

System 34000

Advanced Fire Detection and Alarm System

Installation Manual

Issue 1
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Gent Limited
International Office
140 Waterside Road
Hamilton Industrial Park
Leicester, LE5 1TN
United Kingdom
Tel: +44 (0)116 246 2000
Telex: 342367 GENT G
Fax: +44 (0)116 246 2300

Notes to Installer

**EMC and LVD
Compliance**

Cable types

**Loop Circuit
Connections**

**Standalone System
Installation**

Network overview

**Network System
Installation**

Parts list

Preface

This is the first issue of the Installation Manual for the System 34000. 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

34K-MAN-OPS-V3+ Operating Manual for Vigilon V3+ System
13563-011 GENT Supervisor Operator's Manual
 (for V3+ system only)

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	1	10/98	This first issue covers installation of System 34000 products.
1 - 36	1	10/98	
Parts	1	10/98	
Phone			

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Customer feedback

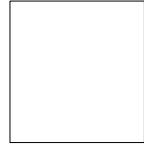
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Gent Limited
Waterside Road
Leicester
LE5 1TN

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Notes to Installer

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

The manual contains fixing and wiring information to cover the installation of the standalone and networked System 34000 system products.

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 34000 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.*

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.
- Products** The products covered by these guidelines are listed under EMC compliant products, see list on the last page of this section.
- 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 approved for use with System 34000 system fire detection and alarm applications:
(see also the Cable types part of this manual)
- For loop circuit, master alarm circuits, auxiliary circuits and interface input/output line wiring:
- Mineral Insulated Copper Cable (MICC)
 - FIRETUF OHLS Cable type: FTZ2E1.5 and FTZ4E1.5
 - Raydex CDT FG950
 - Cavicel SpA Firecel SR114 - distributed by Cable Britain
 - AEI Cables FIRETEC
 - BICC Pyrotenax FLAMESIL FRC
 - Datwyler LIFELINE
 - Alcatel cable PYROLON E - distributed by Winstonlead
 - Huber & Suhner RADOX FR

- For network circuit that is network interface to control panel or network interface wiring use:

- Firetuf FDZ1000
- Mineral Insulated Copper Cable¹ (MICC)
- Belden Cable No 9729 (UL Style 2493)
- Armoured Cable²

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 System 34000 products with metal enclosures 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.

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

1 The Mineral Insulated Copper Cable should be used for fire resistant applications.

2 The cable manufacturer cannot guarantee the cable specification if it is armoured.

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.

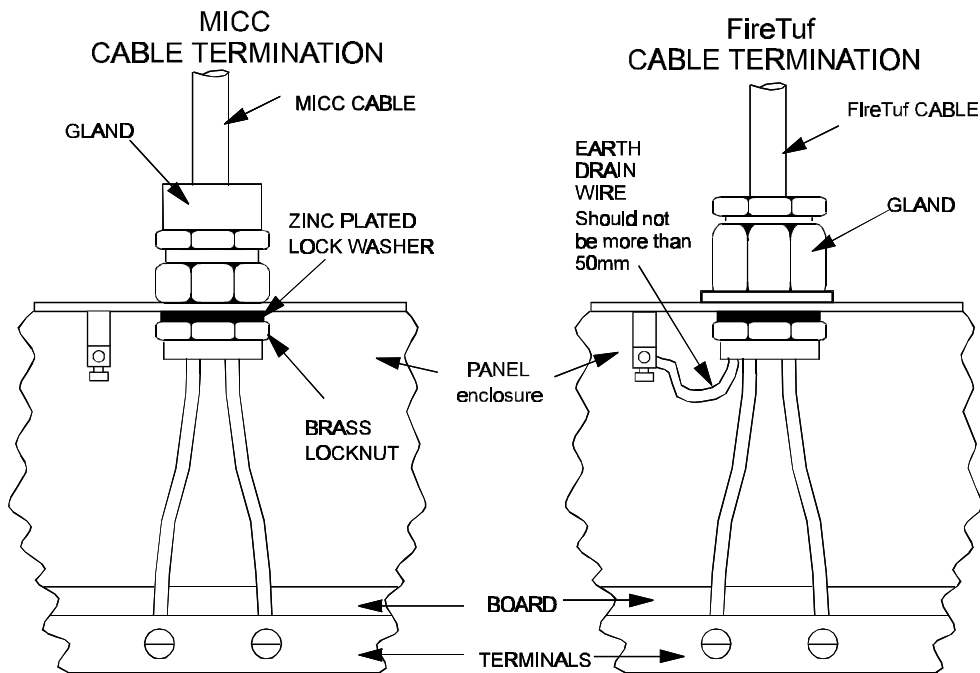


Figure 2-1 Cable termination
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Cable termination

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.

EMC compliant products All the System 34000 products listed in the parts list section of this manual are covered by these guidelines.

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 34000 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^2 . Cable with a nominal cross sectional area of 0.5mm^2 may be used, provided the length of the cord does not exceed 2m.

Cable Types

Choosing Loop circuit cable

See also choosing Network circuit cable

System 34000 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 1.5mm² 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

Specification

- Mineral insulated cable (MICC) to BS6207:Part 1 (EMC approved)
- Delta Crompton FTZ2E1.5 FIRETUF OHLS fire resistant data cable (EMC approved)
- Raydex CDT FG950 (EMC approved)*
- Cavicel SpA FIRECEL SR 114 (EMC approved)*
distributed by Cables Britain
- AEI Cables FIRETEC (EMC approved)*
- BICC Pyrotenax FLAMESIL FRC (EMC approved)*
- Datwyler LIFELINE (EMC approved)*

- Alcatel cable PYROLON E (EMC approved)*
distributed by Winstonlead
- Huber & Suhner RADOX FR (EMC approved)*

NOTE: The cables marked * utilise laminated aluminium tape with a tinned drain wire for electrostatic screening. Under certain environmental conditions **galvanic action** may take place between the aluminium and the drain wire. This will severely **degrade EMC performance** as the foil to drain wire **impedance will increase**. Therefore these wires should be installed in line with **GENT installation instructions** and used **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^2 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 1.5 mm^2 MICC cable is being used.

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

A4 Mimic display to Control Unit cable

- Mineral insulated copper cable (EMC Compliant)

50m maximum Mimic Pane 1 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^2 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 Pane 1 to Control Unit cable distance

- four core plus earth wire
- fire resistance tested to BS6387 categories CWZ
- each wire having 1.5mm^2 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 panels to control panels, network interface to control panels and GENT Supervisor to control panels.

Recommended Cables

- Delta Crompton Firetuf FDZ1000

1200m maximum Panel to Panel or Panel to Network node cable distance

- Three core

- Huber & Schner Radox series FR communication cable

1200m maximum Panel to Panel or Panel to Network node cable distance

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

- Mineral insulated copper cable (EMC Compliant)

800m maximum Panel to Panel or Panel to network node cable distance.

- BS6207: Part 1
- 3 parallel cores
- having continuous metal sheath encapsulating
- each core having 1.5mm^2 cross section area
- 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 inode 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 - 39.4pF/m at 1kHz
- Low capacitance conductor to screen - 72.2pF/m at 1kHz
- Temperature range -30°C to +60°C .
(Teflon jacketed cable 89729 up to 200°C)

Belden Armoured equivalent (EMC Compliant)

- This cable being a two pair cable to BS5308:Part 1 (type 2) 0.5mm² (16/0.2mm).

600m maximum Panel to Panel or Panel to Network node cable distance.

Belden No. 9842 EIA RS485 Applications, O/A Beldfoil® Braid

1200m maximum Panel to Panel or Panel to Network node cable distance

Must have following characteristics:

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

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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 a loop circuit allows significant reductions in installation costs.

Loop Capacity

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

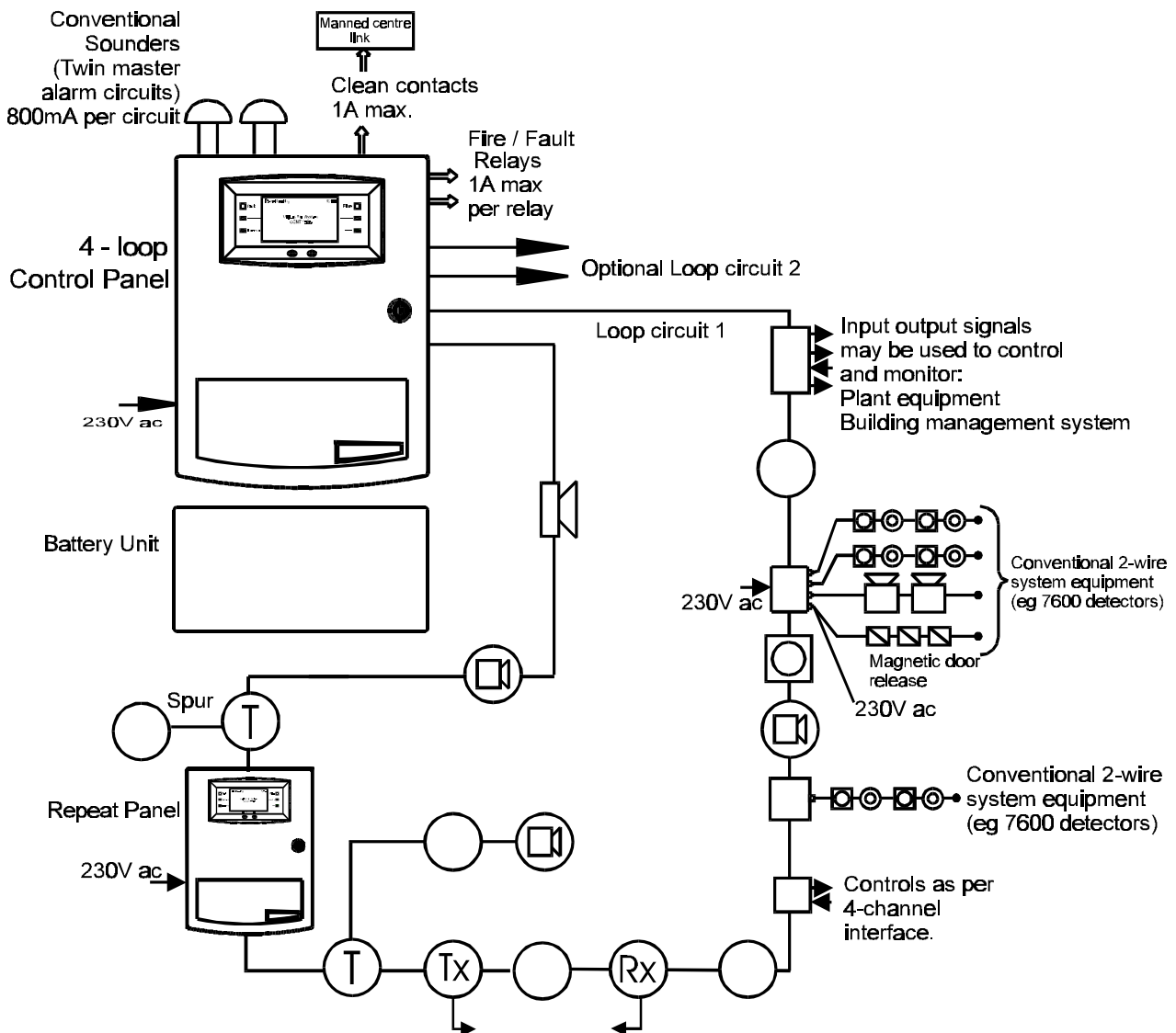
Devices (Outstations) per loop

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.

Device code number	Description	Load factor per device	Maximum devices per loop
34202/3 & 34213	Alarm sounder	25	40
34777	Repeat sounder	8	125
34415 or 34410	Single Channel Interface or Loop powered zone module	10	100
34440	Mains powered interface	3	8
34450 34460	Loop powered interface Fixed Extinguishant interface	2	30
34K-MIM-A4 34K-ZONE-A4 34K-RPT 34K-MIM 34K-ZONE	A4 Mimic panel A4 Zonal panel Repeat panel A2 Mimic Panel A2 Zonal Mimic Panel	3	32
34702 34703	Slave LED Slave Relay unit	1	50
34701	Tee breaker	1	200
34710 34720 34730 34729	Optical Heat sensor Heat sensor Ionisation sensor EP heat sensor	1	200
34710-RL 34710-ML	Optical heat + remote LED Optical heat + MCL	1 1	200 200
34760	Duct Sensor	1	50
34770	Optical Heat Sounder	8	125
34780	Heat sounder	8	125
34740	Beam sensor pair	6	16 pair
348xx series	Manual call point	1	200

Typical System 34000 system architecture



System Devices (Outstations)

- Call Point
- Fire Sensor (Optical smoke; Ionisation and Heat)
- Optical Heat Sounder / Heat Sounder / Repeat sounder
- Alarm Sounder
- T Breaker
- Beam sensor Transmitter and receiver

- Mains powered fire alarm interface unit
- Single channel interface single input / relay output
- 4-Channel loop powered interface
- Loop powered zone module

Conventional System Products

- Magnetic door release
- Alarms
- Conventional Fire Detectors
- Manual Call Point
- End of Line Unit

Figure 4-1 Typical fire alarm system
cdn422

Loop cable

See also Cable types

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

Interface line cable

See also Cable types

NOTE: A remotely installed line module should not be located more than **100m** cable distance away from the interface unit, assuming **1.5mm² MICC** is being used. An overall **system** limit of **1Km** (10x100m) of line module monitoring cable per loop is allowed.

Cable separation

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

Loop Coverage

A loop circuit must not cover more than 10,000m² of floor area of a protected site.

Spur circuits

Spur off a main loop may be used in order to save cable and installation costs. A 2-way type device allows straight in-out connection, while a 3-way device has an added common line connection (in-out-comm line). A spur circuit must always be taken from the line com terminals.

The 3-way devices are only available as alarm sounders, interface units, repeat/mimic panels. If it is not appropriate to use these devices in the required location then a T breaker device should be used.

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

NOTE: The common line to accept spur and sub-loop may be left unconnected, if using the device for 2-way connection.

Lightning protection

Where a loop or network cable is mounted to an external wall or between two buildings then consideration should be given to the use of lightning protection devices.

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.

