

# SYSTEM 32000

## *ANALOGUE ADDRESSABLE FIRE DETECTION AND ALARM SYSTEM*

### Installation Manual

Version 3.4X  
32599 Issue 1-1  
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Notes to Installer

EMC Compliance and  
LVD Compliance

Cables

Loop Circuit  
Connections

Standalone System  
Installation

Network overview

Network System  
Installation

Parts

## Preface

This is the first issue of the Installation Manual for **System 32000**. The manual covers System 32000 products that are compatible with version 3.4X software.

The manual is a guide to be read in conjunction with the recommendations in *BS5839:Part 1:1988*, which is the *code of practice for Fire detection and alarm system for buildings*.

## Associated Documents

32499                      Operating Manual for 32000 system

## Conventions

**NOTE:** A note highlights important text that is normally hidden in the main text.

**CAUTION:** A caution is given to prevent damage to equipment.

**WARNING:** A warning is given to advise of dangerous conditions that may result in injury or death.

Issue Record			
Section	Issue	Date	Comments
Cover	1-1	7/99	The issue 1-1 contains correction to cable distance information  The first issue of the 32000 Installation Manual was based on the 32000 User Pack excluding the Pre-Commissioning Information
Prelims	1	7/99	
1-3	1	3/99	
4	1-1	7/99	
5 to 22	1	3/99	
Parts	1	7/99	
Phone	1	7/99	

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*If you have any comments on this manual, then please provide them below. Post completed sheet to the address overleaf or pass on to your are sales representative.*

*Thanks*

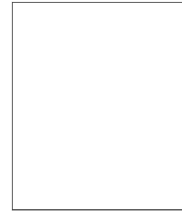
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# Notes to Installer

## The power-up and commissioning is done by Servicing organisation.

The manual contains fixing and wiring information to cover the installation of the GENT System 32000 Standalone and Network.

### Installation requirements

It is recommended that the installer follow the general requirements of *BS5839:Part 1:1988*, which is the *code of practice relating to the fire detection and alarm systems for buildings*. The relevant parts of the *Institute of Electrical Engineers Wiring Regulations 16th edition* must also be followed.

### Second fix installation

To prevent the possibility of damage or dirt degrading the performance or appearance of the System 32000 products, the installation of second fix items should be delayed until all major building work in the area is complete (e.g. clearing and sweeping).

### Fixture and fittings

It is the installers responsibility to provide adequate fixtures and fittings for the type of construction surface onto which a product is to be installed, whilst utilising the fixing points on the respective product. As an aid to this decision, the weight and overall size of each full assembly together with implications on cable entries and routing should be taken into consideration.

**NOTE:** All these procedures assume that the cable, glands, steel boxes (BESA boxes) and other related accessories are provided by the installer.

### Location

The installer should acquire site specific information from the interested parties, for details on the location of products for installation. The acquired information together with this guide and the relevant standards should be used to assist the work.

Each product assembly can be identified from its package label. The contents of all packages should be checked for any discrepancies.

### Fire sensor covers

Each fire sensor may be supplied with a plastic dust cover. If supplied then the dust cover **must be fitted** to prevent dust and dirt from the building work from contaminating the sensor.

**Parts for later installation**

All unused parts should be retained in their respective container for safe keeping until required.

**NOTE:** *The installation of all outstanding parts are usually carried out during Commissioning of the System.*

**Loop earth continuity**

To maintain earth continuity the **loop cable screen** must be connected through each system device on the loop, whether the earth is connected to a device or not.

**Mains supply**

**CAUTION:** *Ensure that the mains supply cable enters any mains powered equipment through a dedicated cable entry, located adjacent to the mains terminal block and also segregated from any loop wiring.*

Mains supply to fire alarm control and indicating equipment must be via an **unswitched fused spur** unit.

The fused spur isolator cover should be red and marked:

**FIRE ALARM - DO NOT SWITCH OFF**

Each of the fire alarm equipments' fused spur units must be fed from a dedicated switch or protective device at the local mains supply distribution board.

**Mains and battery supply connections**

The mains and battery supply cables must be installed to the stage to **facilitate the power up** for commissioning, which will be done by your servicing organisation.

**WARNING:** *Where mains cable are to remain disconnected, their tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching On of the mains supply*

**Cable termination and connection**

Terminate each cable at the entry point to the enclosure, using the cable manufacturer's recommended techniques.

Where the cable is required to be connected, ensure it is secure to the respective terminal.

Where the cable is not required to be connected, leave **400mm** (unless otherwise specified) tail wire length and **mark each core** identifying its final point of connection.

**Wiring test**

**CAUTION:** *DO NOT undertake high voltage insulation tests WITH THE CABLES CONNECTED to their terminals. Such a test may damage the electronics circuitry in loop devices and panels.*

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# EMC Compliance

## Installation guidelines for compliance with the requirements of the Electromagnetic Compatibility (EMC) Directive

<b>Introduction</b>	These guidelines should be followed to meet the requirements of the <b>EMC directive</b> in force within the <b>European Union</b> , to prevent the <b>reception</b> and <b>emission</b> of electromagnetic interference into and out of the <b>analogue addressable</b> fire detection and alarm system.
<b>EMC compliant products</b>	All the System products listed in the Parts list of this manual are EMC compliant.
<b>Code of practice</b>	The installer must follow <i>BS7671 : 1992 Requirements for Electrical installations, IEE wiring regulations 16th edition</i> if installation is in the United Kingdom, UK.
<b>Cables</b>	<p>The following cables have been tested against EMC directives and are approved for use with 32000 system fire detection and alarm applications: (see also the <b>Cable types</b> part of this <b>manual</b>)</p> <p><input type="checkbox"/> The following loop cables each having 2-core plus screen and 1.5mm<sup>2</sup> cross section area per core can be used to connect <b>loop circuits, master alarm circuits, auxiliary circuits and interface input/output line circuits</b>:</p> <ul style="list-style-type: none"><li>• Mineral Insulated Copper Cable (MICC)</li><li>• FIRETUF OHLS Cable <i>type: FTZ2E1.5 and FTZ4E1.5 (latter for A4 mimic panel)</i></li><li>• Raydex CDT FG950</li><li>• Cavicel SpA Firecel SR114</li><li>• AEI Cables FIRETEC</li><li>• BICC Pyrotenax FLAMESIL FRC</li><li>• Datwyler LIFELINE</li><li>• Alcatel cable PYROLON E</li><li>• Huber &amp; Suhner RADOX FR</li><li>• Pirelli FP200 FLEX</li></ul>

- ☐ For **network circuit**, that is the wiring of network interface to control panel or between network interfaces use:

- Firetuf FDZ1000
- Mineral Insulated Copper Cable<sup>1</sup> (MICC)
- Belden Cable No 9729 (UL Style 2493)
- Armoured Cable<sup>2</sup>

By armouring the Belden Cable No 9729 (UL Style 2493)

In the UK, the guidance of BS5839 : Part 1 should also be followed.

## Cable Separations

The cables of the fire detection and alarm system and other systems should usually be separated by at least **160mm**, unless dedicated conduit or ducting is being used.

In the UK there is additional guidance provided in a document reference '*Recommended cable separations to achieve electromagnetic compatibility in buildings*' obtainable from the **Electrical Contractors Association**.

## Earth continuity

All earth connection points should be **clean to provide a good electrical conductivity path**.

To maintain the earth continuity:

- ☐ all **earth leads and fittings** provided should be installed
- ☐ the **loop cable** screen must be continued through each system device on the loop, whether the earth is connected to the device or not

see also Cable termination.

**NOTE:** Do not use any part of building structure for earthing.

The metal enclosures of system products have **zinc coating** around the termination point. The coating provides a good electrical conductivity path for cable earth termination.

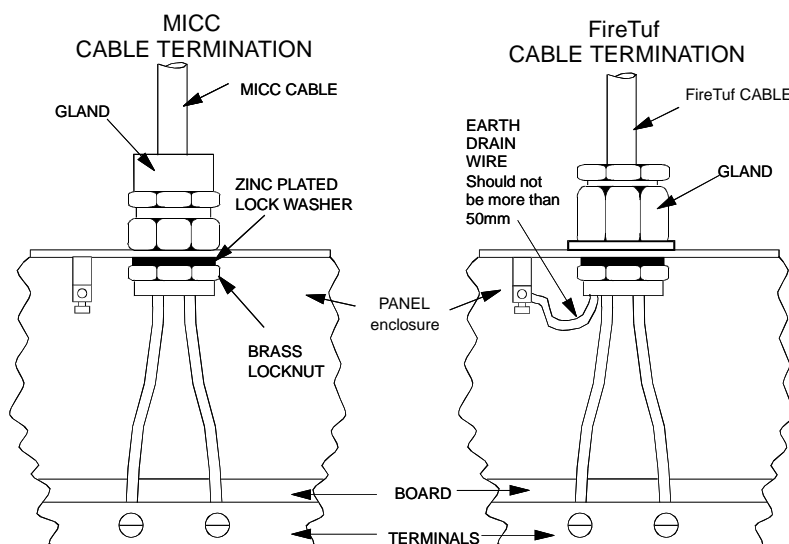
**CAUTION:** The zinc coating should not be damaged. Any damage will expose bare metal, which can corrode and make poor earth connection.

- 1 The Mineral Insulated Copper Cable should be used for fire resistant applications.
- 2 The cable manufacturer cannot guarantee the cable specification if the cable is armoured post manufacture.

There are **copper fingers** fitted to the control and indicating equipment to provide a shield against electromagnetic and radio frequency interference.

**CAUTION:** It is important to avoid damage to the **copper fingers**, as this can re-introduce gap between enclosure cover and interference shield.

Figure 2-1 Cable termination



f1198

## Mains Supply

The mains supply to mains operated equipment should enter the enclosure by a dedicated entry, which is the closest to the mains connection points.

## Cable termination

Use only cable manufacturers recommendations for cable termination.

The wires between the termination point and terminals should be **short** and as **straight** as possible.

The EMC compliance tests conducted by Gent made use of Mineral insulated cable (MICC) with the following accessories:

- ☐ **galvanised finish junction boxes** for installation of alarm and detection devices
- ☐ brass locknut with zinc plated lock-washer to secure gland to the metal enclosure.

There is no need to use **earth tail seals** when terminating mineral insulated cable, providing there is good earth continuity between gland and enclosure.

When using **Firetuf** cable, the *earth drain wire* should be fitted to the earth point nearest the cable entry, with a length not exceeding **50mm**.

## Board fixing

Ensure all board fixing screws where applicable are fully tightened. The screws maintain an earth continuity path between the board and its metal enclosure.

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# LVD Compliance

## Installation guidelines for compliance with the requirements of the Low Voltage Directive (LVD)

- Introduction** These guidelines should be followed to meet the *requirements for the safety of Information Technology equipment, including electrical business equipment - BS EN 60950: 1992.*
- Products** All System 32000 Panels.
- Guidelines**
- ☐ Ensure the EMC Compliance Guidelines are followed.
  - ☐ Each of the Fire Alarm equipment's fused spur units must be fed from a dedicated switch or protective device at the local mains supply distribution board. If a single pole disconnect device is used (on Live Side) then the Neutral (N) should be clearly labelled.
  - ☐ Cable Glands should be used on the equipment for the mains supply cable.
  - ☐ Unused knockouts that have been removed, should not be left open.
- Mains supply** ☐ Gent products are not designed to be powered from **IT Power Systems**.
- Power supply cable** ☐ This should be a 3-core cord (e.g. PVC insulated cord with designation H05 VV-F or H05 VVH2-F2) having a current rating of 5A with a nominal cross sectional area of  $0.75\text{mm}^2$ , provided the length of the cord does not exceed 2m.

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# Cable Types

## Cables for Loop circuit

For information on network cables, see the section on Network cables.

The loop cable carries both data and power supply and therefore its selection is important.

**CAUTION:** *In countries where the European EMC directive is in force, only those cables detailed in the **EMC Compliance** part of this manual may be used.*

**NOTE:** *The loop cable usage must not exceed **1Km**. This includes the cable usage on main loop and spur circuits.*

**NOTE:** *Single pair cable 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 not be less than **1.5mm<sup>2</sup>** cross section area
- ☐ **Red** is the preferred cover sheath for cable used for fire application

### Wiring other circuits

The specified loop circuit cables are **also suitable** for wiring:

- ☐ Input and output lines off **interface units**
- ☐ Mains supply to **mains powered equipment**

### Specified cables

The recommended loop cables are:

- ☐ Mineral insulated cable (**MICC**) to BS6207:Part 1 (*EMC approved*)
  - BS6207:Part 1
  - fire resistance tested to BS6387 categories CWZ
  - having continuous metal sheath encapsulation
  - no more than 2-cores
  - each core having **1.5mm<sup>2</sup>** cross section area
  - a **red** cover sheath (preferred for alarm application)
  - core to core capacitance at 1KHz - **190pF/m**
  - core to screen capacitance at 1KHz - **220pF/m**

- ☐ Delta Crompton **FTZ2E1.5 FIRETUF OHLS** fire resistant data cable (*EMC approved*)
  - no more than 2-cores plus earth wire
  - fire resistance tested to *BS6387 categories CWZ*
  - each core having **1.5mm<sup>2</sup>** cross section area
  - core to core capacitance at 1KHz - **115pF/m**
  - core to screen capacitance at 1KHz - **205pF/m**
- ☐ Raydex CDT **FG950** (*EMC approved*)\*
- ☐ Cavicel SpA **FIRECEL SR 114** (*EMC approved*)\*
- ☐ AEI Cables **FIRETEC** (*EMC approved*)\*
- ☐ BICC Pyrotenax **FLAMESIL FRC** (*EMC approved*)\*
- ☐ Datwyler **LIFELINE** (*EMC approved*)\*
- ☐ Alcatel cable **PYROLON E** (*EMC approved*)\*
- ☐ Huber & Suhner **RADOX FR** (*EMC approved*)\*
- ☐ Pirelli **FP200 FLEX** (*EMC approved*)\*

**CAUTION:** Do not use any other FP200 cable.

**NOTE:** The cables marked \* utilise laminated aluminum tape with a tinned drain wire for electrostatic screening. Under certain environmental conditions **galvanic action** may take place between the aluminum and the drain wire. This will severely **degrade EMC performance** as the foil to drain wire **impedance will increase**. Therefore these wires should be used and installed in line with **GENT and Cable manufacturers instructions** and **only** under environmental conditions as **specified by the manufacturer**.

- ☐ Other cables to the following specification:
  - BS6387
  - no more than **2-cores**
  - a maximum of **0.5 µF** total intercore capacitance
  - a maximum of **13 ohms** total per core
  - each core having no less than **1.5 mm<sup>2</sup>** cross section area
  - inherent or through metal conduit screen for earth continuity in order to produce electrical protection and screening
  - having protection from heat and mechanical damage
  - the cable screen must be **capable** of being earthed at each system device (outstation)

## Interface input line module cable usage

Where loop powered interface units makes use of line module(s) that are installed a distance away from the respective unit, then the overall distance should not be more than **100m**, this is assuming a **1.5mm<sup>2</sup> MICC** cable is being used.

The overall **limit** is set at **1Km**, for example **10x100m** line module cable length per loop circuit.



# Network Cables

**CAUTION:** In countries where the **European EMC** directive is in force, **only** those cables detailed in the **EMC Compliance** part of this manual may be used.

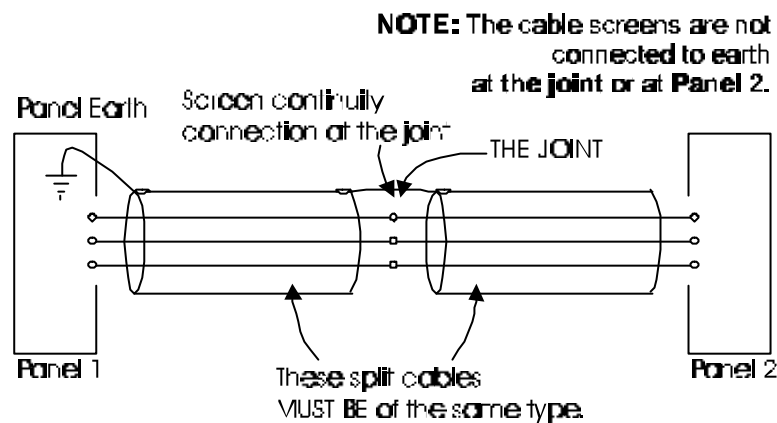
The cable used to interconnecting fire alarm **Control panel to Network Interface, Network Interface to Network Interface.**

## Mixing cable types

**CAUTION:** It is **NOT** permissible to run mixed cable types on the same run (leg) of a network circuit, as this will create impedance imbalance and disruption to communications.

## Cable screen continuity

Figure 4-1 Split cable and earthing requirements



## Recommended Cables

### ☐ Delta Crompton Firetuf FDZ1000

**1200m** maximum *Network Interface to Network interface* cable distance  
**10m** maximum *Control panel to network Interface* cable distance

- no more than 3-cores
- Fire resistance tested to *BS6387 category CWZ*

### ☐ Huber & Schner Radox series FR communication cable

**1200m** maximum *Network Interface to Network interface* cable distance  
**10m** maximum *Control panel to network Interface* cable distance

- Three core twisted triad screened
- **1.5mm<sup>2</sup>** (7/0.42 stranded) conductors
- Nominal impedance at 1KHz - **200ohms**
- Capacitance between conductors at 1KHz - **110pF/m**
- Capacitance between screen to core 1KHz - **210pF/m**
- Fire resistance tested to *BS6387 category CWZ and IEC 331.*

- ☐ **Mineral insulated copper cable** (*EMC Compliant*)  
 - such as BICC CCM3L1.5.  
**600m** maximum *Network Interface to Network interface* cable distance  
**10m** maximum *Control panel to network Interface* cable distance

- *BS6207: Part 1*
- **3 parallel** cores
- having continuous metal sheath encapsulating
- each core having **1.5mm<sup>2</sup>** cross section area
- Nominal impedance at 1KHz - **45 ohms**
- Capacitance between conductors at 1KHz - **190pF/m**
- Capacitance between screen to core 1KHz - **220pF/m**
- a **red** cover sheath (preferred for alarm applications)

- ☐ **Belden No 9729 (UL Style 2493)** (*EMC Compliant*)

- ☐ **Teflon jacketed Belden TR No. 89729**  
**1200m** maximum *Panel to Panel* or *Panel to Network node* cable distance  
**10m** maximum *Control panel to network Interface* cable distance

Both cables must have following characteristics:

- Two twisted pairs
- Each pair individually screened
- 24AWG (7 strands x 32 AWG)
- Low capacitance between conductors at 1KHz- **39.4pF/m**
- Low capacitance conductor to screen 1KHz - **72.2pF/m**
- Temperature range -30°C to +60°C .  
 (Teflon jacketed cable 89729 up to 200°C)

- ☐ **Belden Armoured equivalent** (*EMC Compliant*)  
**800m** maximum *Panel to Panel* or *Panel to Network node* cable distance  
**10m** maximum *Control panel to Network Interface* cable distance

- This cable being a two pair cable to *BS5308:Part 1 (type 2)*  
 0.5mm<sup>2</sup> (16/0.2mm).

- ☐ **Belden No. 9842 EIA RS485 Applications, O/A Beldfoil® Braid**  
**1200m** maximum *Panel to Panel* or *Panel to Terminal node* cable distance  
**10m** maximum *Control panel to network Interface* cable distance

Must have following characteristics:

- Two twisted pairs
- 24AWG (7 strands x 32 AWG) conductors
- Low characteristic impedance at 1KHz - **120 ohms**
- Low capacitance between conductors at 1KHz - **42pF/m**
- Low capacitance conductor to screen at 1KHz - **75.5pF/m**

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# Loop Circuit Connections

The fire alarm system can permit significant reductions in installation costs when compared with conventional and other multi-state systems. This is because of the ability to wire a large number of devices (outstations), like **sensors, sounders, manual call points, interface units and repeat panels** on one loop circuit.

## Loop Capacity

**NOTE:** It is important that redundancy is built into the system to accommodate future expansions.

### Devices (Outstations) per loop

The number of devices (outstations) on one loop circuit can be limited by the total number of addresses available, the electrical load on the circuit, the maximum cable length and other geographical considerations.

A maximum of **200** devices are allowed per loop circuit:

As a general rule allow 1000 load factor per loop circuit.

Code and device	Load factor for each device	Maximum of each device per loop
32202, 32203, *32212 Alarm sounder	25	40
32777 Repeat sounder	8	125
32410 Loop Powered Zone Module	10	100
32415 Single Channel Interface	10	100
32440 Mains powered interface	3	8
32450 Loop powered interface	2	30
32702 or 32703 Slave LED or Relay unit	1	50‡
32701 Tee breaker	1	200
32715 or 32720 or *32729 or 32730 Optical, Heat, EP Heat or Ionisation sensor	1	200
32760 Duct Sensor (also needs a Slave LED)	1	50‡
32775 Optical Sensor Sounder	8	125
32780 Heat sounder	8	125
32800 or *32829 Manual call point	1	200
32520 Repeat Panels	3	32

\* Environmentally protected devices

‡ Installations prior to March 1996 have a maximum of 10 slave devices.

## Loop cable

See the part on Cables

**NOTE:** Multi-core cables carrying more than one circuit should never be used.

**NOTE:** A remotely installed line module should not be located more than **100m** cable distance away from the interface unit, assuming **1.5mm<sup>2</sup> MICC** is being used. An overall **system** limit of **1km** (10 x 100m) of line module monitoring cable per loop is allowed.

## Cable separation

Where the outgoing and return cables of a loop which covers more than the equivalent of one zone must **not** run together, for example, either close to the **Control Panel** or in a **service duct**. There should be as much physical separation as possible between the cables and the mechanical protection of the cable should be to a particularly high standard. This is to minimise the risk of accidental damage to both cables. There should be separation from the mains supply cable.

## Loop Coverage

A loop circuit must not cover more than **10,000m<sup>2</sup>** of floor area of a protected site.

## Spur circuits

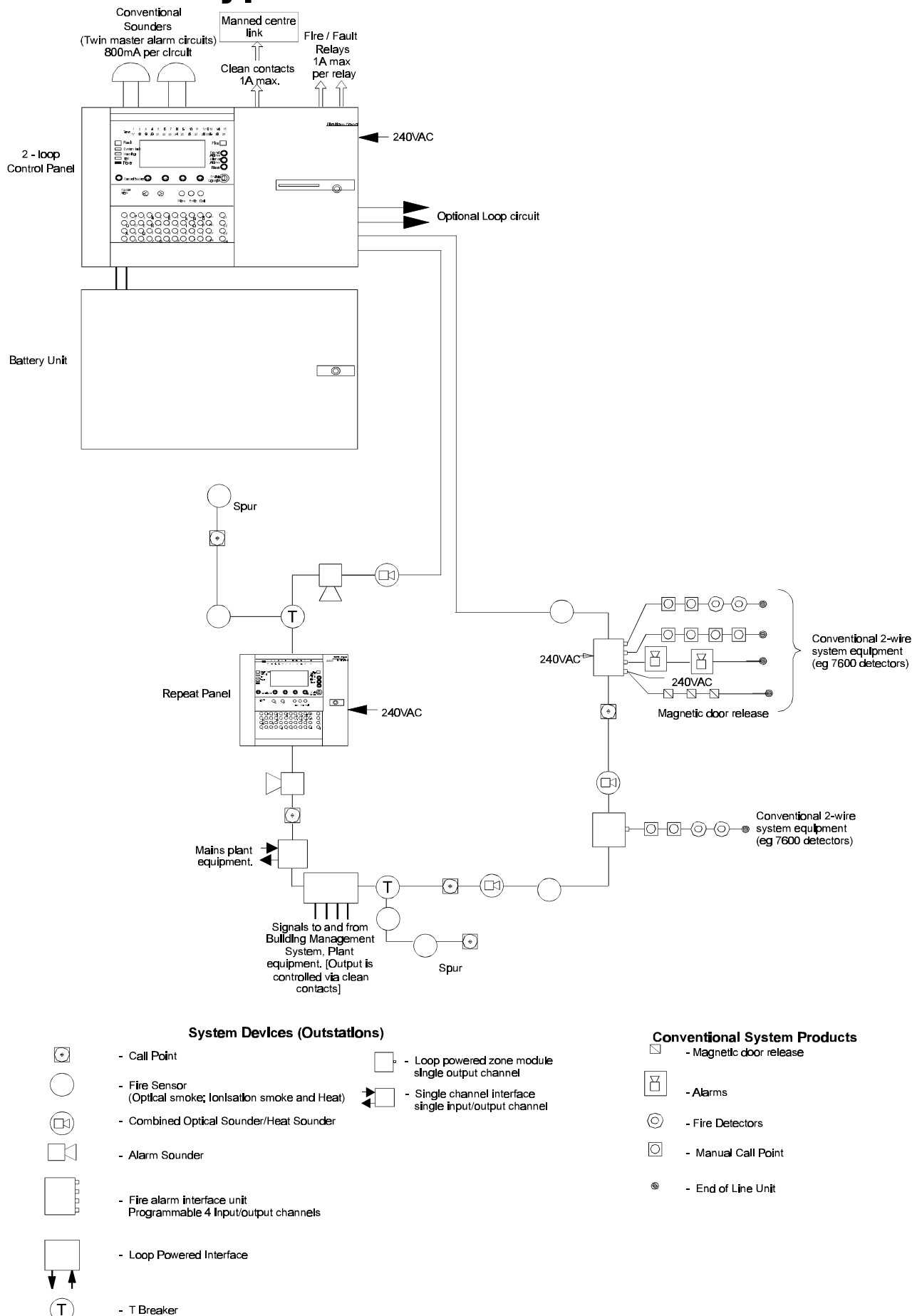
Where appropriate, a spur circuit may be used in order to save cable and, therefore, installation cost. A device (outstation) has terminals for cable connections. The 2-way type allows straight **in-out** connection, while the 3-way has an added common line connection, that is **in-out-comm line**. The spur circuit must always be taken from the **line com** terminals.

