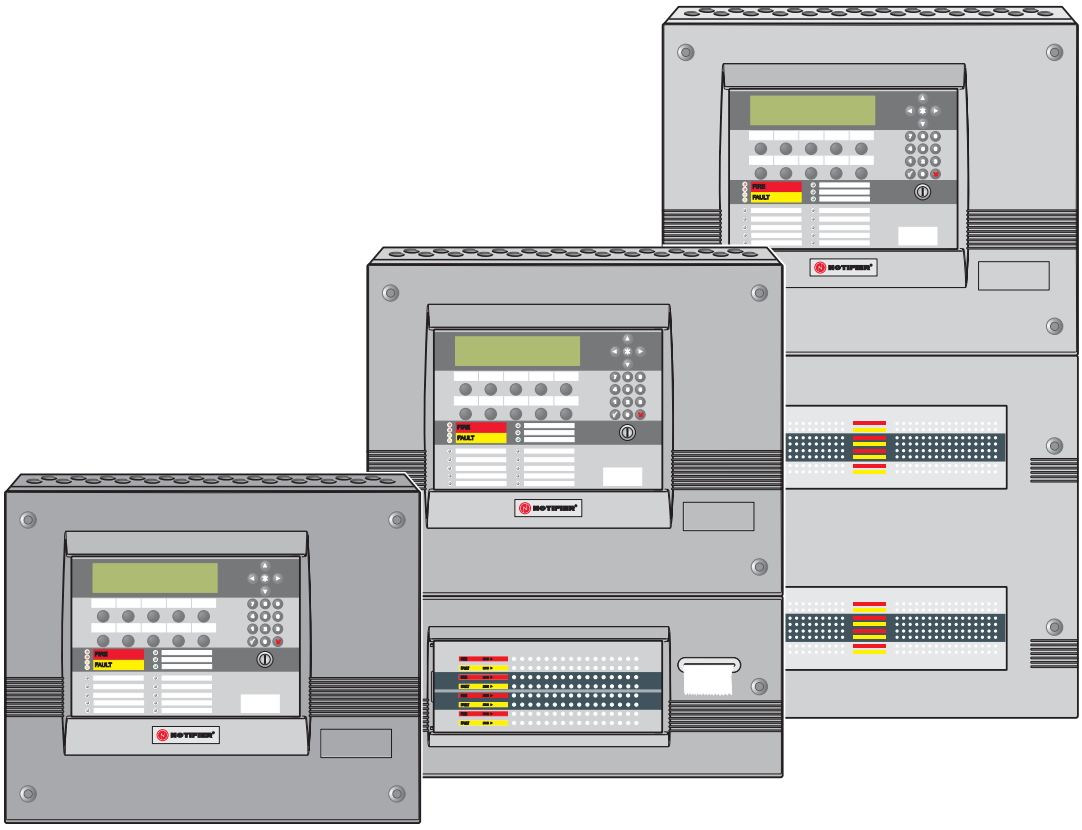
NOTIFIER®
by Honeywell

ID3000

installation &
commissioning
manual

997-274-000-6, Issue 6 September 2009

The ID3000 Series Range of Fire Control Panels



The following markings are used either on the panel hardware or in the documentation. They have the following meaning:

WARNING: Risk of electric shock. Before working on mains connections, ensure mains power supply to the panel is disconnected.

CAUTION: Refer to the accompanying documentation. (When used in the documentation, this marking is normally associated with additional instructions).'

Contents

Contents

1 Introduction

The purpose of this manual is to provide the user with all recommended procedure descriptions and full technical details for the successful installation and commissioning of HONEYWELL's XLS80e Series stand-alone fire alarm controllers and repeaters, or for a complete XLS80e Series integrated Fire Control System.

Procedures described in this manual include appropriate warnings and cautions to guide the user towards adopting safe and methodical work practices during the installation and commissioning phases.

1.1 CE Marking

CE

This panel is CE Marked to show that it conforms to the requirements of the following European Community Directives:

The EMC Directive 2004/108/EEC, by the application of the following EMC Standards:

- EN 61000-6-3: Electromagnetic Compatibility (EMC) Generic emission standard for Residential, Commercial and Light industrial environments
- EN 50130-4: EMC Product family standard: Immunity requirements for components of fire, intruder and social alarm systems.

Low Voltage Directive 2006/95/EC, by the application of the safety standard:.

- EN 60950-1: Safety of information technology equipment.

The Constructive Products Directive 89/1-6/EC, by the application of the following standards:

- EN 54-2: Fire detection and fire alarm systems - Control and indicating equipment.
- EN 54-4: Fire detection and fire alarm systems - Power supply equipment.

1.2 System Design and Planning

It is assumed that the system, of which the XLS80e Series fire control equipment is a part, has been designed by a competent fire alarm system designer in accordance with the requirements of EN54 Part 14 and any other local codes of practice that are applicable.

The design drawings should clearly show the positions of all the XLS80e Series control equipment and field devices.

1.3 Personnel

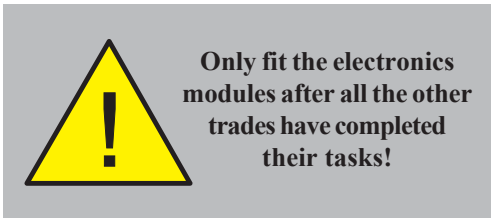
Installation of this product must be carried out only by suitably-qualified electrical engineers.

1.4 General

The XLS80e Series of intelligent fire alarm controllers are designed for use with HONEYWELL's range of addressable analogue sensors, control and monitoring modules and addressable call points.

The XLS80e Series control panel design complies with the requirements of EN54 Part 2 and Part 4.

The design of the XLS80e Series fire control panels is based on a modular build concept which offers the user completely flexible system solutions. Each control panel comprises a number of separate build modules to simplify the installation process. The electronic components are contained in an easy-to-fit module called the main chassis.



The control panel can be used with either an internal or external Power Supply Unit (PSU).

Each control panel has space provision for two sealed, lead-acid batteries.

The panel has a built-in Master/Slave network serial communications interface which operates under RS485 protocol. Alternatively, the panel can be connected to an XLSnet fault-tolerant peer-to-peer network.

While every effort is made to ensure the accuracy of the content of this manual, the manufacturer reserves the right to change the information without notice.

Installation

The XLS80e Series modules are easy to install providing the recommended procedures described in this manual are followed. To avoid inadvertant contamination of the main chassis (comprising the PCBs) and of the PSU (if mounted internally), the manufacturer recommends that these items are installed in the back box only after all other trades have completed their tasks.

1.5 Date-dependent Functions

It should be noted that the calendar end date for this product is 31/12/2099 (two thousand and ninety nine) and it will perform correctly up to this date.

The calendar function has not been tested beyond this date.

2 Installation Guide

2.1 How to Use this Guide

This Installation Guide is intended to provide you with simple guidelines on how to install an ID3000 Series fire control panel or system, quickly and safely.

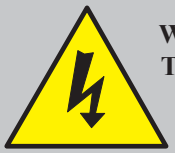
For each stage in the ID3000 Series panel installation and commissioning procedures a brief description is given of its purpose, complete with detail drawings, flow diagrams and/or other graphics to make the instructions easy to follow. Where required, procedures may be broken down into one or more related flow diagrams, the number being dependent upon the complexity of the defined task.

2.1.1 Related Documents

The guide does not describe any of the panel operating or configuration stages, as these are covered by other related manuals. For more information refer to:

- ID3000 Series Operating Manual (ref. 997-505-000-X)
- ID3000 Series Panel Configuration Manual (ref. 997-506-000-X)

2.1.2 Warnings and Cautions



WARNING High Voltage! Take suitable precautions to avoid electric shock.

Where appropriate, this guide and the remainder of the manual include advisory warnings and cautions to remind you to consider safety at all times, especially when following the procedures described in this manual.

You are alerted to any areas where high voltage [i.e. non-Safety Extra-low Voltage (SELV)] is present, or where there may be a risk of damage to static-sensitive devices if the recommended procedures described in this manual are not followed. An example of a high voltage warning and anti-static caution is provided to the left of this paragraph.

EN54-2: 12.5.2 Maximum of 32 Sensors and/or MCPs between isolators.

The ID3000 Series control panel has many powerful built-in features which, if used inappropriately, may contravene the requirements of EN54. Where there is a possibility of such an occurence, a suitable warning is given with brief details of the EN54 requirement. A typical EN54 non-compliance warning is illustrated at left.

2.1.3 Tips

Magnetise the tip of your screwdriver to help when offering small screws to holes in confined spaces.

'Handy tips' are included, where appropriate, to assist you in following quick and safe procedures for fire detection system installation and integration.

Look for the 'TIP!' icon and supporting text, typically illustrated at left.

2.1.4 Glossary of Icons

Throughout this Installation and Commissioning Manual and other supplied user documentation a number of simple icons are used, either on their own or together with larger illustrations, to simplify a particular task or process.

The following icons are used to advise or indicate:

a. DO follow the recommended procedure or method

b. DO NOT use this procedure or method

c. Inspection of an item or sub-assembly is required at this point

d. Following a defined process **meets** the required approval/inspection criteria or standards

e. Following a defined process **does not meet** the required approval/inspection criteria or standards

f. Additional items to be considered

g. This icon placed next to a pushbutton requires you to press it as part of a described process, such as isolate or test, or while programming the panel. Where two or more icons are used, a number may be placed on or near each hand to indicate the order of selection: 1 coming before 2, etc.

h. Activity process step - flow arrow for single action or iterative actions

i. Leader arrow - used with activity processes

j. Sounder operating

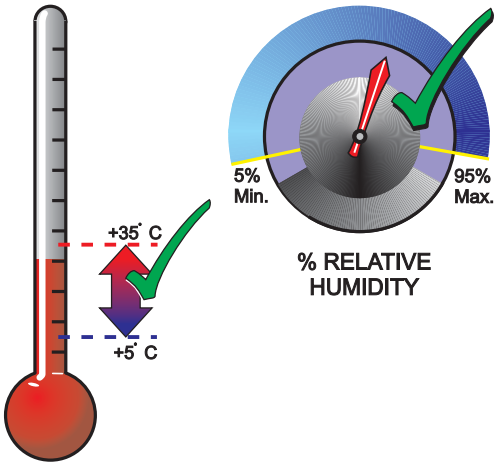
k. Sounder not-operating or silenced

l. Digital clock timer - press and hold the applicable pushbutton for the time indicated

2.2 Pre-installation Check List

Before installing the ID3000 equipment or fitting sensors, you must first ensure that the following criteria have been met. Failure to do this may not only result in damage to the equipment, but may also cause problems when commissioning the equipment or adversely affect its performance.

2.2.1 Some DO's and DON'T's



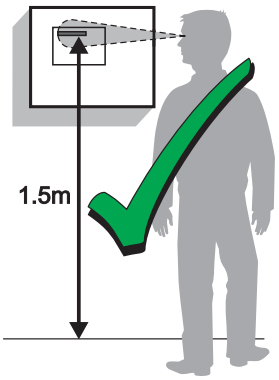
Before selecting a location for the control panel and devices, DO make sure that:

a. The operating ambient temperature is in the recommended range:

5˚C to 35˚C and

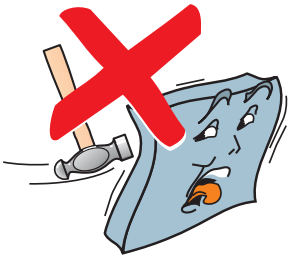
b. The relative humidity is between:

5% and 95%

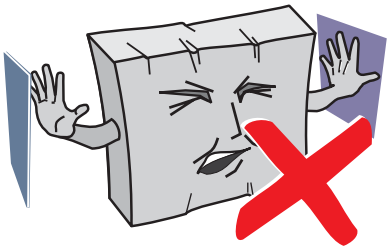


c. The panel is wall mounted in a position which allows clear visibility of displays and easy access to operating controls. The height above floor level should be chosen such that the LCD is just above normal eye level (approximately 1.5 metres)

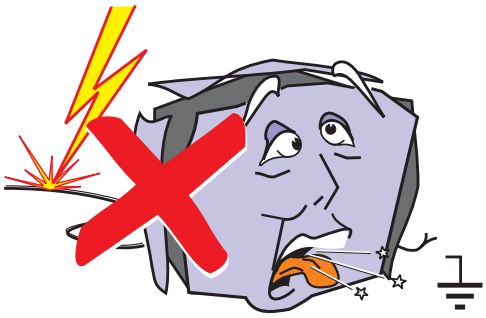
d. DO NOT locate the panel where it is exposed to high levels of moisture



e. DO NOT locate the panel where there are high levels of vibration or shock



f. DO NOT site the panel where there would be restricted access to the internal equipment and cabling/wiring connections.



2.3 Transient Protection

This equipment contains transient-protection devices. Although no system is completely immune from lightning transients and interference, for these devices to function correctly, and to reduce susceptibility, this equipment **must** be earthed correctly.

As with all solid state devices, this system may operate erratically or can be damaged if subjected to lightning-induced transients.

The use of overhead or outside aerial wiring is not recommended due to the increased susceptibility to nearby lightning strikes.

2.4 Installation

The ID3000 Series of modular fire control panels are relatively simple to install providing the recommended procedures described in this Installation Guide are followed.

Follow all installation instructions described in this manual. These instructions must be understood and the manufacturer's recommendations followed to avoid damage to the control panel and associated equipment.

To avoid damage to the control panel ensure that you follow these instructions

2.4.1 Checking Your Panel for Damage

It is important to check all supplied equipment for damage before proceeding with the installation!

Do a quality check before proceeding with the installation!

Before attempting to install the modular components of your ID3000 Series control panel, or other equipment, you should do the following:

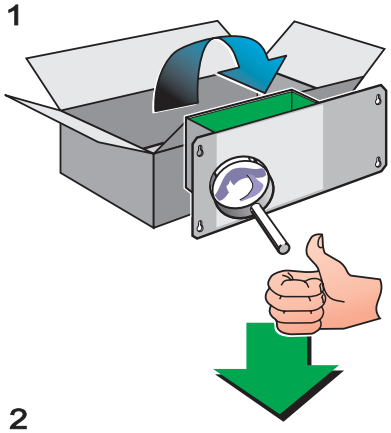
1 After removing the various control panel modules or other related equipment from its packaging, and before you proceed with installing it in its chosen location, check for any damage that may have occurred while in transit.

Note: In the unlikely event that any of the supplied ID3000 Series items has been damaged, you MUST NOT fit it but return it to your supplier. The procedure for returning faulty items is described in **Section 2.4.2**, **What to do if Your Module is Damaged or Suspect**.

2 If you are satisfied that none of the supplied items has been damaged you can now proceed with the installation procedure. This manual addresses the recommended installation methods of the various ID3000 Series equipment components which are supplied as separate build modules. Refer to the relevant sections that apply to your configuration requirements.

To prevent unnecessary damage to the electronic components, the panel back box(es) should be installed first, i.e. without fitting the main chassis at this stage. Refer to **Section 2.4.3, Back Box Fixing** for details.

1



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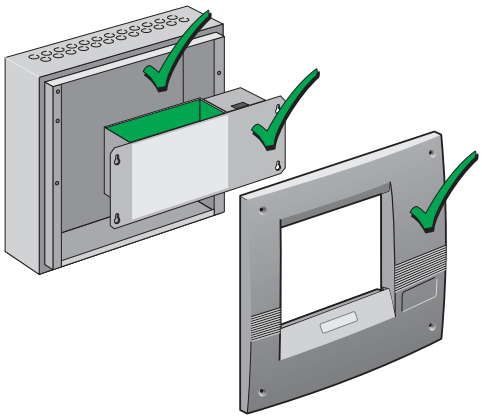
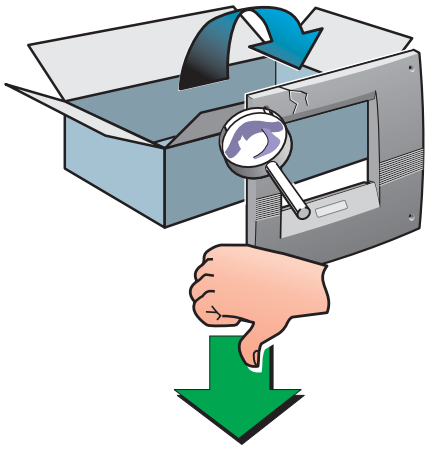


2.4.2 What to do if Your Module is Damaged or Suspect

If you have problems regarding the quality of any supplied order items including the control panel, its ancillaries or this manual or items are missing, follow the procedure below.

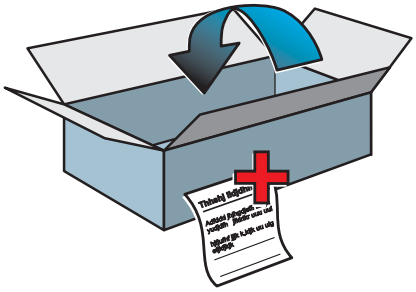
1



1 DO NOT continue with the installation but contact your supplier for advice on what to do next.

Similarly, if the product is found to be faulty during installation contact your supplier immediately.

2



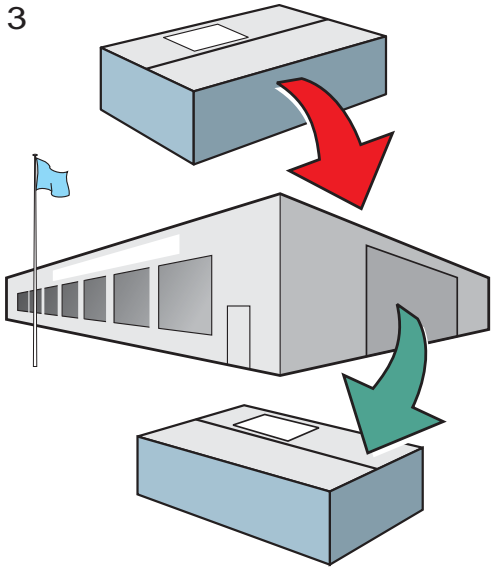
2 To aid your supplier and the manufacturer, you are requested to:

a. Quote the manufacturer's unique batch reference number which can be found on the packaging, main chassis or inside the back box

b. With reference to PCBs, quote the part number and revision level which can be found along one edge of the PCB - refer to the applicable section of this manual for specific details.

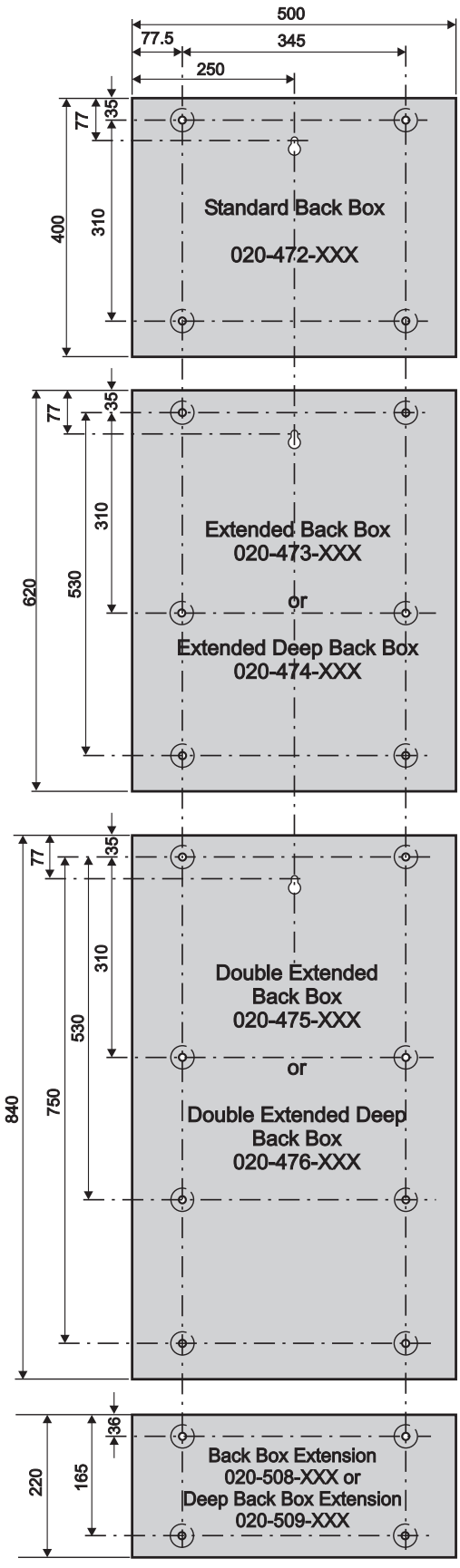
c. Note all the details relevant to your complaint, date of receipt, packaging condition, etc. and forward this to your supplier.

3



3 Where the product needs to be returned to your supplier, you are requested to use the original packaging, or **suitable anti-static** equivalent, wherever possible.

2.4.3 Back Box Fixing



Notes:

All dimensions are in millimetres.

Fixing hole diameters are 6mm.

The ID3000 Series control panel back boxes are available 122mm deep and 220mm (external dimensions including fixing dimples). Where required, the deeper back boxes allow the fitting of high-capacity-rated batteries as defined in **Section 7.5 Batteries** and internally-mounted PSUs other than the 3A-rated version. Where two part numbers are quoted in the drawing at left, the first number refers to the shallower back box and the second number refers to the deeper back box.

The standard back box (PN: 020-472-XXX) is available only in the 122 mm depth.

The fixing dimensions given below are applicable irrespective of the back box depth.

Back Box Extension

In addition to the main back boxes, a smaller version, known as a back box extension, is available. The back box extension is also available in two depths: standard and deep. The back box extension is designed to be wall mounted immediately below any of the range of similar depth main back boxes and is provided with corresponding 20mm knockouts on the top and bottom faces. 20mm knockouts are also provided on the top, bottom and rear faces of the back box extension.

Wall Flatness

To prevent distortion, the ID3000 Series back box MUST be installed on the wall as flat as possible, i.e. with a maximum flatness deviation between any two points of 3mm. Where the wall is out of tolerance, use appropriate packing pieces when installing the back box to meet the above requirements.

Failure to comply with this requirement will result in the misalignment of the internal and external screw fixings.

Procedure

When a suitable location has been found for installing the ID3000 Series control panel, proceed as follows:

1 Using the centrally-positioned keyhole to temporarily hold the back box in the required position on the wall, mark the position of the fixing holes while ensuring the panel is level.

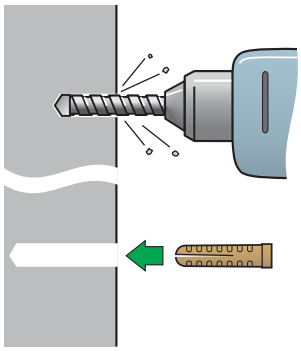
Continued overleaf.....

DO NOT use the back box as a guide when drilling.

2 Using a suitable-sized drilling bit - for holes to take up to 6mm (No.12-sized) wood screws - drill the required number of holes.

3 Prepare apertures (20mm knockouts) required for cable access.

2



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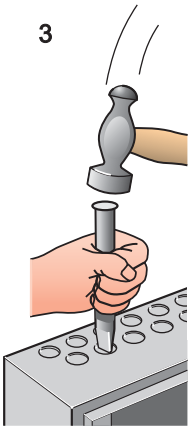


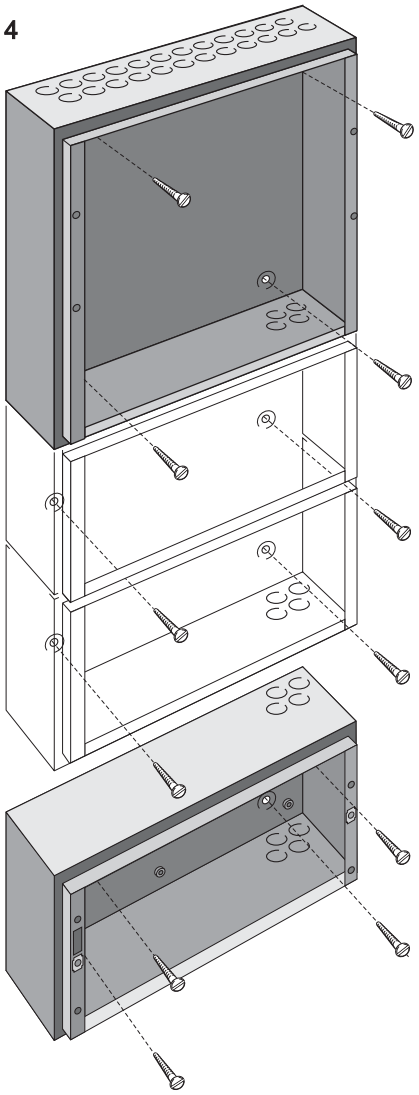
4 Screw the panel back box to the wall using all fixing holes and appropriate-sized screws. The back box fixing holes can take up to 6mm (size No.12) round- or pan-headed screws (DO NOT use countersunk screws).

Note: Make sure the screw in the keyhole is driven fully into the recess to avoid impacting the main chassis when this is being fitted.

The number of screws required depends on the size of the back box. The recommended screw quantities are as follows:

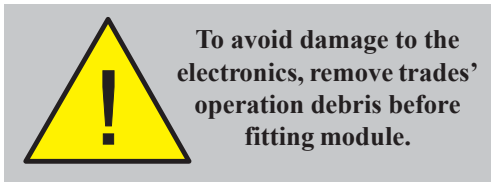
Back Box Part Number	Screw Quantity
020-472-XXX	4
020-473-XXX	6
020-474-XXX	6
020-475-XXX	8
020-476-XXX	8
020-508-XXX	4
020-509-XXX	4

4



2.4.4 Electronics Modules

The ID3000 Series panel electronics modules, i.e. the main chassis, which contains all processing, user-interface and input/output processing PCBs, and either the Power Supply Unit (PSU) or Dual Transmission Path (DTP) unit, are supplied as separate, self-contained assemblies. These modules are fitted in the panel back box once all site power distribution and fire detection loop cabling has been provided, in accordance with the system design requirements and applicable local standards.



This procedure MUST be followed:

1 Fit the DTP or PSU to the main chassis - refer to the appropriate sub-section of **Section 5** for details.

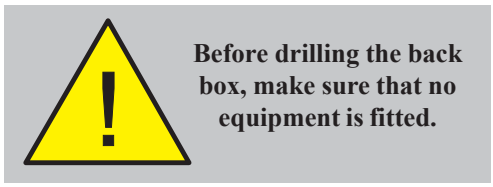
2 Fit the main chassis to the back box - refer to **Section 5.3** for details.

3 When individually checked for cable end earth faults, make all wiring, cabling and battery connections (but NOT the battery interlink) to the main chassis - refer to **Section 7, Commissioning** for details.

