

# SYSTEM 3400

(with 34000 Devices)

***A***NALOGUE  
***A***DDRESSABLE  
***F***IRE ***D***ETECTION  
***AND A***LARM ***S***YSTEM

## Installation Manual

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Notes to Installer

EMC Compliance and  
LVD Compliance

Cable types

Loop Circuit  
Connections

Standalone System 3400  
Installation

Network overview

Wiring a 3500  
Network

Appendix

Parts List

## Preface

This is the third issue of the Installation Manual for **System 3400 (with 34000 Devices)**. The manual covers System 3400 and System 3500 products that are compatible with version 3.4X software, including the new range of 34000 devices and requirements of the Low Voltage Directive.

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

13499-26 Operating Manual for System 3400 (with 34000 devices)  
13563-011 GENT Supervisor Operator's Manual

## 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
Prelims	3	12/98	This third issue covers installation of system 3400 (with 34000 devices) and network system 3500 products that are compatible with version 3.4X software. The second issue also covered changes arising from LVD requirements.
1 - 36	3	12/98	
Parts	3	12/98	
Phone			

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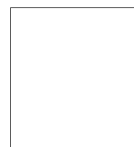
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# TABLE OF CONTENTS

<b>Notes to Installer</b>	<b>1-1</b>
<b>EMC &amp; LVD Compliance</b>	<b>2-1</b>
EMC Compliance	2-1
LVD Compliance	2-4
<b>Cable Types</b>	<b>3-1</b>
Cables for Loop circuit	3-1
Interface input line module cable usage	3-3
Cable for A4 Mimic display to Control Unit	3-3
Network Cables	3-4
<b>Loop Circuit Connections</b>	<b>4-1</b>
Loop Capacity	4-1
Devices (Outstations) per loop	4-1
Loop cable	4-3
Interface line cable	4-3
Cable separation	4-3
Loop Coverage	4-3
Sub-loop and spur circuits	4-3
Lightning protection	4-4
Earth Continuity	4-4
Control Panel connections	4-4
2-way device	4-5
3-way device (tee breaker)	4-5
Slave (Indicator) LED Unit	4-6
Slave Relay Unit	4-6
4-Way base connecting to a remote LED	4-7
4-Way base connecting to MCP	4-7
<b>Standalone System 3400 Installation</b>	<b>5-1</b>
3404 Fire Alarm Control Panel	5-1
3408 Fire Alarm Control Panel	6-1
Fuses and locations	6-1
Wall mounted	6-1

Floor standing . . . . .	6-4
<b>3450 Fire Alarm Repeat Panel . . . . .</b>	<b>7-1</b>
Fuses and locations . . . . .	7-2
To install the inner box assembly . . . . .	7-2
<b>3460 Mimic and Zonal Repeat panels . . . . .</b>	<b>8-1</b>
Fuses and locations . . . . .	8-1
<b>Terminal Plates . . . . .</b>	<b>9-1</b>
Installing the Terminal Plates . . . . .	9-1
<b>19279-01 Semi flush mounting kit . . . . .</b>	<b>10-1</b>
19279-10 Sensor Trim Ring . . . . .	10-3
<b>34000 Fire sensors . . . . .</b>	<b>11-1</b>
Dust Cover . . . . .	11-1
Fitting a fire sensor head to terminal plate . . . . .	11-2
Removal of fire sensor head from terminal plate . . . . .	11-3
To assemble a fire sensor head . . . . .	11-5
<b>‘ T ‘ breaker and slave units . . . . .</b>	<b>12-1</b>
<b>Beam sensor . . . . .</b>	<b>13-1</b>
Transmitter and Receiver head installation . . . . .	13-1
<b>34760 Duct Sensor . . . . .</b>	<b>14-1</b>
<b>Manual Call Points . . . . .</b>	<b>15-1</b>
Surface Fixing . . . . .	15-1
Semi-Flush Fixing . . . . .	15-3
Testing . . . . .	15-3
<b>Alarm Sounders . . . . .</b>	<b>16-1</b>
<b>34440 Fire Alarm Interface Unit (Mains powered) . .</b>	<b>17-1</b>
Fuses and locations . . . . .	17-1
19104-52 Power relay . . . . .	17-4
<b>34450 Fire alarm interface unit (Loop powered) . . . .</b>	<b>18-1</b>
Fuses and locations . . . . .	18-1
<b>19245-06 Power Supply Unit . . . . .</b>	<b>19-1</b>

---

Fuses and locations . . . . .	19-1
<b>34415 Single Channel Interface (Loop Powered) . . . .</b>	<b>20-1</b>
<b>34410 Loop Powered Zone Module . . . . .</b>	<b>21-1</b>
<b>34460 Fixed Extinguishant Interface unit (Loop powered) . . . . .</b>	<b>22-1</b>
Fuses and locations . . . . .	22-1
<b>Interface Rack Unit . . . . .</b>	<b>23-1</b>
Interface backbox . . . . .	23-1
Interface rack . . . . .	23-3
<b>Environmentally Protected Products . . . . .</b>	<b>24-1</b>
EP Products . . . . .	24-1
Fixing and Connections . . . . .	24-1
<b>A4 Mimic Panel . . . . .</b>	<b>25-1</b>
A4 Mimic display unit . . . . .	25-1
A4 Mimic Control Unit . . . . .	25-4
Fuses and locations . . . . .	25-4
<b>Network Overview . . . . .</b>	<b>26-1</b>
Network Capacity . . . . .	26-1
Network Cables . . . . .	26-1
Network connections . . . . .	26-2
Gent Supervisor to Control panel connection . . . . .	26-2
<b>Network System 3500 Installation . . . . .</b>	<b>27-1</b>
3505 Terminal node . . . . .	27-1
Fuses and locations . . . . .	27-1
Back box . . . . .	27-1
<b>Wiring a 3500 Network . . . . .</b>	<b>28-1</b>
3505 Terminal Node to 3404 Control Panel . . . . .	28-1
3505 Terminal Node to 3408 Control Panel . . . . .	28-2
3404 Control Panel to 3404 Control Panel . . . . .	28-3
3404 Control Panel to 3408 Control Panel . . . . .	28-4
3408 Control Panel to 3408 Control Panel . . . . .	28-5

<b>GENT Supervisor</b>	<b>29-1</b>
Connecting the GENT Supervisor	29-1
Light Pen	29-2
<b>Converter / splitter unit</b>	<b>30-1</b>
13563-02 RS232/RS485 Converter	30-1
Fuses and locations	30-2
Link Configurations	30-2
Terminal node to RS232/RS485 Converter unit	30-3
3404 Control panel to RS232/RS485 Converter unit	30-4
3408 Control panel to RS232/RS485 Converter unit	30-5
13563-02 Converter unit (in Splitter configuration)	30-6
<b>13548-03 Compactor Unit</b>	<b>31-1</b>
Fuses and locations	31-1
<b>Modems</b>	<b>32-1</b>
Pair of Modems.	32-1
Modem connection details	32-2
Multiple Modems	32-3
<b>3562 Remote Printer</b>	<b>33-1</b>
Panel to printer connections	33-1
Printer I/O Card slot and connections	33-1
3562 Remote printer to 3505 Terminal node	33-2
<b>Appendix A</b>	<b>A-1</b>
<b>Service Request Interface unit</b>	<b>A-1</b>
13590-01 Service Request Interface unit	A-1
Fuses and locations	A-1
<b>System 3400 (with 34000 devices)</b>	<b>P-1</b>
Introduction	P-1
Control and indicating equipment	P-1
Cards	P-2
Sensors and Accessories	P-3
Alarm sounders	P-4

<b>Manual call points (MCP) 2-way . . . . .</b>	<b>P-4</b>
<b>Interfaces . . . . .</b>	<b>P-4</b>
<b>Manuals &amp; Accessories . . . . .</b>	<b>P-5</b>
<b>GENT Supervisor . . . . .</b>	<b>P-6</b>
<b>Converter / Compactor / UPS . . . . .</b>	<b>P-6</b>

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# TABLE OF FIGURES

Figure 3-1 Split cable and earthing requirements . . . . .	3-4
Figure 4-1 Typical fire alarm system . . . . .	4-2
Figure 4-2 Connections to the Control Panel . . . . .	4-4
Figure 4-3 Connecting a 2-way device . . . . .	4-5
Figure 4-4 Connecting a 3-way device . . . . .	4-5
Figure 4-5 Connecting a slave Indicator unit . . . . .	4-6
Figure 4-6 Connecting slave relay unit . . . . .	4-6
Figure 4-7 Connecting a slave indicator unit . . . . .	4-7
Figure 4-8 Connecting a MCP . . . . .	4-7
Figure 5-1 Control panel fixing details . . . . .	5-1
Figure 5-2 3404 Control Panel connections . . . . .	5-2
Figure 6-1 Rack-backbox fixing and earthing . . . . .	6-2
Figure 6-2 3408 panel connections . . . . .	6-3
Figure 7-1 Repeat Panel fixing and connection details . . . . .	7-1
Figure 8-1 Mimic panel fixing and connection points . . . . .	8-1
Figure 9-1 Terminal Plates . . . . .	9-1
Figure 9-2 Installing the terminal to a ceiling tile . . . . .	9-2
Figure 9-3 Terminal Plate connections . . . . .	9-2
Figure 9-4 Wiring the base . . . . .	9-2
Figure 10-1 Cutouts for lugs . . . . .	10-1
Figure 10-2 Flush kit installation . . . . .	10-2
Figure 10-3 Fixing the trim ring . . . . .	10-3
Figure 11-1 Fitting a sensor head to terminal plate . . . . .	11-2
Figure 11-2 Removal of the chamber module . . . . .	11-3
Figure 11-3 Removal of electronics module from terminal . . . . .	11-4
Figure 11-4 Fitting together chamber and electronics . . . . .	11-5
Figure 12-1 Tee breaker and slave units . . . . .	12-1
Figure 12-2 Fitting a 'T' breaker and slave unit . . . . .	12-2
Figure 13-1 Beam sensor and bracket fixings . . . . .	13-2
Figure 13-2 Junction box loop connection details . . . . .	13-3
Figure 14-1 Duct Sensor fixing and connections . . . . .	14-2
Figure 15-1 Manual Call Point parts . . . . .	15-2
Figure 16-1 Alarm Sounder fixing and connections . . . . .	16-1
Figure 17-1 Interface unit with door open (post Nov'96) . . . . .	17-2
Figure 17-2 Connection Details . . . . .	17-3
Figure 17-3 Relay holder . . . . .	17-4
Figure 17-4 Diode unit . . . . .	17-4
Figure 17-5 Relay connections . . . . .	17-4
Figure 18-1 Interface unit fixing and connections . . . . .	18-1
Figure 18-2 Line module internal connection details . . . . .	18-2
Figure 19-1 Supply Unit fixing details . . . . .	19-1
Figure 19-2 PSU to interface unit connections . . . . .	19-2
Figure 20-1 Single Channel Interface (lid removed) . . . . .	20-1
Figure 21-1 Loop powered zone module with lid removed . . . . .	21-1
Figure 22-1 Unit fixing and connections . . . . .	22-1
Figure 23-1 Interface Back box fixing and earth points . . . . .	23-2
Figure 23-2 Rack unit fixing . . . . .	23-3

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Figure 24-1 Standard fixing details . . . . .	24-1
Figure 24-2 Connection details for EP products . . . . .	24-3
Figure 25-1 A4 Mimic case with mounting details . . . . .	25-1
Figure 25-2 Terminal block details . . . . .	25-2
Figure 25-3 Connector details . . . . .	25-2
Figure 25-4 Hinge mounting details . . . . .	25-3
Figure 25-5 A4 Mimic Control Unit with board unfitted . . . . .	25-4
Figure 25-6 Terminal details . . . . .	25-5
Figure 26-1 GENT Supervisor connections - terminal node . . . . .	26-2
Figure 26-2 GENT Supervisor connection - control panel . . . . .	26-2
Figure 27-1 Terminal fixing and connections . . . . .	27-1
Figure 28-1 Terminal node to 3404 panel connections . . . . .	28-1
Figure 28-2 Terminal node to 3408 panel connections . . . . .	28-2
Figure 28-3 3404 Panel to 3404 panel connections . . . . .	28-3
Figure 28-4 3404 panel to 3408 panel connections . . . . .	28-4
Figure 28-5 3408 panel to 3408 panel connections . . . . .	28-5
Figure 29-1 Connecting the GENT Supervisor . . . . .	29-1
Figure 29-2 Light pen installation . . . . .	29-2
Figure 30-2 Terminal node to Converter Unit connections . . . . .	30-3
Figure 30-3 Panel (3404) to converter unit connections . . . . .	30-4
Figure 30-4 Panel (3408) to converter unit connections . . . . .	30-5
Figure 30-5 Splitter connections . . . . .	30-6
Figure 31-1 Compactor unit . . . . .	31-1
Figure 31-2 Compactor unit connections . . . . .	31-2
Figure 32-1 Supervisor link to pair of modem . . . . .	32-1
Figure 32-2 Modem connection details . . . . .	32-2
Figure 32-3 Supervisor to two modems . . . . .	32-3
Figure 32-4 Supervisor to multiple modems . . . . .	32-3
Figure 33-1 Control panel to remote printer connections . . . . .	33-1
Figure 33-2 Panel (3404) connections to remote printer . . . . .	33-1
Figure 33-3 Panel (3408) connections to remote printer . . . . .	33-2
Figure 33-4 Remote printer to terminal node connections . . . . .	33-2
Figure A-1 SRI fixing details . . . . .	A-1
Figure A-2 telephone cable installation . . . . .	A-2
Figure A-3 SRI connections . . . . .	A-3

# Notes to Installer

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

The manual contains fixing and wiring information to cover the installation of GENT System 3400 (Standalone system) and System 3500 (Network System) in buildings.

### 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 *Requirements for Electrical Installation 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 products, the installation of second fix items should be delayed until all major building work in the area is complete.

### 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, gland, steel box (BESA box) 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 cover must be fitted to prevent dust and dirt from the building work from contaminating the fire 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 on a loop, the **loop cable screen** must be continued through each system device on the loop, whether the earth is connected to a device or not.

**NOTE:** *The network cable screen is earthed at one end only.*

**Mains supply**

**CAUTION:** *Ensure that the mains supply cable enters a 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 equipment' 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 the 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 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.*

**Semi-flush  
fixing a Manual  
Call Point**

When **semi-flush fixing** a **manual call point** use only the **red plastic backbox** supplied, do not use any other type of backbox.

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# EMC & LVD Compliance

## EMC Compliance

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

**Introduction** These guidelines should be followed to meet the requirements of the **EMC directive** in force within the **European Union**, to prevent the **reception** and **emission** of electromagnetic interference into and out of the **analogue addressable** fire detection and alarm system.

**EMC compliant products** All the System products listed in the Parts list of this manual are EMC compliant.

**Code of practice** The installer must follow *BS7671 : 1992 Requirements for Electrical installations, IEE wiring regulations 16th edition* if installation is in the United Kingdom, UK.

**Cables** The following cables have been tested against EMC directives and are approved for use with 3400 system fire detection and alarm applications: (see also the **Cable types** part of this **manual**)

☐ The following loop cables each having 2-core plus screen and  $1.5\text{mm}^2$  cross section area per core can be used to connect **loop circuits, master alarm circuits, auxiliary circuits and interface input/output line circuits**:

- Mineral Insulated Copper Cable (MICC)
- FIRETUF OHLS Cable type: *FTZ2E1.5 and FTZ4E1.5 (latter for A4 mimic panel)*
- Raydex CDT FG950
- Cavicel SpA Firecel SR114
- AEI Cables FIRETEC
- BICC Pyrotenax FLAMESIL FRC
- Datwyler LIFELINE
- Alcatel cable PYROLON E
- Huber & Suhner RADOX FR
- Pirelli FP200 FLEX

- ☐ 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.



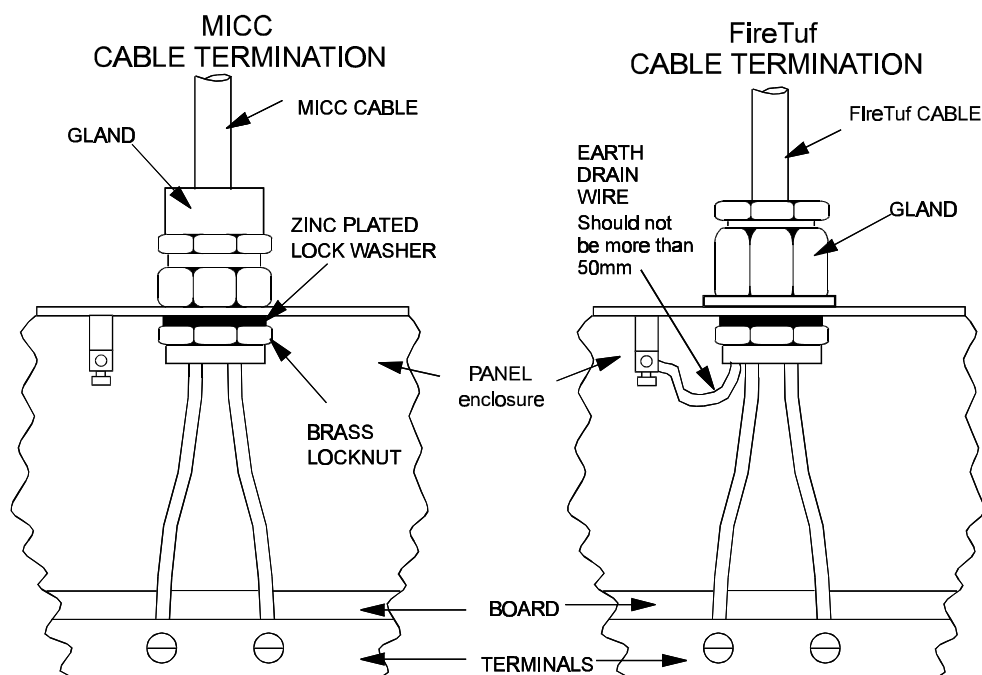


Figure 2-1 Cable termination

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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.

## 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.

## 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 3400/3500 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 0.75mm<sup>2</sup>, provided the length of the cord does not exceed 2m.

# 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.

## Cable for A4 Mimic display to Control Unit

☐ **Mineral insulated copper cable** (*EMC Compliant*)

**50m** maximum *Mimic Panel to Control Unit* cable distance

- The cable is to *BS6207: Part 1*
- fire resistance tested to *BS6387 categories CWZ*
- having continuous metal sheath encapsulation
- no more than 4- cores
- each core having **1.5mm<sup>2</sup>** cross section area
- a **red** cover sheath (preferred for alarm applications)
- core to core capacitance **115pF/m**
- core to screen capacitance **205pF/m**

☐ **Delta Crompton FTZ4E1.5 FireTuf OHLS fire resistant cable**  
(*EMC Compliant*)

**50m** maximum *Mimic Panel to Control Unit* cable distance

- no more than 4- cores plus earth wire
- fire resistance tested to *BS6387 categories CWZ*
- each wire having **1.5mm<sup>2</sup>** cross section area
- core to core capacitance **115pF/m**
- core to screen capacitance **205pF/m**

# 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 another control panel, terminal node to control panel and GENT Supervisor to control panel.**

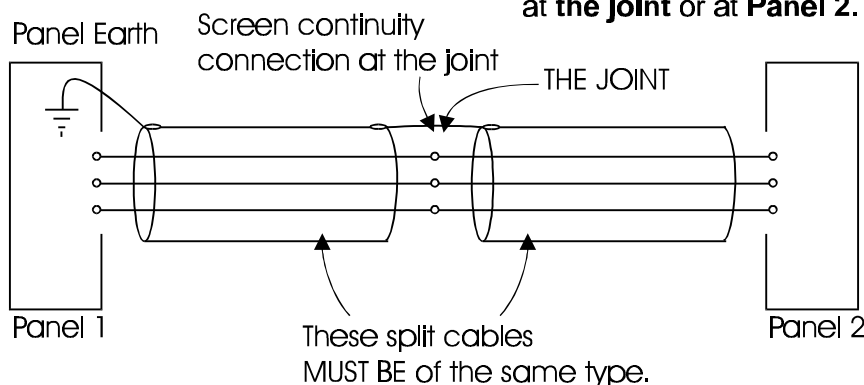
## Mixing cable types

**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

**NOTE:** The cable screens are not connected to earth at the joint or at **Panel 2**.

Figure 3-1 Split cable and earthing requirements



cdm295

## Recommended Cables

### ☐ Delta Crompton Firetuf FDZ1000

**1200m** maximum *Panel to Panel* or *Panel to Terminal node* cable distance

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

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

**1200m** maximum *Panel to Panel* or *Panel to Terminal node* 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.

**800m** maximum *Panel to Panel* or *Panel to Terminal node* 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

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*)

**600m** maximum *Panel to Panel* or *Panel to Terminal node* 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

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 wiring of devices like **fire sensors, alarm sounders, manual call points, interface units and repeat panels** on one loop circuit allows significant reduction in installation cost.

## Loop Capacity

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

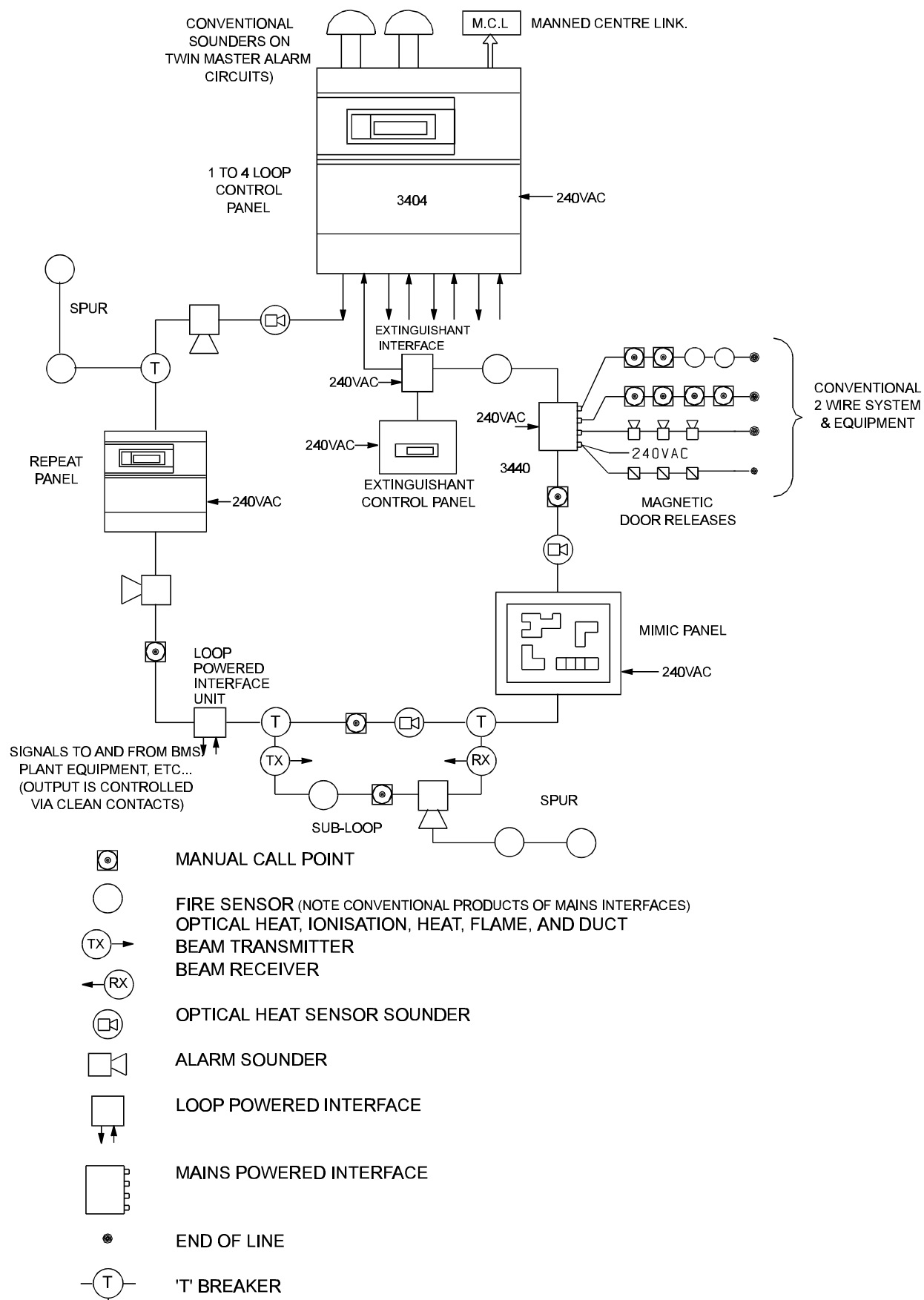
### Devices (Outstations) per loop

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.

Devices (number and description)	Load factor for each device	Maximum of each device per loop
34202/3 Alarm sounders 34213 Alarm sounder (environmentally protected)	25	40
34440 Mains-powered interface	3	8
34450 Loop-powered interface 34460 Loop-powered Fixed Extinguishant interface	2	30
34415 Single Channel Interface 34410 Loop Powered Zone Module	10	100
34701 T-breakers	1	200
34710, 34720, 34729, 34730 Fire sensors OH, H, H-ep & I respectively	1	200
34760 Duct sensor (supplied with a slave LED, see also Slave units)	1	50
34770 & 34780 Sensor/sounder - OHS & HS 34777 Repeat Sounder	8	125
34702 Slave LED unit 34703 Slave RELAY unit	1	100
34740 Beam sensor pair	5	16 Pair
34710-RL Optical heat sensor + Remote LED connection 34710-ML Optical heat sensor + remote MCP connection	1	100
348XX range Manual call point	1	200
13450/13460 Repeat/ A2 Mimic/ A2 Zonal mimic panels 34624 A4 Mimic Control Unit	3	32

## Typical 3400 (with 34000 Devices) Architecture



## Loop cable

See also Cables part of this manual.

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

## Interface line cable

See also Cables part of this manual.

**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 limit of **1Km** (10x100m) of line module monitoring cable per loop is allowed.

## Cable separation

The outgoing and return cables of a loop 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.

## Sub-loop and spur circuits

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

**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 spur and sub-loop may be left unconnected, if using the device for 2-way connection.

## Lightning protection

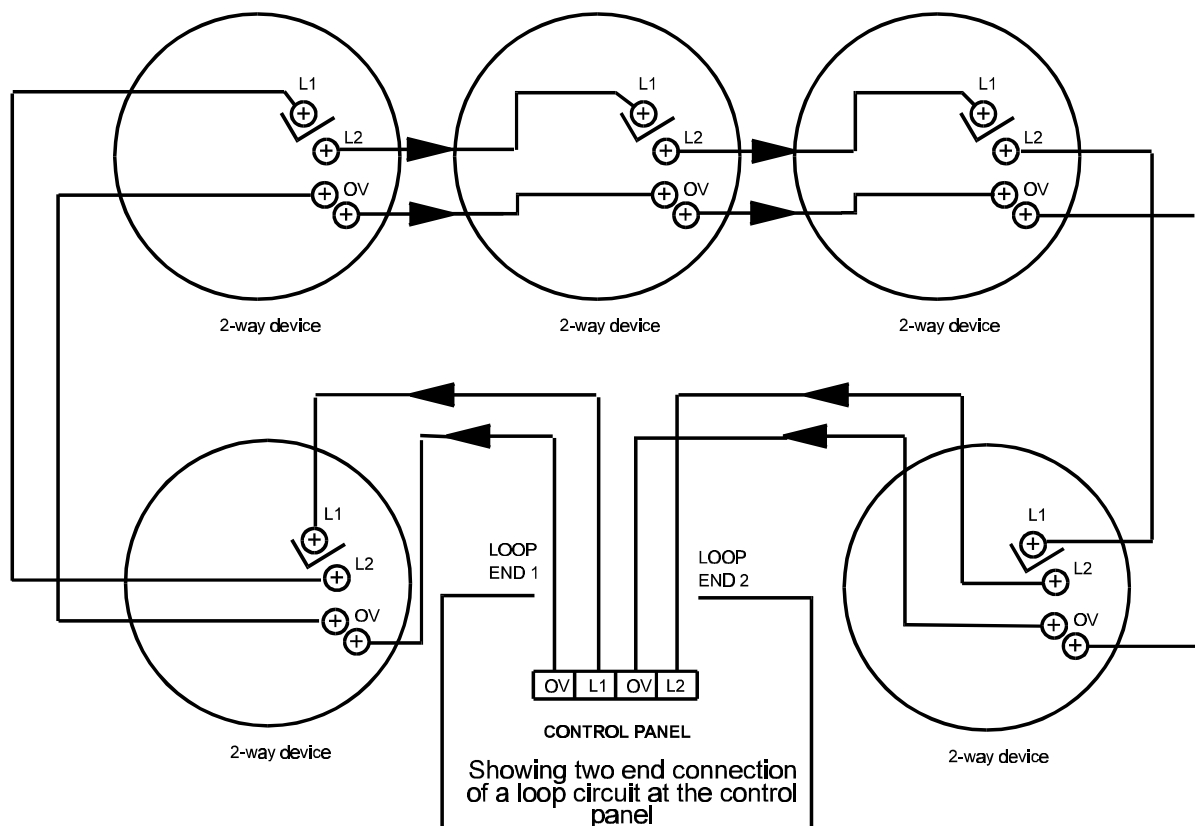
**CAUTION:** Lightning protection must be used if a loop cable is routed on exterior wall of a building and on network cables when connecting two separate buildings.

## Earth Continuity

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

## Control Panel connections

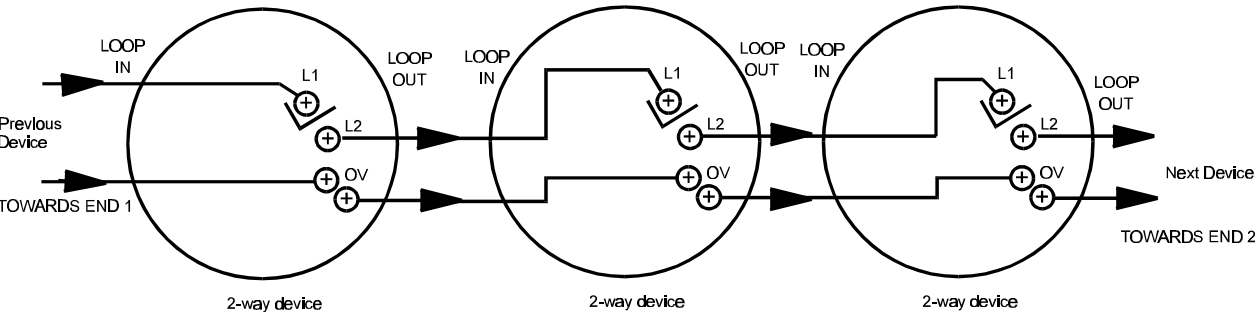
**NOTE:** The previous or next device connection can be a loop device or an end connection to the control panel.



fl174

Figure 4-2 Connections to the Control Panel

# 2-way device

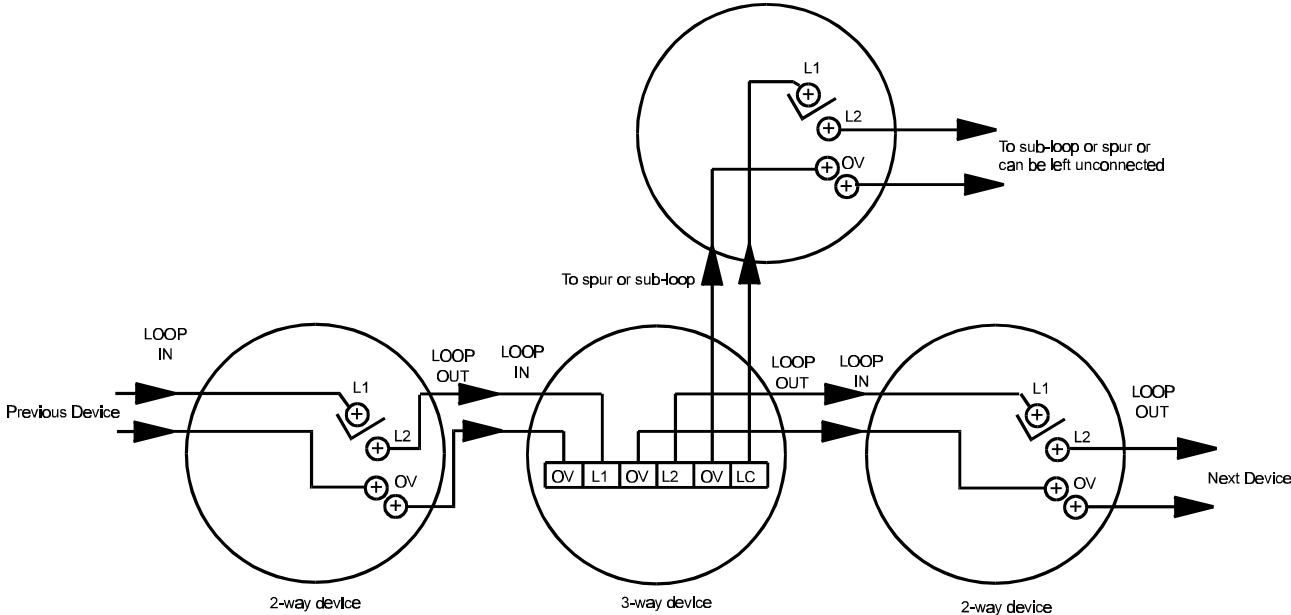


34000 Bases

Figure 4-3 Connecting a 2-way device

fl172

# 3-way device (tee breaker)

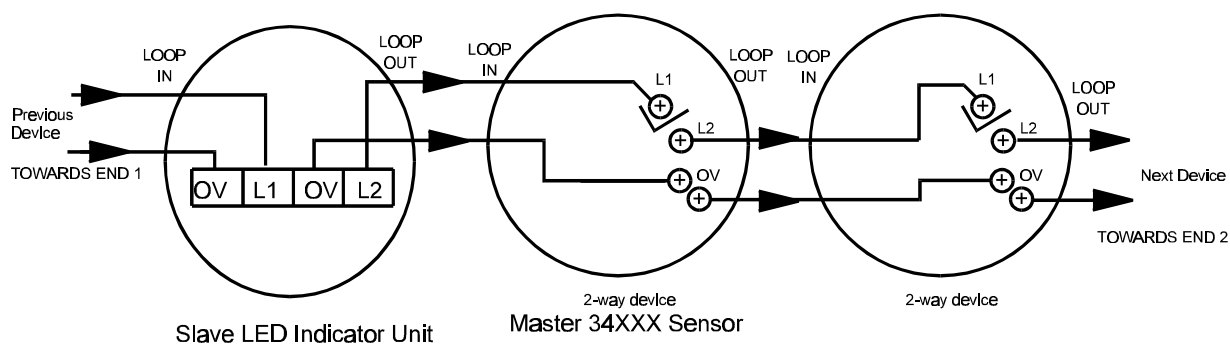


34000 Bases

Figure 4-4 Connecting a 3-way device

fl173

## Slave (Indicator) LED Unit



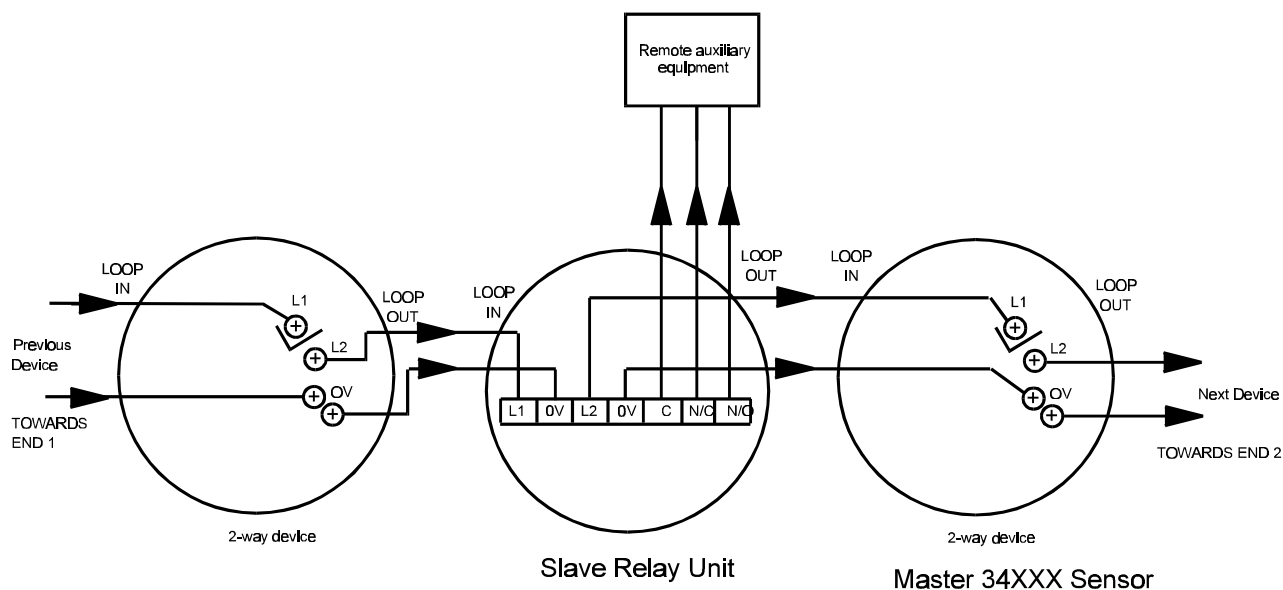
34000 Bases

f1104

Figure 4-5 Connecting a slave Indicator unit

**NOTE:** The **slave LED unit** must always be connected before the respective **master 34000 sensor** relative to End 1 of the loop.