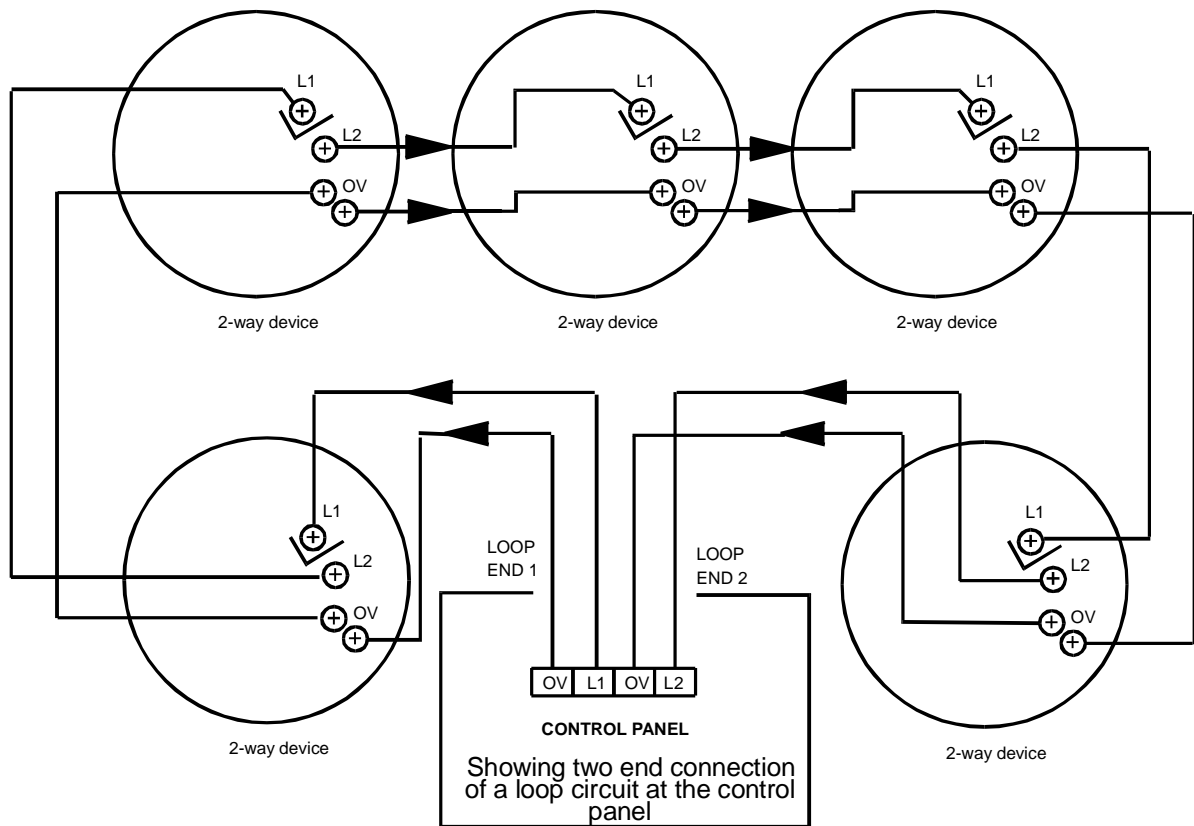


Figure 4-2 Loop connection to the control panel
fl174

2-way device

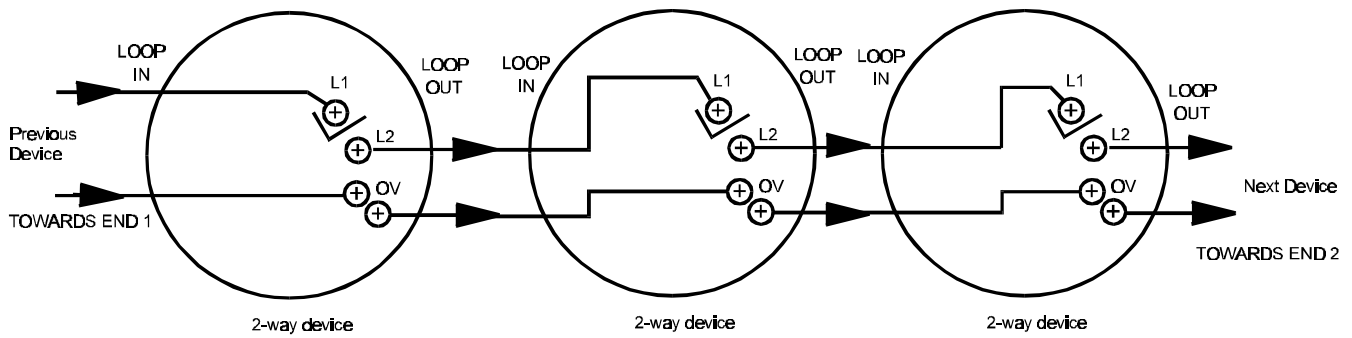


Figure 4-3 Connecting a 2-way device
sjhf1172

3-way device (tee breaker)

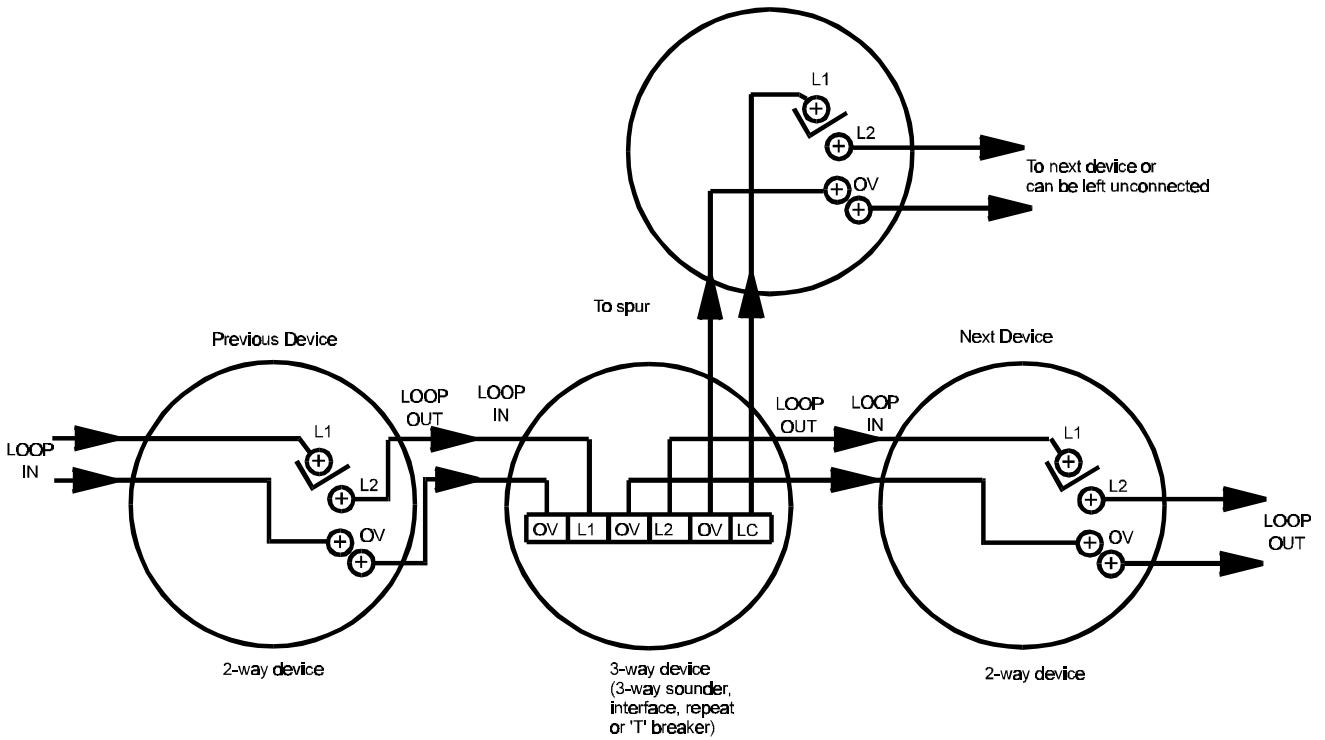


Figure 4-4 Connecting a 3-way device
cdn16

Slave (Indicator) LED Unit

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

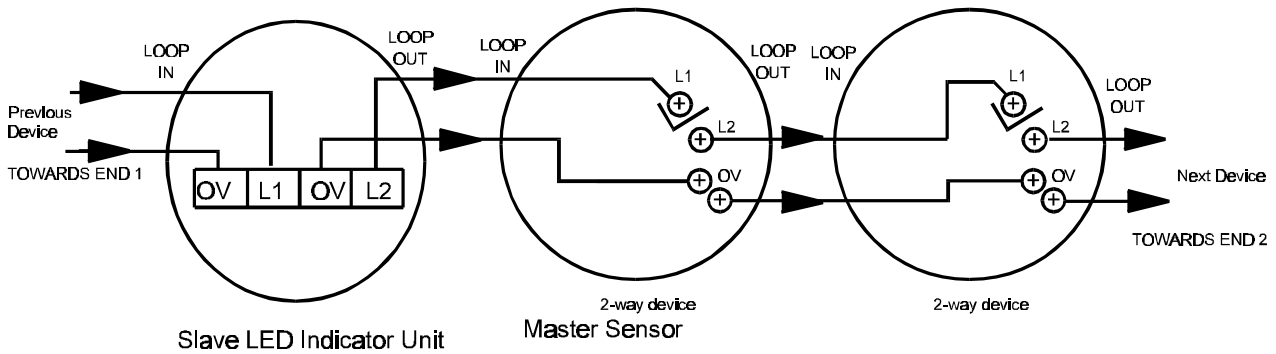


Figure 4-5 Connecting a slave Indicator unit shfl104

SlaveRelay Unit

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

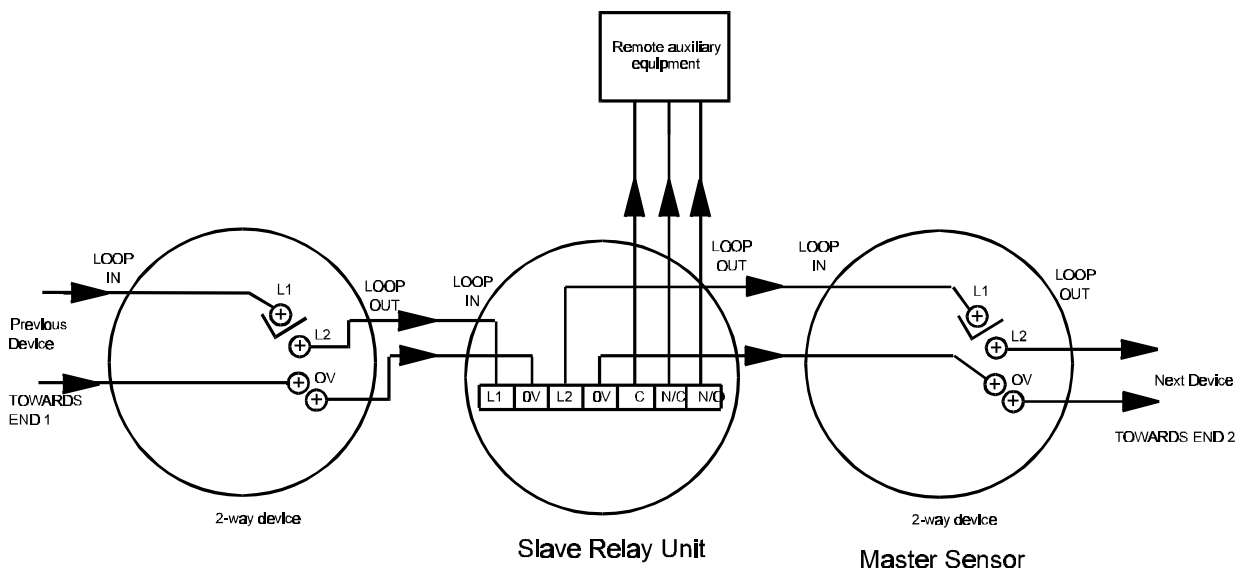


Figure 4-6 Connecting slave relay unit shfl105

4-Way base connecting to a remote LED

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

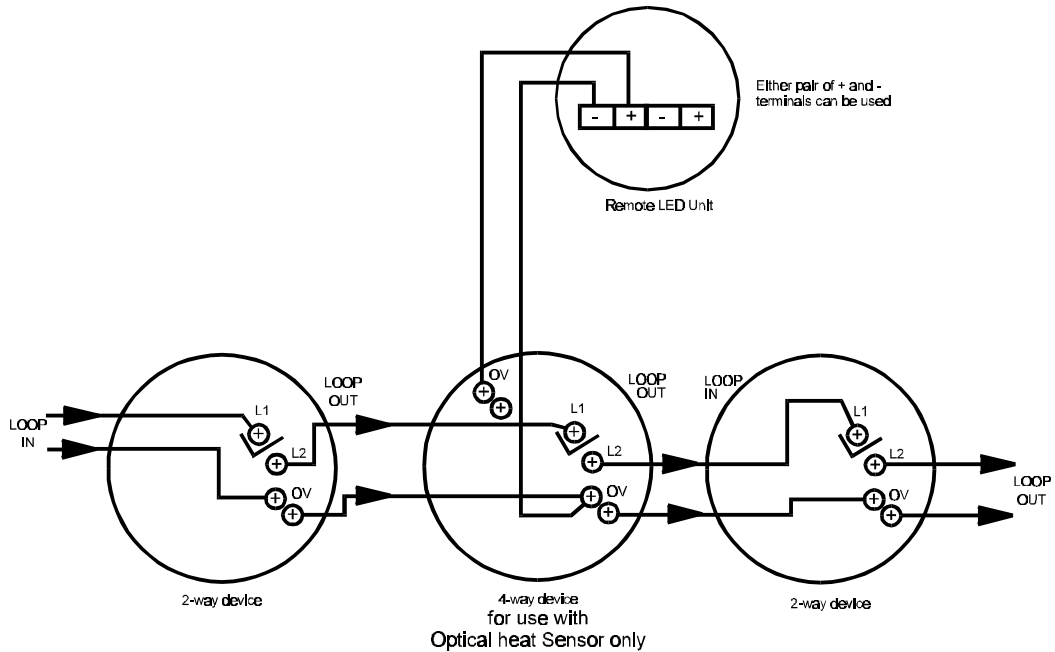


Figure 4-7
Connecting a remote LED

cdm253

4-Way base connecting to MCP

This application is for use in non BS5839:Part1 systems (i.e. not applicable for UK).

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

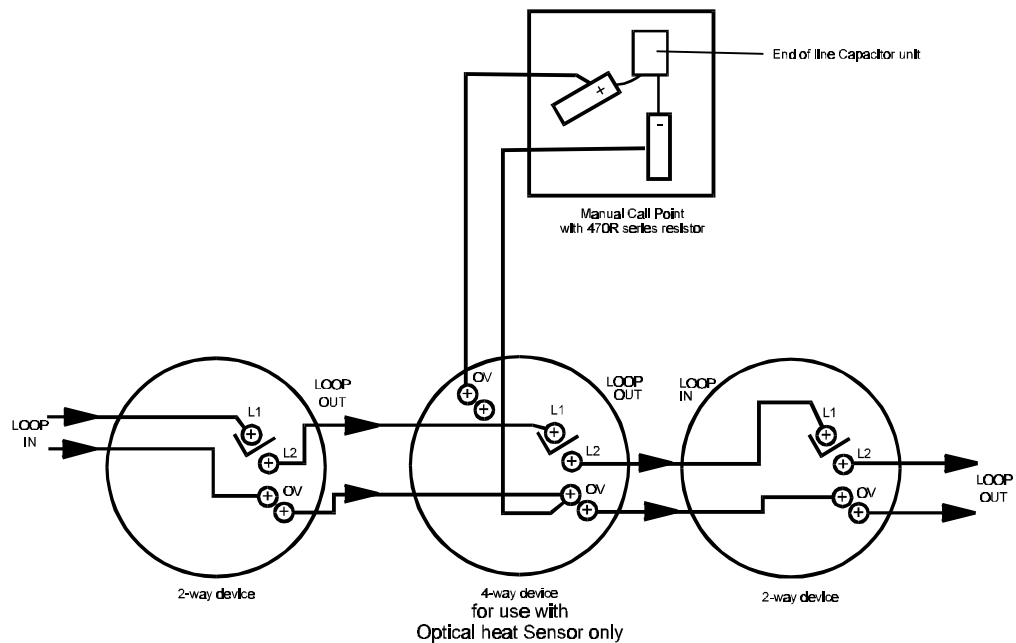


Figure 4-8
Connecting a MCP

cdn452

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Standalone System Installation

Control panel set

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

The Control Panel set consists of three packages:

- 1st fix package:
Control panel backbox, Battery box & Sensor kit
- 2nd fix package:
Control panel inner door, moulded door, Power supply assembly,
Loop cards (options 1,2,3 or 4), Network card (optional)
Spares packs for control panel & battery box
- 3rd package:
Battery Pack

These instructions cover the 1st fix installation only. The 2nd fix and 3rd package are installed during the commissioning stage.