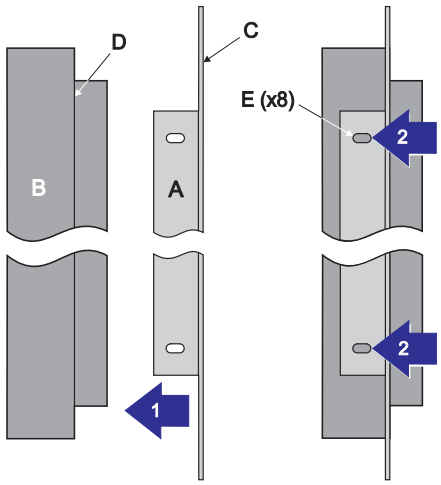
2.5 Replacing the Electronics Modules

In the unlikely event that an electronics module becomes faulty, all necessary instructions are provided with the replacement item and in this manual under **Section 5, Panel Electronics Modules**.

2.6 Flush Mounting Bezel (Optional)



If semi-flush mounting of the ID3000 Series control panel is required, a recess 110mm deep, for the standard depth versions, or 208mm, for the deep versions, and large enough to accommodate the back box must be cut in the wall (refer to **Section 2.4.3 Back Box Fixing** for dimensions).



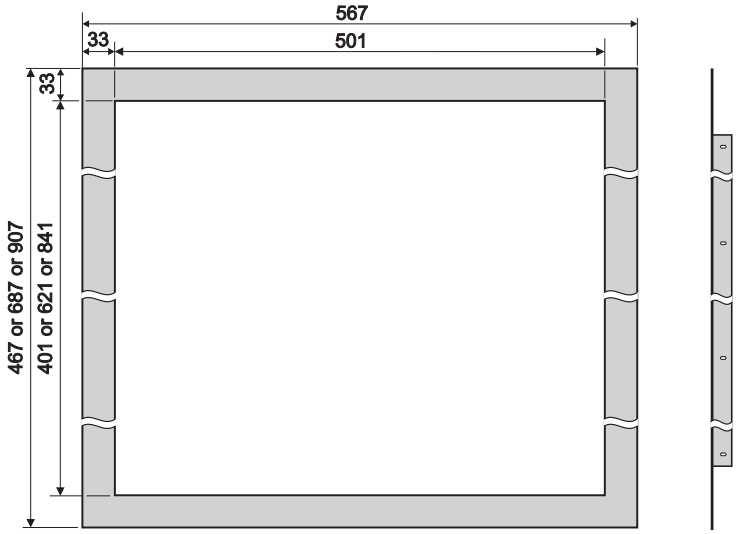
To fit the bezel:

1 Offer the bezel (A), flat side towards you, to the front of the back box (B) and position it so the bezel front face (C) is lined up with the front face of the back box shoulder (D).

2 With the bezel held in position, use the slotted holes (E) on the bezel side plates as guides to drill eight 3mm holes. Remove any swarf created.

3 Use M3 self-tapping screws for fixing.

Note: The ID3000 Series back box must be fixed using the rear fixing holes and reliance must not be placed on the bezel as a means of fixing. The back box must be fixed to a solid vertical surface, or sub-frame inside the recess using the normal rear-mounting holes.



All dimensions in millimetres

2.7 Moulded Front Covers

The ID3000 Series control panel is supplied with one, two or three moulded front covers, depending upon your panel configuration. Two moulded cover types are available; the main and extension. All panel sizes require a main cover kit (PN: 020-480). The larger panel sizes also require one or two extension cover kits (PN: 020-481); the extended versions use one extension cover and the double-extended versions require two. The moulded front covers are also available with high-security fasteners: main cover (PN: 020-513); extension cover (PN: 020-514).

Note: Where the 256-Zone Status Indication kits are used, only the main moulded cover is required as a dedicated cover is provided with this option. Refer to **Section 5.5.3**.

Observe ALL safety and anti-static precautions when fitting the covers.

User Interface Doors (Optional)

If required, any cover can be fitted with a lockable, transparent User Interface Door. This must be done BEFORE the moulded cover is fitted to the back box (refer to the instructions supplied with the User Interface Door).

Taking suitable precautions, remove all packaging and inspect for any damage that may have occurred during transit. If damage has occurred, DO NOT PROCEED, contact your supplier and refer to **Section 2.4.2**. If no damage is evident, fit the main cover as follows:

1 Offer the moulded front cover (C) symmetically to the front of the back box in the correct orientation. The inner top edge of the moulded front cover rests on the top flange of the back box.

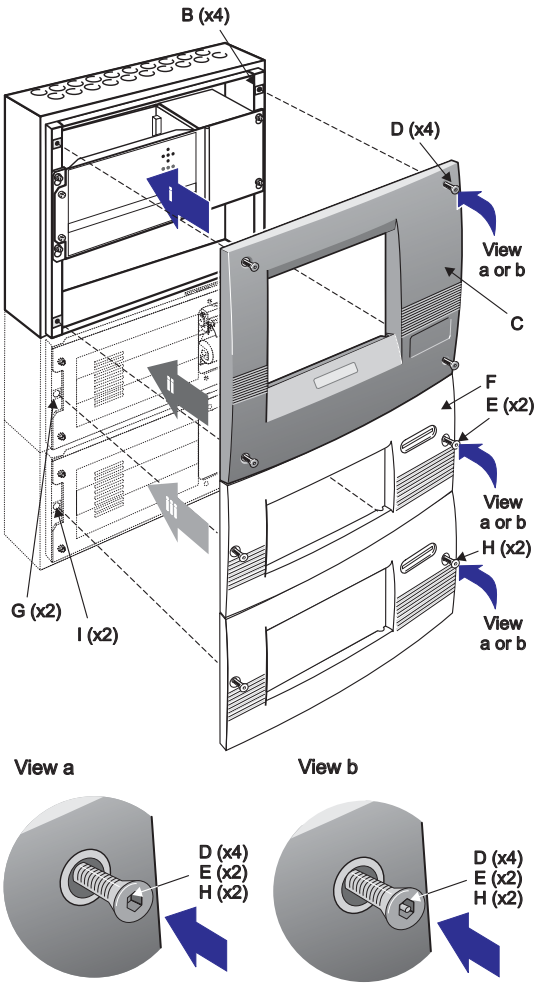
2 Two types of hexagonal socket-headed M6 screw (D) are used to fasten the cover to the back box: a. the standard version, or b. the high-security version. The standard version is tightened by means of a 4mm hexagonal socket key, while the high-security version requires a special 4mm security tool (PN: 334-068). The tool is supplied with the cover.

To remove the cover, use the appropriate tool to unscrew the fasteners.

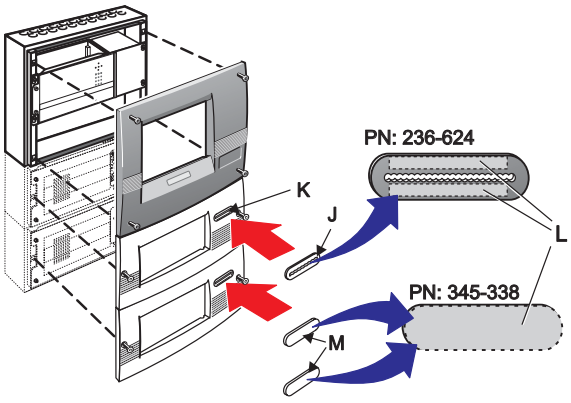
Note: Ensure the cover is supported when releasing the last fastener!

To fit the upper extension cover (F), follow the same procedure as described for the main cover but with the following differences:

1 There are only two M6 screws (E), which must be inserted into their respective fixing locations (G). If a PRN-ID printer is fitted, refer to step 2 below.



Panel Size (mm)	Back Box Assembly Number	Total Number of Fasteners
400 (i)	020-472-XXX	4
620 (ii)	020-473-XXX	6
620 (ii)	020-474-XXX	6
840 (iii)	020-475-XXX	8
840 (iii)	020-476-XXX	8
Back Box Extensions:	020-508-XXX	2
	020-509-XXX	2



2 Prior to fitting the cover, if a printer is installed ensure that you have allowed a sufficient length of printer paper to be pulled through the cover aperture.

3 Fit the appropriate plate over the printer paper exit aperture.

The removal procedure for each extension cover is the same as for the main cover.

The procedure for fitting the lower extension cover is the same as that for the upper extension cover, using two M6 screws (H) and the lowest set of fixing locations (I). The removal procedure is the same as for above.

If a printer is fitted ....

Use the metal serrated plate with the aperture (J), provided, and fix over the extension cover recess (K). Fit the serrated plate to the extension cover as follows:

1 Remove the protective paper strips (L) from the back face of the plate to reveal the adhesive areas.

2 Offer the serrated plate horizontally to the extension cover and, using sufficient pressure only, fix in the recess (K).

3 Using scissors, cut the end of the printer paper to produce a straight edge and insert it through the serrated plate aperture BEFORE fitting the extension cover.

If a printer is not fitted ....

When fitting any extension cover without a printer use the blanking label, i.e. with no aperture, (M) provided. Follow the procedure given above to fix it over the extension cover printer paper exit aperture (K).

WARNING Risk of electric shock. Before working on mains connections, ensure mains power supply to the panel is disconnected.

3 Cabling

3.1 Cabling Instructions

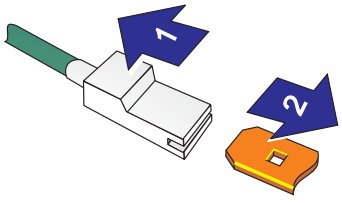
All wiring should comply with current IEE wiring regulations (BS7671) or the applicable local wiring regulations. Note also the requirements of EN54-14 for cabling and interconnection of a fire detection and alarm system.

For information on wiring inputs and outputs refer to the appropriate module cable and wiring instructions to identify terminals. Refer also to **Section 7.4 Commissioning, External Wiring** for details.

Use the following rules when installing cables:

1. Cables should be brought into the cabinet through the 20mm knockouts provided on the top or top-back face of the back box. Ensure that all openings in the back box are closed before connecting power to the panel. For example, if more knockouts than required have been removed, then block the holes with blanking glands. This is to prevent access to hazardous voltages.
2. Tails should be of sufficient length to connect to the appropriate termination points at the commissioning stage.
3. Cables should be screened and should be terminated in appropriate glands to meet local wiring codes and to preserve the integrity of the screen connection. The cable screen is to be clamped inside the cable gland, which must be fitted to ensure a 360° bond is formed with the metal of the back box.
4. The supply to the panel must be provided with a suitable and readily accessible double-pole mains disconnect device. The mains supply must be suitably fused and rated according to the specifications (see **Appendix 2, Specifications**).
5. The knockouts on the extreme right-hand side and those provided on the bottom of the back box should be used for mains cable entry. DO NOT bring mains cables in through any other knockout holes and ensure that the mains wiring is always separated from the low voltage wiring. Tails of mains cables should be provided with suitable additional sleeving before connecting to the mains terminal block.
6. All low voltage cables should have a minimum 300Vac rating.

General cable installation notes are given in **Section 3.2, Cable Installation Notes**.



Earth Blade Connections

Note: All blade connections to earth incorporate a locking barb. To remove this connection, pull the shroud, NOT the earth wire.

3.1.1 Cable Terminations

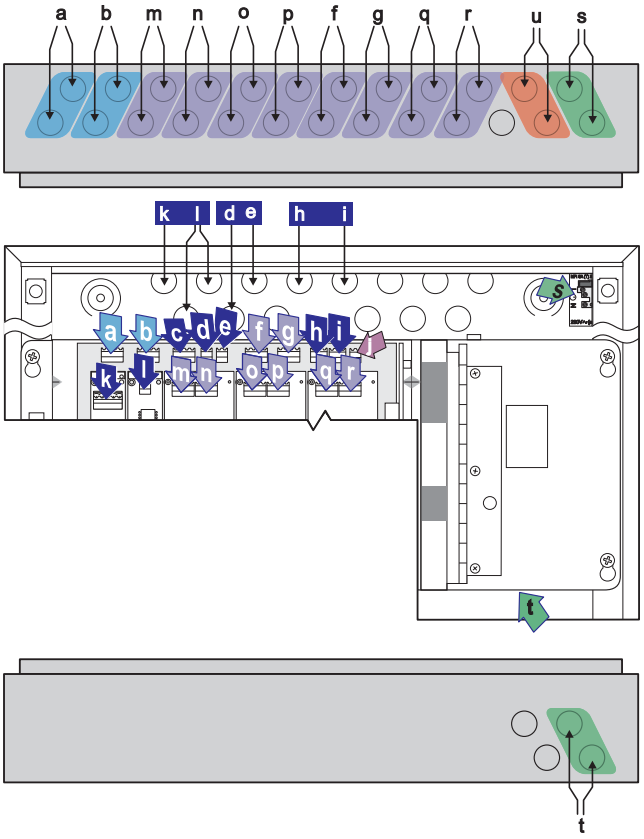
This section provides guidance on where to bring cables into the back box for ease of termination. Ensure the following requirements are met:

a. If the power supply unit (PSU) is mounted in the back box, the mains supply should be brought into the control panel such that the cable path to the mains termination block is kept as short as possible.

b. If the PSU is mounted externally to the panel, the dual-supply power cables and appropriate fault condition wiring should be brought into the panel using the bottom face's knockouts (as indicated). Refer to **Section 5.3 Dual Transmission Path/Booster Module** for termination details.

c. All loop and ancillary cable terminations should be brought into the panel at suitable positions to ensure tails are kept as short as possible.

d. A row of knockouts, 'u', should be left to provide adequate mains supply input/signal cable segregation.



The drawing shows the recommended points of entry so that cabling can meet these requirements.

Panel with internal PSU

i. Base PCB cabling/wiring terminations using top-face knockouts 'a, b, f and g'.

ii. Base PCB cabling/wiring terminations using rear knockouts 'd, e, h and i'.

iii. RS232 or RS485 cabling terminations using rear knockouts 'k and l'.

iv. Loops 3/4, 5/6, 7/8 cabling using top face knockouts 'm/n, o/p and q/r' respectively.

v. Power supply cable entry using knockouts 's'.

Panel with external PSU

As above except for item v above, which is replaced with:

vi. DTP/Booster Module cabling using knockouts 't'. See external PSU and DTP/Booster Module instructions for details.

Name	Function	Cable	Knockouts
a. OUT 1	Sounder	2-core	a
OUT 2	Sounder	2-core	a
b. OUT 3	Sounder/Volt-free Contact	2-core	b
OUT 4	Sounder/Volt-free Contact	2-core	b
c. INPUT 1	Control Matrix	2-core	Any Spare
INPUT 2	Control Matrix, Day/Night Mode Remote	2-core	Any Spare
d. AUX 1	Auxiliary output	2-core	d
e. AUX 2	Auxiliary output	2-core	e
f. LOOP 1	Loop circuit 1 OUT	2-core	f
LOOP 1	Loop circuit 1 IN	2-core	f
g. LOOP 2	Loop circuit 2 OUT	2-core	g
LOOP 2	Loop circuit 2 IN	2-core	g

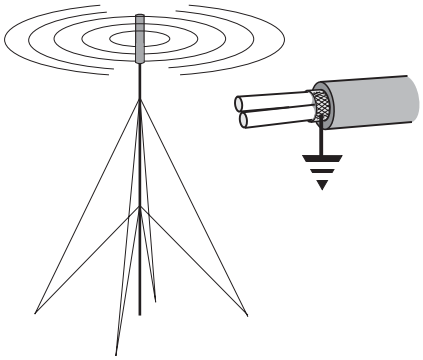
Name	Function	Cable	Knockouts
h. FAULT RELAY	Fault relay outputs	2-core	h
i. FIRE RELAY	Fire relay outputs	2-core	i
j. COVER OFF	Not supported	-	-
k/l. RS232/RS485	Comms circuits	2-core	k/l
m-r LOOPs 3/4,5/6,7/8	As item f.	as item f.	m-r
s. Fused Mains Block	Termination of mains input	3-core	s
t. External PSU	DTP/Booster termination	3[1]x 2 cores	t
u. Leave Spare[2]	Mains/signal wiring segregation	-	u

[1] - Power supply cables (x2) and fault indication wiring.
[2] - Recommended with internal PSU option.

3.2 Cable Installation Notes

3.2.1 Introduction

The following notes are intended to assist installers of analogue addressable control systems. They have been produced from information derived from the supplier's technical resource and from information fed back concerning existing systems.



3.2.2 Quality of Cable and of Cable Installation

It is vitally important that good quality cable is used, and that correct installation techniques are followed. In general, the following cable installation requirements must be met:

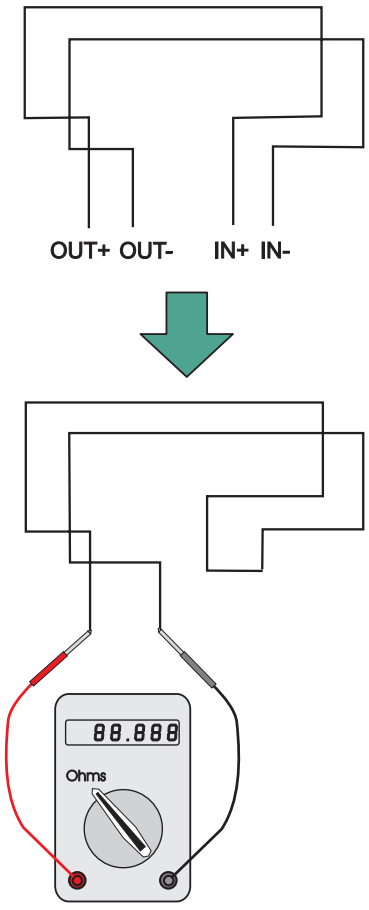
a. All cable sections must be circular to allow effective cable clamping using the cable glands.

b. The cable must be screened (sheathed) to provide protection against Radio Frequency Interference (RFI) and the screen must be connected to earth at the control panel.

c. Multiple earthing of the screen should be avoided. NOTIFIER's field products use insulated mounting bases and back boxes to achieve this. We recommend that this practice be continued if other connections are made. To achieve this with MICC cable may require the use of insulated cable glands at one end of the cable.

d. The screen must be continuous throughout the loop.

e. The maximum resistance of the loop should not exceed the limits defined in **Section 7.4.2 Loop Checks before Connecting Wiring**, step 2. To check this, measure between IN- and OUT-, multiply the result by 2 and add the resistance of each isolator (range 0.1 to 0.13 ohms each). The cable capacitance should be less than 0.5µF. Typically this will allow a maximum loop length of 2000m of screened 1.5mm^2 cable. Cable recommended for use is MICC with a LSF PVC overcovering, a fire resilient cable to BS7629 or PVC/SWA/PVC to BS6387.



Recommended Cables:

Manufacturer	Product Name	Part Number	Type[1]
AEI	MICC	2L1.5	Enhanced
AEI	Firetech	298-052	Standard
Draka	FiretufPlus	FTPLUS2E1.5RD	Enhanced
Draka	Firetuf	FTZ2E1.5	Standard
Prysmian	FP Plus	FP Plus 2x1.5 Red	Enhanced
Prysmian	FP200 Gold	FP200 Gold 2x1.5 Red	Standard
Arrow	-	7-2-4S	Not rated

[1]For a definition of 'Standard' and 'Enhanced' cable requirements and their different applications, refer to BS 5839-1 Section 26. Enhanced cable is typically required for spur sounder outputs, while standard cables may be adequate for other fire-related I/O provided there is diverse cable routing. The multi-core cable from Arrow is suitable for RS232 connections to a printer.

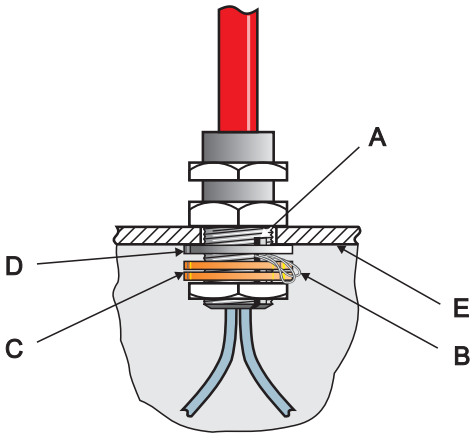
f. We recommend that the system should be wired in 2-core cables and each 2-core cable should be specific to one function.

g. The RS485 communication cable used should be rated as suitable for up to 200mA in a short circuit condition.

3.3 EMC Considerations

Following the above instructions and by using suitable cables EMC problems will be avoided. In particularly difficult EMC environments, or where non-preferred cabling is used, it is possible to fit additional ferrite suppressors (sleeves) to cables entering the control panel.

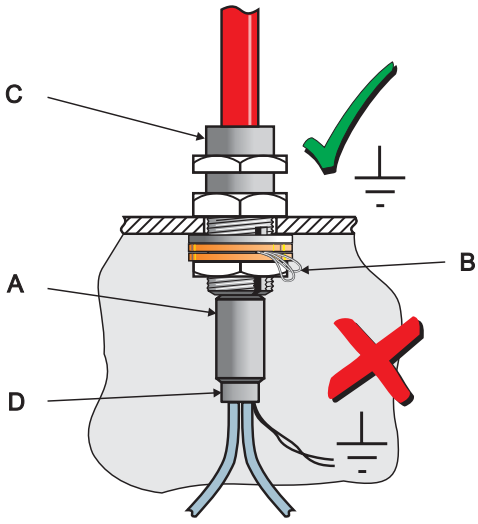
3.3.1 Screen Termination



Use the following method to terminate the cable screens:

Use a metal gland with slots (A) that allow the drain wire or screen (B) to be clamped between flat washers (C). Use a steel locking washer (D) between the brass washers and the internal surface of the back box (E). This will provide the best EMC termination. Suitable glands are the CTX range available from CMP UK Ltd. The part chosen should fit the 20mm knockouts.

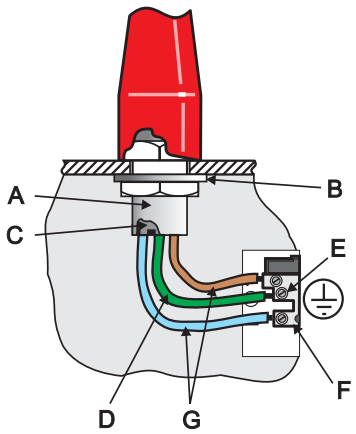
3.3.2 Ferrite Sleeves (Optional)



Ferrite sleeves are not normally required with the ID3000 Series control panel. In difficult EMC environments, or where non-preferred cables are used, optional ferrite sleeves should be fitted to both the loop and sounder wiring. The ferrite sleeves (A) are to be fitted over the conductor(s) of each cable - and NOT over the screen of the cable, which should pass outside of the sleeve. They should be fitted as close as possible to the entry point of the cable, i.e. as near as possible to the screen termination (B) to the metal cable gland (C). The sleeve should be held in place using a cable tie (D).

The ferrite sleeves are available for purchase from NOTIFIER's distributors (quote Part No. 538-143).

3.4 MICC Cables



MICC cables must be fitted with metal cable glands (A) - use Type A2 glands. Use a steel locking washer (B) to ensure good earthing continuity and correct termination of the gland. In particular, the mains cable requires that the cable gland (A) is fitted with an earth tail kit (C). The earth tail kit must be connected, using an insulated wire (D), to the panel safety earth connection (E) at the mains termination block (F). The bare mains wiring from the MICC cable must be suitably-insulated (G) and terminated in accordance with appropriate local wiring regulations.

4 Sensors and Modules

Each of these devices is packaged with an instruction leaflet showing the correct interconnections for various applications.

4.1 EN54 Requirements

The ID3000 Series Control Panel design allows for the connection of up to 198 loop devices per analogue loop; i.e. up to 99 sensors and 99 modules.

4.1.1 Loop Devices - Sensors and MCPs

EN54-2: 13.7 Without E-LIBs - Maximum of 512 Sensors and/or MCPs per system.

If Enhanced Loop Interface Boards (E-LIBs) are not fitted, then to comply with the requirements of EN54-2, a maximum of 512 sensors and/or MCPs should be connected to the control panel across ALL analogue loops, **including** all conventional zone detectors and/or MCPs connected.

EN54-2: 13.7 With mix of LIBs and E-LIBs - Maximum of 512 Sensors and/or MCPs not connected to E-LIBs.

If E-LIBs (PN: 124-292) are fitted, the design limits given above in **Section 4.1** apply. If a mixture of E-LIBs and LIBs (PN: 124-323) are fitted, then the restrictions of the first paragraph of **Section 4.1.1** apply to all loops not connected to E-LIBs.

Failure to comply contravenes the requirements of EN54-2 in the event of a system fault.

4.1.2 Loop Devices - Isolators

Isolators must be used on each analogue loop to separate sensors and/or MCPs, **including** all loops with conventional zone detectors and/or MCPs connected.

EN54-2: 12.5.2 Maximum of 32 Sensors and/or MCPs between isolators.

To comply with the requirements of EN54-2, isolators should be fitted between a maximum of 32 loop devices. For the ID3000 Series, do not place more than 25 loop devices between isolators (20 if FET isolators are used).

Failure to comply contravenes the requirements of EN54-2 in the event of a transmission path fault.

4.2 Loop Wiring Testing

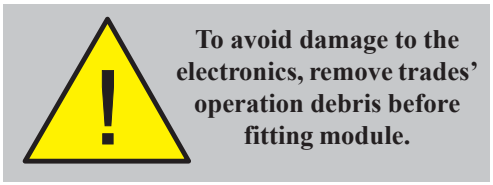
NEVER use a high voltage tester on the loop.

Before connecting the panel or devices, the wiring of each loop may be tested for continuity and insulation. Once any components are connected, inluding isolators, no high-voltage testers such as Meggers may be used on the loop; low-voltage testers such as multimeters may be used.

Note: If isolators are fitted, the +ve conductor of the loop will be open circuit.

5 Panel Electronics Modules

5.1 Introduction



This section describes how to install the ID3000 Series panel electronics, i.e. the Power Supply Unit (PSU) and the main chassis, which contains all processing PCBs and the optional PRN-ID printer.

DO NOT install the electronics module(s) until the building is clear of trades' operations. Before commencing the installation, remove any debris, etc. which may have accumulated in the panel back box.

Instructions are included for the following:

a. Installing either a Dual Transmission Path (DTP) unit/ Booster Module or a Kit PSU3A in the main chassis. The DTP/Booster Module is designed for use with PSUs other than the PSU3A unit (separate instruction sheets are provided with these alternative PSUs). For the Kit PSU3A, refer to **Section 5.2**. For the DTP/ Booster Module, refer to **Section 5.3**.

Note: For details of installing the PSU7A kit (PN: 020-579) refer to separate instructions provided with the kit.

b. Installing the main chassis plus DTP or Kit PSU3A in the back box. Refer to **Section 5.4**.

c. Fitting a paper roll to the optional PRN-ID printer.

d. Zonal LED kit options.