**NOTE:** 3-way devices are only available as sounders, interfaces and repeats. If it is not appropriate to use these devices in the required location, a 'T' breaker should be used.

**NOTE:** Spurs should not cover more than the equivalent of one zone as defined in BS 5839 : Part 1 : 1988.

**NOTE:** The common line to accept spurs may be left unconnected, if using the device for 2-way connection.

# Typical 32000 Architecture



cdn18

Figure 5-1 Typical fire alarm system

## Lightning protection

**CAUTION:** Lightning protection must be used if a loop cable is routed on exterior wall of a building.

## Earth Continuity

To maintain *earth continuity*, the loop cable screen must be connected through at each system device.

## Control Panel connections

**NOTE:** The previous or next device connection can be a loop device or an end connection to the control panel.

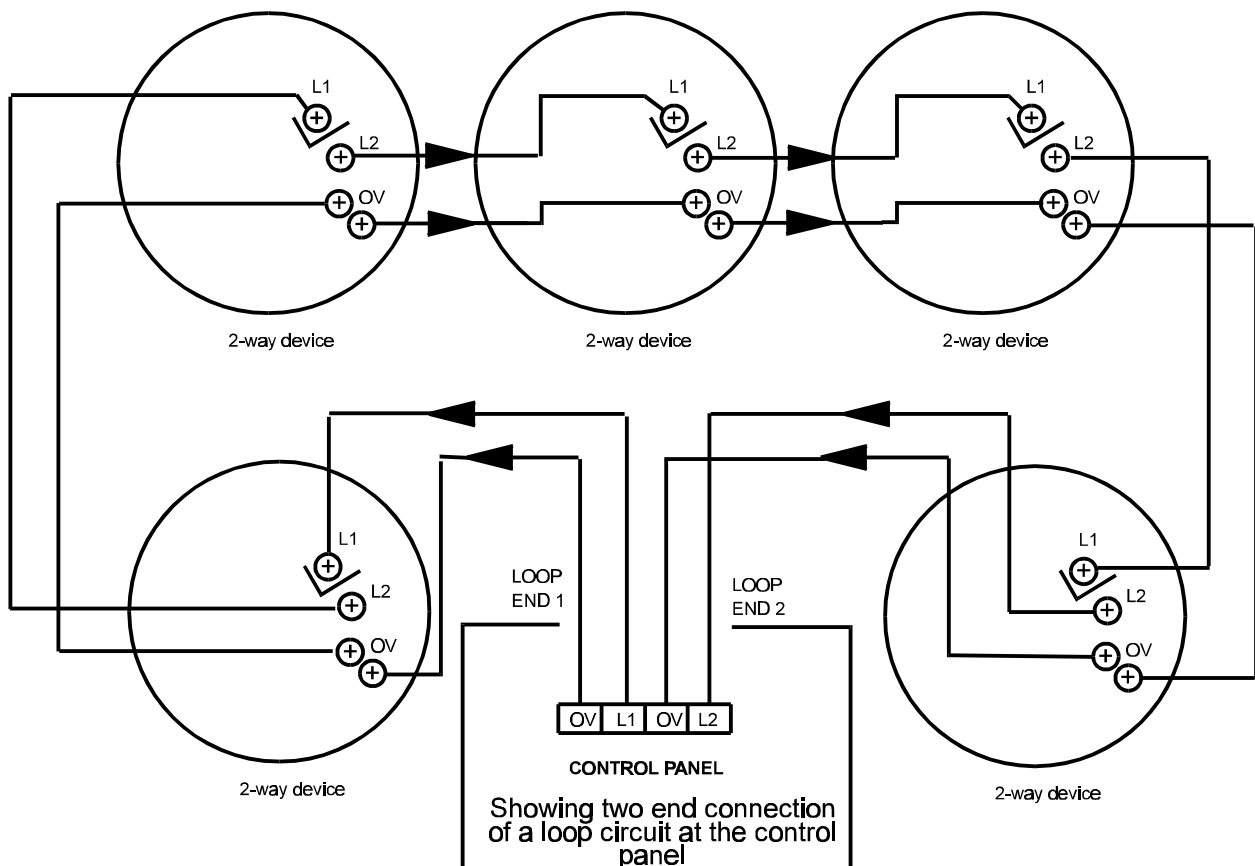
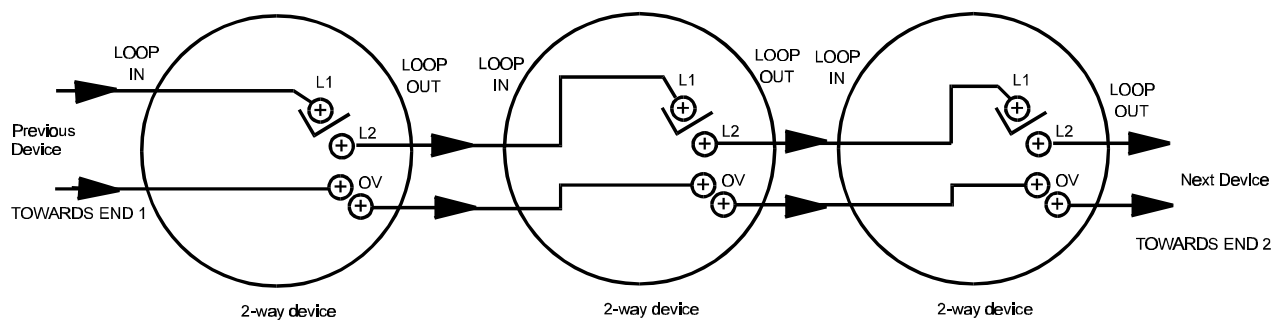


Figure 5-2 Connections to the Control Panel

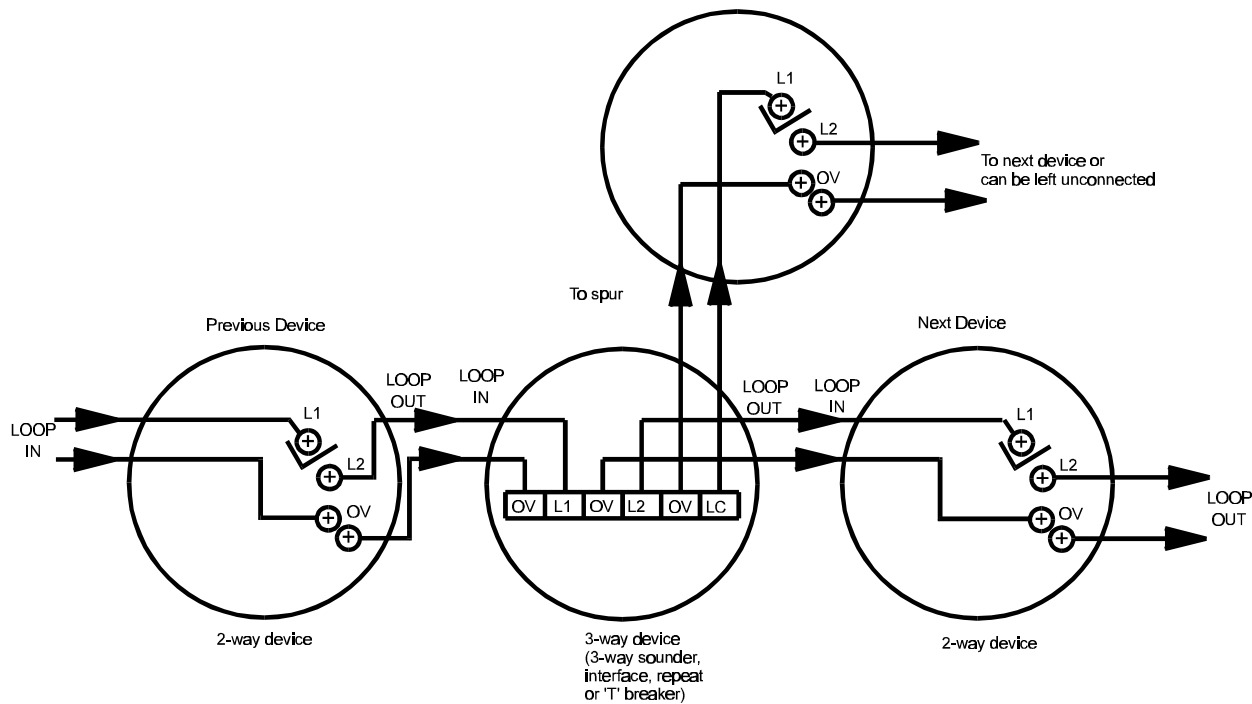
# 2-way device



shfl172

Figure 5-3 Connecting a 2-way device

# 3-way device



cdn16

Figure 5-4 Connecting a 3-way device

# Slave (Indicator) LED Unit

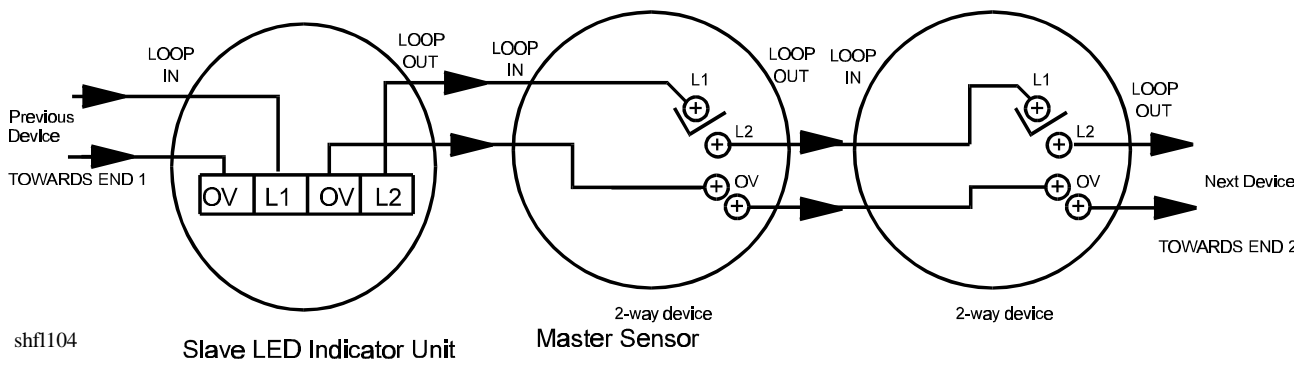


Figure 5-5 Connecting a slave Indicator unit

**NOTE:** The **slave LED unit** must always be connected before the respective **master 32000 sensor** relative to End 1 of the loop. The **slave LED** 'attaches' itself to the **master sensor** and reflects the state of this device

# Slave Relay Unit

**NOTE:** The **slave Relay unit** must always be connected before the respective **master 32000 sensor** relative to End 1 of the loop. The **slave relay unit** 'attaches' itself to the **master sensor** and reflects the state of this device.

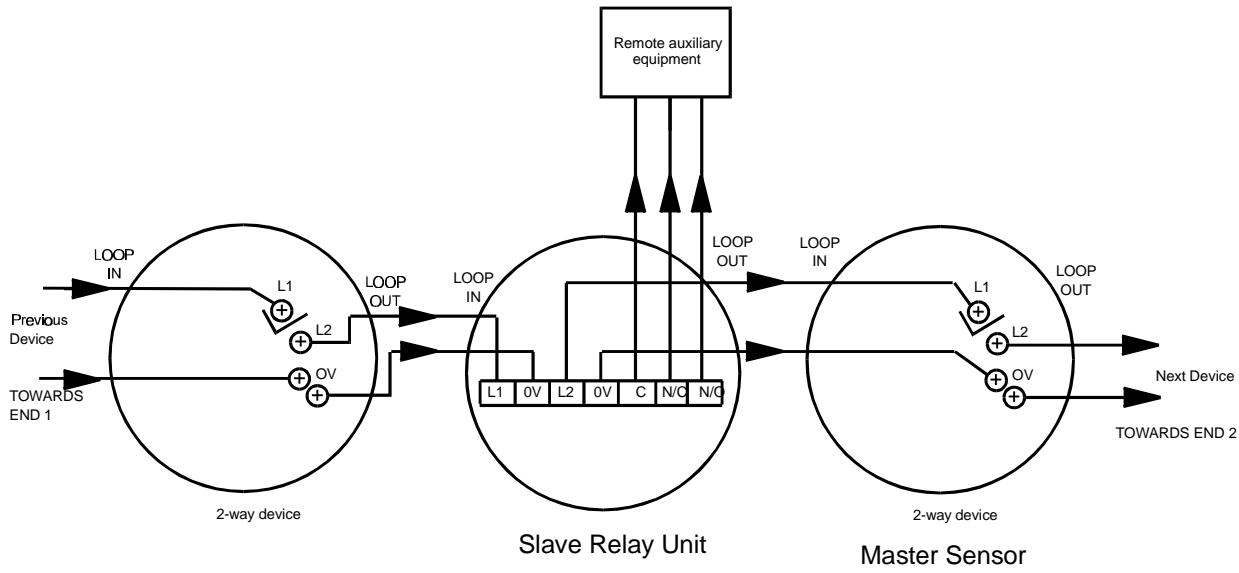


Figure 5-6 Connecting slave relay unit

# Standalone System Installation

## 32020 Fire Alarm Control Panel Set

The 32020 Control Panel Set consists of three packages:

- ☐ 32022 Fire Alarm Control Panel
- ☐ 32330 Battery Unit
- ☐ 13395-12 Battery Pack

### 32022 Fire Alarm Control Panel

Where appropriate refer to as fitted wiring diagrams (if supplied), general notes, EMC compliance, LVD compliance, cable types and loop circuit connections.

### Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 3.15A SD	Mains terminal block
FS1	20mm x 5mm 1A HRC#	Master alarm terminal board
FS2	20mm x 5mm 1A HRC#	Master alarm terminal board
FS1	20mm x 5mm 8A QB	Power supply board
FS2	20mm x 5mm 8A QB	Power supply board
FS3	Not fitted	
FS4	Not fitted	
FS5	20mm x 5mm 8A QB	Power supply board
FS6	20mm x 5mm 8A QB	Power supply board
# - master alarm fuses		

The control panel can be **surface or flush** mounted. If however the battery Unit is to be close fitted beneath the control panel then the two can **only** be **surface mounted**.

#### Door removal

- a) Identify the package labelled FIRE ALARM CONTROL PANEL and check the contents, which should include:

Component	Quantity
Control panel	1
Door key	1
Enable controls key	2
Fuse 1A	2
Fuse 8A	1
Fuse 3.15A	1
Resistor 22K Ohms	2

- b) Open the panel door using the door key.

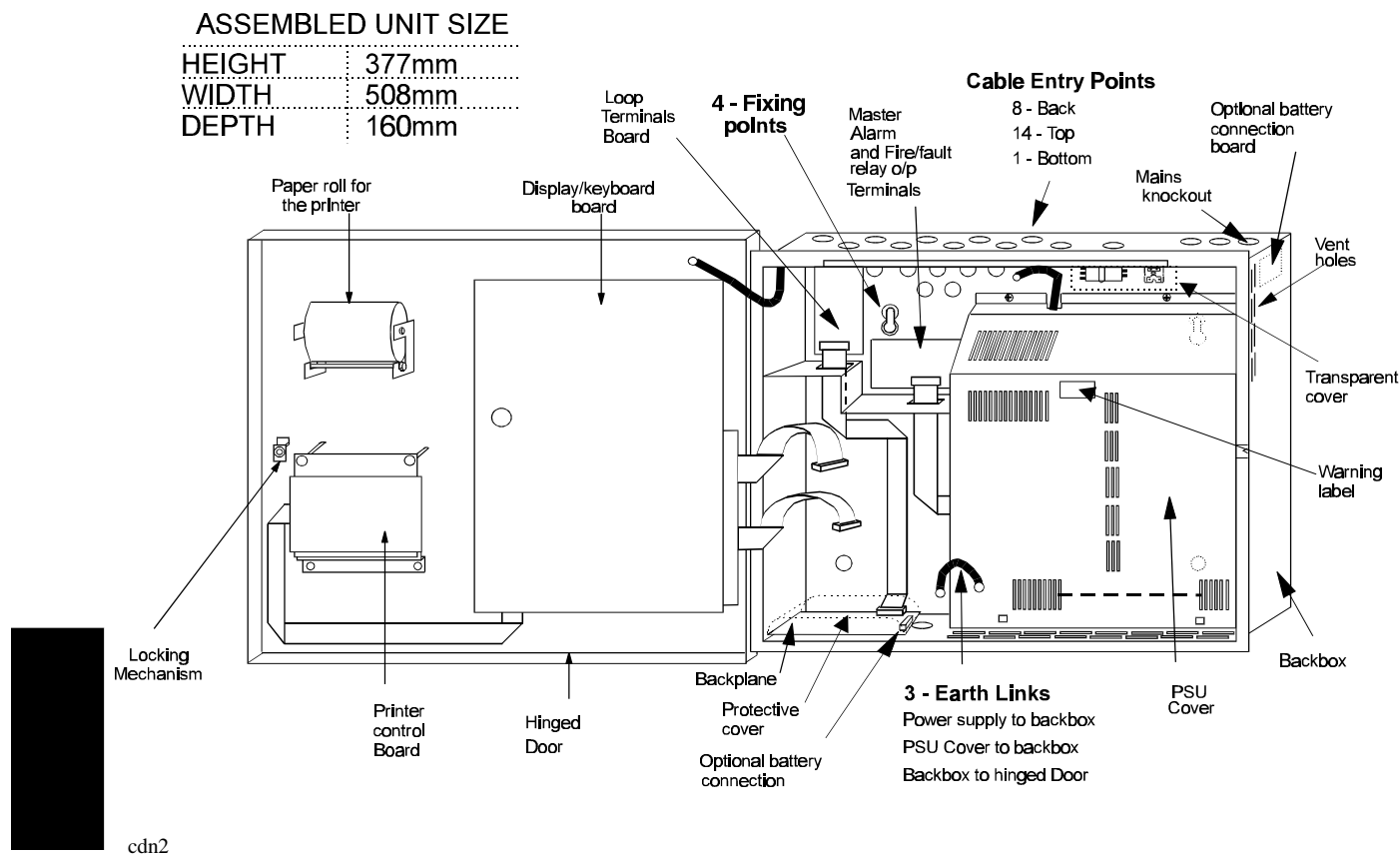


Figure 6-1 Control Panel with the door open

- c) Remove the **earth lead** from *upper case earth* to *PSU terminal block*.
- d) Disconnect the two ribbon cables from the **display/keyboard board**, located on the inside-left of the door assembly.
- e) Remove the **door** from the back box assembly, by sliding it up and off.
- f) Remove the *power supply cover to back box earth lead*.
- g) Remove the power supply cover by removing the three fixing screws and loosening the two captive screws at the top of the cover.
- h) Knock out/in the required **cable entry** points from the back box.

**NOTE:** The battery cable can enter the backbox in one of two locations (top-right or bottom-center). Only knock out/in the one that is required.



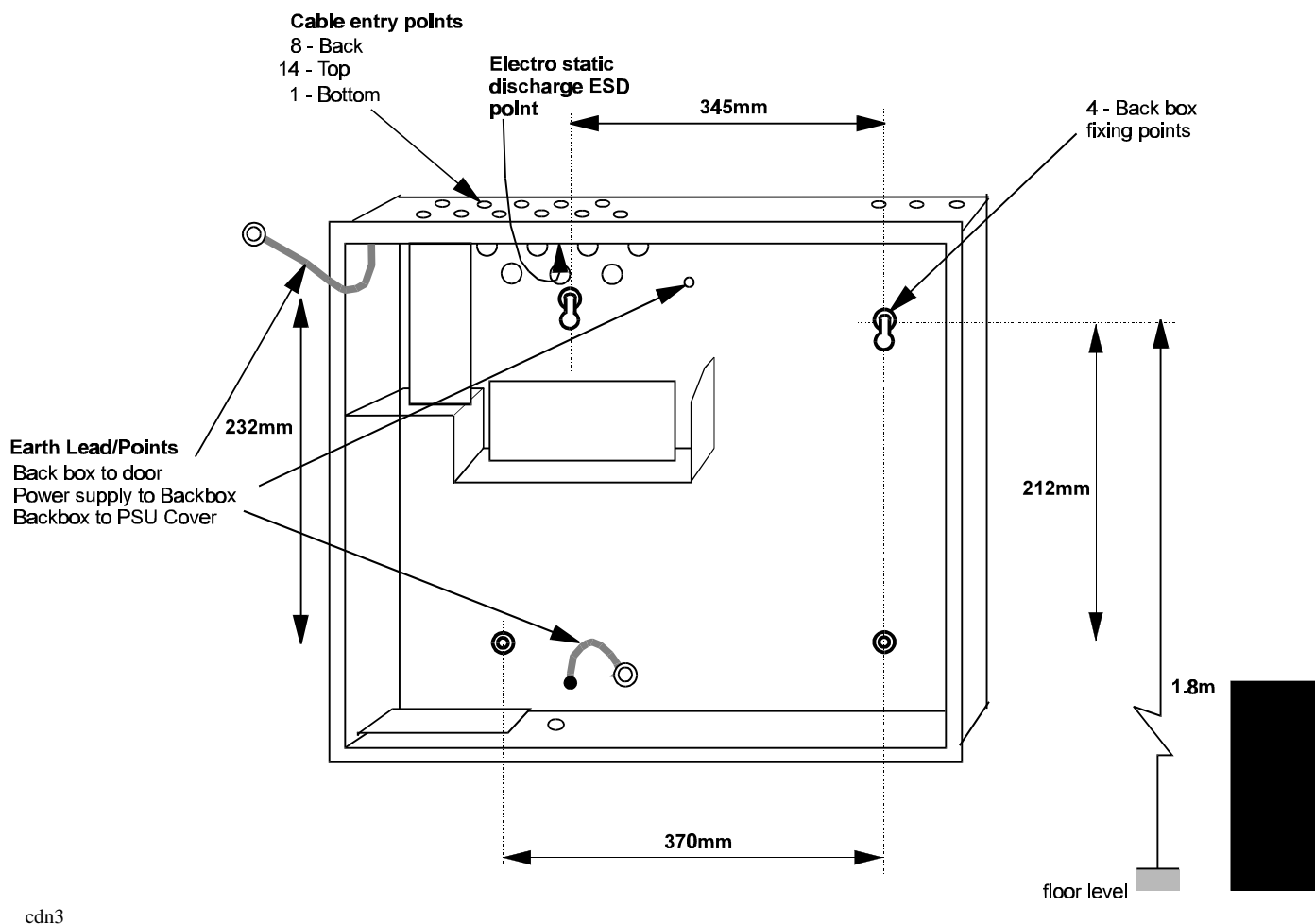


Figure 6-2 Control Panel Back box shown without door

**Flush mount**

- i) If the panel is to be **flush mounted** then follow the instructions for flush mounting control panel now. Once flush fixing is complete, or if panel is to be **surface mounted** continue with j) below.
- j) Mark out the back box **fixing points** on the wall to which the panel is to be mounted.
- k) Secure the back box to the wall with suitable fixings to provide adequate support for a full assembly weight of **16kg**.
- l) Terminate each cable at the entry point leaving **400mm** tail wire length and mark each core to identify its intended connection point.

**WARNING:** The mains cable tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching ON of the mains supply.

**Battery unit**

- m) If the **battery Unit** is to be **close fitted** beneath the control panel then follow the battery Unit fixing instructions now. Once battery unit is installed, or if it is to be installed **remotely** continue with n) below.