Fuses and locations

Fuses	Rating	Location
Mains	3.15AAS	Top right of the backbox
FS1	20mm x 5mm 1A	Terminal board
FS2	20mm x 5mm 1A	Terminal board
FS1	20mm x 5mm 8AQB	power supply board
FS2	20mm x 5mm 8AQB	power supply board
FS3	20mm x 5mm 1AHRC	power supply board
FS4	20mm x 5mm 1A HRC	power supply board
FS5	20mm x 5mm 8AQB	power supply board
FS6	20mm x 5mm 8AQB	power supply board

Control panel 1st-fix installation

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

Flushing fixing the control or repeat panel

These procedures assume the control or repeat panel is to be flush mounted using the respective flush surround.

- a) Identify the package labelled 34K-FLUSH or 34K-RPT-FLUSH which are the flush surround for the control panel or repeat panels
- b) Cut out an aperture in the wall to allow the flush surround to be fitted.

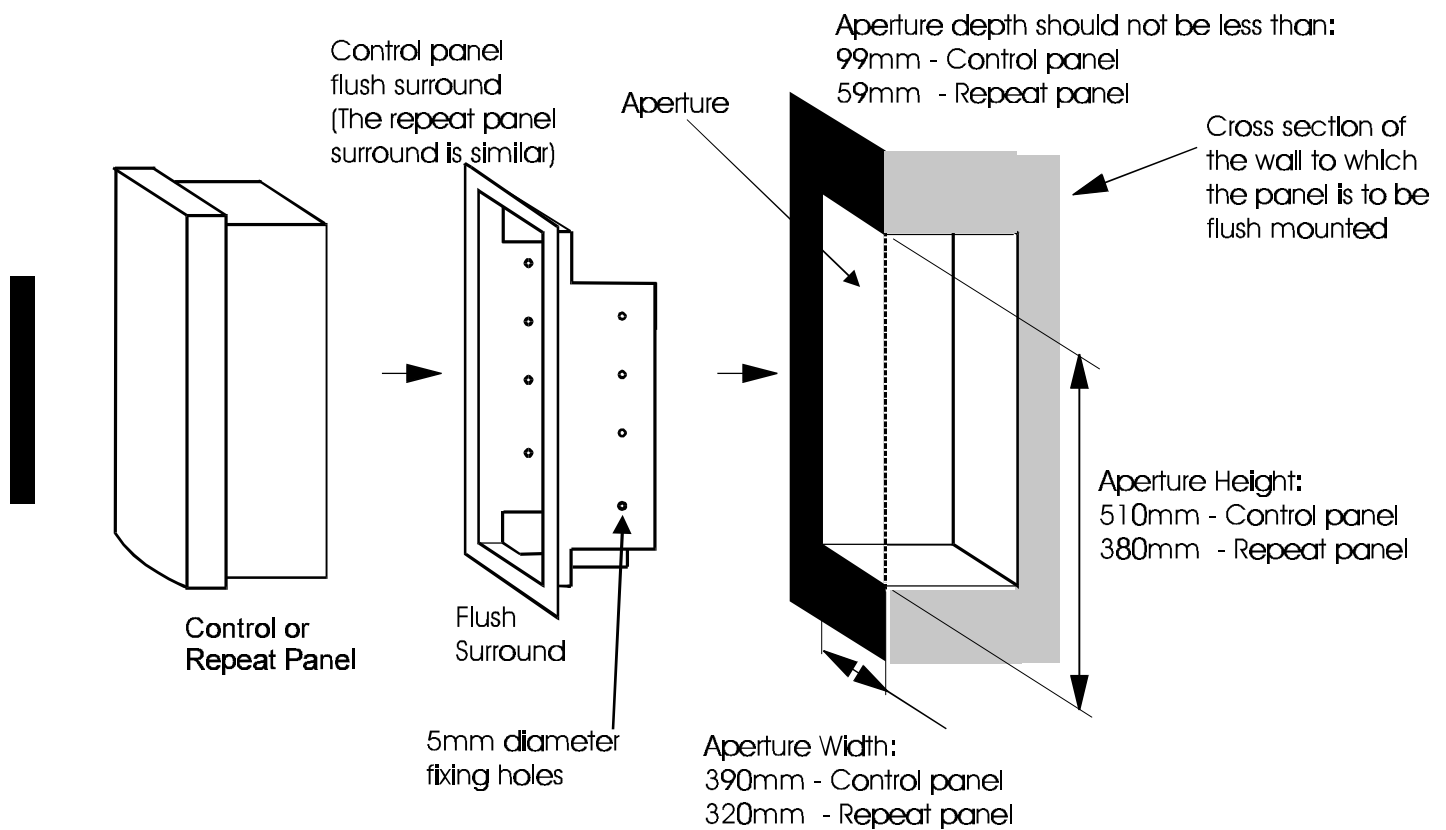


Figure 5-1 Control or Repeat panel flush fixing
cdm257

- c) Use the fixing holes on the surround to secure it to the wall.
- d) Use the 4-off 5mm screws provided to fix the panel to the surround.

Control panel installation

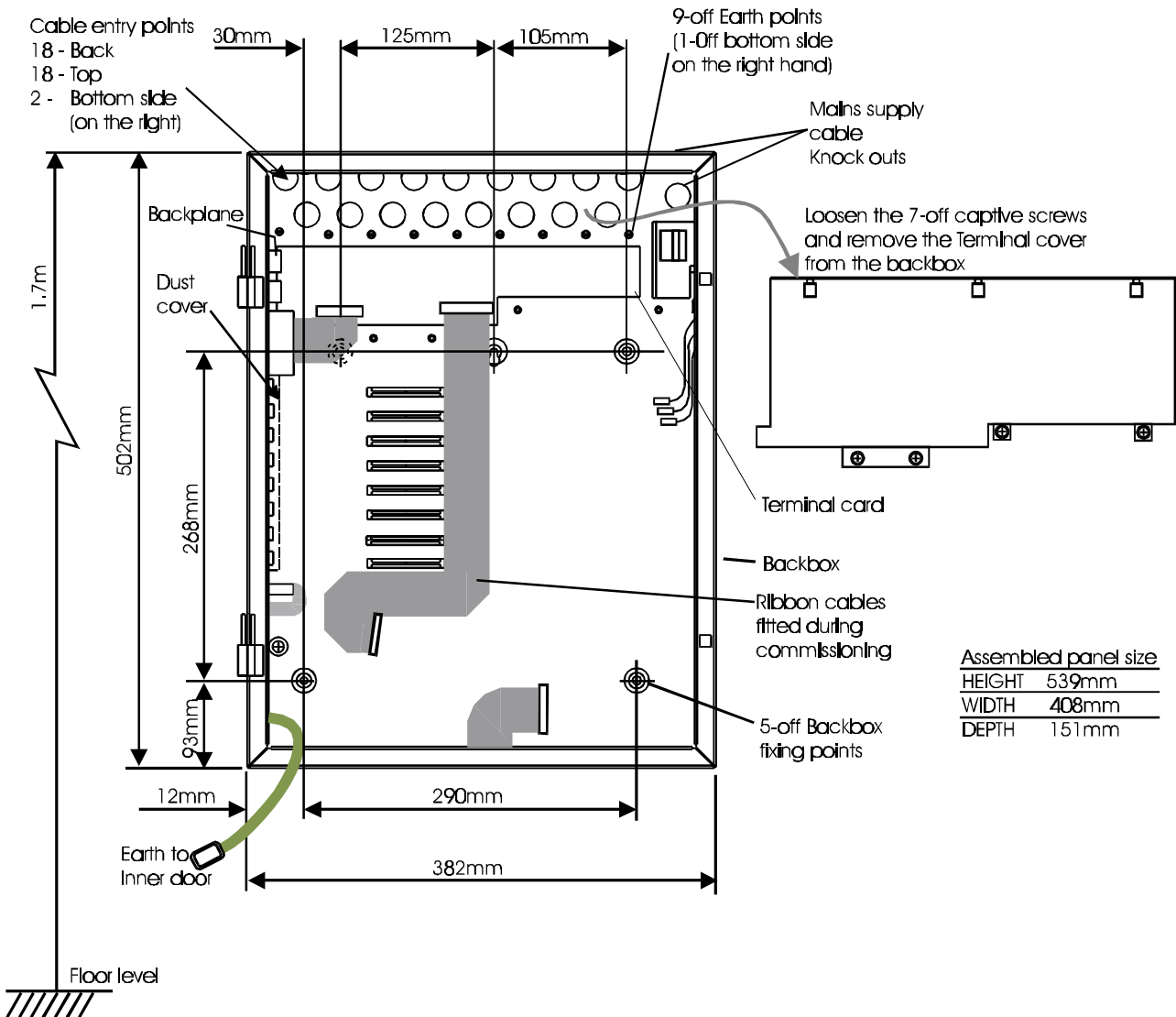


Figure 5-2 Control Panel backbox installation
cdm248

- a) Identify the package Control panel backbox + Battery box 34K-1ST-FIX and check the contents, which should include:

Component	Quantity
Control panel backbox	1
Battery box	1
Sensor kit	1
- b) Remove the temporary front door on the control panel backbox.

- c) Remove the terminal cover bracket from the control panel back box by unscrewing the captive screws.
- d) Knock out/in the required cable entry points from the Control panel back box and battery box.
- e) Using the fixing points mount the control panel backbox and battery box to provide support for a fully assembled control panel weighing 16.5kg and battery box weighing 21Kg.
- f) Terminate each cable at the entry point leaving 400mm tail wire length and mark each core to identify its final connecting point.

WARNING: If mains cable is not connected then ensure the mains cable tail ends are insulated to guard against accidental switching ON of the mains supply.

- g) Replace the temporary door.

Battery box

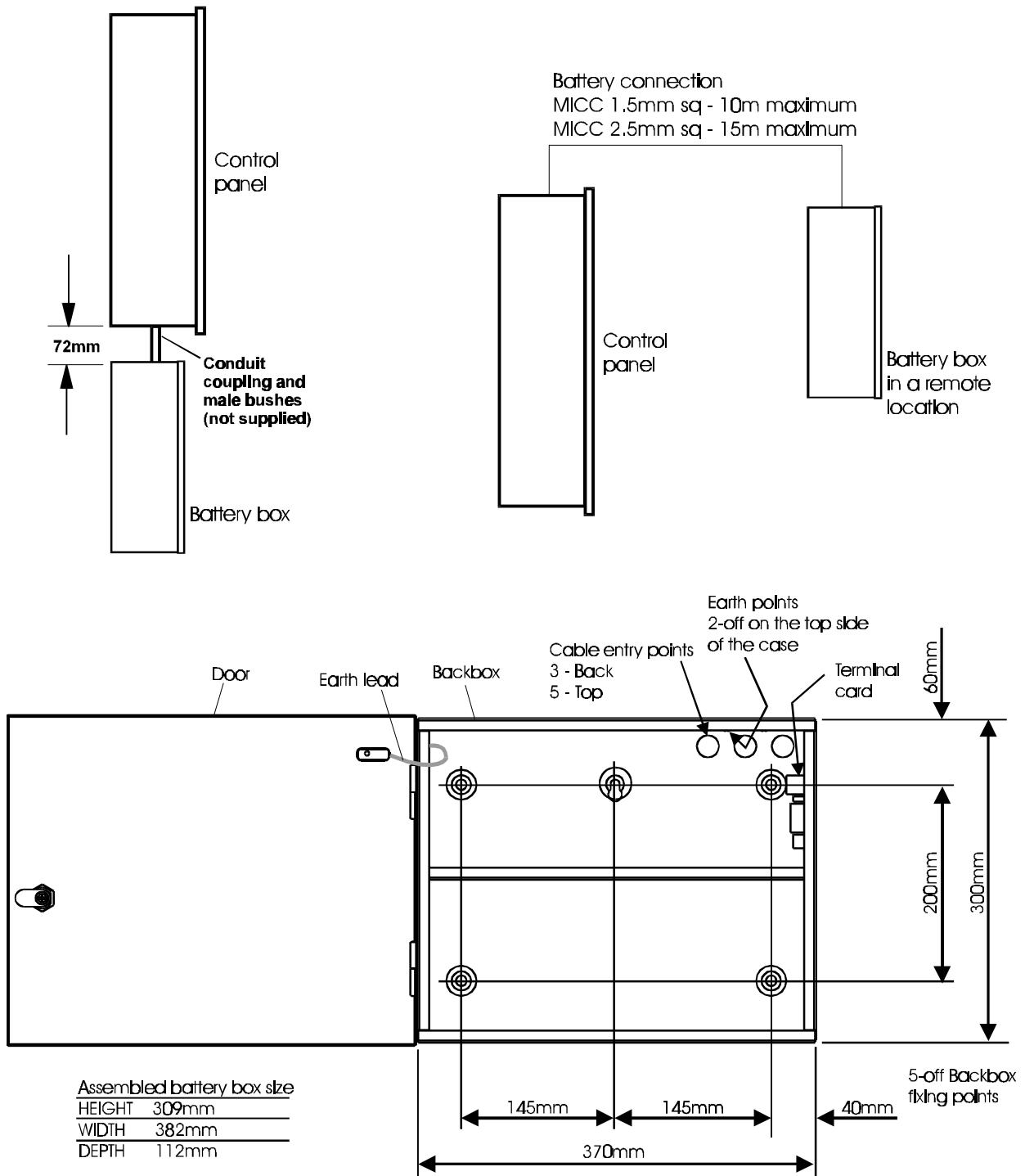


Figure 5-3 Control Panel & Battery box installation
 cdm250

The battery cables can enter the control panel backbox in one of two locations.

- at the top-right, if the battery box is in a remote location.
- at the bottom-left entry point, if the battery box is mounted directly beneath the control panel.

NOTE: To maintain earth continuity an earth lead (not supplied) is required to be fitted between to an earth point in the control panel and battery box.

NOTE: Where the battery box is close fitted to the control panel then the coupling length must not be less than 72mm.

Where the battery box is in a remote location then the recommended cable type is MICC. The following maximum cable lengths must not be exceeded:

MICC 1.5mm ²	10m max.
MICC 2.5mm ²	15m max.

All remaining installation is done during the commissioning of the system.