5.2 Kit PSU3A

The Kit PSU3A module is very easy to fit to the main chassis, providing the instructions described below are followed. The PSU is located in an open, rear compartment of the main chassis and MUST be fitted before installing the main chassis in the back box. The PSU3A module is secured to the main chassis using four M4 x 8 SEM screws.

Note: To replace a PSU3A, disconnect the batteries and isolate mains power, reverse the installation procedure to remove the faulty unit, then install the replacement as described below.

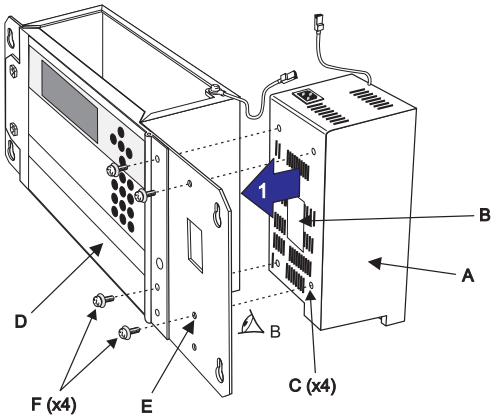
Check Your Equipment....

Before proceeding with the PSU installation, first remove all packaging and inspect for any damage which may have occurred in transit. If no damage is evident, proceed with the installation of the PSU module.

A Cautionary Note....

During this procedure, various wiring connections are made and it is important that the manufacturer's recommendations are followed to avoid the possibility of damage occuring when fitting the PSU module.

5.2.1 Procedure

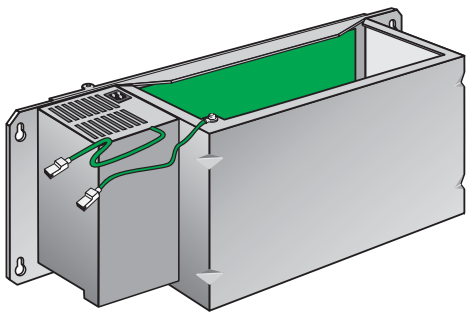


Orientate the PSU3A assembly (A) so that the side with the 'rating' label (B) is facing you (see drawing at left) - this side is provided with four holes (C) for fitting the PSU. Fit the PSU to the main chassis assembly (D) as follows:

1 Line the four holes (E) on the front face of the main chassis with the corresponding holes (C) on the PSU assembly.

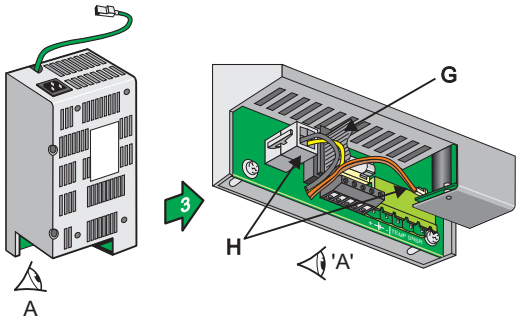
2 Use a No. 2 Posidriv screwdriver and the four M4 x 8 SEM screws (F) supplied with the PSU to secure the PSU firmly to the main chassis.

CAUTION
When fitting the PSU, use only the M4 x 8 screws supplied with the PSU - and NOT the M4 x 16 screws supplied with the Main Chassis.

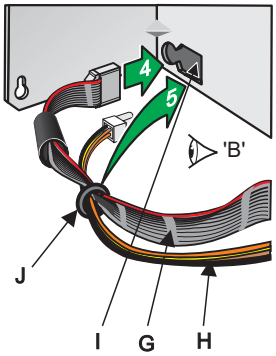


The drawing at left shows the PSU3A module correctly located in the main chassis.

5.2.1.1 Main Chassis Wiring Connections

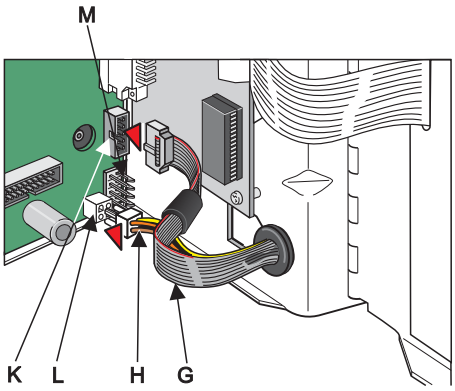


3 Connect the 10-way ribbon cable (G) and the power cable (H) to the PSU3A. The power cable connects at two positions, as shown.



4 Ease the connectors of these cables and the ferrite through the aperture (I) in the main chassis. Pull the cables through, taking up any slack.

5 With a sufficient length of each cable pulled through to connect to the Base PCB, ease the grommet (J) in to the aperture (I) and then slide it and the cables sideways into the circular part until secure.



6 Terminate the cables on the Base PCB - the 10-way ribbon cable (G) at socket SK8 (K) and the power cable (H) at socket SK12 (L). Ensure the ferrite is clear of all circuit boards.

Note: Connector (M) may not be fitted.

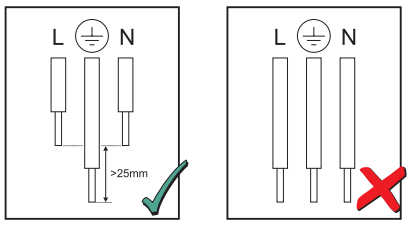
7 Fit the chassis into the back box (**Section 5.4**).

5.2.1.2 Mains and Safety Earth Wiring Connections

WARNING!
Isolate mains power before proceeding.

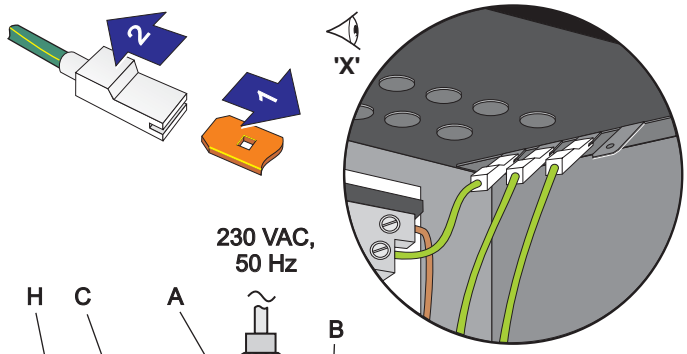
WARNING: Before proceeding, refer to the cabling instructions given in **Section 3.1**. Isolate mains power. Note that fuse information is given in **Appendix 1 Section 1.2**.

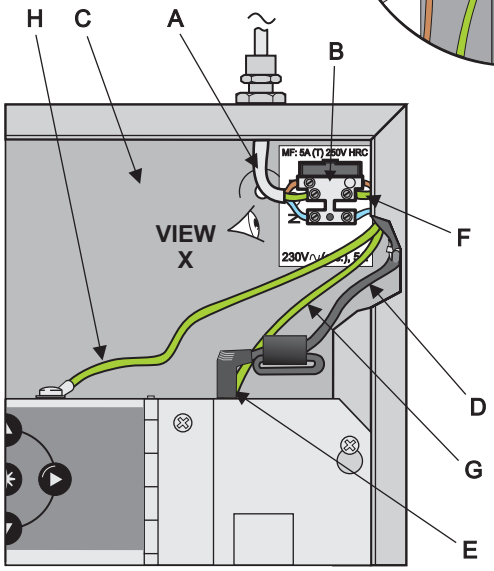
TRANSIT CABLE CLIP: Before proceeding, CAREFULLY cut the cable clip that secures the ferrite cable loop to the front of the back box. DO NOT cut the cable clip that secures the mains cable to the side of the back box.



When terminating mains leads, ensure that the earth lead is longer than L and N.

The 230V ac mains input wiring (A) must be terminated at the fused mains termination block (B), located in the top right-hand corner of the ID3000 Series back box (C). The PSU mains cable (D) is factory-fitted to the termination block. Push the mains cable's connector (E) into the socket at the top of the PSU3A. Pull tight the cable clip at the side of the back box.





The safety earth is provided via a short factory-fitted lead (F) from the mains termination block to a blade connector at the right rear corner of the back box roof. All blade connections to earth incorporate a locking barb. To make a connection push the shrouded receptacle on to the earth blade (1). To remove this connection, pull the shroud (2), NOT the earth wire.

Using the wiring provided, make the following two earth connections:

a. Between the PSU top plate and the back box (G).

b. Between the main chassis and the back box (H).

Connection to the batteries is made using the supplied battery leads, which may have to be cut to the correct length. Connection of the batteries (and thermistor) is made at a four-way socket mounted close to the bottom of the PSU assembly. Access is gained from underneath the PSU once the main chassis is fitted to the back box.

For more information on connecting the batteries refer to **Section 7.5, Batteries**.

5.3 Dual Transmission Path/Booster Module

The Dual Transmission Path (DTP)/Booster module is very easy to fit to the main chassis, providing the instructions described below are followed. The DTP/Booster module is located in an open, rear compartment of the main chassis and MUST be fitted before installing the main chassis in the back box. The DTP/Booster module is secured to the main chassis using four M4 x 8 SEM screws. A 4-wire cable supplied with the module for backward compatibility is not required and should be discarded.

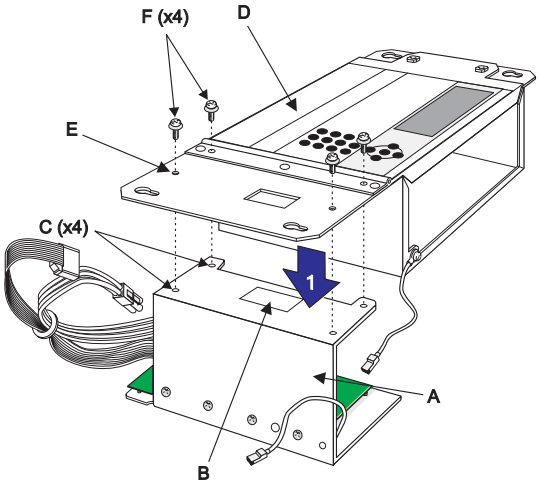
Check Your Equipment....

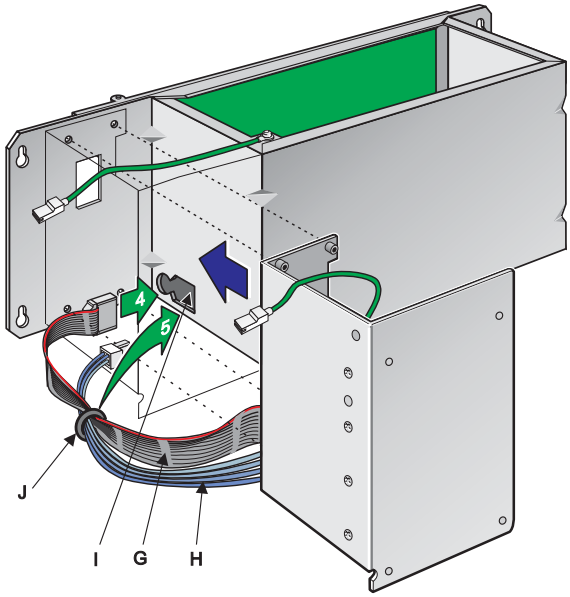
Before proceeding with the DTP/Booster installation, first remove all packaging and inspect for any damage which may have occurred in transit. If no damage is evident, proceed with the installation of the DTP/Booster module.

A Cautionary Note....

During this procedure, various wiring connections are made and it is important that the manufacturer's recommendations are followed to avoid the possibility of damage occuring when fitting the PSU DTP/Booster module.

5.3.1 Procedure





Place the DTP/Booster module (A) on a clean work surface so that the side with the 'rating' label (B) is uppermost (see drawing at left) - this side is provided with four holes (C) for fitting the module. With the module temporarily supported in this position, fit the main chassis assembly (D) as follows:

Note: If the PSU is located in the back box, perform 'Other Wiring Connections' step 'a' at the DTP/Booster module end of the connection NOW. Access to the ribbon cable connector becomes more difficult after the module is fitted to the main chassis.

1 With the main chassis orientated with the front door uppermost, carefully lower it until the part to the right of the front door hinge rests on the DTP/Booster module.

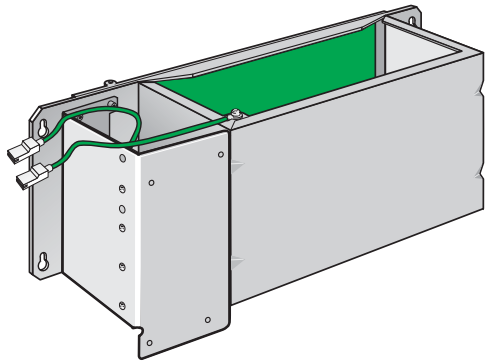
2 Line the four holes (E) on the front face of the main chassis with the corresponding holes (C) on the module.

3 Taking care not to trap the module's cables and the earth wiring, insert the four M4 x 8 SEM screws (F) and, using a No.2 Posidriv screwdriver, tighten them until the module is secured firmly to the main chassis.

With the module now secured, take the module's two cables into the main chassis' PCB enclosure as follows:

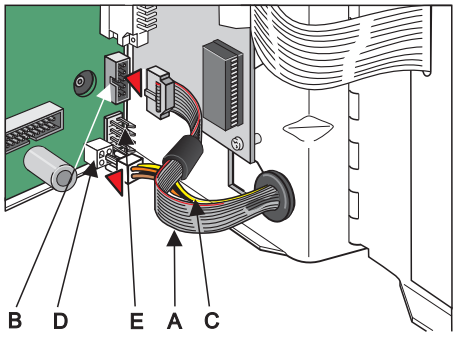
4 First, ease the connector of the 10-way ribbon cable (G) and the connector of the power cable (H) through the aperture (I) in the main chassis. Pull the cables through, taking up any slack.

5 Secondly, with a sufficient length of each cable pulled through, to connect to the Base PCB, ease the grommet (J) in to the aperture (I) and then slide it and the cables sideways into the circular part until secure.



The illustration at left shows the DTP/Booster module correctly located in the main chassis.

5.3.1.1 Main Chassis Wiring Connections



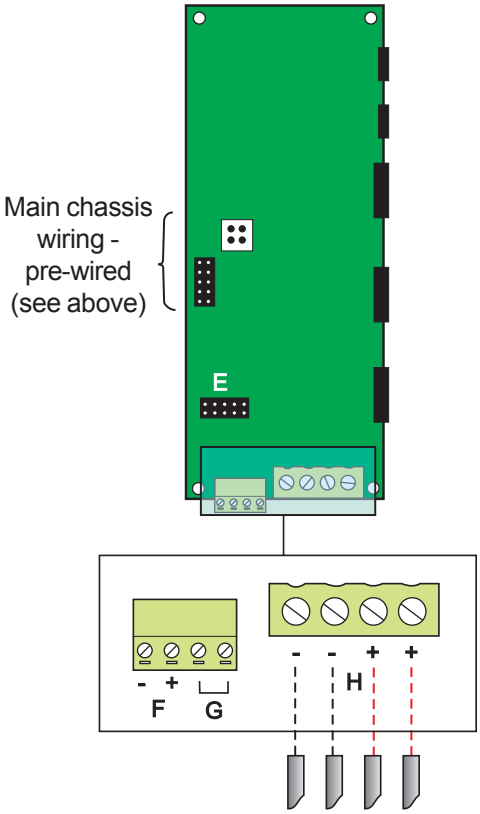
Once the DTP/Booster module is fitted to the main chassis, the two wiring assemblies that are held by the grommet should now be terminated on the Base PCB connection sockets as follows:

a. The 10-way ribbon cable (A) is to be terminated at socket SK8 (B).

b. The 4-wire power cable (C) is to be terminated at socket SK12 (D).

Note: Connector (E) may not be fitted.

5.3.1.2 Other Wiring Connections



CAUTION: Before proceeding, refer to the cabling instructions given in Section 3.1.

The following additional wiring must be connected:

a. If the DTP/Booster module is to be connected to an internally-mounted PSU (other than the Kit PSU3A), fit the supplied ribbon cable between the DTP/Booster connector (E) and the PSU's LED status indication output connector. This connection is not used if the PSU is mounted externally.

b. Connect a suitable cable (supplied with the PSU) between the PSU Charger Inhibit connector (F) and the equivalent connector on the PSU (on PSU assemblies PN: 124-190 and 124-190-001, this connector is labelled ALARM). Connect + to + and - to -.

c. If the DTP/Booster module is to be connected to an externally-mounted PSU, connect a suitable cable between the COMMON FAULT connector (G) and the Normally Open and Common connections of the equivalent connector on the PSU.

d. Connect suitable (high-current) cables (if PSU is internal, use cables supplied with the PSU) between the Power connector (H) and the power supply unit. Connect + to + and - to - (may be labelled 0V).

e. **CAUTION! If using an externally-mounted PSU, it is essential that an electrical safety earth connection is made to the back box of the ID3000 panel.** This connection should be routed with the other PSU cables from the external battery box.

5.4 Main Chassis

DO NOT fit the main chassis in the back box until the PSU and/or DTP/ Booster Module has been fitted!

The ID3000 Series control panel main chassis provides the following features:

a. System control and monitoring function PCBs

b. User-interface controls and system status indicators,

c. Space provision for three loop-interface PCBs, panel networking and interface hardware for external equipment using serial communications.

The main chassis is simple to fit in the back box providing these instructions are followed.

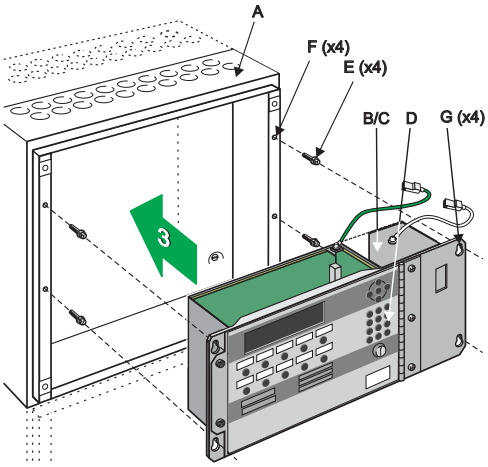
5.4.1 Main Chassis Configurations

Alternative PSU output ratings and mains standby battery backup periods can be supported using different main chassis options. Consequently, the main chassis can be fitted with:

a. The Kit PSU3A, or a

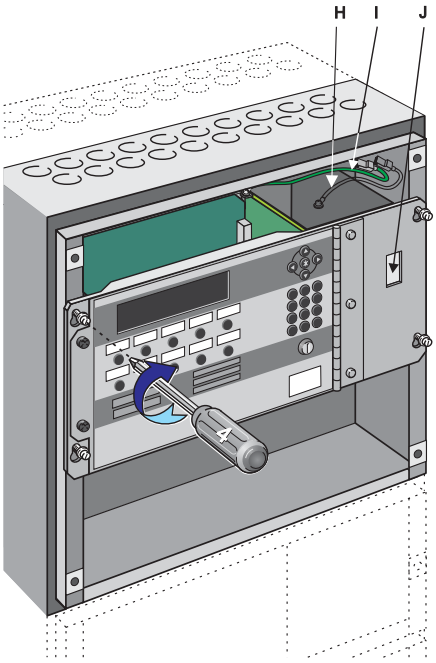
b. DTP/Booster Module for use with PSUs other than the Kit PSU3A, which can be installed behind the main chassis in a deep back box or in a separate 78Ah battery enclosure (refer to separate installation instructions provided with enclosure).

DO NOT fit the main chassis in the back box until the PSU or DTP/Booster Module is in place (refer to **Section 5.2, Kit PSU3A** or **Section 5.3 DTP/Booster Module**).



5.4.2 Procedure

Taking suitable anti-static precautions, such as wearing a suitably-grounded wrist strap, remove all packaging from the main chassis and ensure that it has not been damaged in transit before proceeding any further. If no damage is evident, and with the back box (A) secured to the wall in its chosen location, ensure that either the Kit PSU3A (B) or DTP/Booster Module (C) is fitted, then fit the main chassis (D) as follows:



1 Locate the four supplied M4 x 16 SEM screws (E) in the back box holes (F).

2 Drive the four screws (E) in approximately half their length.

3 Taking suitable anti-static precautions, ensure the main chassis is correctly orientated and offer the four slotted holes (G) and locate on the threaded part of the top two of the four screws (E) to avoid twisting the chassis when securing in position.

4 Once the main chassis has been located on the SEM screws (E) use a cross-headed screwdriver to tighten them.

5 Connect the earth lead (H) between the Kit PSU3A top plate or DTP/Booster module and the earthing blade terminals adjacent to the mains termination block (not shown) in the back box. (See also step 5.2.1.2).

6 Connect the earth lead (I) between the main chassis earth blade terminals and the earthing blade terminals adjacent to the mains termination block (not shown) in the back box.

Note: The power supply ratings label is visable through the aperture (J) in the main chassis.

5.5 Zonal LED & Printer Options

The section describes the procedures for fitting zonal LED modules and the integral PRN-ID printer. One or two extension chassis are required to provide the zonal LEDs required with or without the integral printer. The following options are described in this section:

a. **LEDs for up to 64 Zones**. For panels with up to 64 zonal LEDs follow the instructions in **Section 5.5.1**.

b. **LEDs for up to 128 Zones** (as 'LEDs for up to 64 zones' x2, with a double-extended back box).

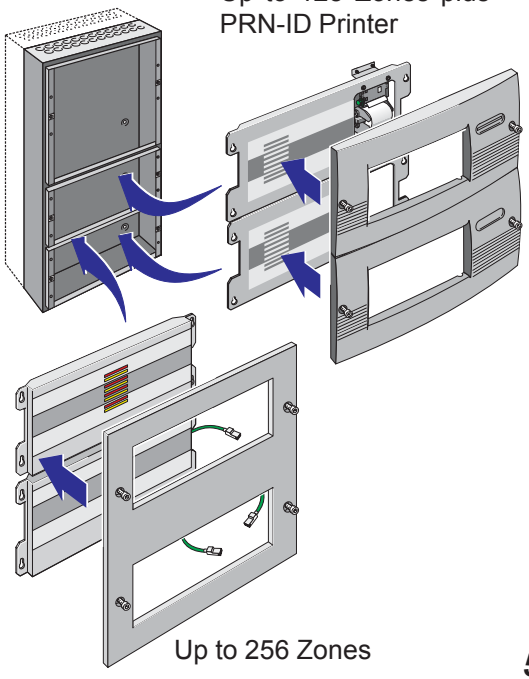
c. **Fitting the PRN-ID Printer**. The integral PRN-ID printer can only be fitted with the extended or double-extended back boxes. An extension chassis is required, either with zonal LEDs 1-64 or with a blank fascia if these zonal LEDs are not required. Refer to **Section 5.5.2**.

d. **LEDs for up to 256 Zones**. For panels with up to 256 zonal LEDs refer to **Section 5.5.3**. For this option the double-extended back box and 256 Zone LED Kit is required.

Note: All fitting instructions assume that the correct back box option has been installed in each case.

Taking suitable anti-static precautions, such as wearing a grounded wrist strap, remove all packaging and inspect for any damage that may have occurred in transit. If no damage is evident, proceed with these instructions.

Up to 128 Zones plus PRN-ID Printer



Up to 256 Zones

5.5.1 64 Zone LED Extension Chassis

Before attempting this procedure, make sure ALL power to the control panel is disconnected.

Fit the extension chassis (A) to the back box (B) as follows:

1 Locate the four supplied M4 x 16 SEM screws (C) in the back box holes (D) and insert them approximately half way.

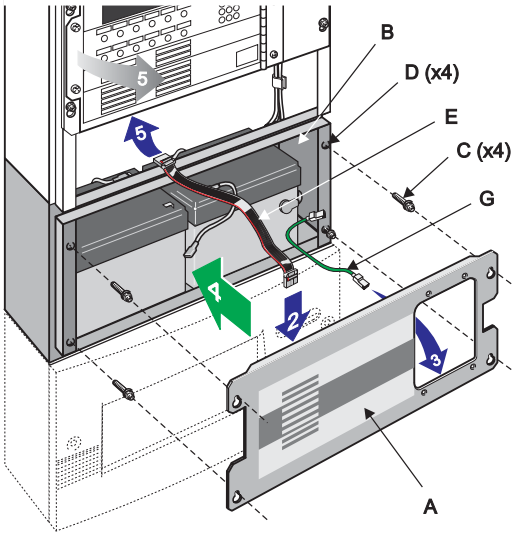
2 Connect one end of the supplied, 10-way ribbon cable (E) to the top connector (F), marked 'IN', of the LED PCB (also refer to the drawing overleaf).

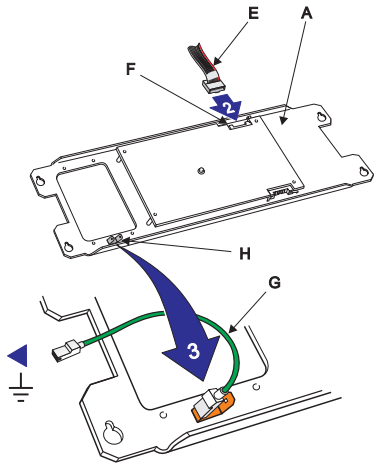
3 Connect one end of the supplied earth lead (G) to the earthing blade terminal (H) on the extension chassis.

4 With the extension chassis correctly orientated (refer to drawing at left), locate the keyholes onto the four screws with the threaded part in contact with the top flats of the keyholes.

5 With the extension chassis now located on the back box, open the main chassis front door and connect the other end of the 10-way ribbon cable at socket SK19 on the Base PCB.

6 Connect the other end of the earth lead to the earthing blade terminals located inside the back box and to the right of the chassis.





7 Having made the connections described in steps 5 and 6 above, use a Posidriv No.2 screwdriver to secure the extension chassis.

5.5.2 PRN-ID Printer

The printer is supplied one of two ways:

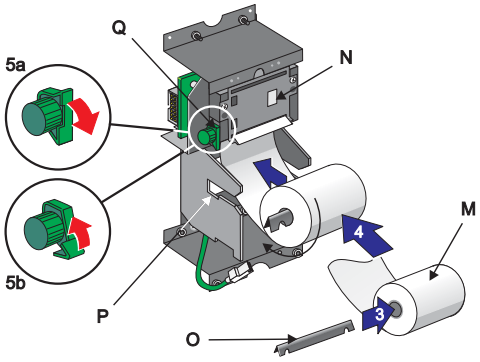
a. For panels **with** up to 64 or 128 zonal LEDs, the printer first has to be fitted to the extension chassis (refer to installation instructions 997-452, supplied with the printer) and then the combined assembly secured to the back box.

b. For panels with **no** zonal LEDs, the extension chassis is supplied with the printer already fitted. Refer to installation instructions 997-224 and 997-452, supplied with the extension chassis.

