200	00010011	237	10110111
164	00100101	201	10010011	238	01110111
165	10100101	202	01010011	239	11110111
166	01100101	203	11010011	240	00001111
167	11100101	204	00110011	241	10001111
168	00010101	205	10110011	242	01001111
169	10010101	206	01110011	243	11001111
170	01010101	207	11110011	244	00101111
171	11010101	208	00001011	245	10101111
172	00110101	209	10001011	246	01101111
173	10110101	210	01001011	247	11101111
174	01110101	211	11001011	248	00011111
175	11110101	212	00101011	249	10011111
176	00001101	213	10101011	250	01011111
177	10001101	214	01101011	251	11011111
178	01001101	215	11101011	252	00111111
179	11001101	216	00011011	253	10111111
180	00101101	217	10011011	254	01111111
181	10101101	218	01011011	255	11111111
182	01101101	219	11011011		
183	11101101	220	00111011		
184	00011101	221	10111011		

Table 50: Decimal to binary conversion - continued



**120.515.867\_FC-FC700-P-I, doc. version 5.0, 24. May 2024**  
**Further information about FIRECLASS can be found on the**  
**Internet at**  
**[www.fireclass.com](http://www.fireclass.com)**

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