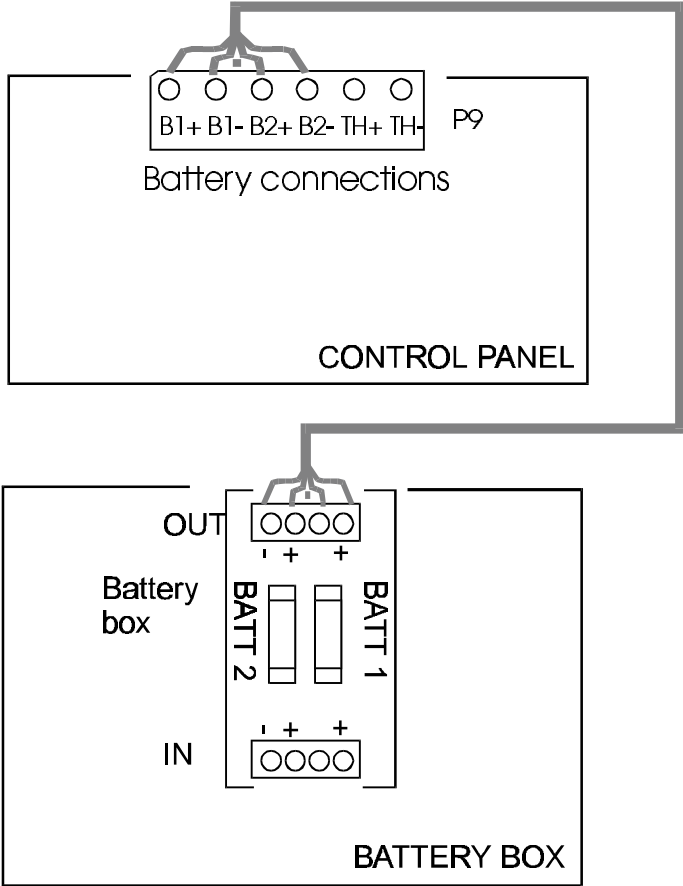


Figure 5-4 Battery connections
cdm284

Fire Control Panel Connections

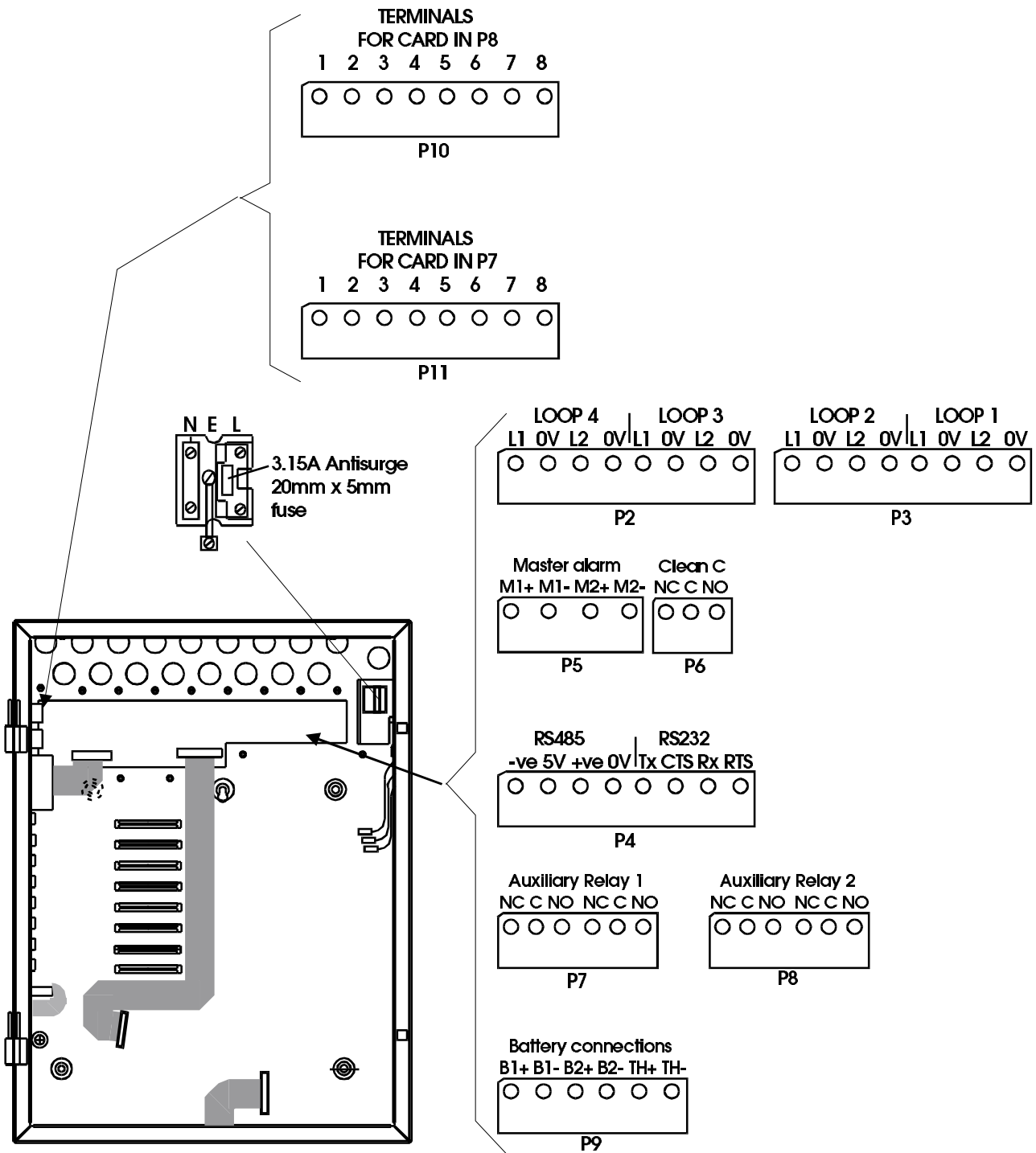


Figure 5-5 Control panel terminals
 cdm255

Repeat Panel Set

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

The System 34000 Repeat Panel Set consists of two packages:

- 1st fix package:
Repeat Panel backbox
- 2nd fix package
Inner door, moulded door, master repeat card log book and spares pack
- 3rd package
Battery

The repeat panel can be surface or flush mounted.

These instructions cover the 1st fix installation only. The 2nd fix and 3rd package are installed during the commissioning stage.

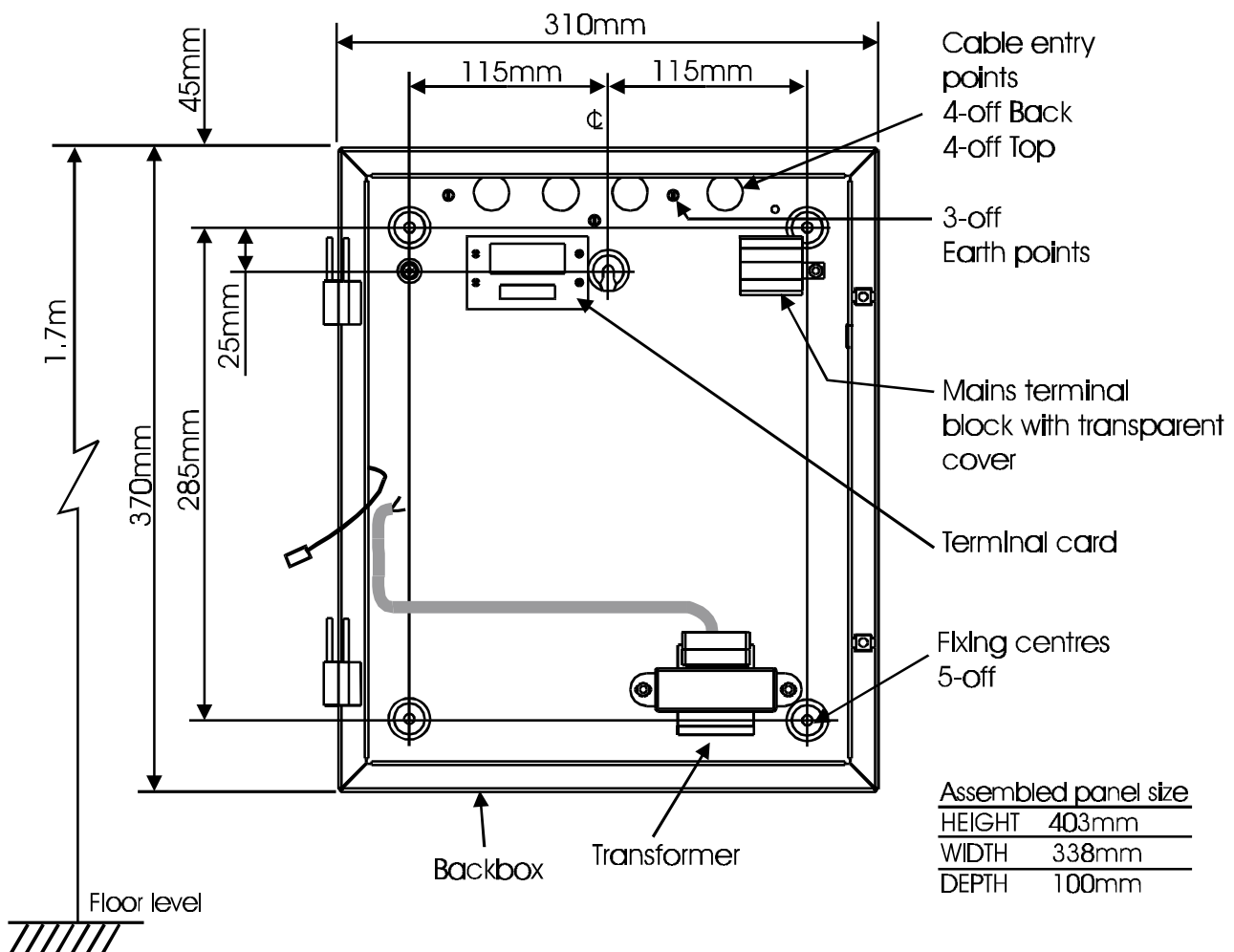


Figure 5-6 Repeat panel backbox installation
cdm249

Fuses and locations

Fuses	Rating	Location
Mains	3.15AAS	Top right of the backbox
FS1	20mm x 5mm 2.5A QB	Master repeat board
FS2	20mm x 5mm 2.5A QB	Master repeat board

The repeat panel can be surface or flush mounted.

- a) Identify the package Repeat panel backbox 34K-RPT-1ST-FIX.
- b) Remove the temporary door from the repeat panel backbox.
- c) Secure the back box to the wall with suitable fixings to support a full assembly weight of 9kg.
- d) Terminate the cable at the entry point leaving 400mm tail wire length.

WARNING: *If mains cable is not connected then ensure the mains cable tail ends are insulated to guard against accidental switching ON of the mains supply.*

- e) Refit the temporary door to protect the panel until commissioning.

Fire Repeat Panel Connections

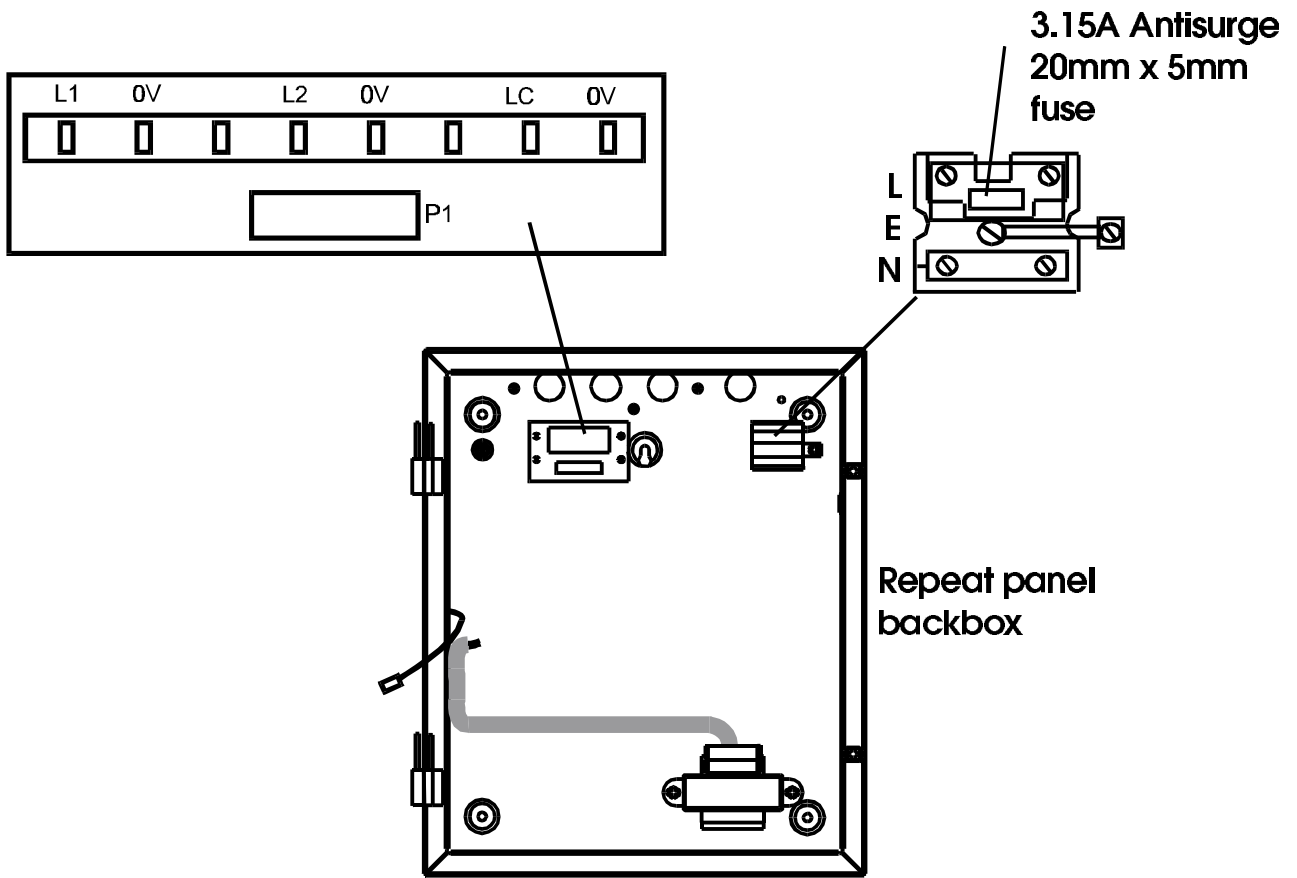


Figure 5-7 Repeat panel connections
cdm256

Weather resistant case

To be advised



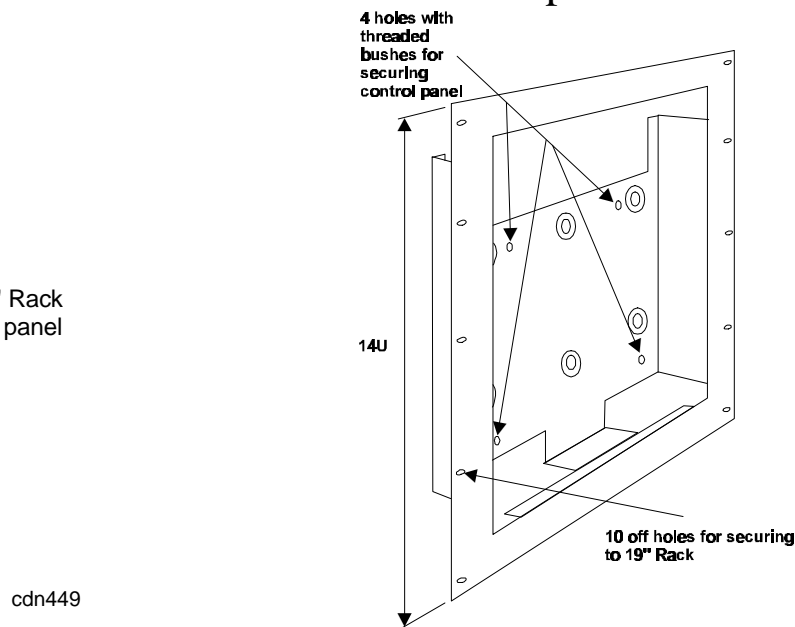
19" Rack mounting

Open the pack 34K-19-RACK and check that it contains the following:

- Spares pack for 19" Rack Unit containing
 - 16 off M6 screw and washer
 - 6 off M5 screw
- Spares pack for flush frame containing
 - 6 off M5 screw
- 19" Rack frame for main panel
- 19" Rack frame for battery box

19" Rack frame for main panel

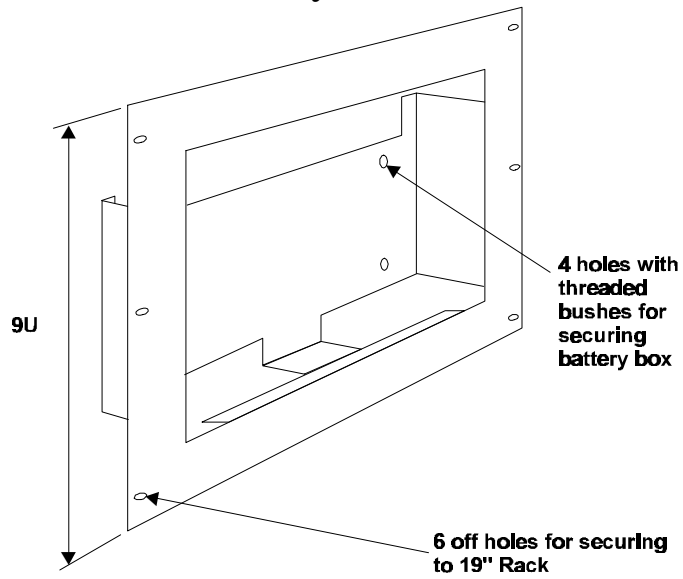
Figure 5-8 19" Rack mounting for main panel



- Fix the rack fram for the main control panel into the 19" rack where required using 10 off M6 screws.
- Insert main control panel backbox into rack frame and secure in position using 4 off M5 screws.