5.5.2.1 Fitting the Paper Roll

It is recommended that the thermal paper roll is fitted when the printer is *in situ* and powered up. The paper MUST be the right way round - see drawing at left. The printer will automatically try to take up the end of the paper roll once it has been inserted into the paper entry slot (located on the underside of the printer mechanism). To ensure correct alignment of the paper as it exits the printer, after fitting, adjustment can be made using the control located on the left-hand side of the printer:

To fit the thermal paper roll, proceed as follows:



1 Make sure the panel is powered up and the batteries are connected.

2 With the paper (M) orientated as shown at left, offer the end of the roll to the paper entry slot on the underside of the printer mechanism (N) - the printer will automatically try to take up the paper.

Note: If the printer has a problem with taking up the paper, you may need to feed the paper manually. Manual feed is achieved by repeatedly pressing the '▼' pushbutton at the panel controls (while panel status is normal).

3 Support the paper roll and insert the spindle (O), orientated as shown, until it protrudes from both ends of the roll in approximately equal lengths.

4 Gently push the paper roll into the slot, then pull it forward to check that the spindle (O) has engaged in the notch (P). After the paper roll/spindle assembly is in position, gently turn the roll to take up any slack in the paper.

5 To re-align the paper exit path:

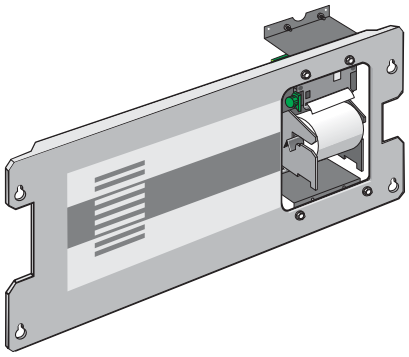
i Locate the paper release control (Q) immediately to the left of the paper exit slot and pull the top lug outwards and down through approximately 90°. With the lug in this position the paper alignment can now be adjusted. Re-align the paper by gently pulling it left or right until centrally placed in the slot - make sure that the slack in the paper is kept to a minimum between the printer mechanism and paper roll. IF USING A STAINLESS STEEL COVER ON THE PANEL, SEE ADDITIONAL INFORMATION BELOW.

ii When satisfied that the paper is aligned correctly, return the lug to its former position, i.e. locked. Press the '▼' pushbutton to feed the paper a number of lines to check the paper re-alignment.

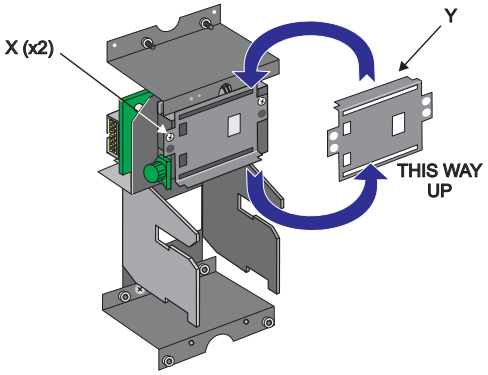
Note: Each press of the button advances the paper one line.

Instructions for fitting the serrated tear-off plate to the front cover and cutting the printer paper to length are given in **Section 2.7**, Moulded Front Covers.

The drawing at left shows the PRN-ID printer fitted correctly.



5.5.2.2 Printer Used With Stainless Steel Cover



The following additional steps are required:

1 **Before you begin:** Remove the two screws (X) that secure the paper guide in position. Rotate the plate 180° vertically to give the orientation shown as 'THIS WAY UP' in the illustration, then use the two screws (X) to re-attach it to the printer.

2 **Fitting the paper roll:** Manually feed the paper through the slot in the front cover.

5.5.3 LEDs for up to 256 Zones

Where up to 256 zonal LEDs are required a kit is supplied for use with the double-extended back box only. The two Double-extension Chassis 256-Zone Status Kits contain the following items:

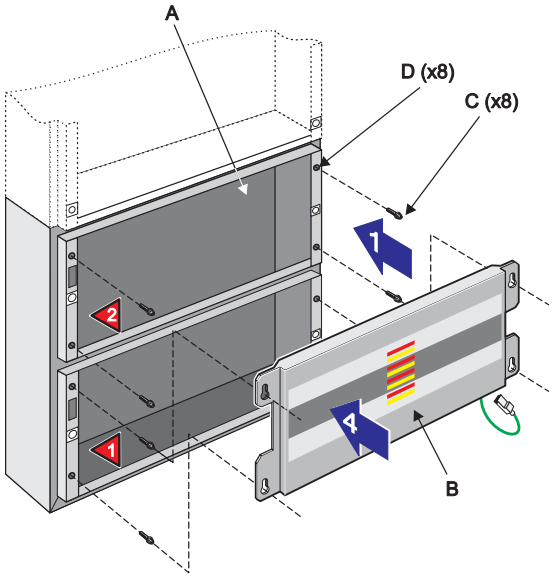
a. Zone LED chassis (zones 1-128)
b. Zone LED chassis (zones 129-256)
c. Ribbon cables (x2)
d. Front cover earth lead
e. M4 x 16 SEM screws (x8)
f. Label inserts (2 per language variant) and
g. Cover.

The 256-Zone Status Indication Kit is simple to fit providing the instructions below are followed.

Before attempting this procedure, make sure ALL power to the control panel is disconnected.

CAUTION!
Make sure ALL power to the panel has been disconnected.

With the back box (A) secured to the wall in its chosen location and the front cover removed, fit each status indication chassis (B) as follows:



Note: First, fit the chassis with zone LEDs 129-256 in the lower back box position. Fit the chassis with zone LEDs 1-128 in the upper position - after fitting the front cover earth lead.

1 Locate the eight supplied M4 x 16 SEM screws (C) in the back box holes (D) and insert them approximately half way. Four screws are required for each chassis.

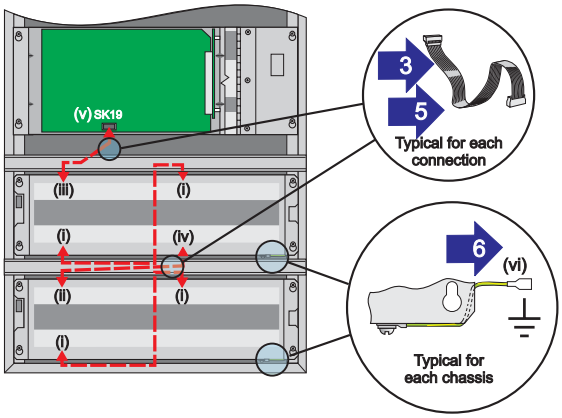
2 Ensure the factory-fitted internal ribbon cables are satisfactorily connected to the extension chassis connectors (i).

3 Fit one end of each loose-provided, inter-chassis ribbon cable to the 'zones 1- 128' chassis as follows:

a. To the 'IN' connector (at iii), and

b. To the 'OUT' connector (at iv).

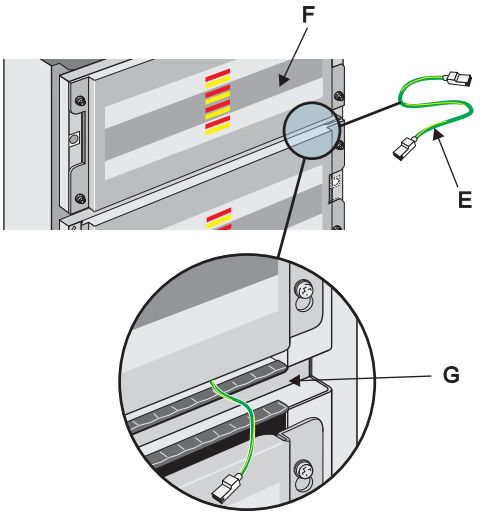
4 With each status indication chassis correctly orientated, locate the keyholes onto four of the screws with the threaded part in contact with the top flat of the keyholes. Fit the 'zones 129-256' chassis first and then the 'zones 1-128' chassis.



5 With the status indication chassis now located on the back box, fit the other end of the two inter-chassis ribbon cables. When fitting the 'zones 1-128' chassis, connect the other end of the ribbon cable (from iv) to the 'IN' connector (at ii) on the 'zones 129-256' chassis; connect the other end of the second ribbon cable (from iii) to the socket connector SK19 (at v) on the panel Base PCB.

6 Connect the free end of the earthing lead (at vi) to the blade terminals on the back box side wall.

7 When all cable connections have been made, use a Posidriv No.2 screwdriver to secure both status indication chassis.



5.5.3.1 Earthing the Front Cover

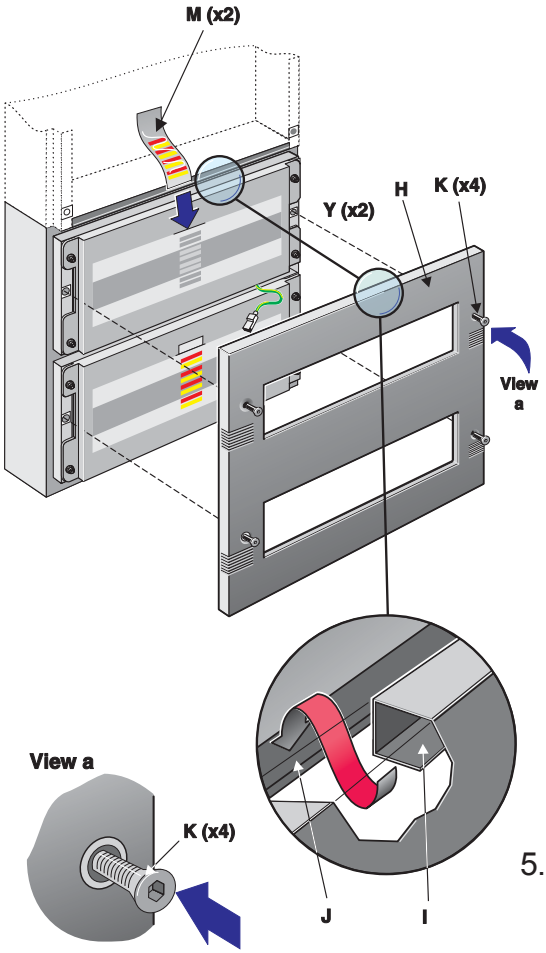
The earth lead (E) must be connected to the back box prior to fitting the upper extension chassis (F) as follows:

1 Connect one end of the earth lead (E) to the blade terminal located on the right-hand side of the back box (not shown).

2 Rest the earth lead on the top surface of the U-shaped channel (G).

3 Fit the upper zone extension and secure.

4 When offering the cover to the back box for fitting (see below), first locate the free end of the earth lead on the front cover's earth blade terminal.



5.5.3.2 Fitting the Front Cover

When the zone extension chassis have been fitted and all wiring has been connected, fit the front cover as follows:

1 Offer the cover (H) symmetrically and correctly orientated to the front of the back box.

Note: To make sure the cover is correctly orientated, the top of the cover has a ledge (I) which locates on the flange (J).

2 Use a 4mm hexagonal socket key to tighten each hexagonal socket-headed M6 screw (K).

3 To remove the cover, use the 4mm socket key to unscrew the M6 screw (K).

CAUTION: Make sure the cover is supported when releasing the last fastener.

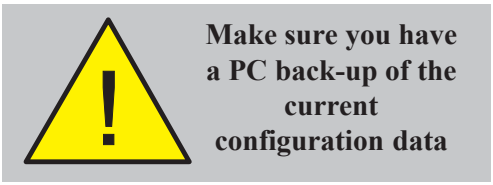
5.5.3.3 Label Inserts

Each extension chassis is provided with a vertical slot behind the fascia to allow a label (M) to be inserted. Insert the label as follows:

1 With the label correctly orientated, find the slot in the top edge of the fascia and insert one corner to start.

2 Once the end has been inserted in the slot, straighten the label and push in until all windows in the fascia display the label text. A small amount of the label will protrude above the fascia.

5.6 Display PCB



The Display PCB is located on the inner face of the main chassis door. In the unlikely event that the Display PCB becomes faulty and needs to be replaced, the front door assembly, supplied as part of a kit (PN: 020-571-XXX) needs to be replaced.

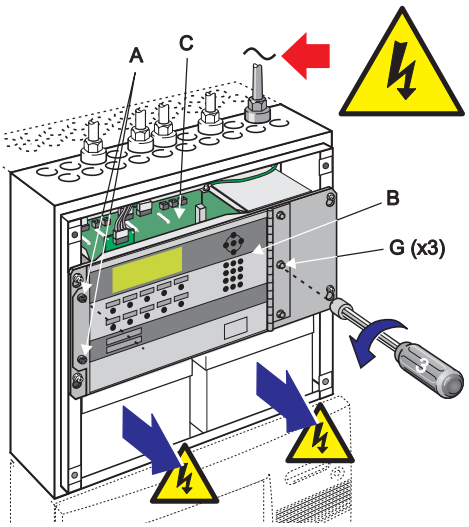
The manufacturer strongly recommends that BEFORE attempting this procedure, and after isolation of the mains supply and disconnection of the batteries, that you remove the batteries from the back box until the panel is ready for re-application of power.

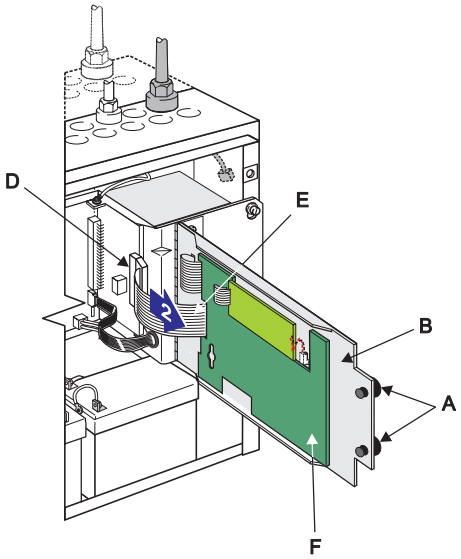
To replace the main chassis door, the front cover moulding(s) must be removed by releasing the M6 socket-headed screws using a 4mm hexagonal socket key (or the special Notifier security tool, if applicable).

Before starting, make sure you have a PC back-up of the panel's current configuration data.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

With ALL power disconnected, follow the instructions below:





1. Using a suitable-sized coin, release the quarter-turn fasteners (A) located at the left-hand side of the main chassis front door (B). Open the door to gain access to the main chassis' PCB enclosure (C).
2. At connector J2 (D) on the Processor PCB, disconnect the 34-way ribbon cable (E) from the Display PCB (F). Close the main chassis front door and secure using the two fasteners.
3. Holding the top edge of the door, use a nutdriver to loosen the three M4 x 6 hexagonal-headed screws (G) located down the right-hand side of the main chassis door. Remove the centre and lower screws and with only the top screw securing the right-hand side of the door, release the two quarter-turn fasteners and support the door while you remove the last screw.
4. Remove the door assembly and store safely in an anti-static bag.
5. With the replacement door assembly correctly orientated - as shown at left - offer it to the main chassis. Support the door while inserting one of the three screws removed in step 3. Tighten it by hand and then close the door and secure. Insert the remaining two screws and, using a nutdriver, fully tighten all three screws until secure.
6. Re-open the door and re-connect the 34-way ribbon cable disconnected in step 2.
7. Re-fit the batteries.
8. Re-connect mains power and the batteries.
9. Close the door and secure using the two quarter-turn fasteners.
10. Replace the front cover(s) and secure.

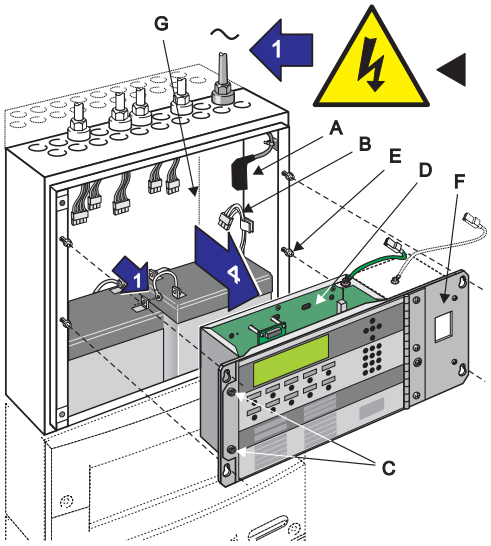
5.7 Base PCB

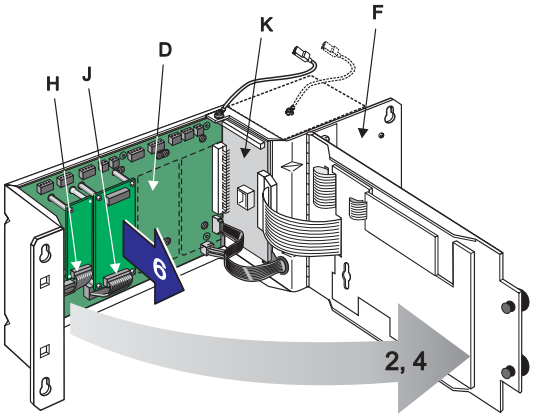
WARNING - Disconnect power from the ID3000 Series panel

Make sure you have a PC back-up of the current configuration data

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

TIP! Label cables before disconnecting.





The ID3000 Series Base PCB is located on the rear face of the main chassis PCB enclosure. In the unlikely event that the Base PCB becomes faulty and needs to be replaced a replacement kit (PN: 020-568) is available. To replace the Base PCB, the manufacturer recommends the removal of the main chassis from the back box, as adequate space is required for the Base PCB removal process.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

1 Assuming the front cover moulding has been removed disconnect ALL power to the ID3000 Series control panel - disconnect the batteries first and isolate the mains supply input - before continuing. Disconnect the power lead (A), and the battery charger and thermistor leads (B), from either the PSU module or the DTP/Booster Module (not shown).

2 Using a suitable-sized coin, release the two quarter-turn fasteners (C), and open the main chassis' hinged door to access the main chassis PCB enclosure.

3 At the Base PCB (D), disconnect all cable and wiring terminations (see **Section 5.7.2, Cables and Wiring**). Close the hinged door and secure using the quarter-turn fasteners.

4 Using a Posidriv screwdriver, loosen the four main chassis retaining screws (E). Remove the main chassis (F) from the back box (G), and place on a clean work surface with the front door uppermost. Open the front door to gain access to the Base PCB (D).

5 Remove any 3rd-layer PCB(s), if fitted - refer to the appropriate installation section of this manual.

6 Disconnect the short ribbon cable (H or J), to any 2nd-layer Module PCBs (if fitted) and remove the PCB(s) - refer to **Sections 5.11** and/or **5.12** - and place in an anti-static bag. Keep safe until required for re-fitting.

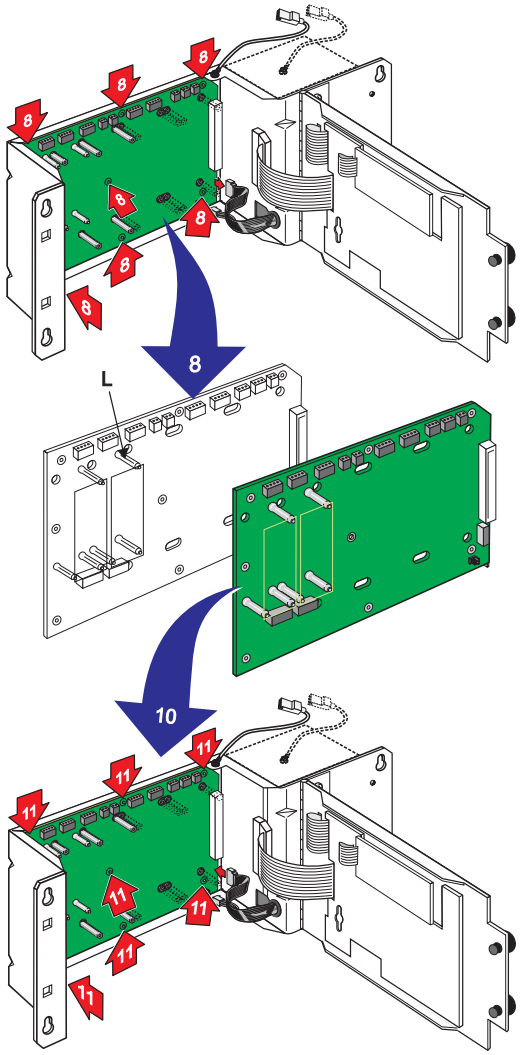
Note: If fitted, make a note of the position of the Module PCBs for re-fitting.

7 Remove the Processor PCB (K) from the main chassis - refer to **Section 5.8** for details. Store safely in an anti-static bag until required for re-fitting.

8 Remove the Base PCB from the main chassis using a No.1 Posidriv screwdriver to remove the seven (7) M3 x 10 SEM screws - see overleaf - from the Base PCB. Keep safe until required for re-fitting.

Note: Note the locations of the user-defined links as indicated by the two black-filled boxes in the Cables and Wiring drawing overleaf.

9 Remove any nylon snap-top spacers (L) for re-use on the replacement PCB and place the Base PCB in an anti-static bag and keep safe until ready for dispatch.



5.7.1 Fitting the Replacement Base PCB

10 Taking suitable anti-static precautions and with the replacement Base PCB orientated correctly, offer it to the main chassis PCB enclosure. With the locating holes on the PCB lined up with the hank-bush studs, guide the Base PCB into position.

11 Using a No.1 Posidriv screwdriver starting with the top left corner, gently fix each of the seven (7) M3 x 10 SEM screws from step 8 screw in turn and then secure. DO NOT over-tighten.

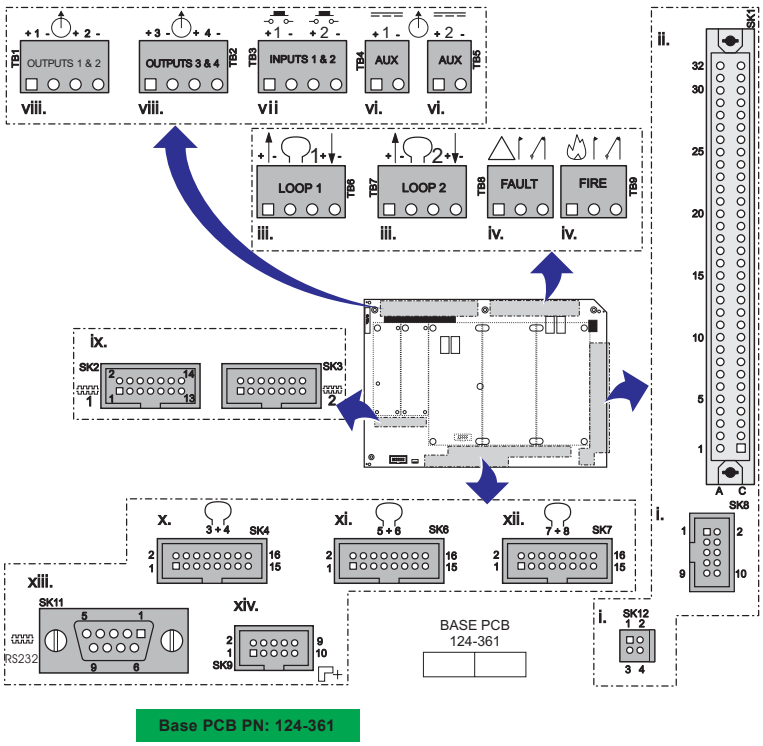
Note: Set the link settings on the replacement PCB to those noted in step 8.

12 Re-fit all PCBs removed in steps 5, 6 and 7 above. Re-fit the main chassis in the back box - using the reverse of the main chassis removal procedure.

13 With all items replaced and wiring and cabling re-terminated, reconnect earthing cables, **mains power first and then the batteries** to the panel.

5.7.2 Cables & Wiring

Disconnect/reconnect the following from the Base PCB:



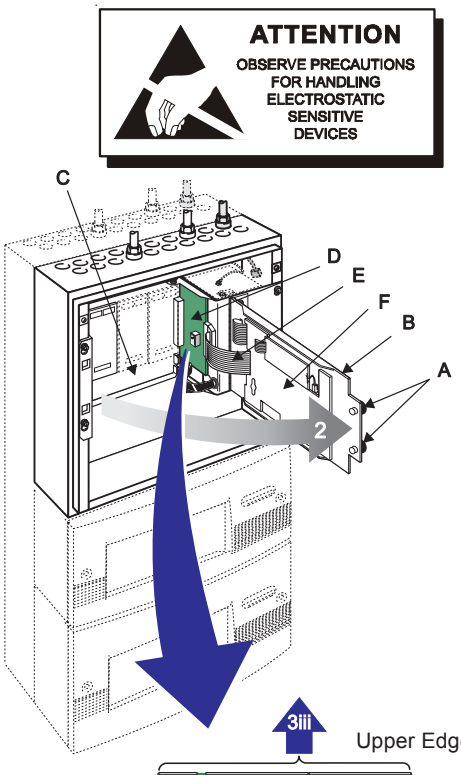
i. **Power sockets, SK8 and SK12 (from PSU or DTP).**
ii. **Data socket, SK1 (from Processor PCB).**
iii. **Loop Cabling connectors, TB6 and TB7 (Loops 1 & 2).**
iv. **Fault and Fire Relay sockets, TB8 and TB9.**
v. **Cover Off connector, SK10 (not used).**
vi. **Auxiliary sockets, TB4 and TB5.**
vii. **Input socket, TB3 (Input 1 only supported for VdS configuration).**
viii. **Output Sockets, TB1 and TB2.**
ix. **Comms sockets (A and B), SK2 and SK3 (from Isolated RS485 Interface PCB or Printer RS232 Interface PCB, if fitted).**
x. **Loop Cabling connector, SK4 (from Loops 3 & 4 Interface PCB, if applicable).**
xi. **Loop Cabling connector, SK6 (from Loops 5 & 6 Interface PCB, if applicable).**
xii. **Loop Cabling connector, SK7 (from Loops 7 & 8 Interface PCB, if applicable).**
xiii. **RS232 Off-line Configuration PC Connector, SK11.**
xiv. **Zone Expansion Socket, SK9 (refer to Section 5.5).**

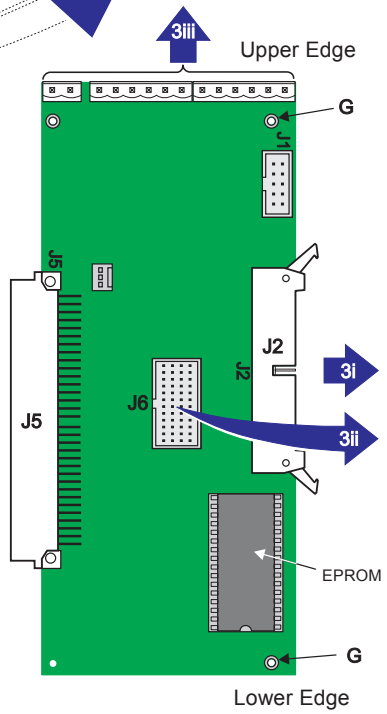
The selection of sounders or volt-free contacts, and normally-open or normally-closed, is described in Section 7.7. For volt-free contacts (outputs 3 & 4 only) the '-ve' terminal is common.