## Slave Relay Unit



34000 Bases

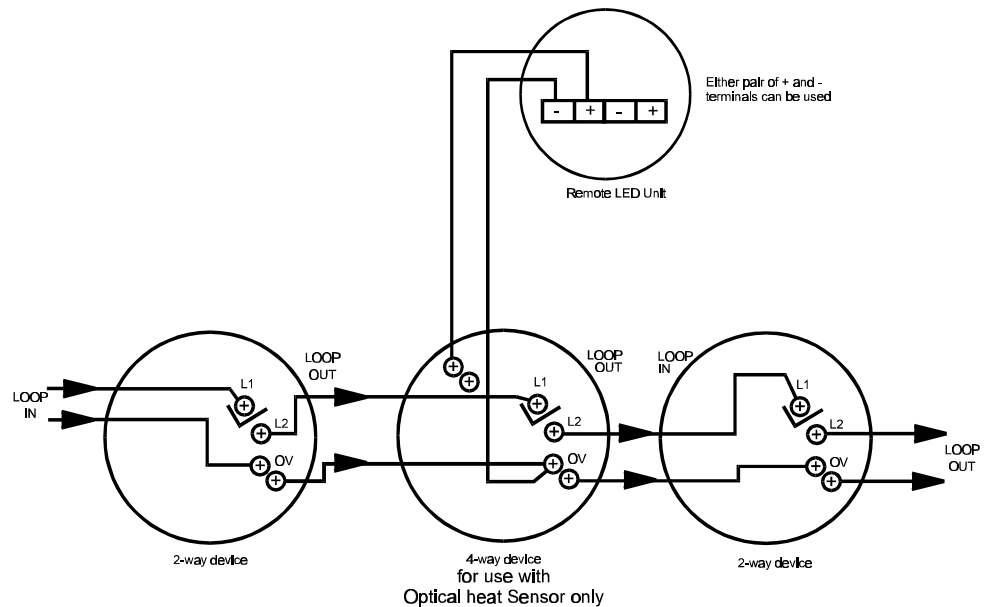
f1105

Figure 4-6 Connecting slave relay unit

**NOTE:** The **slave Relay unit** must always be connected before the respective **master 34000 sensor** relative to End 1 of the loop.

## 4-Way base connecting to a remote LED

**NOTE:** A remote LED unit can only be connected to an optical heat sensor 34710-RL.

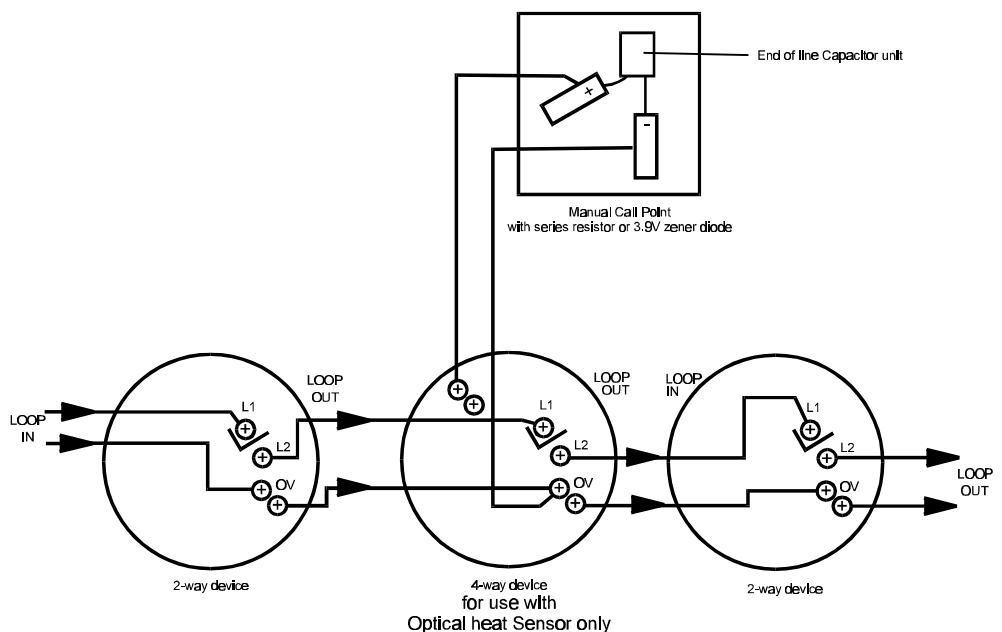


cdm315

## 4-Way base connecting to MCP

This application is for use in non BS5839:Part 1 System (i.e. not applicable for UK).

**NOTE:** A MCP can only be connected to an optical heat sensor 34710-ML.



cdm316

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# Standalone System 3400 Installation

## 3404 Fire Alarm Control Panel

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

### Fuses and Locations

Fuse	Rating	Location
Mains	20mm x 5mm 3.15A SD	Upper face of inner box
FS1	20mm x 5mm 1A HRC	Terminal Board 11-16
FS2	20mm x 5mm 1A HRC	Terminal Board 11-16
FS1	20mm x 5mm 8A QB	Power supply pcb
FS2	20mm x 5mm 8A QB	Power supply pcb
FS5	20mm x 5mm 8A QB	Power supply pcb
FS6	20mm x 5mm 8A QB	Power supply pcb

- a) Identify the BACK BOX/FRONT COVER ASSEMBLY package number 13404-80V3+ and check its contents, which should include a **back box**, **front cover** and an **earth lead**.

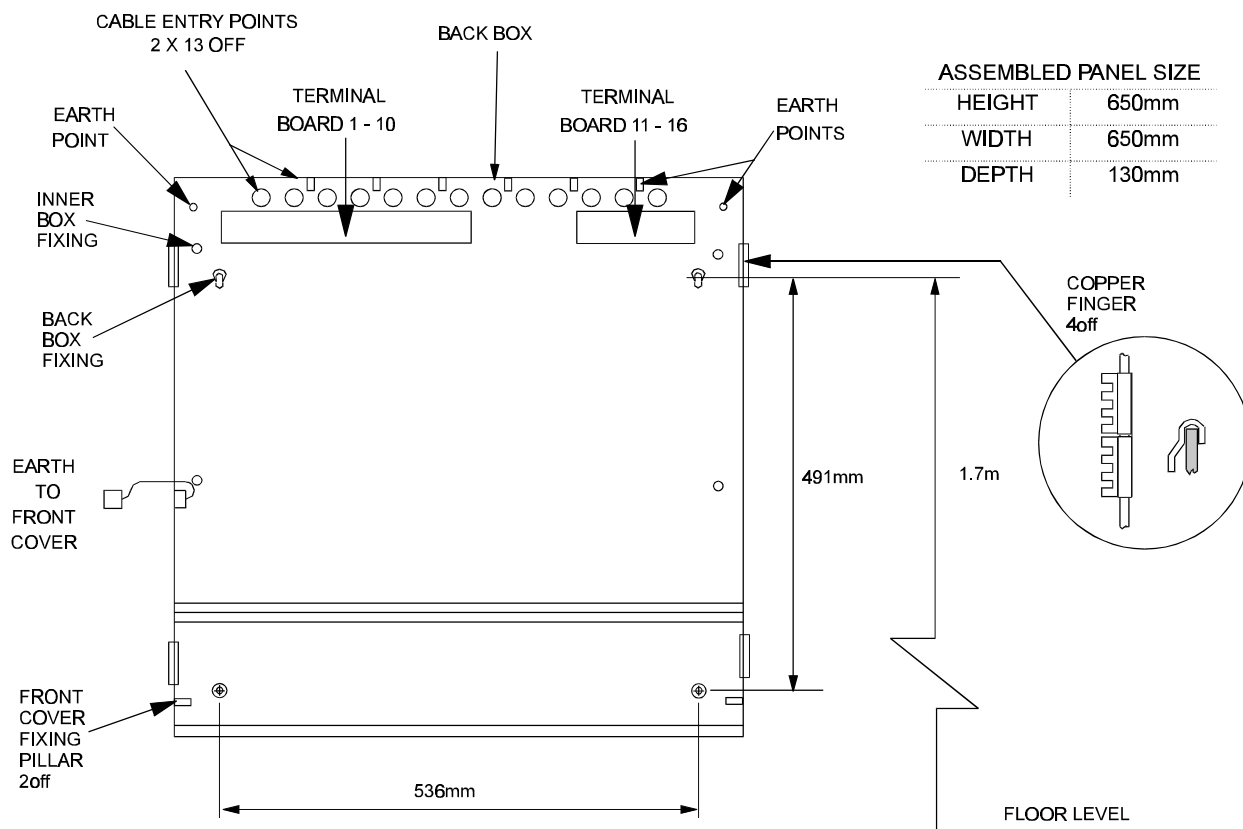
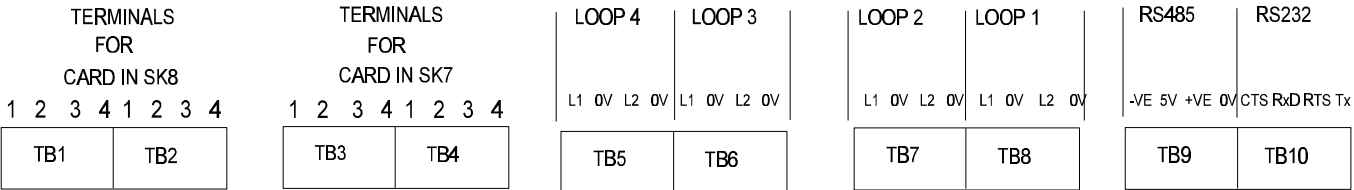


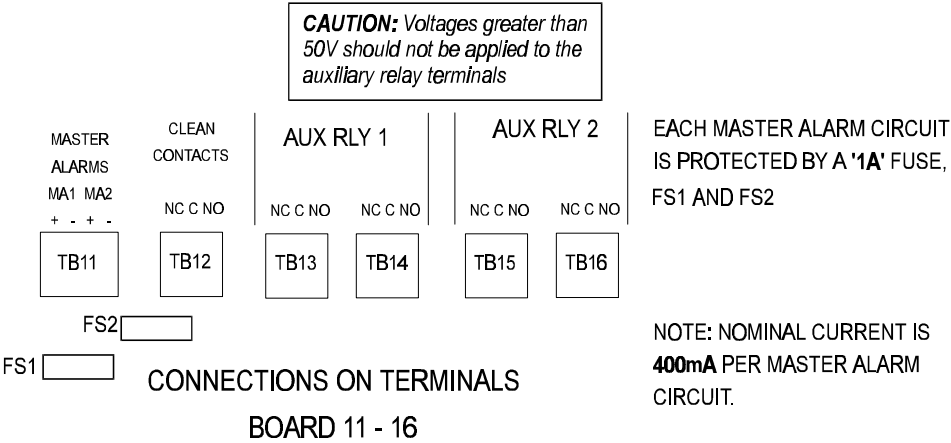
Figure 5-1 Control panel fixing details

- b) Knock out the required cable entry points from the **back box**.
- c) Mark the 4-off **back box** fixing points on the wall to which the panel is to be mounted.
- d) Secure the **back box** to the wall with suitable fixings to provide adequate support for a full assembly weight of **30kg**.
- e) Terminate each cable at the entry point, leaving a tail wire length and mark each core identifying its intended connection point.
- f) Fit the **earth lead** to the spade connector on the **back box**.
- g) Finally hook the **front cover** on the **back box**, leaving outstanding installation work for the Servicing organisation.

**NOTE:** If the control panel needs to be semi-flush, then the **back box** can be semi-flushed by up to **43mm**. There is no provision for a flush shroud for use with this product, it is intended that the overlay of the panel lid should cover the recess.



CONNECTIONS ON TERMINAL BOARD 1 - 10



CONNECTIONS ON TERMINALS BOARD 11 - 16

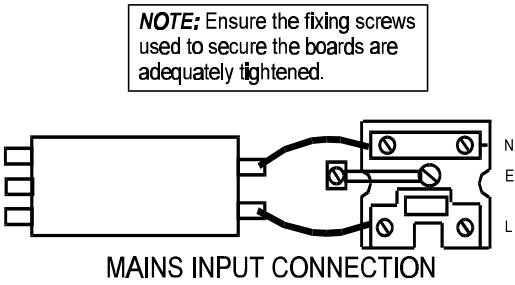


Figure 5-2 3404 Control Panel connections

# 3408 Fire Alarm Control Panel

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

## Fuses and locations

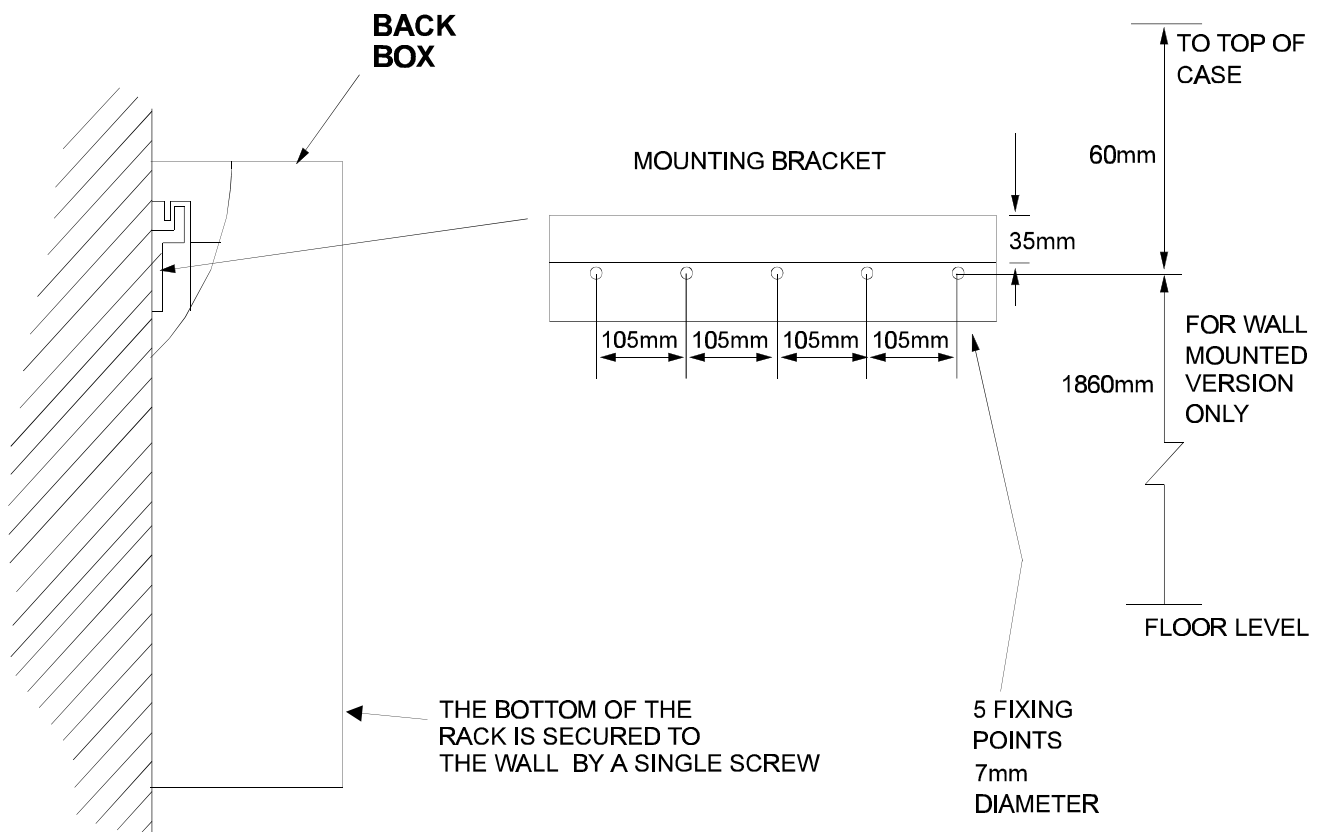
Fuse	Rating	Location
Mains	20mm x 5mm 3.15A SD	Cable Termination Compartment
Mains	20mm x 5mm 3.15A SD	Power supply pcb
FS1	20mm x 5mm 8A QB	Power supply pcb
FS2	20mm x 5mm 8A QB	Power supply pcb
FS5	20mm x 5mm 8A QB	Power supply pcb
FS6	20mm x 5mm 8A QB	Power supply pcb

## Wall mounted

- a) Identify the BACK BOX (RACK) package number 13408-44 and check the contents.

Component	Quantity
Rack - Back Box	1
Gland Plate	1
2U Plate (88mm wide)	1
M6 Screw	32
Mounting Bracket (part of rack)	2

- b) Mark the **upper mounting bracket** on the wall to which the Rack-backbox is to be mounted.
- c) Secure the **upper mounting bracket** to the wall using suitable fixings to provide adequate support for a fully assembled panel weighing **100kg**.
- d) Hook the **Rack-back box** on to the **upper mounting bracket**.
- e) Secure the bottom of the **Rack-Backbox** to the wall, by a single screw (not supplied) through a hole in the Rack. This prevents the back box from lifting outwards.
- f) Depending upon whether the the cables are to enter the rack from the above or from below, drill or punch the required cable entry holes into the appropriate gland plate.
- g) Fit the appropriate gland plates to the Rack-back box.
- h) Terminate each cable at entry point leaving tail wire length of **1m** for top entry or **2m** for bottom entry. Mark each core to identify the final point of connection.



### ASSEMBLED PANEL SIZE

	WALL MOUNTED	FLOOR STANDING
HEIGHT	1614mm	2014mm
WIDTH	600mm	600mm
DEPTH	270mm	270mm

### GLAND PLATE

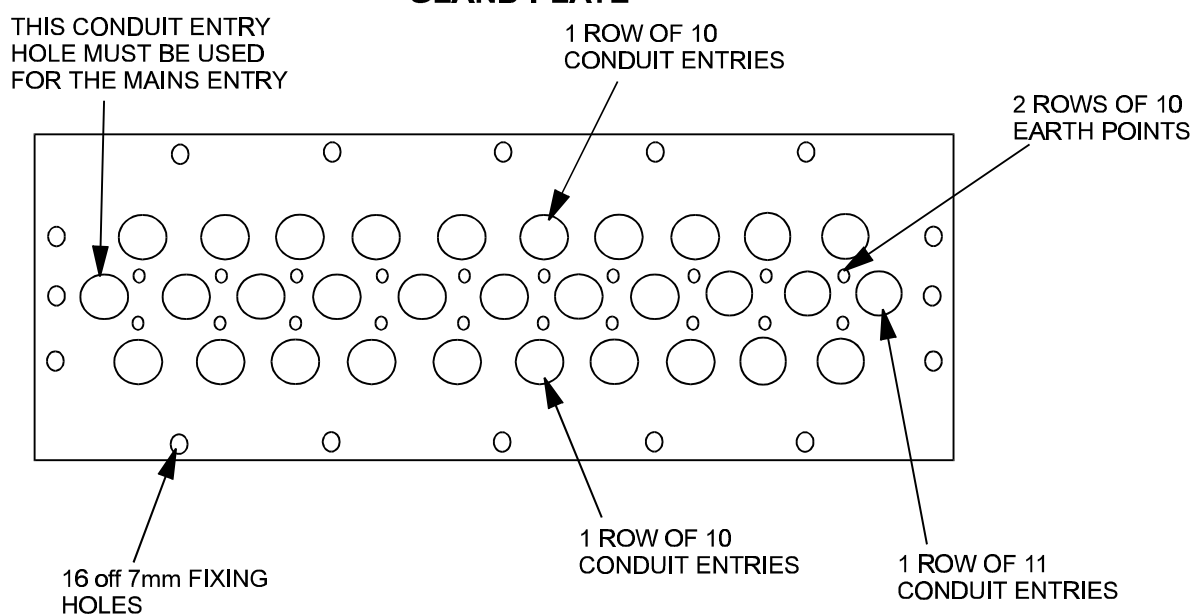
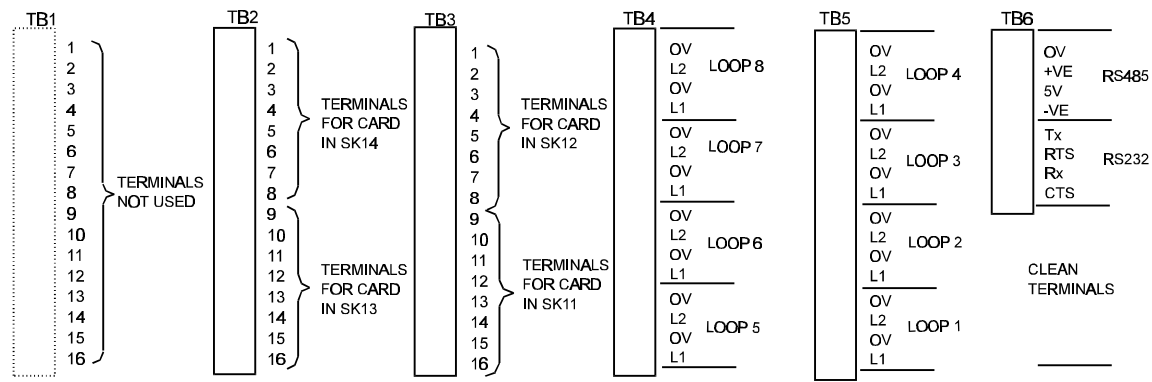


Figure 6-1 Rack-backbox fixing and earthing

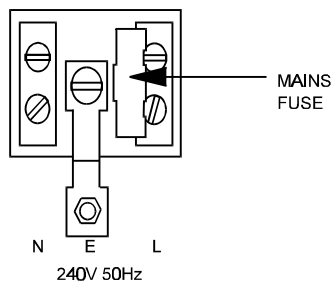
- i) Fit the 2U (medium spacer) plate to the Rack-backbox at the upper or lower face according to the orientation of the back box, ie whether the cables enter from the above or below.

**NOTE:** If the cables are to enter from **above or below** the backbox, then the **2U plate** must be fitted at the **top or bottom** of the backbox respectively.

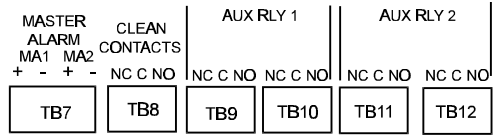
- j) Leave all outstanding installation work for the servicing organisation.



CONNECTIONS TO LOOP AND CARDS INSTALLED IN THE BACKPLANE



MAINS SUPPLY CONNECTIONS



EACH MASTER ALARM CIRCUIT IS PROTECTED BY A '1A' FUSE LOCATED ON THE POWER SUPPLY BOARD.  
NOTE : THE NOMINAL CURRENT IS 200mA PER MASTER ALARM CIRCUIT

CONNECTIONS FOR MASTER AND AUXILIARY RELAY

Figure 6-2 3408 panel connections

## Floor standing

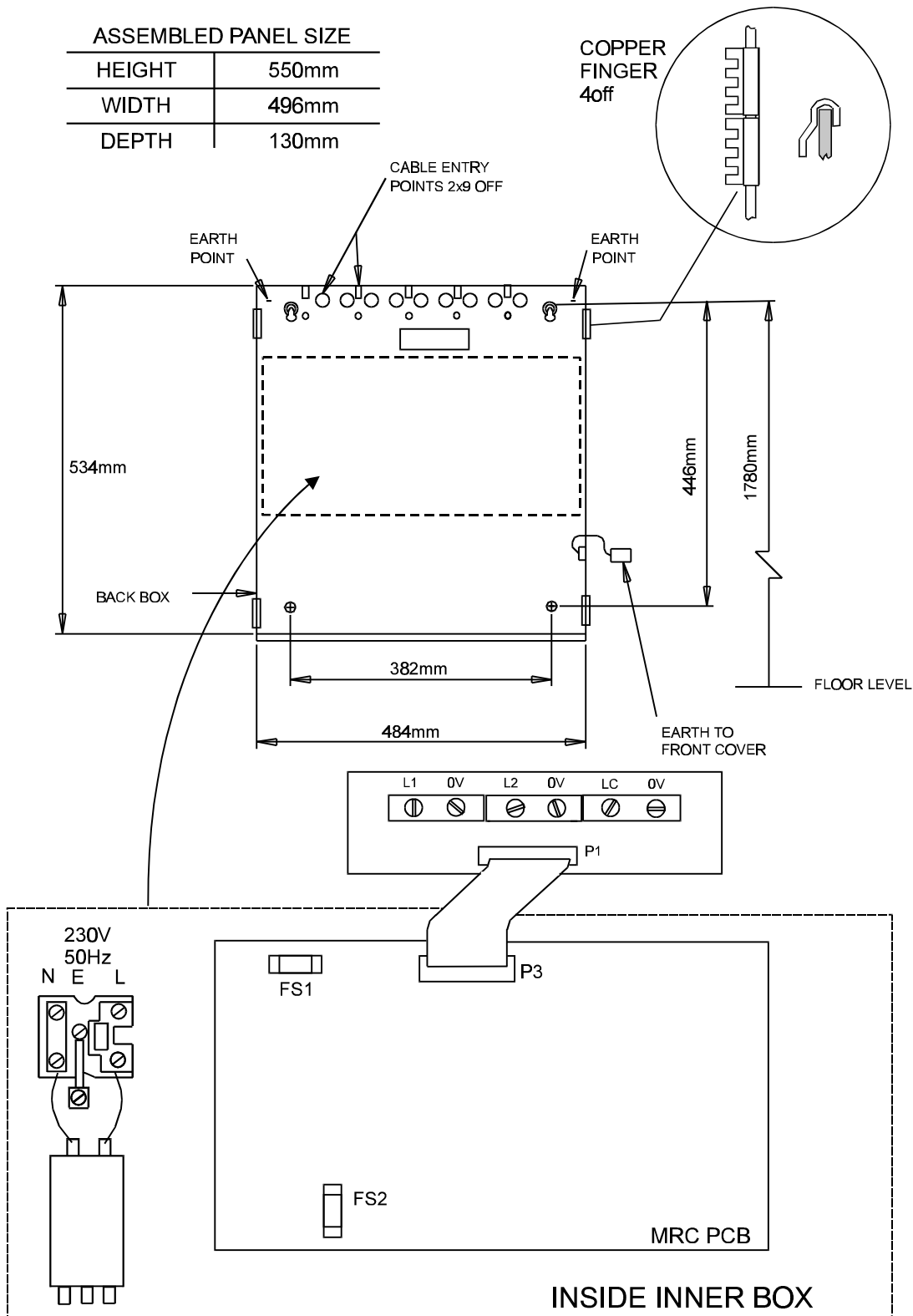
- a) Identify the RACK-BACKBOX package number 13408-44 and the PLINTH 13408-45.

Component	Quantity
Back box (rack)	1
Gland plate	2
2U plate	1
M6 screw	32
Mounting bracket (part of rack)	1
Plinth	1

- b) Secure the rack on the plinth against the wall to which the rack is to be fixed.
- c) Follow the procedures for the wall mounted version from b) to h).
- d) All outstanding installation of both the wall mounted and floor standing products should be referred to Servicing organisation.

# 3450 Fire Alarm Repeat Panel

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



CDM296

Figure 7-1 Repeat Panel fixing and connection details

## Fuses and locations

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

- a) Identify the BACK BOX/FRONT COVER ASSEMBLY package number 13450-80M2 and check that it has the following components

Component	Quantity
Back box	1
Front cover	1
Earth lead	1

- b) Knockout the required cable entry points from the **back box**.
- c) Mark out the 4-back box fixing positions on the wall to which the panel is to be mounted.
- d) Secure the **back box** to the wall with suitable fixings to support a full assembly weight of **20kg**.

**NOTE:** If the **Repeat panel** needs to be semi-flush, then the **back box** can be semi-flushed by up to **43mm** of its total depth. There is no provision for a flush shroud for use with this product. It is intended that the overlap for the panel lid will cover the recess.

- e) Terminate the cables and connect the loop circuit to the appropriate terminals.

## To install the inner box assembly

- a) If not already done, unhook the FRONT COVER and remove the blanking plate fitted to the cover.
- b) Identify the INNER BOX ASSEMBLY package number 13450-82V3 and check that it has the following parts.

Component	Quantity
Inner box assembly	1
Dzus studs	4
1A mains fuse (spare)	1
2.5A quick blow fuse (spare)	2
Allen key	1
Thumb nut & shake proof washer	2
Screw & shake proof washer	2
Moulded door & keys	1

- c) Fit the **inner box assembly** in the **back box** using the thumb nuts, shake proof washers and screws.



**NOTE:** *The screws and washers should be adequately tightened to provide earth continuity between the **inner box assembly** and the **Back box**.*

- d) Open the **inner box door** using the allen key.
- e) Remove the mains cover from the back of the inner box.
- f) Feed the mains cables through the furthest left hole on the **inner box assembly** and connect the ends to the appropriate terminal block.
- g) Feed the MRC PCB 10-way ribbon cable through the centre left hole on the **inner box** then connect it to terminal card socket P1
- h) Close the **inner box door** using the allen key.
- h) Fit the **earth lead** to the spade connector on the back box and then hook the **front cover** on the back Box. Secure the front cover with the dzus studs.
- i) Fit the **earth lead** to the spade connector on the back box.
- j) Latch the **moulded door** hinge pin onto the **inner box assembly** and lock the door using the keys supplied.

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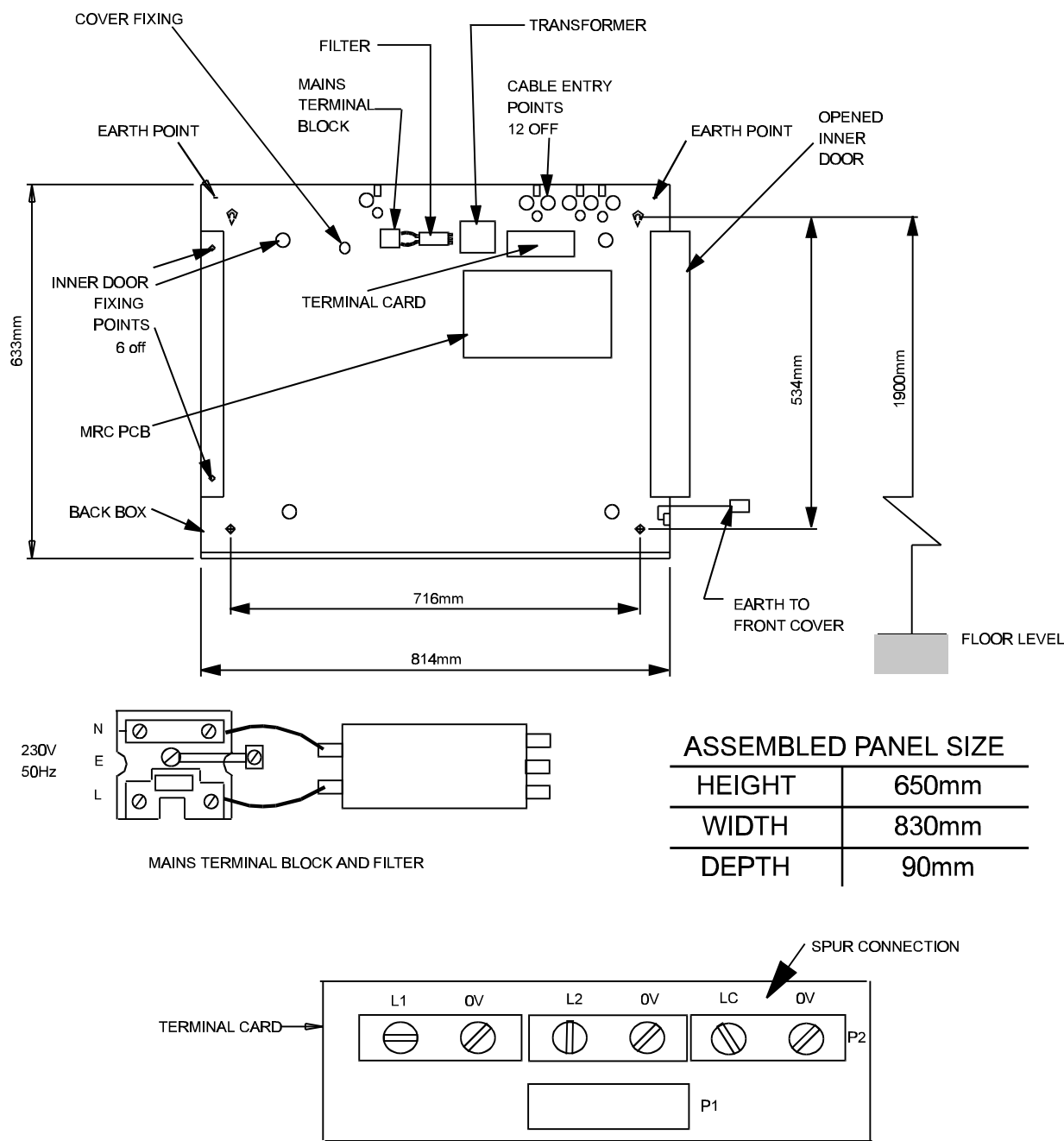


# 3460 Mimic and Zonal Repeat panels

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

## Fuses and locations

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



cdm300

Figure 8-1 Mimic panel fixing and connection points

- a) Identify the MIMIC REPEAT PANEL (A2 LANDSCAPE) or ZONAL REPEAT PANEL (A2 LANDSCAPE) package numbers 13460-01V3 and 13460-02 respectively, check that it contains the following parts.

Component	Quantity
Panel	1
12V 6Ahr Battery	1
Lock Key	2 Pairs
Switch Key	2
1A Mains Fuse (Spare)	1
2.5A Quick Blow Fuse (Spare)	1

**NOTE:** If the Panel needs to be **semi-flush**, then the **back box** can be semi-flushed by up to **40mm** of its total depth. There is no provision for a flush shroud for use with this product, it is intended that the overlap of the panel lid should cover the recess.

**CAUTION:** Ensure that the inner door is never opened more than **90°**.

- b) Using the keys provided unlock and unhook the mimic panel **front cover**.
- c) Open the **inner door** by removing six retaining screws, two on the side and four in the backbox.
- d) Remove the mains cover by removing the two fixing screws.
- e) Knock out the required cable entry points from the **back box**.
- f) Mark out the 4-back box fixing positions on the wall to which the panel is to be mounted.
- g) Secure the **back box** to the wall with suitable fixings to support a full panel weight of **18kg**.
- h) Terminate the loop and mains cables at the entry points and connect to the appropriate terminals.
- i) Secure the mains cover.
- h) Close the inner door and secure it with the 6 retaining screws and washers.
- i) Hook and lock the **front cover** onto the **back box** using the keys provided.

# Terminal Plates

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

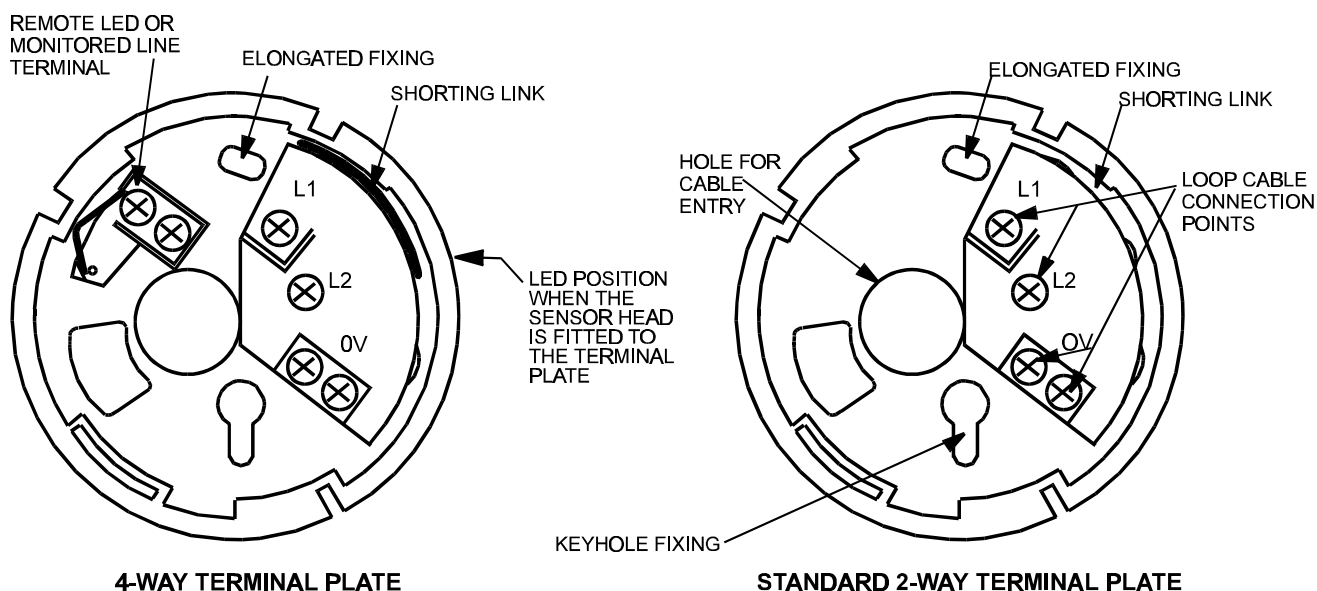
**CAUTION:** Use the correct **tool** and **technique** to fit or remove any **part** of the fire sensor from **terminal plate**.