19" Rack frame for battery box

Figure 5-9 19" Rack Mounting for Battery box



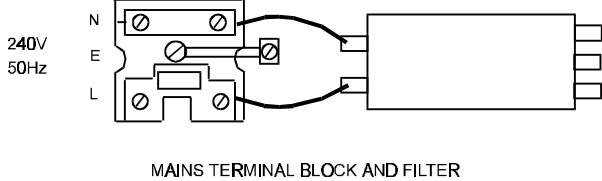
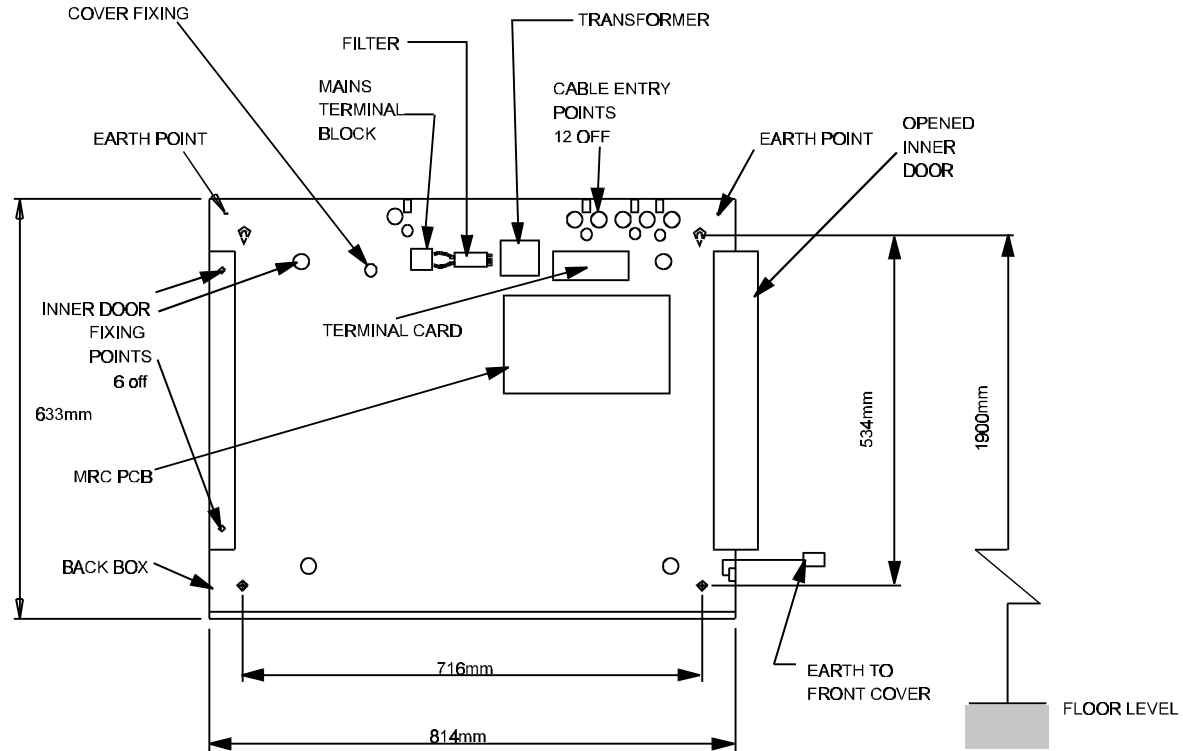
- Fix the rack fram for the battery box into the 19" rack where required using 6 off M6 screws.
- Insert battery box backbox into rack frame and secure in position using 4off M5 screws.

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A2 Mimic and Zonal panels

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



ASSEMBLED PANEL SIZE

HEIGHT	650mm
WIDTH	830mm
DEPTH	90mm

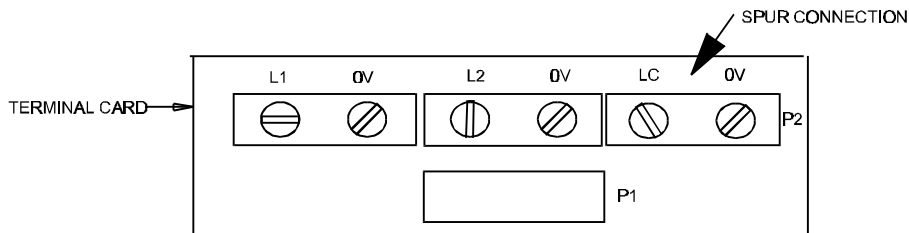


Figure 6-1 Mimic panel fixing and connection points

cdn453

Fuses and locations

Fuses	Rating	Location
Mains	1A HRC	Top right of the backbox
FS1	20mm x 5mm 2.5A QB	Master repeat board
FS2	20mm x 5mm 2.5A QB	Master repeat board

- a) Identify the A2 Mimic or A2 Zonal Panel package numbers 34K-MIM (or 34K-MIM-LB) and 34K-ZONE (or 34K-ZONE-LB) respectively, check that it contains the following parts.

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

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.

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.*

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.

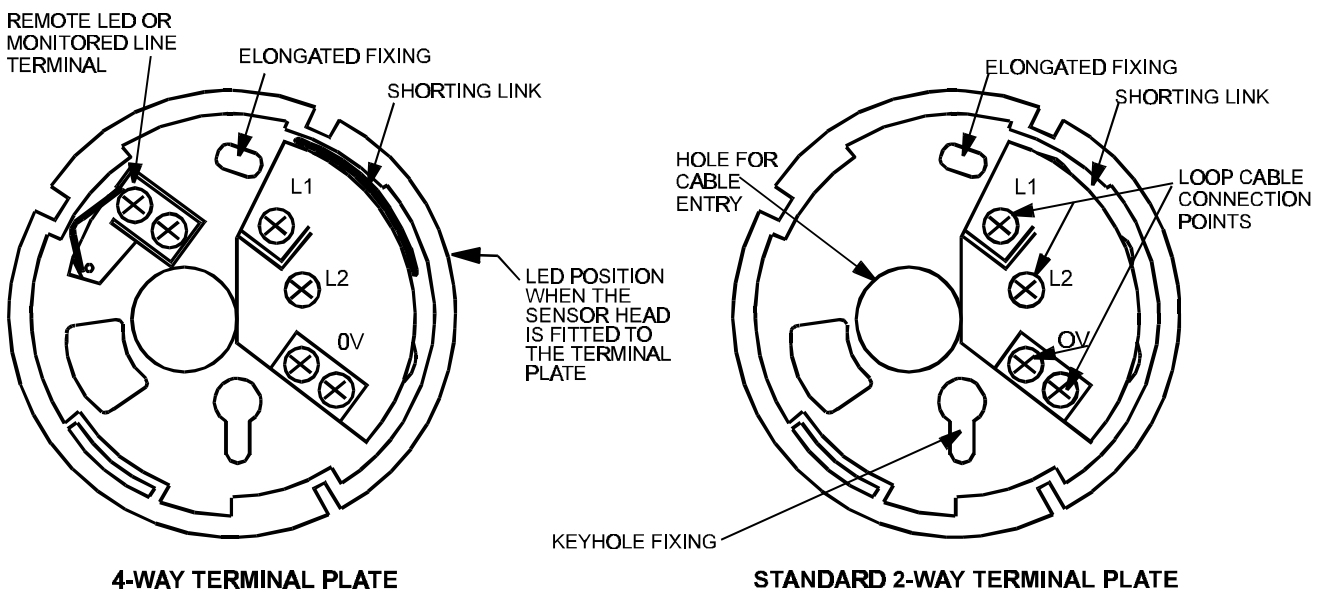


Figure 7-1 Terminal Plates
cdm258

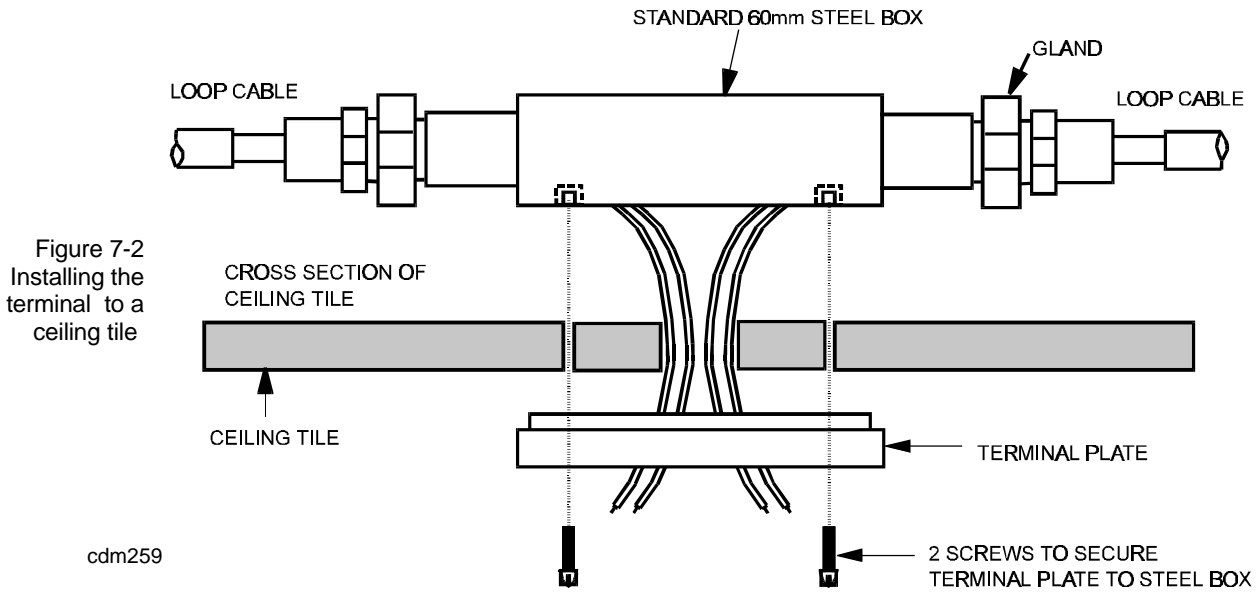


Figure 7-2
Installing the terminal to a ceiling tile

cdm259

Earthing requirements

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

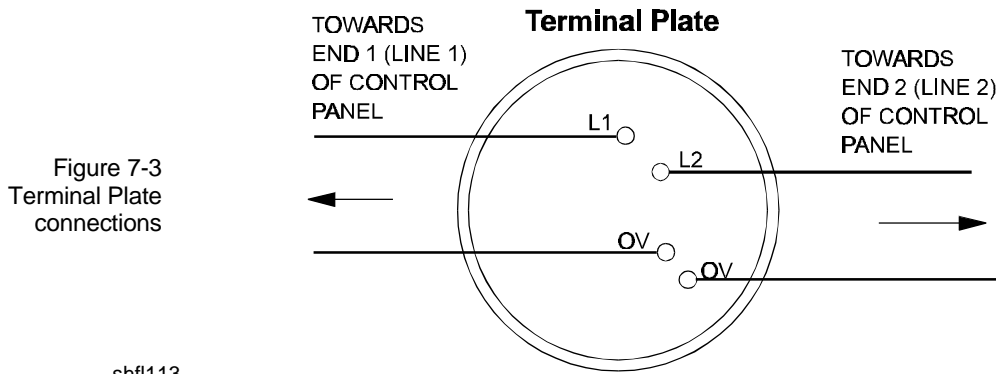


Figure 7-3
Terminal Plate connections

shf1113

Terminal Plate wiring

To correctly wire the terminal plate:

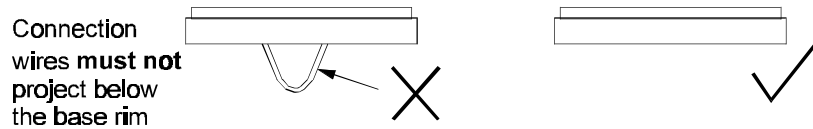
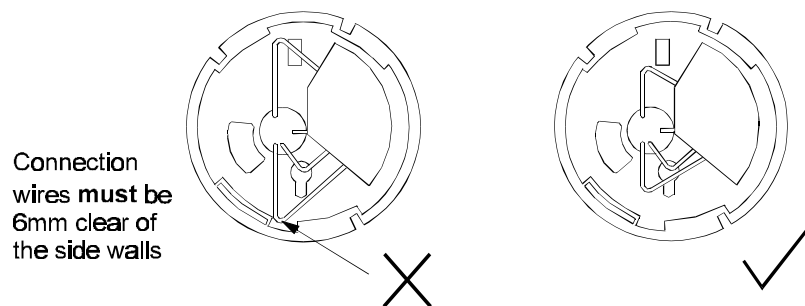


Figure 7-4 Wiring the base



f1374

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 fire sensor to a ceiling tile. A terminal plate and semi flush mounting kit are required.

- a) Identify the package SENSOR FLUSH MOUNTING KIT 19279-01 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.