Make sure you have a PC back-up of the current configuration data.

WARNING - Disconnect ALL power from the ID3000 Series panel.

CAUTION - To avoid a system fault only use panel software version 4.6x, or later.





5.8 Processor PCB

The ID3000 Series Processor PCB controls and monitors all ID3000 Series Control Panel processing functions. The Processor PCB is electrically connected to the Display PCB and the Base PCB. The Processor PCB (PN: 124-360) engages a 64-way socket on the right-hand edge of the Base PCB and is held in place with two M3 x 8 SEM screws. Connection is provided to the Display PCB via a 34-way ribbon cable.

In the unlikely event that the Processor PCB needs replacing, follow the procedure described below using the PCB supplied as part of a spares kit (PN: 020-569).

Before starting, make sure you have a PC back-up of the panel's current configuration data.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

1 With the front cover moulding(s) removed **and all power disconnected**, proceed as follows:

2 Using a suitable-sized coin, release the two quarter-turn fasteners (A) located at the left-hand side of the main chassis front door (B). Open the door to gain access to the main chassis' PCB enclosure (C).

3 On the Processor PCB (D), at socket J2, disconnect the 34-way ribbon cable (E) from the Display PCB (F). Third layer PCB(s) if fitted, have to be removed at socket J6.

Note: If applicable, the wiring on the upper edge of the Processor PCB may have to be disconnected.

4 Using a No.1 Posidriv screwdriver, remove the two M3 x 8 SEM screws located in the two right-hand corners (G) of the Processor PCB and place in an anti-static bag.

Note: The Processor PCB is held in position until withdrawn from the 64-way socket on the Base PCB.

5 Using a constant and firm pulling action, withdraw the Processor PCB from the main chassis PCB enclosure and place in an anti-static bag.

6 With the replacement Processor PCB correctly orientated (see lower drawing), offer the PCB to the right-hand edge socket SK1 on the Base PCB. Ensure the connector J5 cleanly engages the Base PCB socket SK1. Once in position, replace the two screws (G) and secure.

7 Re-connect the 34-way ribbon cable between the Processor PCB and Display PCB.

8 Close the main chassis front door. Re-connect mains power and the batteries. If no faults exist, the following message is displayed in the bottom left-hand corner of the LCD:

UNCONFIGURED

9 If no faults exist, use the Off-line Configuration Program to download your previous system configuration data. If any faults exist, consult the ID3000 Series Operating Manual (ref. 997-505-000-X), or your supplier if the problem persists.

10 If panel status is normal, replace the front cover moulding(s).

5.9 Loop Interface PCB

The Loop Interface PCB (PN: 124-323) provides two additional fire detection device loops. The Loop Interface PCB is located within the main chassis PCB enclosure, adjacent to the Base PCB. The PCB is secured in position using four metal spacers and four Posi SEM screws, which are provided in the Loop Interface PCB kit (PN: 020-588). For backward compatibility the kit also contains three nylon snap-top spacers; these are not used in this application.

To fit the Loop Interface PCB follow the instructions below.

Before starting, make sure you have a PC back-up of the panel's current configuration data.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

With the front cover moulding(s) removed (see **Section 2.7**) **and ALL power disconnected**, proceed as follows:

1 Using a suitable-sized coin, release the two quarter-turn fasteners (A) located at the left-hand side of the main chassis front door (B). Open the door to gain access to the main chassis' PCB enclosure (C) containing the Base PCB (D).

2 If the location at which the Loop Interface PCB is to be fitted is obstructed by a 3rd-layer PCB (future development), remove the PCB to gain access to the mounting location.

3 Fit the four supplied hexagonal metal spacers (E) to the Base PCB as follows: Insert one spacer in each of the two holes either side and above socket connector SK4, SK6 or SK7 (use left-most vacant position), then fit the remaining spacers in each of the two holes directly above these spacers. Tighten down fully using a 5.5mm Hex socket tool.

4 Observing anti-static precautions, remove the Loop Interface PCB from its packaging. If, after inspection, no damage has occurred in transit and with it correctly orientated, position it so that its mounting holes (F) are directly above the spacers. Secure the PCB to these spacers using the M3 x 8mm SEM screws (G). If a 3rd-layer PCB is to be fitted or refitted at this location, do not fit the screws to the left-hand spacers, instead fit the spacers (H) supplied with the 3rd-layer PCB and fit the 3rd-layer PCB in accordance with its instructions.

5 Make all necessary wiring and cabling connections to the Loop Interface PCB - see details below.

6 If no other PCBs require fitting, close and secure the main chassis front door, re-connect mains power and the batteries and replace the front cover moulding(s).

7 To replace the Loop Interface PCB, first reverse the above procedure, steps 4 to 6, and then fit the replacement Loop Interface PCB using steps 4 to 6.

5.9.1 Cables and Wiring

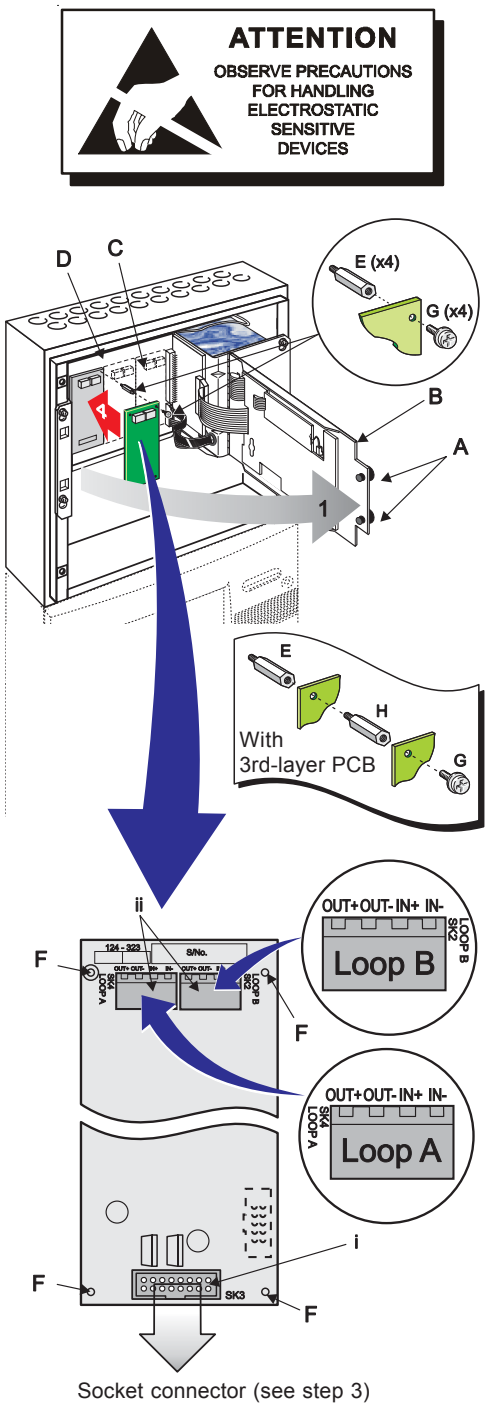
8 Make the following cable and wiring connections to the Loop Interface PCB:

i Ribbon cable from socket SK3 to Base PCB socket connector (see step 3).

ii Loop cable terminations at sockets TB4 and TB2.

Make sure you have a PC back-up of the current configuration data

WARNING - Disconnect ALL power from the ID3000 Series panel



Socket connector (see step 3)

Loop Interface PCB - Part Number 124-323

5.10 Enhanced Loop Interface PCB

The Enhanced Loop Interface PCB (PN: 124-292) provides two additional fire detection device loops. The Enhanced Loop Interface PCB is located within the main chassis PCB enclosure, adjacent to the Base PCB. The PCB is secured in position using four metal spacers and four Posi SEM screws, which are provided in the Enhanced Loop Interface PCB kit (PN: 020-549).

To fit the Enhanced Loop Interface PCB follow the instructions below.

Before starting, make sure you have a PC back-up of the panel's current configuration data.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

With the front cover moulding(s) removed (see **Section 2.7**) **and ALL power disconnected**, proceed as follows:

1 Using a suitable-sized coin, release the two quarter-turn fasteners (A) located at the left-hand side of the main chassis front door (B). Open the door to gain access to the main chassis' PCB enclosure (C) containing the Base PCB (D).

2 If the location at which the Enhanced Loop Interface PCB is to be fitted is obstructed by a 3rd-layer PCB (future development), remove the PCB to gain access to the mounting location.

3 Fit the four supplied hexagonal metal spacers (E) to the Base PCB as follows: Insert one spacer in each of the two holes either side and above socket connector SK4, SK6 or SK7 (use left-most vacant position), then fit the remaining spacers in each of the two holes directly above these spacers. Tighten down fully using a 5.5mm Hex socket tool.

4 Observing anti-static precautions, remove the Enhanced Loop Interface PCB from its packaging. If, after inspection, no damage has occurred in transit and with it correctly orientated, position it so that its mounting holes (F) are directly above the spacers. Secure the PCB to these spacers using the M3 x 8mm SEM screws (G). If a 3rd-layer PCB is to be fitted or refitted at this location, do not fit the screws to the left-hand spacers, instead fit the spacers (H) supplied with the 3rd-layer PCB and fit the 3rd-layer PCB in accordance with its instructions.

5 Make all necessary wiring and cabling connections to the Enhanced Loop Interface PCB - see details below.

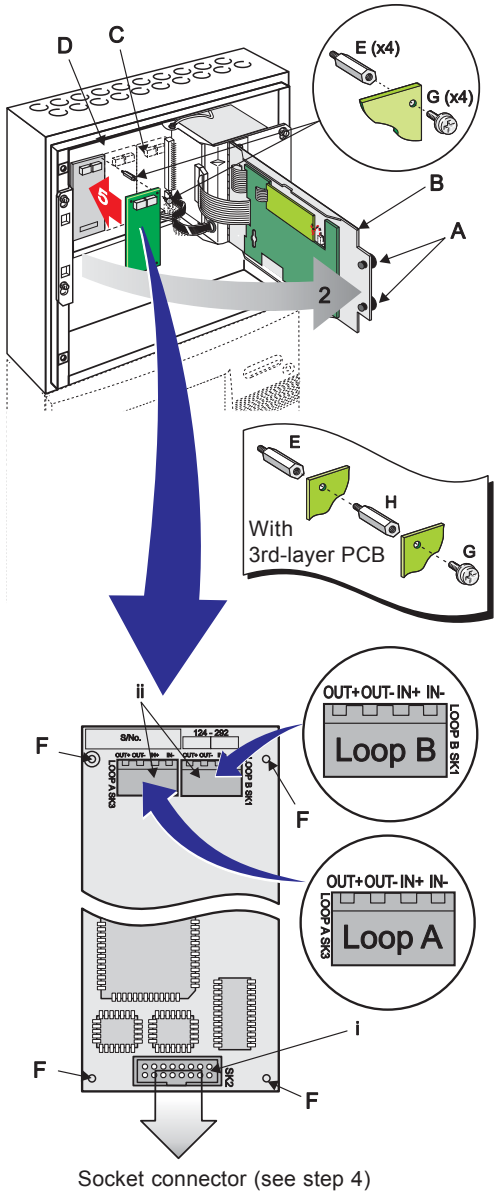
6 If no other PCBs require fitting, close and secure the main chassis front door, re-connect mains power and the batteries and replace the front cover moulding(s).

7 To replace the Enhanced Loop Interface PCB, first reverse the above procedure, steps 4 to 6, and then fit the replacement Enhanced Loop Interface PCB using steps 4 to 6.

Make sure you have a PC back-up of the current configuration data

WARNING - Disconnect ALL power from the ID3000 Series panel

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES



Socket connector (see step 4)

Enhanced Loop Interface PCB - Part Number 124-292

EN54-2: 13.7
Maximum of 512 Sensors and/or MCPs per panel unless ELIBs are used.

To comply with the requirements of EN54, an Enhanced LIB PCB **must** be replaced by another Enhanced LIB PCB - refer to **Section 11.2.2 Number of Loops on Panel** of the Panel Configuration Manual.

5.10.1 Cables and Wiring

8 Make the following cable and wiring connections to the Enhanced Loop Interface PCB:

i Ribbon cable from socket SK2 to Base PCB socket connector (see step 3).

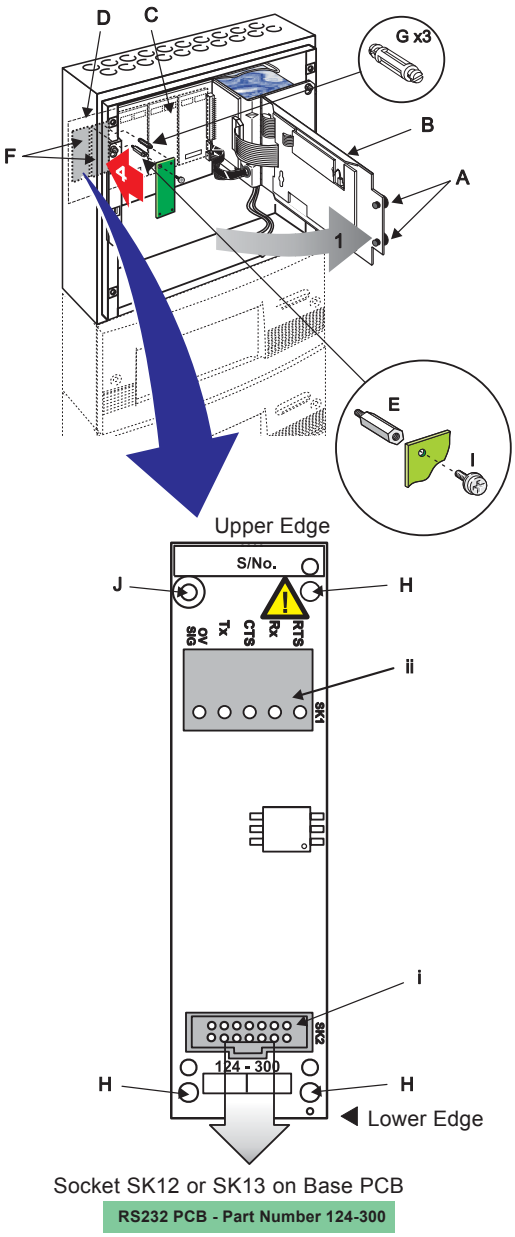
ii Loop cable terminations at sockets SK3 and SK1.

5.11 Isolated RS232 Interface PCB

Make sure you have a PC back-up of the current configuration data

WARNING - Disconnect ALL power from the ID3000 Series panel

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES



Socket SK12 or SK13 on Base PCB

RS232 PCB - Part Number 124-300

The ID3000 Series Isolated RS232 Interface PCB (PN: 124-300) enables connection of the ID3000 Series Fire Control Panel to an external printer, terminal or third-party-protocol station. The RS232 Interface PCB is located adjacent to and at the left-hand side of the Base PCB. The PCB is secured in position using one metal spacer and SEM screw and three nylon snap-top spacers, all provided with the Isolated RS232 Interface PCB kit (PN: 020-478).

To fit the Isolated RS232 Interface PCB follow the instructions below. Only one Isolated RS232 Interface PCB is supported.

Before starting, make sure you have a PC back-up of the panel's current configuration data.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

With the front cover moulding(s) removed (see **Section 2.7**) **and power disconnected**, proceed as follows:

1. Using a suitable-sized coin, release the two quarter-turn fasteners (A) located at the left-hand side of the main chassis front door (B). Open the door to gain access to the main chassis' PCB enclosure (C) containing the Base PCB (D).
2. Fit the metal spacer (E) through the Base PCB to the top left fixing position of either PCB mounting location (F). Tighten down fully using a 5.5mm Hex socket tool.
3. Fit the three supplied nylon snap-top spacers (G) through the Base PCB by pushing them firmly into place until they snap into position.
4. Observing anti-static precautions, remove the RS232 Interface PCB from its packaging. If, after inspection, no damage has occurred in transit and with it correctly orientated, carefully offer the PCB to the three snap-top spacers described in step 3. Working in a clockwise direction, carefully push the PCB onto the snap-top spacers (positions H) until the PCB is secure.
5. Use the M3 x 8mm SEM screw (I) to secure the Isolated RS232 PCB to the metal spacer (position J).
6. Make all necessary wiring connections to the Isolated RS232 Interface PCB - see details below.
7. If no other PCBs require fitting, close and secure the main chassis front door, re-connect mains power and the batteries and replace the front cover moulding.
8. To replace the Isolated RS232 Interface PCB, first reverse the above procedure, steps 4 to 7, and then fit the replacement PCB using steps 4 to 7.

5.11.1 Cables and Wiring

9 Make the following wiring connections to the Isolated RS232 Interface PCB:

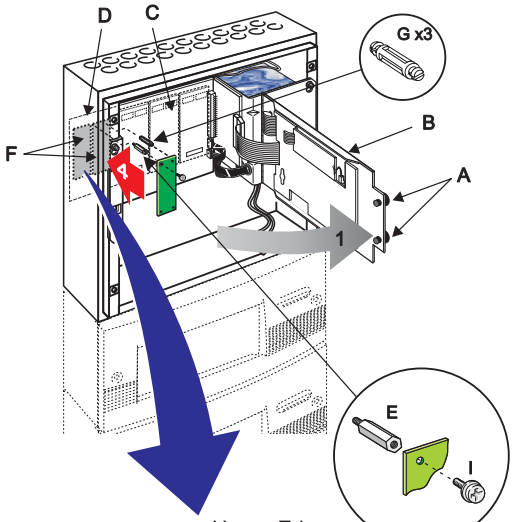
i. Ribbon cable at socket SK2 from the Base PCB socket SK2 or SK3.

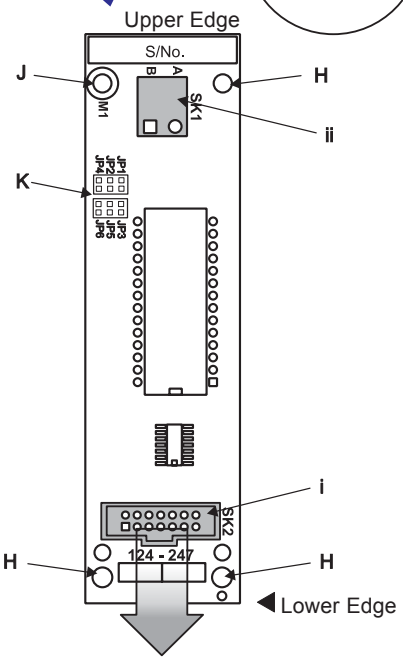
CAUTION: This RS232 port is intended for connection to external equipment such as a printer, terminal or 3rd-party protocol equipment. All such equipment must be suitably protected against electric shock. Voltages on the interconnections must not exceed 42V peak or 60V dc under normal or single fault conditions.

ii. Use a screened multi-core cable (see **Section 3.2.2 Quality of Cable and of Cable Installation** for recommended types) to connect external third-party equipment. **The 0V SIG terminal should not be connected to the screen**. The screen should be connected to the back box either through a suitable metal gland or using the optional earth termination block.

Make sure you have a PC back-up of the current configuration data

WARNING - Disconnect ALL power from the ID3000 Series panel





Socket SK2 or SK3 on Base PCB

RS485 PCB - Part Number 124-247

5.12 Isolated RS485 Interface PCB

The ID3000 Series Isolated RS485 Interface PCB (PN: 124-247) enables the ID3000 Series Fire Control Panel to be networked to other ID3000 Series control panels (via Master/Slave network) or the connection of ID3000 Series repeater panels. The Isolated RS485 Interface PCB is located adjacent to and at the left-hand side of the Base PCB. The PCB is secured in position using one metal spacer and SEM screw and three nylon snap-top spacers, all provided with the Isolated RS485 Interface PCB Kit (PN: 020-479).

To fit the Isolated RS485 Interface PCB follow the instructions below. Only one Isolated RS485 Interface PCB is supported.

Before starting, make sure you have a PC back-up of the panel's current configuration data.

Ensure you take appropriate anti-static precautions before undertaking this procedure.

With the front cover moulding(s) removed (see **Section 2.7**) **and ALL power disconnected**, proceed as follows:

1 Using a suitable-sized coin, release the two quarter-turn fasteners (A) located at the left-hand side of the main chassis front door (B). Open the door to gain access to the main chassis' PCB enclosure (C) containing the Base PCB (D).

2 Fit the metal spacer (E) through the Base PCB to the top left fixing position of either PCB mounting location (F). Tighten down fully using a 5.5mm Hex socket tool.

3 Fit the three supplied nylon snap-top spacers (G) through the Base PCB by pushing them firmly into place until they snap into position.

4 Observing anti-static precautions, remove the RS485 Interface PCB from its packaging. If, after inspection, no damage has occurred in transit and with it correctly orientated, carefully offer the PCB to the three snap-top spacers described in step 3. Working in a clockwise direction, carefully push the PCB onto the snap-top spacers (positions H) until the PCB is secure.

5 Use the M3 x 8mm SEM screw (I) to secure the Isolated RS485 PCB to the metal spacer (position J).

6 Make all necessary wiring connections to the Isolated RS485 Interface PCB - see details below.

7 If no other PCBs require fitting, close and secure the main chassis front door, re-connect mains power and the batteries and replace the front cover moulding.

8 To replace the Isolated RS485 Interface PCB, first reverse the above procedure, steps 4 to 7, and then fit the replacement RS485 Interface PCB using steps 4 to 7.

Note: Refer to **Section 6, Repeaters and Networking**, for details of the jumpers (K).

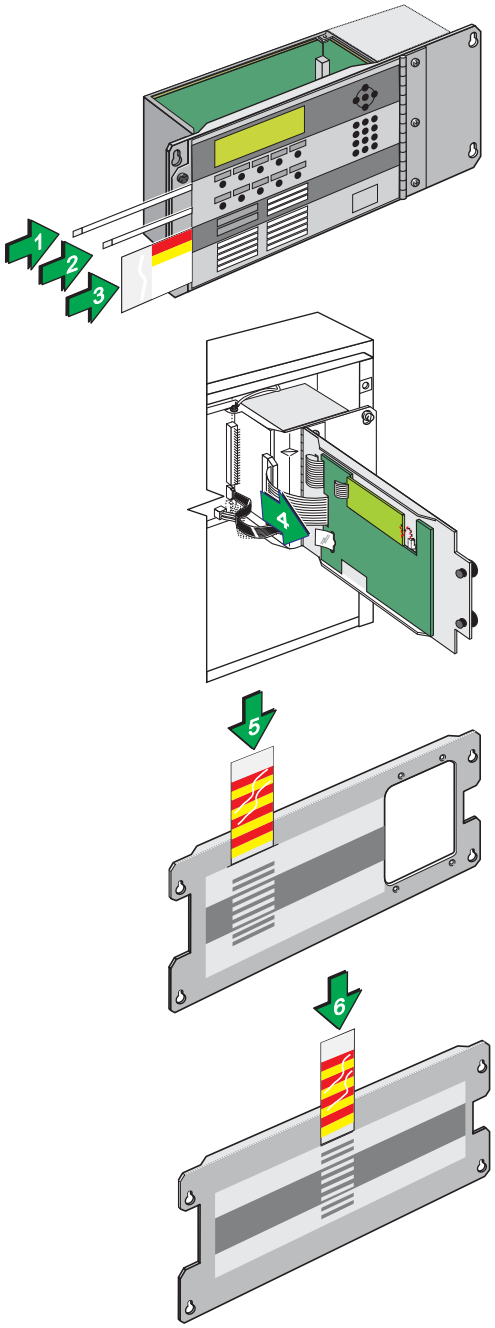
5.12.1 Cables and Wiring

9 Make the following wiring connections to the Isolated RS485 Interface PCB:

i Ribbon cable at socket SK2 from the Base PCB socket SK2 or SK3.

ii Cable at socket SK1 from the next station on the network (as applicable).

5.13 Label Inserts



Four label inserts are supplied in the packaging that contains the manuals. These inserts must be slid into the appropriate slots in the panel as follows:

1 Making sure that the text (see note below) is the correct way up and that it is facing forwards, slide the **upper buttons** label insert into the slot beside the pushbuttons.

Note: This label insert includes the MUTE BUZZER pushbutton text through to the RESET pushbutton text.

2 Making sure that the text (see note below) is the correct way up and that it is facing forwards, slide the **lower buttons** label insert into the slot beside the pushbuttons.

Note: This label insert includes the DAY MODE pushbutton text through to the ZONES IN ALARM pushbutton text.

3 Slide the **lower left** label insert into the slot beside the LEDs. Make sure that the text (see note below) is the correct way up and that it is facing forwards.

Note: This label insert includes the FIRE LED text through to the NON-FIRE ACTIVE LED text.

4 Open the door and slide the **lower right** label insert into the slot below and to the right of the display ribbon cable. Make sure that the text (see note below) is the correct way up and that it is facing forwards. Close the door.

Note: This label insert identifies the panel and its period of manufacture.

For installations which have zone LEDs, appropriate label inserts are supplied with the panel options:

5 For extension panels with 64 LEDs, slide the insert into the slot above and to the left of the zone LEDs. Make sure that the text is the correct way up and that it is facing forwards.

Note: This insert contains four sets of ZONE FIRE and ZONE FAULT/DISABLE/TEST text.

6 For extension panels with 128 LEDs, slide the insert into the slot located in the top, mid-position of the fascia. Make sure that the text (see note below) is the correct way up and that it is facing forwards, i.e. away from you when viewing the rear of the chassis door.

Note: This insert contains four sets of ZONE FIRE and ZONE FAULT/DISABLE/TEST text.

EN54-2: 12.5 Integrity of transmission paths. The Master/Slave network does not provide the required transmission path integrity.

6 Repeaters and Master/Slave Network

An ID3000 Series Master/Slave network comprises a master panel and up to a maximum of thirty one other network stations, consisting of slave panels and/or repeaters, communicating via an RS485 serial data link. The maximum number of panels that can be networked is eight: one master panel and seven slaves.