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.

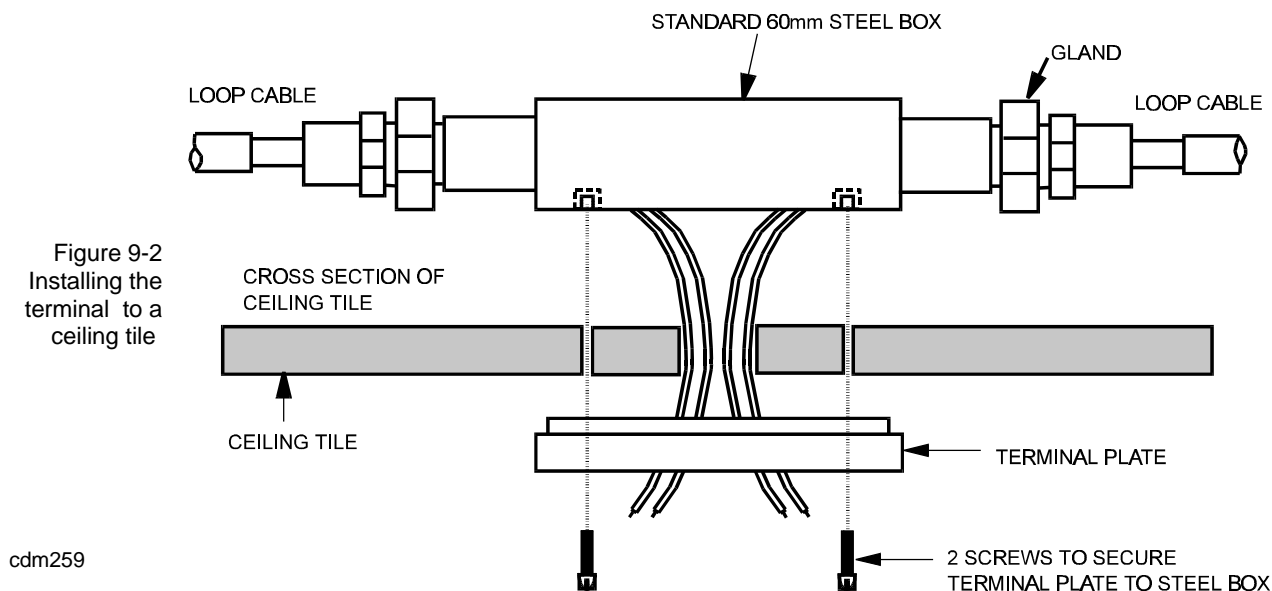
## Installing the Terminal Plates

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



cdm258

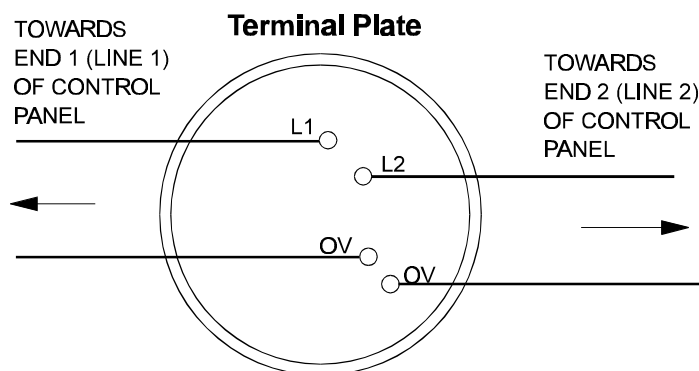
Figure 9-1 Terminal Plates



### Earthing requirements

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

Figure 9-3  
Terminal Plate connections



shf1113

### Terminal Plate wiring

To correctly wire the terminal plate:

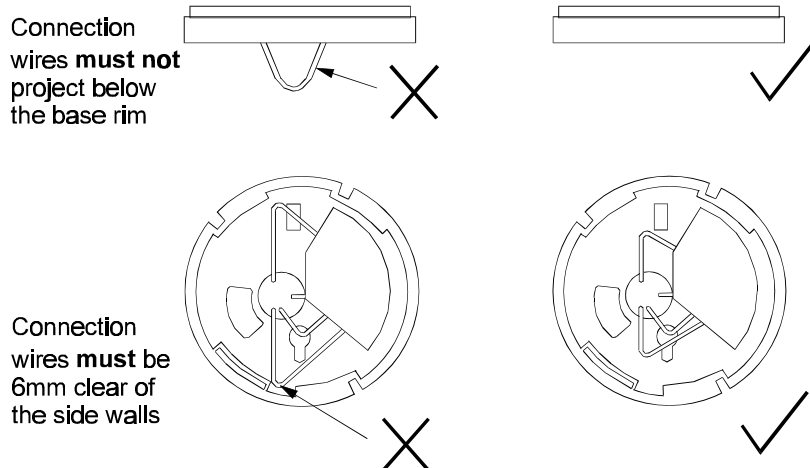


Figure 9-4 Wiring the base

fl374

# 19279-01 Semi flush mounting kit

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

These procedures describe how to **semi flush** a **34000 fire sensor** to a **ceiling tile** that is **22mm** or less in thickness. A terminal plate and 19279-01 semi flush mounting kit are required.

- a) Identify the package 34761 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.

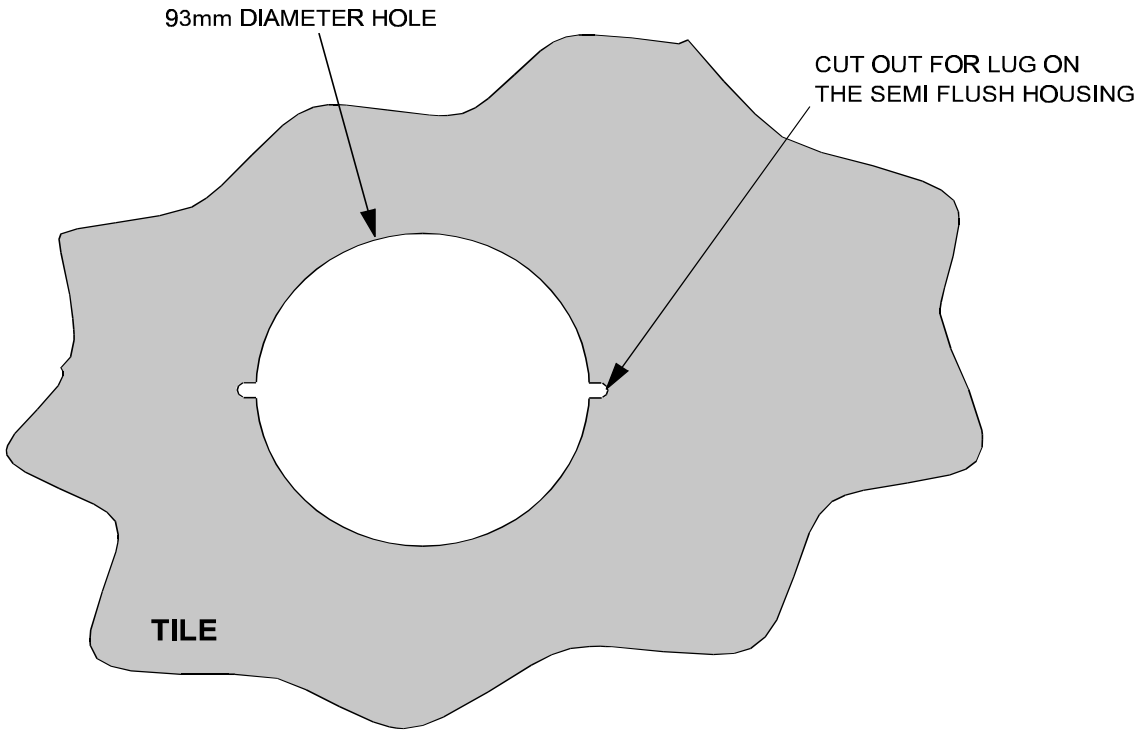


Figure 10-1 Cutouts for lugs

f1115

- 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 base.
- g) Secure the base to the steel box (BESA box) using brass screws.

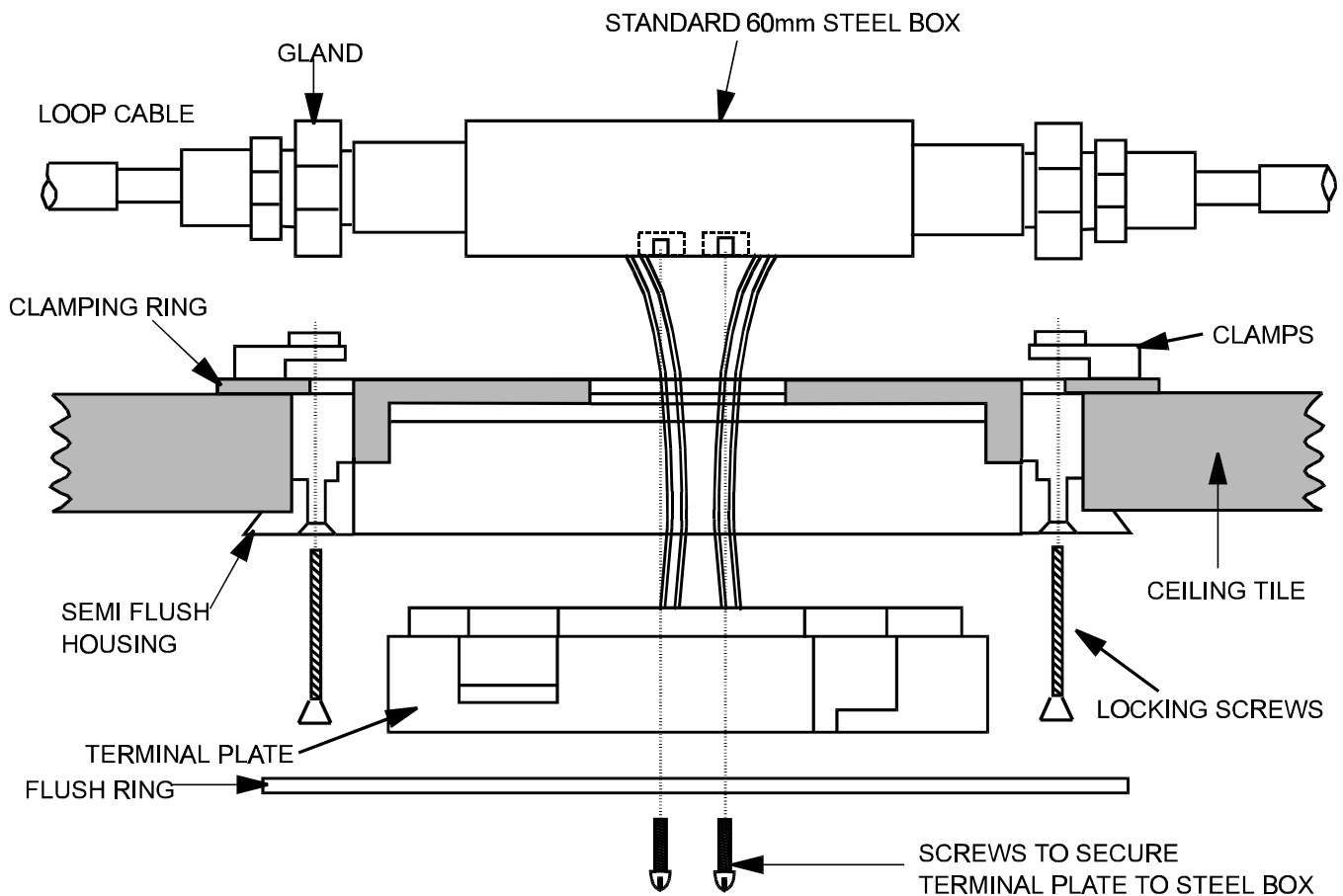


Figure 10-2 Flush kit installation

cdm260

- 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 terminals on the terminal plate.



## 19279-10 Sensor Trim Ring

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

### 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.

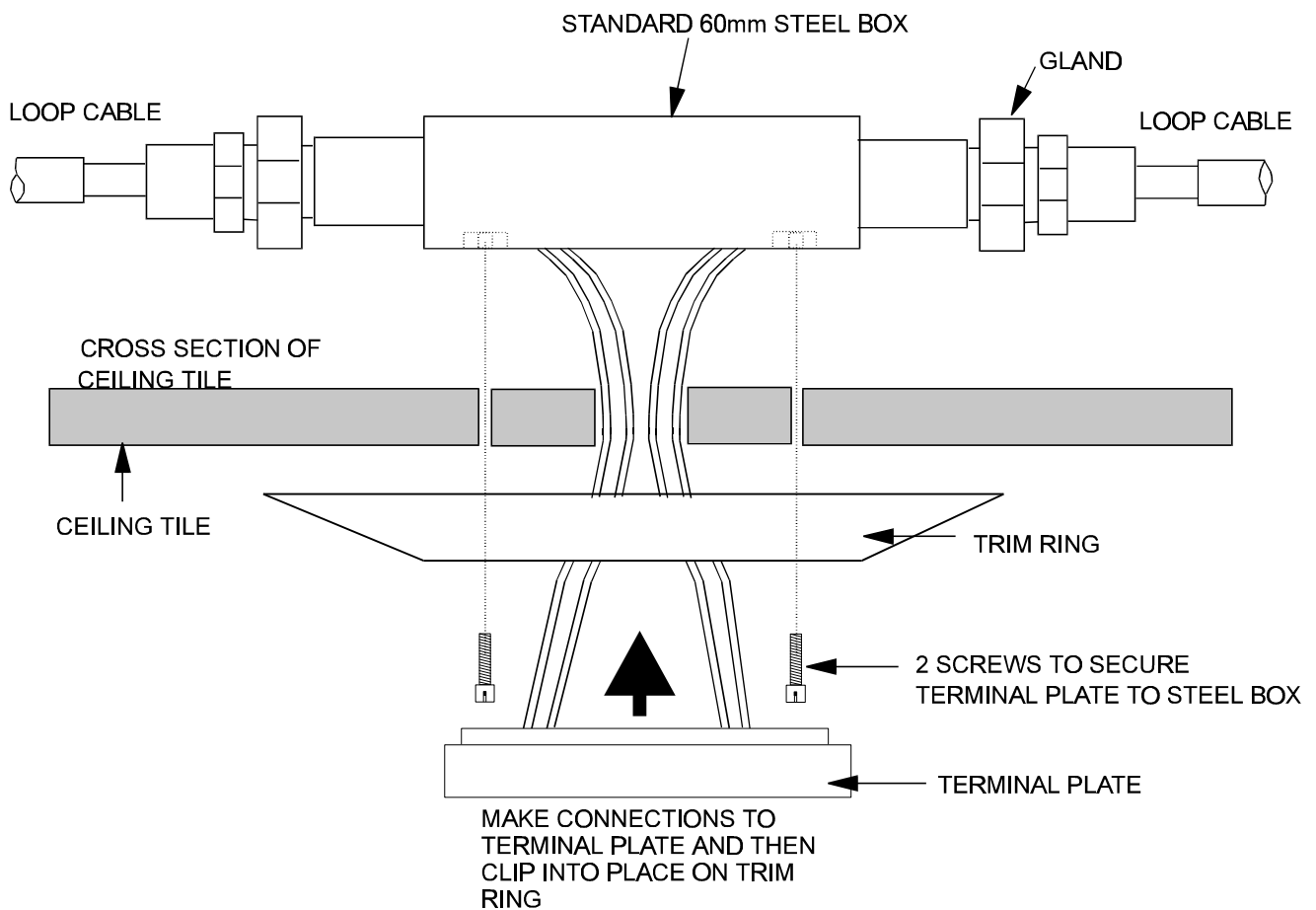


Figure 10-3 Fixing the trim ring

cdn170

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# 34000 Fire sensors

Where appropriate see notes to installer and EMC compliance.

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

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

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

34710	Optical heat sensor
34720	Heat sensor
34730	Ionisation sensor
34770	Optical heat sensor sounder
34780	Heat sensor sounder
34710-RL	Optical heat sensor with Remote LED connection
34710-ML	Optical heat sensor with monitored line MCP connection

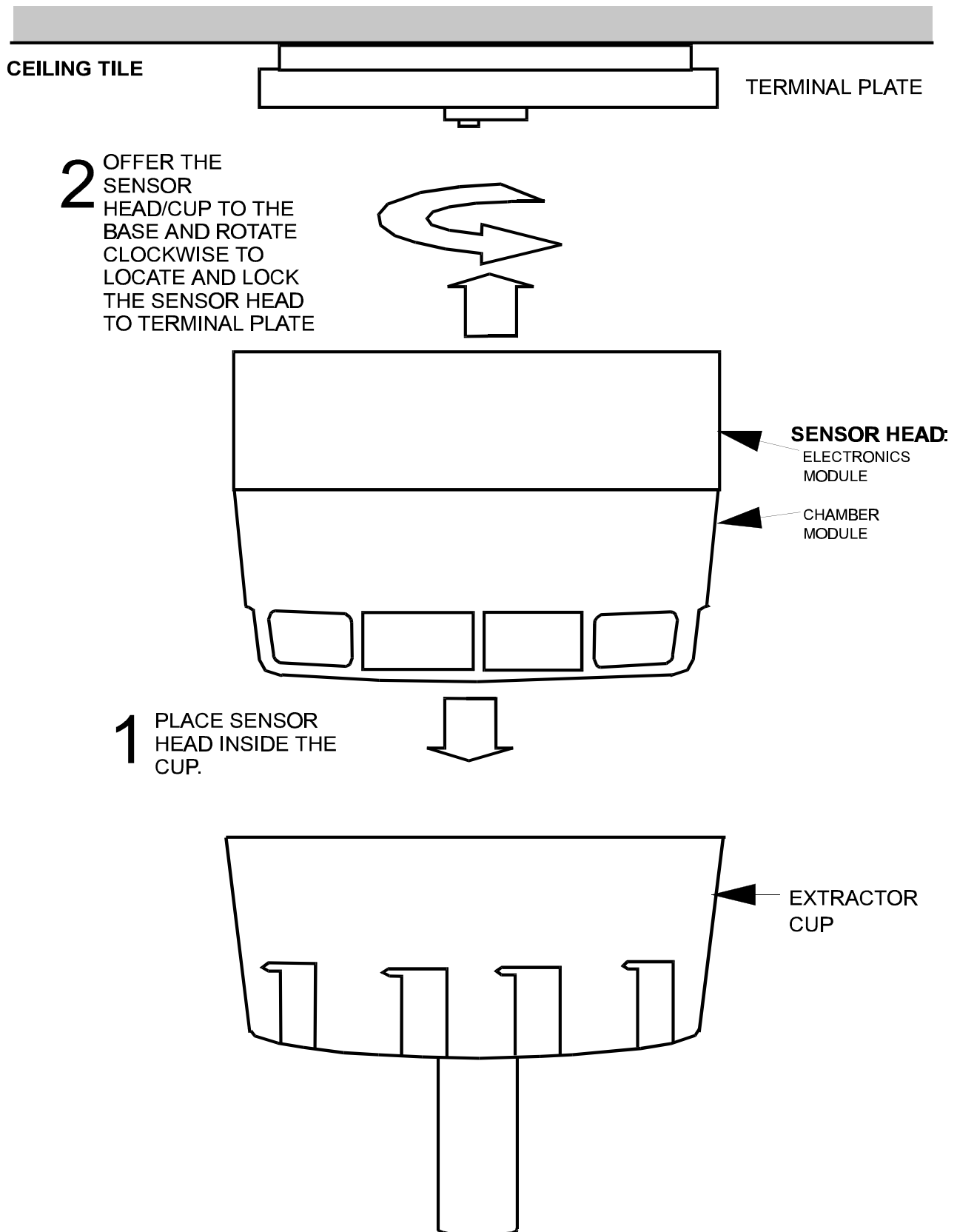
## Dust Cover

Each sensor is supplied with a push-fit plastic dust cover to protect the sensor from dirt and dust.

**NOTE:** After installation it is **essential** that the **protective dust covers** are removed from the sensors to prevent the sensors becoming contaminated with dirt or dust during any subsequent building work.

## Fitting a fire sensor head to terminal plate

To fit a **34000** 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.



## Removal of fire sensor head from terminal plate

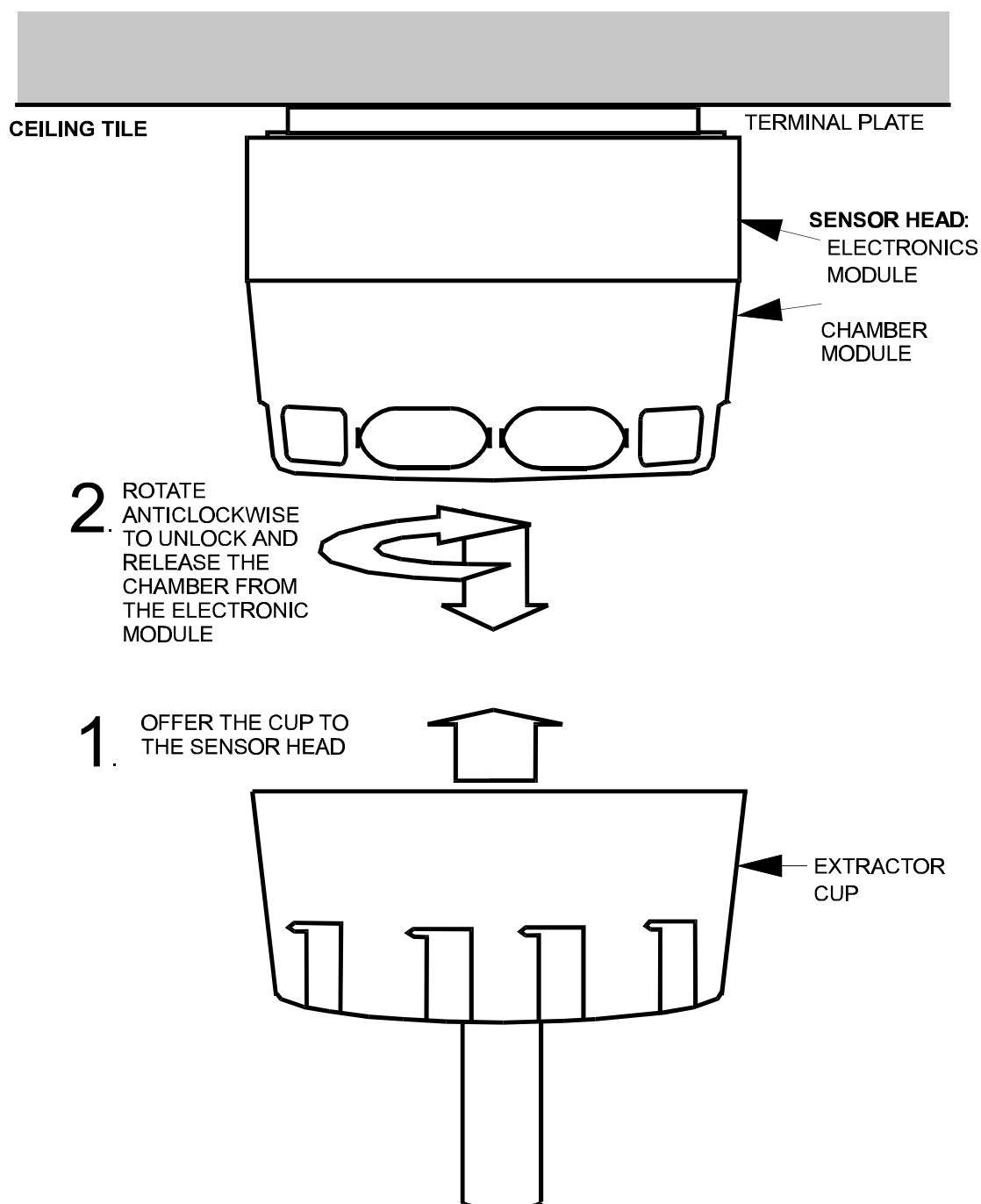
Use the **extractor cup** 17918-22, and the **correct electronics module removal tool**:

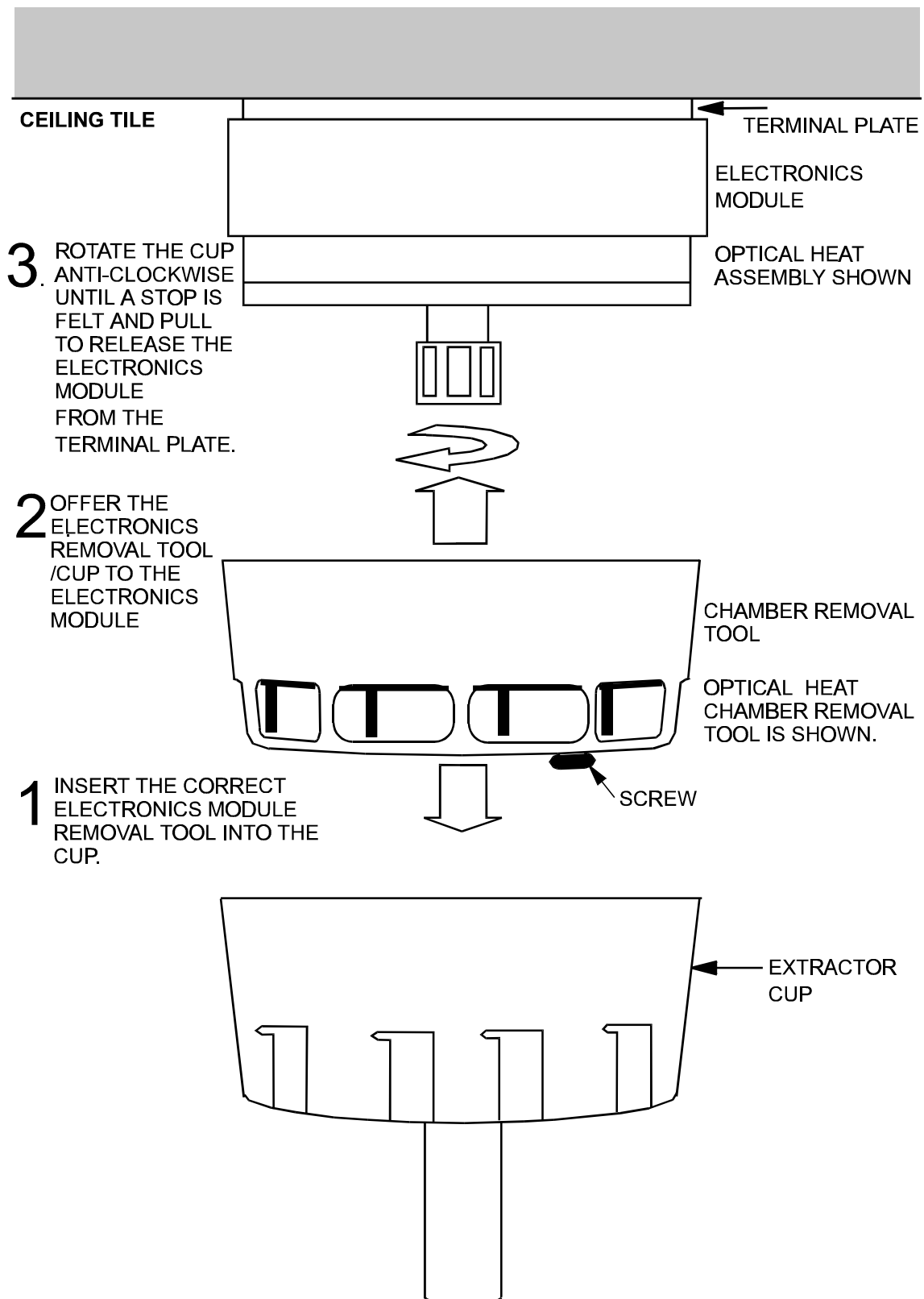
17918-23 for Optical heat (sounder) sensor

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





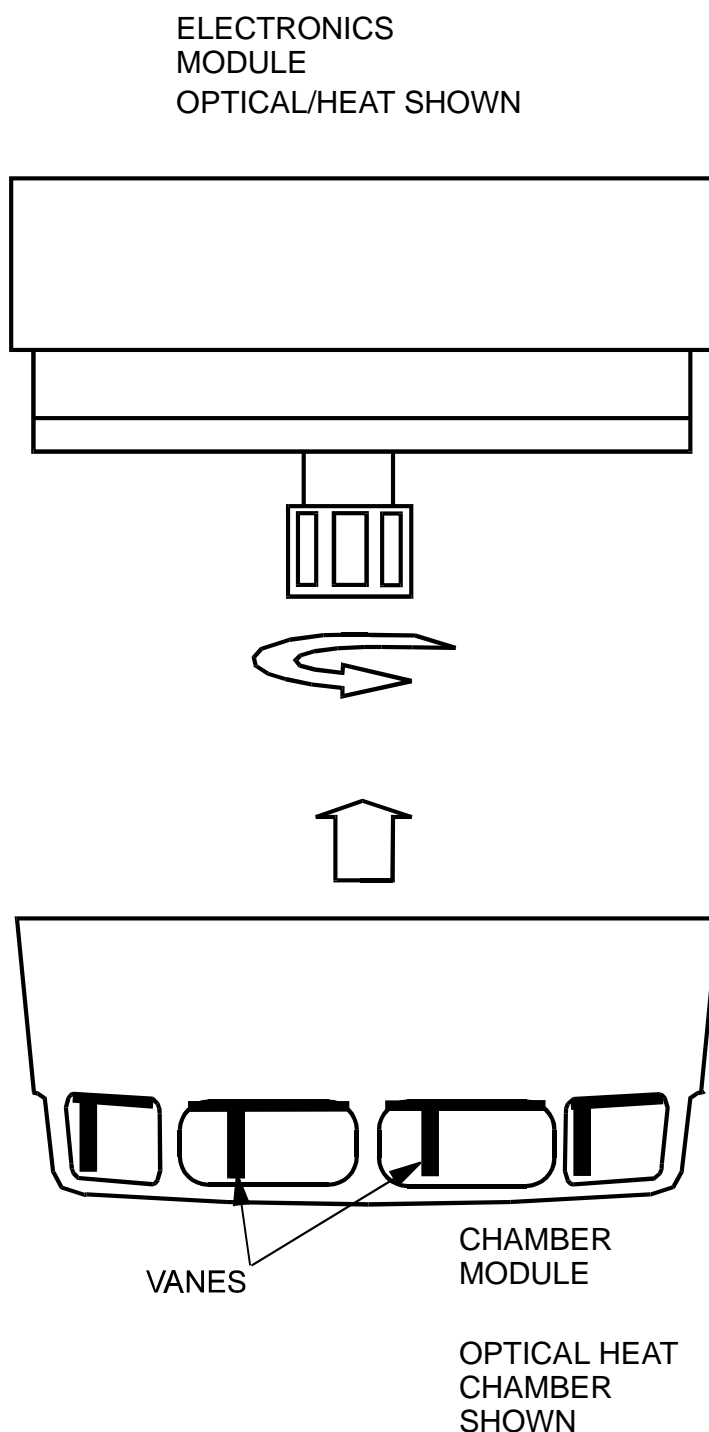
## To assemble a fire sensor head

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

- 3** WHILST HOLDING THE ELECTRONIC MODULE ROTATE THE CHAMBER CLOCKWISE TO LOCATE AND LOCK THE TWO ASSEMBLIES.
- NOTE THE VANES ARE ALIGNED WITH THE COVER MOULDING.

- 2** OFFER THE CHAMBER TO THE ELECTRONICS MODULE

- 1** CHECK TO ENSURE THAT THE VANES ARE DISPLACED AS SHOWN .



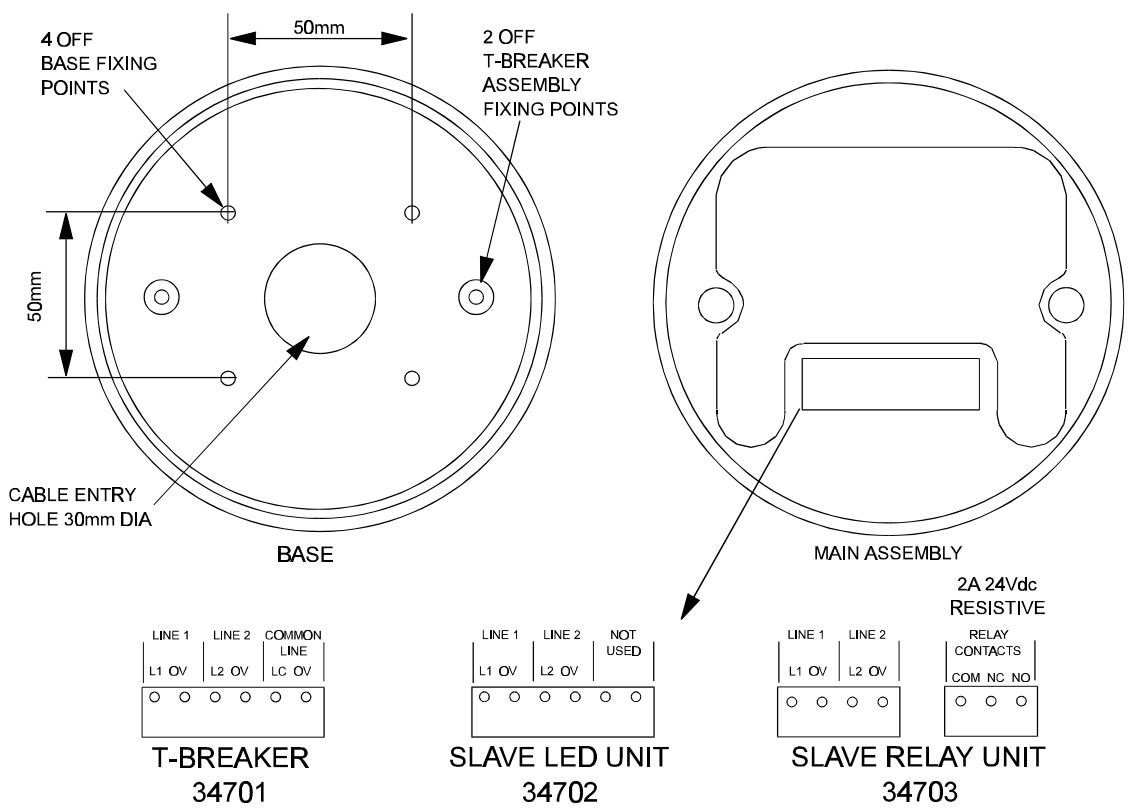
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# ‘ T ‘ breaker and slave units

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



fl128

Figure 12-1 Tee breaker and slave units

- 34701 ‘T’ breaker**

A tee breaker provides a means of making 3-way loop connection to sub-loop or spur circuit.
- 34702 Slave LED unit**

A slave LED unit repeats the operation of an LED on an associated 34000 fire sensor. The slave unit is connected on the loop before the associated 34000 fire sensor, i.e. towards end 1.
- 34703 Slave relay unit**

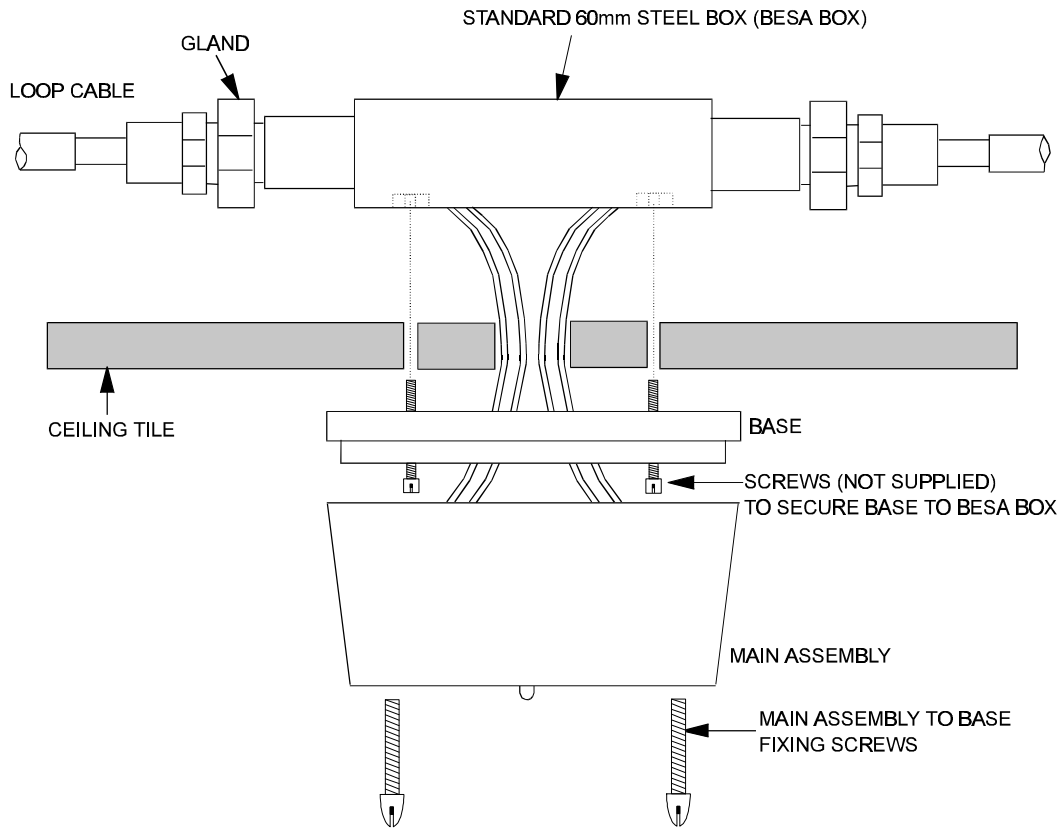
A slave relay unit operates with the associated 34000 fire sensor connected on a loop circuit. The slave unit is connected on the loop before the associated 34000 fire sensor, i.e. towards end 1.
- Installing a unit**

a)

Identify the package labelled 34701 ‘T’ BREAKER, 34702 SLAVE INDICATOR (LED) UNIT or 34703 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.
- d) Feed the loop wires through the tile and base, and then secure the base to the steel box.



f1130

Figure 12-2 Fitting a 'T' breaker and slave unit

- 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.