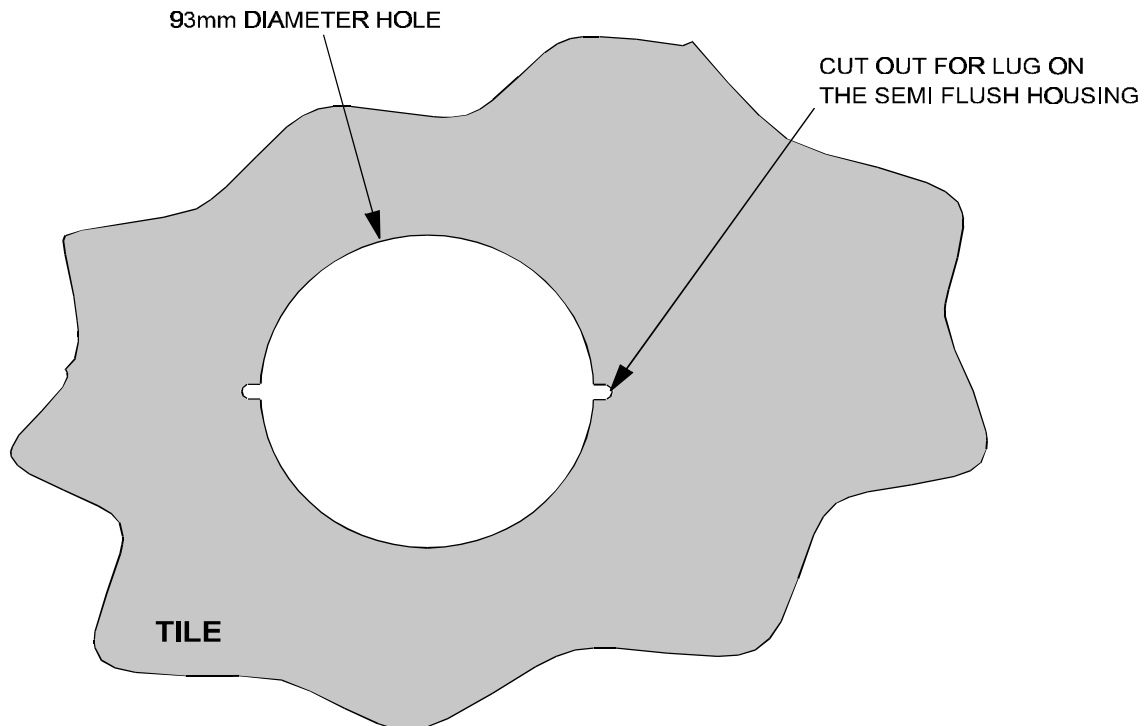


Figure 7-5 Cutouts for lugs
ff115

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

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

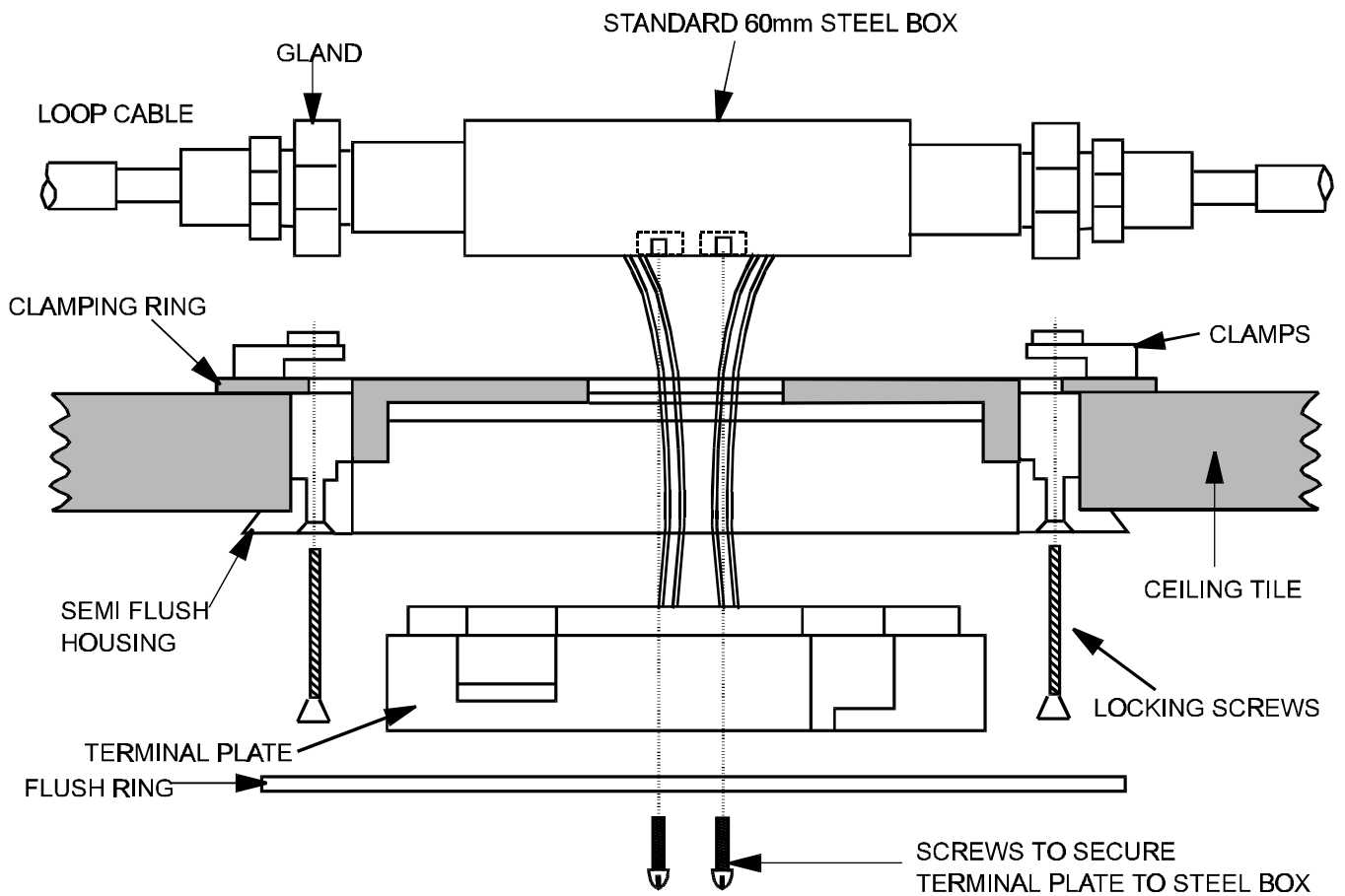


Figure 7-6 Flush kit installation
cdm260

- 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 terminal plate terminals.

19279-10 Sensor Trim Ring

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

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.

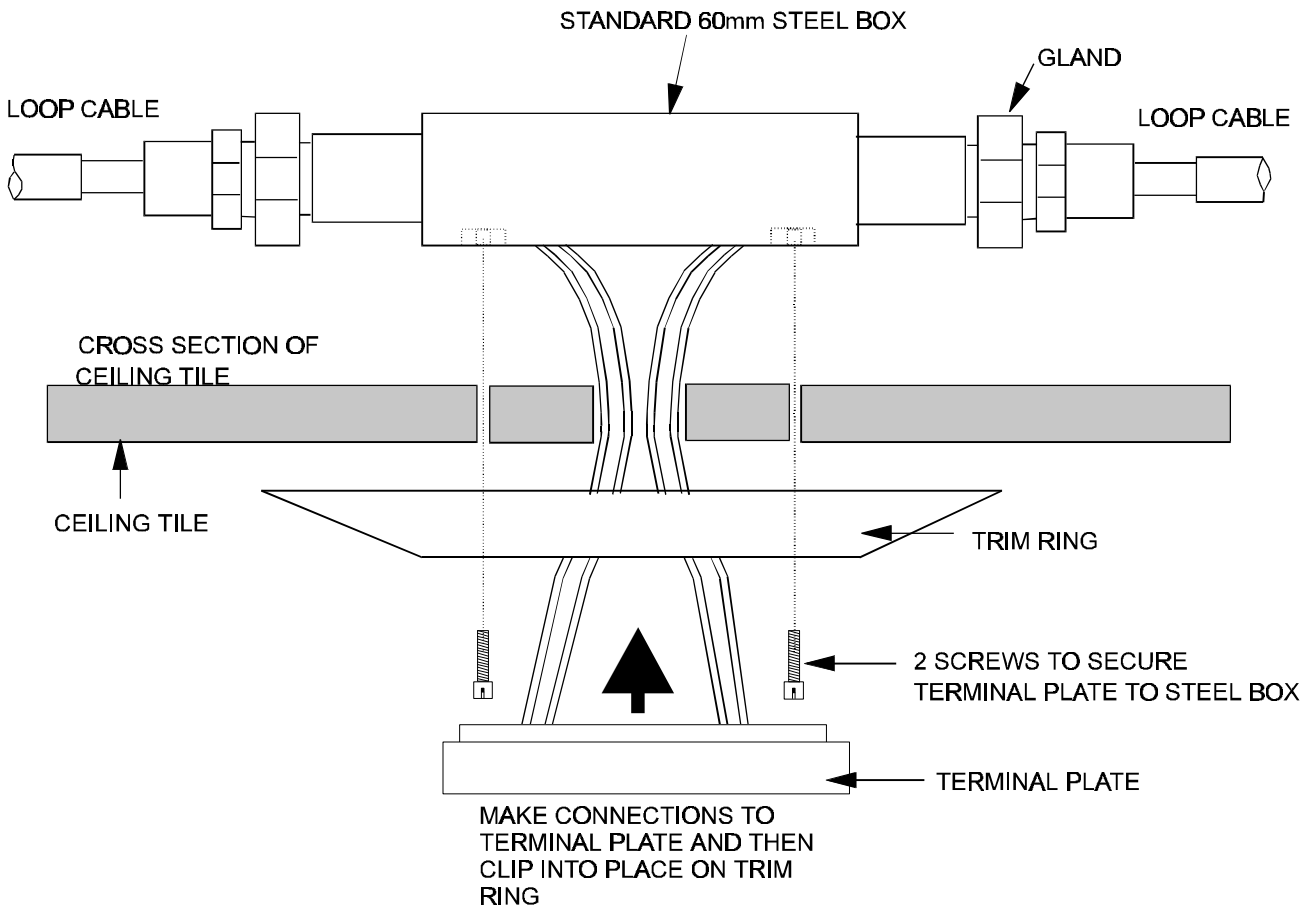


Figure 7-7 Fixing the trim ring
cdn170

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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 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
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 cover** is fitted to the sensors to prevent the sensor becoming contaminated with dirt or dust during any subsequent building work

Fitting a sensor head to terminal plate

To fit a fire sensor head to a base, use the extractor cup supplied with the sensor tool kit. For easy-to-reach terminal plate, the sensor head may be held in hand.

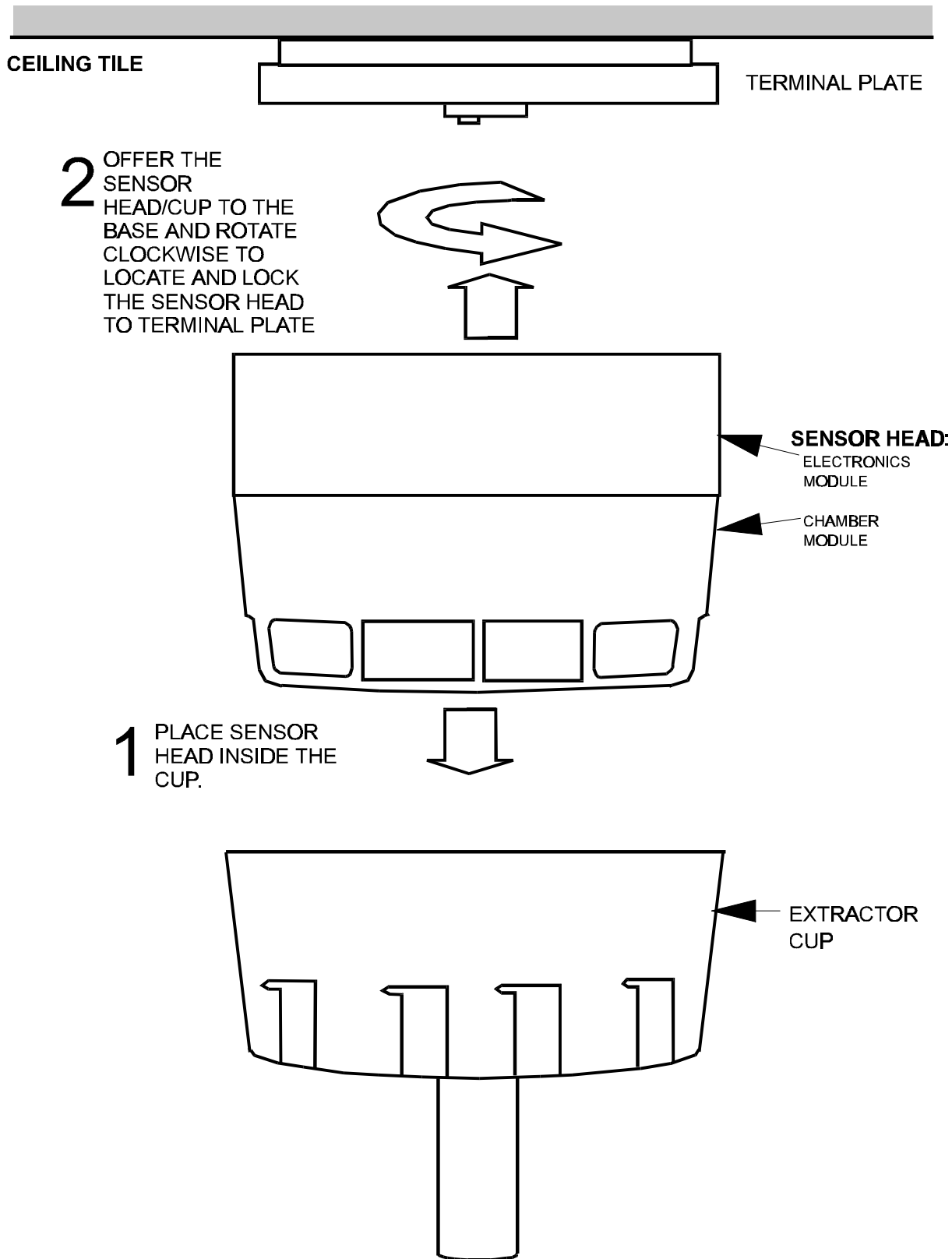


Figure 8-8 Fitting a sensor head to terminal plate

Removal of sensor head from terminal plate

Use the extractor cup supplied with the tool kit, and the correct electronics module removal tool:

- Optical heat (sounder) sensor
- Ionisation sensor
- 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.