6.1 Connecting Repeaters

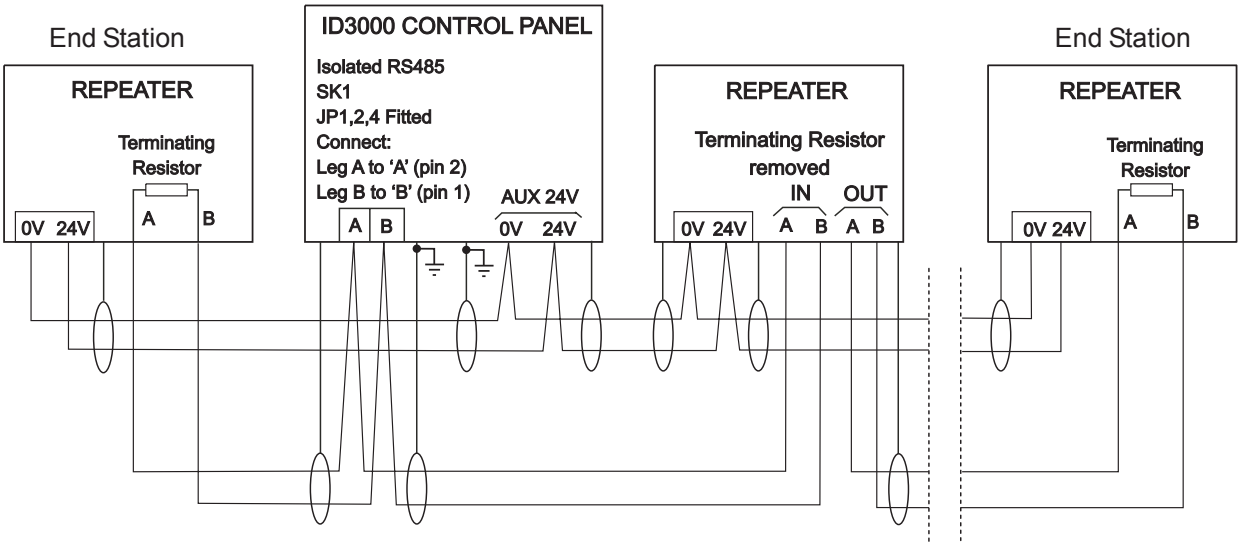
Each ID3000 Series control panel is capable of communicating with up to thirty one repeater panels connected in a 'daisy chain' arrangement.

The termination resistor must be disconnected, from all stations except the two end stations. Do this as follows:

1 If the control panel is NOT an end station, ensure the jumper link is fitted in position JP1/2/4 (OFF) on the isolated RS485 PCB - this disconnects the line-terminating resistor. If the panel is an end station, ensure the jumper link is fitted in position JP3/5/6 (ON).

2 At intermediate repeater stations, disconnect the line-terminating resistor as described in the repeater manual. Repeaters at the end of the network must have the terminating resistors fitted.

Note: End stations can be repeater panels or fire control panels (master or slave) or a combination of these, depending upon your particular system configuration.



6.2 Master/Slave Network Connections

The Master/Slave Network master and slave panels use RS485 signalling to communicate with each other and with the repeaters. The Network master panel, slave panels and repeaters must be connected in a 'daisy chain' arrangement.

The termination resistors must be disconnected from all stations except the two end stations, as described for repeaters in **Section 6.1 Connecting Repeaters**.

The Master/Slave network can comprise a mixture of ID3000 Series panels, ID2000 Series panels, ID1000 Series panels and repeaters all connected via the RS485 communication link. The following rules concerning Earth Fault Monitoring (see **Section 7.6 Earth Fault Monitoring**) must be followed:

a. The repeaters can be powered from the Auxiliary Supply Output of the ID3000 or ID2000 Series panels or an external PSU without causing an Earth Fault. However, if the repeaters are powered from an external supply, then this supply must be isolated.

b. The Earth Fault Monitoring can be enabled on the individual ID3000 or ID2000 Series panels on the network but any ID1000 Series panel on the network MUST have its Earth Fault Monitoring is disabled.

c. If an Earth Fault occurs anywhere on the network then any panel with its Earth Fault Monitoring enabled may report the Fault.

Note: This is not true for networks that contain only isolated RS485 connections. In this case, the fault will be localised to the faulty panel.

d. If any RS485 device other than a repeater or ID1000 Series panel is connected to the network, it MUST be an isolated device.

EN54-2 : 8.2.4c. Earth Fault Monitoring is required.

7 Commissioning

7.1 Introduction

To bring the panel into an operational state ready for configuration, follow the steps detailed below. Information on how to configure the panel is given in the ID3000 Series Panel Configuration Manual (ref. 997-506-XXX).

The ID3000 Series panels provide comprehensive fault monitoring and diagnostic routines which will prove very useful during commissioning of the system. The diagnostic messages, which are displayed on the LCD, are listed in Appendix 1.

The following must be remembered about FAULT conditions when commissioning the ID3000 Series control panels.

Faults can result from:

a. A configuration mismatch between the installation design and panel set up, or

b. External conditions, such as the proximity of a strong RFI source, having an adverse affect on the panel, or

c. The failure of a panel module, such as the PSU or Processor PCB.

Appendix 1 provides guidance to assist you in identifying faults that fall into the categories described above.

7.2 Preliminary Checks

Before initial power connection, check that:

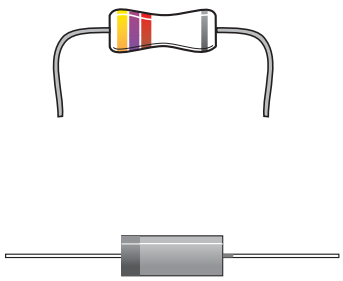
1 All circuit boards are correctly fitted.

2 All internal wiring connectors are properly mated.

3 The loop wiring and external output circuits have NOT, at this stage, been connected.

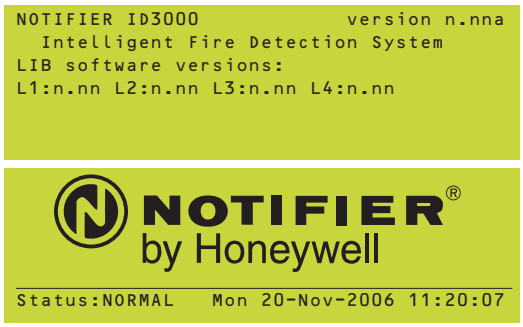
4 Output circuits 3 and 4 are configured as relays if so required.

5 The appropriate end-of-line devices are connected to the sounder outputs. For backwards compatibility, the default is set (jumper link fitted to JP11 on the left-hand edge of the Base PCB) for 4k7 resistor end-of-line devices. However, if the requirements of EN54-13 (this requires the ability to monitor for partial-open and partial-short circuit faults) these resistors are to be replaced by diode end-of-line devices*. To change the panel default from resistor to diode the link needs to be removed from JP11.



* A diode is provided for each sounder circuit should this option be required.

7.3 Powering the Panel



1 Connecting power, ALL front panel LED indicators should be extinguished with the exception of the green 'POWER' LED.

2 View the liquid crystal display. It should momentarily display the start-up message 'NOTIFIER ID3000 Version x.xx Intelligent Fire Detection System' where 'x.xx' is the software version number, together with the version numbers of the Loop Interface Boards. The display should then read 'Status: NORMAL (Date and time)' unless faults are present on the system (if the panel has already been configured, then faults indicating the loss of all loop devices will be shown).

Note: If faults are shown (other than the loss of loops on a configured panel and battery failure), these must be cleared before you proceed further with the commissioning procedure.

3 Externally isolate the AC mains supply at the third-party-supplied isolation unit.

7.4 External Wiring

Refer to the appropriate module cable and wiring instructions to identify the terminals for cable connections:

5.7.2 Base PCB Cables and Wiring. (Loops 1 & 2, Sounder ouputs 1 to 4, Auxiliary outputs 1 & 2, Fault Relay and Fire relay outputs).

5.9.1 Loop interface PCB Cables and Wiring (loops 3 to 8).

5.10.1 Enhanced Loop interface PCB Cables and Wiring (Loops 3 to 8).

5.11.1 Isolated RS232 Interface PCB Cables and Wiring (RS232 output).

5.12.1 Isolated RS485 Interface PCB Cables and Wiring (RS485 output).

7.4.1 Introduction

There are five stages to commissioning the external wiring:

a. Checking the loop wiring for continuity, reversed devices, short circuits and open circuits.

b. Connecting the loop wiring to the panel.

c. Checking for faults after the loop wiring is connected to the panel.

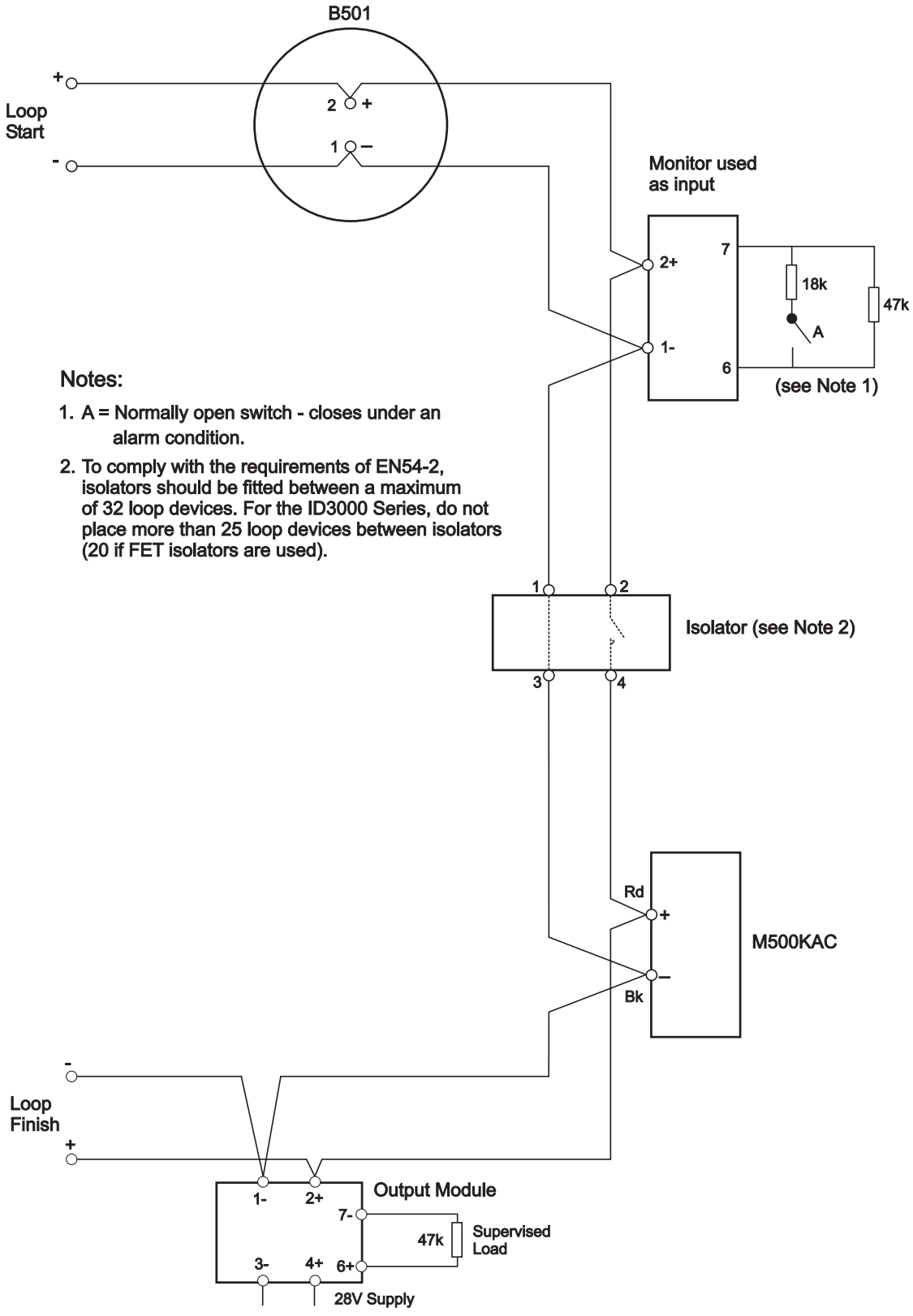
d. Checking the 24V auxiliary outputs wiring and selecting the resettable status.

e. Checking the sounder circuits.

Note: The total length of the communications loop pair cannot exceed 2000 metres.

7.4.2 Loop Checks Before Connecting Wiring

Typical connections of analogue addressable devices to a loop are shown below.



The loop wiring MUST be disconnected from the panel during this procedure.

For checking the loop wiring, do the following:

1 Link out any isolators on the loop by temporarily shorting terminals 2 and 4 on each isolator. The following tests should then be carried out using a multimeter.

2 Check the continuity of each leg of the loop and measure the end-to-end resistance. Verify that it is less than:

37 ohms to guarantee dual device detection

71 ohms if dual device detection is not required.

3 Using a meter with a diode test facility, connect the meter in 'reversed' polarity (+ve to loop -ve and -ve to loop +ve). The meter should indicate the presence of a number of forward-biased diodes in parallel.

4 Connect the meter in 'normal' polarity (+ve to loop +ve and -ve to loop -ve). The meter should initially read low resistance but this should increase as the capacitor in each of the loop devices charges. If the meter indicates the presence of a forward-biased diode then it is probable that one or more of the loop devices is connected in reversed polarity or the wiring is crossed.

5 If reversed device(s) are indicated in step 4, they may be located by successive halving of the loop (if the site layout makes this difficult, the affected section of the loop can be identified from the panel fault messages after the system has been configured and the links in the isolators removed).

6 Use a meter to check that there are no connections between each cable screen and:

a. The +ve conductor of the cable.

b. The -ve conductor of the cable.

Note: It is recommended that the cable screen is earthed at the panel only.

7.4.3 Connecting the Loop Wiring to the Panel

When the loop wiring has been checked and found to be satisfactory, do the following:

1 **Remove** the temporary links on the isolator units.

2 Connect the loop wiring to the panel. Ensure that the polarity is correct; the ends nominated as A and B must be fitted to the correct terminals.

7.4.4 Loop Checks After Connecting Wiring

When the loop wiring has been connected, do the following:

NEVER connect the batteries before the mains supply!

1 Re-connect the mains power - **NEVER connect the batteries before the mains supply**!

2 Check the LCD for indications of any faults. Refer to Appendix 1 for a list of system fault messages and possible causes.

7.4.5 24V Auxiliary Outputs Check

There are two monitored 24V Auxiliary Outputs. Before connecting any circuit to either of these outputs check that:

a. The external wiring is not short circuit.

b. There are no forward-biased diodes (as used for example with end-of line power monitoring relays) connected across the external wiring.

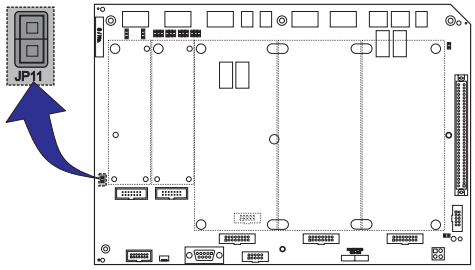
When connecting to the output, observe correct polarity!

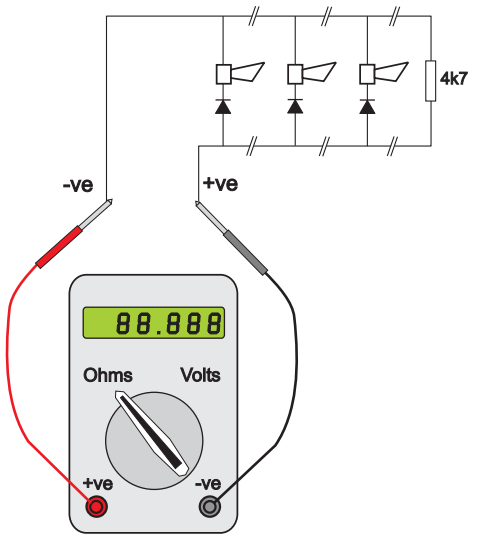
7.4.6 Sounder Circuit Outputs

The sounder cicuits are designed to work either with a resistor end-of-line (EOL) device (default) or, to comply with the requirements for partial shorts and open monitoring of EN54-13 (Compatibility Assessment of System Components), where a diode EOL device is required. If resistor EOL devices are to be used follow the first procedure described below. If diode EOL devices are to be used refer to the procedure described overleaf.

EN 54-2 : 7.8
If an EN54-2 monitored fire alarm routing output is required an unmonitored relay is not suitable - use a monitored routing output.

7.4.6.1 Using Resistor EOL Devices





Before the sounder circuits are connected it is recommended that all detection circuits have been checked and that there is no possibility of spurious alarm conditions being generated. The sounders should be polarized and suppressed using IN4002 (or similar) diodes and the circuits should be fitted with the 4k7 end-of-line resistors. Ensure that a jumper link is fitted to JP11(see at left). Perform the following checks:

1 Use a low-voltage multimeter to check the resistance across each of the sounder circuits:

i. With the meter connected in reverse polarity (+ve to '-ve' and -ve to '+ve') the reading should be 4k7.

ii. With the multimeter connected to the circuit in normal polarity (+ve to '+ve' and -ve to '-ve') the meter may indicate a lower value. This is because of the forward-biased diodes in series with the sounders.

Note: If this Base PCB is replacing the earlier version (PN:124-301) ensure that the wiring is reversed.

2 If electronic sounders are used this test will not reveal reversed devices. It is, therefore, recommended that if the circuit resistance appears correct, the following be done:

i. Remove the 4k7 resistors from the panel outputs.

ii. Connect the circuit to the panel output while observing correct polarity.

iii. Using a multimeter, measure the voltage across each sounder output circuit (as shown at left). The normal voltage reading should be between 5V and 8V. If any devices are reversed, a reading of between 1V and 2V will be indicated.

3 When the sounder circuits have been connected, the sounders may be tested using the 'END DELAY/ EVACUATE' button.

7.4.6.2 Using Diode EOL Devices

EN54-13 : 5.3.4.1, 5.3.4.2
Enablement of partial short- and open-circuit monitoring on sounder outputs.

The procedure described below is based on the following assumptions:

a. All sounder circuit cables are *in situ* with all sounders connected but not yet connected to the panel.

b. The sounders are of the electronic type, polarized and suppressed using IN4002 (or similar) diodes. For correct operation these sounder devices require a minimum of 15V.

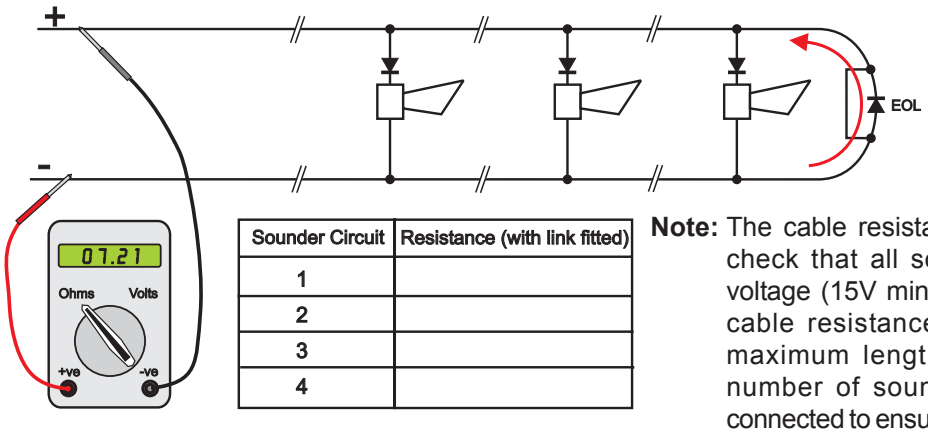
c. Ensure that no jumper link is fitted to JP11.

d. The supplied EOL diode is fitted to each sounder circuit - **not** the usual 4k7 resistor required with previous equipment.

Note: Before the sounder circuits are connected it is recommended that all detection circuits have been checked and that there is no possibility of spurious alarm conditions being generated.

Procedure:

1 Link out the end-of-line diode. Use a low-voltage multimeter, connected in reverse polarity (+ve to -ve and -ve to +ve), to measure the resistance of each sounder circuit cable.



Sounder Circuit	Resistance (with link fitted)
1	
2	
3	
4	

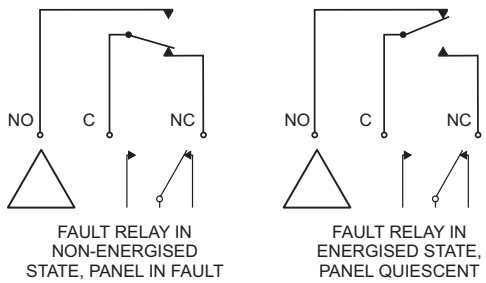
Note: The cable resistance must be measured to check that all sounders receive sufficient voltage (15V min) for correct operation. The cable resistance not only determines its maximum length but also the maximum number of sounder devices that can be connected to ensure correct sounder operation.

2 The sounder circuits are designed to operate with a maximum load current of 1A per circuit, subject to the limit of available power. The panel monitors the sounder circuits and will report a fault if the impedance of any sounder cable exceeds 13 Ohms (approx.).

Note: It is not possibe to trade higher cable impedance for lower load current - the impedance limit is fixed!

3 When the sounder circuits have been connected, the sounders may be tested as described on previous page.

7.4.7 Fault Relay Wiring



FAULT RELAY IN NON-ENERGISED STATE, PANEL IN FAULT

FAULT RELAY IN ENERGISED STATE, PANEL QUIESCENT

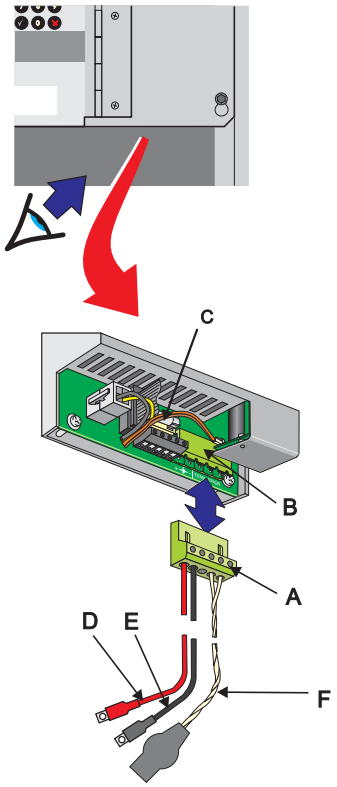
The markings for the Fault Relay connector TB8 on the Base Board refer to the non-energised state of the relay. This is the fault condition. In the panel's quiescent state, the relay is energised. Both states are shown in the illustration opposite. The illustration shows (between the text and the NO, C and NC) the PCB artwork for the Fault Relay while in the non-energised state.

Back Box Size	Yuasa
Standard back box	12Ah
Extended/double extended back box	17Ah
Extended deep/ double-extended deep back box	38Ah
Standard back box Extension	17Ah
Deep back box Extension	38Ah
Externally Mounted Battery Cabinet	130Ah

CAUTION- ENERGY HAZARD! NEVER short the battery terminals.

CAUTION- RISK OF EXPLOSION! If battery is replaced with an incorrect type.

NEVER connect the batteries before the mains supply!



7.5 Batteries

The ID3000 Series control panel is designed for optimum performance when used with either the Yuasa-NP range of backup batteries. The panel back boxes have space provision for two 12V batteries; the deepest back box sizes being capable of holding two Yuasa-NP 38Ah-sized battery units.

The maximum battery ratings for the available back box options are shown in the table at left. For larger battery requirements, use an external PSU with 78Ah Enclosure or for 130/70Ah batteries, an externally mounted battery cabinet.

The batteries are not supplied with the panel. A valve-regulated, lead-acid type MUST be used.

7.5.1 Connecting the Batteries

The procedure below describes connection of batteries to the Kit PSU3A only. For PSUs other than the Kit PSU3A, refer to the instructions provided with the PSU. To connect the batteries:

1 Externally isolate the AC mains supply at the third-party-supplied isolator unit and fit the batteries in the back box.

2 With the batteries in place, disconnect the battery and thermistor leads by removing the four-way plug connector (A) from the PSU output socket (B) - adjacent to the battery fuse (C). Disconnect the leads from the connector then measure and cut them to the correct length as follows:

a. For the battery leads (D and E), measure from the PSU output socket to the rear terminal of each battery, i.e. one positive and one negative.

b. For the thermistor leads (F), measure from the PSU output socket to a position on the side wall - NOT the top plate - of the right-hand battery.

In both cases, the leads must be made as short as possible. The thermistor should be secured to the side wall of the battery using a suitable silicon-based sealant.

To obtain optimum EMC protection, run the thermistor and battery wiring close to the rear corner of the back box. Secure the wiring with the supplied self-adhesive cable clips.

Reconnect the battery and thermistor leads to the plug, then reconnect the plug to the PSU output socket. Connect the red (D) and black (E) leads to the free positive and negative battery terminals respectively.

DO NOT connect the wire link between the batteries at this stage!

3 Turn on the ac mains supply and verify that after power-up the panel indicates 'POWER SUPPLY FAULT'. This may take up to 20 seconds.

4 Connect the batteries in series (+ve of one to -ve of the other) using the wire link supplied.

Note: When the batteries are connected the panel performs a battery wiring integrity test. If this test fails BATTERY FAILURE is diplayed on the LCD. Check for poor battery wiring connections and remedy. If the batteries require

charging the test is suspended for a period of 12 hours and re-applied. If the batteries have not reached the required minimum voltage the warning is displayed to indicate that the batteries may need replacing.

5 Reset the panel and check that the status returns to 'NORMAL'.

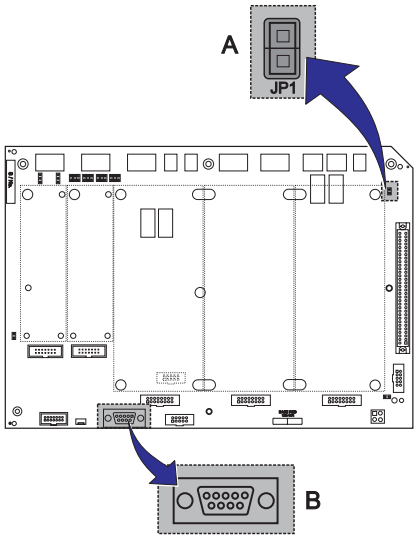
7.5.2 Battery Disposal

As a minimum, replace the batteries every four years.

The battery units should always be disposed of in accordance with the battery manufacturer's recommendations and local regulations.

7.6 Earth Fault Monitoring

EN54-2 : 8.2.4c. Earth Fault Monitoring is required.



The ID3000 Series panels are fitted with an earth fault monitoring circuit located on the Base PCB. Earth fault monitoring should be enabled during normal operation; this is the default condition and is indicated by a fitted jumper link on JP1 (A) in the top right-hand corner of the Base PCB. To disable the earth fault monitoring, remove the link. The presence of an earth fault is also indicated by a yellow LED next to JP1.