**Power supply assembly**

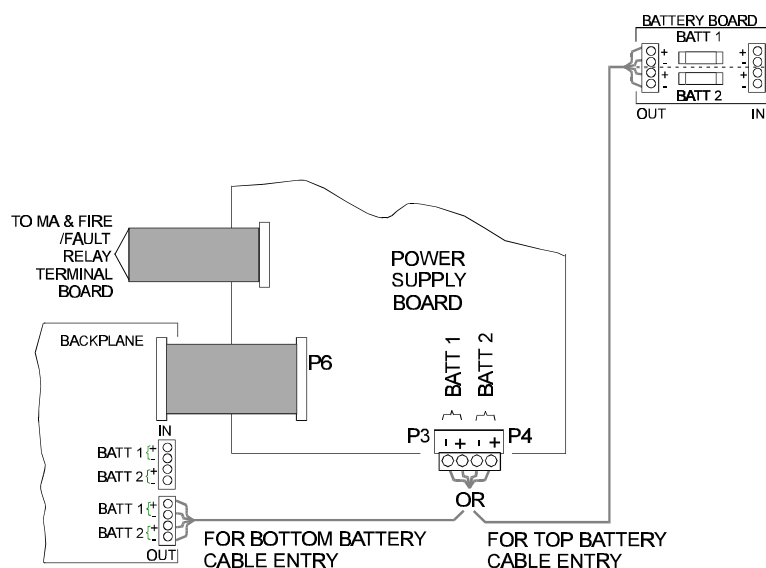
**NOTE:** *It is recommended that the power supply assembly is left until the commissioning process to avoid damage to the power supply occurring during any subsequent building work.*

- n) Fit and secure the power supply assembly to the back box by tightening the five captive-screws.
- o) Connect the two ribbon cables (from the back plane and terminal card) and the battery cable assembly to the **power supply board**.

Figure 6-3 Connection of Battery cable assembly



cdn20



**NOTE:** *For top cable entry the battery cables to be routed to the top battery connection board. For bottom cable entry the battery cables to be routed to the backplane board located in the bottom of the panel.*

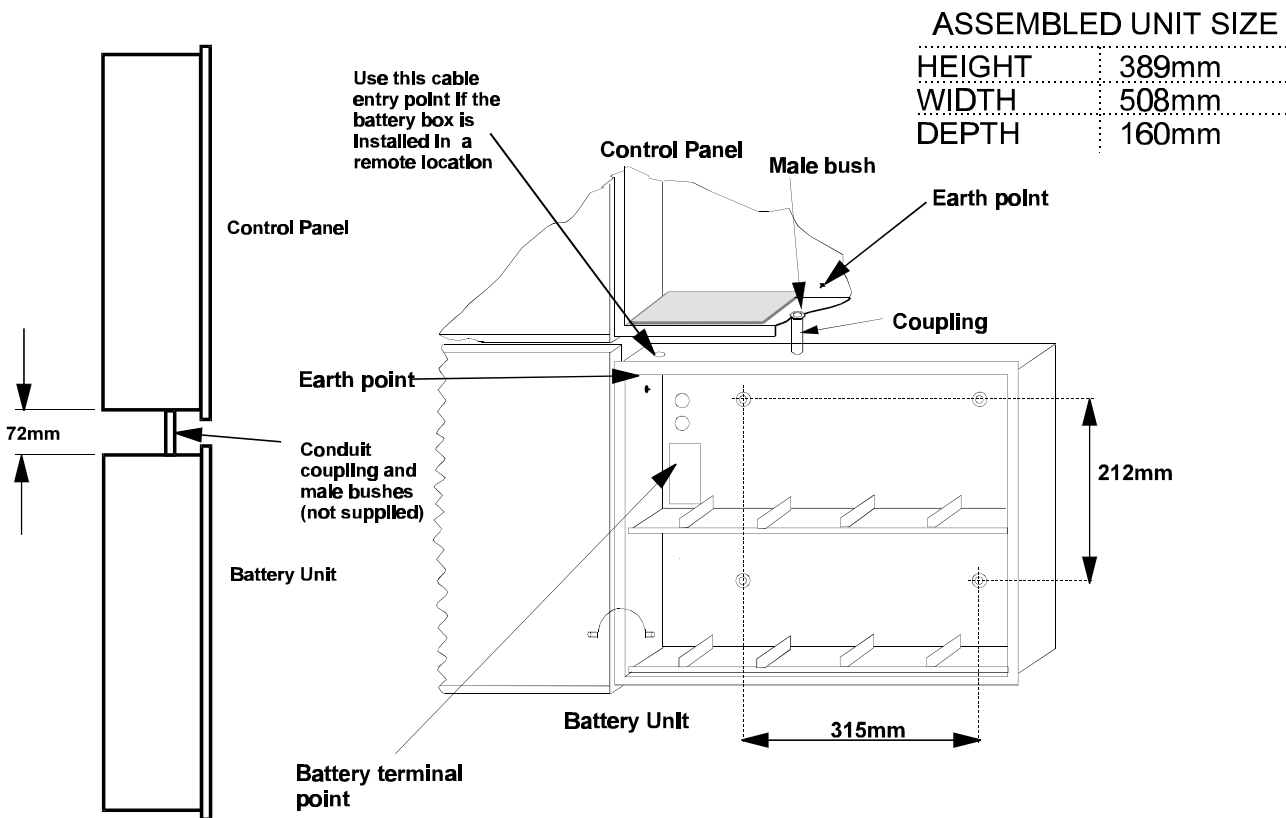
- p) Connect the **earth lead** from *upper case earth* to *PSU terminal block*.
- q) Secure the power supply **cover** using previously removed three screws plus the top captive screws.
- Door refitting**
- r) Slide on the door to the back box assembly, ensure the door can open and close easily.
- s) Connect the previously removed ribbon cables to the controller board on the door assembly.
- t) Fit the *door to back box earth lead*.
- u) Ensure all cables are secured to the base of the back box.
- v) Close the door and lock it using the door key. All remaining installation is done during the commissioning of the system.

# 32330 Battery Unit

## Fuses and locations

Fuse	Rating	Location
Batt1	20mm x 5mm 8A	Battery fuse board
Batt2	20mm x 5mm 8A	Battery fuse board

The **battery Unit** may be close fitted beneath the control panel using standard conduit fittings (not supplied).



cdn4

Figure 6-4 Close fitting the Panel and Battery Unit

To maintain earth continuity an earth lead (not supplied) is required to be connected between to an earth point in the control panel and battery Unit.

**NOTE:** The coupling length must not be less than 72mm.

### Cable and Distance

The recommended cable type is MICC. The following maximum cable lengths **must not** be exceeded:

MICC 1.5mm <sup>2</sup>	10m max.
MICC 2.5mm <sup>2</sup>	15m max.

- a) Identify the package labelled BATTERY UNIT and check the contents, which should include:

Component	Quantity
Battery Unit	1
Door key	1
Fuse 8A (Battery)	2
Battery cable loom	2
Battery link	4
Nut and washer (for earth stud)	1

- b) Open the battery unit door using the door key.
- c) Remove the *back box to door* earth lead.
- d) Remove the **door** from the back box assembly, by sliding it up and off.
- e) Knock out/in the appropriate cable entries. Mark out the back box **fixing points** on the wall to which the box is to be mounted.
- f) Secure the back box to the wall with suitable fixings to provide adequate support for a full assembly weight of **40kg**, (with all 8 batteries installed).

**CAUTION:** Do not make the battery connections. This is done during commissioning stage.

- g) Slide the door on to the back box assembly, ensure the door can open and close easily.
- h) Fit the *door to back box* earth lead.
- i) Close the door and lock it using the door key.
- j) Continue with the control panel installation, if the battery Unit has been close fitted to the control panel.
- k) All remaining installation is done during the commissioning of the system.

## Mains Connection



## cdn7



## 32520 Fire Alarm Repeat Panel Set

The 32520 Repeat Panel Set consists of two packages:

- a) 32522 Fire Alarm Repeat Panel
- b) 13495-01 Battery Pack

### 32522 Fire Alarm Repeat Panel

Where appropriate refer to as fitted wiring diagrams (if supplied), general notes, EMC compliance, LVD compliance, cable types and loop circuit connections.

### Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 1A SD	Mains terminal block
FS1	20mm x 5mm 2.5A QB	MRC pcb
FS2	20mm x 5mm 2.5A QB	MRC pcb

The **repeat panel** can be **surface or flush** mounted.

- a) Identify the FIRE ALARM REPEAT PANEL package and check the contents, which should include:

Component	Quantity
Repeat panel	1
Fuse 1A	1
Fuse 2.5A	1
Door key	1
Enable controls key	1

- b) Open the panel door using the door key.
- c) Remove the backbox to door earth lead.
- d) Disconnect the two ribbon cables from the main controller board, mounted on inside of door.
- e) Remove the door.
- f) Remove the *back box to cover* earth lead.
- g) Loosen the *cover captive screw* and then remove the cover.
- h) Knockout the required **cable entry** points from the back box.
- i) If the panel is to be **flush mounted** then follow the instructions for flush mounting the repeat panel now.
- j) Mark out the 3 back box **fixing points** on the wall to which the panel is to be mounted.

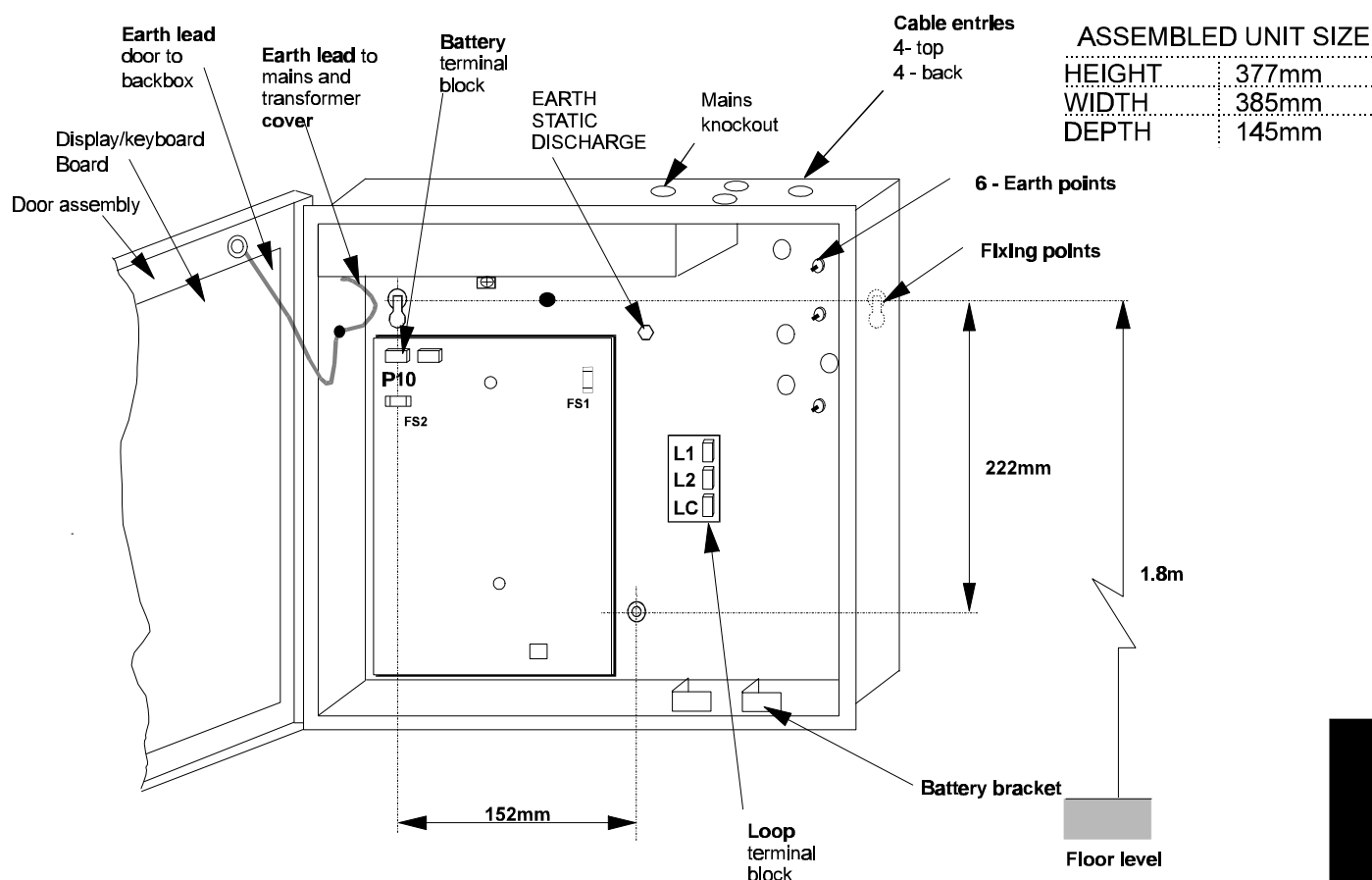


Figure 6-7 Repeat Panel back box

cdn11

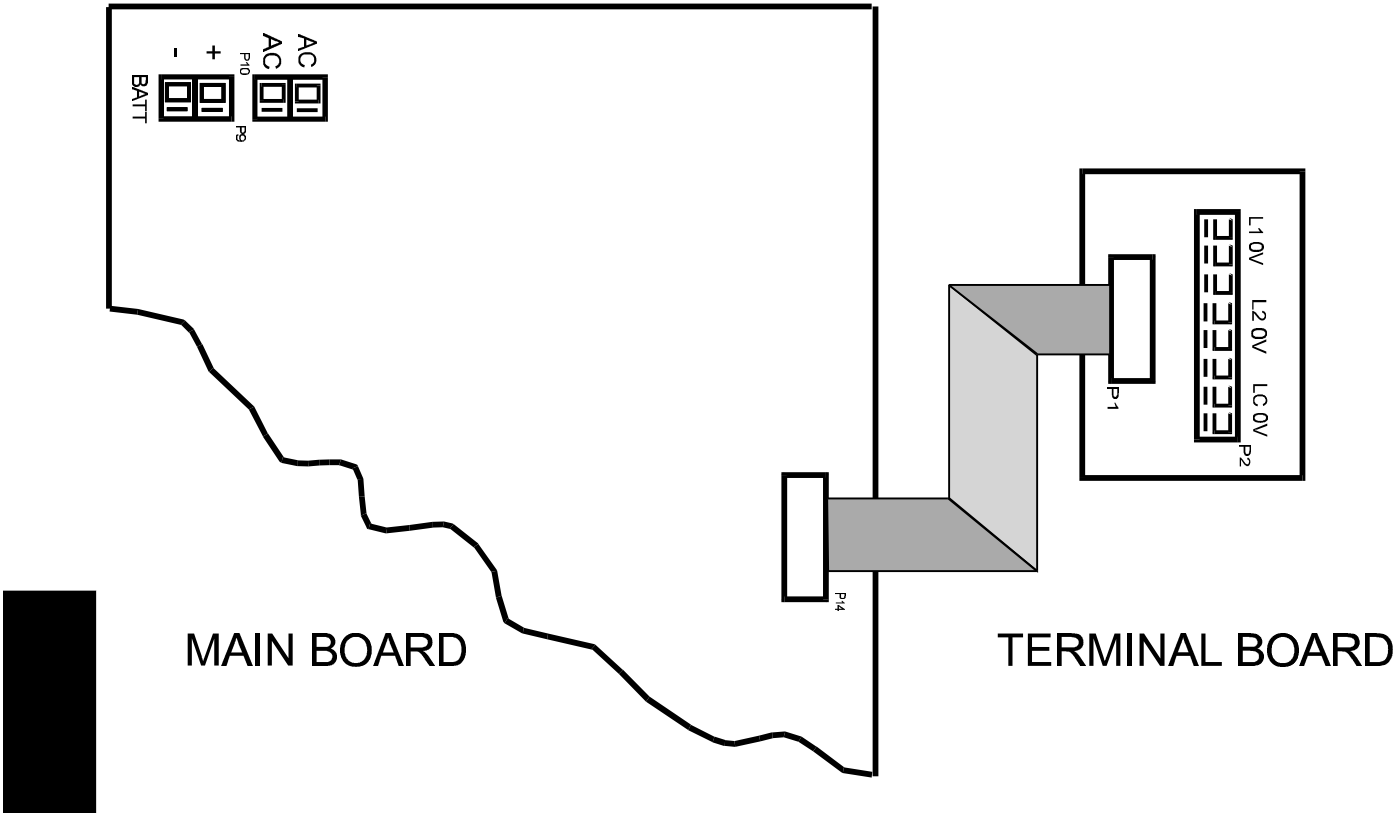
- k) Secure the back box to the wall with suitable fixings to support a full assembly weight, including the batteries, of **14kg**.
- l) Terminate the cable at the entry point leaving **400mm** tail wire length.

**WARNING:** The mains cable tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching ON of the mains supply.

- m) Secure the cover to the back box using the captive screw.
- n) Replace the *cover to back box* earth lead.
- o) Re-fit the door, earth lead and ribbon cables previously removed.
- p) Close the door and lock it using the door key. All remaining installation is done during the commissioning of the system.

**CAUTION:** Do not connect the mains and battery cables, these will be connected during the commissioning stage.

# Fire Repeat Panel Connections



cdn10

Figure 6-8 Repeat panel connection points

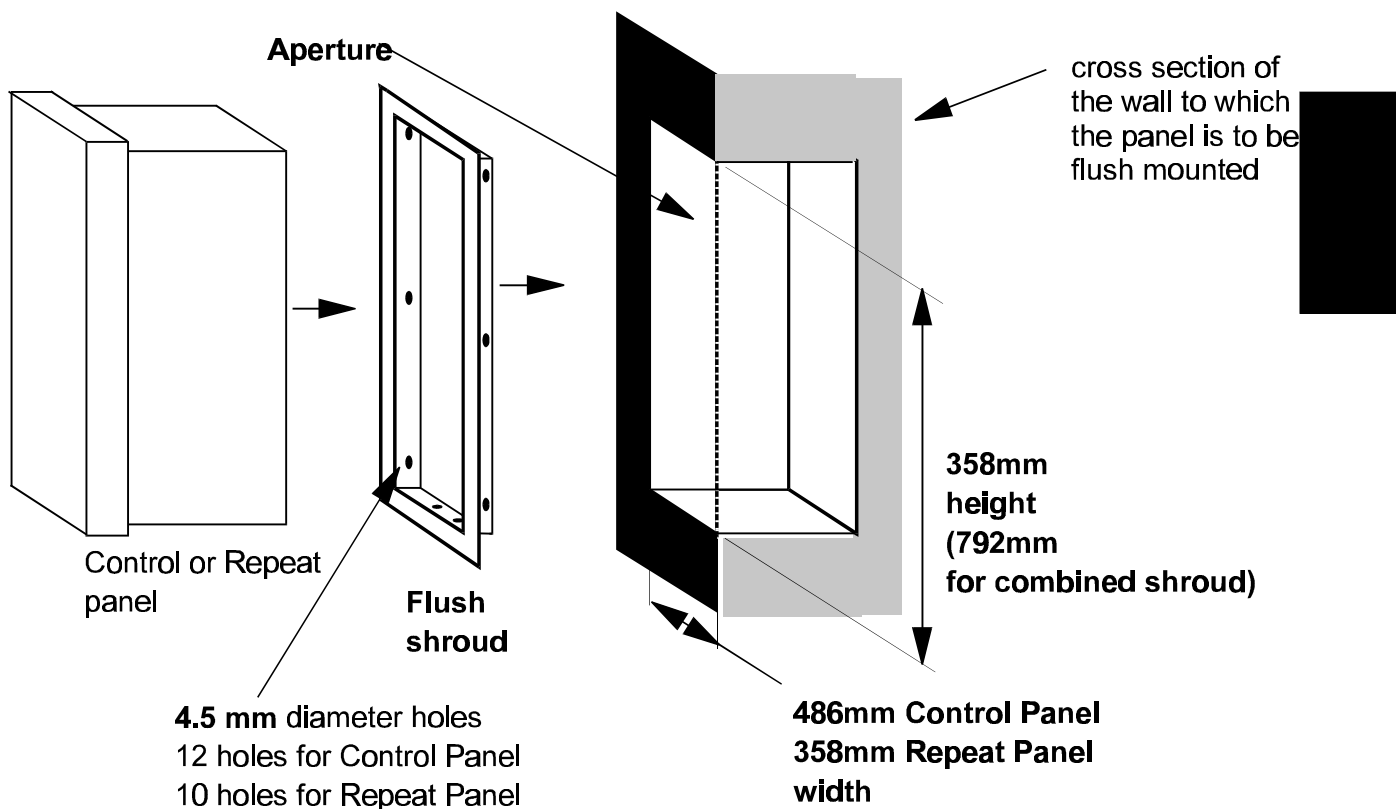


## Flushing Fixing Panels

It is possible to flush fix the control panel, with or without the battery box, and the repeat panel. The following does not cover the battery unit in detail, however the method is the same.

- a) Identify the package labelled **FLUSH MOUNTING FOR CONTROL PANEL (32029)** or **REPEAT PANEL (32529)** and check the shroud. The battery unit and control panel can be flush mounted by using a **COMBINED (32329)** shroud.
- b) Cut out an aperture in the **wall** to allow the flush shroud is to be fitted.

**CAUTION:** The panel back box may be flushed no more than **92mm maximum** (for full 180° door opening).



emfl63

Figure 6-9 Flush fixing the Control or Repeat Panel

- c) Use the shroud fixing holes to secure it to the wall.

**NOTE:** The combined shroud must be mounted the correct way up - look for the 'TOP' sign on the shroud.

- d) Continue with the control **or** repeat panel installation instructions.

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# 32700 Terminal Plate

Where appropriate refer to as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.

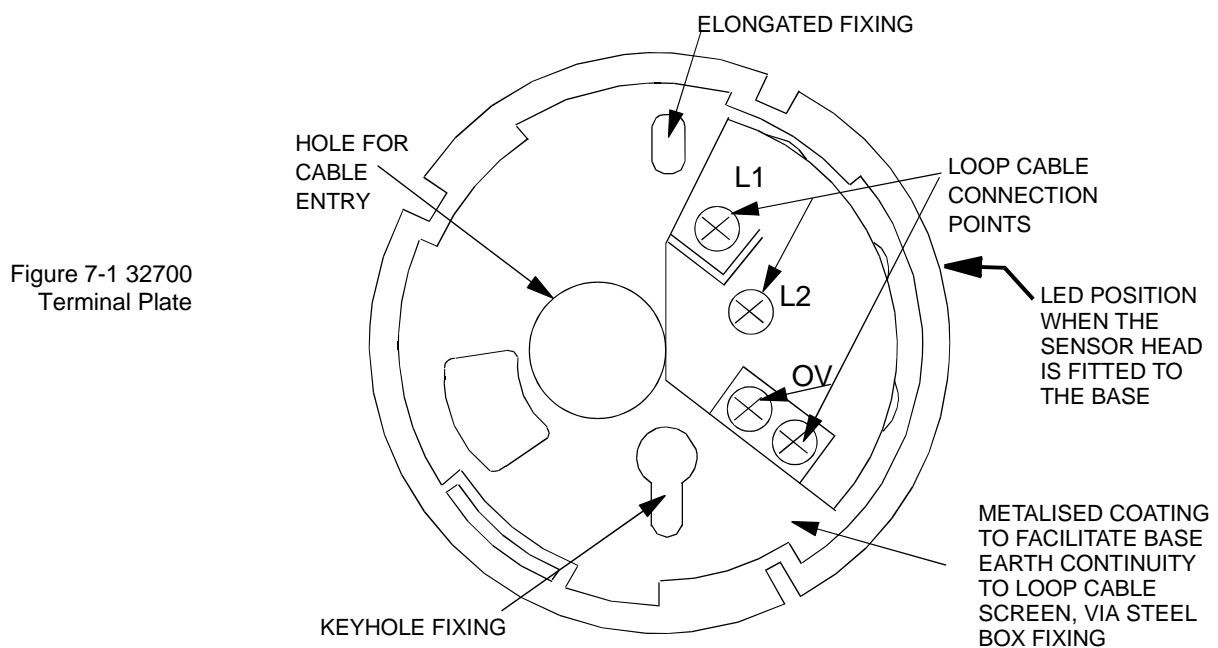
**CAUTION:** Use the correct **tool** and **technique** to fit or remove any **part** of the **32000 fire sensor** or **terminal plate**.

To provide the right coverage, each fire sensor must be fitted to a terminal plate in the location as defined by the site specific information.