# Beam sensor

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

The **beam sensor pair** consist of two heads (receiver and transmitter), each of which is designed to fit into a **bracket and base**. In order to correctly align the sensor pair, the bases must be fitted to adjustable brackets.

**NOTE:** The beam sensor TRANSMITTER head and RECEIVER heads should be installed on the same loop facing each other for alignment purposes.

## Transmitter and Receiver head installation

- a) Identify the packages labelled:
- 34741-01 Angle bracket + base for beam
  - 34741-90 IP65 Angle bracket + base for beam
  - 34741-03 Parallel bracket + base for beam

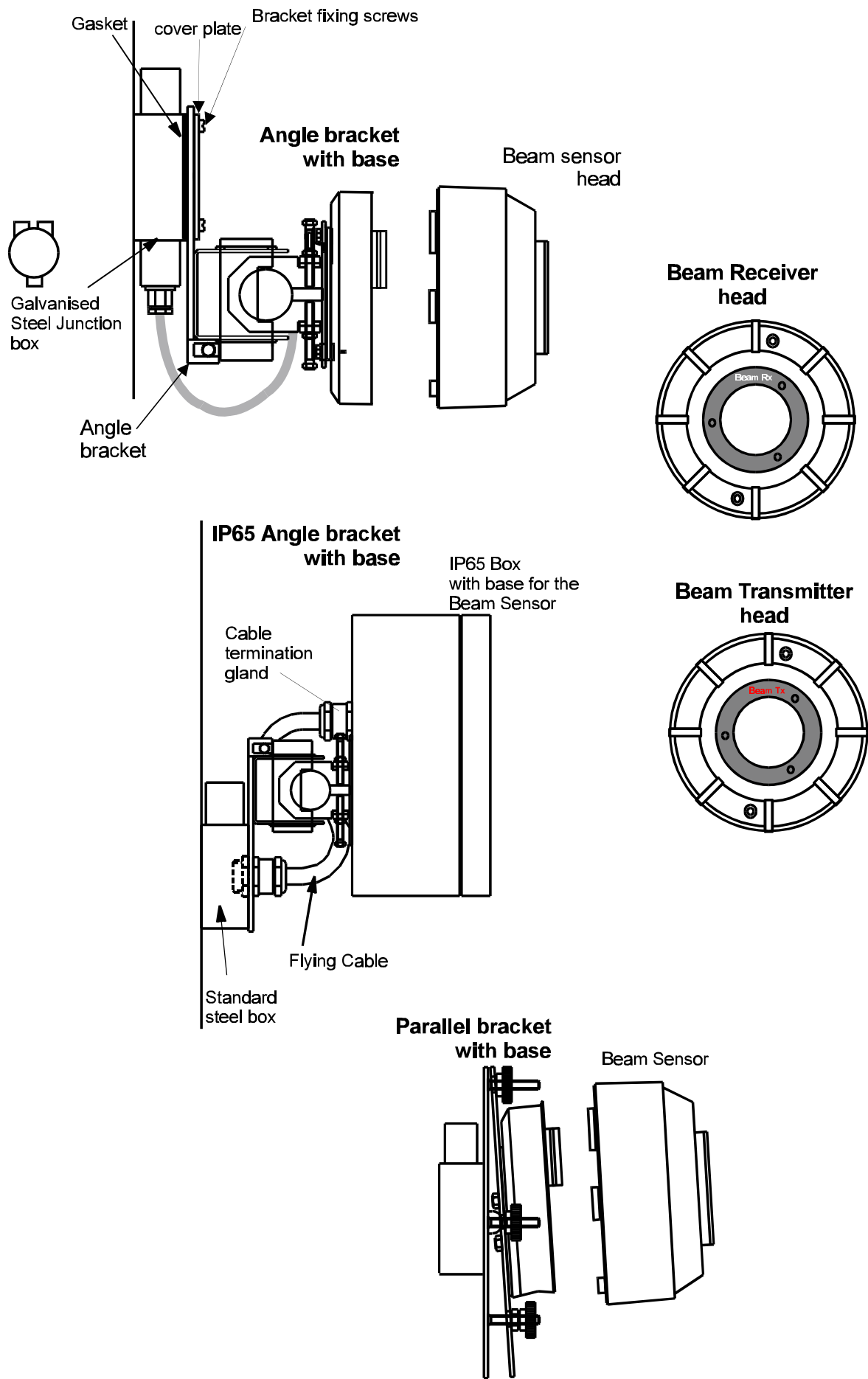
and check the contents:

Component	Quantity
Bracket + base assembly	1
Screws	2
Terminal Block	1
Gasket	1

**NOTE:** The junction box used for mounting the bracket must be of the galvanised type.

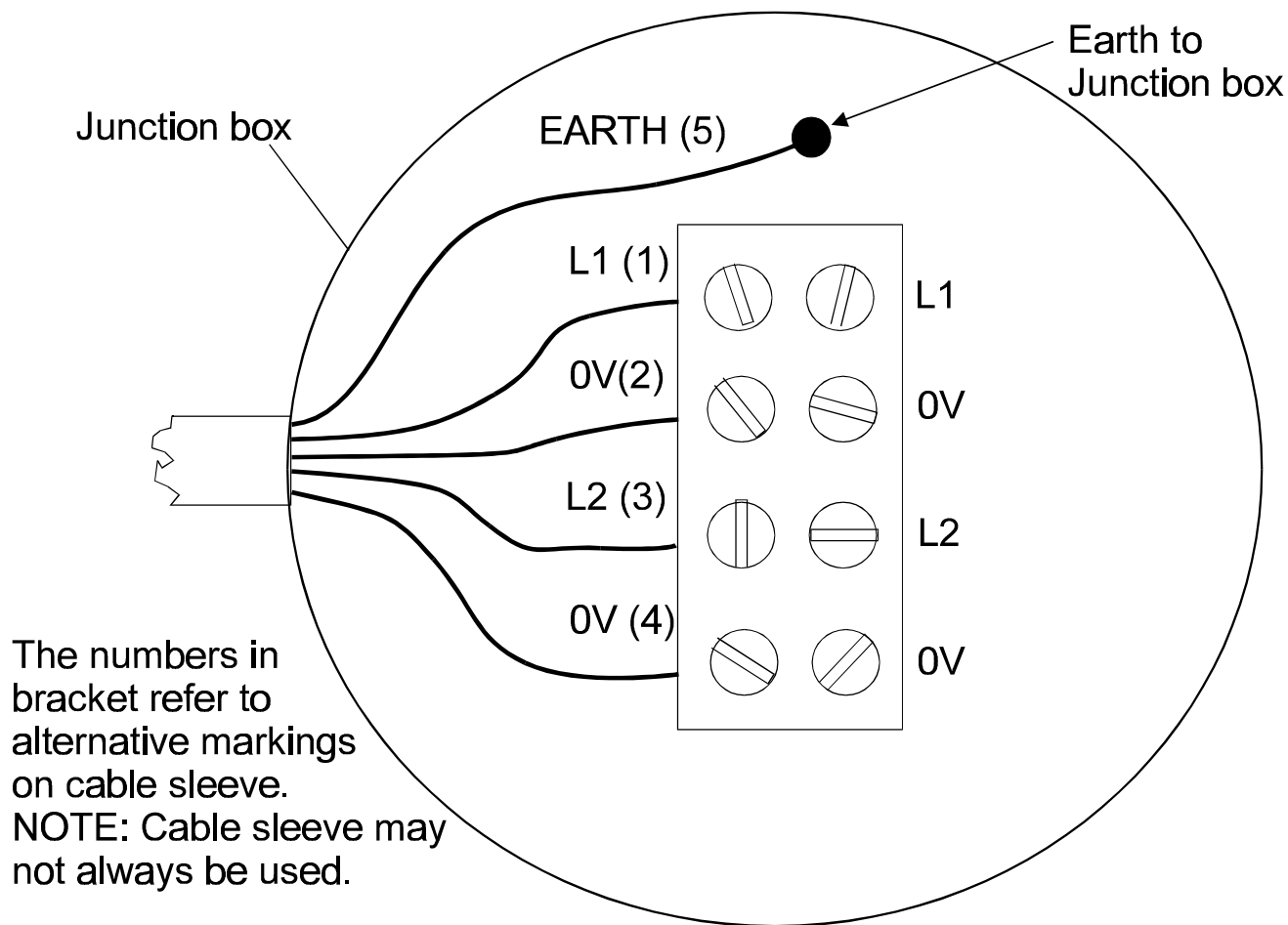
**NOTE:** The 2-way base can be recognised by the black plastic pcb cover moulding.

- b) Using the **terminal block** in the junction box and the **screened cable** make the loop connections. Ensure the cable earth is connected to an earth point in the junction box.
- c) Secure the **angle bracket** assembly onto the junction box using the gasket and **angle bracket** fixings.
- d) The applicable **sensor head** may now be fitted to the base assembly by twist and lock action.



cdm261

Figure 13-1 Beam sensor and bracket fixings



cdm297

Figure 13-2 Junction box loop connection details

**NOTE:** The sensor head can be recognised by the black plastic circular label surrounding the lens. The transmitter has the inscription **Beam Tx** while the receiver has **Beam Rx**.

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# 34760 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 34760 and PROBES FOR DUCT HOUSING 17908-05 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
Slave LED unit	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.

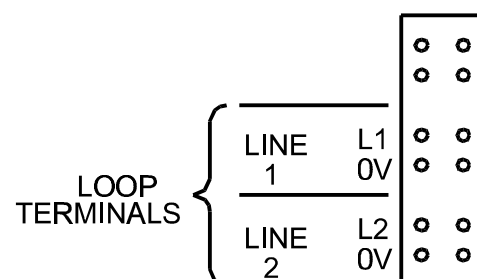
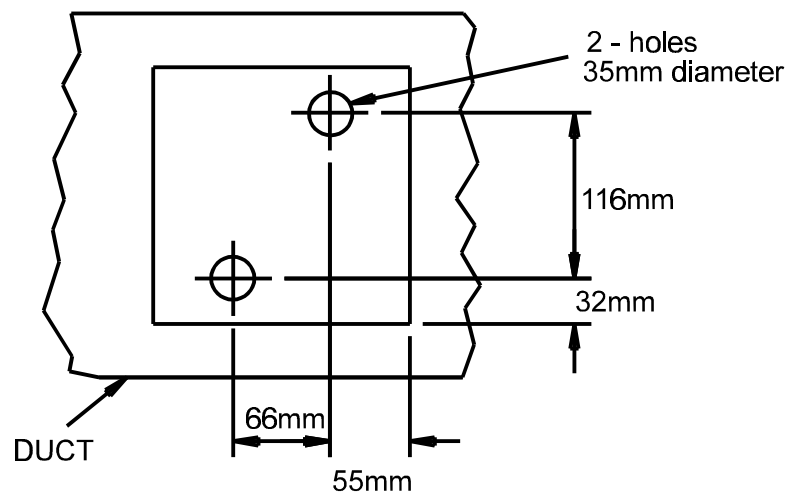
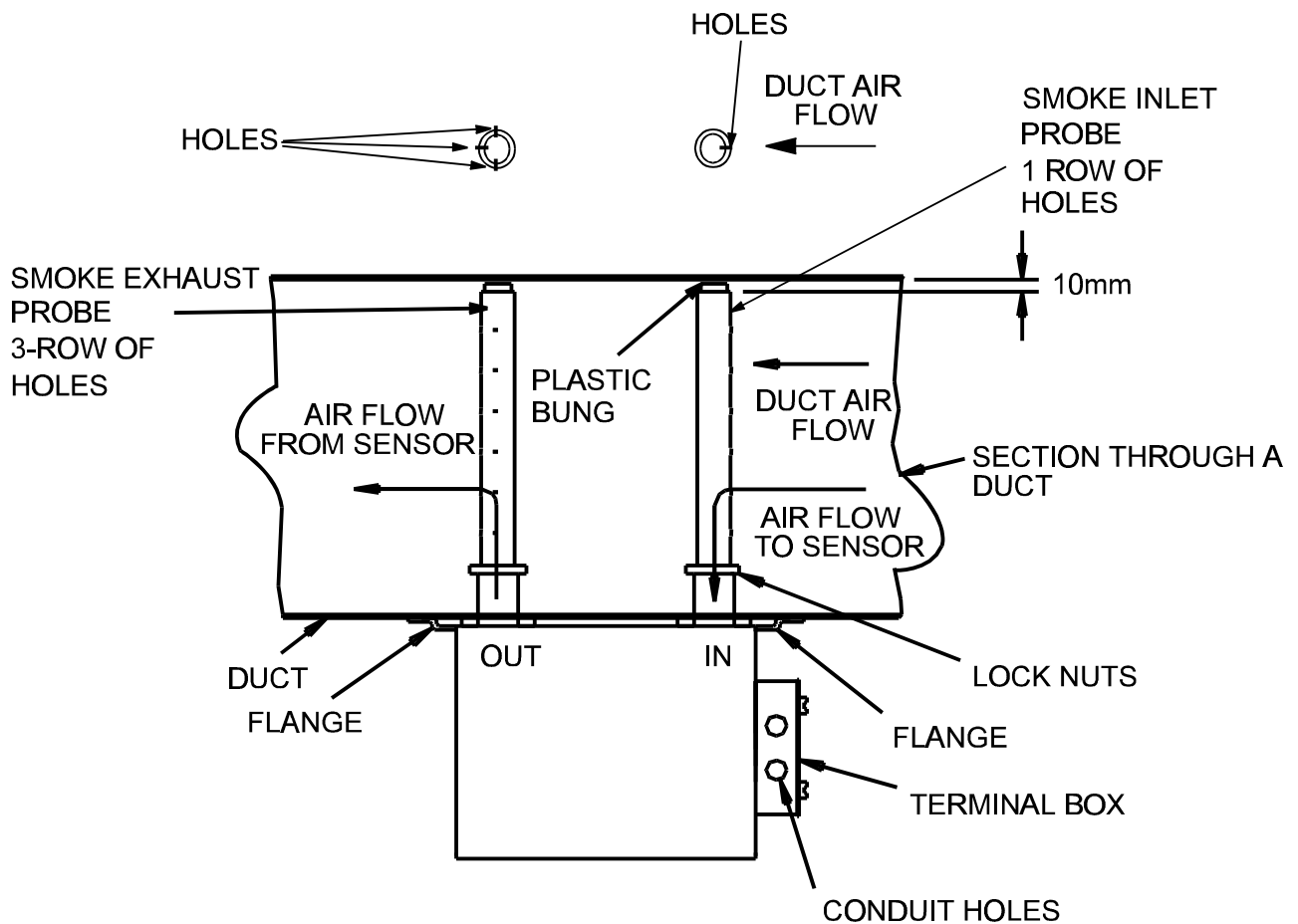


Figure 14-1 Duct Sensor fixing and connections



# 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:

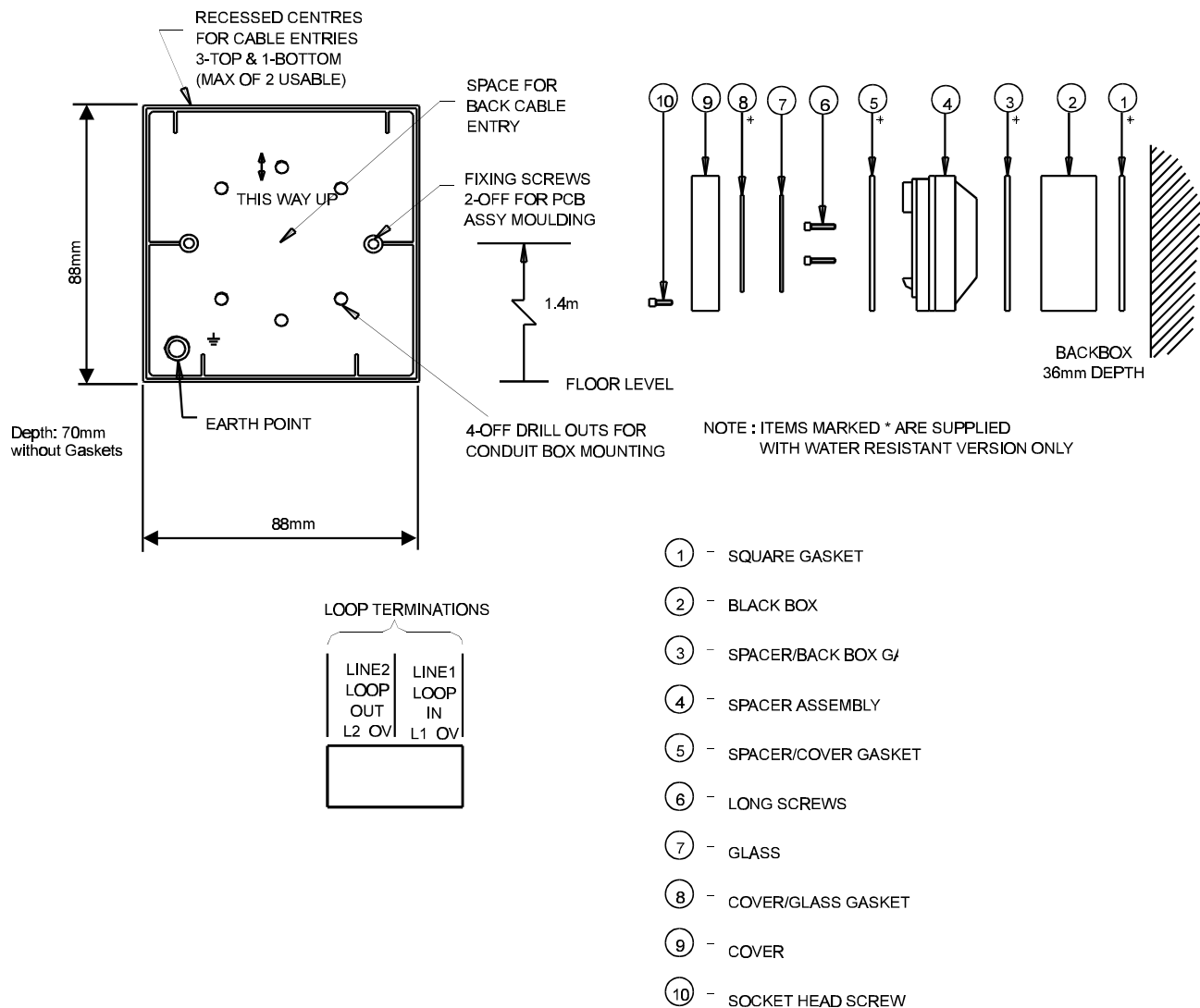
- 34800 SURFACE
- 34807 SURFACE KEYSWITCH
- 34812 SURFACE WATER RESISTANT
- 34842 SURFACE WITH CLEAR HINGED COVER
- 34852 CLEAR HINGED COVER WATER RESISTANT

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 water resistant 34812 and 34852)

- 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.



cdm263

Figure 15-1 Manual Call Point parts

**NOTE:** Ensure the spacer / backbox 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

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 semi flush kit 19289-01, containing a flush plate, must be installed between the back box and spacer assembly.

**NOTE:** The water resistant call points 34812 and 34852 **cannot** be flush fixed.

## 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 drawings (if supplied), notes to the installer, EMC & LVD compliance, cable types and loop circuit connections.

- a) Identify the appropriate package labelled ALARM SOUNDER, there are two types, a 2-way (34202) or a 3-way (34203) and check the contents.

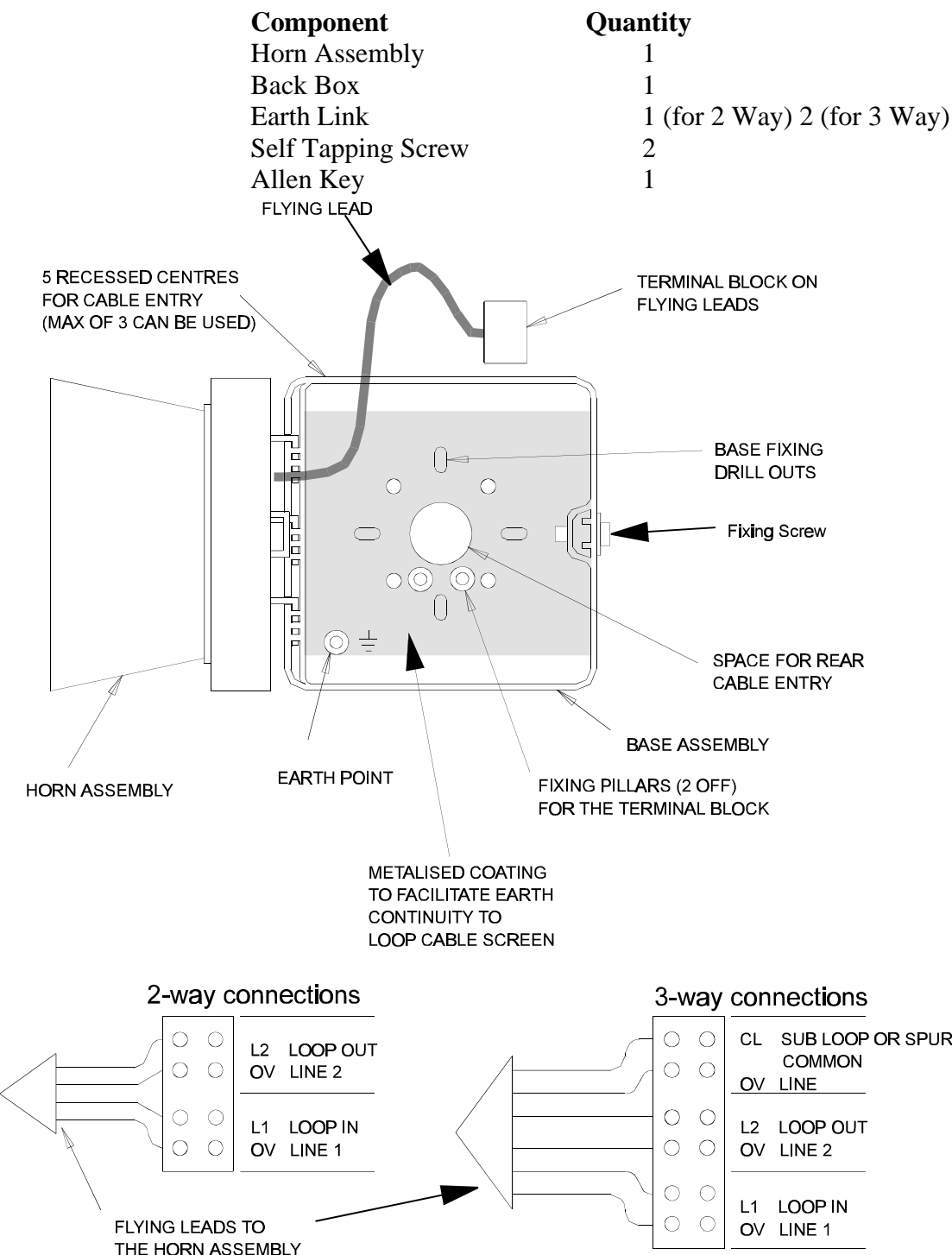


Figure 16-1 Alarm Sander fixing and connections

**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.

## 34777 Repeat Sounder

The 34777 Repeat Sounder is similar to the 34770 Optical Heat Sensor Sounder, but does not include the sensor elements. The installation therefore, is identical to the 34000 Fire Sensor installation instructions.

# 34440 Fire Alarm Interface Unit (Mains powered)

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

## Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 1.6A HRC	Top left of the backbox
FS1	20mm x 5mm 800mA	Board
FS2	20mm x 5mm 800mA	Board
FS3	20mm x 5mm 800mA	Board
FS4	20mm x 5mm 800mA	Board
FS5	20mm x 5mm 2.5A	Board
FS6	20mm x 5mm 2.5A	Board

- Identify the MAINS POWERED INTERFACE UNIT 34440 package.
- 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

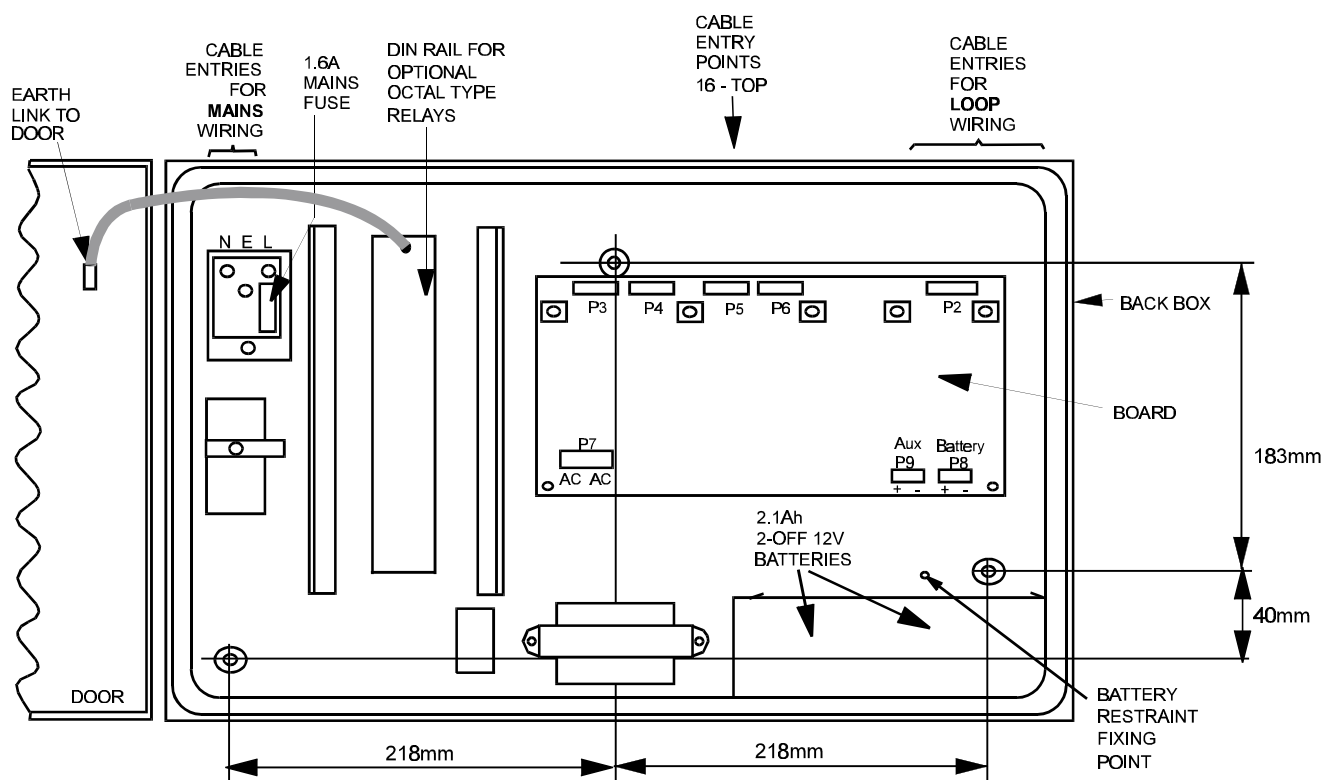
# these components are packaged separately.

- If necessary, remove the door on the unit to ease installation.
- Remove the covers fitted over the **mains terminal**.
- Knockout the required cable entry points from the back box.
- 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 19104-52** 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.



NOTE: The battery restraint brackets are not shown.

#### ASSEMBLED UNIT SIZE

HEIGHT	305mm
WIDTH	504mm
DEPTH	98mm

Figure 17-1 Interface unit with door open (post Nov'96)

cdm264

- Fit the **interface board** inside the backbox using the **screws** provided.
- Connect the incoming cable ends to the appropriate terminals.
- Connect the transformer secondary wires to terminal block P7 on the interface board.
- Place the batteries inside the backbox, however **do not make the connection**, this is done by the servicing organisation.



- m) Fit the **mains terminal cover** and **battery restraint bracket**.
- n) If removed, re-fit the door and earth lead.

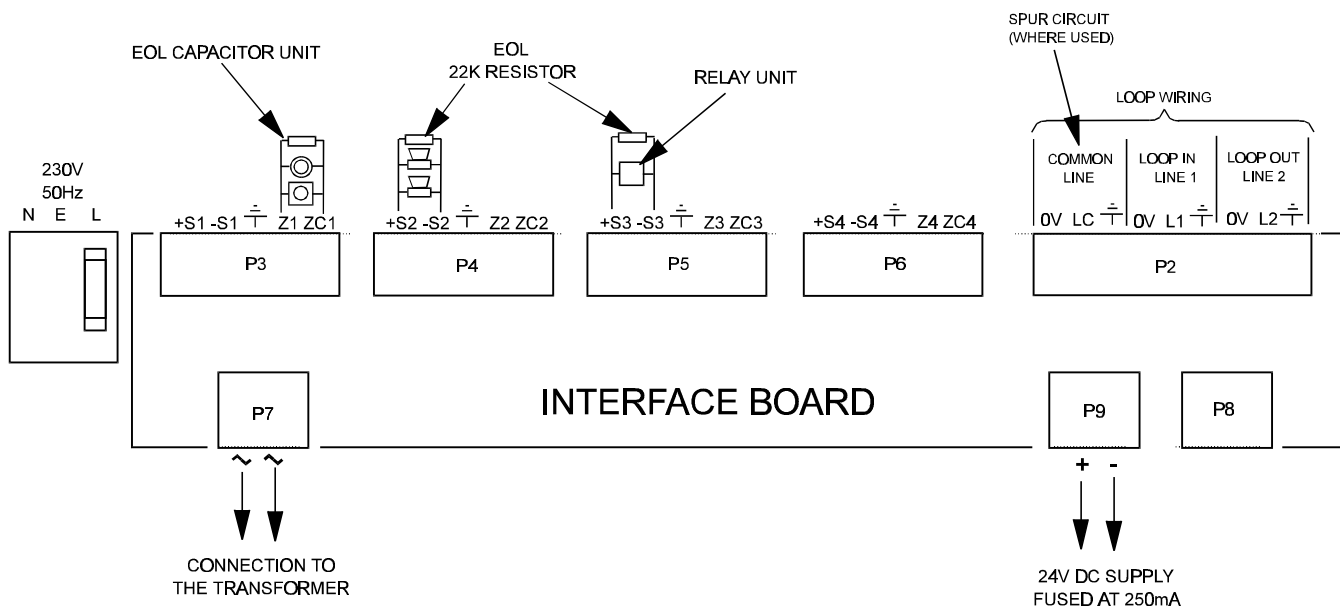


Figure 17-2 Connection Details

cdm301

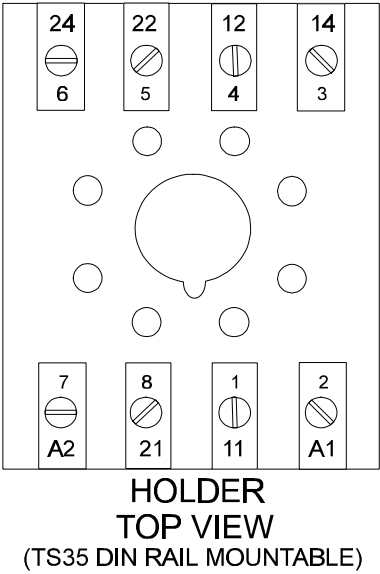
**NOTE:** The **capacitor unit** and the **22k Resistor** must be fitted to the **end-of-line (EOL)** of each circuit.