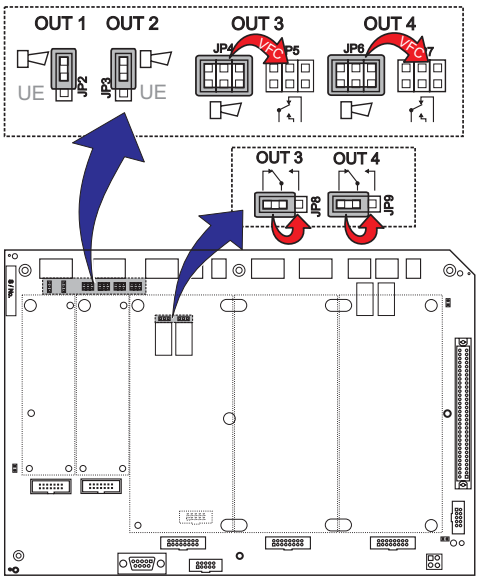
Warning: If an earth fault already exists, DO NOT attempt to connect additional equipment likely to cause earth faults as damage may result, i.e. inhibiting the monitoring will not protect the equipment.

Note: Direct connection of a VDU etc. to the RS232 serial port D-type plug connector P1 (B), located on the Base PCB lower edge, will result in an earth fault and potential damage to the connecting equipment. This fault can be removed by use of an isolated RS232 link or by (temporarily) disabling the earth leakage detection. Wait for at least one minute after disabling the earth fault monitoring circuit before plugging into P1.

The diagnostic RS232 serial port connector P1 is NOT an isolated port.

Important Notice

The diagnostic RS232 serial port (connector P1) is NOT isolated. It must only be used to connect the Off-line Configuration Tool PC or any other suitably-isolated device.

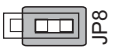
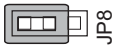
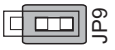
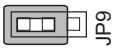


EN54-2 : 8.2.5a/b/8.2.4f. Outputs configured as volt-free contact are not monitored, so are not suitable for use to activate fire alarm devices such as sounders, fire alarm routing equipment, or fire alarm protection equipment.

7.7 Volt-free Contact Output Option

Two ID3000 Series control panel sounder circuits, i.e. sounder circuits 3 and 4, can be configured to provide a volt-free, normally-open or normally-closed contact.

For either sounder circuit, the configuration changes are carried out on the Base PCB simply by moving up to two jumper links. The link setting instructions are defined in the table below. These changes must only be made with the system powered down. The changes become effective automatically on power-up.

Output	Fit Jumper Links over:	For Normally Open	For Normally Closed
3	JP5 JP8 →		
4	JP7 JP9 →		

7.8 Repeaters

Commission the repeaters as described in the repeater manual.

7.9 Configuration and Handover

After all external wiring has been connected to the panel and the status is 'NORMAL', the panel can be configured for the particular system requirements. Information on configuring the panel is given in the ID3000 Series Panel Configuration Manual (ref. 997-506-XXX).

After configuration has been completed and any faults revealed have been rectified, the system will be ready for commissioning tests, as required by the appropriate standards, prior to handover to the user.

7.10 System Test

On completion of all commissioning procedures described in this section, you must now perform:

a. Zone walk tests

b. Control output tests

7.10.1 Zone Walk Test

Refer to the ID3000 Series Operating Manual (ref. 997-505-XXX) **Section 6.2, Zone Walk Test** for further details.

7.10.2 Control Output Test

Refer to the ID3000 Series Panel Configuration Manual (ref. 997-506-XXX) **Section 12.1, Control Output Test** for further details.

8 Maintenance

Create a logbook in accordance with the recommendations of EN54 Part 14. A logbook page layout, based on these guidelines and showing the typical information required to be entered, is provided in the ID3000 Series Operating Manual (997-505-XXX) Appendix 1. This logbook should be used and maintained for recording events as described below.

8.1 Routine Testing

In order to ensure that the system is fully operational, and to comply with the requirements of EN54 Part 14 and BS 5839 Part 1: 1988, the following routine attention is recommended:

Daily - Check the panel to ascertain that it indicates normal operation. If any fault is indicated check that it has been recorded in the log book and that the appropriate actions have been taken, e.g. informing the maintaining company.

Weekly - Test at least one sensor or call point to confirm the operation of the panel and the audible alarms. Test a different zone each week and, if possible, a different device. Keep a record of the device and zone tested each week. Record and report any malfunction.

Quarterly - The responsible person should ensure that every three months the system is checked by a competent person who shall:

a. Check the log book entries and any action taken.
b. Check the standby batteries and the charger voltage.
c. Test at least one device in each zone to check the panel functions.
d. Check the operation of the audible alarms and any link to a remote manned centre, Central Station, etc.
e. Carry out a visual inspection of the installation to check for alterations or obstructions and issue a certificate of testing.
f. Enter access level 3 to check whether a 'Maint.' tab is present and, if so, investigate the messages displayed there.

Annually - The responsible person should ensure that, in addition to the quarterly checks, each device on the system is tested and that a visual inspection is made of the cable fittings and equipment.

8.2 Batteries

As a minimum, replace the batteries every four years. The battery units should always be disposed of in accordance with the battery manufacturer's recommendations and local regulations.

8.3 Cleaning

The panel case may be cleaned periodically by wiping with a soft, damp lint-free cloth. **Do not** use any solvents.

Appendix 1

FAULT MESSAGES AND MEANINGS

1.1 Fault Messages - Possible Causes & Remedies

1.1.1 Loop Faults

Loop Card Hardware

System Fault 1 - Loop-CPU Fault
Driver Fault
Panel Fault 5 - Power Restart
System Fault 29 - LIB ROM Checksum
These fault messages indicate a loop PCB failure.

Action: Replace the loop PCB (PN: 020-588).

Panel Fault 17 - Card Missing

Loop PCB missing or failed to respond. Possible causes are:

a. Wrong ribbon cable connected
b. Ribbon cable disconnected
c. Loop PCB failure

Action: For last case, change the loop PCB (PN: 020-588).

Loop Wiring Installation

Short Circuit

A short circuit has occurred on loop X between the panel and isolator (if fitted). If isolators are fitted, the system shows NO REPLY/MISSING for the devices located between the isolation points, or LOSS OF PART LOOP if more than three devices are missing. If LOSS OF PART LOOP occurs, a fault display for each missing device is available.

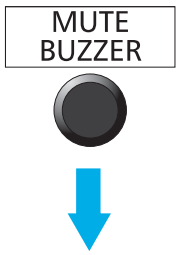
Action: Disconnect the affected section of the loop and use a meter to find the fault.

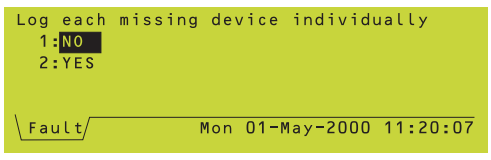
Note: Because isolators disconnect the affected section, a short circuit between two isolators is reported as a 'Suspected Break'.

Dev#0 Present

This indicates that a device has been installed without setting a valid address, i.e. left at factory default of '00'.

IF 'LOSS OF PART LOOP' THEN PRESS





SELECT YES TO ACCESS FAULT DISPLAYS FOR EACH MISSING DEVICE

Signal Degraded

Data returned from a loop device is being corrupted over a period of time.

Action - Check:

a. The continuity of loop screens.

b. The screen is connected to earth at one point only (normally at the panel).

Note: The default time is one hour. After a reset, it will be one hour before this fault is re-reported.

1.1.2 Terminal Link

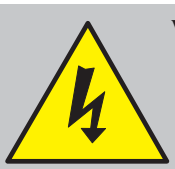
Terminal Link Fault

This fault indicates that the peripheral unit connected to the third-party-protocol RS232 port has not responded to the enquiry code sent or the link to the third-party equipment is not connected (this would normally indicate a fault in the external device).

Action: First check the cable. If this is OK, then replace the unit with an RS232 monitor or device that is known to work. If this checks out OK, replace unit. If not, change the RS232 Module (PN: 020-478).

Note: Monitoring of this link is a configurable option.

1.1.3 Power Supply Faults



WARNING Risk of electric shock. Before working on mains connections, ensure mains power supply to the panel is disconnected.

Mains/PSU Failure

This indicates that the incoming supply has failed. Check for the following:

a. Faulty PSU.

b. Failed 230VAC mains supply.

PSU/Charger Fault
Battery Low Voltage
Battery Failure

These faults indicate the occurence of one or more of the following:

a. Faulty or disconnected batteries. If discharged batteries are connected, they may remain in Battery Low Voltage for a period until the voltage is raised by the charger.

b. Battery charger fuse (FP2 on PSU3A) has blown.

c. Faulty PSU.

Action: Replace items as required. ‘Battery Failure’ may indicate that the impedance of the battery wiring is too high. Action: Check the battery wiring connections.

PSU Fault: Crowbar Active

Action: Remove mains and battery power supplies, wait 5 minutes, then perform the power up procedure. If condition returns, call Service Engineer.

1.1.4 Processor Faults

System Fault 40 - Main CPU Watchdog Operated
System Fault 41 - EPROM Memory Checksum
System Fault 42 - E2PROM Memory Write Error
System Fault 43 - FLASH Memory Checksum
System Fault 45 - FLASH Memory Write Error
System Fault 46 - Software error
Panel Fault 49 - CPU Watchdog timer fault
System Fault 64 - CPU Watchdog not enabled
System Fault 66 - CPU Clock Monitor Failure
System Fault 67 - CPU Illegal Instruction

Action: If any of these faults occur repeatedly and randomly, replace the CPU PCB assembly (PN: 020-569).

1.1.5 Sounder Faults

Sounder Cct.1 SHORT-CCT.
Sounder Cct.2 SHORT-CCT.
Sounder Cct.3 SHORT-CCT.
Sounder Cct.4 SHORT-CCT.

This fault message indicates a short circuit fault on the corresponding sounder circuit wiring.

Action: For circuits 3 and 4, check that the user-defined links (JP5, JP8 and JP7, JP9 resp.) on the Base PCB are in the correct position (refer to **Section 7.7 Volt-free Contact Output Option).**

Action: Disconnect the sounder circuit wiring and use a multimeter to locate the fault.

Sounder Cct.1 OPEN-CIRCUIT
Sounder Cct.2 OPEN-CIRCUIT
Sounder Cct.3 OPEN-CIRCUIT
Sounder Cct.4 OPEN-CIRCUIT

This fault message indicates an open circuit (disconnection condition) fault on the sounder circuit wiring.

Action: For circuits 3 and 4, check that the user-defined links (JP5, JP8 and JP7, JP9 resp.) on the Base PCB are in the correct position (refer to **Section 7.7 Volt-free Contact Output Option).**

Action: Disconnect the wiring and use a meter to locate the faulty sounder or cable. *A 4k7 resistor or diode should be connected to the end of the cables (see Section 7.2).*

Sounder Cct.1 RELAY FAULT
Sounder Cct.2 RELAY FAULT
Sounder Cct.3 RELAY FAULT
Sounder Cct.4 RELAY FAULT

This fault indicates a failure of the drive circuits (ccts 1 or 2) or drive relays (ccts 3 or 4) to the sounder circuits, and not the attached cables.

Action: If the fault is on any circuit, change the Base PCB (Kit PN: 020-568).

1.1.6 Printer Faults

Printer Fault

Internal printer only. This fault may be an indication of a paper jam or malfunction, no paper, or the printer may be disconnected.

Note: The printer operation is only monitored if the printer was functional at the last power-on.

1.1.7 Other Hardware Faults

a. **Fault 47 - CPU/Display hardware fault**

Communications fault between the CPU and the display.

Action: Change the CPU PCB assembly (PN: 020-569) and/or the Display PCB/Membrane Keypad (PN: 020-571-XXX).

b. **Panel Key Stuck**

Change the Display PCB/Membrane Keypad (PN: 020-571-XXX).

c. **Fault 48 - Base PCB/Expansion h/w fault**

Change the Base PCB (PN: 020-568) or Extension Chassis with Display Module Kit (PN: 020-559-XXX).

d. **Aux. Output 1 Fault;**
Aux. Output 2 Fault

This fault indicates a failure of the auxiliary drive circuits and not the attached cables. Action: If the fault is on either circuit, change the Base PCB (Kit PN: 020-568).

e. **Fault 71 - Config. needs Expansion Card**

This fault message can only appear when ID3000 panels are networked with earlier compatible panels. This message is not applicable to the 'local' ID3000 Series panel. In cases where it is applicable, an Extension Chassis with Display Module Kit (PN: 020-559-XXX) is required.

f. **Fault 72 - Config. needs RS485 Card**

Missing PCB - panel is configured for network but no RS485 PCB is present. Fit Isolated RS485 Module Kit (PN: 020-479) or change configuration.

g. **Fault 73 - Config. needs RS232 Card**

Missing PCB - panel is configured for 3rd-party protocol but no RS232 PCB is present (does not apply to other modes of the port). Fit Isolated RS232 Module Kit (PN: 020-478) or change configuration.

h. **Fault 74 - RS232\RS485\PRINTER Card displaced**

An attempt has been made to remove one of these items while the panel is powered up. Remove power before proceeding.

1.1.8 Other Faults

Earth Fault

The earth fault monitor detects the presence of an earth on the positive or negative sides of the system. Should this condition occur, disconnect the field circuit wiring one cable at a time and view the LED at the top right of the Base PCB; if the LED extinguishes, the current cable is faulty. Then use a meter to locate earth fault.

Panel Fault 65 - Clock set to after AD2099

Action: Set the clock to the correct date and time.

Incompatible or faulty sensor installed

Action: For IPX sensors, replace by SDX751TEM or equivalent. For other MULTI and SMART sensors, replace (sensor is faulty).

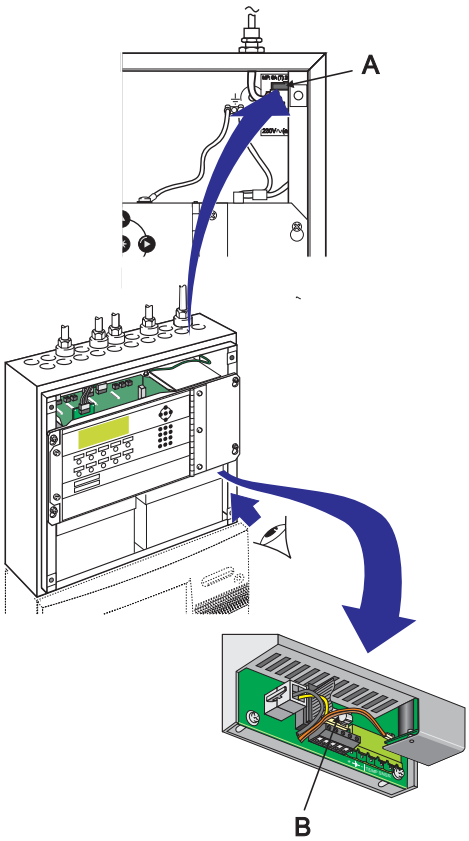
OPTIPLEX incompatible with LIB software

An Optiplex sensor has been found on the loop but the LIB software does not support it.

Action: Replace Base PCB and LIB PCBs with revisions that have LIB software version 8.0 or above (as shown in lamp test).

SENSOR FAULT

For VIEW, MULTI (Optiplex), or SMART sensors: analogue reading is below the Chamber fault threshold, or below the Maintenance Urgent threshold, or a Maintenance Alert has existed for longer than 100 days without any action being taken. For HEAT, ION, OPT or GAS the analogue reading is below the Chamber fault threshold. Action: Notify the service engineer.



1.2 Fuses

Several of the fault remedies require fuse replacement. The location of the panel fuses is given here, together with their ratings and their type.

A	MF	Mains supply	T 5A H 250V
B	FP2	Battery (PSU3A[1])	T 6.3A H 250V (used on 24V circuit)

T= time delay (i.e. anti-surge) as defined by EN 60127.

[1] For alternative PSU configurations, refer to separate instructions.

Appendix 1

Appendix 2 - Specifications

ID3000 Series Panel Range

General:

The Fire Control Panel meets the requirements of EN 54-2/4. See Section 1.1 CE Marking for further details.

Mechanical:

Construction: Sheet steel enclosure with panel main components supplied as separate build modules. Electronic chassis module door carries all displays and controls under plastic fascia moulding. Lockable, transparent user-interface doors are optional features.

Dimensions (mm) - including moulded front cover(s):

Standard:
500(w) x 400(h) x 153(d)

Extended - standard depth:
500(w) x 620(h) x 153(d)

Extended - extra depth:
500(w) x 620(h) x 251(d)

Double-extended - standard depth:
500(w) x 840(h) x 153(d)

Double-extended - extra depth:
500(w) x 840(h) x 251(d)

Back Box Extension - standard depth:
500(w) x 220(h) x 153(d)

Back Box Extension - extra depth:
500(w) x 220(h) x 251(d).

Weights (Approx.)(no batteries):

Standard 14kg

Extended - standard depth 18kg

Extended - extra depth 20kg

Double-extended - standard depth 22kg

Double-extended - extra depth 24kg

Back Box Extension - std depth 4kg

Back Box Extension - extra depth 5kg

Environmental:

Climatic classification:	3K5, (IEC 721-2-3)
Operating temperature:	-5° C to +45° C, (+5° C to +35° C recommended)
Humidity:	5% to 95% R.H.
Height above sea level:	Maximum, 2000m
Panel sealing:	IP 30, (EN 60529)
Vibration:	EN 60068-2-6, 10-150Hz at 0.981ms^{-2} (Meets the requirements of EN 54-2/4)
EMC:	Emissions: EN 61000-6-3 Immunity: EN 50130-4
Safety:	EN 60950

Displays and Indications:

Alphanumeric display:	240 x 64 pixel, used to provide 6 lines of 40 characters each plus graphical displays.
LED Status Indicators:	FIRE, FAULT, DISABLEMENT, TEST, POWER, PRE-ALARM, SYSTEM FAULT, SOUNDER FAULT/DISABLED, FIRE O/P FAULT, FIRE O/P ACTIVE, DAY MODE, DELAYS ACTIVE, NON-FIRE ACTIVE.
Zone Indicators (optional):	Individual FIRE and Fault indicators for 64, 128, 192 or 256 zones (depending upon configuration options).

Controls:

Dedicated flush push-buttons are provided for the following functions:

MUTE BUZZER, EXTEND DELAY, END DELAY/EVACUATE, SILENCE/RESOUND, RESET, DAY MODE, FIRE O/P DISABLE, CHANGE TABS, ZONES IN ALARM.

Additional pushbuttons for programming and selection of software functions:

10-KEY NUMERIC KEY-PAD

KEYS

AND KEYS

KEY

System Capacity:

Number of loops:	Up to 8 depending upon configuration options.
Number of zones:	Up to 255 per panel.
Devices per loop:	99 sensors + 99 modules or 99 sensors + combination of up to 99 modules/sounders within strict limits. Use the loop & battery calculator tool.

External Connections:

Cable entry:	25 x 20mm knock-outs in top of cabinet, 15 in rear, 4 in bottom.
Terminals:	All external connections made through screw terminals, each of which will accept cable sizes between 0.5 mm^2 and 2.5 mm^2.

Electrical:

Classification:	Installation Class I, (panel must be earthed).

Supply Rating

Mains supply to the panel is to be provided via an external double-pole mains isolation unit. The supply rating is:

230V~(ac) ± 15%, 5A, 50Hz ±4%.

Fuse Rating (of terminal block):

T 5A 250V H Ceramic

Power Supply Unit (PSU) Specification

Kit PSU7A (PN:020-579).

For specification details, refer to 997-277-000-X (PSU7A installation) and 997-267-000-X (DTP/Booster Installation)

Kit PSU3A (PN:020-648)

Maximum current consumption:	1.6A

Output ratings:

Output voltage (boosted):	26.0Vdc - 28.3Vdc
(PSU3A Unboosted output not used in ID3000)	
Ripple voltage:	±300mV
Max. output current quiescent:	600mA
Max. output current alarm:	3A

EN54 Battery Wiring Test Impedance: 0.15 Ohm

EN54-4 PSU Loadings:

$I_{max(a)}$: 600mA @ 26Vdc; $I_{max(b)}$: 3.0A @ 26Vdc; I_{min}: 0mA

Battery Charger Ratings:

Battery charger output:	27.3V (nom) @ 20° C
Temperature compensation:	-3mV/°C/cell
Battery fuse rating:	T 6.3A 250V H (see Appendix 1, Section 1.2)
Final end battery voltage:	21V
Charger ripple voltage:	140mV rms
Panel PSU Input Range:	25.5Vdc - 28.5Vdc (measured at Baseboard Input)

Batteries:

Internal batteries: Two 12V, 12 - 38Ah sealed, lead-acid types MUST be used. Their lifetime depends on the ambient temperature; refer to the battery manufacturer's technical specification for guidance. (Refer to PSU specification for charger limitations).

Maximum battery ratings:

Back Box & Battery Type Option:	Yuasa
Standard back box:	12Ah
Extended/double extended back box:	17Ah
Extended deep/double-extended deep back box:	38Ah
Externally mounted battery cabinet	130Ah

External batteries: Refer to the battery cabinet documentation for battery details. Battery lifetime depends on the ambient temperature; refer to the battery manufacturer's technical specification for guidance. (Refer to PSU specification for charger limitations).

Note: With the Kit PSU3A, the maximum battery size is 38Ah regardless of their location.

Outputs:

i) Two dedicated Sounder Outputs

ii) Two Sounder or Volt-free Contact (VFC) - selectable outputs

iii) Two VFC outputs dedicated to Common Fire and Common Fault.

iv) Two standard, or optionally up to eight loop outputs.

v) Two 24Vdc auxiliary outputs

Sounder Output Rating

Type:	Voltage reversal
Output voltage:	26 to 28V when active; -6.8V to -9V when inactive
Maximum load:	1A *
Fuse rating	Electronic over-current protection
Monitoring:	Open- and short-circuit

Volt-free Contact (VFC) Output Rating

Type:	Single pole change-over
Maximum load:	Contacts rated 30V 1A
Fuse rating:	Not fused

*** Total system load is limited by the available PSU output. Appendix 3, or the Notifier Loop and Battery Calculator Support Tool, should be used to ensure that the system is NOT overloaded.**

*** Total system load is limited by the available PSU output. Appendix 3, or the Notifier Loop and Battery Calculator Support Tool, should be used to ensure that the system is NOT overloaded.**

24 Volt DC Auxiliary Output Rating

Output voltage range:	26 to 28 V
Maximum load:	Refer to Appendix 3, ID3000 System Design Guide, or the Notifier Loop and Battery Calculator Support Tool.
Quiescent:	150mA *
Alarm:	1A *
Ripple Voltage:	600mV
Fuse rating:	Electronic over-current protection

Note: It is recommended that the auxiliary ouput should not be used in the quiescent state other than to provide a supply to drive ancillary devices' power indicators.

Loop Outputs (Two Standard and Six Optional)

Output voltage:	22.5 to 26.4V
Maximum load:	0.5A*
Loop driver source impedance:	3.8 ohms at 22.5V

Up to 198 loop devices (up to 99 sensors and 99 modules) may be fitted to each analogue loop. For system limitations refer to **Section 4, Sensors and Modules**.

The communication with devices on the loop uses the Notifier 'CLIP' protocol. Refer to Appendix 3, ID3000 System Design Guide for a list of compatible devices and loading limitations.

RS232 Serial Port (Optional)

Isolation:	Functional at 30V.
Baud rate:	Software-selectable up to 9600 Baud.
Connector:	Terminal block on RS232 PCB.
Max cable length:	15m

RS485 Serial Port (Optional)

Isolation:	Functional at 30V.
Baud rate:	1200 Baud.
Connector:	Terminal block on RS485 PCB.
Maximum cable length:	3000m (minimum of 1mm^2 screened cable recommended)

Programming

Configuration methods:	Front panel key-pad; Off-line using the Off-line Configuration Tool.
Configuration access:	Keypad access is passcode-protected (user-definable) for all configuration options. Refer to the ID3000 Series Panel Configuration Manual (ref. 997-506-000-X) for further information.

Repeaters

Refer to the Repeater manual for the specification.

Appendix 2

Appendix 3

ID3000 System Design Guide

Use AT LEAST TWO sounder circuits to guard against failure.

Sounder Circuits

It is recommended that at least two separate sounder circuits are used, to ensure that some sounders do sound if one circuit is lost.

Loading Loops - Basic Rules

The Loop and Battery Calculator (LBC) support tool software package should be used to determine that a system design will operate correctly based on all entered system data. The LBC support tool takes into account the power consumption of all loop devices such as sensors, modules and isolators on the detection loops; these can be dedicated isolation modules or included in some sensor bases or modules. The LBC clearly identifies which devices are fitted with isolators. When loading a loop with devices the LBC will prevent any further devices being added until a sufficient number of isolators have been included.

If the LBC is not available manually entering system data in the Loop Calculations and Battery Requirement document (a PDF version can be downloaded from Notifier's technical website for printing) and applying the rules below will help to ensure that a system design will operate correctly. As this guide uses worst case figures it is possible a working system may appear unsuitable if checked using this guide even though it is perfectly adequate.

Starting the Loop

To ensure loop isolators will close at power up no more than 25 Start Units (SU's) may be connected between standard isolators, or 20 Start Units between FET isolators.

Each device has an SU count:

Beam Detector LPB-700	6 SU's
Multi Sensor IPX-751	10 SU's
Loop Sounder (see overleaf)	3 SU's
Module ZMX-1	3 SU's
Module MMX-10M/CMX10-RM	10 SU's
All others	1 SU

Load Distribution

The loop length can be significantly affected by the distibution of the load around the loop. The calculations for this are complex and not considered in this guide. The worst case loop length is given for a completely unbalanced system. In most cases the actual achievable loop length can be significantly longer than this (up to 800% longer depending on the installation). If longer lengths are required then the Loop Length and Battery Calculator Support Tool should be used to check suitability.