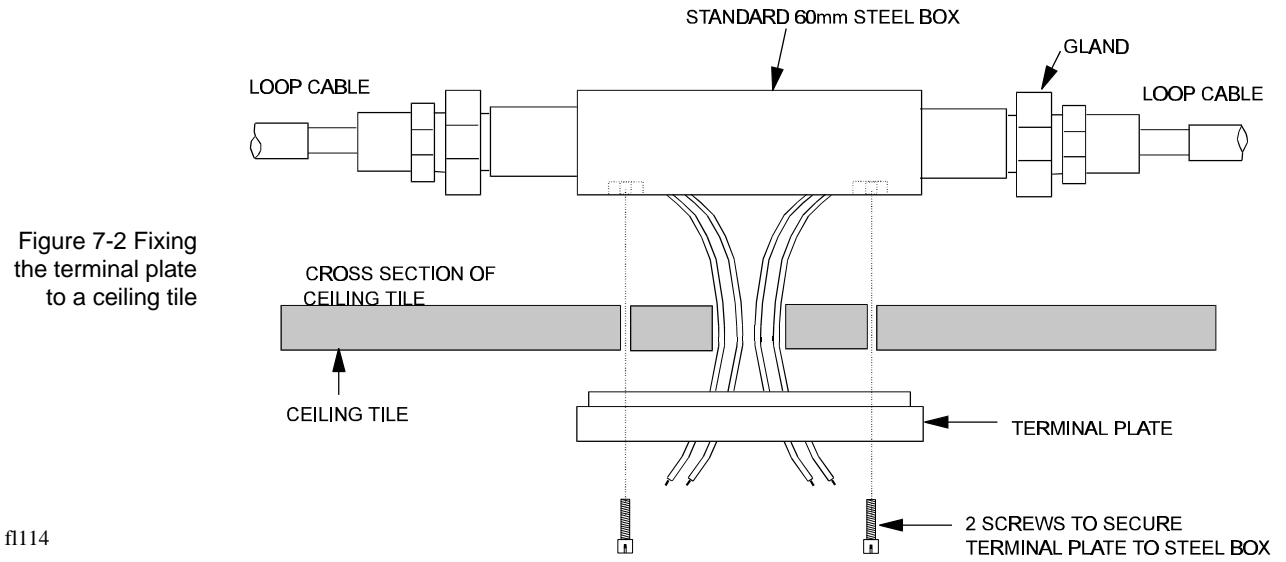
**CAUTION:** To prevent **dirt** and **dust** in the environment degrading the performance of the **fire sensors**, the sensor head installation should be carried out by the installer just prior to the commissioning of the system.

## Terminal Plate installation

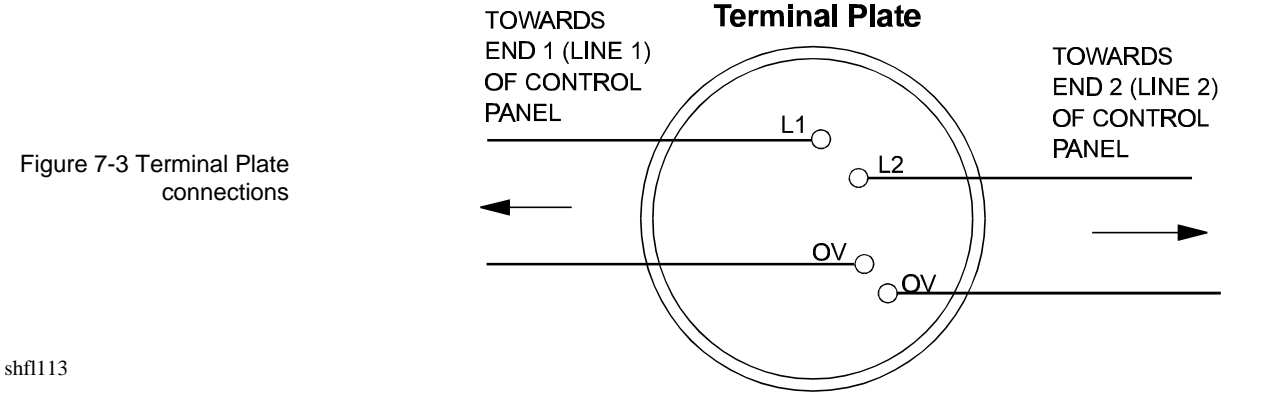
The following illustrations provide information on how to install and wire the sensor terminal plate.



f1112



f1114



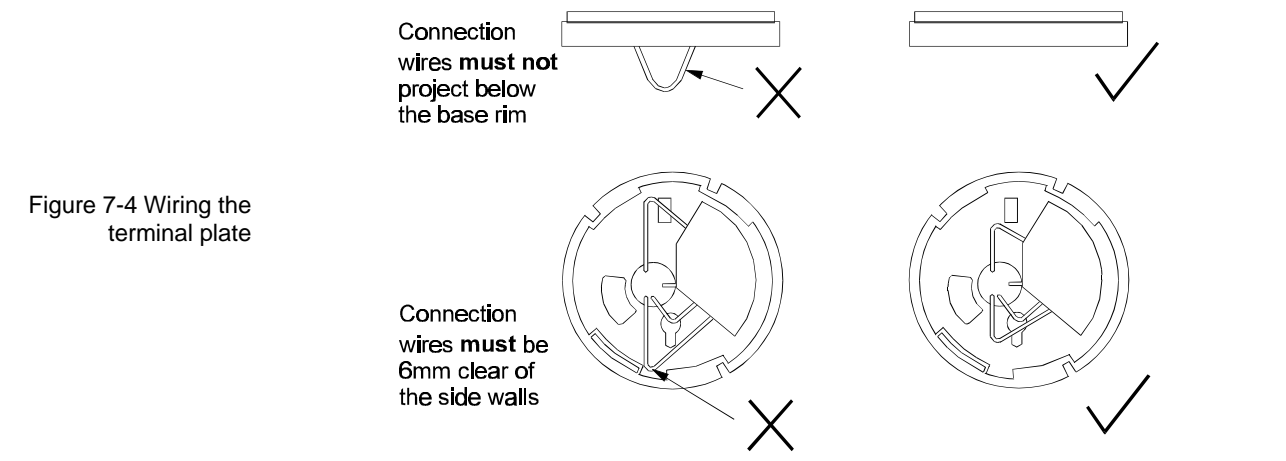
shf1113

**Earthing requirements**

**NOTE:** It is essential that earth continuity is independently maintained around the loop via the cable screen.

**Terminal Plate wiring**

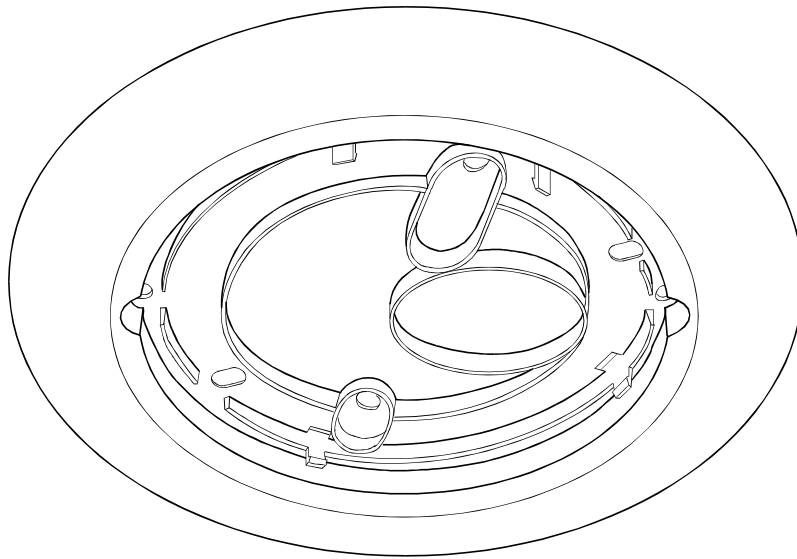
To correctly wire the terminal plate:



f1374

## 19279-10 Sensor Trim Ring

The sensor trim ring is used to cover up large diameter holes, especially those which may be found during refurbishments.

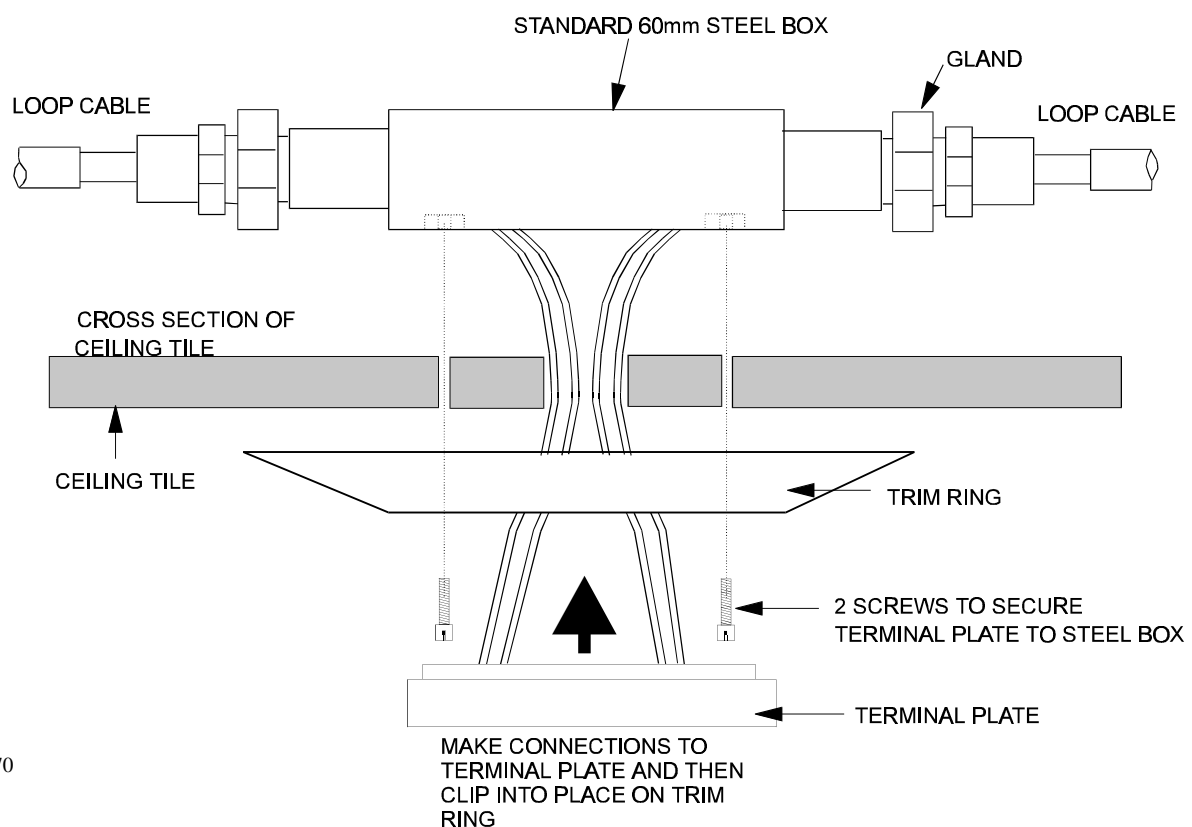


cdn94

Figure 7-5 Sensor trim ring

### Fitting the trim ring

If the sensor trim ring is being installed, it must be fitted to the surface prior to fitting the terminal plate. The connections are then made to the terminal plate and the terminal plate is then clipped into position on the trim ring.



cdn170

Figure 7-6 Fitting the trim ring

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## 32000 Fire sensors

Where appropriate see, general notes and EMC compliance.

**CAUTION:** To prevent damage to a **32000 sensor**, the correct **tool** and **technique** must be used when removing or fitting sensor, or its sub assembly, to and from terminal plate.

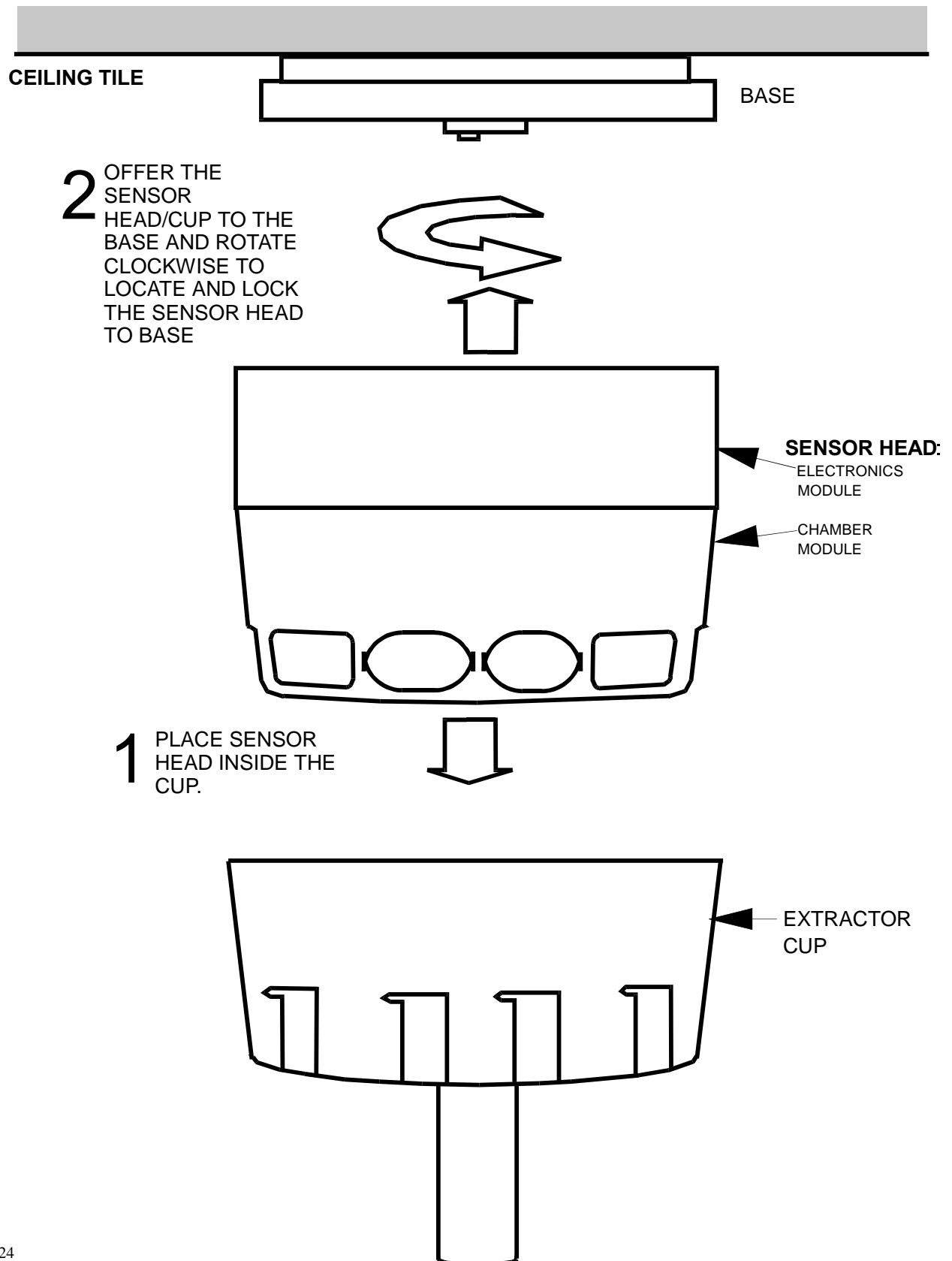
**CAUTION:** Damage will occur if undue force is used on fitting or removal of any part of a sensor assembly.

A **32700 terminal plate** provides 2-way loop connection to a sensor, for the following devices:

32715	Optical sensor
32720	Heat sensor
32730	Ionisation sensor
32775	Optical sensor sounder
32780	Heat sensor sounder
32777	Repeat sounder

## Fitting a 32000 sensor head to terminal plate

To fit a **32000 fire sensor head** to a **terminal plate**, use the **extractor cup 17918-22**. For easy-to-reach **terminal plate**, the **sensor head** may be held in hand.



f1124

Figure 8-1 Fitting a sensor head to terminal plate

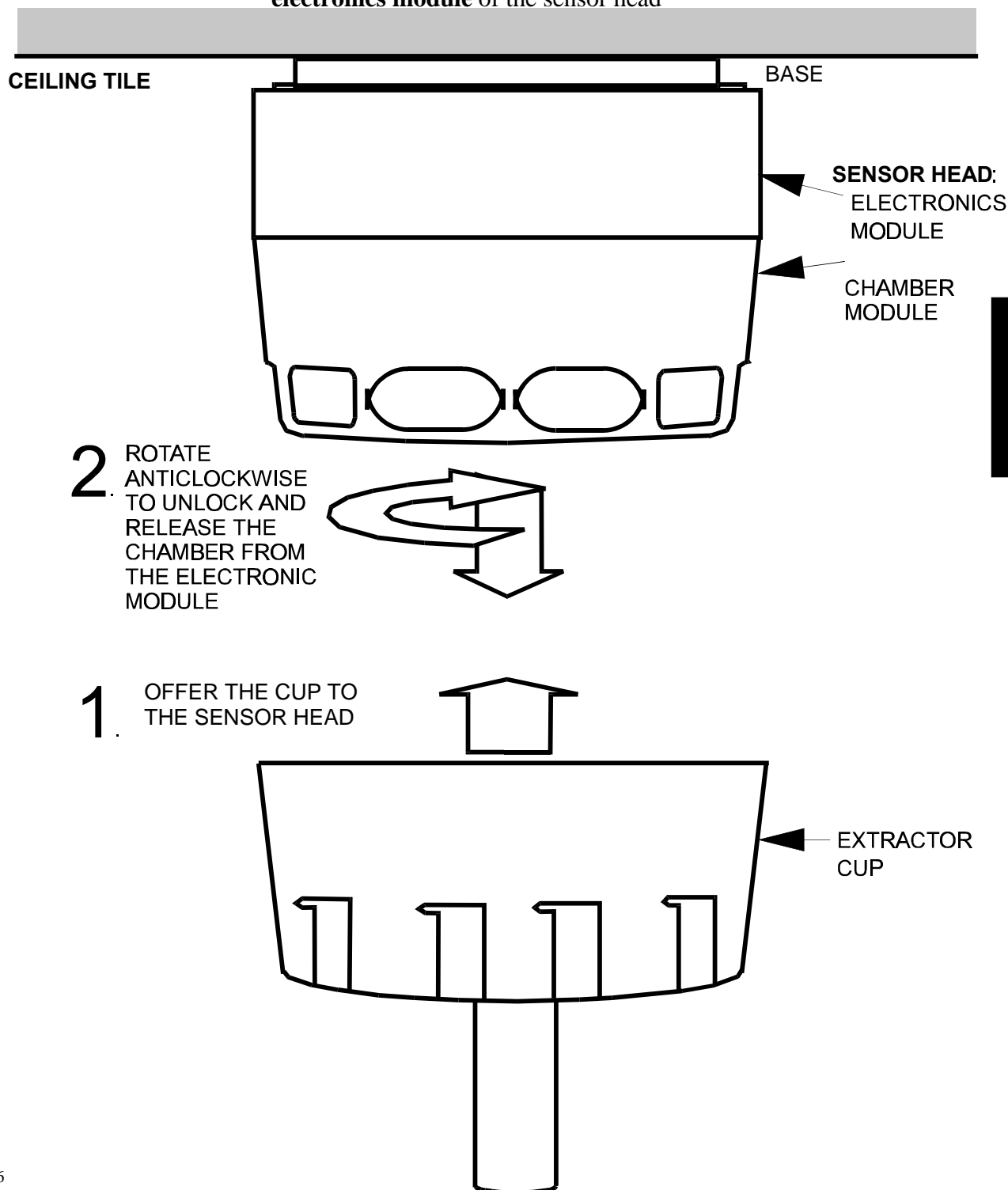


## Removal of 32000 sensor head from terminal plate

Use the **extractor cup** 17918-22, and the **correct electronics module removal tool**:

- 17918-23 for Optical sensor and combined sounders
- 17918-24 for Ionisation sensor
- 17918-25 for Heat sensor

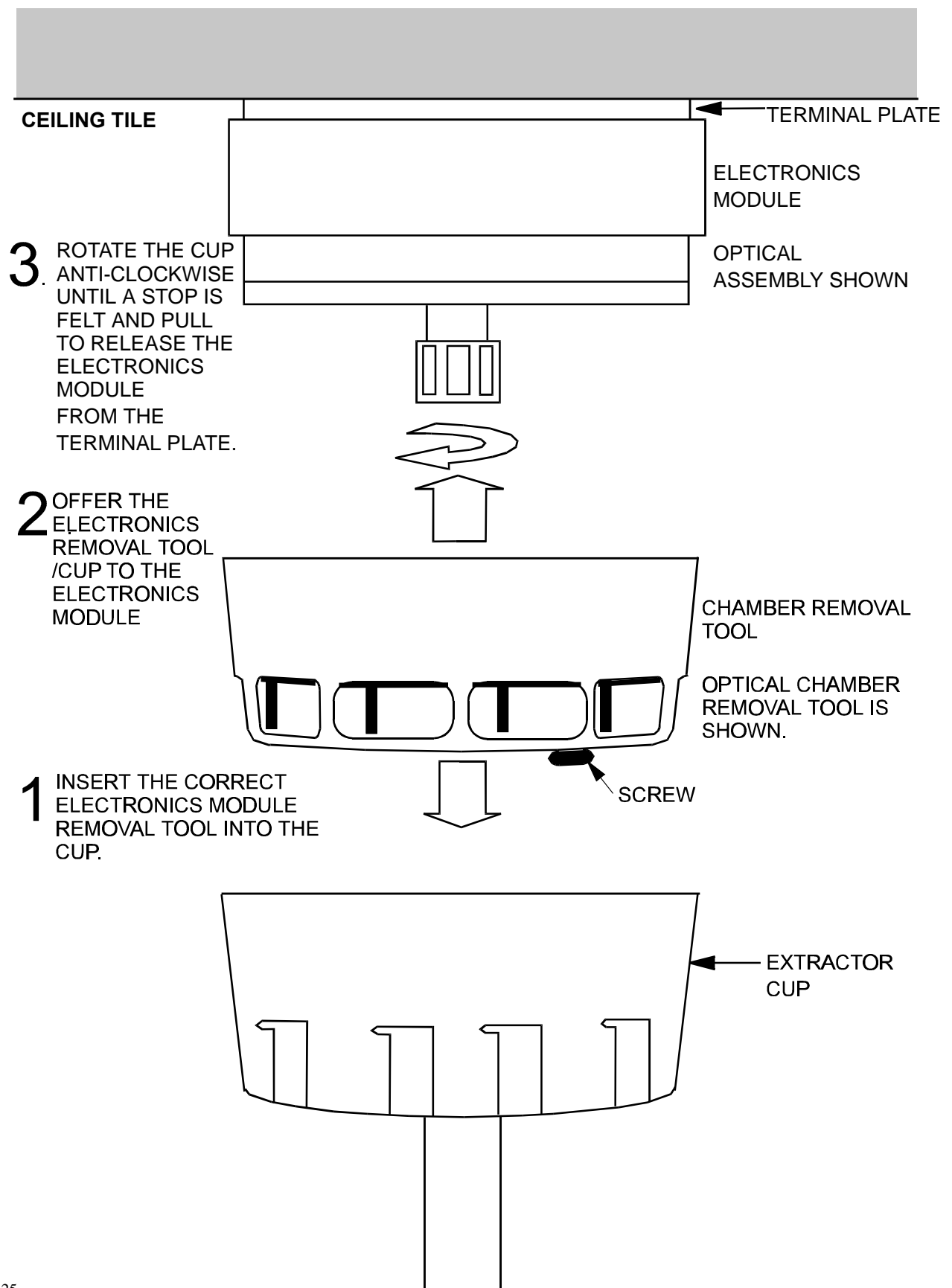
- a) Using the extractor cup, remove the **chamber module** from the **electronics module** of the sensor head



fl126

Figure 8-2 Removal of the chamber module

- b) Using the **extractor cup** and appropriate **electronics module removal tool**, remove the electronics module from the terminal plate.