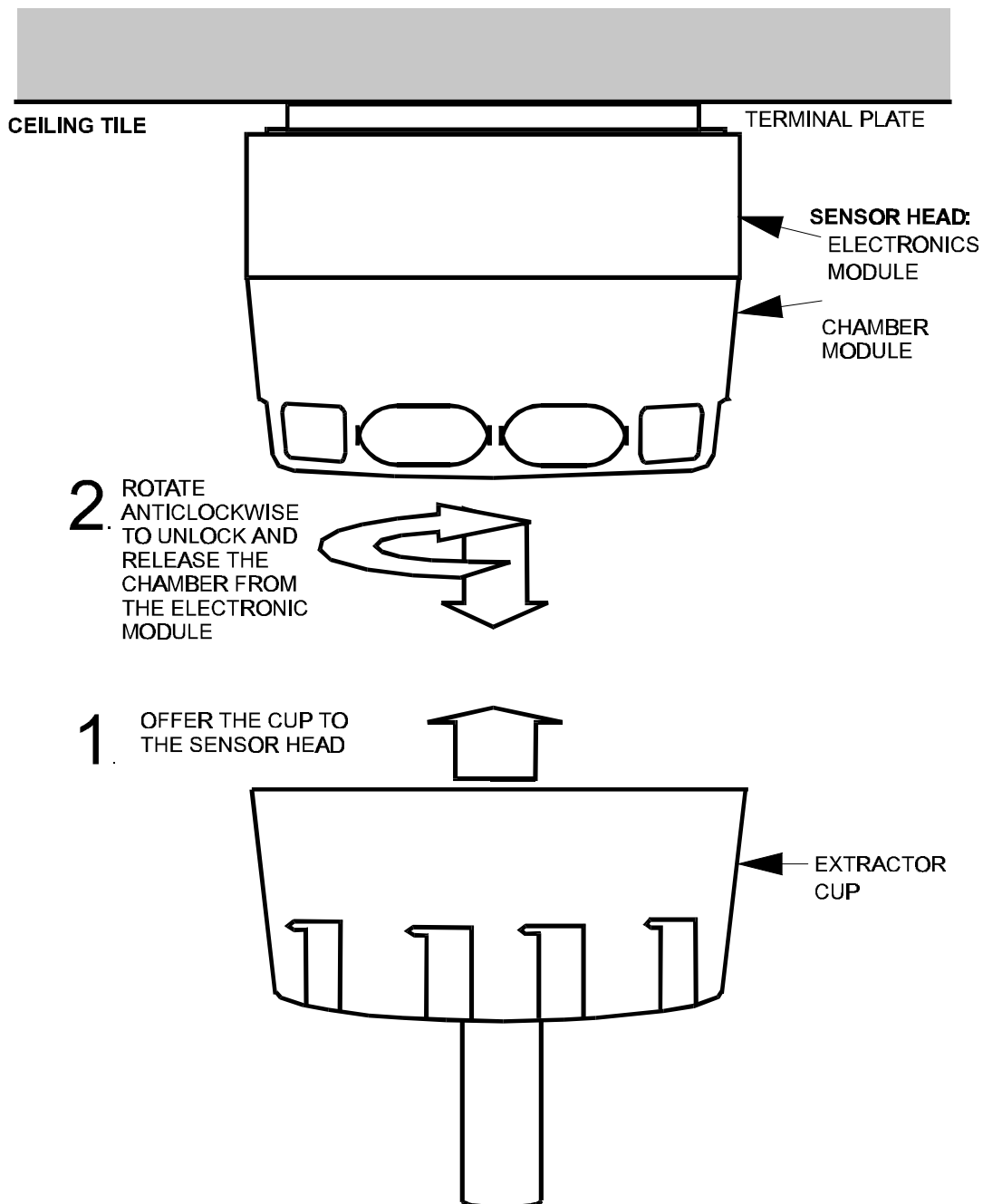


Figure 8-9 Removal of the chamber module

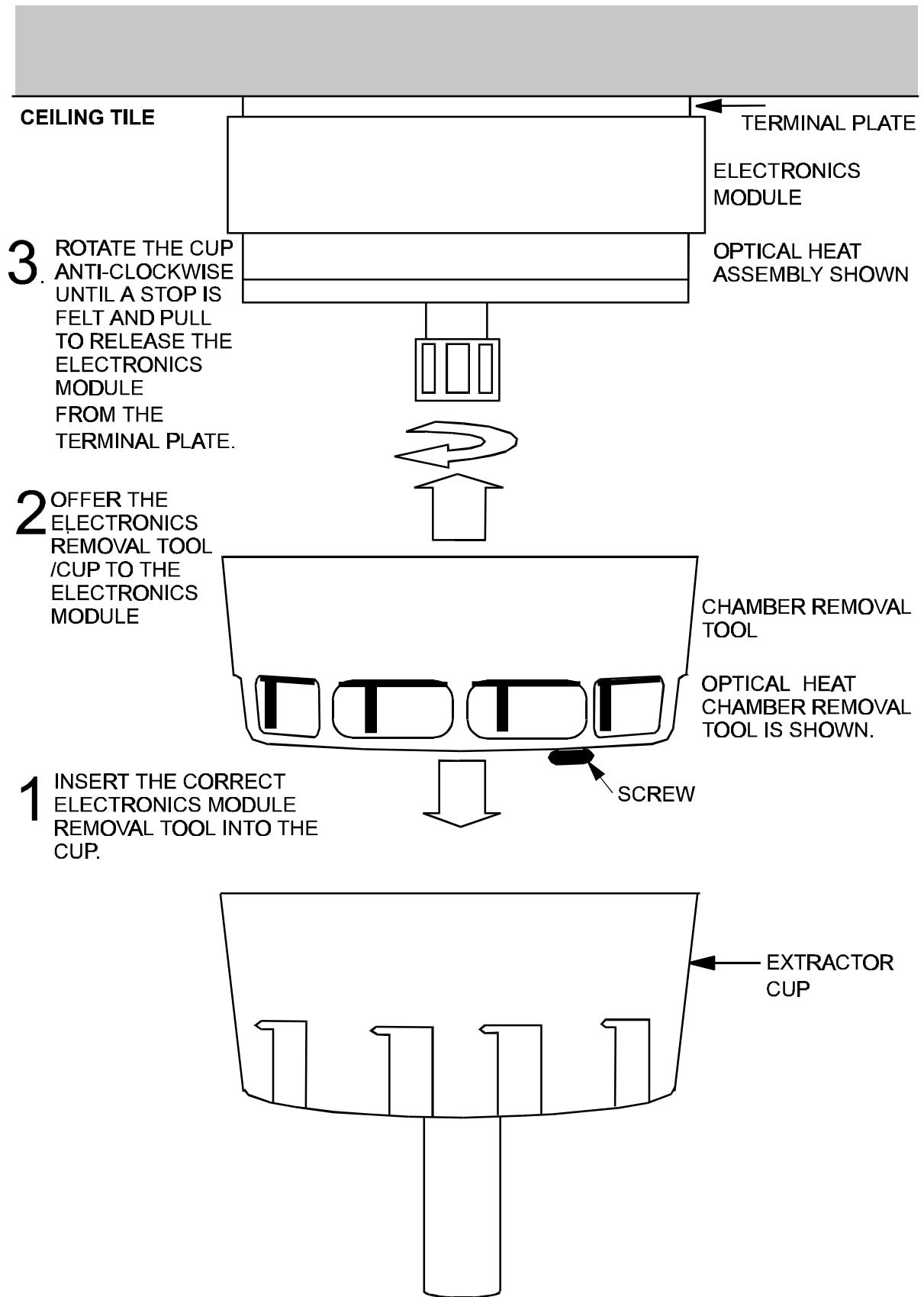


Figure 8-10 Removal of electronics module from terminal plate

To assemble a 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 .

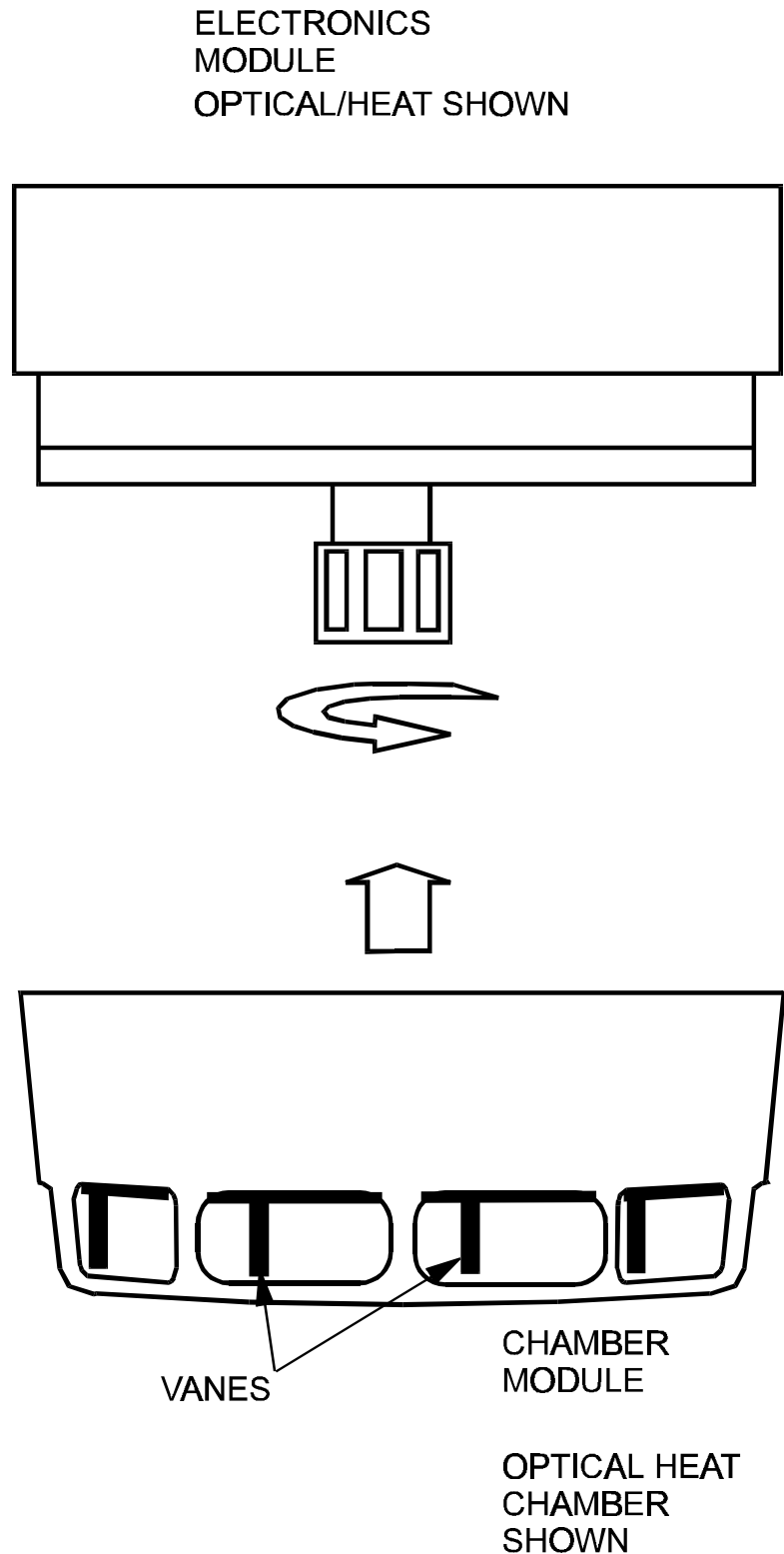


Figure 8-11 Fitting together chamber and electronics cdm287

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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.

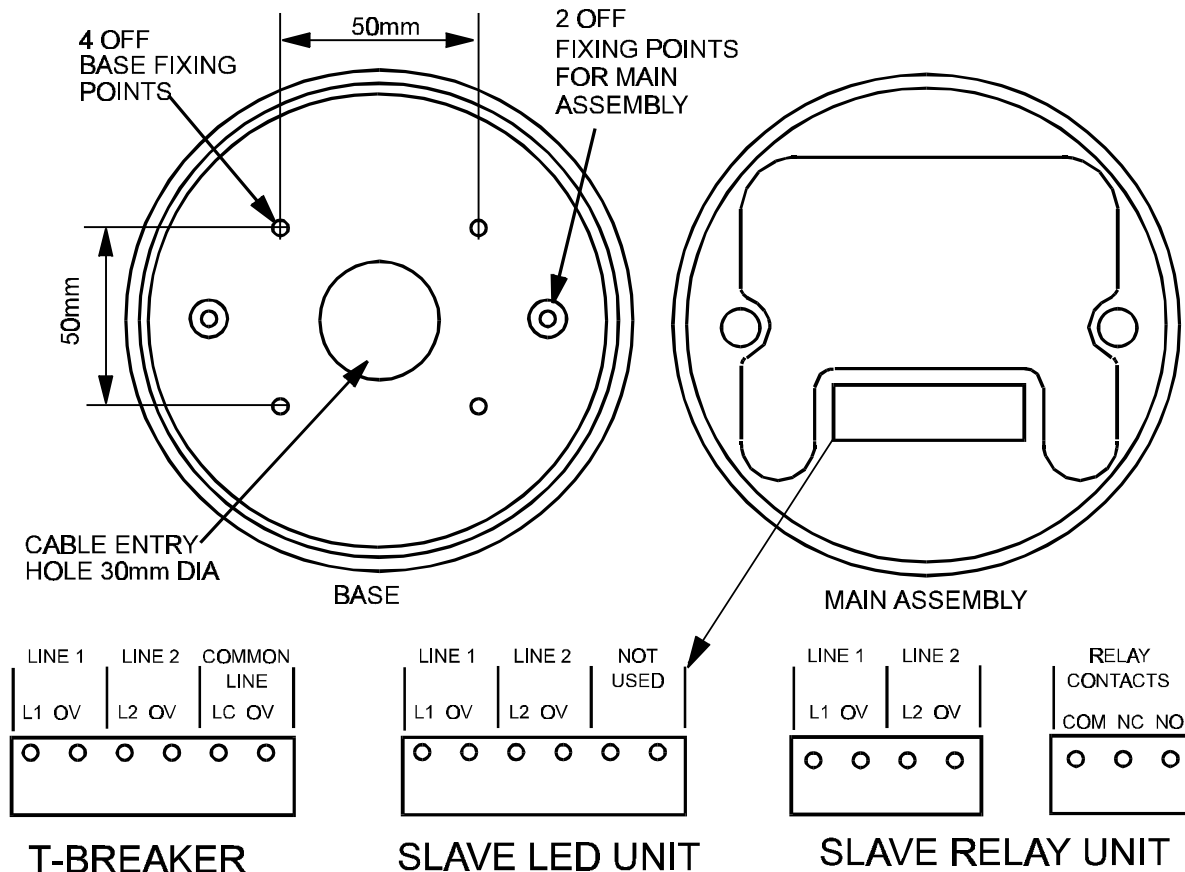


Figure 9-1 Tee breaker and slave units cdm285

**'T' breaker
34701**

A tee breaker provides a means of making 3-way loop connection to spur circuit.

**Slave LED unit
34702**

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

**Slave relay unit
34703**

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

Installing a unit

- a) Identify the package labelled 'T' BREAKER 34701, SLAVE INDICATOR (LED) UNIT 34702 OR SLAVE RELAY UNIT 34703 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.

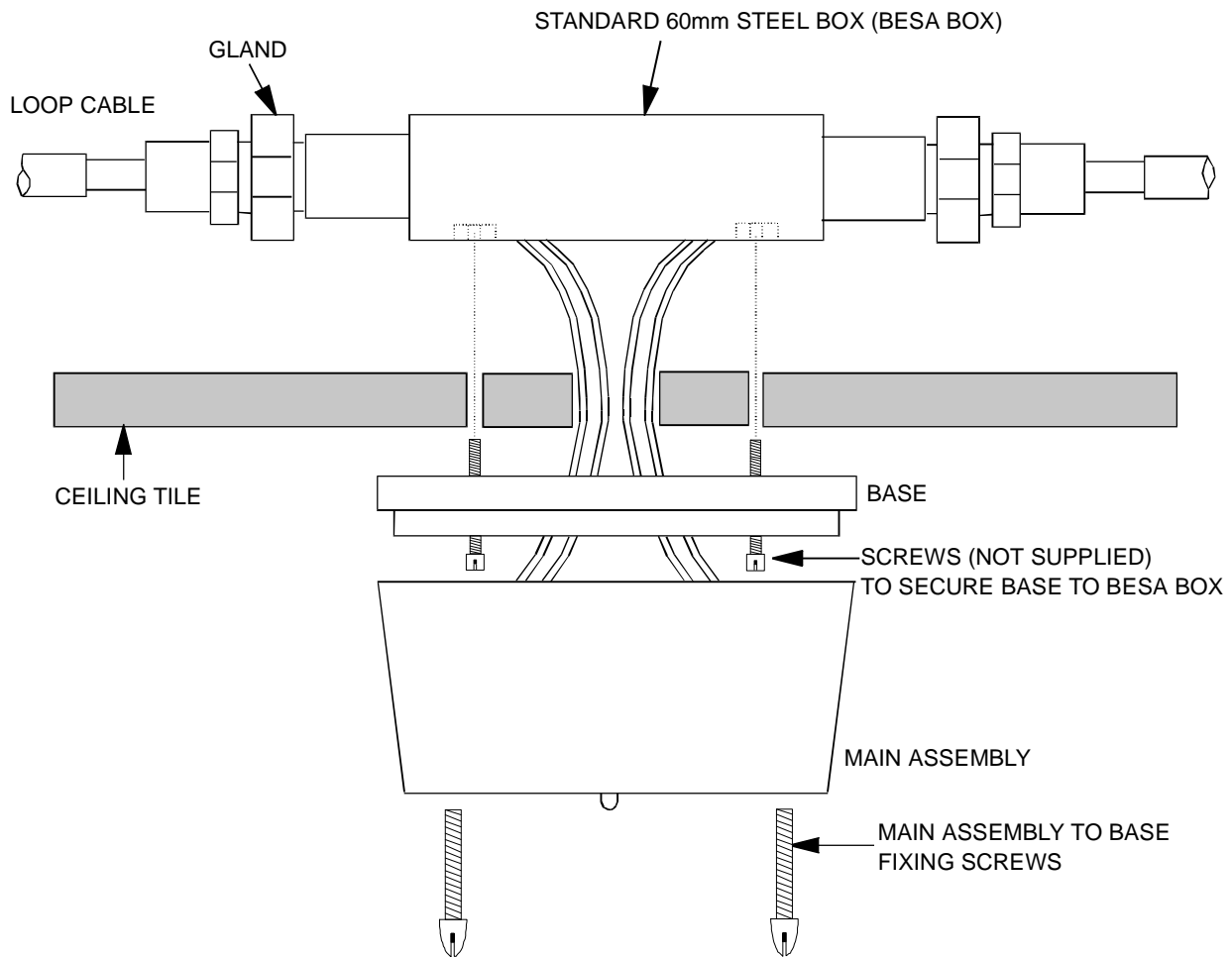


Figure 9-2 Fitting a 'T' breaker and slave unit 1130

- 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 head should be installed on the same loop facing each other for alignment purposes.