Loop Devices Supported

The following devices are supported:

Monitor Modules:

M710 (MON,single)

M720 (MON, dual)

M721 (Dual I/P, single relay O/P)

MCX-55 (MON Card, 5 I/P & 5 O/P)

Control Modules:

M701 (single O/P + isolator)

M701-240 (single, mains relay module + isolator)

M701-240-DIN (single, mains relay module + isolator + DIN rail mounting)

MRM-1 (single, mains relay module)

MRM-1/DIN (single, mains relay module + DIN rail mounting)

Base Beacon:

ABB/W/C-I (+ Isolator)

Sounder:

ABS32/x, ABS32/x-I (+ Isolator)

Sounder Strobe:

ABSB32/X/C-I (+ Isolator)

Sounder Strobe:

AWSB32/X/R, AWSB32/X/R-I (+ Isolator)
ABSB32/X/C, ABSB32/X/C-I (+ Isolator)

Wall Strobe:

AWB/R, AWB/R-I (+ Isolator)

Isolators:

ISO-X
M700X
B524IE
B524IEFT-1B/W
B524RTE

IDP-RMI - (Radio Interface)

IST200 - (Safety Translation Module)

Y72221 - Intrinsic Safety Galvanic isolator (for HAZARD sensors)

Multi-criteria sensor:

IRX-751CTEM (SMART 4)

IRX-751TEM (SMART 3)

Other sensors:

a. CPX-551E (ION)
b. CPX-751E (ION - low profile)
c. SDX551E (OPT)
d. SDX-751 (OPT)
e. SDX-751EM
f. SDX-751-TEM (OptiPlex)
g. SDX-551THE
h. HPX-751E (HARSH)
i. IDX-751 (HAZARD)
j. FDX-551EM (Thermal - Type A1)
k. FDX-551HTEM (Thermal Hi-temp - Type BS)
l. FDX-551REM (Thermal - Type A1R)
m. LPX-751 (VIEW); FSL-751E (VIEW)

ZMX (Remote PSU):

a. ZMX-1
b. M710-CZ
c. MMX-2

MCP & Integral Isolators:

M500DKMI

10-Input Monitor Module:

MMX-10M (equivalent to 10 modules)

Monitor/MCP Modules:

a. M500KAC(GB/W)
b. M500DKM(R) M700KAC-FG, M700KACI-FG
c. MMX-1E
d. MMX-101E
e. MMX-102E

Control Modules:

a. CMX-2E
b. PS2/CMX (002-634-100); PS2/701

10-Output Control Module:

CMX-10RM (equivalent to 10 modules)

Externally-powered Sounders:

a. ANSE4/R/W
b. ABSE4

Wall Sounders - Loop Powered:

ANS4/R/W, AWS3/R/W

Base Sounders - Loop Powered:

ABS4, IBS3-WH, AWS32/X, AWS32/X-I

Base Relay - loop powered:

B524RE

Beam Detectors:

LPB500 (maximum of 4 per loop) LBP-700 /-700T

Recommended Cables

All cables connected to the fire alarm control panel must be fire resistant cables. Shielded cable must be used for signalling loops and sounder circuits. The drain earth wire should be connected to a suitable earth bonding point at both ends of the cable. Keep the earth connections as short as possible.

In the UK, the British Standard BS5839 Part 1 : 2002 Code of Practice for system design, installation, commissioning and maintenance states the requirements for standard and fire resisting cables in Clause 26.2 section d and e:

'**d) Standard fire resisting cables** should meet PH30 classification when tested in accordance with EN50200 and maintain circuit integrity if exposed to the following test:

- A sample of the cable is simultaneously exposed to flame at a temperature of 830°C – 0+40°C and mechanical shock for 15 minutes, followed by simultaneous exposure to water spray and mechanical shock for a further 15 minutes.

e) Enhanced fire resisting cables should meet the PH120 classification when tested in accordance with EN50200 and maintain circuit integrity if exposed to the following test:

- A sample of the cable is simultaneously exposed to flame at a temperature of 930°C – 0+40°C and mechanical shock for 60 minutes, followed by simultaneous exposure to water spray and mechanical shock for a further 60 minutes.'

Loop cable

A loop cable carries data therefore its selection is important. Note the following:

- In countries where the European EMC directive is in force, only EMC Compliant cables are to be used.
- The loop cable usage must not exceed 1.5 km. This includes the cable used on main loop and spur circuits.
- Single pair cables must be used. It is NOT permissible to run mixed loops or outgoing and return pairs in a multi-core cable due to inadequate separation and possible electrical interference problems.
- Each core of the loop cable must be a minimum 1.5mm2 cross sectional area.
- The cable screen must be capable of being earthed at each system device – only one end of each cable screen must be earthed.
- Red is the preferred cover sheath for fire applications
- The specified loop circuit cables are also suitable for wiring alarm, auxiliary relay and input/output lines.

Mains supply cable

The mains supply cable must be a standard fire resisting type and should meet PH30 classification, such as any of the standard and enhanced cables listed below. Examples of enhanced and standard cables are:

Enhanced:

- Mineral insulated cable (MICC) to BS6207: Part 1
- Draka FIRETUF Plus Enhanced FTPLUS2EHL5RD

Standard:

- Prysmian FP200 FLEX
- Prysmian FP200 GOLD

Refer to your supplier for details of other available industry standard fire resisting cables.

Listed below are fire rated cables for signalling loops and sounder circuits that met the requirements of previous approval standards:

1. AEI type Firetec Multicore Ref. F1C1 (1mm2) to F1C2.5 (2.5mm2) in 2 core.
2. AEI type Firetec Armoured Ref. F2C1 (1.5mm2) to F2C2.5 (2.5mm2) in 2 core.
3. AEI type Mineral Insulated Cable (all types up to 2.5mm2).
4. BICC types Mineral Insulated twin twisted conductor cables, Ref. CCM2T1RG and CCM2T1.5RG.
5. BICC type Mineral Insulated Pyrotenax (all types up to 2.5mm2)
6. CALFLEX type Calflam CWZ 2 core type up to 2.5mm2 maximum
7. Prysmian (formerly PIRELLI) type FP200 Gold 2 core type from 1mm2 to 2.5mm2
8. Draka FIRETUF (OHLS) FTZ up to 2.5mm2
9. Signal Cables for RS485 Communications Links (twisted pair)
10. 12 AWG Signal 88202 Belden 9583 WPW999
11. 14 AWG Signal 88402 Belden 9581 WPW995
12. 16 AWG Signal 88602 Belden 9575 WPW991
13. 18 AWG Signal 88802 Belden 9574 WPW975
14. FIRETUF FDZ1000 by Draka 2 core.
15. Prysmian (formerly PIRELLI) type FP200 Gold 2 core.

Appendix 4

ID²net Intelligent Digital Delivery Network

1 Introduction

The ID²net (**I**ntelligent **D**igital **D**elivery **net**work) designed by NOTIFIER Fire Systems, is an EN54-compliant, peer-to-peer network which provides a flexible and cost-effective solution for small, medium or large fire detection systems.

A number of advantages are offered over 'master/slave' network configurations:

- A significant increase in the number of panels capable of being networked
- Very fast message transmission times
- High system robustness
- Comprehensive diagnostic tools.

The ID²net offers a wide range of network-wide, menu-driven control functions, including disablement, test and detailed status enquiry that can be carried out at any panel on the network. Other key features included are:

a. Up to 32 panels/100 nodes per network capability
b. Single-fault tolerance using simultaneous, bi-directional message transmission
c. Fast message transmission time
d. Short circuit, open circuit and earth fault protection per link
e. Verified delivery with automatic re-try if required
f. Message delivery using token passing - avoids multiple collisions
g. Predictable network time performance
h. System diagnostics - including on-site installation/debugging and full network transmission analysis facilities
i. Use of fibre-optic cables supported.

The ID²net is compatible with the following range of NOTIFIER Fire Systems' fire control panels:

- ID3000 Series

1.1 Software Compatibility

The ID²net is compatible with ID3000 Series control panels with software versions 4.00, or above.

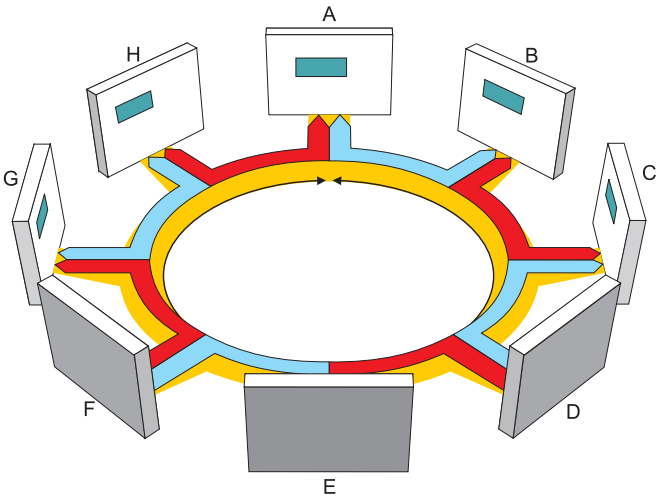
1.1.1 Software Version

The panel, Loop PCB and ID²net software versions are displayed when performing a Lamp Test. Refer to the ID3000 Series Operating Manual (ref. 997-505-000-X).

2 Functional Description

The peer-to-peer architecture is based on the ARCNET® protocol which is ideally suited to fire detection and control applications. Fundamentally, all network messaging is under the control of ARCNET's proprietary Invitation-to-Transmit (ITT) or 'token-passing' protocol. The token-passing method facilitates fast and predictable network message transmission times. This predictable aspect of the token-passing protocol is important when there is a need to demonstrate that specified networking performance requirements can be met.

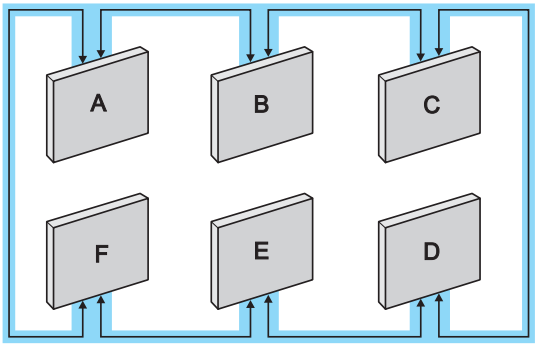
NOTIFIER Fire Systems has expanded on this philosophy by implementing a separate network between each fire control panel. Each Network Gateway Module (NGM) on the ID²net includes two ARCNET® microprocessors, where each is capable of working independently of the other. This allows a networked fire control panel to communicate simultaneously with the panels either side of it. The drawing at left shows eight panels networked together in a continuous loop arrangement.



It can be seen that, conceptually, total networking of all eight panels is achieved through an arrangement of two-node networks to provide the physical inter-panel communication. For example, while panel B transmits/receives a message to/from panel A it can simultaneously transmit/receive a message to/from panel C. The independent token passing protocol between panels A and B and B and C makes this possible.

Error checking of each message is carried out, using ARCNET's built-in Cyclic Redundancy Check (CRC), and signal distortion is removed before onward transmission. This 'regenerative' approach ensures the integrity of message data, especially over long distances. Further error-checking is carried out within the panels.

2.1 Network Topology



Fire control panels MUST be networked as a complete and continuous loop. A typical arrangement is illustrated at left.

Each ID²net Network Gateway Module (NGM) (Kit PN: 020-647) can be used with any of the following network cable options:

a. Conventional, copper-conductor cables

b. Optical-fibre cables

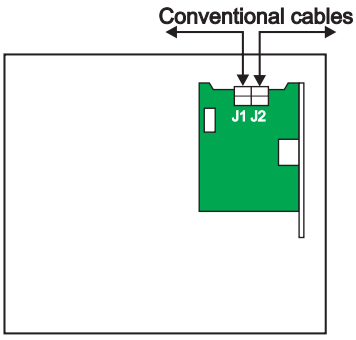
c. A mixture of conventional and optical-fibre cables.

The ID²net Network PCB is provided with two wiring connectors, J1 and J2 (located along the top edge of the PCB) for data interconnection with other panels using conventional cables (see example A at left).

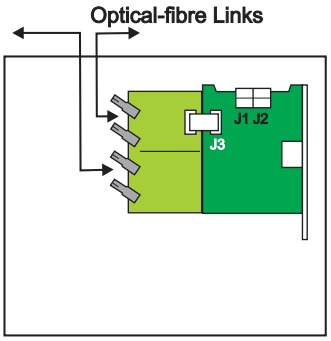
A ribbon-cable connector, J3, provided on the left-hand edge of the Network PCB is used for connection to an optional Interface PCB (Kit PN: 020-643) when optical-fibre cables are used (see example B at left).

If required, the use of a mixture of conventional and optical-fibre cables at each node can be supported (see example C at left).

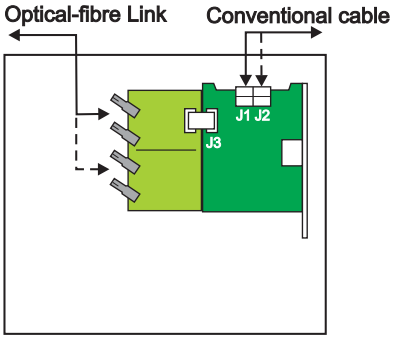
A



B



C



Appendix 4

3 Installation

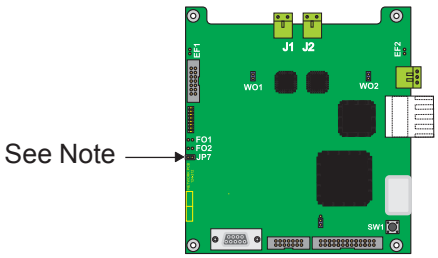
One ID²net Network Gateway Module (NGM) is required for each fire control panel. Installation instructions are provided **with** it. The manual provides all necessary ID²net configuration instructions. Connection of conventional, copper-conductor cables are made at this PCB.

If optical-fibre cables are to be used, an interface PCB is required which is fitted adjacent to the NGM PCB and connects to it via a short ribbon cable (refer to **Section 3.1.2**).

3.1 Hardware Requirements

For ID3000 Series control panels - the ID²net NGM PCB and Fibre-optic Interface PCB are fitted in the panel's main chassis enclosure.

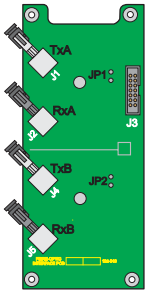
3.1.1 Network Gateway Module PCB



The Network Gateway Module (NGM) PCB (PN: 124-312) must be fitted on the right-hand side of the main chassis enclosure. It plugs directly into the Processor PCB. For details on fitting the NGM PCB, setting the network configuration jumper links and connecting external cables, refer to instruction sheet (ref. 997-449-000-X) supplied with it.

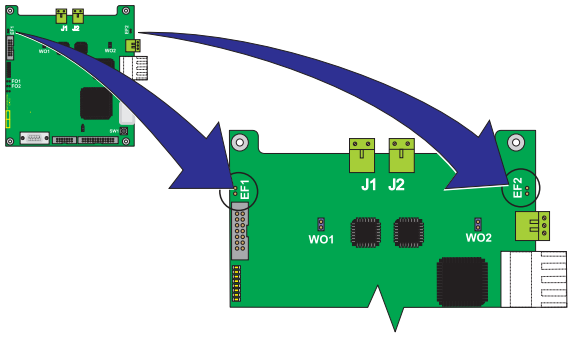
Note: Ensure jumper link is fitted at JP7.

3.1.2 Fibre-optic Interface PCB



The Fibre-optic Interface PCB (PN: 124-319) is only required where optical-fibre cables are being used. For details on fitting the Fibre-optic Interface PCB and setting jumper links, refer to instruction sheet ref. 997-450-000-X supplied with it.

Note: Reference to the NGM PCB instruction sheet (ref. 997-449-000-X) will be required for correct jumper link setting when using optical-fibre cables.



3.2 Earth Fault Detection

Each NGM PCB is fitted with two jumper links, EF1 and EF2, to enable or disable earth fault monitoring (copper-conductor cables only) on each inter-node link. EF1 is used with the network link through connector J1. EF2 is used with the network link through connector J2.

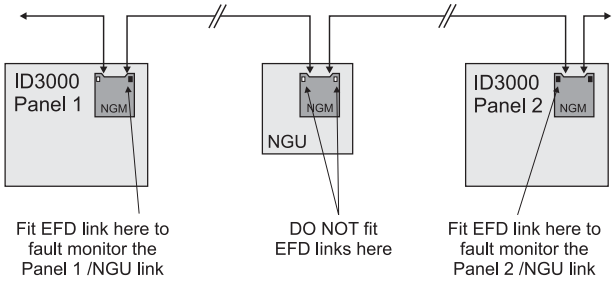
Earth fault monitoring is enabled with the link fitted. To disable earth fault monitoring remove the link.

Caution: To avoid an earth loop, only one end of each network link should have earth fault monitoring enabled.

Network Gateway Unit (NGU)

If one of the inter-node links is connected to an NGU it must have the appropriate EFD jumper link fitted. This means that, in some cases, an NGM could have both jumper links fitted.

Note: DO NOT connect two, or more, NGUs together as the link between NGUs cannot be monitored for earth faults.



3.3 Cables

Conventional copper-conductor cable types can be used for the communication link between networked nodes.

NOTIFIER recommend the use of MICC with a LSF PVC overcovering, a fire-resilient cable to BS7629 or PVC/SWA/PVC to BS6387.

Alternatively, for longer inter-node distances fibre-optic cables may be used - the optional Fibre-optic Interface PCB (PN: 124-319) available from NOTIFIER Fire Systems is also required. Only one PCB is required per node.

NOTIFIER have carried out extensive cable testing with the ID²net network. Applying the following guidelines will allow networks to be installed with cable runs of up to 2000m.

a. Test results show maximum communication distances ranging from 1000m to 2000m.
b. Different cable cross-sections for the same make and type of cable were found to give almost identical results.
c. Doubling-up wires in multi-pair cables produces shorter operating distances. It is better to use a single pair and not use the others to avoid cross talk.

d. Use screened cables to comply with the EMC requirements and reduce the possibility of external interference.

The following table lists cables tested and maximum distances achieved:

Cable Type	Recommended Operating Distance (m)	Max. Test Distance (m)
Prysmian* FP200 Flex 1.5mm^2	850	1000
Draka Firetuf FDZ2ER (1.5mm^2/2.5mm^2)	1200	1400
AEI MICC 2L1.5 (1.5mm^2)	1200	1400
AEI Firetec F2CxxE (1.0mm^2/1.5mm^2)	1350	1600
Prysmian* FP200 Gold 1.5mm^2	1700	2000

* Formerly Pirelli

Each link in a network may be either copper-conductor cable or optical fibre.

Caution: To ensure specified performance use only 2-core, screened cables. On no account must multi-core cables be used.

3.3.1 Fibre-optic Cable Limits

The fibre-optic link used by the ID^{2}net network has the following specification:

a. Connector style ST
b. Link Duplex (Twin Fibre)
c. Wavelength 820nm
d. Fibre Type Multi-mode

Parameter	Min. (dB)	Typical (dB)
Optical Power Budget 50/125µm Fibre	4.2	9.6
Optical Power Budget 62.5/125µm Fibre	8.0	15

Notes:

1 For a typical 62.5/125 cable, attenuation is 2.8dB/km which gives a typical link length of 15/2.8 = 5300m.

2 Using worst-case figures, attenuation of 4.5dB/km gives a link length of:

8/4.5 = 1800m.

3 For a specific design, substitute the attenuation figure for the fibre to be used into the calculation.

4 Allowance should be made for any additional splices or connectors used.

4 Trouble Shooting Guide

4.1 Fault Messages - Possible Causes and Remedies

When configuring the ID²net network you may be alerted at the panel by one or more of the following hardware or system fault messages.

A list of possible fault messages with a brief description of what action may be needed is provided below:

ID²net: Network card missing

The ID²net Network Gateway Module (NGM) has not been detected, although it has been configured as present on the network).

Action: Make sure the NGM PCB is fitted in every panel where the 'Mon' column is ticked. Alternatively, check that the NGM PCB has been correctly installed as described in the instruction sheet (ref. 997-449-000-X).

ID²net: Network startup fault

ID²net: Network runtime fault

Network startup and runtime faults are attributable to localised NGM PCB errors. The messages can occur individually or together. The Network startup fault message is displayed if either of the following situations occur:

a. Failure of the NGM PCB to start initially, or

b. Failure of the NGM PCB to start after the occurence of a runtime fault, such as a panel/NGM PCB communication loss.

The Network runtime fault is displayed only if the NGM PCB stopped working after a period of working correctly. If this is not quickly followed by the Network startup fault message, this means that the NGM PCB has successfully re-started.

Action: If these fault messages persist, replace the NGM PCB.

ID²net: Channel 1 Link Fault

This fault is most likely to occur in the event of a broken network connection, i.e. short or open circuit cable or broken optical fibre. It may also indicate that there is a NGM PCB hardware fault.

There would normally be two fault messages - one at each panel either side of the cable fault. In some situations only one message may be displayed where communication is only operating in one direction.

Check that the appropriate jumper link is fitted; this is dependent upon the connection medium used for the link, i.e. copper-conductor cable or optical fibre. Refer to the NGM PCB instruction sheet (ref: 997-449-000-X) for correct jumper link setting.

ID²net: Channel 2 Link Fault

See 'Channel 1 Link Fault' above.

ID²net: Flash Checksum Error

This message indicates a NGM PCB failure.

Action: Replace the NGM PCB.

Note: Other fault conditions may occur in exceptional circumstances. If this happens, contact your supplier for guidance.

ID²net duplicate node *n*

Two nodes have the same node id.

Action: Change the id number of one of the duplicate nodes (use diagnostic tool).

Power Fault, ID²net Booster *n*

This message indicates an open circuit on the power fault input of the NGM.

Action: Check for missing or broken wiring. Check that PSU is not faulty.

4.2 Reconfiguration Warning Messages

If a panel has already been configured as part of a Master/Slave network and an attempt is made to configure it as an ID²net peer-to-peer network, a warning message is displayed as follows:

WARNING: this panel is already configured as a member of a Master/Slave network. This is incompatible with ID²net Peer-to-Peer Network.

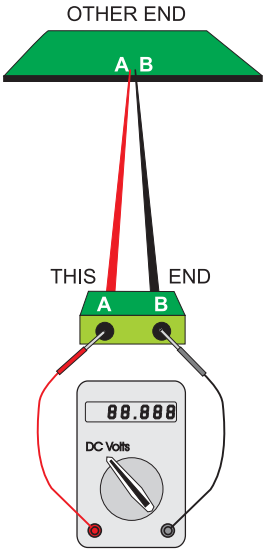
If a panel has already been configured as part of an ID²net peer-to-peer network and an attempt is made to configure it as a Master/Slave network, a warning message is displayed as follows:

WARNING: this panel is already configured as a member of a ID²net Peer-to-Peer Network. This is incompatible with Master/Slave network.

Important Information: Tests

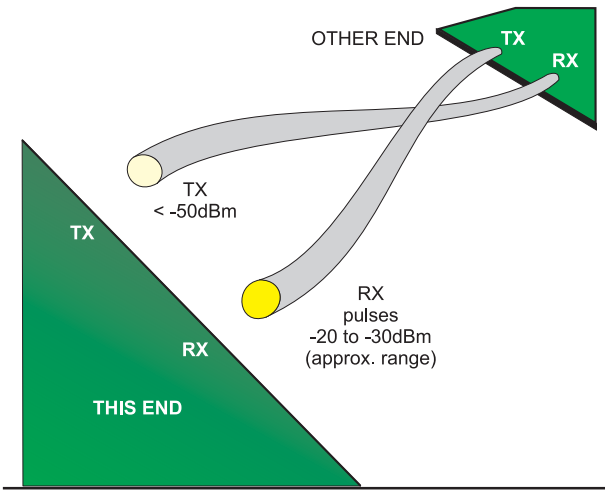
Some of the tests will cause disturbance to the network communications. In some cases the fire cover may be compromised. Tests marked ⚠ must not be carried out without adequate alternative fire cover being provided for the area supervised by the host panel under test.

In addition, tests which disturb the network communications may cause all related network devices to enter their fault warning condition. Site staff should be made aware of this before any tests are carried out, and should be informed when tests are complete. Any automatic fault routing equipment should be disconnected or disabled and the monitoring centre should be informed.



A is +ve with respect to B (typically 0.2V to 0.6V pulse)

Do not look directly into the light from the fibre optic cable or transmitter



5 Hardware Tests

5.1 Wiring Reversal Check

Check the wiring for correct polarity. If the wiring is reversed or partially connected the network will attempt to operate at a reduced level in a fallback mode. It is important to avoid this because it may limit the maximum data throughput. You should:

1 Use colour-coded cable for the network wiring and ensure that the same colours are used for the A and B conductors on every link. If MICC cable is used it must be suitably tagged. In either case ensure that the A and B conductors are connected to the correct terminals.

2 ⚠ If there is any doubt, for each link in turn:

i Disconnect the network connector at the NGM PCB in the panel at the end of the cable being measured.

ii Use a Voltmeter to measure the voltage across the A and B terminals of the plug (i.e. measure across the cable, NOT the NGM PCB). 'A' should be positive with respect to 'B' (typically a 0.2V to 0.6V pulse will be observed). If 'A' is negative with respect to 'B', the connections are reversed.

iii Reconnect the terminal block.

5.2 Fibre Reversal Check

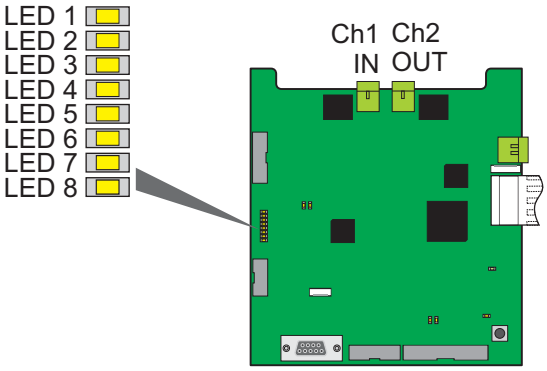
WARNING: Although the light generated by the fibre transmitter is invisible to the naked eye, it is possible (although unlikely) that it could cause damage, especially if focussed by a lens. Do not attempt to look directly into the transmitter or fibre end.

⚠ Use an optical power meter (e.g. Fluke FOM) to verify that the fibre connected to RX at the end being measured is connected to a transmitter at the far end. Connect the fibre cable to the meter:

a. If this cable is transmitting (i.e. connected to TX at the other end), the reading pulses up and down, typically in the range -20 to -30dBm. Connect this cable to RX (lower connector on the fibre-optic PCB) at this end.

b. If this cable is not transmitting (i.e. connected to RX at the other end), the reading is steady and very low (below -50dBm). Connect this cable to TX (upper connector on the fibre-optic PCB) at this end.

Appendix 4



5.3 NGM PCB LEDs Check

Note: Refer to the NGM Support Tool manual 997-547 for further information about these LEDs.

5.3.1 Software Running

LED 8 should flash approximately 2 times per second to indicate that the software is running. Each flash indicates that the software has completed 50 cycles of its internal routines. LED 9 flashes 0.2 seconds ON 5 seconds OFF to indicate that the Secondary CPU is running.

5.3.2 Network Messages

LEDs 1 to 6 flash briefly every few seconds (possibly up to 60 seconds, typically 5 to 10 under quiescent conditions, dependent upon the number of nodes). LEDs 1 to 3 indicate Channel 1 communications, and LEDs 4 to 6 indicate Channel 2 communications. No activity or long flashes (2 seconds on, 2 to 10 seconds off) indicate that the channel is not operating. The long flashes indicate that the NGM PCB is attempting to re-establish communication with the other end of the link.

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