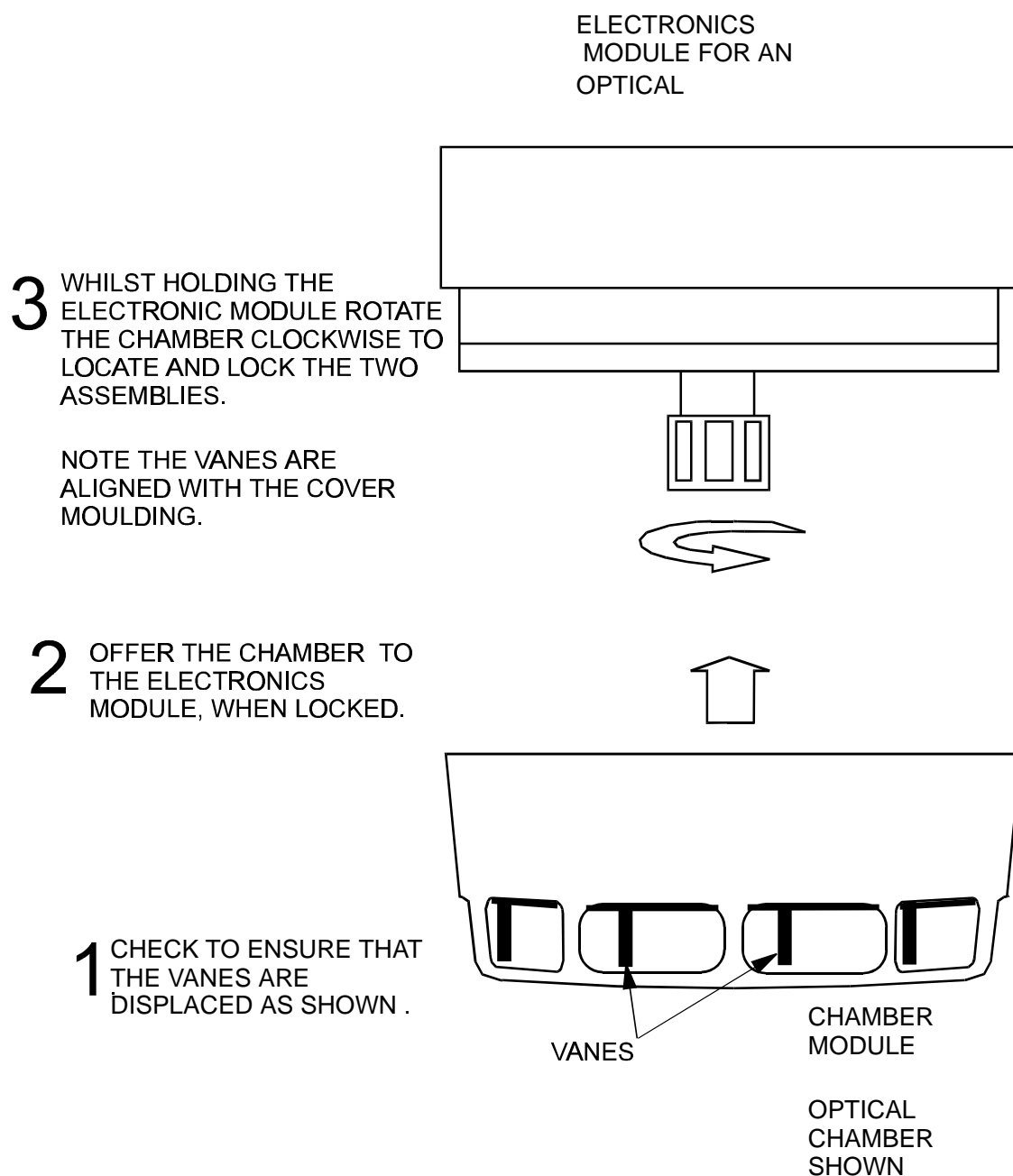


emfl125

Figure 8-3 Removal of electronics from terminal plate

## To assemble a 32000 sensor head

Use the following technique when fitting together a chamber to its respective **electronics module** to respective **chamber module**.



emf1127

Figure 8-4 Fitting together chamber and electronics

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# 19279-01 Semi flush mounting kit

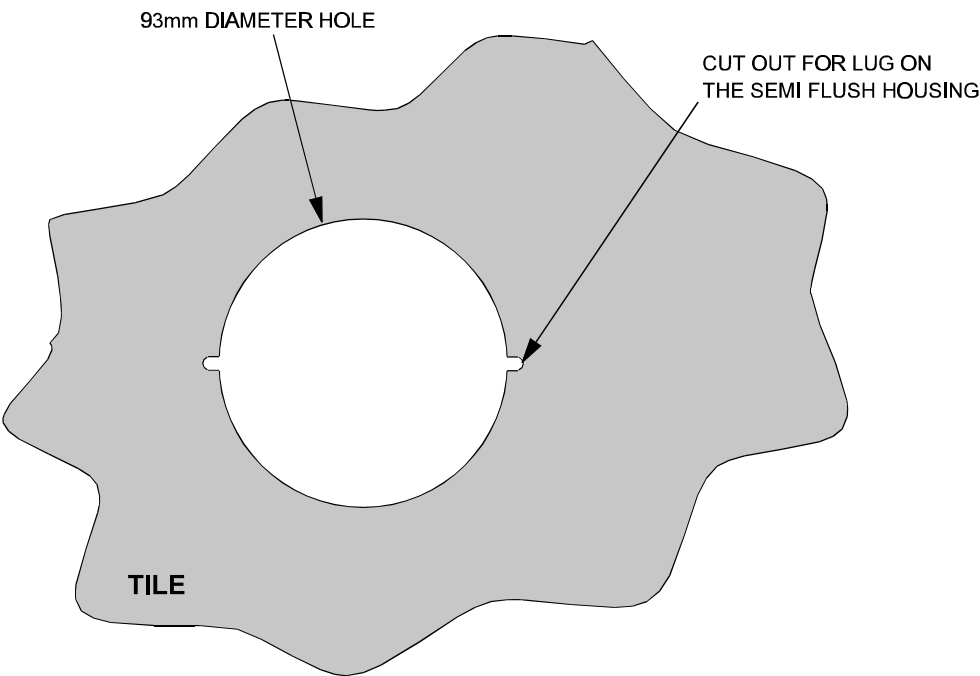
Where appropriate refer to as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.

These procedures describe how to semi flush a 32000 fire sensor to a ceiling tile. A 32700 terminal plate and 19279-01 semi flush mounting kit are required.

- a) Identify the package 19279-01 SENSOR FLUSH MOUNTING KIT and check the contents:

Component	Quantity
Semi flush housing	1
Flush ring	1
Clamp	2
Clamping ring	1
Locking screws	2

- b) Remove the ceiling tile to which the semi flush mounting kit is to be fitted.
- c) Cut a hole 93mm diameter in the tile to allow for the lugs on the semi flush housing.

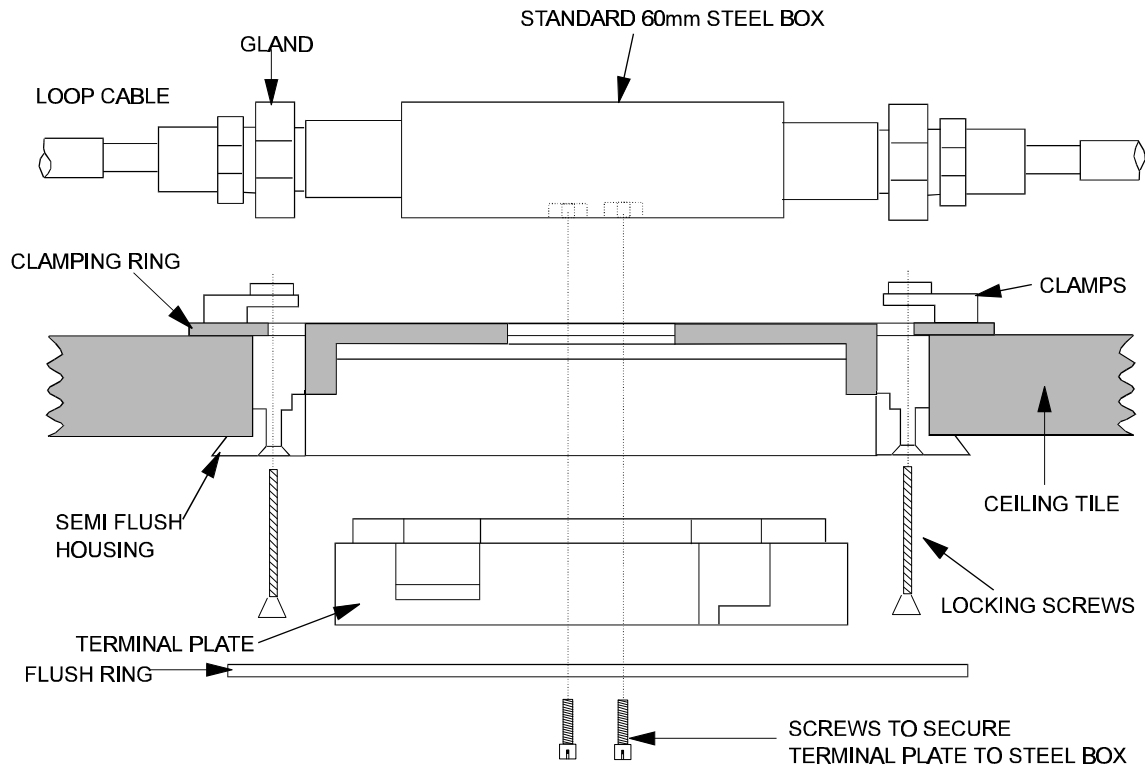


f1115

Figure 9-1 Cutouts for lugs

- d) Assemble the semi flush housing to the tile using the clamp ring, clamps and locking screws.

- e) Replace the tile loosely.
- f) Feed the loop wires through the semi flush mounting and terminal plate.
- g) Secure the terminal plate to the steel box (BESA box).



f1116

Figure 9-2 Flush kit installation

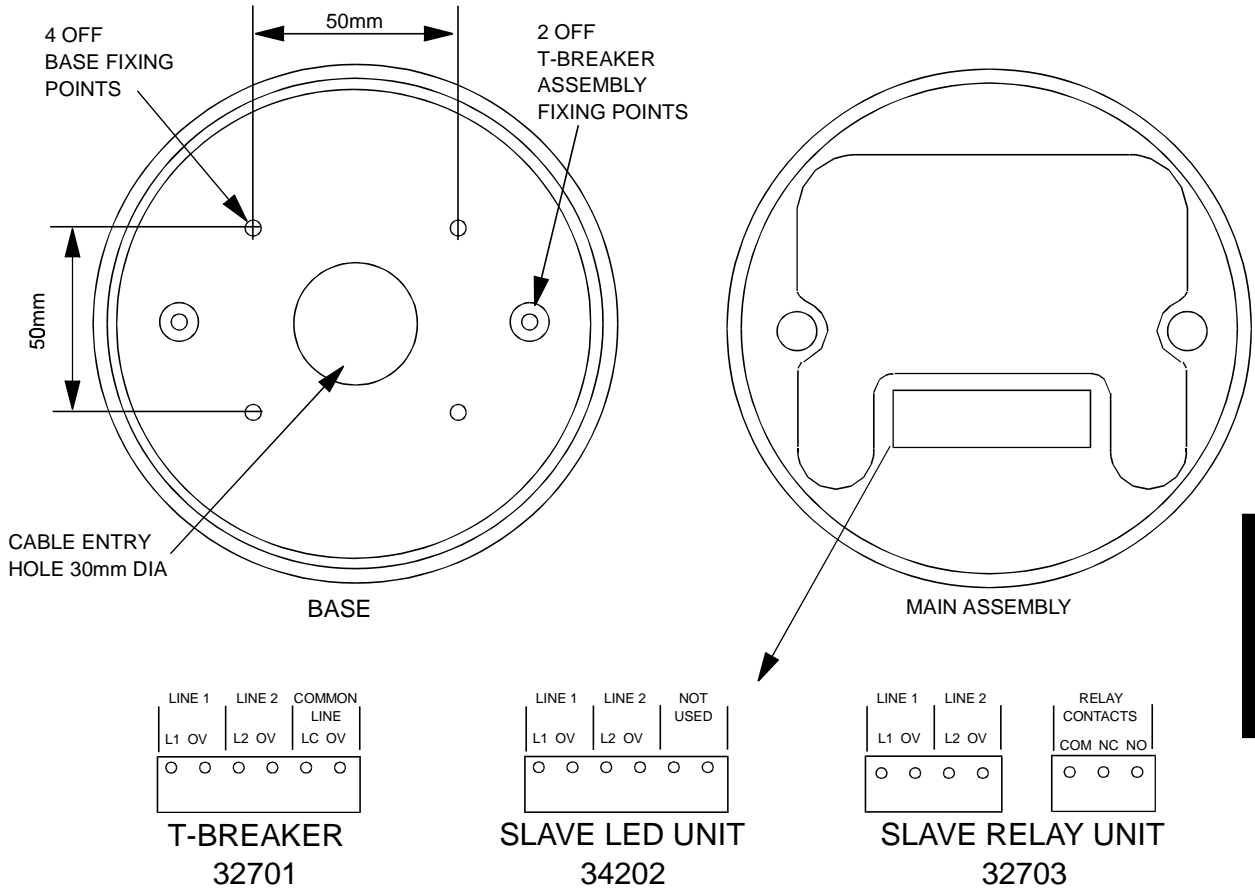
- h) Clip the flush ring to the semi flush housing.

**CAUTION:** Follow the procedure for wiring the terminal plate to prevent damage to the head.

- i) Connect the loop cables to the terminal plate.

# T-breaker and slave units

Where appropriate refer to as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.



shf1128

Figure 10-1 T-breaker and slave units

- 32701**  
**T- breaker**

A t-breaker provides a means of making 3-way loop connection to spur circuit.
- 32702 Slave LED unit**

A slave LED unit repeats the operation of an LED on an associated 32000 fire sensor. The slave is connected on the loop before the associated 32000 fire sensor, i.e. towards end 1.
- 32703 Slave relay unit**

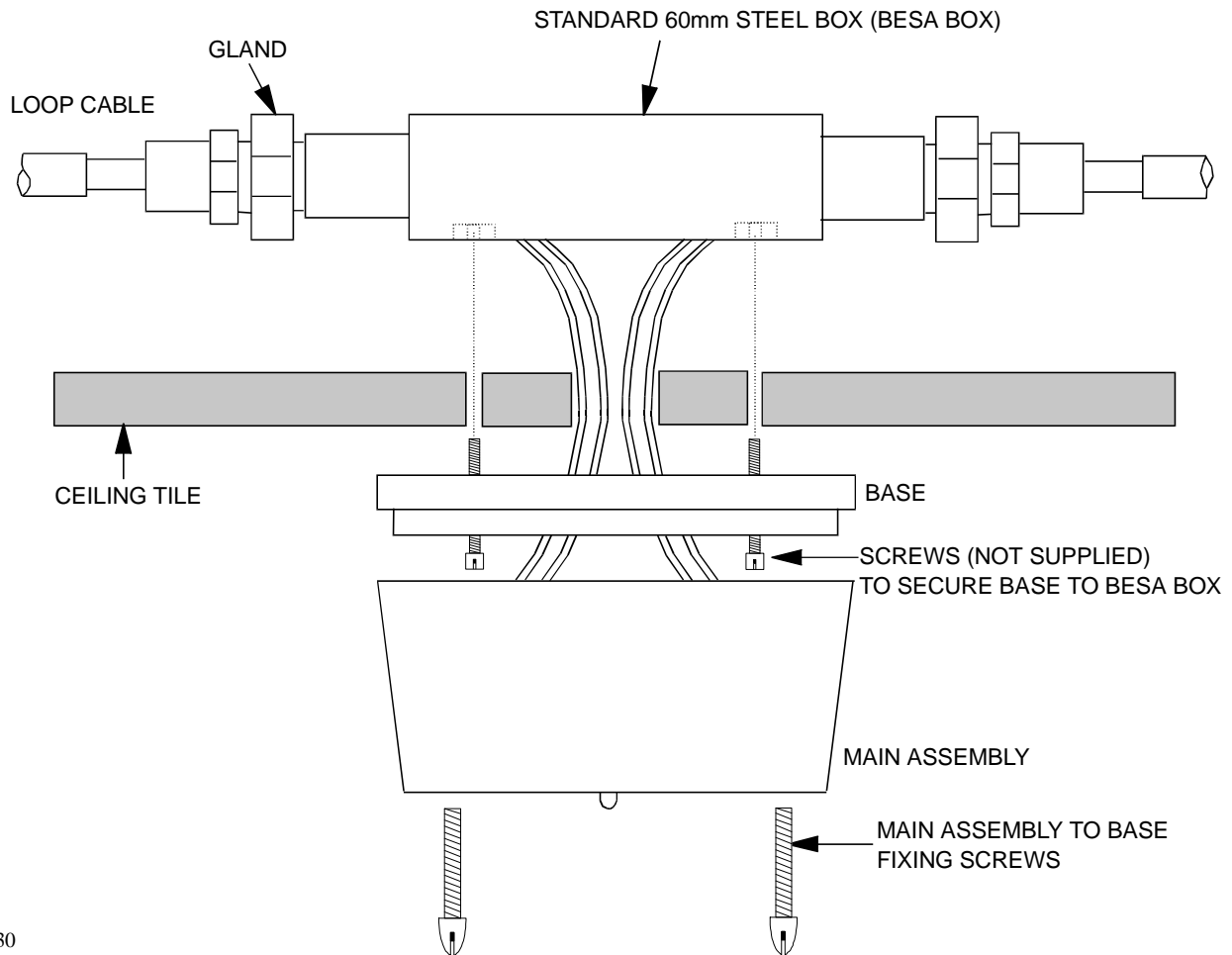
A slave relay unit operates with the associated 32000 fire sensor connected on a loop circuit. The slave is connected on the loop before the associated 32000 fire sensor, i.e. towards end 1.
- Installing a unit**

a)

Identify the package labelled 32701 T-BREAKER, 32702 SLAVE INDICATOR (LED) UNIT or 32703 SLAVE RELAY UNIT and check the contents:

Components	Quantity
Main assembly	1
Base	1
Fixing screws	2

- b) Remove the **ceiling tile** to which the **base** is to be fitted.
- c) **Punch or drill** the required cable entry and base fixing holes in the tile.



f1130

Figure 10-2 Fitting a t-breaker or slave unit

- d) Feed the loop wires through the tile and base, and then secure the base to the steel box.
- e) Re-fit the ceiling tile.
- f) Connect the wires to the terminal block on the **main assembly** and secure the main assembly to the base using screws provided.



# 32760 Duct Sensor

Where appropriate refer to the as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.

The duct sensor consists of a housing assembly and probes for installation on to a ventilation duct.

- a) Identify the packages labelled DUCT SENSOR 32760 and PROBES FOR DUCT HOUSING 7908-05 and check that it has the following parts:

Component	Quantity
Duct Housing	1
Plastic Bungs	2
Lock Nuts	2
Inlet Probe	1
Exhaust Probe	1

- b) Mark out the position of the two probe hole centres on the duct.

**NOTE:** It is important to take into account the direction of the air flow in the duct and probe orientations.

- c) Drill or punch the two probe holes 35mm diameter in the duct.
- d) Fit the **lock nut** onto the threaded end of each **probe** and fit the respective probe into its coupling on the **duct housing**. Rotate each probe to face the required direction in the duct and secure the lock nuts to prevent probe from rotating.
- e) Insert the probes into the duct until they reach the opposite wall and measure the gap between the duct housing flange and the duct wall.
- f) Remove the probes from the duct and cut the probe ends by the measured gap + 10mm.
- g) Fit the **plastic bungs** into the probe ends.
- h) Insert the probes into the duct and secure the duct housing using the fixing holes on the flange to provide support to a full assembly weight of 3.3kg.
- i) Terminate each cable at the entry and connect the appropriate cable ends to the terminal block.

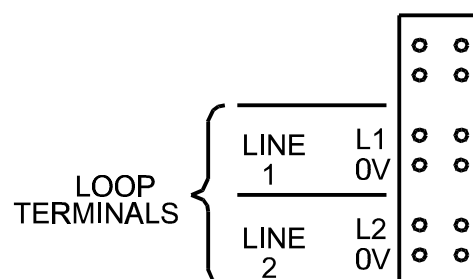
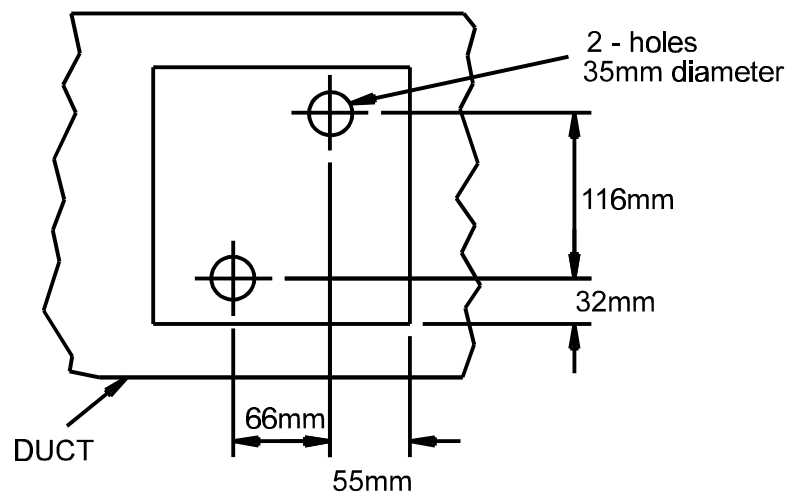
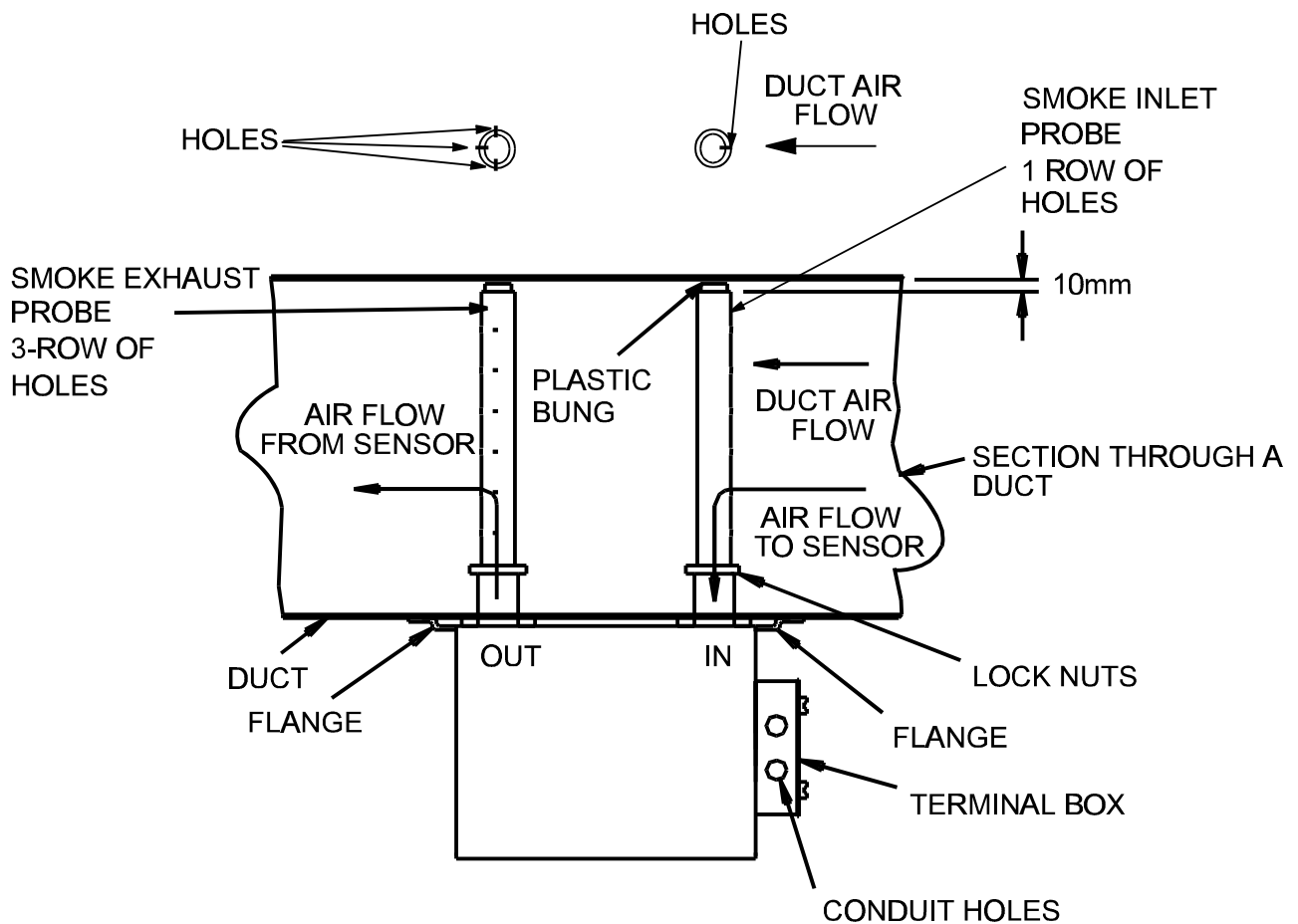


Figure 11-1 Duct Sensor fixing and connections

# Manual Call Points

Where appropriate refer to the as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.