**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 organisation.

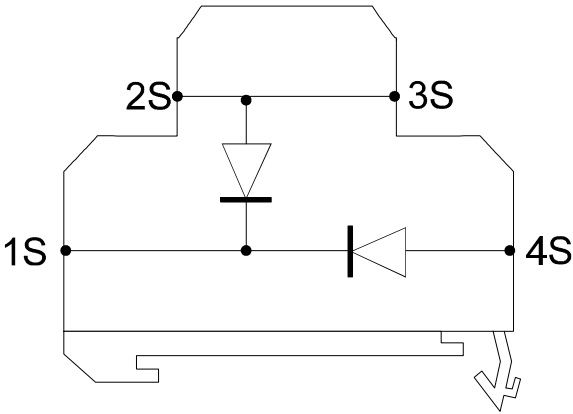
# 19104-52 Power relay

Figure 17-3 Relay holder

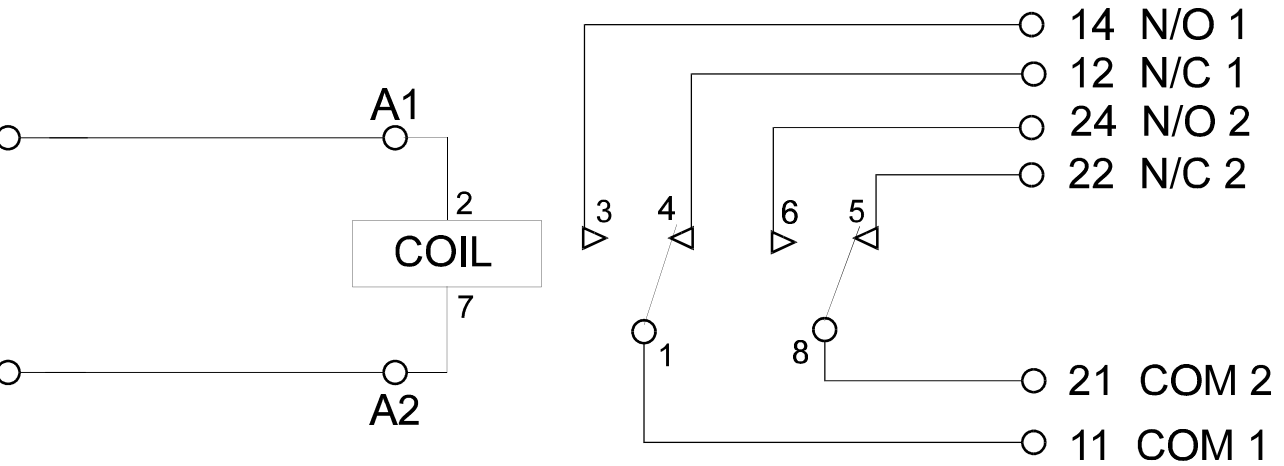


cdn36

Figure 17-4 Diode unit



cdn28



cdn60

# 34450 Fire alarm interface unit (Loop powered)

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

## Fuses and locations

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

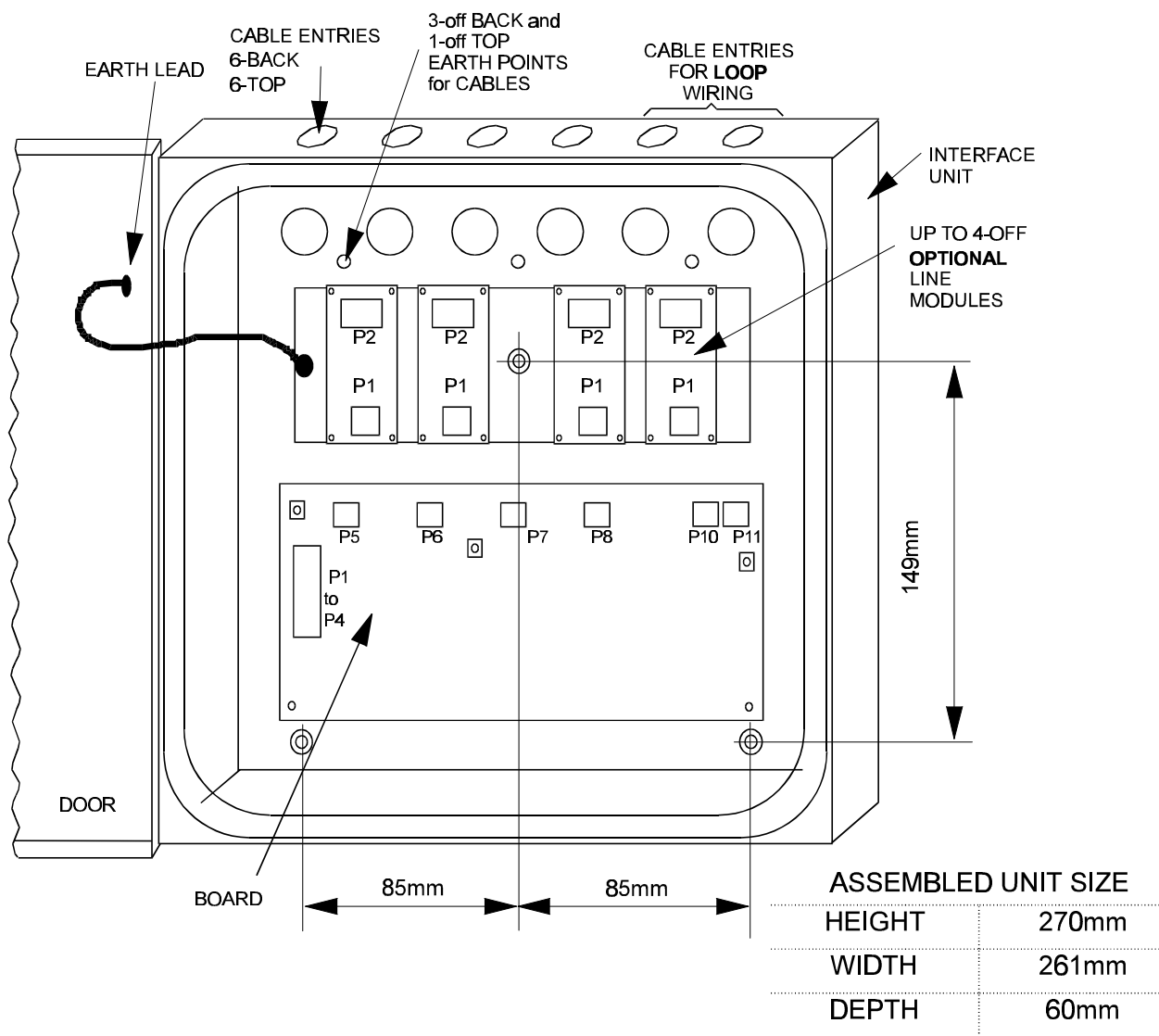


Figure 18-1 Interface unit fixing and connections

- a) Identify the package labelled FIRE ALARM INTERFACE UNIT (LOOP POWERED) numbered 34450.
- b) Open the door using the **key** and check all components.

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

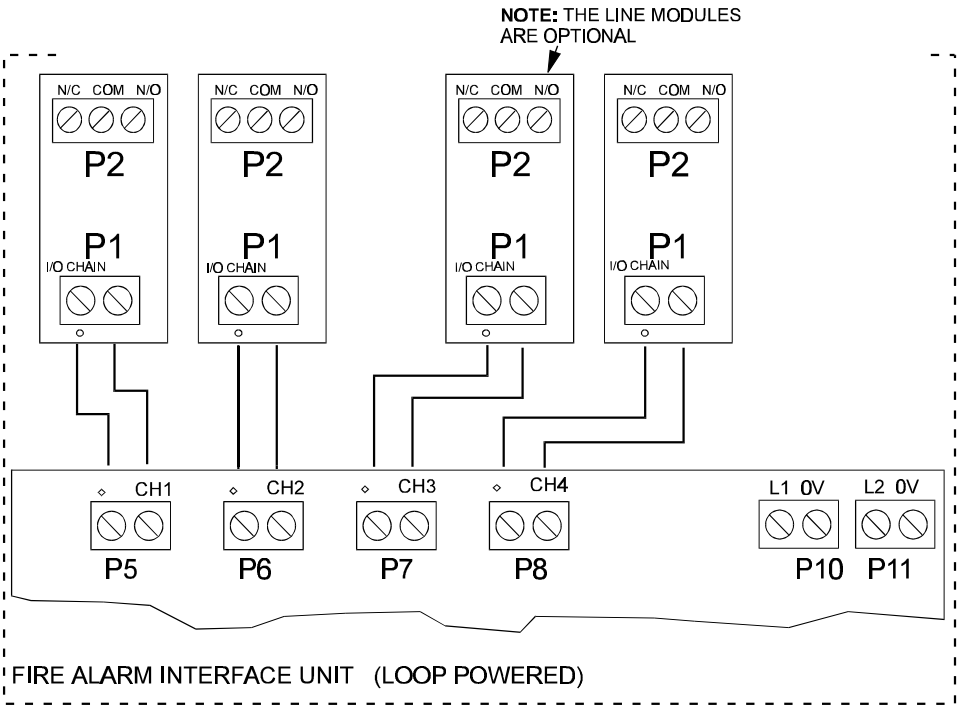
#these components are packaged separately

- 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.
- h) Fit the **line modules** inside the backbox, if required.
- i) Connect the appropriate cables ends to their respective terminals.

Figure 18-2  
Line module  
internal  
connection  
details



**CAUTION:** To prevent damage 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 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** including line module monitoring cable is allowed. per loop

**NOTE:** Where interface unit inputs are keyswitch operated, there is an optional replacement door 34454. The door can accommodate keyswitches 19245-03 (2 off 3-way keyswitch) or 19245-02 (4 off 2-way keyswitch).

**NOTE:** If a keyswitch is fitted to a channel then it is not possible to connect a line module to the same channel.

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

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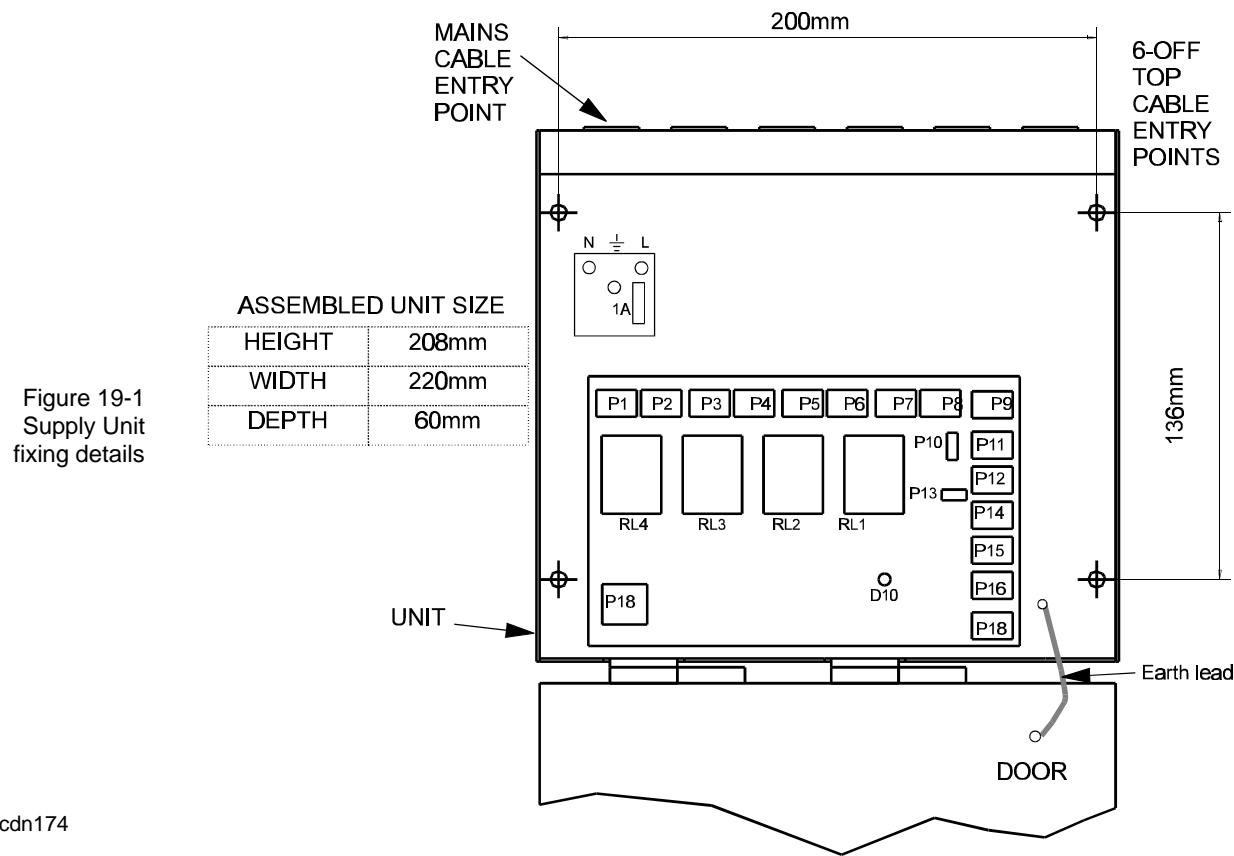
# 19245-06 Power Supply Unit

Where appropriate, refer to the as fitted wiring drawings (if supplied), notes to the installer, EMC and 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.
- e) Secure the unit to the surface with suitable fixings to support a fully assembled weight of **1.5Kg**.

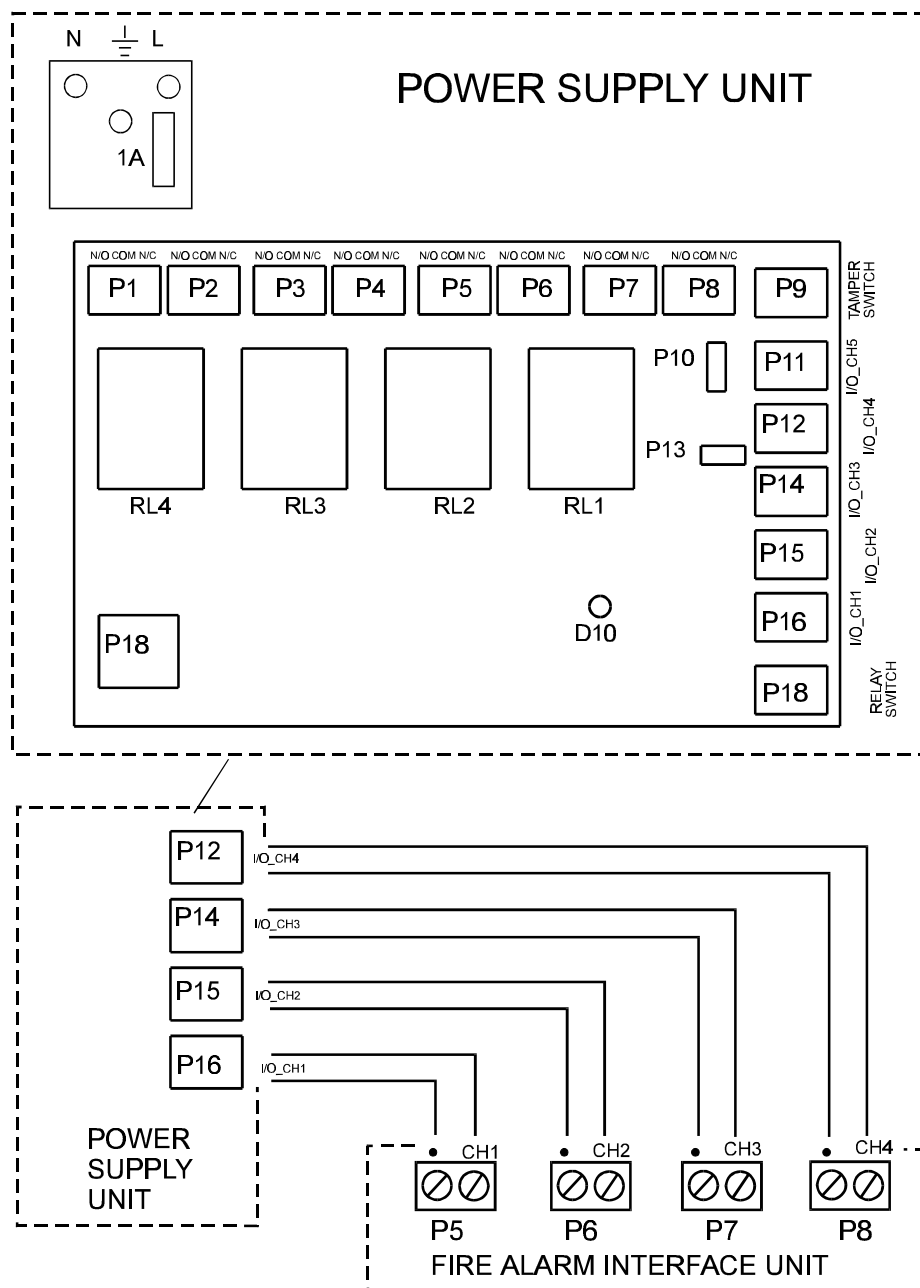


Figure 19-2 PSU to interface unit connections

cdm286

- g) Terminate cables at the entry points.
- h) Connect the cables ends if instructed, otherwise leave tail wire length of **400mm** and mark the cores to identify the connection point.
- i) 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.

- j) Leave all outstanding installation work for the servicing organisation.



# 34415 Single Channel Interface (Loop Powered)

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

- a) Identify the SINGLE CHANNEL INTERFACE (LOOP POWERED) package numbered 34415.

Component	Quantity
Unit	1
Capacitor Unit (EOL)	1
EOL Label	1

- b) Remove the lid to the module.

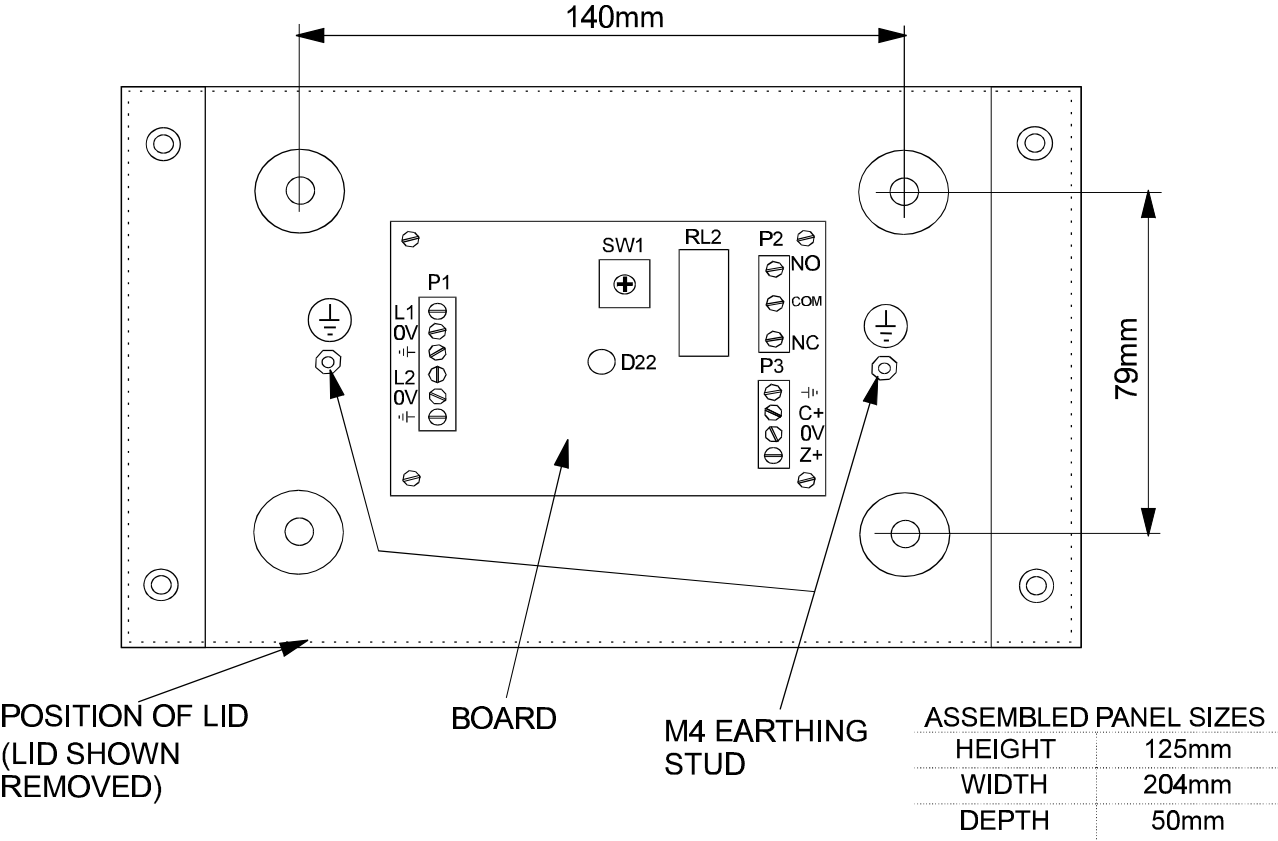


Figure 20-1 Single Channel Interface (lid removed)

cdn172

- c) Remove the board from the unit and keep it in a safe place until required, together with the fixing screws.
- d) Knockout the required cable entry points from the module sides.

- e) Mark the four fixing positions on the wall to which the unit is to be mounted.
- f) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of **670g**.
- g) Terminate each cable at the entry point.
- h) Refit the board into the module.
- i) Connect the appropriate cable ends to the respective terminals.
- j) Secure the lid to the module.
- k) Leave all outstanding installation work to Servicing organisation.

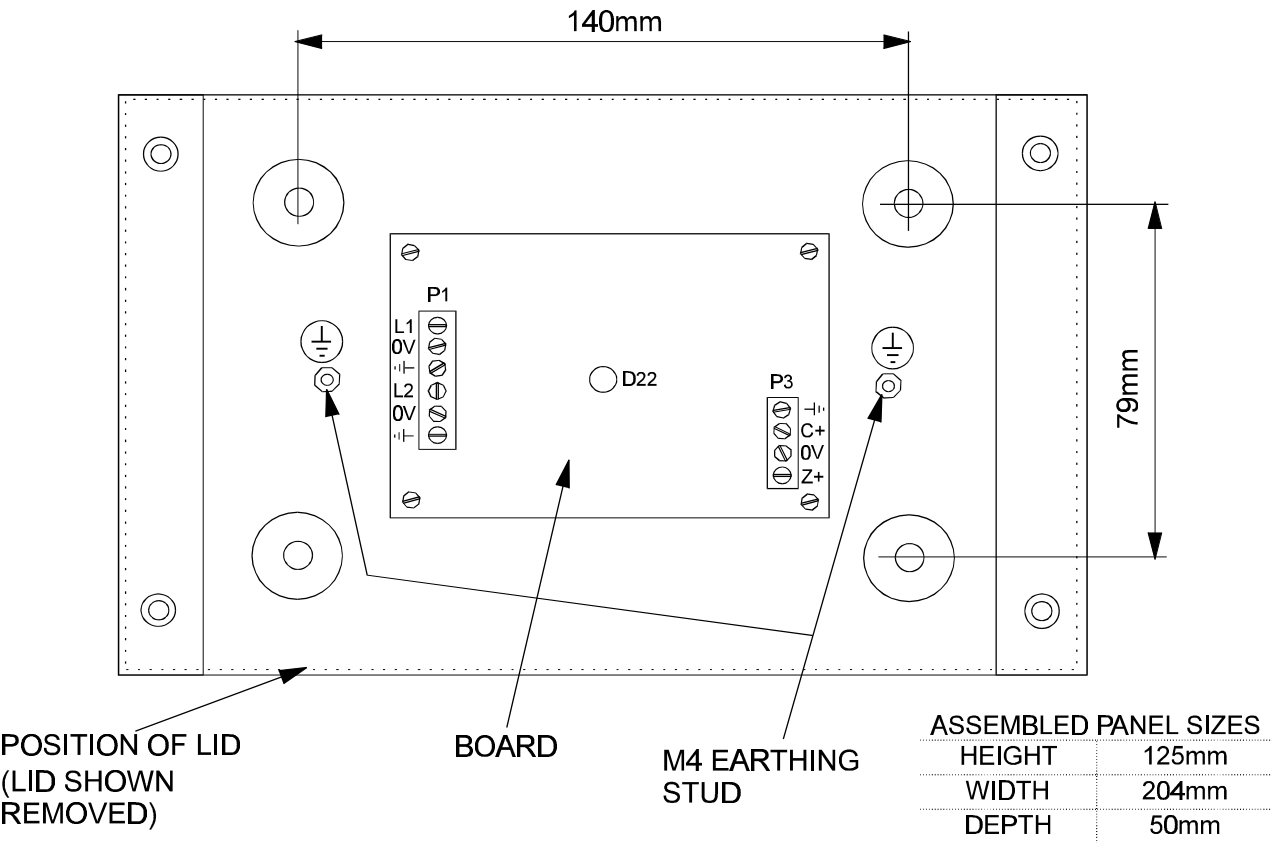
# 34410 Loop Powered Zone Module

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

- a) Identify the LOOP POWERED ZONE MODULE package numbered 34410.

Component	Quantity
Unit	1
Capacitor Unit (EOL)	1
EOL Label	1

- b) Remove the lid to the module.



cdn171

Figure 21-1 Loop powered zone module with lid removed

- c) Remove the board from the unit and keep it in a safe place until required, together with the fixing screws.
- d) Knockout the required cable entry points from the module sides.

- e) Mark the four fixing positions on the wall to which the unit is to be mounted.
- f) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of **670g**.
- g) Terminate each cable at the entry point.
- h) Fit the board into the module using the fixings provided.
- i) Connect the appropriate cable ends to the appropriate terminals.
- j) Secure the lid to the module.
- k) Leave all outstanding installation work to Servicing organisation.

# 34460 Fixed Extinguishant Interface unit (Loop powered)

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

## Fuses and locations

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

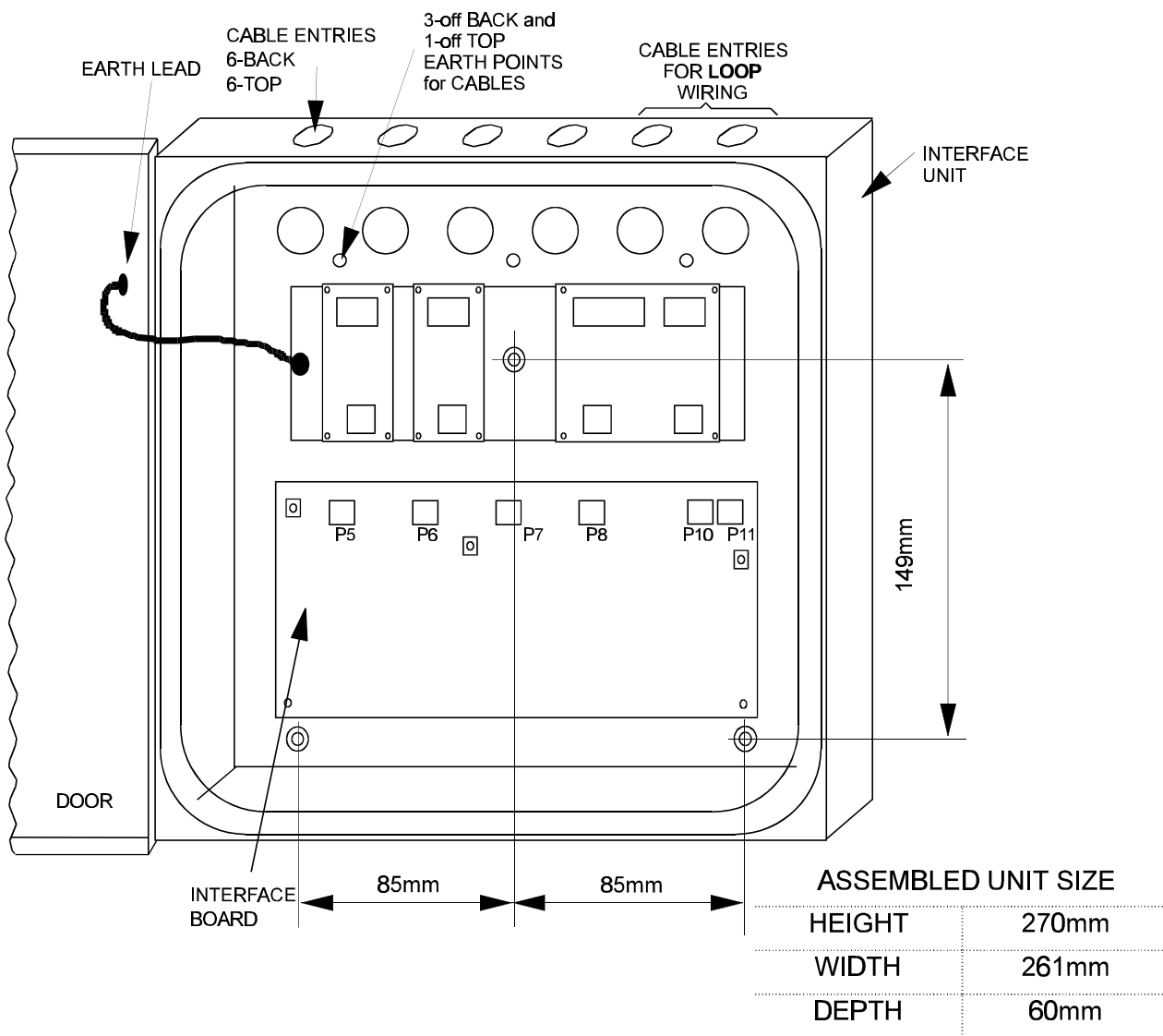


Figure 22-1 Unit fixing and connections

FL205

- a) Identify the package labelled **FIXED EXTINGUISHANT INTERFACE UNIT (LOOP POWERED)** numbered 34460.

**NOTE:** It is important that only the 34460 Extinguishant Interface Unit is used for this installation. The Unit must not be confused with the 34450 Unit, which is similar in appearance.

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

Component	Quantity
Unit	1
Interface board#	1
Screws (for board)#	5
Warning label	1
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.
- h) Connect the appropriate cables ends to their terminals.
- i) Close the door on the unit using the key.
- j) Fit the 'RELEASE OF FIXED EXTINGUISHING GAS' **WARNING label** to the Systems' Control Panel facia plate, beneath the printer paper feed slot.
- k) Leave all outstanding installation work to the Servicing organisation.

# Interface Rack Unit

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

The rack interface unit consists of the following assemblies:

- Rack backbox
- Interface rack
- Board assembly~
- Door (for keyswitch assembly)~
- Line terminal modules~
- Keyswitches~

~These components are installed by the servicing org. prior to commissioning.

## Interface backbox

The **back box** can accommodate a **rack unit** 13445-80.

- a) Identify the INTERFACE RACK BACK BOX package number 13445-80 and check the contents.

Component	Quantity
Interface rack Back Box	1
Earth Link	1
Earth Lead Assembly	4
1U & 2U Plates-44.5mm wide	1
Caged Nut	8
M6 Screw and Washer	8
Mounting Bracket	2

**NOTE:** The 2U plate and its fixing screws and washers are not required for this installation.

- b) Mark the required fixing points of the **upper mounting bracket** on the wall to which the panel is to be mounted.
- c) Secure the **upper mounting bracket** to the wall using suitable fixings to provide adequate support for a fully assembled panel weighing **30kg**.
- d) Hook the **back box** on the upper mounting bracket.
- e) Engage the **other mounting bracket** into the lower support flange of the back box and mark out the bracket fixing positions.
- f) Secure the lower mounting bracket to the wall, with suitable fixings to prevent the back box from lifting outwards.

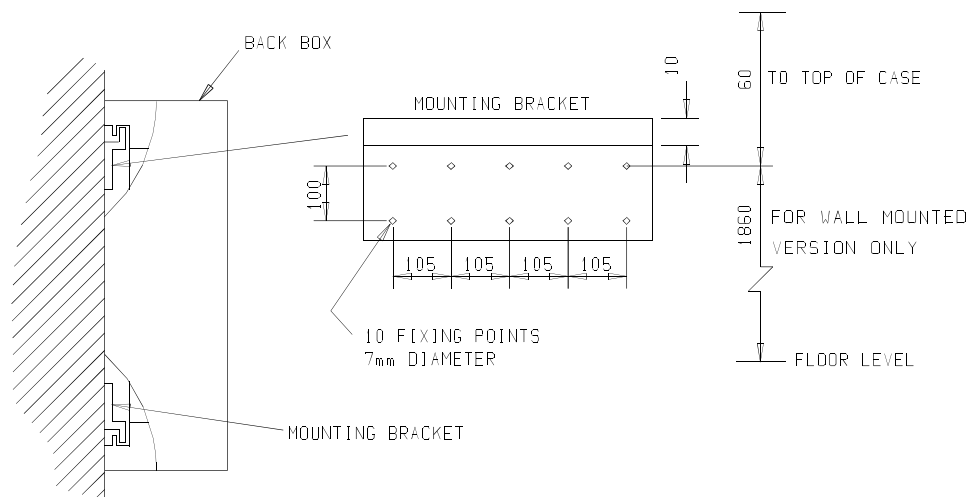
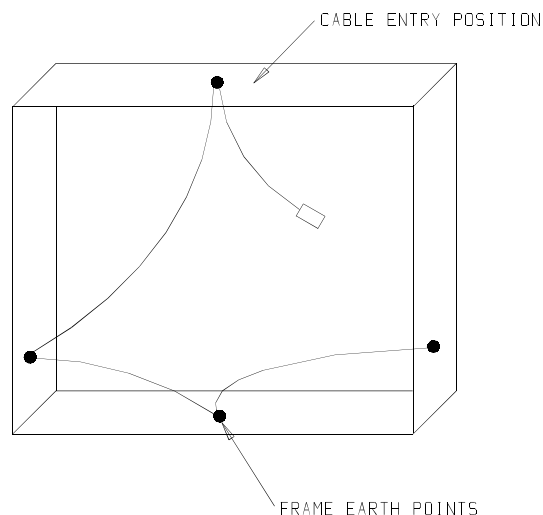


Figure 23-1  
Interface Back  
box fixing and  
earth points

#### EARTHING THE BACK BOX ASSEMBLY



fl366\_

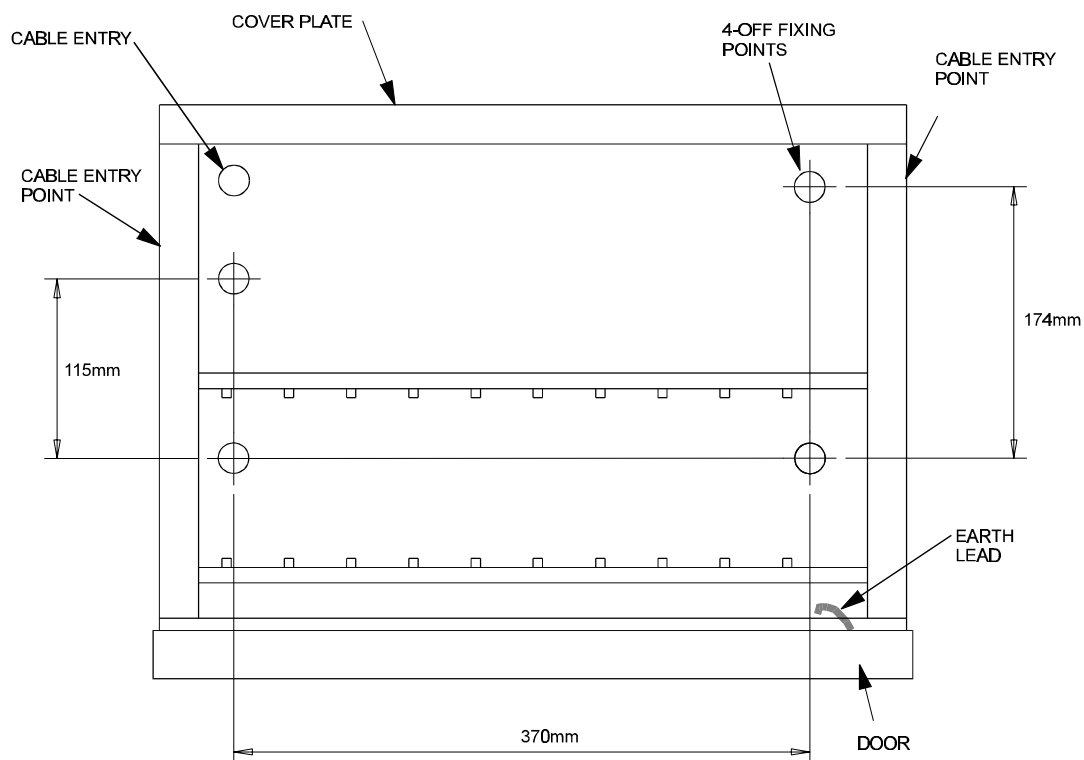
- g) Fit the **earth link** and the **earth lead** assemblies to the back box frame and side panel covers.
- h) Drill or punch the required cable entry holes on the top removable panel cover only.
- i) Terminate each cable at the entry point leaving tail wire length of **1m** for end connection, and mark cores identifying their intended connection points.
- j) Fit the **1U small spacer plate** on the back box lower most face, using the caged nuts, M6 screws and washers.



# Interface rack

- a) Identify the package labelled INTERFACE RACK UNIT numbered 13445-05.
- b) Open the door on the unit using the **key** provided and check that it has the following parts.

Component	Quantity
Unit	1
Key	2
Board Mounting bracket	1



f1136

Figure 23-2 Rack unit fixing

- c) Fit the rack onto the backbox using the screws and washers provided.
- d) Route the cable into the rack through the top cover plate.
- e) Place the board **mounting bracket** inside the unit, but **DO NOT fit it**.
- f) Lock the unit door.
- g) Leave all outstanding installation for the servicing organisation.