## Surface Fixing

- a) Identify from a range the required type of manual call point MCP:

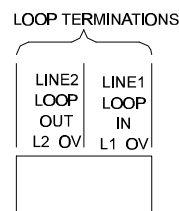
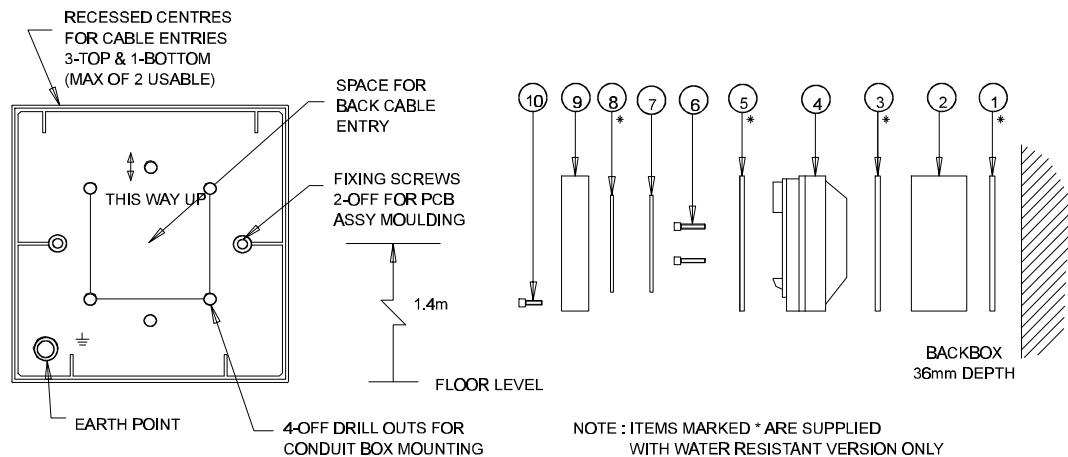
- 32800 Surface mounted MCP
- 32807 Surface mounted MCP keyswitch
- 32842 Surface mounted MCP with cover
- 32812 Surface mounted water resistant MCP
- 32852 Surface mounted water resistant MCP with cover

Check that it contains the following parts:

Component	Quantity
Call point Assembly	1
Back Box	1
Earth Link	1
Test Key	1
Long Screw	2
Small Screw	1
Gasket	1 (Only supplied with 32812 and 32852)

- b) Cut the required holes on the **back box** for cable entry and also on the **square gasket** if applicable.
- c) Feed the cables through the entry holes and mount the back box with the Square Gasket, if used, to an even wall surface using suitable fixing.
- d) Terminate each cable entry at the back box utilising the **earth link** to maintain cable earth continuity.
- e) Disassemble the call point assembly using the end of the **test key** to open the socket head screw.
- f) Feed the cable tails through the **spacer/back box gasket**, if used and connect the cable ends to the loop terminals provided in the **spacer assembly**.

**NOTE:** The terminal block used for Loop connection is specifically designed for a single core of 1.5mm<sup>2</sup> cable only.



- ① - SQUARE GASKET
- ② - BACK BOX
- ③ - SPACER/BACK BOX GASKET
- ④ - SPACER ASSEMBLY
- ⑤ - SPACER/COVER GASKET
- ⑥ - LONG SCREWS
- ⑦ - GLASS
- ⑧ - COVER/GLASS GASKET
- ⑨ - COVER
- ⑩ - SOCKET HEAD SCREW

cdn17

Figure 12-1 Manual Call Point parts

**NOTE:** Ensure the spacer/back box gasket is fitted on and around the back box profile.

- g) Secure the spacer assembly to the back box using the 2 - long screws.
- h) Reassemble the **cover assembly** to the main assembly with the socket head screw. To do this:
  - i) Fit the spacer/cover gasket, if used.
  - ii) Insert the glass in a sloping position.
  - iii) Hang the test key in its operating position.
  - iv) Place the cover/glass gasket, if used, over the glass with its bevelled edge outwards.

- v) Hook the cover onto the main assembly securing the two parts with the allen screw, and remove the test key to leave the call point in its normal operating state.

**NOTE:** Check the cover/glass gasket is not trapped around the circular rim of the cover.

- vi) Fit the socket head screw to secure the cover onto the main assembly. A water resistant version is supplied with a longer socket head screw.

## Semi-Flush Fixing

**NOTE:** When flush fixing the call point, the red plastic back box supplied must be flushed into the wall.

The procedure for installation is similar to the **surface fixing** version except a MCP 2 SEMI-FLUSH MOUNTING KIT (19289-01) , containing a flush plate, must be installed between the back box and spacer assembly.

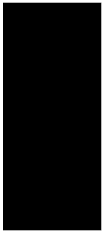
**NOTE:** The water resistant call points 32812 and 32852 **cannot** be used for flush fixing.

## Testing

Push the **test key** through the hole on the underside of the call point to engage the test cam mechanism. Push to operate the cam mechanism. At this point the test key is retained in the call point. Pulling the test key out will reset the glass.

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# Alarm Sounders

Where appropriate refer to the as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.

- a) Identify the appropriate package labelled ALARM SOUNDER, there are two types, a 2-way (32202) or a 3-way (32203) and check the contents.

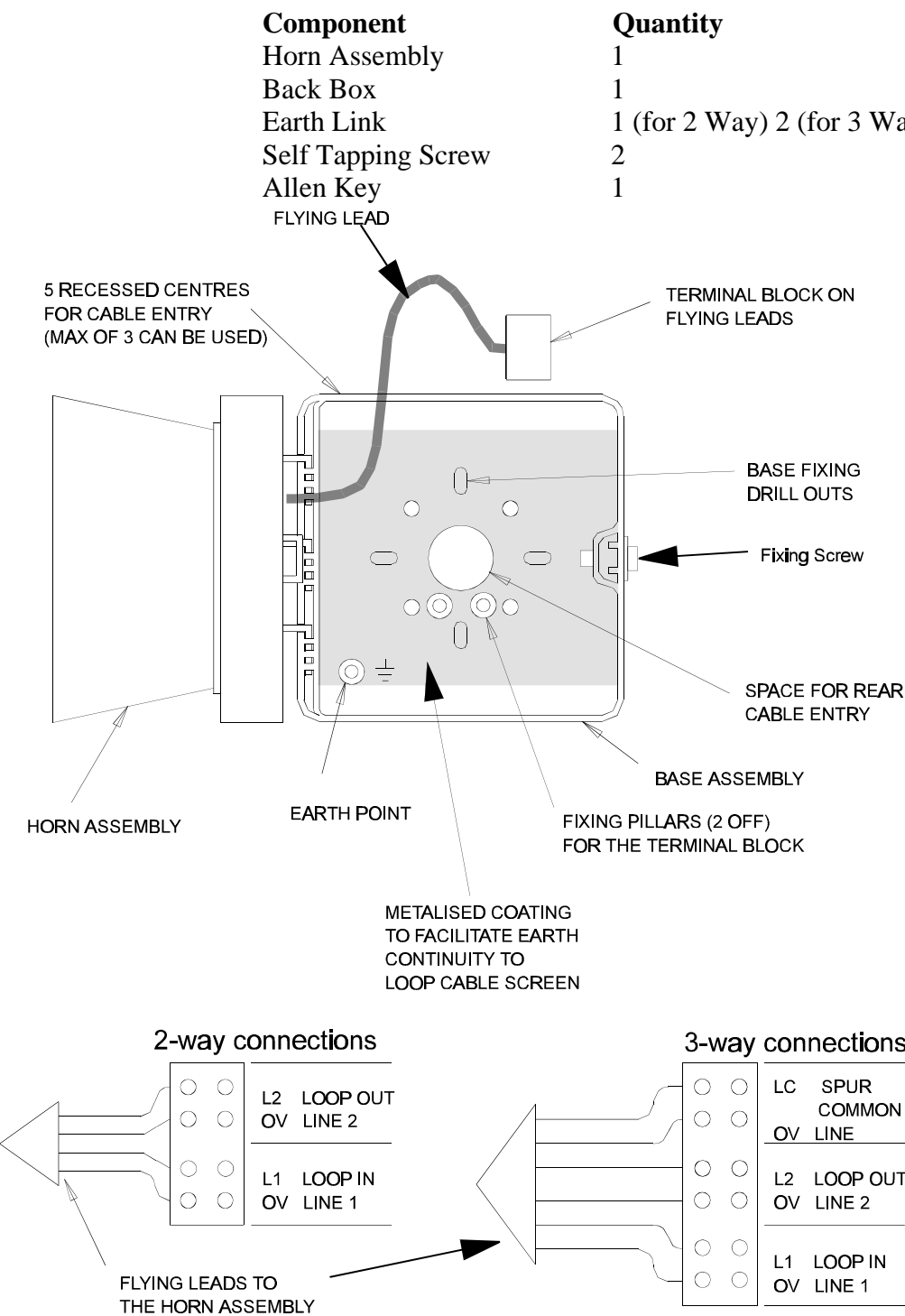


Figure 13-1 Alarm Sander fixing and connections

**NOTE:** Use the key supplied to hinge open the **horn assembly** from the **back box**.

- b) Cut the required cable entry holes using the recessed centres on the **back box**.
- c) Feed the cables through the entry holes and mount the back box to an even surface or BESA box.

**NOTE:** The **loop cable screen** must be electrically connected to the metalised coating in the backbox, either directly via fixing screws or using the earth point, in order to maintain earth continuity.

- d) Terminate the cables at the entry to the back box utilising the **earth links** to provide earth continuity for two cable termination. As an alternative the **earth point** in the back box can be used.
- e) Hook the **horn assembly** onto the back box and secure the **terminal block** to the fixing pillars in the back box using the self tapping screws.
- f) Connect the cable ends to the terminal block.
- g) Close the **horn assembly** onto the **back box** and secure it using the allen key.

## 32777 Repeat Sounder

The 32777 Repeat Sounder is similar to the 32775 Optical Sounder, but does not include the sensor elements. The installation is therefore identical to the sensor installation, see 32000 Fire Sensor section.

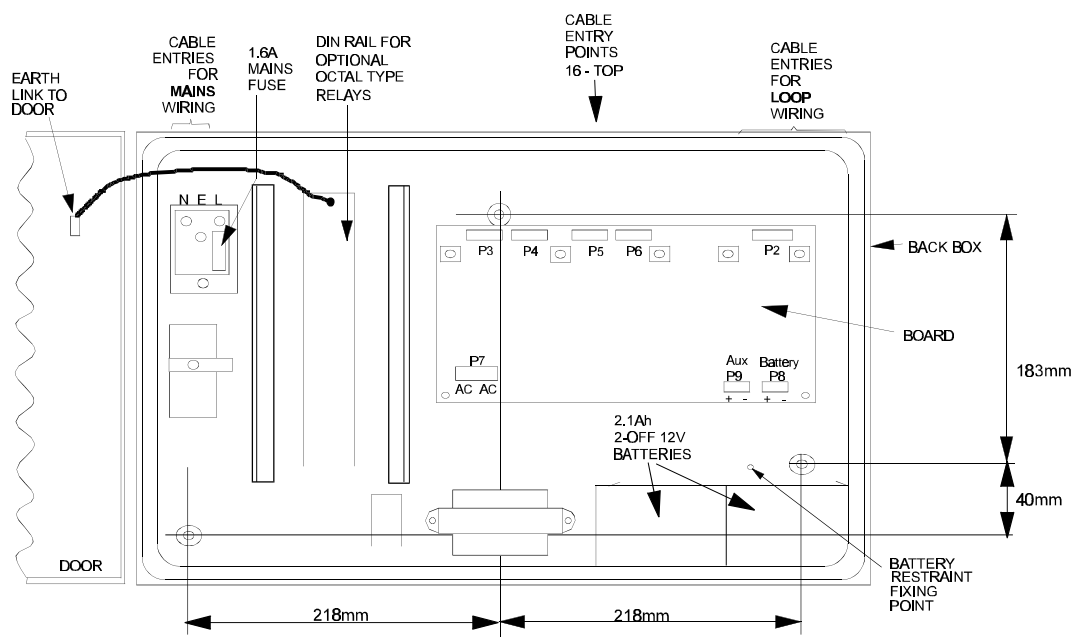


# 32440 Fire Alarm Interface Unit (Mains powered)

Where appropriate refer to the as fitted wiring diagrams (if supplied), plus sections in this manual: general notes, EMC compliance, LVD Compliance, cable types and loop circuit connections.

## Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 1.6A HRC	Mains terminal block
FS1	20mm x 5mm 800mA	Pcb
FS2	20mm x 5mm 800mA	Pcb
FS3	20mm x 5mm 800mA	Pcb
FS4	20mm x 5mm 800mA	Pcb
FS5	20mm x 5mm 2.5A	Pcb
FS6	20mm x 5mm 800mA	Pcb



NOTE: THE BATTERY RESTRAINT BRACKETS ARE NOT SHOWN.

ASSEMBLED UNIT SIZE	
HEIGHT	305mm
WIDTH	504mm
DEPTH	98mm

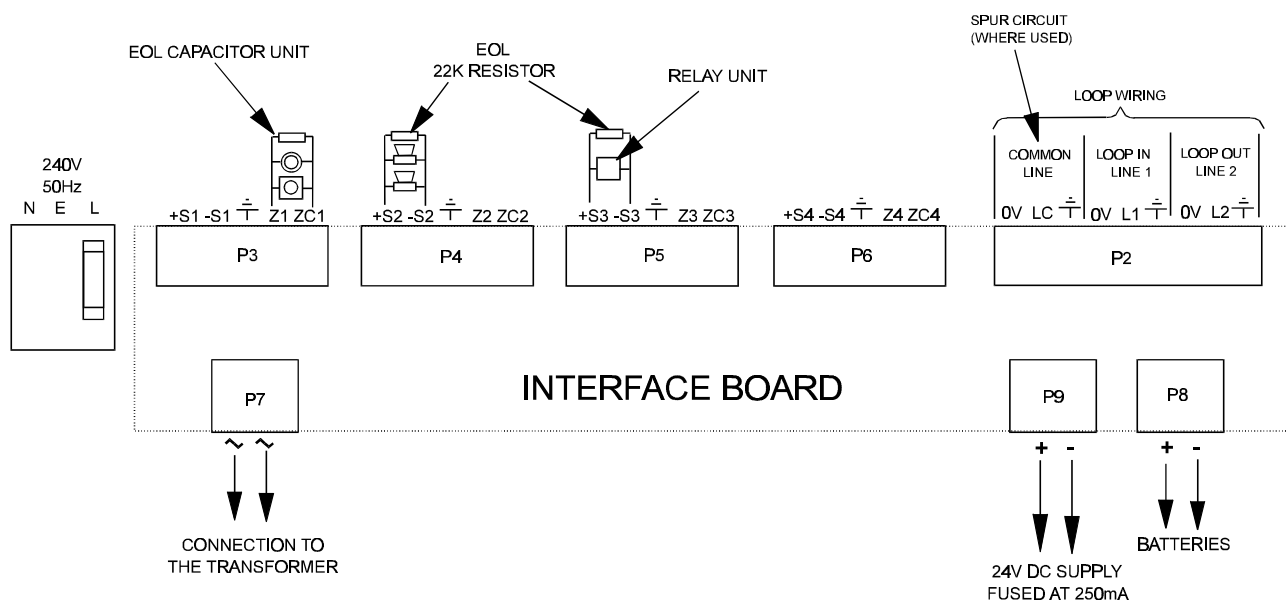
- a) Identify the FIRE ALARM INTERFACE (MAINS POWERED) package numbered 32440.
- b) Open the door using the **key** and check all components...

Component	Quantity
Unit	1
Interface Board	1
Screws (for board)	7
12V 2.1Ah Battery	2
Key	1
Battery Link	1
Battery lead	1
0.25A Aux Fuse (Spare)	1
1.6A Mains Fuse (Spare)	1
2.5A Battery Fuse (Spare)	1
800mA Quick Blow Fuse (Spare)	4
Capacitor Unit (EOL)	4
EOL Label	5
22k Resistor (EOL)	4

- c) If necessary, remove the door on the unit to ease installation.
- d) Remove the covers fitted over the **mains terminal**.
- e) Knockout the required cable entry points from the back box.
- f) Mark the 3 fixing positions on the wall to which the unit is to be mounted.
- g) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of **8.6kg**.

**NOTE:** If the unit is to switch heavy **non-mains loads**, then optional **POWER RELAYS 19245-05** must be used. The relays may be installed on the DIN rail inside the unit. The relay unit must include a serial diode

- h) Terminate each cable at the entry point.
- i) Fit the **interface board** inside the backbox using the **screws** provided.



cdn21

Figure 14-2 Connections Details

- j) Connect the incoming cable ends to the appropriate terminals.
- k) Connect the transformer secondary wires to terminal block P7 on the interface board.
- l) Place the batteries inside the backbox.
- m) Fit the covers fitted over the **mains terminal** and **battery restraint bracket**.
- n) If removed, re-fit the door and earth lead.

**NOTE:** The **capacitor unit** and the **22k Resistor** must be fitted to the end-of-line (EOL) of each circuit.

**NOTE:** Stick an **EOL label** inside the last device on each circuit or where the EOL unit is fitted.

- o) Close the door on the Unit using the Key.
- p) Leave all outstanding parts and installation work to servicing org.

# 19104-52 Power relay

Figure 14-3 Relay holder

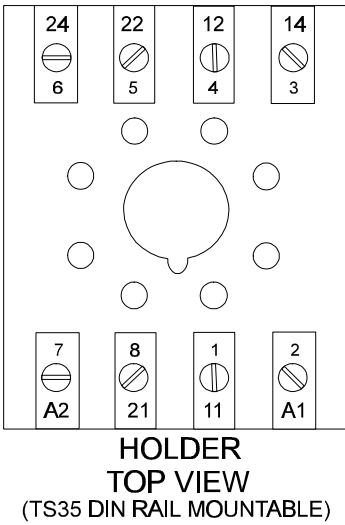


Figure 14-4 Diode unit

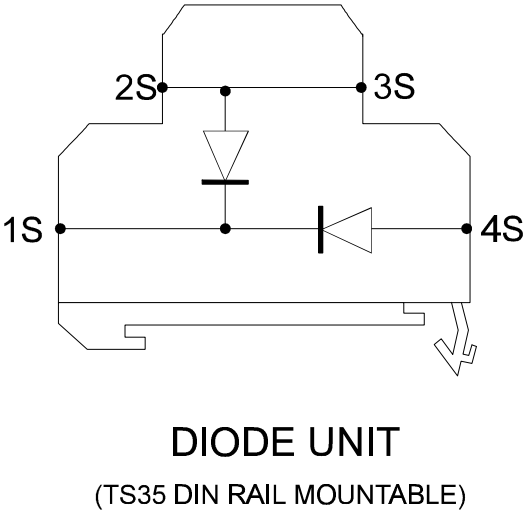
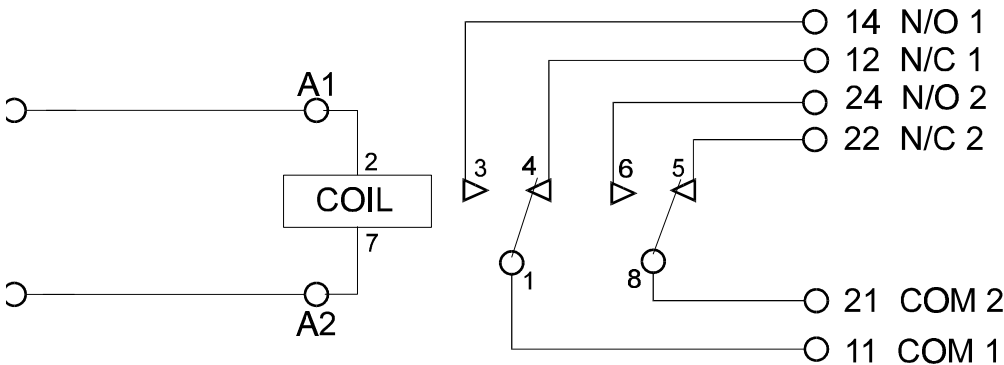


Figure 14-5 Relay connections



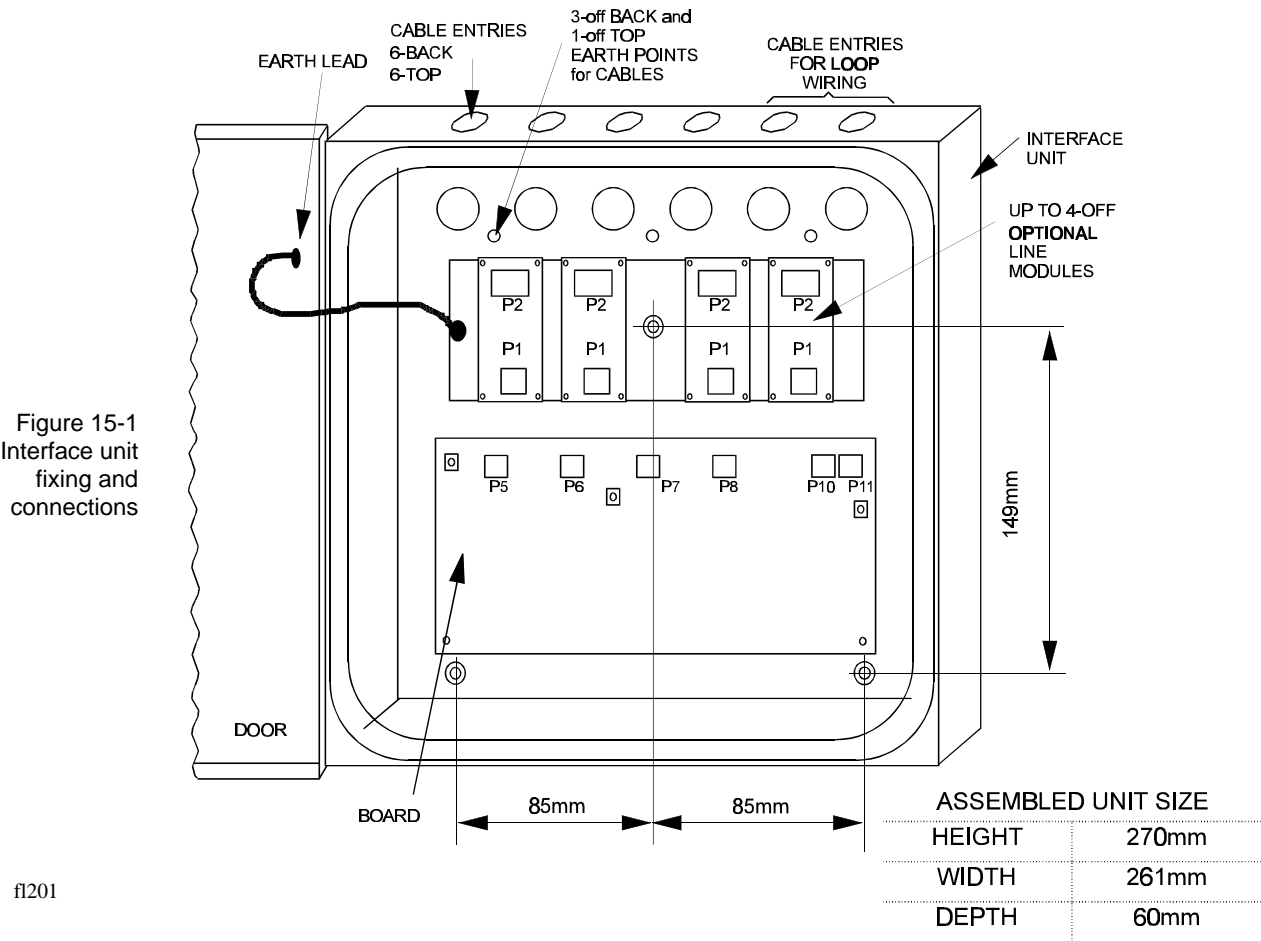
# 32450 Fire alarm interface unit (Loop powered)

Where appropriate refer to the as fitted wiring diagrams (if supplied), plus sections in this manual: general notes, EMC compliance, LVD compliance, cable types and loop circuit connections.

## Fuses and locations

Fuse	Rating	Location
FS1-4	20mm x 5mm 100mA HRC	Pcb

- a) Identify the package labelled FIRE ALARM INTERFACE UNIT (LOOP POWERED) numbered 32450.



- b) Open the door using the **key** and check all components.

Component	Quantity
Unit	1
Interface board#	1
Screws (for board)#	5
Key	1

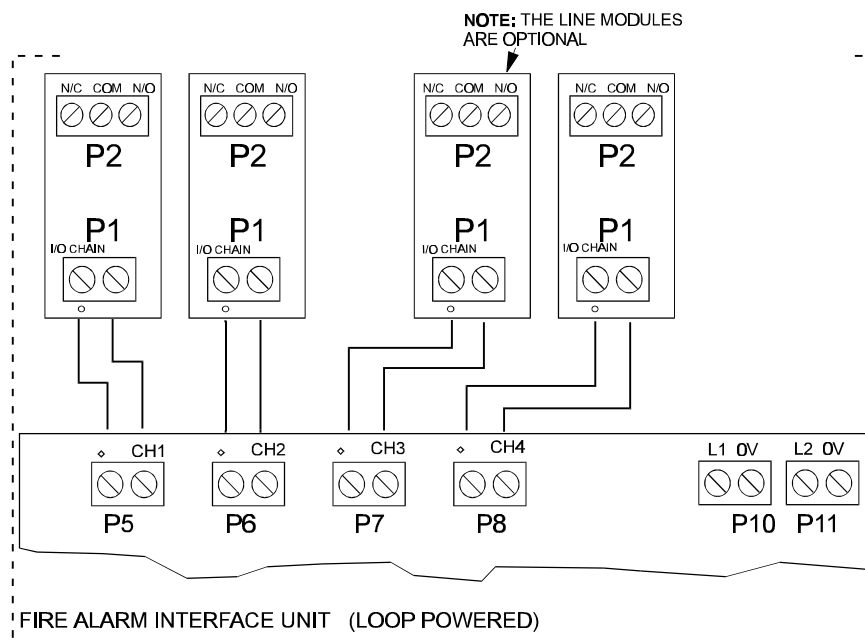
#these components are packaged separately

- c) Knockout the required cable entry points.

**NOTE:** Mount the unit with cable entry points at the top.

- d) Mark and drill the **three** hole fixing positions on the surface to which the unit is to be mounted.
- e) Secure the unit to the surface with suitable fixings to support a fully assembled weight of **2.4Kg**.
- f) Terminate each cable at the entry point.
- g) Fit the **interface board** using the screws provided.

Figure 15-2  
Line module  
internal  
connection  
details



- h) Fit the **line modules** (part no. 19245-05 supplied separately) inside the backbox, if required.
- i) Connect the appropriate cables ends to their terminals.

**CAUTION:** It is important to keep cables away from the **locking mechanism** on the door.

**NOTE:** The connection of internally fitted **line module** should be left for the Engineer, unless otherwise instructed.

A remotely installed line module should not be located more than **100m** cable distance away from the interface unit, assuming **1.5mm<sup>2</sup> MICC** is being used. An overall limit of **1Km** of line module monitoring cable per loop is allowed.

**NOTE:** *If a keyswitch is fitted to a channel, no line module can be connected to that channel*

- j) Close the door on the unit using the key.
- k) Leave all outstanding installation work to servicing organisation.

## 32457 Class Change Interface

The 32457 Class Change Interface is a 32450 Loop Powered Interface supplied with a single Line Module.

### Installation

Installation is as for the 32450 Loop Powered Interface.



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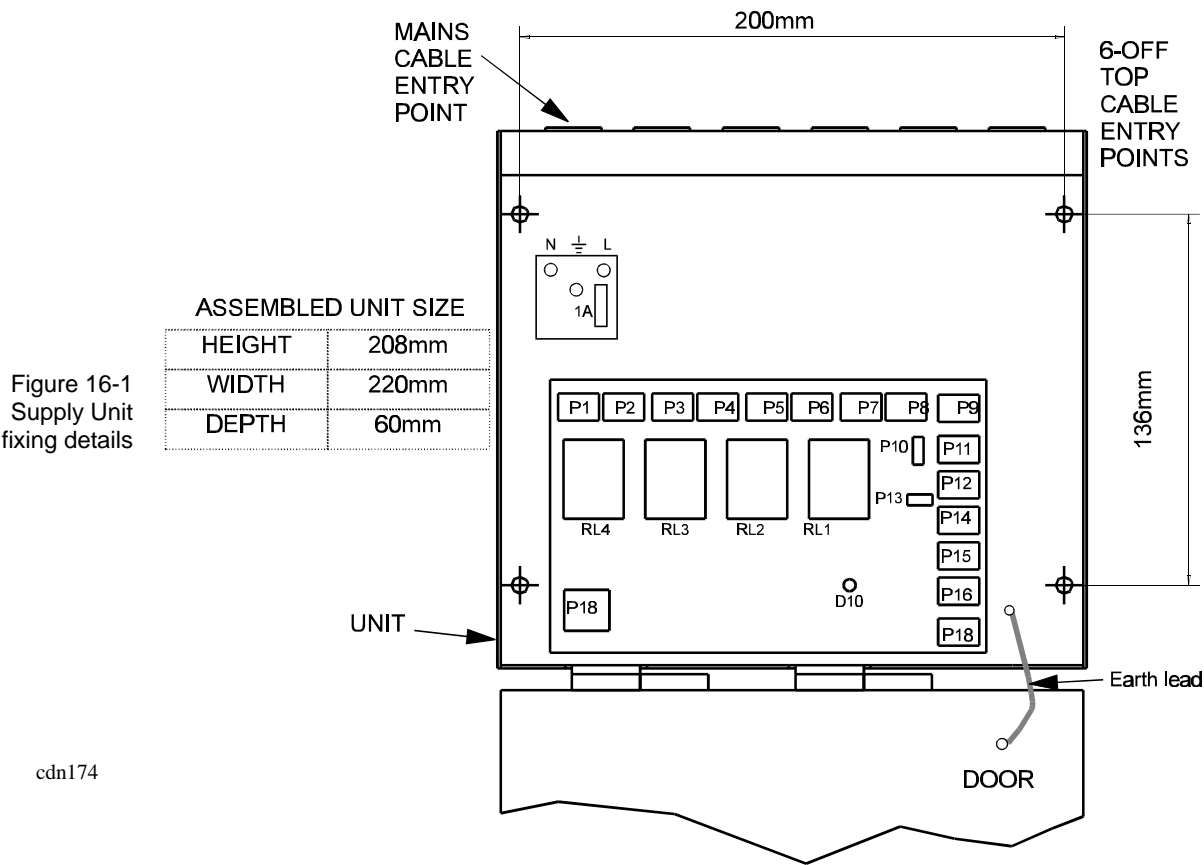


# 19245-06 Power Supply Unit

Where appropriate, refer to the as fitted wiring diagrams (if supplied), plus sections of this manual: general notes, EMC compliance, LVD compliance, cable types and loop circuit connections.

## Fuses and locations

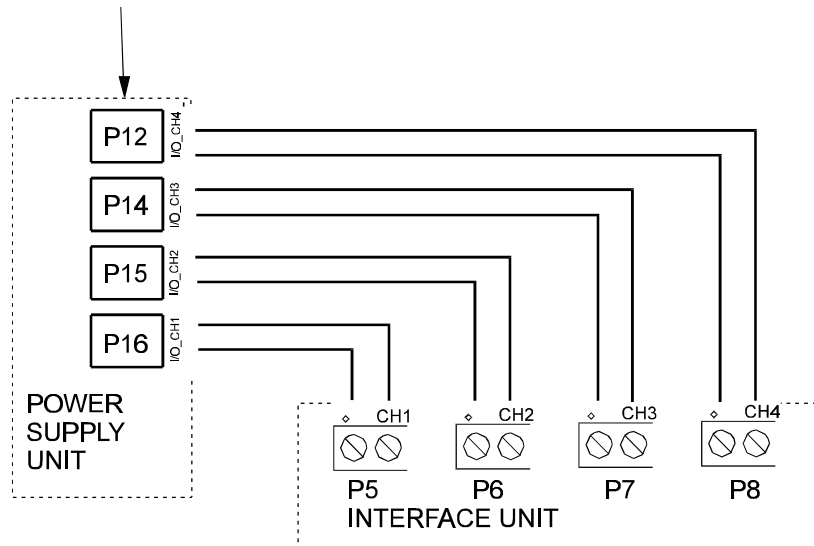
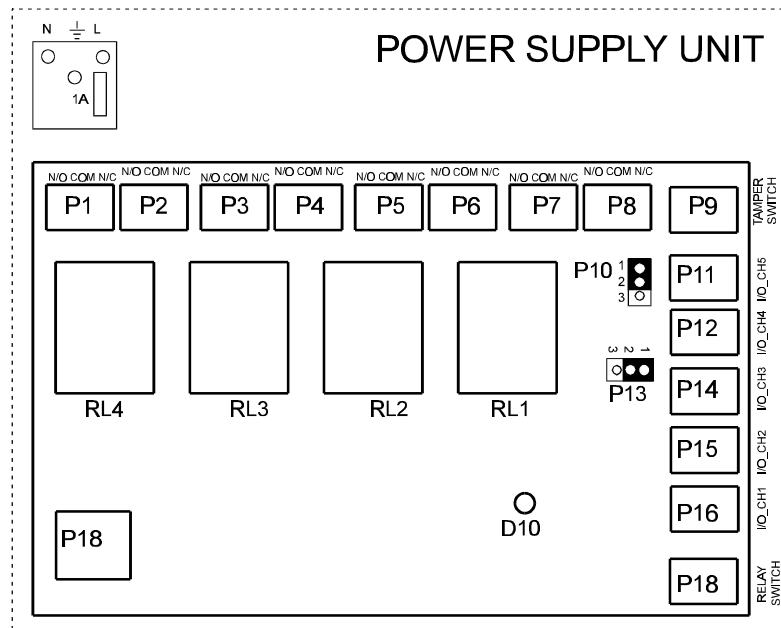
- | Fuse  | Rating            | Location             |
|-------|-------------------|----------------------|
| Mains | 20mm x 5mm 1A HRC | Mains terminal block |
- a) Identify the package labelled SUPPLY UNIT numbered 19245-06.
- b) Using the **key** open the door and check its condition of the unit.



- c) Knockout the required cable entry points (6-off on top of case).

**NOTE:** The unit must be mounted with the cable entry points at the top of the unit.

- d) Mark and drill the four fixing hole positions on the surface to which the unit is to be mounted.



fl204

Figure 16-2 PSU to interface unit connections

- e) Secure the unit to the surface with suitable fixings to support a fully assembled weight of **1.5Kg**.
- g) Terminate cables at the entry points.
- g) Connect the cables ends if instructed, otherwise leave tail wire length of **400mm** and mark the cores to identify the connection point.
- h) Close the door on the unit using the key.

**NOTE:** The unit is supplied complete with 1 PSU RELAY. The unit is designed to operate a maximum of 4 relays. Individual PSU RELAYS may be ordered using part code 19245-07.

- i) Leave all outstanding installation work for servicing organisation.

# 32410 Loop Powered Zone Module

Where appropriate refer to the as fitted wiring drawings (if supplied), notes to installer, EMC compliance, LVD compliance, cable types and loop circuit connections.

- a) Identify the LOOP POWERED ZONE MODULE package numbered 32410.
- b) Remove the lid to the module.

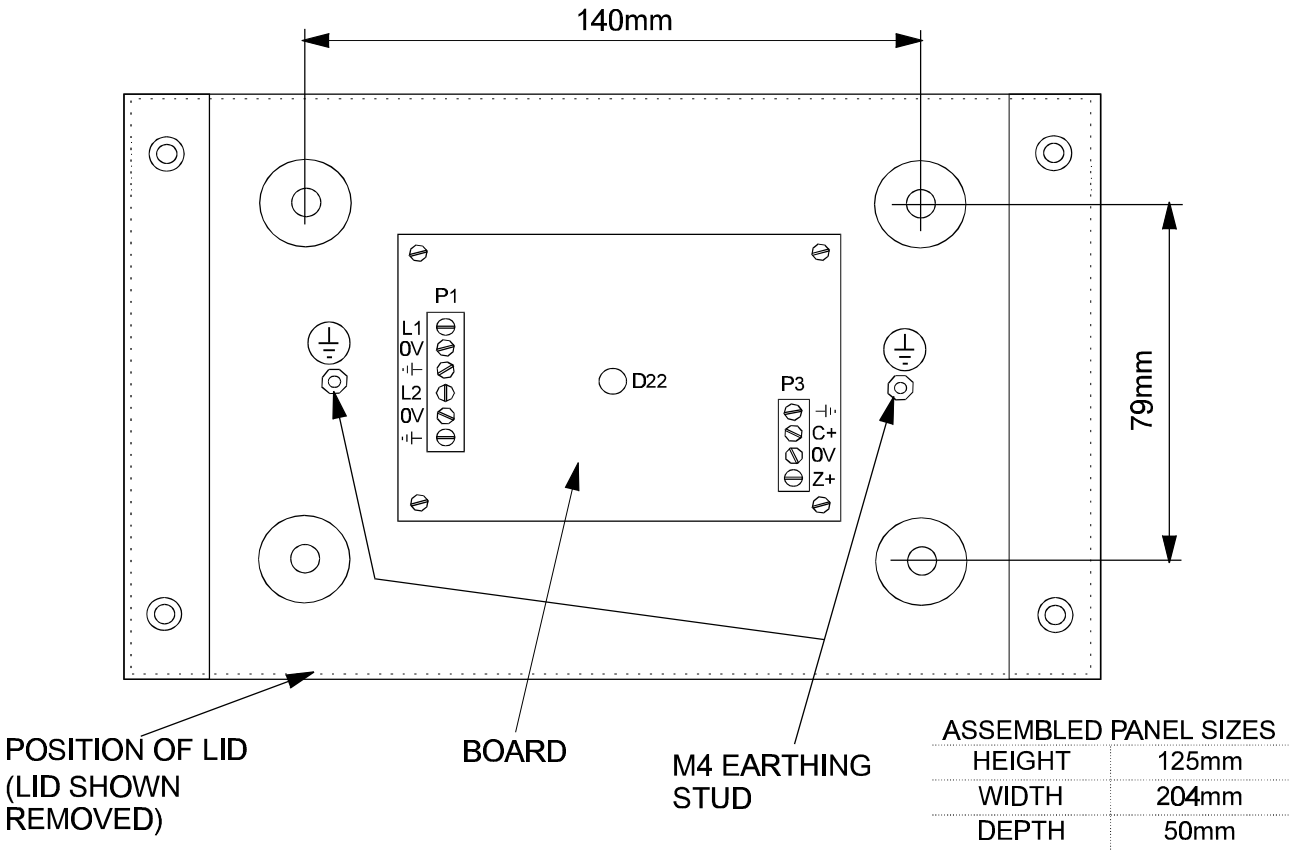


Figure 17-1 Loop powered zone module with lid removed

cdn171

- c) Remove all packages from inside the module. Check the contents are as follows:

Component	Quantity
End of line Capacitor unit PCB	1
- d) Remove the pcb from the box and place in a safe place with the four fixing screws.
- e) Knockout the required cable entry points from the module sides.

- f) Mark the four fixing positions on the wall to which the unit is to be mounted.
- g) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of 0.67kg.
- h) Terminate each cable at the entry point.
- i) Refit the pcb into the module.
- j) Connect the appropriate cable ends to the appropriate terminals.
- k) Secure the lid to the module.
- l) Leave all outstanding installation work to servicing organisation.



# 32415 Single Channel Interface (Loop Powered)

Where appropriate refer to the as fitted wiring drawings (if supplied), notes to installer, EMC compliance, LVD compliance, cable types and loop circuit connections.

- a) Identify the SINGLE CHANNEL INTERFACE (LOOP POWERED) package numbered 32415.
- b) Remove the lid to the module.

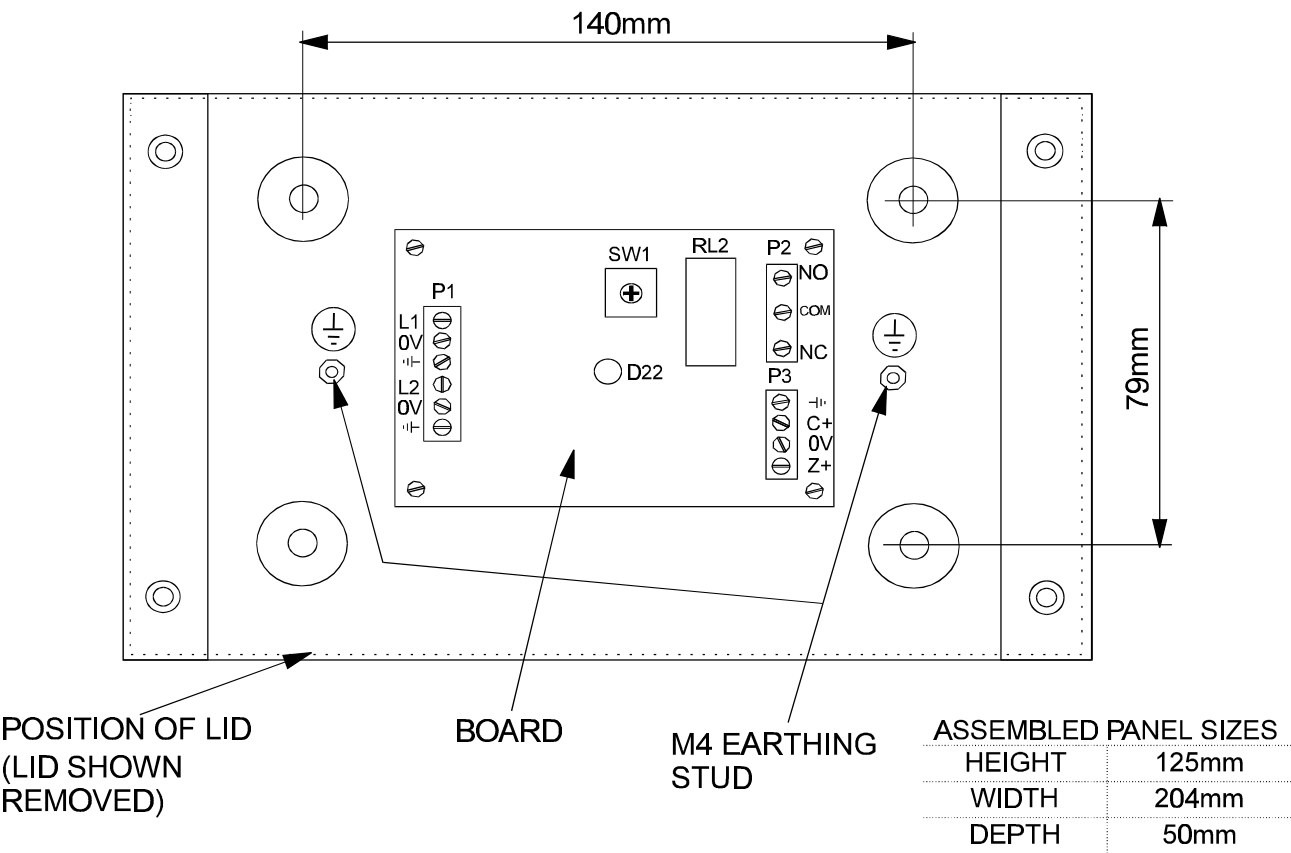


Figure 18-1 Single Channel Interface (lid removed)

cdn172

- c) Remove all packages from inside the module and check the contents:

Component	Quantity
End of line Capacitor unit PCB	1
- d) Remove the pcb from the box and store with the fixings in a safe place.
- e) Knockout the required cable entry points from the module sides.

- f) Mark the four fixing positions on the wall to which the unit is to be mounted.
- g) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of 0.67kg.
- h) Terminate each cable at the entry point.
- i) Refit the pcb into the module.
- j) Connect the appropriate cable ends to the respective terminals.
- k) Secure the lid to the module.
- l) Leave all outstanding installation work until the commissioning stages.



# Environmentally Protected Products

Where appropriate, refer to the as fitted wiring diagrams (if supplied), general notes, EMC compliance, cable types and loop circuit connections.

## 32213/32729/32829 EP Products

These units have **IP66** rating as specified in the *British Standard BS 5490:1977* which is the *specification for classification of degree of protection provided by enclosures*.

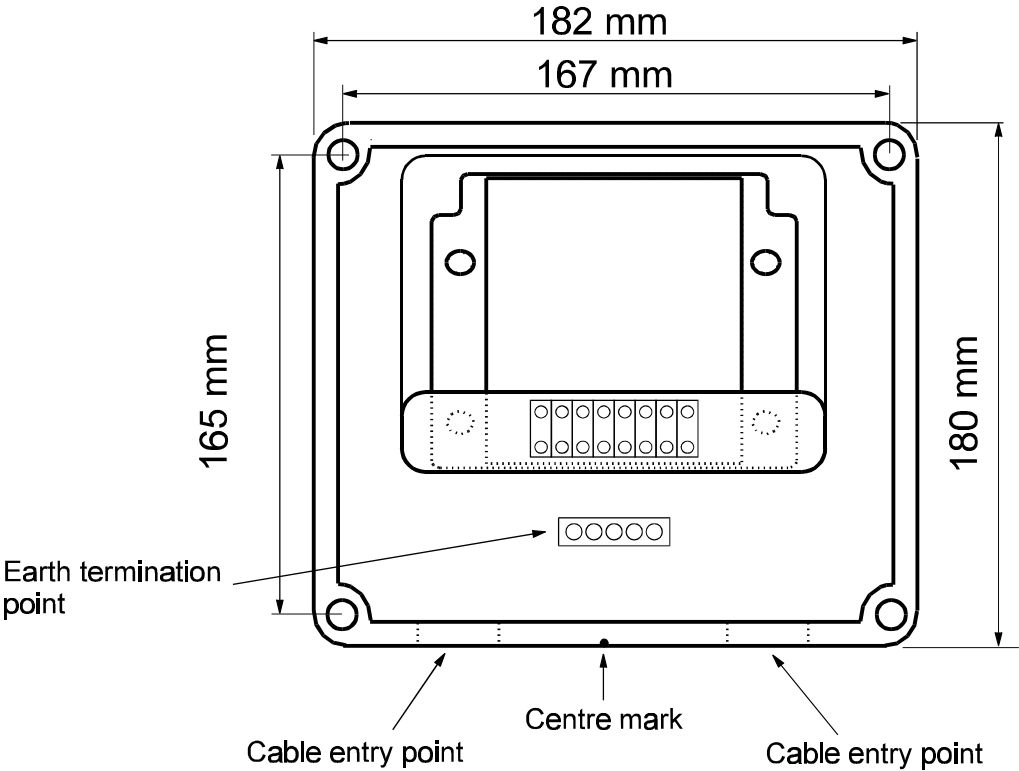
**NOTE:** Incorrect installation of these products may result in premature failure.

EP Products	Heat Sensor	32729
	Manual Call Point	32829
	3-way Sounder	32213

### Fixing and Connections

- a) Remove the front cover of the unit disconnecting any flying leads attached to the terminal block.

Figure 19-1  
Standard fixing  
details



emf18

**NOTE:** Two cable entry holes are provided on the bottom of the unit. If a third entry hole is needed a 20mm hole saw may be used (a centre mark is provided for this purpose).

- b) Place the unit in the desired position and mark the four fixing holes. When the product is mounted ensure the pre-machined cable entries are at the bottom.
- c) Drill the four fixing holes and mount the unit on the surface with suitable fixings such that adequate support is provided.

**NOTE:** When using PYROTENAX cable, the cables **MUST** be terminated using PYROTENAX glands (Code No. RGM 2L1.5), screw-on seals (Code No. RPS 2L1.5) or equivalent and a standard M20 locknut.

- d) Feed the cables into the unit. Ensure that the sealing washer supplied is fitted between the cable gland and the unit (rubber part of the washer against the unit). Use the earth continuity straps provided to maintain loop cable earth continuity.
- e) Connect the earth tails into the earth termination point.
- f) Terminate the cable at the entry point and connect ends into the appropriate terminals on the sealed printed circuit board module. See the relevant connection diagram.

**CAUTION:** Failure to promptly replace the cover will result in environmental damage.

- g) Reconnect the flying leads from the cover into the appropriate terminals on the sealed printed circuit board module. Refit the cover to the unit. For maximum protection ensure that the cover screws are tight and secure.

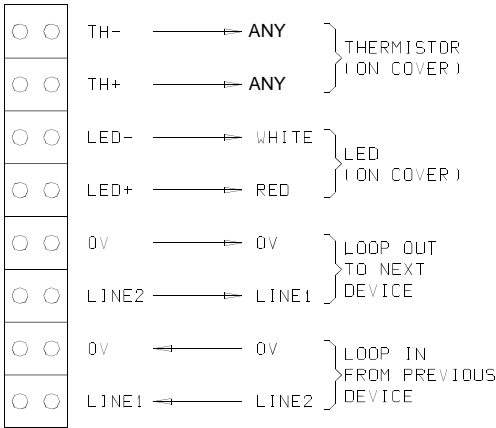
**CAUTION:** Failure to make the connections correctly can result in damage to the unit.