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# Environmentally Protected Products

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

## 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 and/or reduction of IP rating.

EP Products	34729	Heat Sensor
	34829	Manual Call Point
	34213	3-way Sounder

## Fixing and Connections

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

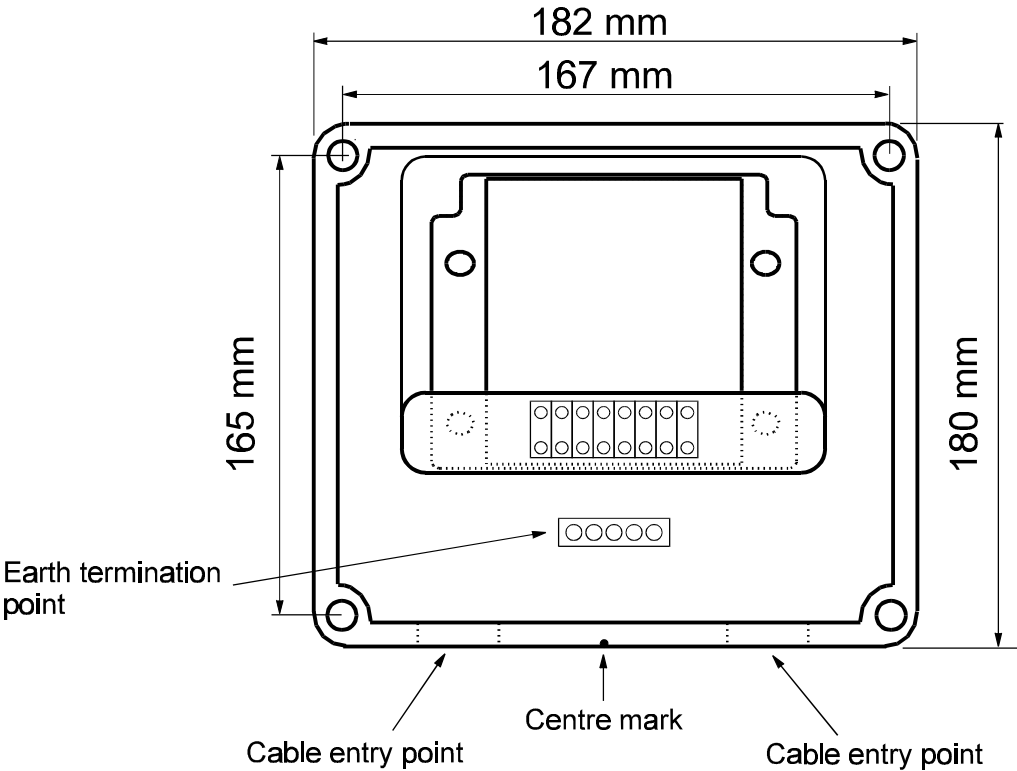


Figure 24-1  
Standard fixing  
details

emfl9\_

**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.

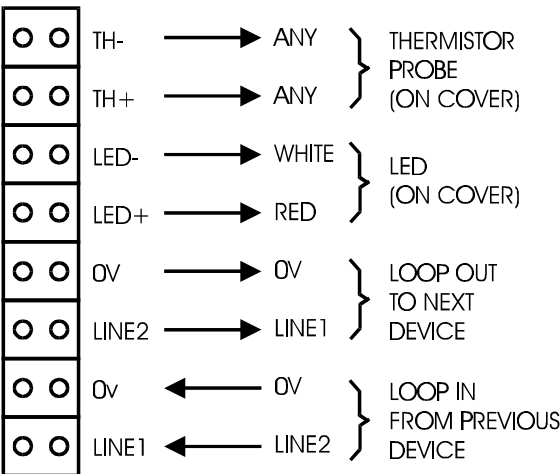
- g) Reconnect the flying leads from the cover into the appropriate terminals on the sealed printed circuit board module. Refit the cover to the unit. For maximum protection ensure that the cover screws are tight and secure.

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

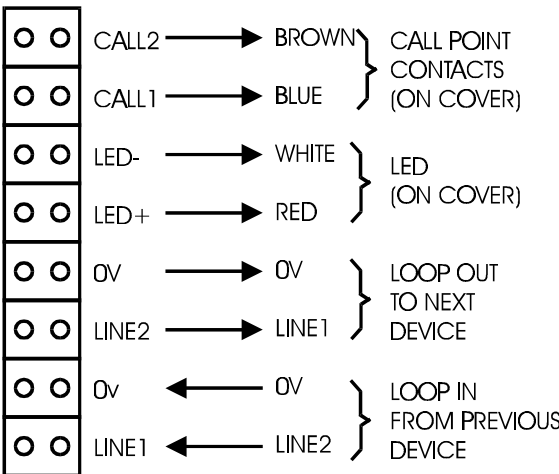
**CAUTION:** The unit is not square. Forcing the cover to fit the wrong way round will damage the unit.

## Heat Probe

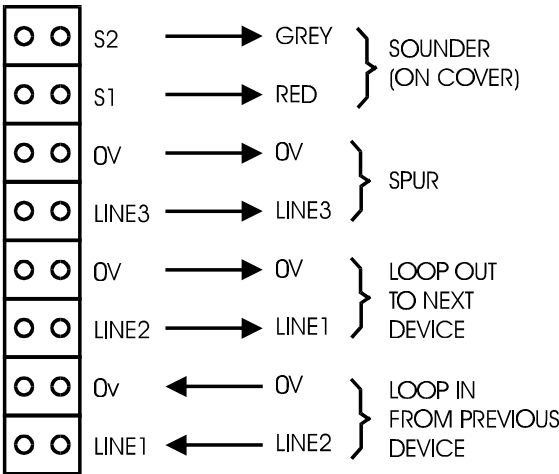
For carriage purposes the probe on the heat sensor is fully retracted. It is important that the heat probe is positioned correctly. There should be a minimum of 20mm of the probe protruding from the front face of the probe gland. The probe gland can only be tightened up once, as the gland uses an olive 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.



Heat sensor



Manual Call Point



Alarm Sounder (3-Way)

cdm265

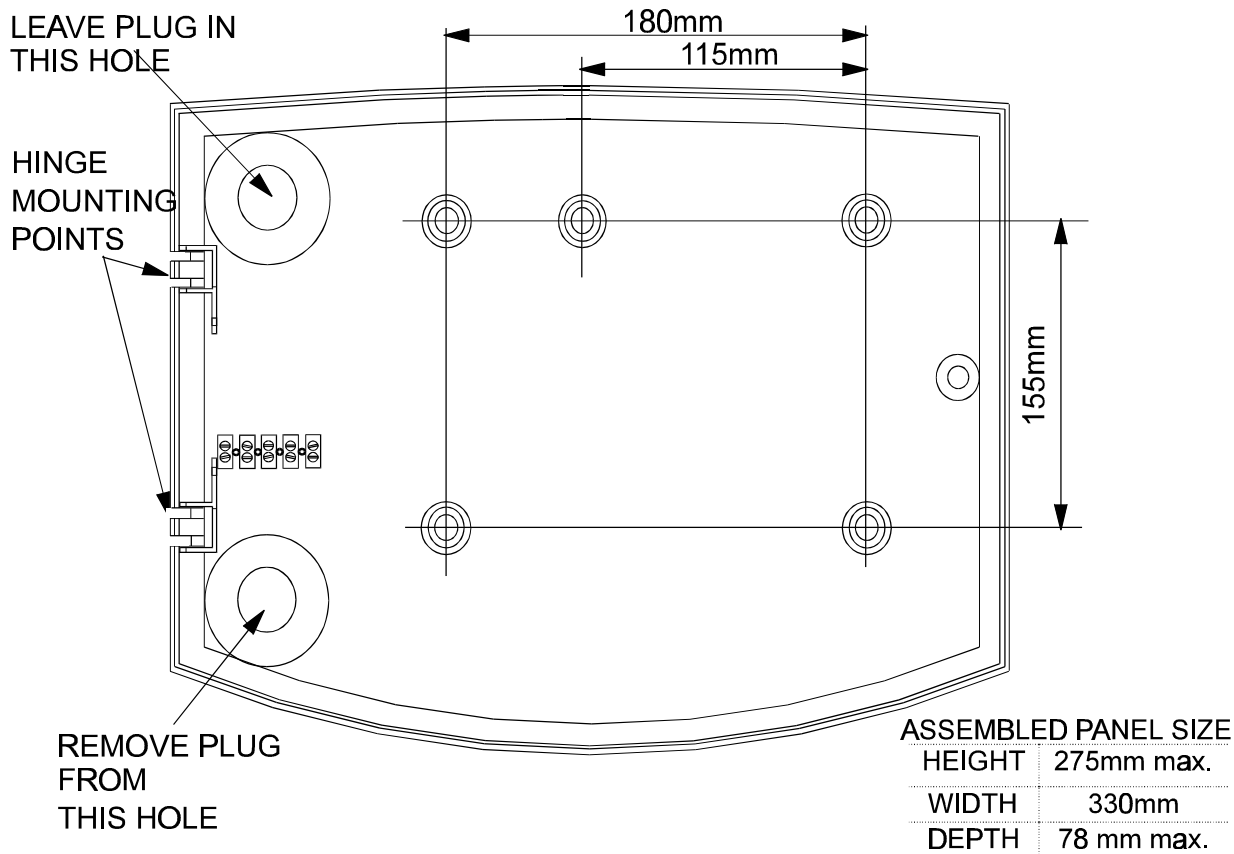
Figure 24-2 Connection details for EP products

**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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# A4 Mimic Panel

## A4 Mimic display unit



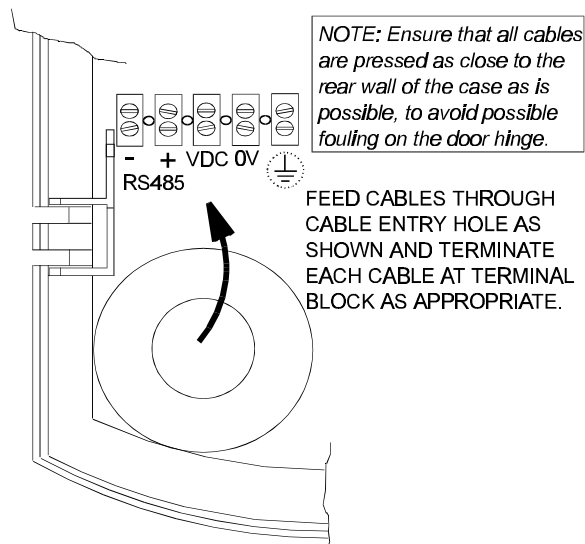
f1349\_

Figure 25-1 A4 Mimic case with mounting details

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

- a) Identify the A4 Mimic display packages numbered 34604-G1 or 34604-B1.
- b) Check the contents of a package include:

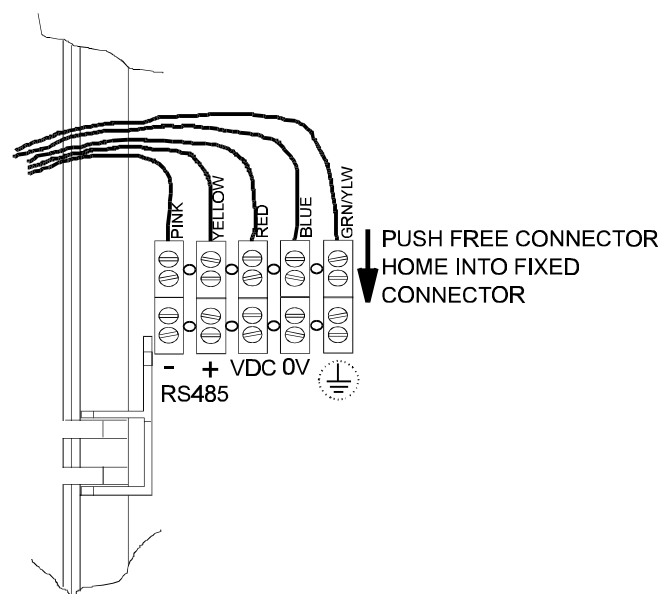
Component	Quantity
Case	1
Door	1
Hinge pins	2 ) In self seal polythene bag
Door opening key	1 ) with other parts.
White Plastic door cover	1
- c) On the case remove the plug from the lower left hole.
- d) Mark the five fixing positions on the wall to which the unit is to be mounted.



fl350

Figure 25-2 Terminal block details

- e) Feed the incoming cables through the lower left hole
- f) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of **2.3kg**
- g) Connect the terminal block on the flying lead from the door to the fixed terminal block in the case.
- h) Attach the door onto the case by locating the hinges of the door into the hinge mounting points and then securing each hinge with the hinge pins. The pin for the top hinge is pushed in upwards and the pin for the bottom hinge is pushed in downwards.
- i) Ensure that the hinge pin is pressed home into the slot on the hinge mounting point as shown.



fl352

Figure 25-3 Connector details



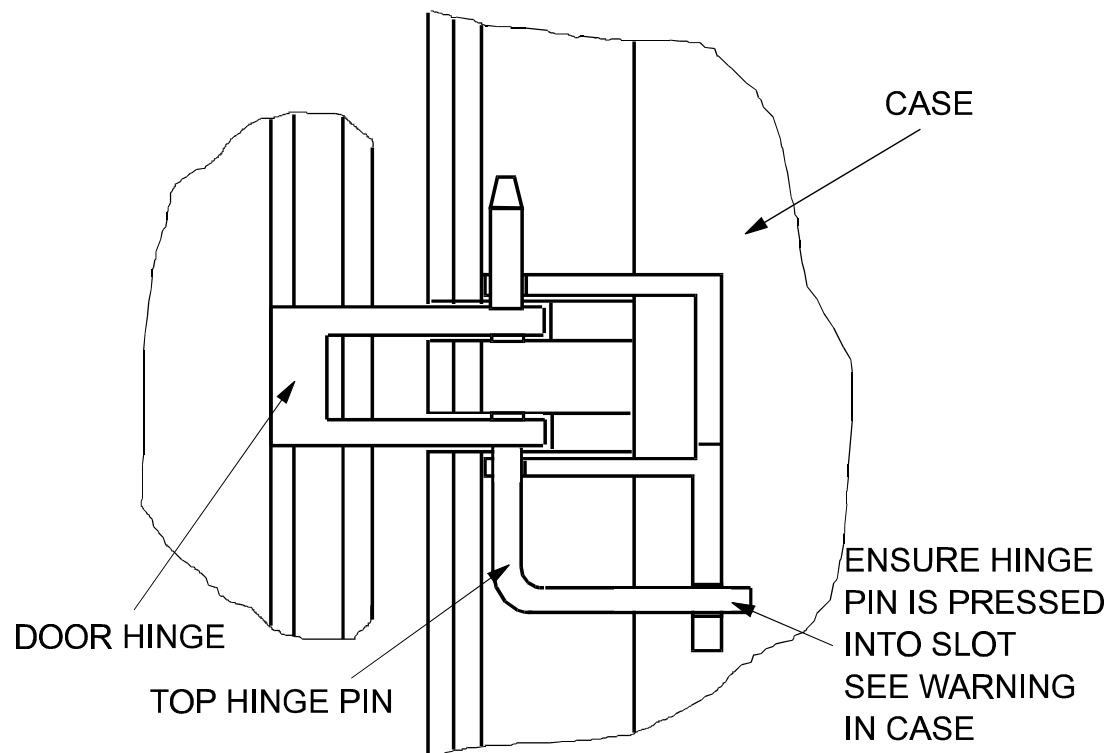


Figure 25-4 Hinge mounting details

fl351

- j) Connect the incoming cables to the terminal block ensuring that the cables lay as close to the rear wall of the case as is possible in order to prevent the cables fouling the door mechanism when the door is closed.
- k) Close the door and lock by turning the 1/4 turn door lock using the door key.
- l) Cover the Mimic panel using the white plastic protective cover to protect the panel from dust and possible damage up until the commissioning process.
- m) Leave all outstanding installation work to the servicing organisation.

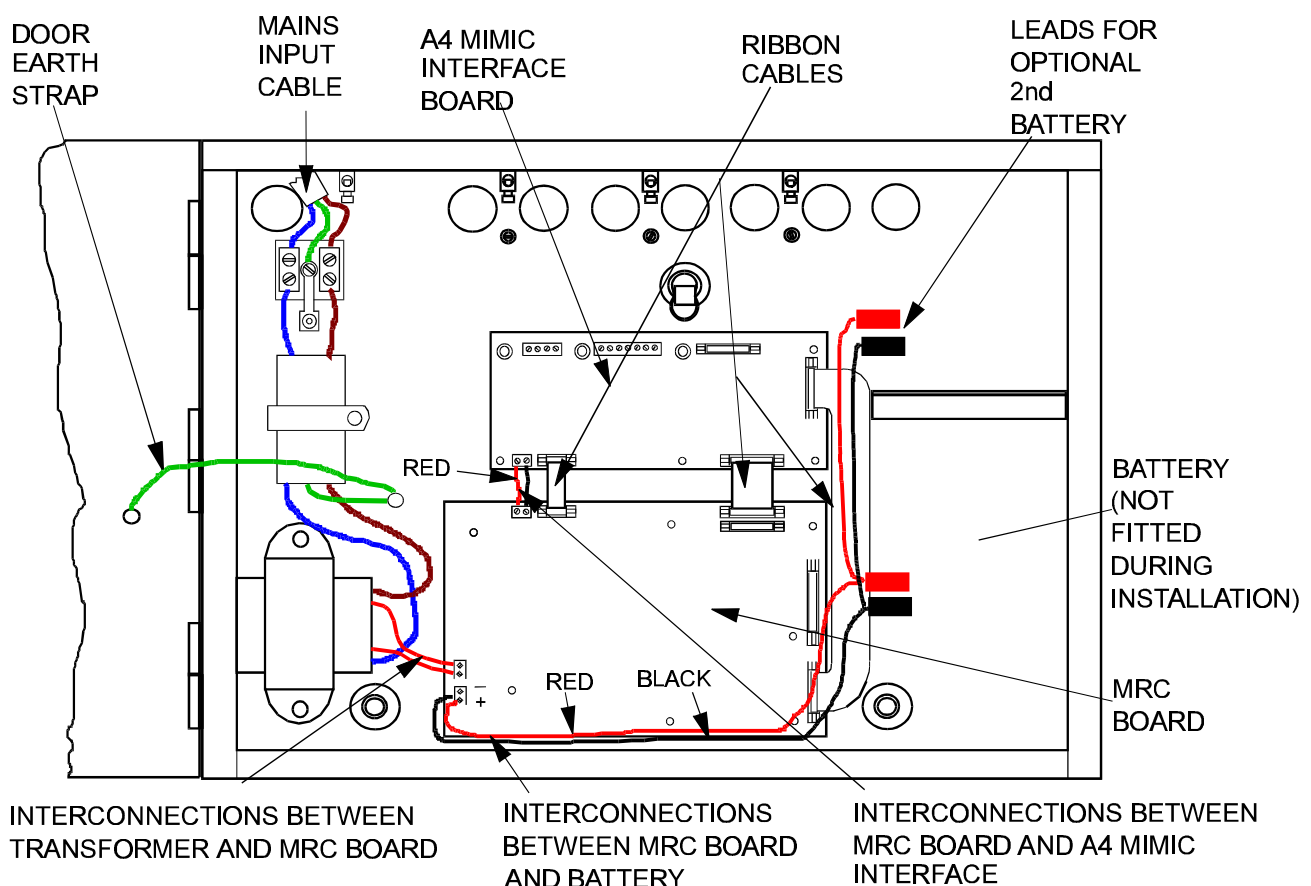
# A4 Mimic Control Unit

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

## Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 1A	Top left of the backbox
FS1	20mm x 5mm 2.5A QB	MRC board
FS2	20mm x 5mm 2.5A QB	MRC board
FS1	20mm x 5mm 2AHRC	A4 mimic interface board

- a) Identify the A4 Mimic Control Unit.



- b) Check the contents of the package

Component	Quantity
Box	1
Door opening key	1
Ribbon cables#	2
MRC boards#	1
A4 Mimic I/F board#	1
Screws (for board)#	3
Battery#	1
Wires	2 (1 Red, 1 Black)

#these components are packaged separately

- c) Remove the door from the unit and put aside.
- d) Remove the required knock-outs according to where cables are required to enter the box.
- e) Mark the three fixing positions on the wall to which the unit is to be fixed.
- f) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of **10.4kg**.
- g) Terminate each cable at the entry point, leaving a tail wire length and mark each core identifying its intended connection point.
- h) Connect the earth lead between the spade terminal on the door and the back box earth point.
- i) Fix the MRC board in the backbox.

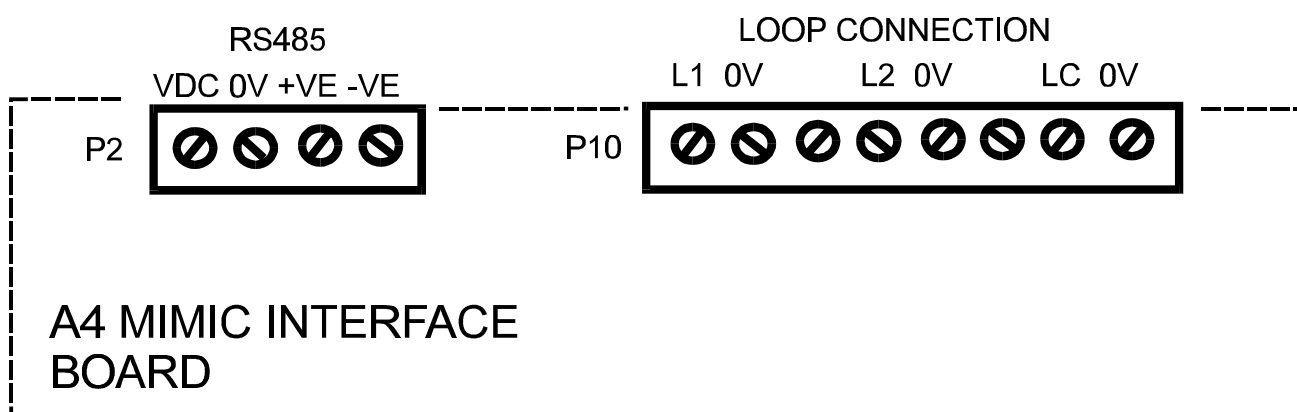


Figure 25-6 Terminal details

- j) Mount the A4 Mimic I/F board onto the upper position posts and secure in this position with screws.
- k) Connect the ribbon cables between the two boards.
- l) Connect between the transformer and the lower MRC board as shown.
- m) Connect the battery cables to the MRC board, **but DO NOT connect the battery, as this is done during commissioning.**

**CAUTION:** *Ensure that the correct polarity battery wire is connected to each of the MRC battery terminals. Failure to ensure this could result in damage to the MRC board.*

- n) Connect the two wires between the MRC board and the A4 Mimic I/F board.
- o) Connect the appropriate cable ends to their respective terminals.
- p) Close the door on the unit using the key.
- q) Leave all outstanding installation work to the servicing organisation.

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# Network Overview

This section covers an overview of System 3500 Secure Network which shows the connection of control panels, terminal nodes, remote printer and GENT Supervisor.

## Network Capacity

A **secure network** can consists of up to **31 control panels and terminal nodes** connected in a 'loop'.

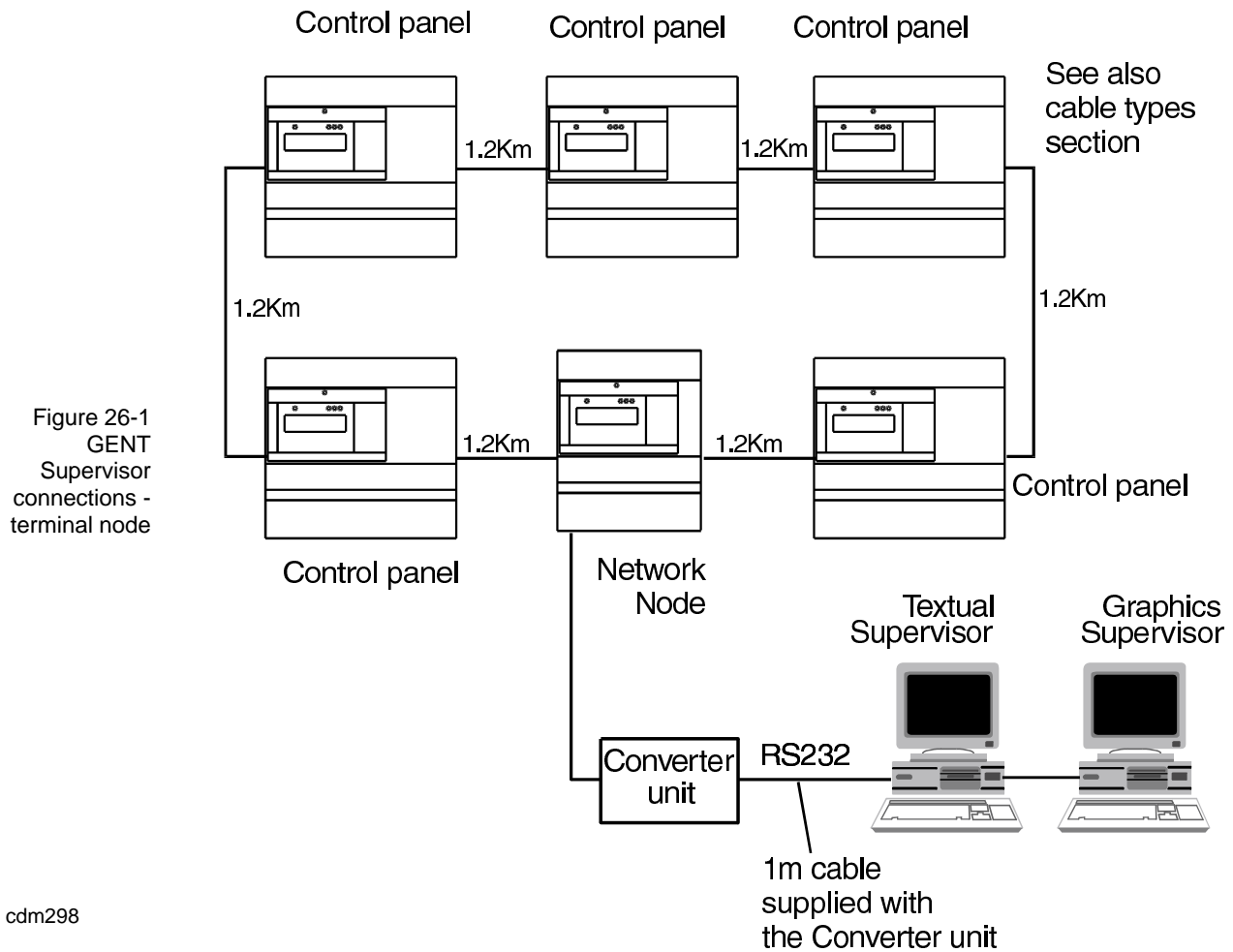
**NOTE:** Every control panel and terminal node will require a **network card** fitted.

## Network Cables

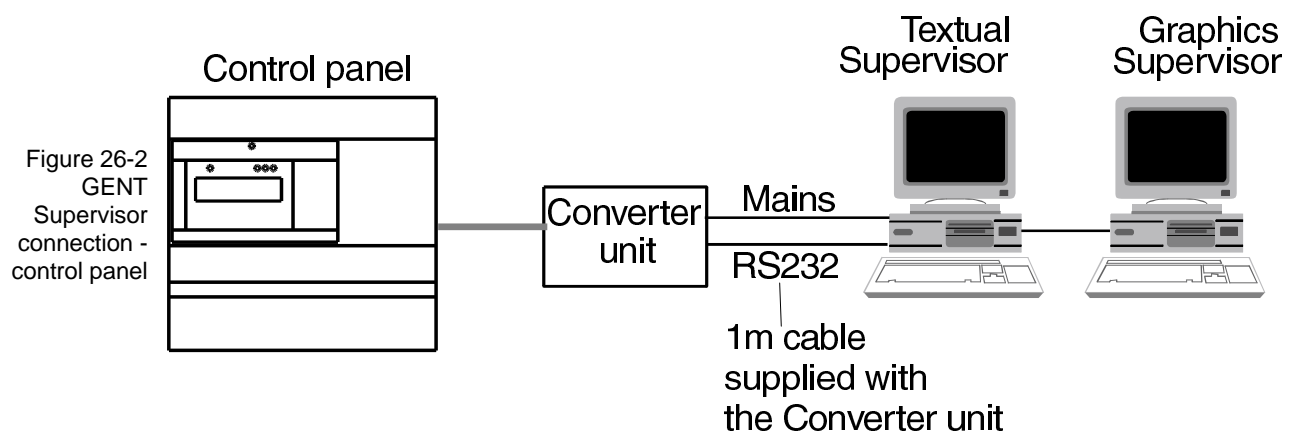
See Cable Types,

# Network connections

A Secure Network can have up to three GENT Supervisors.



## Gent Supervisor to Control panel connection



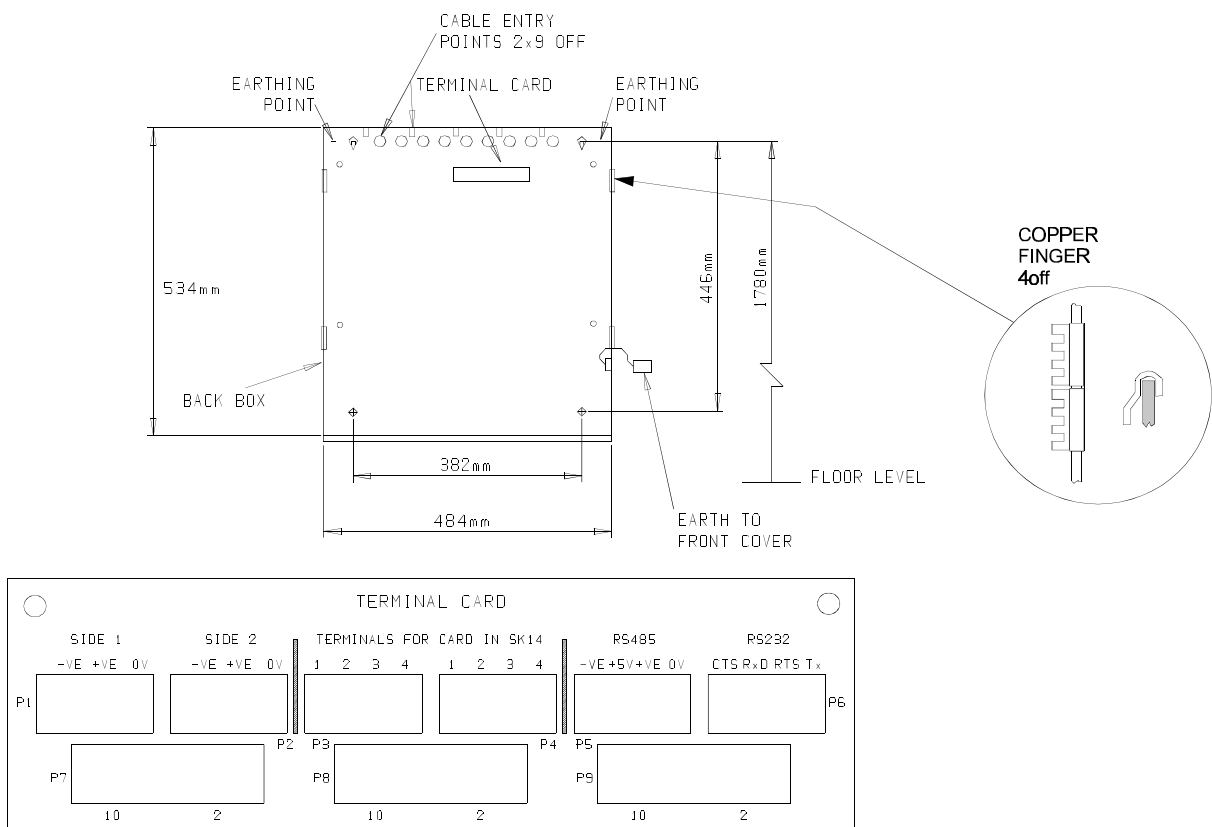
# Network System 3500 Installation

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

## 3505 Terminal node

### Fuses and locations

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



m5421

Figure 27-1 Terminal fixing and connections

### Back box

- a) Identify the BACK BOX/FRONT COVER ASSEMBLY package number 13505-80 and check that it as the following components:

Component	Quantity
Back Box	1
Front Cover	1
Earth Lead	1

- b) Knockout the required cable entry points from the back box.
- c) Mark out the 4-back box fixing positions on the wall to which the panel is to be mounted.
- d) Secure the back box to the wall with suitable fixings to support a full assembly weight of **20kg**.

**NOTE:** If the Terminal Node needs to be **semi-flush**, then the back box can be semi-flushed by up to **43mm** of its total depth. There is no provision for a flush shroud for use with this product. It is intended that the overlap for the panel lid will cover the recess.

### Inner Box Assembly

- e) Terminate the cable at the entry point. Leave tail wire length of **400mm** for the mains supply connection.
- f) Connect the appropriate cable ends to the terminal card.
- g) Fit the **earth lead** to the spade connector on the back box.
- h) Remove the **blanking plate** fitted to the cover.
- i) Identify the INNER BOX ASSEMBLY package number 13505-82 and check that it has the following parts:
 

<b>Component</b>	<b>Quantity</b>
inner box assembly	1
Dzus Studs	4
1A Mains Fuse (Spare)	1
2.5A Quick Blow Fuse (Spare)	2
Allen Key	1
Thumb Nut & Shake proof Washer	2
Screw & Shake proof Washer	2
Moulded Door and Keys	1
- j) Fit the **inner box assembly** in the **back box** using the thumb nuts & shake proof washers and screws & shake proof washers.
- k) Open the **inner box door** using the allen key.
- l) Connect the mains supply cable ends to the mains terminal block located behind a cover on the inner box.
- m) Fit the three ribbon header plugs from the Inner box to the Terminal Card sockets in the back box.
- n) Close the Inner Box door using the Allen Key and then hook the Front Cover on the Back Box. Secure the Front Cover with the Dzus Studs.
- o) Latch the Moulded Door hinge pin onto the Inner Box Assembly and lock the door using the keys supplied.



# Wiring a 3500 Network

## 3505 Terminal Node to 3404 Control Panel

- The 3404 Control Panel should be fitted with a 13501-01 SECURE NETWORK CARD. The Card should be fitted in Socket No.7, (Slot or Card No.5).
- Connections are made as follows:

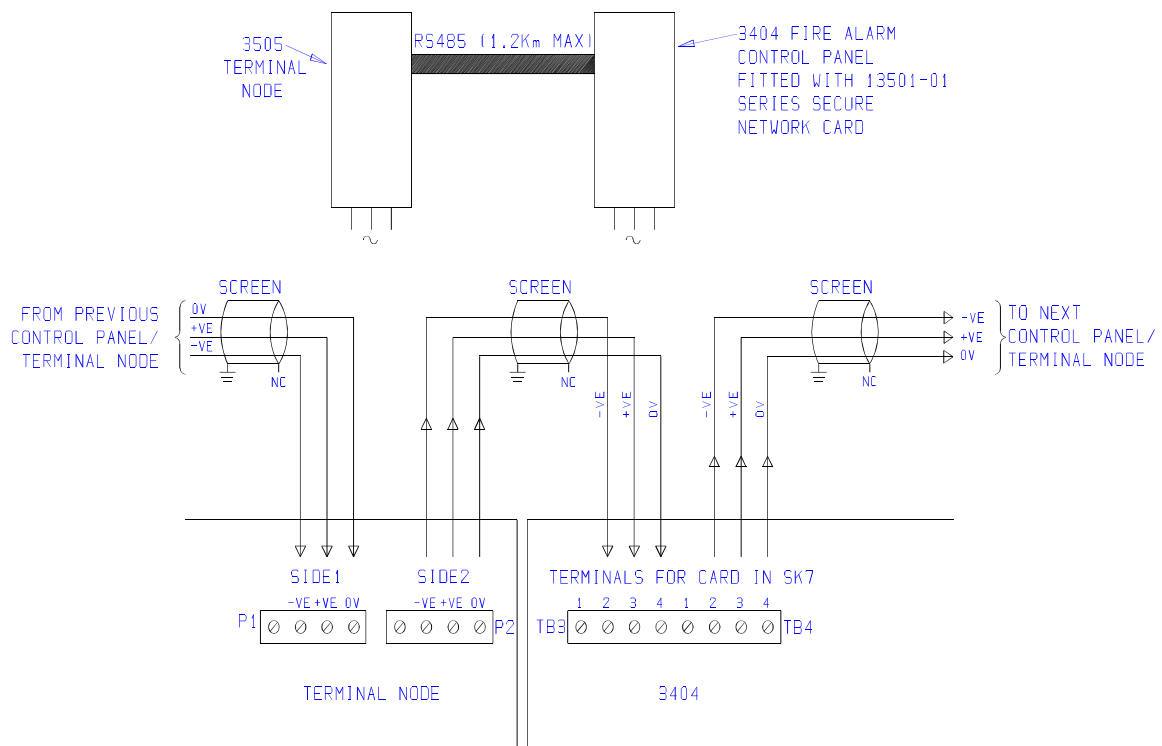


Figure 28-1 Terminal node to 3404 panel connections

m5592

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

**NOTE:** If 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).

## 3505 Terminal Node to 3408 Control Panel

- a) The 3408 Control Panel should be fitted with a 13501-01 SECURE NETWORK CARD. The Card should be fitted in Socket No.15 (Slot or Card No.13).
- b) Connections are made as follows:

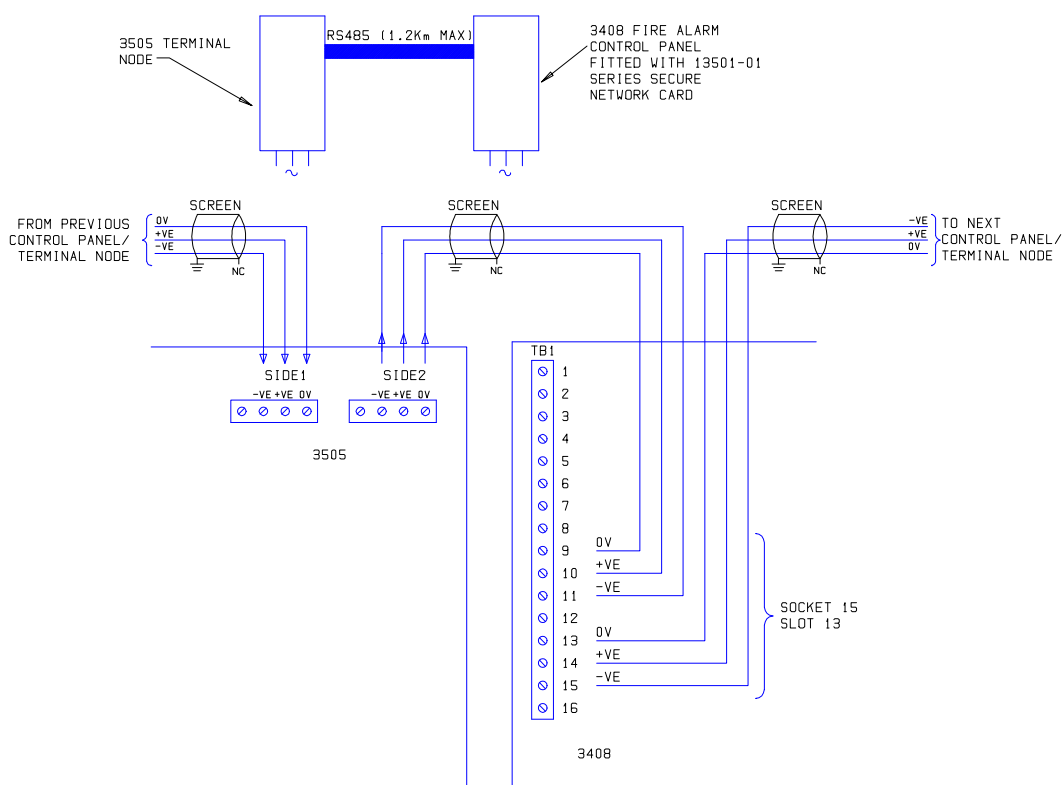


Figure 28-2 Terminal node to 3408 panel connections

**NOTE:** The connection details above assume that the Card 13501-01 is fitted in SK15. If the Card is fitted in any of the other slots then the same connection details on TB1 apply on TB2 or TB3.