**CAUTION:** The unit is not square. Forcing the cover to fit the wrong way round will damage the unit.

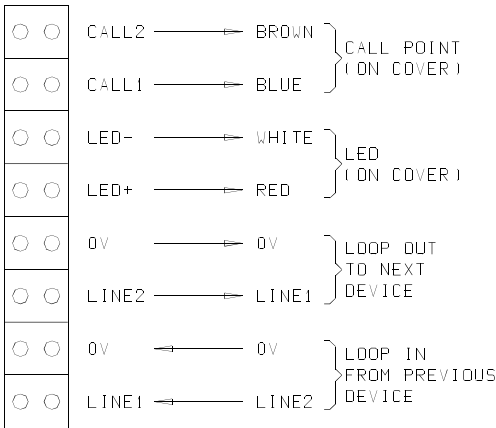
## Heat Probe

For carriage purposes the probe on the heat sensor is fully retracted. It is important that the heat probe is positioned correctly. There should be a minimum of 20mm of the probe protruding from the front face of the probe gland. The probe gland can only be tightened up once, as the gland uses an olive joint which should be replaced rather than re-tightened. Once the probe is in the correct position and the gland has been tightened (finger tight plus 1½ turns) the cable tie should be used to clamp the cable to the front cover.

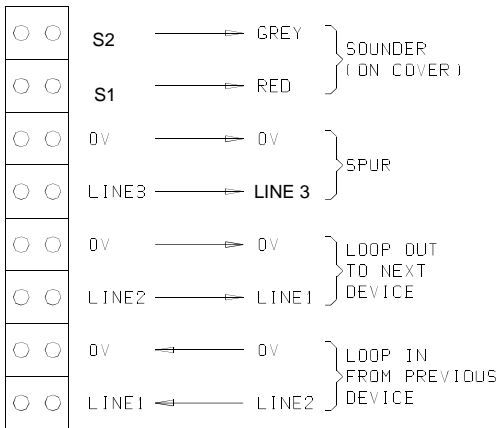




32729 Heat sensor



32829 Manual Call Point



32213 Sounder (3-way)



emf1141

Figure 19-2 Connection details for EP products

**CAUTION:** It is important NOT to undertake insulation tests of wiring with the wires connected into their intended terminals. THE ELECTRONIC COMPONENTS MAY BE SERIOUSLY DAMAGED.

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# Network Overview

This section gives an overview of the System 32000 Network. It shows the connections between 32000 Control Panels and Network Interfaces.

## Network Capacity

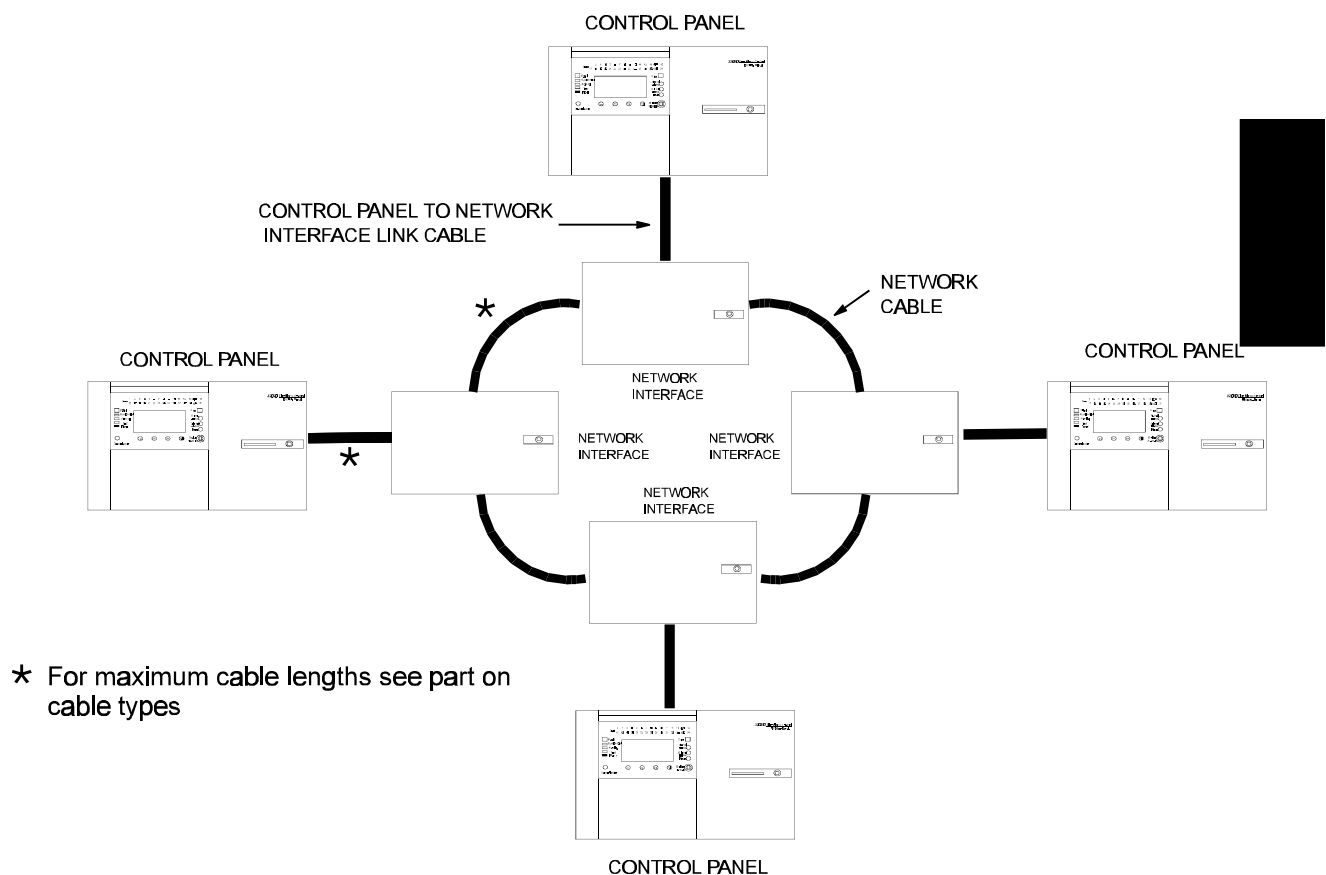
A network can connect a maximum of **16 control panels**.

Each **control panel** will have a **network interface**. The network interfaces are connected together to form a 'loop'.

## Network Cables

See the part on Network Cables

## Schematic Diagram



cdn22

Figure 20-1 32000 Network Schematic

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# Network Installation

Where appropriate, refer to the as fitted wiring diagrams (if supplied), general notes, EMC compliance, LVD compliance, cable types and network overview.

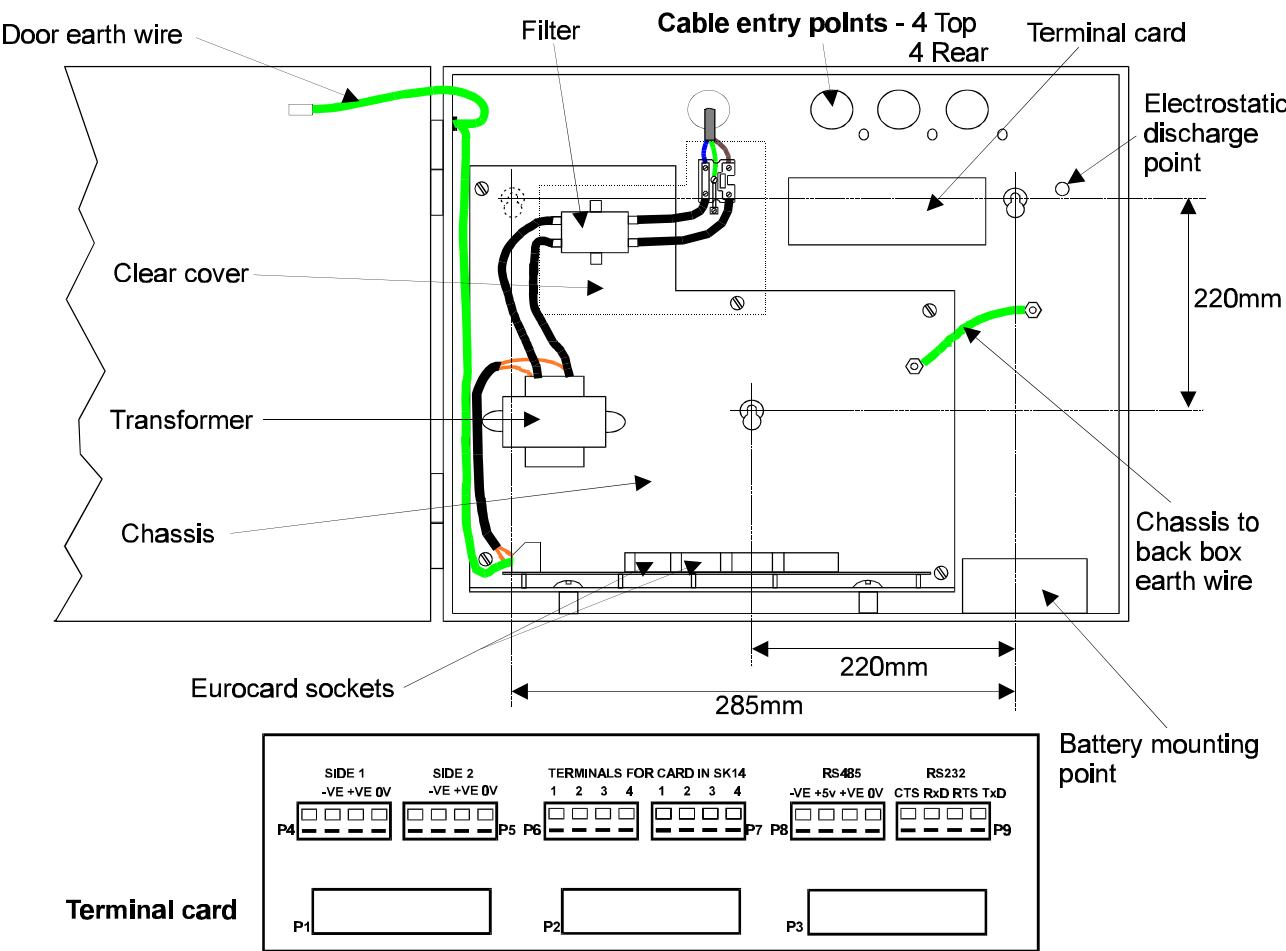
## 32620 Network Interface

### Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 1A HRC	Mains terminal block
FS1	20mm x 5mm 2.5A	Backplane

The 32620 Network Interface Set consists of two packages:

- 1) 32620 Network Interface
- 2) Battery Pack



cdn8

Figure 21-1 Network Interface Fixing and Connections

- a) Identify the NETWORK INTERFACE package number 32620 and check that it has the following components:

Component	Quantity
Network Interface	1
Door key	1
Enable Controls key	1
Fuse 1A	1

- b) Open the interface door using the door key.
- c) Remove the back box to door earth lead. Also remove the back box to chassis plate earth lead.
- d) Remove the door from the back box assembly, by sliding it up and off.
- e) Remove the mains terminal cover by removing the screws.
- f) Disconnect the 3 ribbon cables from the terminal PCB.
- Also disconnect the spade terminals between the mains terminal block and the mains filter.
- g) Remove the chassis plate by removing 5 screws then sliding it up and off.
- h) Knock out the required cable entry points from the back box.
- i) Mark out the back box fixing points on the wall to which the panel is to be mounted.
- j) Secure the back box to the wall with suitable fixings to provide adequate support for a full assembly weight of **11 Kg**.
- k) Terminate each cable at the entry point leaving **400mm** tail wire length and mark each core to identify its intended connection point.

**WARNING:** *The mains cable tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching on of the mains supply.*

- l) Re-fit the chassis plate by hooking the keyholes onto the support pillars and secure to the back box by re-fitting the 5 screws.
- m) Connect the three ribbon cables to the terminal PCB and the two spade terminals to the mains filter.
- n) Re-fit the mains terminal cover using the fixing screws .

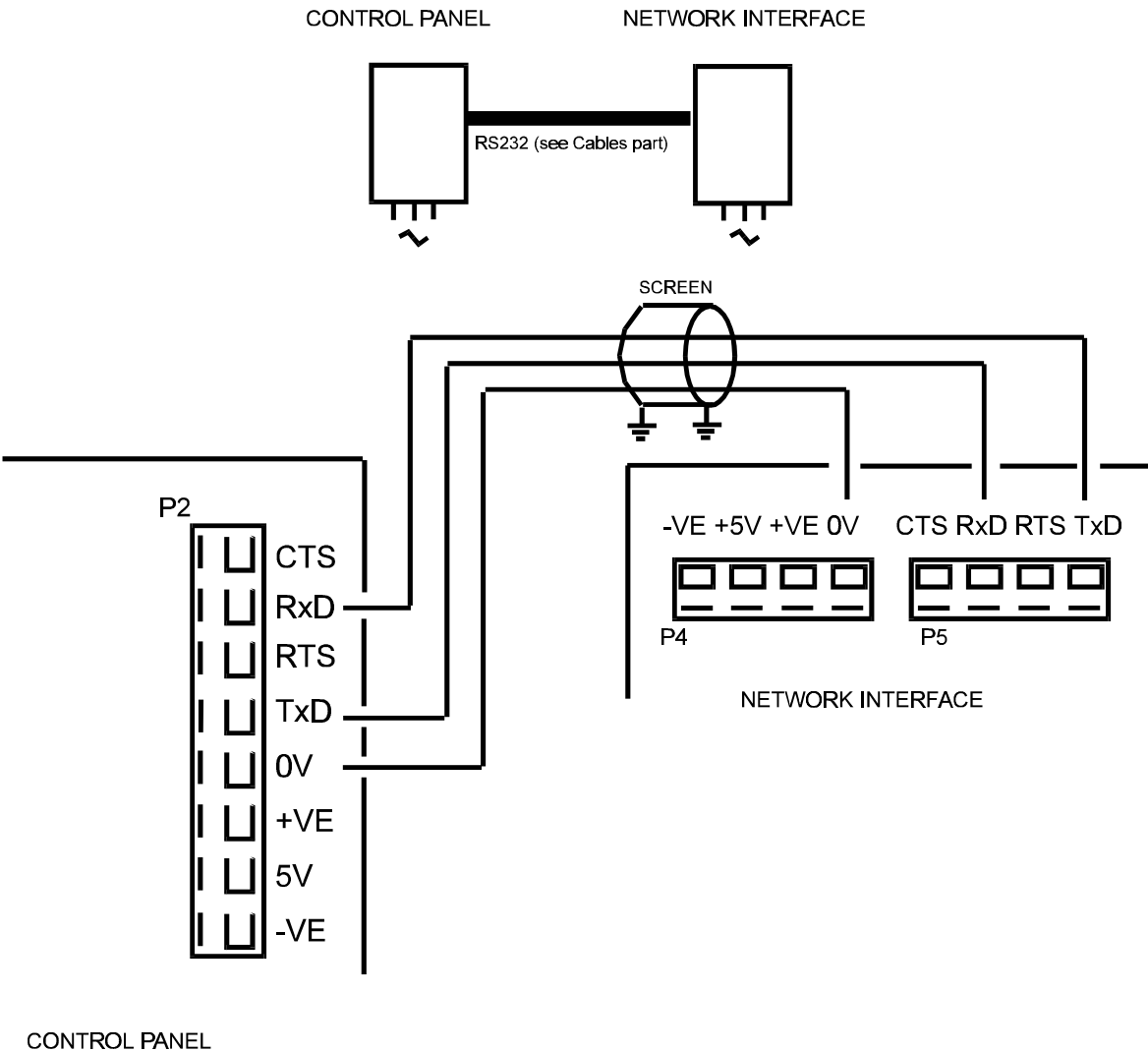
- o) Slide the door to the back box assembly, ensure the door can open and close easily.
- p) Fit the back box to door earth lead, and the back box to chassis plate earth lead.
- q) Ensure all cables are secured to the base of the back box.
- r) Close the door and lock it using the door key. All remaining installation is done during commissioning of the system.

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# Network Wiring

## 32022 Control Panel to 32620 Network Interface

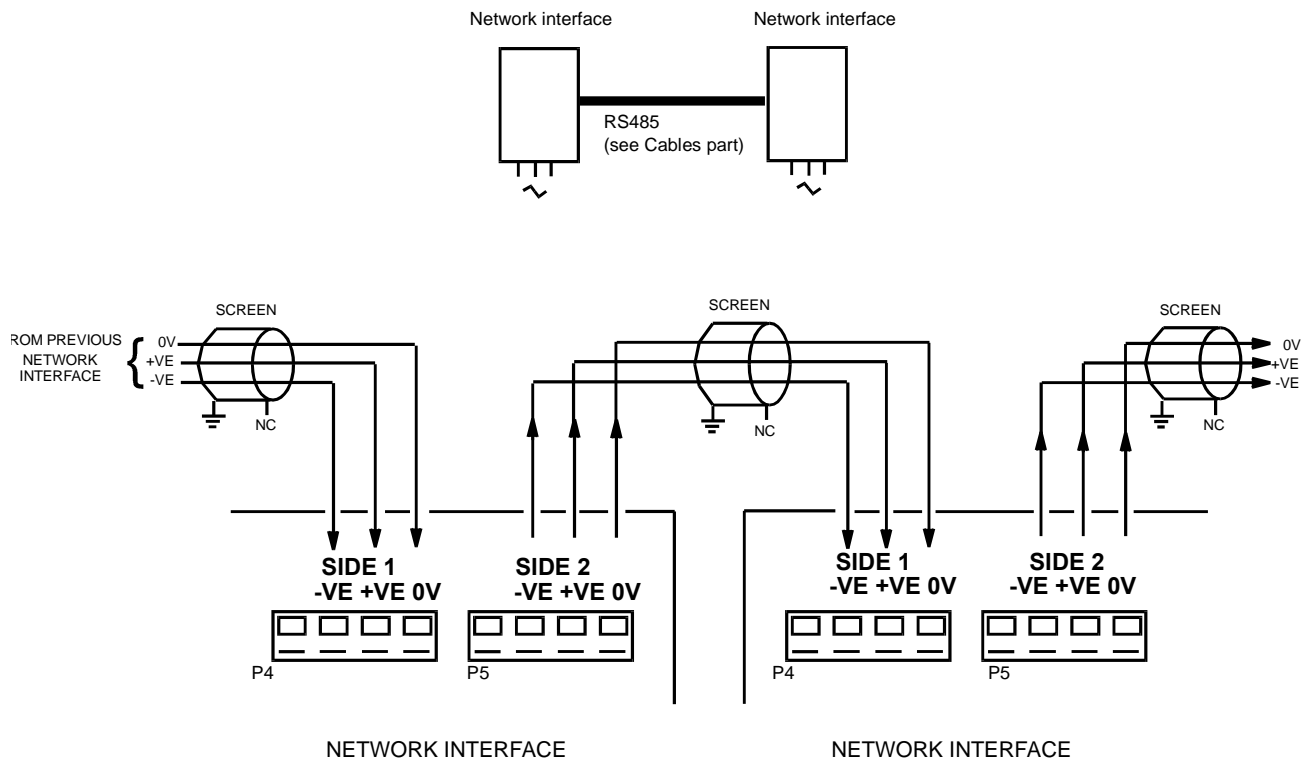


cdn15

Figure 22-1 Control Panel to Network Interface

**Note:** If a cable is a twin twisted pair, make sure when connecting the equipment that one pair is used for RxD and TxD and the other is used for the 0V (only one core connected to the 0V, the other is not connected). Also the TxD from the Control Panel is connected to the RxD on the Network Interface and RxD from the Control Panel is connected to TxD on the Network Interface.

# 32620 Network Interface to 32620 Network Interface



gsmf15

Figure 22-2 Network Interface to Network Interface

**Note:** One end only of the screen is connected to earth, the other is not connected (N/C).

**Note:** If a cable is a twin twisted pair, make sure when connecting the equipment that one pair is used for -VE and +VE and the other is used for the 0V (only one core connected to the 0V, the other is not connected.)

# System 32000

## Introduction

This section lists the commercially available parts for use in the System 32000.

## Control and indicating equipment

### Control Panel

\* - first fix products

32020	Fire alarm Control Panel SET including control panel, 1 loop card, power supply, battery box and battery pack.
*32022	Fire alarm Control Panel
32334	Control panel Power supply unit
*32330	Control Panel Battery Box
13395-12	Battery pack 4 off 12V @ 12.0Ah (for Control Panel)
13390-01	Printer paper

### Network

32620	Network Interface SET (including battery pack)
32622	Network Interface unit
32635	Battery pack 1 off 12v @ 7Ah (for Network Interface)

### Repeat Panel

32520	Fire alarm Repeat Panel SET including repeat panel and battery pack.
32522	Fire alarm Repeat Panel
13395-01	Battery pack 1-12v @ 6.0Ah (order 2 off for Repeat Panel)

### Flush Shrouds

32029	Flush shroud for 32022 Control Panel
32529	Flush shroud for 32522 Repeat Panel
32329	Combined Flush shroud for 32022 Control Panel and 32330 Battery box

## Cards

32023-01	Local controller card V3, (LCC for 32022)
32023-11	Loop processor card V3, (LPC for 32022)
32023-31	1-2 Loop panel RAM Card (for 32022)
32023-21	I/O card V3 (for 32022)

## 32000 Sensors, terminal plate and Accessories

<b>32000 Sensors</b>	32715	Optical sensor
	19271-01	Replacement chamber for Optical sensor
	32775	Optical sensor sounder
	19271-01	Replacement chamber for Optical sensor sounder (as for Optical Sensor)
	32720	Heat sensor
	19272-01	Replacement chamber for Heat sensor
<b>32000 Terminal Plate</b>	32730	Ionisation smoke sensor
	19273-01	Replacement chamber for Ionisation smoke sensor
	32780	Heat sounder
	19274-01	Chamber for Heat sounder
	32700	Terminal plate
	19279-01	Sensor semi-flush mounting kit
<b>Trim Ring</b>	19279-10	Sensor trim ring
<b>Slaves/ T-Breaker</b>	32701	T-breaker Unit
	32702	Slave LED unit (Remote Fire Indicator Unit)
	32703	Slave Relay Unit
<b>Tools</b>	17918-26	Sensor Tool Kit
	17918-22	Chamber Extractor cup
	17918-23	Electronics module removal tool - Optical (+ combined sounder)
	17918-24	Electronics module removal tool - Ionisation
	17918-25	Electronics module removal tool - Heat

<b>Environmentally Protected</b>	32729	EP Heat Sensor
<b>Special sensors</b>	32760	Duct Sensor

## Alarm sounders

<b>Sounders</b>	32202	Alarm sounder 2-way
	32203	Alarm sounder 3-way
	32777	Repeat sounder
<b>Environmentally Protected</b>	32213	EP Sounder 3-way

## Manual call points (MCP)

<b>MCPs</b>	32800	Surface mounted MCP
	32807	Surface mounted MCP keyswitch
	32842	Surface mounted MCP with cover
	32812	Surface mounted water resistant MCP
	32852	Surface mounted water resistant MCP with cover
	19289-01	MCP Semi-flush mounting kit
<b>Environmentally Protected</b>	32829	EP MCP surface
<b>Spares</b>	14112-09GR	Spare glasses (Pack of 10)

## Interfaces

<b>Mains Powered Interface</b>	32440	Fire Alarm Interface unit - Mains powered
	19104-52	Power relay for Fire Alarm Interface - Mains powered complete with base and diode pack.
<b>Class change Interface</b>	32457	Class Change Interface unit - Loop powered
<b>4-channel Loop Powered Interface</b>	32450	Fire Alarm Interface unit - Loop powered

and 1 can be installed into a 32415)

<b>1-channel loop powered interface</b>	32410	Loop powered zone module
	32415	Single channel interface (loop powered)
	19245-05	Line module (up to 4 can be installed in a 32450)
	19245-06	Power supply unit for Fire Alarm Interface - Loop powered (including 1 mains relay)
	19245-07	Mains relay (up to 4 used with PSU)
	32454	Keyswitch door 4-way for Fire Alarm Interface - Loop Powered
	19245-02	Keyswitch assembly 2-position (used on keyswitch door)
	19245-03	Keyswitch assembly 3-position (used on keyswitch door)

## Manuals & Accessories

32299	System 32000 User pack (containing Pre-commissioning information and Installation Manual)
32499	System 32000 Operating manual

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