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

**NOTE:** If the 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).

## 3404 Control Panel to 3404 Control Panel

- a) The 3404 Control Panels should be fitted with a 13501-01 SECURE NETWORK CARD. The Card should be fitted in Socket No.7 (Slot or Card No.5).
- b) Connections are made as follows:

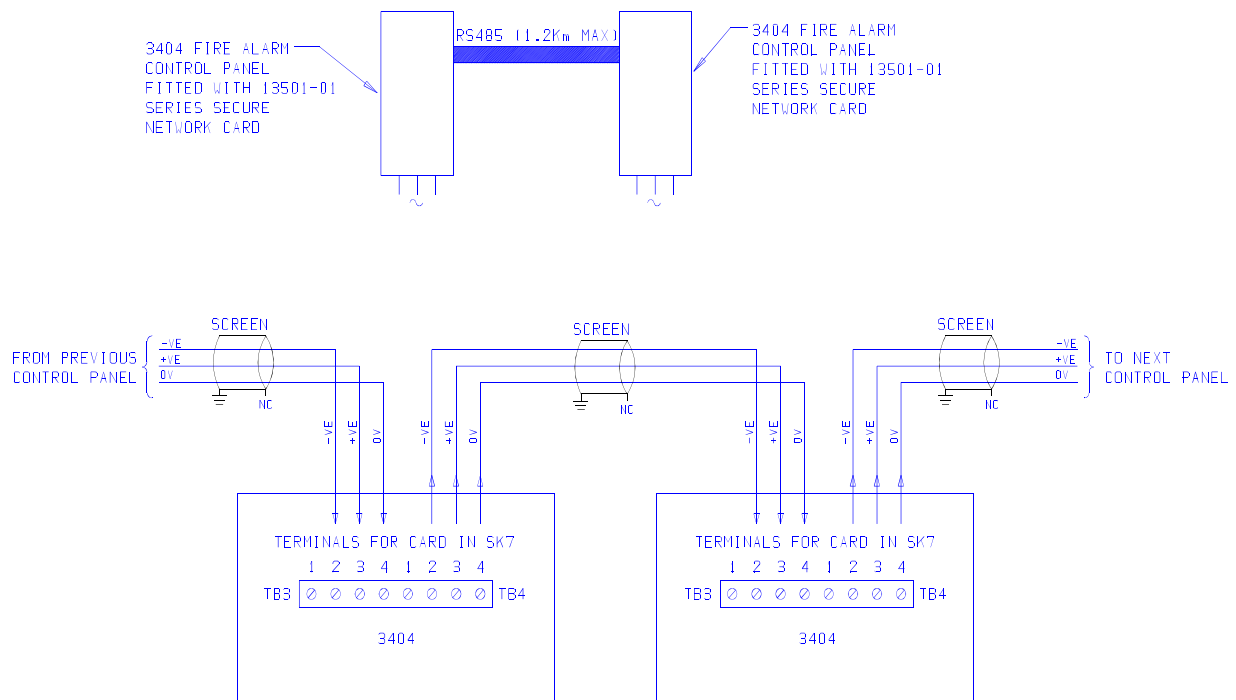


Figure 28-3 3404 Panel to 3404 panel connections

m5702

**NOTE:** The connection details above assume that the Card 13501-01 is fitted in SK7 of a 3404 Control Panel.

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

**NOTE:** If the cable is **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).

## 3404 Control Panel to 3408 Control Panel

- a) Both the 3404 and 3408 Control Panels should be fitted with a 13501-01 SECURE NETWORK CARD.

For a 3404 Panel the Card should be installed in Socket No.7,  
(Slot or Card No.5)

For a 3408 Panel the Card should be installed in Socket No.15,  
(Slot or Card No.5).

- b) Connections are made as follows:-

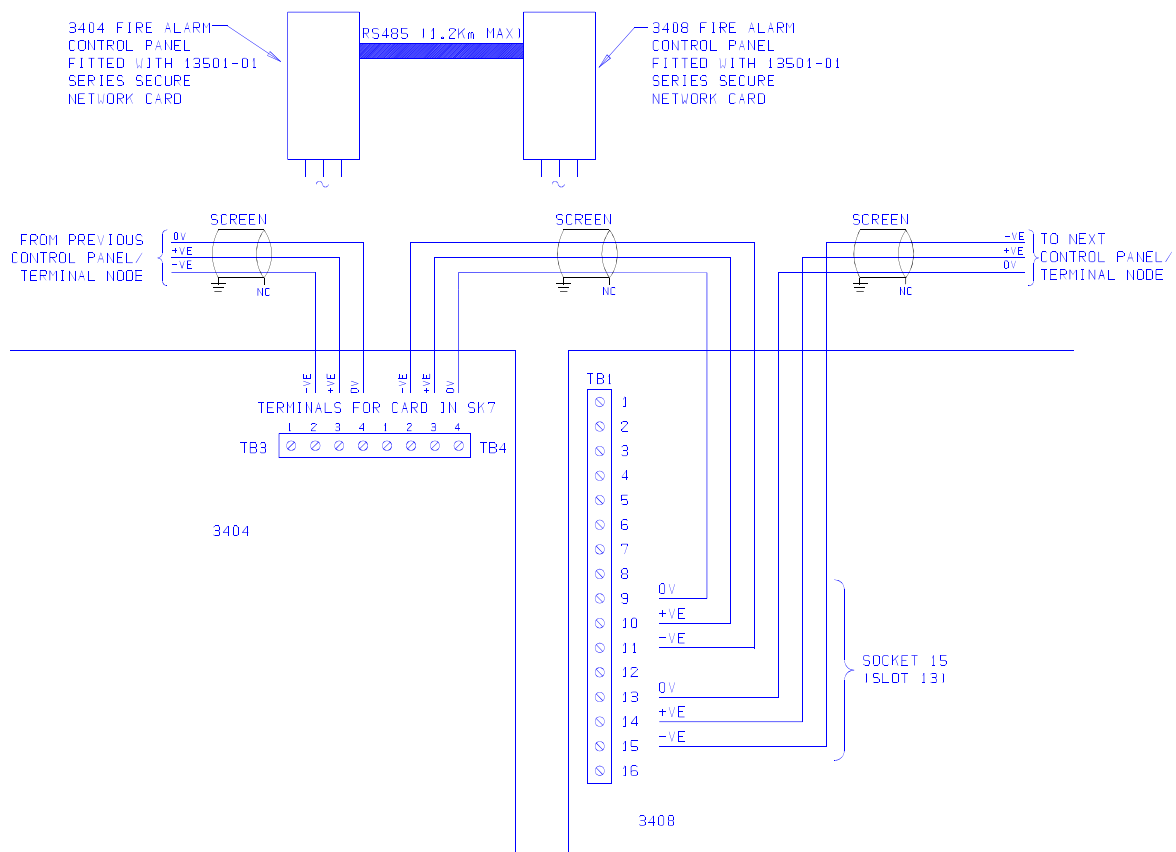


Figure 28-4 3404 panel to 3408 panel connections

**NOTE:** The connection details above assume that the 13501-01 Cards are fitted in SK7 in the 3404 Panel and SK15 in the 3408 Panel.

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

**NOTE:** If the cable is a **twinned 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).



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# GENT Supervisor

The Gent Supervisor is an industry standard computer having a central processing unit with a 3.5 inch floppy disk drive, colour monitor, keyboard and a movable mouse with light pen option. Further hardware options include Printers for text and graphics printout and an uninterruptable power supply for mains backup. The cables for interconnecting the computer peripherals and instructions are contained within respective packages, where applicable.

## Connecting the GENT Supervisor

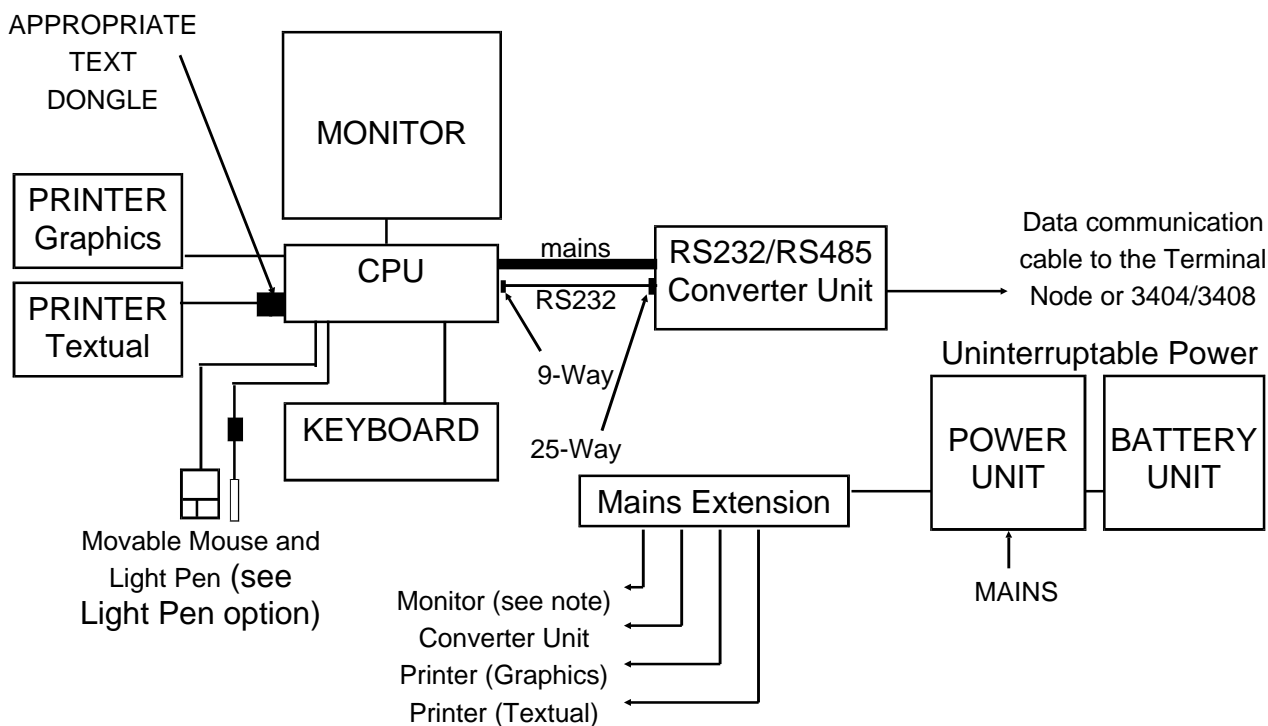


Figure 29-1 Connecting the GENT Supervisor

- a) Identify the GENT Supervisor packages and check that it has the following parts:

Component	Quantity
Textual Software	1 (dongle and <b>manual</b> )
Graphics Software	1 (with expansion card in PC)
Computer (CPU)	1
Monitor	1
Keyboard	1
Mouse (Movable Type)	1
Light Pen	1 (Optional)
Graphics Printer	1 (Optional)
Textual Printer	1 (Optional)
Uninterruptable Power Unit	1 (Optional)
RS232/RS485 Converter Unit	1
25-way to 9-way Cable	1 (Converter to CPU)

- b) Connect the cables and follow the instructions supplied with each product, where applicable, together with the quick reference diagram.

**NOTE:** The installation of these products should be in a clean environment, away from electro magnetic interferences.

## Light Pen

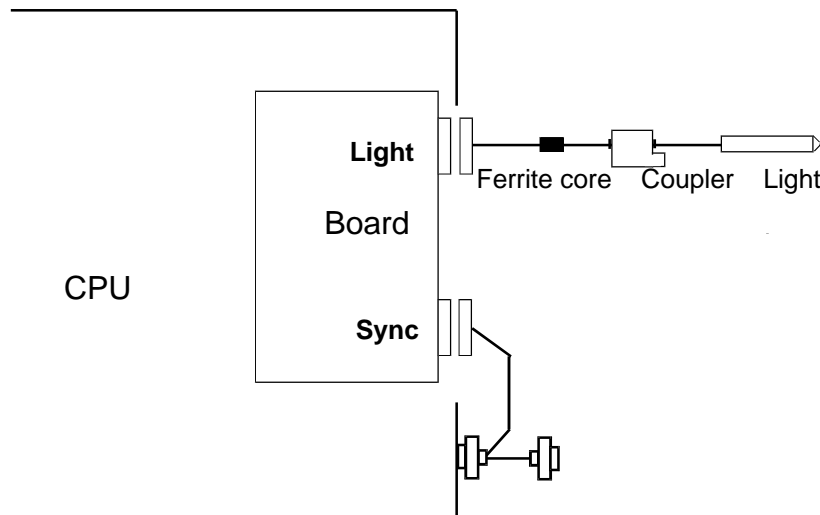


Figure 29-2 Light pen installation

For further information on the light pen, board, software installation refer to the instructions supplied with the light pen.



# Converter / splitter unit

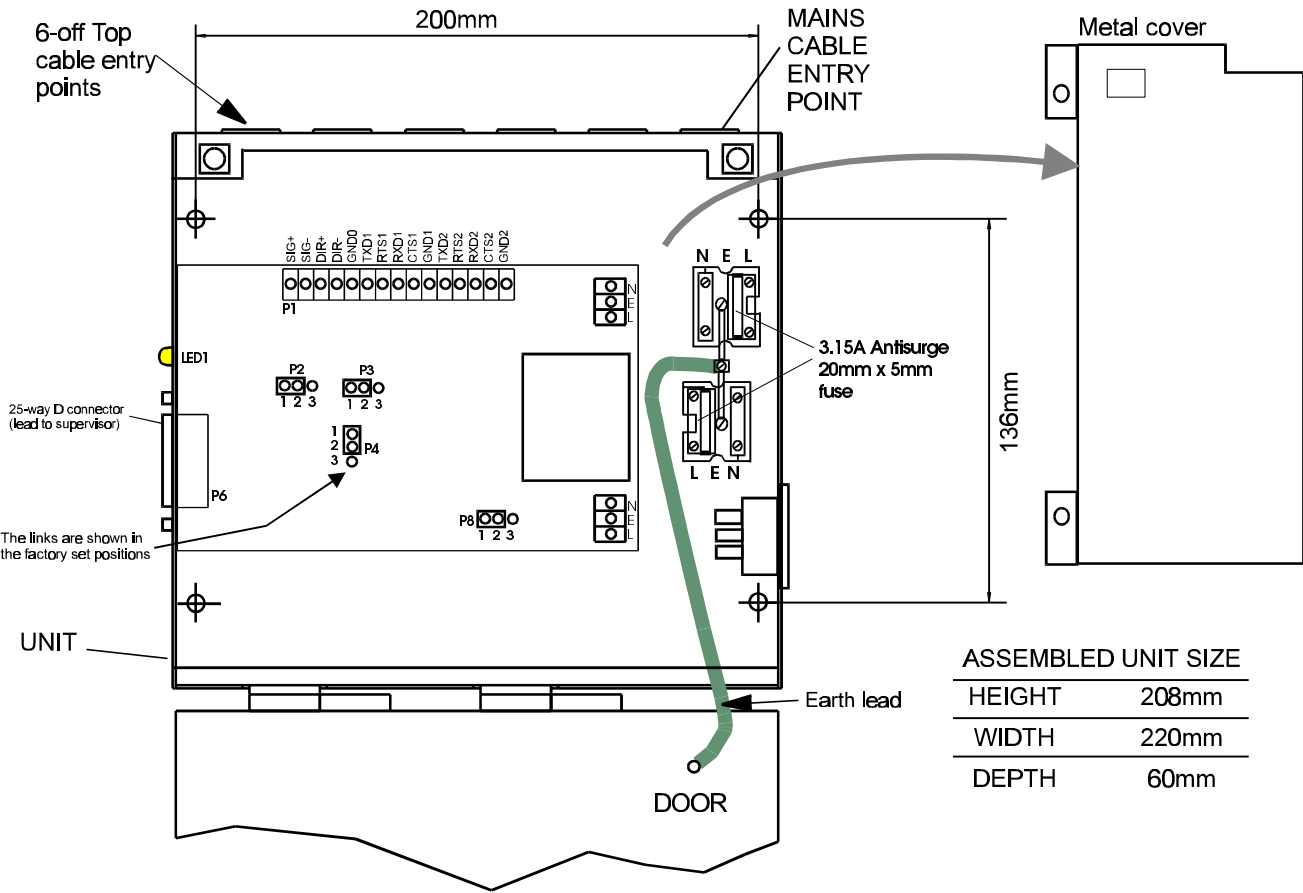
## 13563-02 RS232/RS485 Converter

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

The **RS232/RS485 converter unit** should be installed close to the GENT Supervisor, such that the cable used for interconnection **does not** exceed a recommended maximum length of **2m**.

**NOTE:** A converter unit isolates earth on the GENT Supervisor from the control panel or terminal node.

The mains supply to the converter unit **must** be taken from the same supply as the GENT Supervisor.



cdm270

Figure 30-1 Converter fixing and link details

## Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 3.15A HRC	Mains terminal blocks

- a) Identify the package labelled numbered 13563-02.
- b) Using the **key** open the door.
- 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.
- e) Secure the unit to the surface with suitable fixings to support a fully assembly weighing **1.5Kg**.
- g) Terminate cables at the entry points.
- h) Connect the cables ends if instructed, otherwise leave tail wire length of **400mm** and mark the cores to identify the connection point.
- i) Close the door on the unit using the key.
- j) Leave all outstanding installation work for the servicing organisation.

## Link Configurations

**NOTE:** If link P8 on the converter PCB is connected between 2-3, then the mains isolation facility on communication failure is **disabled**.

Links on Converter PCB	Position		
	1	2	3
P2			
P3			
P4	RS485	RS232	RS232
P8		COMMS	COMMS

# Terminal node to RS232/RS485 Converter unit

**NOTE:** If a SWA cable is used then the **outer** screen should be earthed at one end only, the **inner** screen should be connected as shown.

**NOTE:** The Converter Unit is shown configured for 1-RS232 and 1-RS485 connection, ie all links are in positions 1&2.

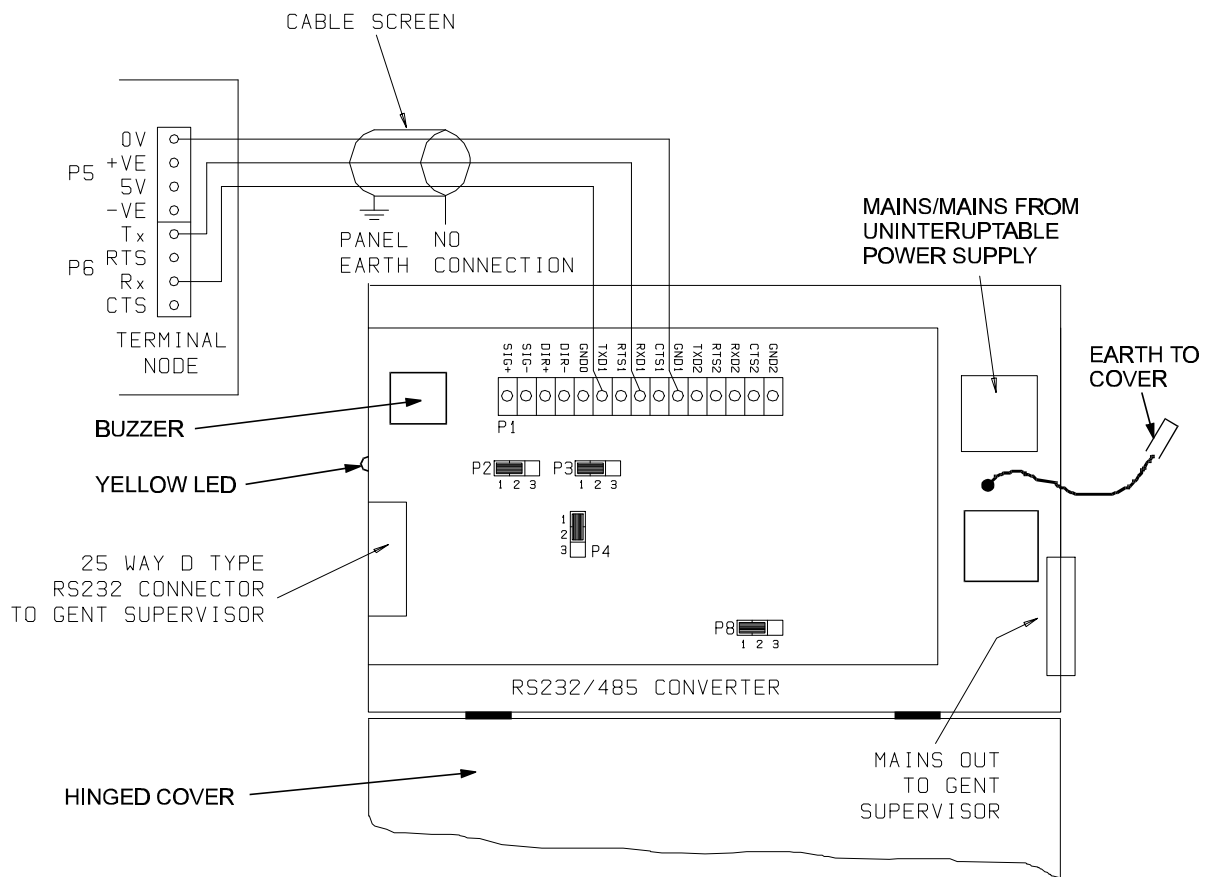


Figure 30-2 Terminal node to Converter Unit connections

f1370

# 3404 Control panel to RS232/RS485 Converter unit

**NOTE:** The Converter Unit is shown configured for 1-RS232 and 1-RS485 connection, ie all links are in positions 1&2.

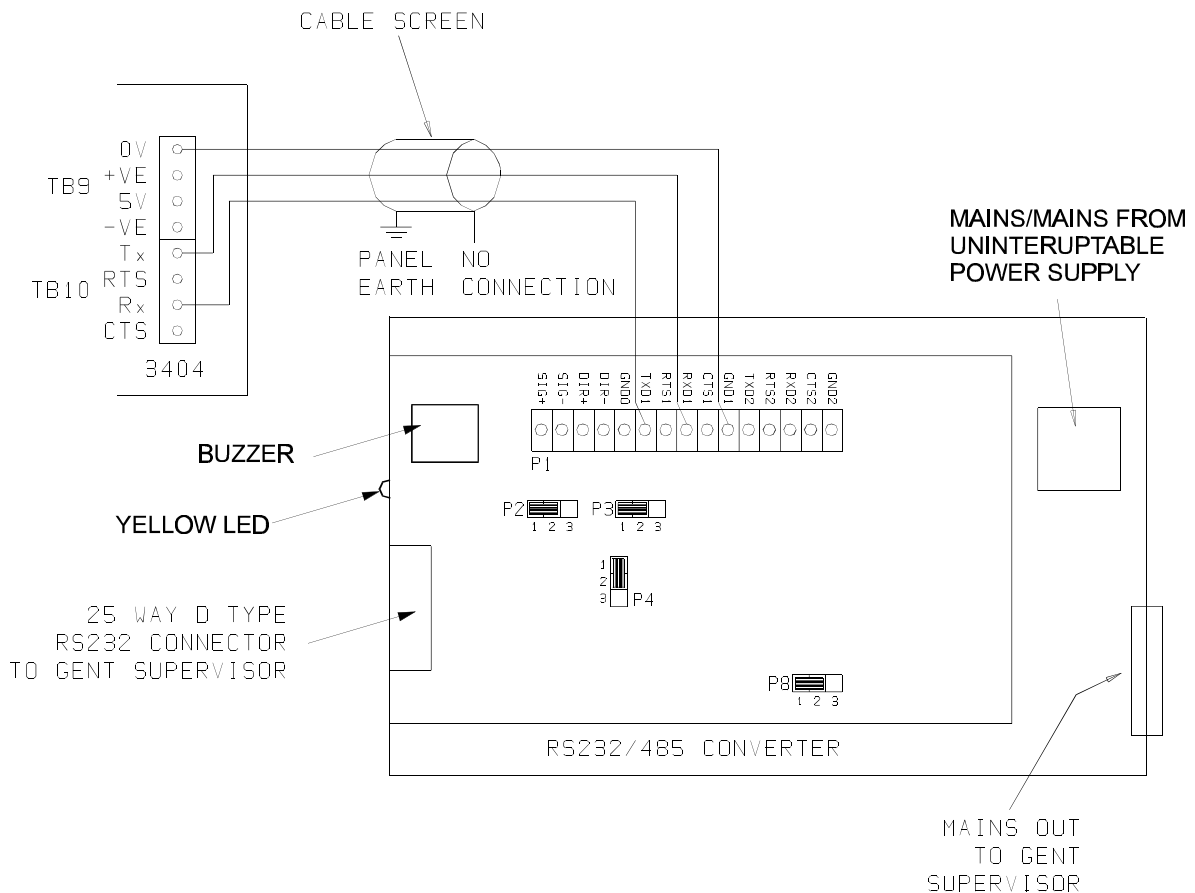


Figure 30-3 Panel (3404) to converter unit connections

**NOTE:** If a SWA cable is used then the **outer screen** should be earthed at one end only, the **inner screen** should be connected as shown.

f1375

# 3408 Control panel to RS232/RS485 Converter unit

**NOTE:** The Converter Unit is shown configured for 1-RS232 and 1-RS485 connection, ie all links are in positions 1&2.

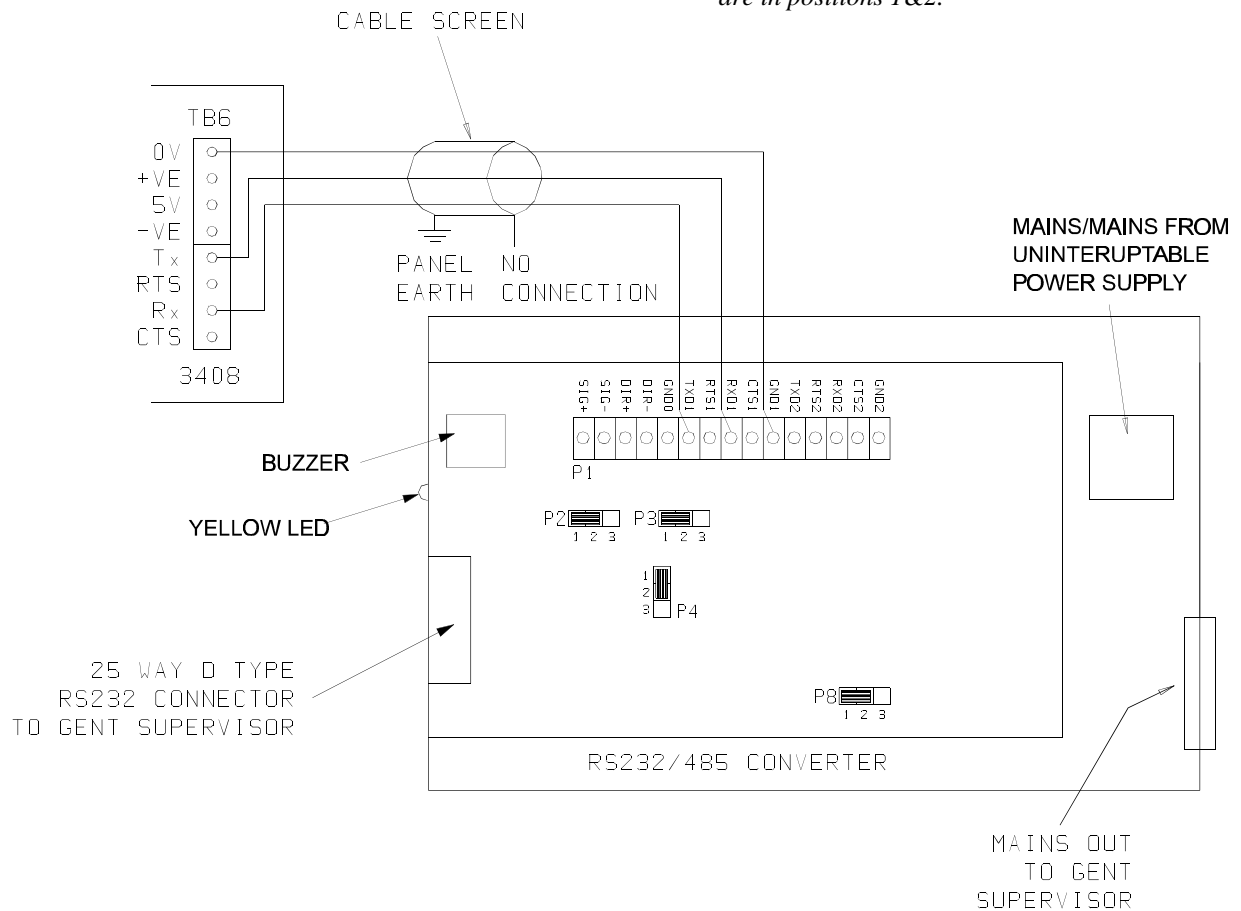


Figure 30-4 Panel (3408) to converter unit connections

fl376

**NOTE:** If a SWA cable is used then the **outer screen** should be earthed at one end only, the **inner screen** should be connected as shown.

# 13563-02 Converter unit (in Splitter configuration)

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

The 13563 Converter Unit can be configured as a **splitter** to convert one signal into two signals that can be transmitted on two separate cables.

Two configurations are possible:

- ☐ 1-RS232 to 2-RS232 (with link P4 in positions 2-3)
- ☐ 1-RS232 to 1-RS232 & 1-RS485 (with link P4 in positions 1-2)

Links on Converter PCB	Position		
	1	2	3
P2			
P3			
P4	RS485	RS232	RS232
P8			

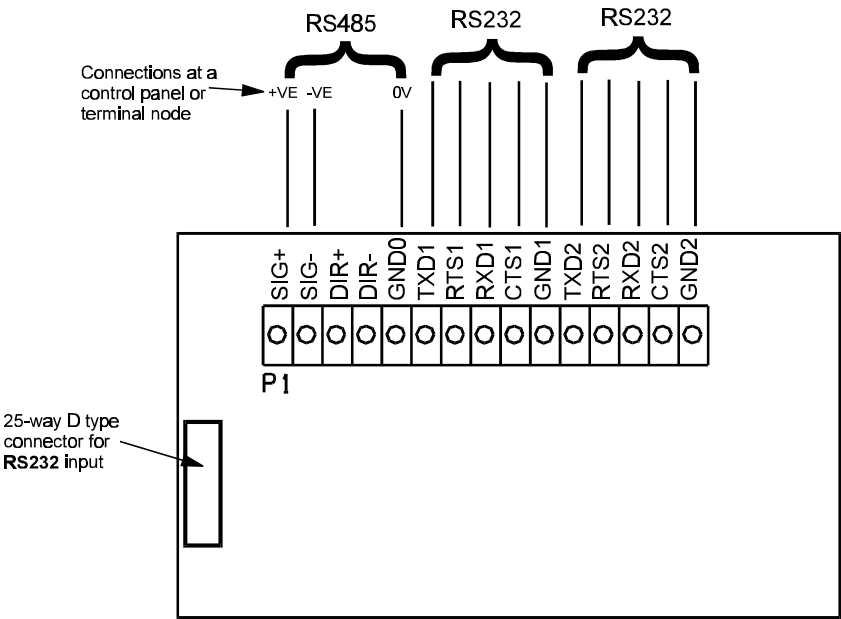


Figure 30-5 Splitter connections

**NOTE:** Normally the links P2 and P3 (end-of-line links) are not used, they should be connected between pins 1-2.

# 13548-03 Compactor Unit

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

A **compactor unit** is a wall mountable enclosure that can convert one RS232 signal into eight RS232.

## Fuses and locations

Fuse	Rating	Location
Mains	1A HRC 20mmx5mm	Mains terminal block

- a) Identify the package labelled 3535 COMPACTOR UNIT numbered 13535-03 and remove its contents.

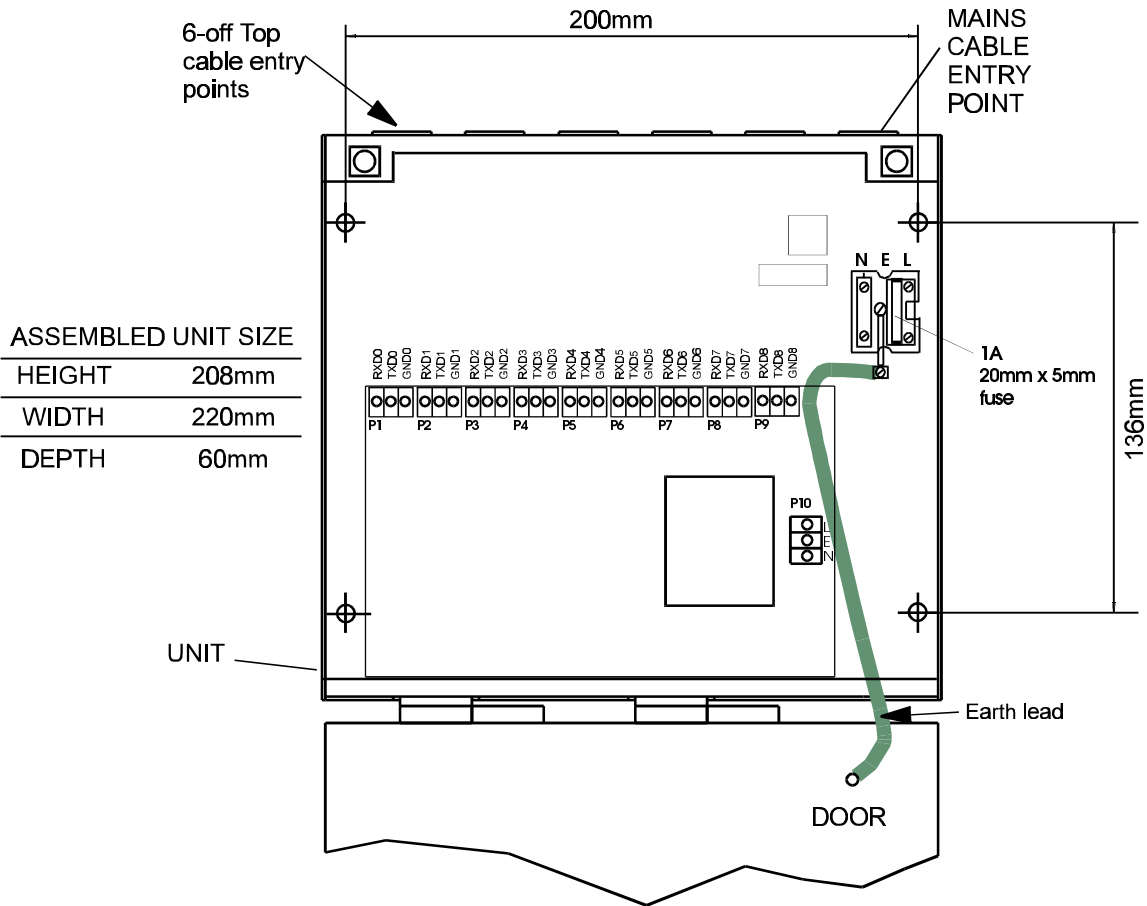


Figure 31-1 Compactor unit

cdm282

- b) Use the allen key provided to open the door of the unit and check the internal condition of the unit.
- c) Knockout the required cable entry points, (6 off are available 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.
- e) Secure the unit to the surface with suitable fixings to support a fully assembled weight of **1.5Kg**.

P1 goes to the GENT Supervisor

P2 to P9 are 8-RS232 to Control Panels

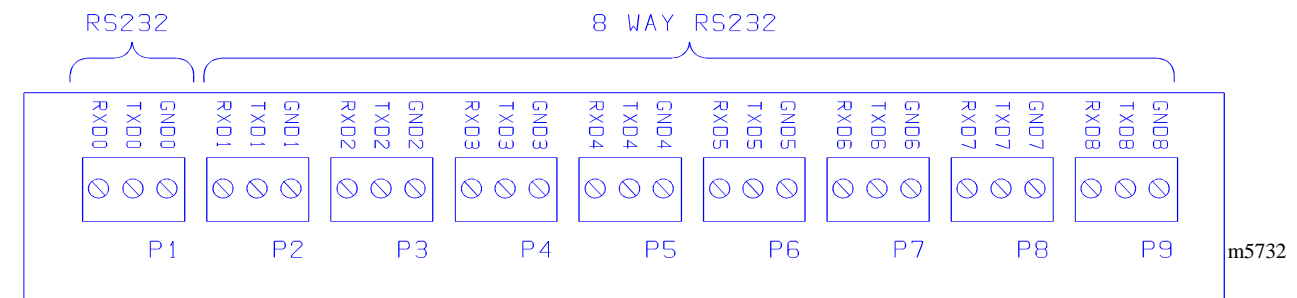


Figure 31-2 Compactor unit connections

m5732

- f) Terminate each cable at entry point, leaving tail wire length of **400mm** and mark each core identifying its intended point of connection.

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

- g) Close the door on the unit using the allen key.
- h) All outstanding installation work on the compactor unit should be done by the servicing organisation.



# Modems

The **3404 and 3408 control panels** may be connected to a GENT Supervisor with the aid of a pair of **modems**. The requirements for such connection include a BT 2 wire leased line to EPS21, terminated at each end by a standard British Telecom Master Line Jack Socket. (Should a 4 wire leased line have to be used then a 2 to 4 wire hybrid converter must be used).

**NOTE:** The BT jack socket should be terminated on pins 1 and 6.

## Pair of Modems.

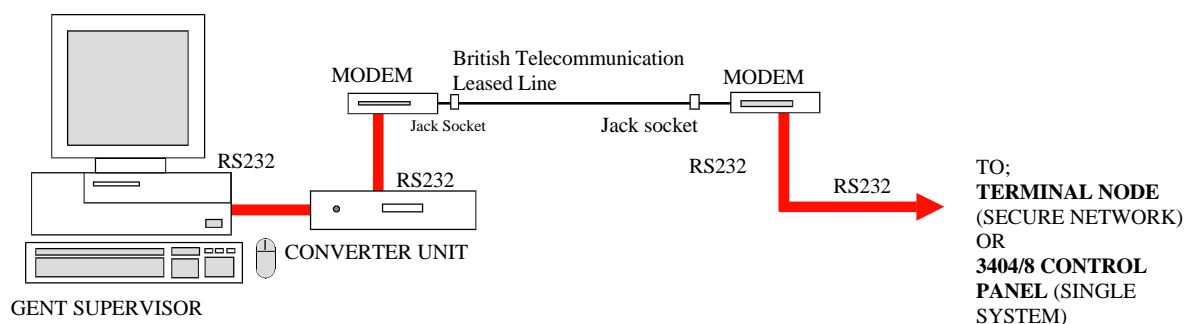


Figure 32-1 Supervisor link to pair of modem

The maximum cable length of 15m is allowed between:

- ☐ **Modem and GENT Supervisor**
- ☐ **Modem and Terminal Node**
- ☐ **Modem and 3404/8 Control Panel**

# Modem connection details

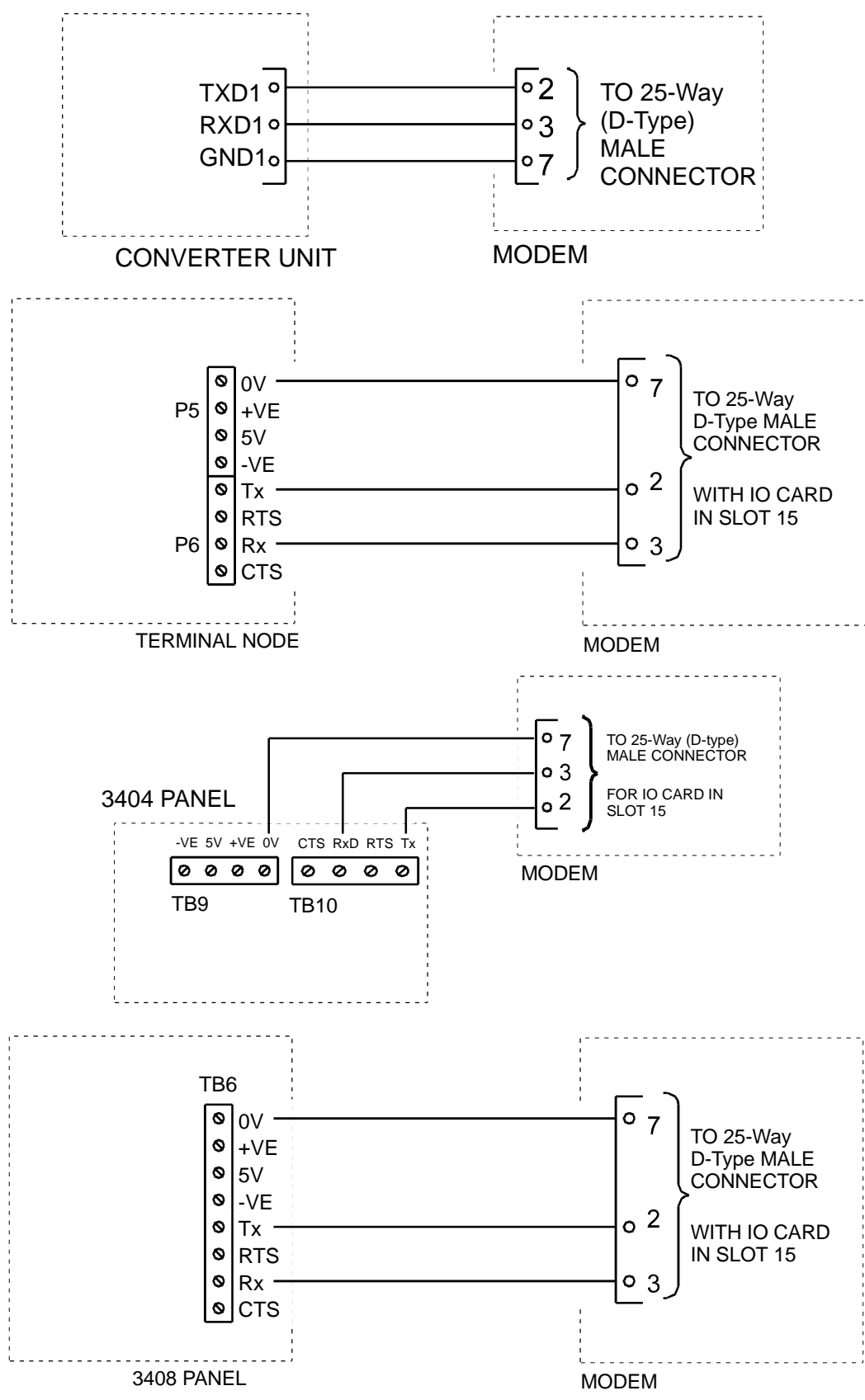


Figure 32-2 Modem connection details

fi144

## Multiple Modems

To connect two Control Panels in remote locations to a GENT Supervisor a RS232/RS485 Converter Unit is required configured for Splitter operation.

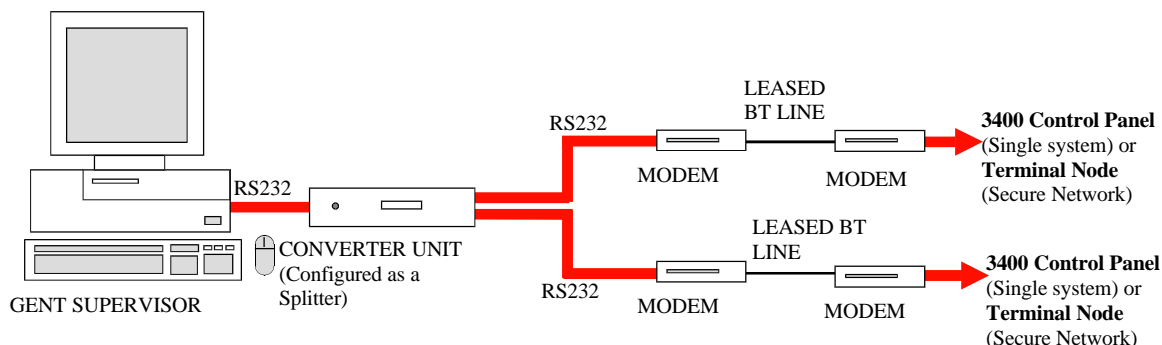


Figure 32-3 Supervisor to two modems

To connect up to **eight** Control Panels in remote locations to a GENT Supervisor you require:

- ☐ RS232/RS485 Converter Unit
- ☐ Compactor Unit
- ☐ Modem pairs for each Control Panel/Terminal Node connections.

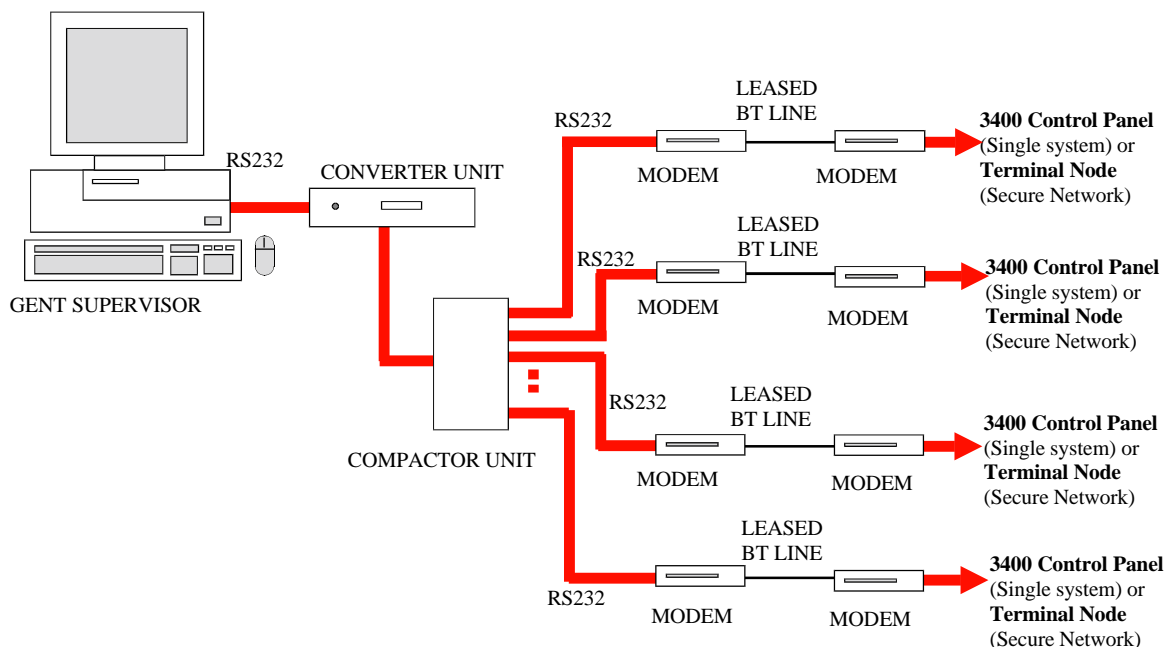


Figure 32-4 Supervisor to multiple modems

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## 3562 Remote Printer

The 3562 Remote printer is used for listing system events at a remote location in a building. The serial printer connects to the 4/8 loop panel having a printer I/O card are shown in this section.

## Panel to printer connections

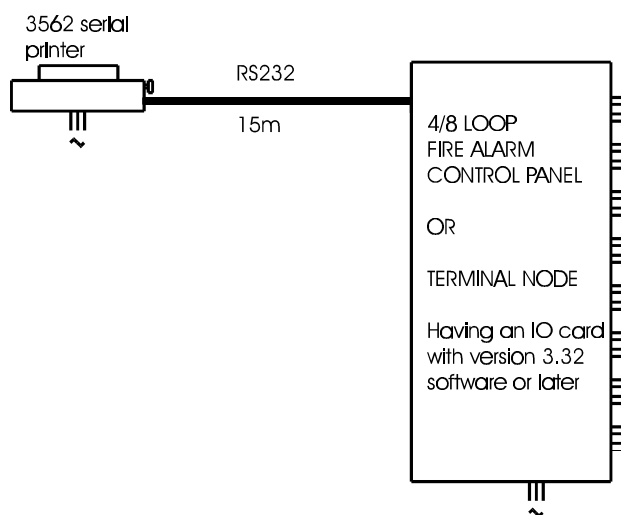
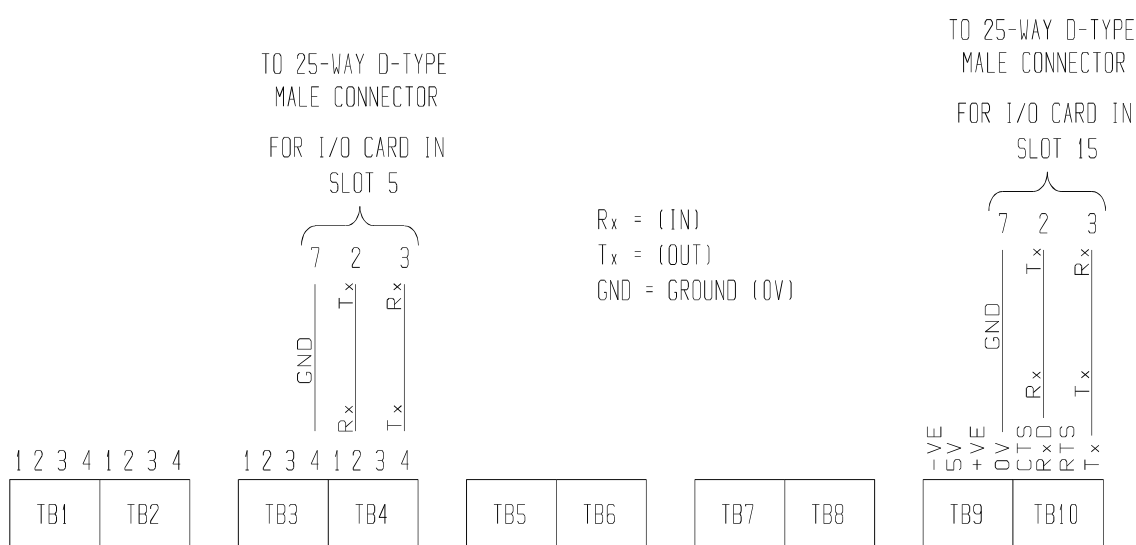


Figure 33-1 Control panel to remote printer connections

cdm318

## Printer I/O Card slot and connections

The printer I/O card can be installed in the appropriate slots of the 3404/8 panel backplane as described below.



CONNECTIONS ON TERMINAL BOARD 1-10

Figure 33-2 Panel (3404) connections to remote printer

m3591

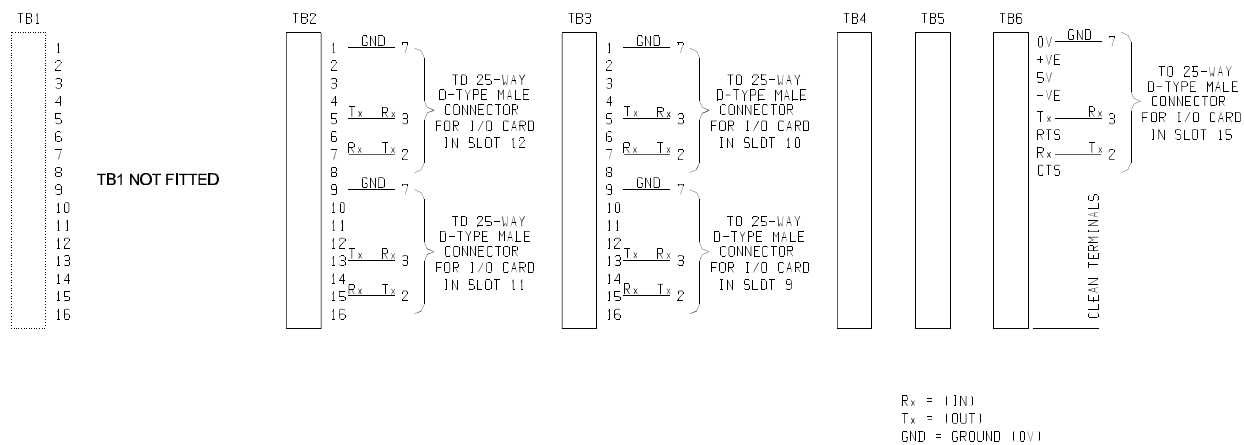
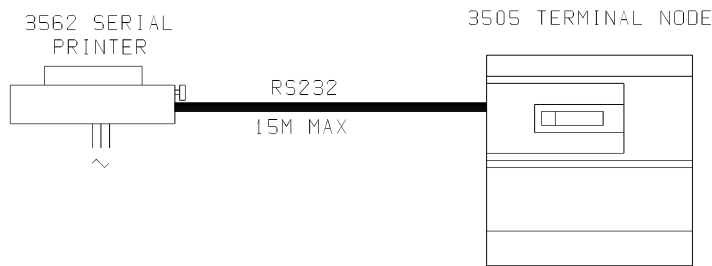


Figure 33-3 Panel (3408) connections to remote printer

f1386

The printer i/o card can be located in a required slot to give connections as shown.

# 3562 Remote printer to 3505 Terminal node



f1387

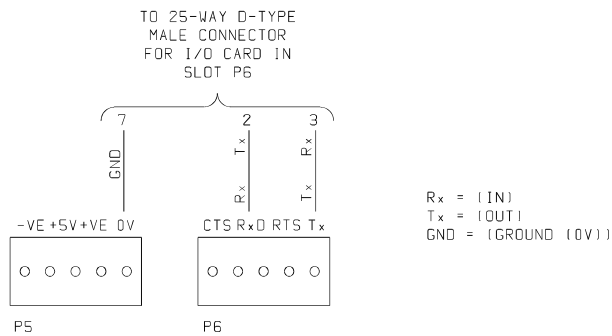


Figure 33-4 Remote printer to terminal node connections

m5501

# Appendix A

## Service Request Interface unit

### 13590-01 Service Request Interface unit

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

#### Fuses and locations

Fuse	Rating	Location
Mains	20mm x 5mm 3.15A HRC	Mains terminal blocks
FS1	20mm x 5mm 500mA	Board
FS2	20mm x 5mm 2.5A	Board

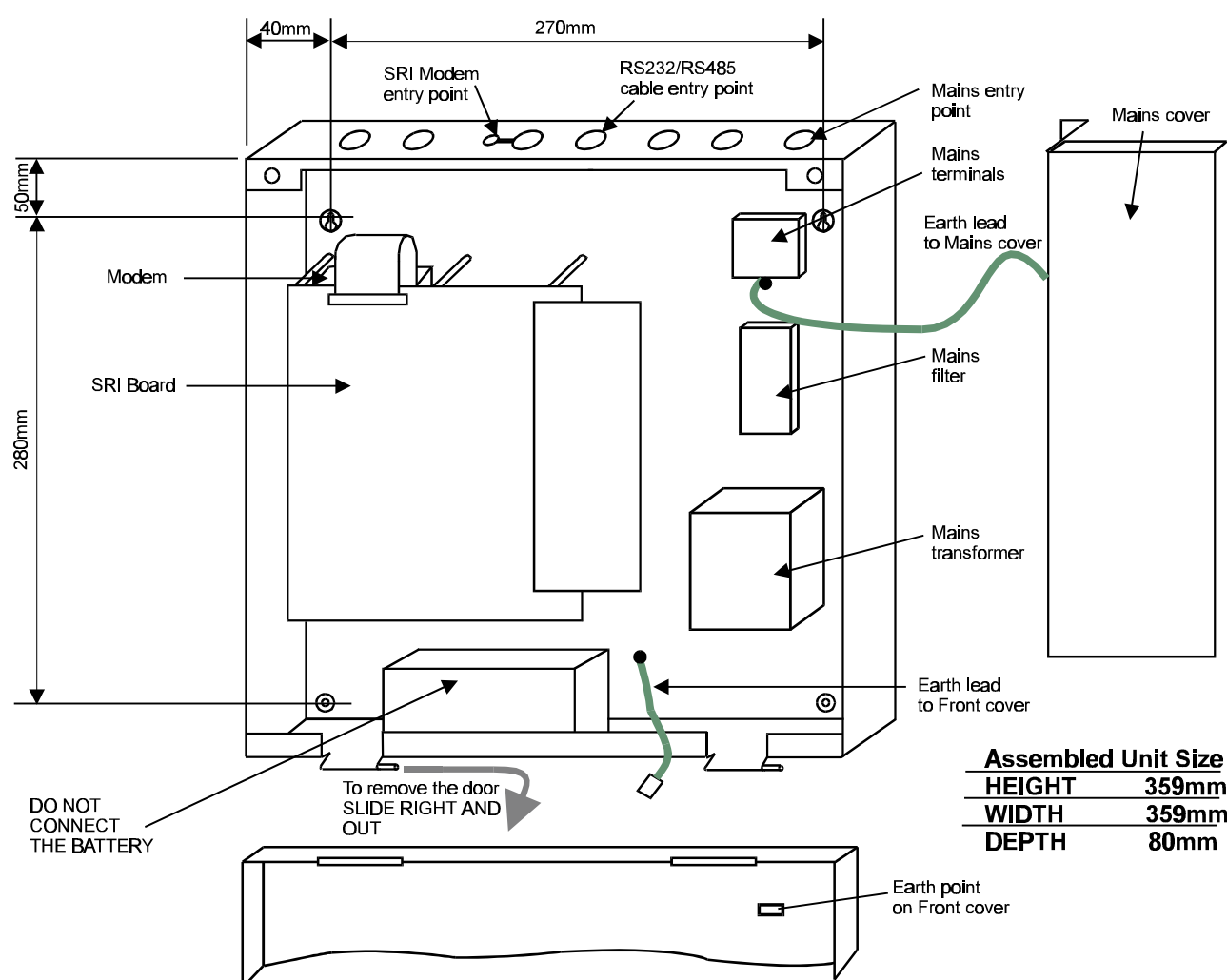


Figure A-1 SRI fixing details

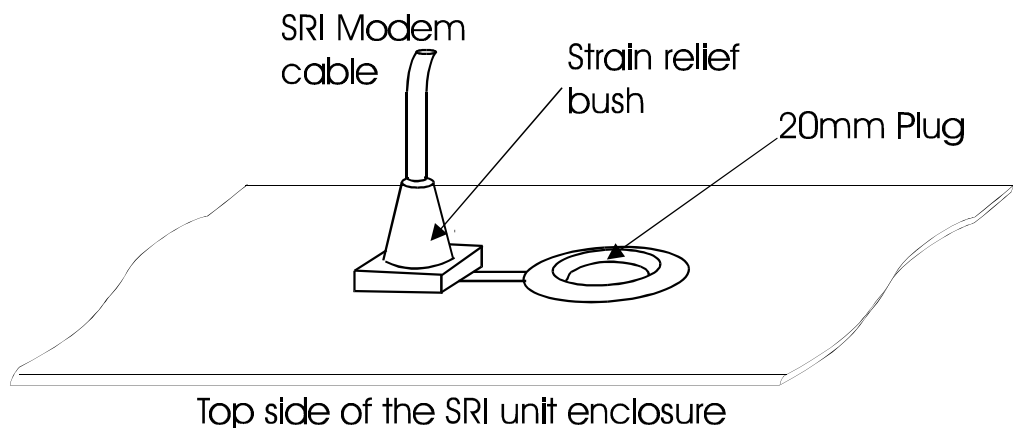
cdm308

- a) Identify the package numbered 13590-01 and using the **allen key** open the door on the unit and check the contents of the package:
- | Description               | Quantity |
|---------------------------|----------|
| Allen key                 | 1        |
| Fuse 0.5A 20mm x 5mm      | 1        |
| Fuse 2.5A 20mm x 5mm      | 1        |
| Fuse 3.15A 20mm x 5mm     | 1        |
| Plug 20mm                 | 1        |
| Bush Plug (strain relief) | 1        |
| 12V 2.8Ah Battery         | 1        |
- b) Remove the **mains cover** by loosening its fixing screws and by sliding it down and out.
- c) Knockout two cable entry point, one for the RS232/RS485 data cable to the Terminal node or Control panel and another for the mains cable.

**NOTE:** Ensure that the data cable distance from SRI to Control panel or Terminal node does not exceed **15m for RS232 or 1.2Km for RS485**.

- d) Mark and drill the four fixing hole 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 full assembly weighing **5.7Kg**.
- f) Fit the SRI modem cable using the strain relief bush supplied and also the fit the 20mm plug. Terminate the data and mains cable at the entry points.
- g) Connect the mains supply but ensure the mains fuse is removed
- h) Leave tail length of 400mm on the data cable and mark each core to identify its connection point.

Figure A-2 telephone cable installation



cdm313



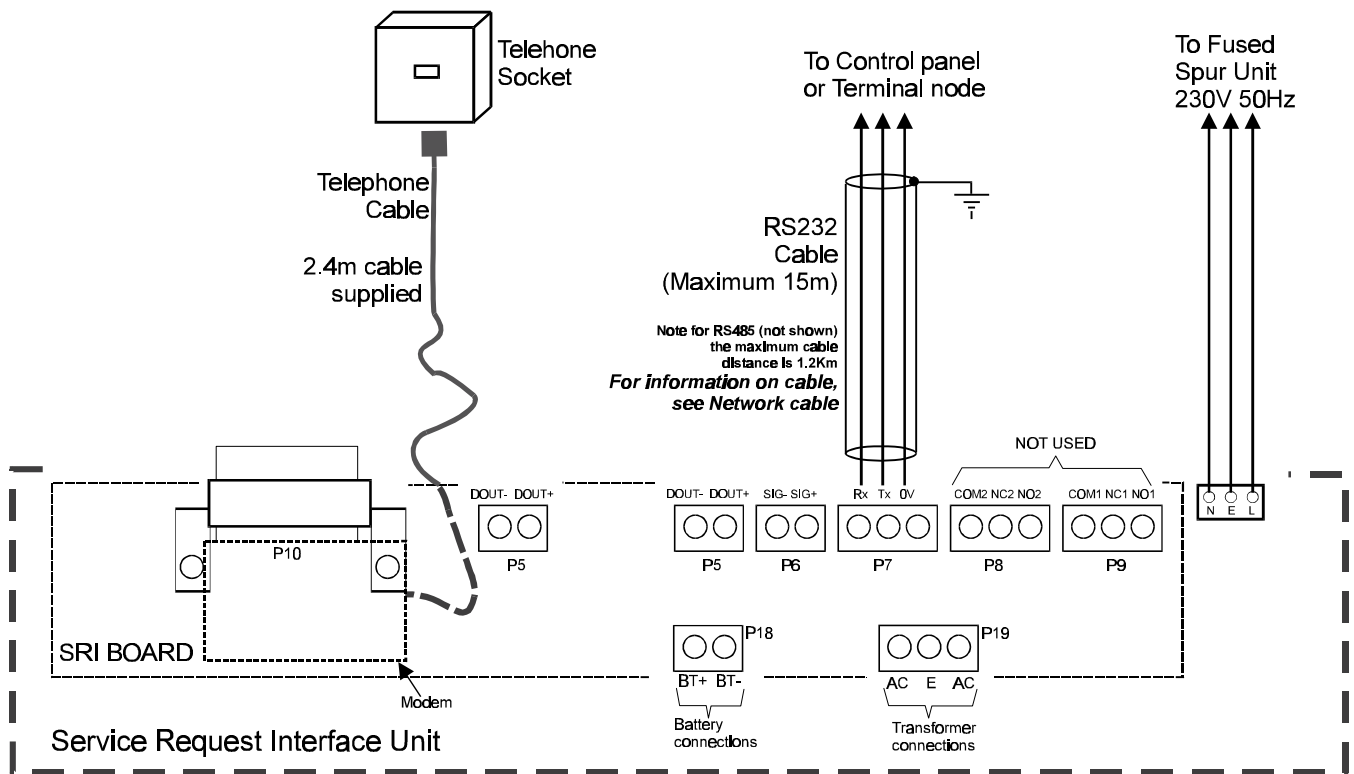


Figure A-3 SRI connections

cdm311

- i) Replace the mains cover and close the door on the unit using the door key.
- j) Leave all outstanding installation work for the servicing organisation.

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# System 3400 (with 34000 devices)

## Introduction

This section lists parts used in the Systems 3400 (with 34000 devices) and system 3500. For further details on the availability of the parts, contact Gent.

**NOTE:** Only the **V3** parts listed here are compatible with **version 3 plus** systems.

## Control and indicating equipment

### Control Panels \* - first fix products

13404-12V3+ 1 - 4 Loop panel set V3+  
& \*13404-80V3+ 1 - 4 Loop panel back and front cover V3+ (1st fix)

13408-12V3+ 1 - 8 Loop panel set V3+  
& \*13408-44 1 - 8 Loop panel rack (1st fix)  
13408-45 1 - 8 Loop panel Plinth (for floor standing)

**NOTE:** All fire alarm control panels are supplied with **one loop processor card** as standard.

13495-24 1 - 4 Loop panel battery pack - 8 off 12V @ 6Ah  
13495-48 1 - 8 Loop panel battery pack - 4 off 12V @ 24Ah  
09406-06 1 - 4 Loop panel /Mimic weather resistant case  
13404-82M2 1 - 4 Loop panel inner box assy, inc printer & keyboard  
13408-40 1 - 8 Loop panel Termination unit  
13408-41 1 - 8 Loop panel Control unit  
13408-42 1 - 8 Loop panel Power supply charger  
13408-43 1 - 8 Loop panel Battery box

**Terminal node** 13505-01 Terminal node (for use in secure network)  
& 13505-80 Backbox (front cover (M2))

**Repeat and Mimic Panels** 13450-01V3 Repeat panel, no printer  
& \*13450-80M2 Repeat panel backbox and front cover (1st fix)

13450-02V3 Repeat panel, with printer  
& \*13450-80M2 Repeat panel backbox and front cover (1st fix)

13450-81V3	Repeat panel inner box assy, no printer & keyboard
13450-82V3	Repeat panel inner box assy, C/W printer & keyboard
13460-01V3	Mimic panel C/W drawing

**NOTE:** The Mimic repeat panel plan and programmed EPROM details must be advised at the time of ordering.

13460-02V3	Zonal mimic panel
13495-01	Mimic / repeat battery pack 1 - off 12V @ 6Ah
19222-01	Printer paper
09406-06	1 - 4 Loop panel /Mimic weather resistant case
09410-06	Repeat panel weather resistant case
13496-01M2	Panel key for Mark II
34604-G1	A4 Mimic Brown (Grey brown RAL8019) panel set 34614-G1 A4 Mimic Display Brown 34624-01 A4 Mimic Control Unit
34604-B1	A4 Mimic Grey (Squirrel Grey RAL7000) panel set 34614-B1 A4 Mimic Display Grey 34624-01 A4 Mimic Control Unit
34604-64ZK	A4 Mimic Zonal kit
3604-SPK	A4 Mimic Site plan kit

## Cards

13430-11V3+	Local controller card V3+ (LCC)
13431-01V3	Loop processor card (LPC)
13433-01V3	1 - 4 Loop panel RAM card
13433-03V3	1 - 8 Loop panel RAM card
13501-01	Secure network card
13432-03V3	I / O card V3
13532-50	Universal I / O card V3
13532-52	Remote printer I/O card
13532-53	Slave I/O card

## Sensors and Accessories

<b>Sensors</b>	34710	Optical heat sensor
	19271-01	Optical chamber
	34710-RL	Optical heat sensor with Remote LED connection
	34710-ML	Optical heat sensor with MCP connection (Chinese market only)
	34770	Optical heat sensor sounder
	19271-01	Optical chamber
	34780	Heat sounder
	19274-01	Heat sounder chamber
	34720	Heat sensor
	19272-01	Heat chamber
	34730	Ionisation sensor
	19273-01	Ionisation chamber
	34729	Environmentally protected Heat sensor
<b>Tools</b>	34740	Beam Sensor Pair
	34741-01	Angle Bracket with base
	34741-90	IP65 Angle baracket with base
	34741-03	Parallel bracket with base
	34740-01	Beam sensor transmitter
	34740-02	Beam sensor receiver
	34741-02	Base for 34740 Beam
	07012-31	Conventional Flame detector
	34760	Duct sensor (inc 17908-05 Probes and Slave LED unit)
	17918-22	Sensor chamber Extractor cup (32000 & 34000)
	17918-23	Optical chamber electronics module removal tool
	17918-24	Ionisation chamber electronics module removal tool
	17918-25	Heat sensor electronics module removal tool
<b>Terminal Plate</b>	17918-26	Sensor removal tool kit (32000 & 34000)
	34700	3 way Terminal plate
	34704	4 way terminal plate
	19279-01	Semi-flush sensor mounting kit
	07700-21	Base for Conventional flame detector

<b>T Breaker and Slaves</b>	34701	T breaker Unit
	34702	Slave LED unit
	34703	Slave Relay unit

## Alarm sounders

34202	2 way electronic sounder
34203	3 way electronic sounder
34213	Environmentally protected sounder 3-way electronic sounder
34777	Repeat sounder

## Manual call points (MCP) 2-way

	34800	Surface mounted MCP
	34807	Surface mounted keyswitch MCP
	34842	Surface mounted MCP with cover
	34812	Surface mounted water resistant MCP
	19289-01	MCP flush fixing plate
	34852	Surface mounted water resistant MCP with cover
	34829	Environmentally protected surface mounted MCP
<b>Spares</b>	13480-09	Spare MCP glasses 10 pack for LPCB approved
	14112-09GR	Spare MCP glasses 10 pack non LPCB approved

## Interfaces

<b>Mains powered</b>	34440	Mains powered fire alarm interface
	34441	Card for mains powered interface
	19104-52	Power relay (for mains powered interface) (up to 4 maximum can be used - supplied with base and diode)
<b>4- Channel Loop powered</b>	34450	Loop powered fire alarm interface

	34451	Card for loop powered interface
	19245-05	Interface line module -up to 4 can be fitted in a loop powered fire alarm interface
	34454	4 way keyswitch <b>door</b> for loop powered interface
<b>1 - Channel Loop powered</b>	34410	Loop powered zone module
	34415	Single Channel Interface (Loop Powered)
<b>Rack</b>	13445-80	Rack interface back box
	13445-05	Rack interface
	13445-06	Interface rack keyswitch door
	13445-15	4 way interface line module assembly
<b>Keyswitches</b>	19245-02	2 position keyswitch assembly (for use with optional interface doors)
	19245-03	3-position keyswitch assembly (for use with optional interface doors)
	13445-40	Interface card (loop powered) (up to 10 used in 13445-05 rack interface)
<b>Power supply Unit</b>	19245-06	Power supply unit with 1 relay (for use with loop powered interface unit)
	19245-07	Mains relay (up to 4 for use with 19245-06 unit)
<b>Fix Extinguishant</b>	#34460	Loop powered fixed extinguishant interface
	#34461	Card for loop powered extinguishant interface
	# - Not available at time of issue	

## Manuals & Accessories

13499-23	Installation manual <b>V3.3X</b> (for system 3400 with 34000)
13499-26	Operating manual <b>V3.3X</b> (for system 3400 with 34000)
13563-011	GENT Supervisor Operator's Manual

## GENT Supervisor

<b>PC</b>	13563-10	PC for the GENT Supervisor
<b>Graphics only</b>	13564-01	Graphics software
<b>Text only</b>	13565-01	Information mode software
	13565-04	Configuration mode software
<b>Accessories</b>	13563-03	A4 text printer with cable and paper
	13563-05	Light pen accessory
	4214-006	Fan fold paper (for 13563-03)
	4214-054	A4 paper 5 reams (for 13563-04)

**NOTE:** The Gent Supervisor graphics software requires custom graphics pages

## Converter / Compactor / UPS

13547-14	Uninterrupted power supply (55 minutes standby)
13547-15	Uninterrupted power supply (14 minutes standby)
13563-02	Converter unit (RS232/RS485)
13548-03	Compactor unit (1 to 8 - RS232)
13563-01	Modem (pairs)