Transmitter and Receiver head installation

a) Identify the packages labelled:

- Angle bracket + base for beam - 34741-01
- IP65 Angle bracket + base for beam - 34741-90
- Parallel bracket + base for beam 34741-03

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 earth cable 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.

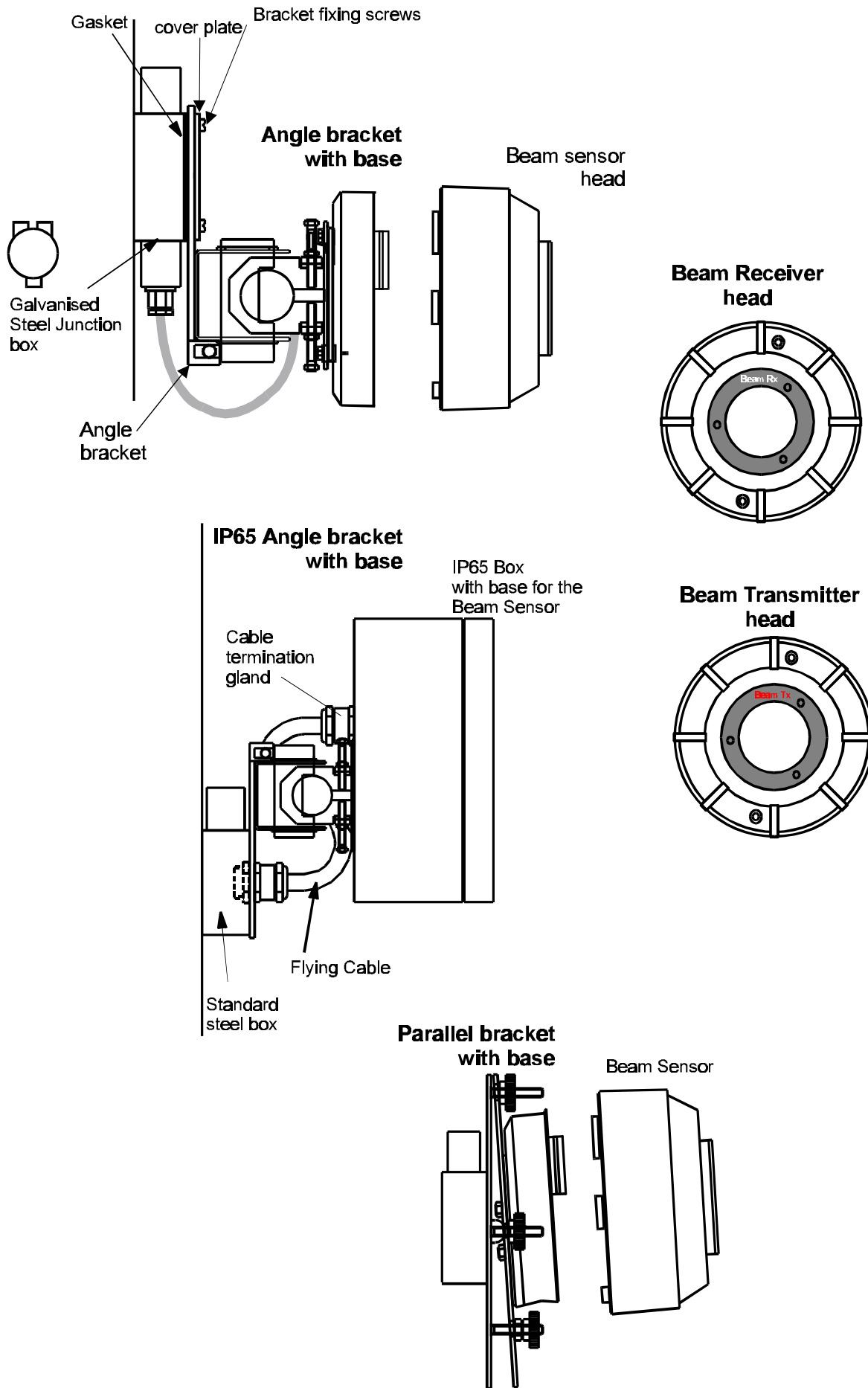


Figure 10-1 Beam sensor and bracket fixings

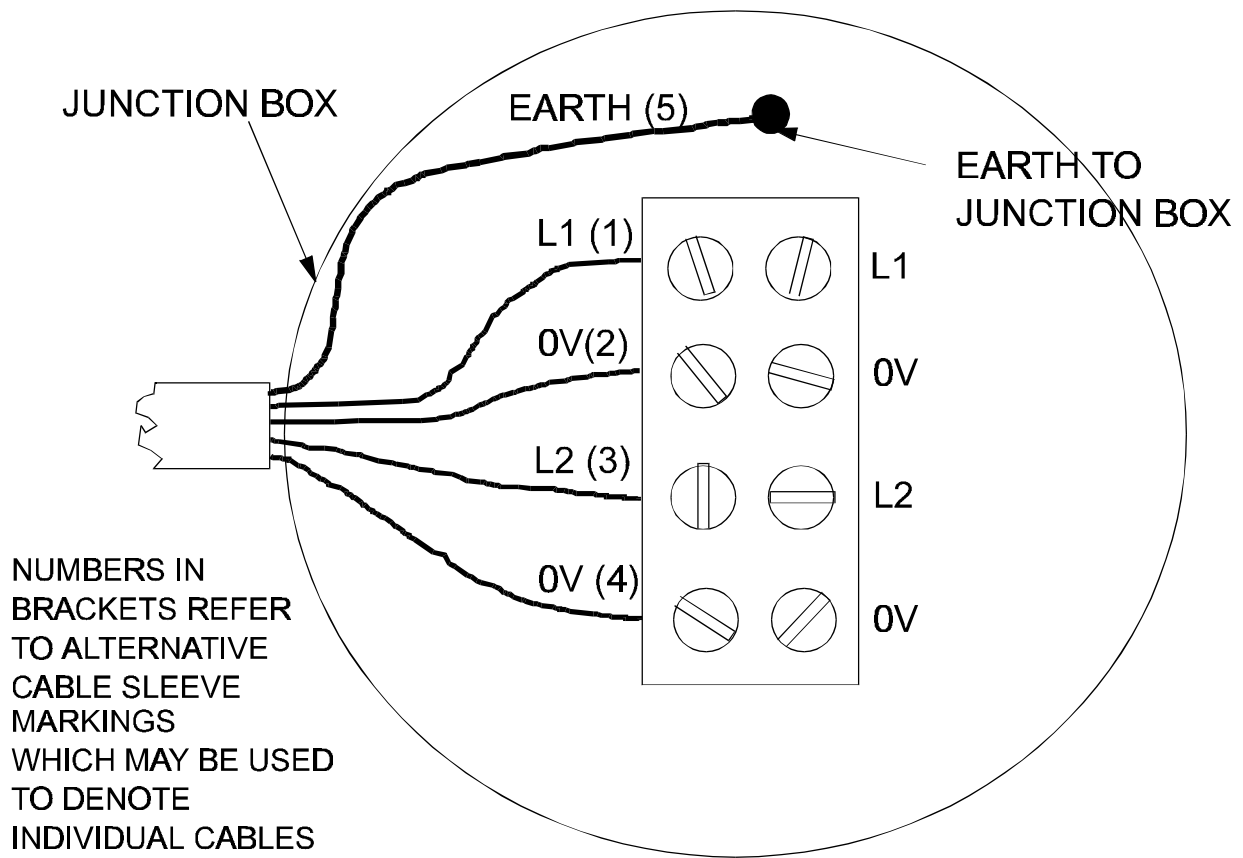


Figure 10-2 Junction box loop connection details
f1368

NOTE: The sensor head can be recognised by the black plastic circular label surrounding the lens.

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Duct 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 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 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.

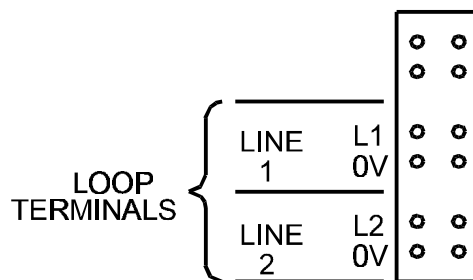
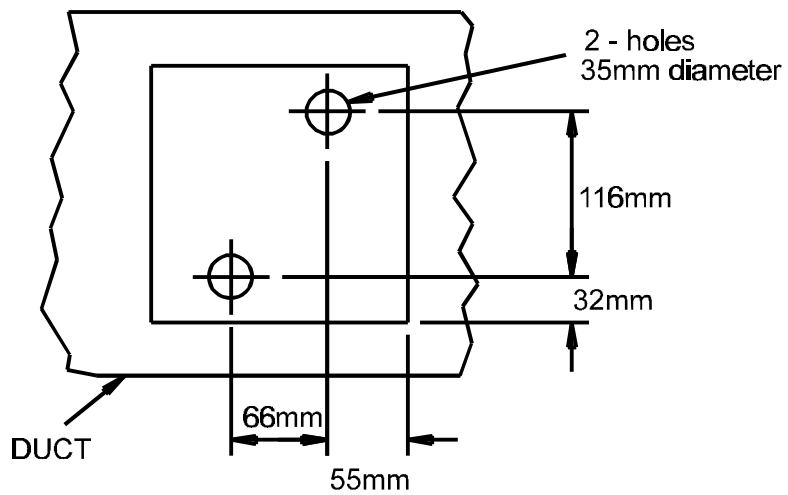
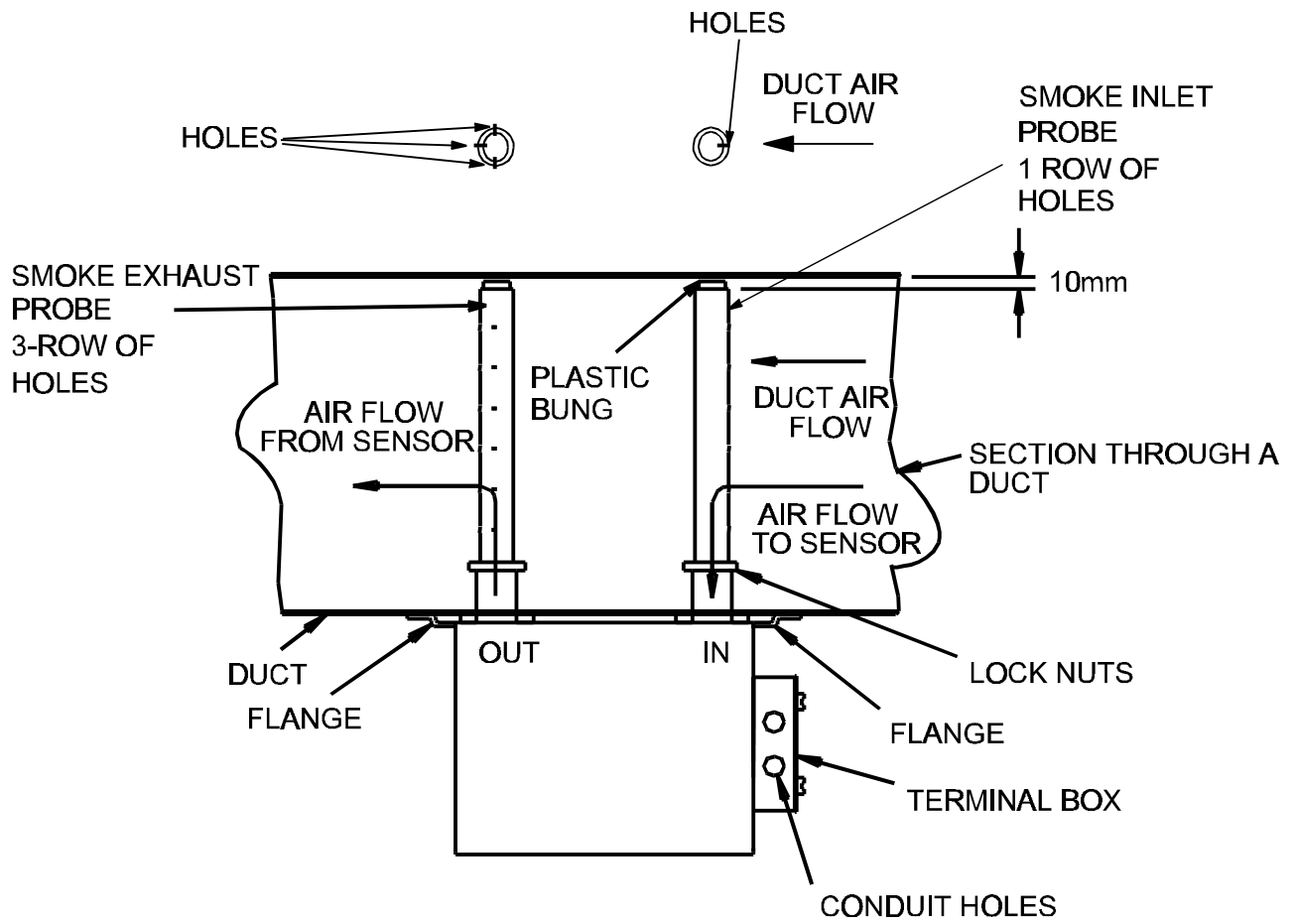


Figure 11-1 Duct Sensor fixing and connections cdm262

Manual Call Points

Where appropriate refer to the as fitted wiring drawings (if supplied), notes to the installer, 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
34842	SURFACE WITH CLEAR HINGED COVER
34812	SURFACE WATER RESISTANT
34852	SURFACE WITH WATER RESISTANT + CLEAR HINGED COVER

Check that it contains the following parts:

Component	Quantity
Call point Assembly	1
Back Box	1
Earth Link	1
Test Key	1
Long Screw	2
Small Screw	1
Gasket	1 (Only supplied with weather resistant versions)

- 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 1.5mm² cable only.

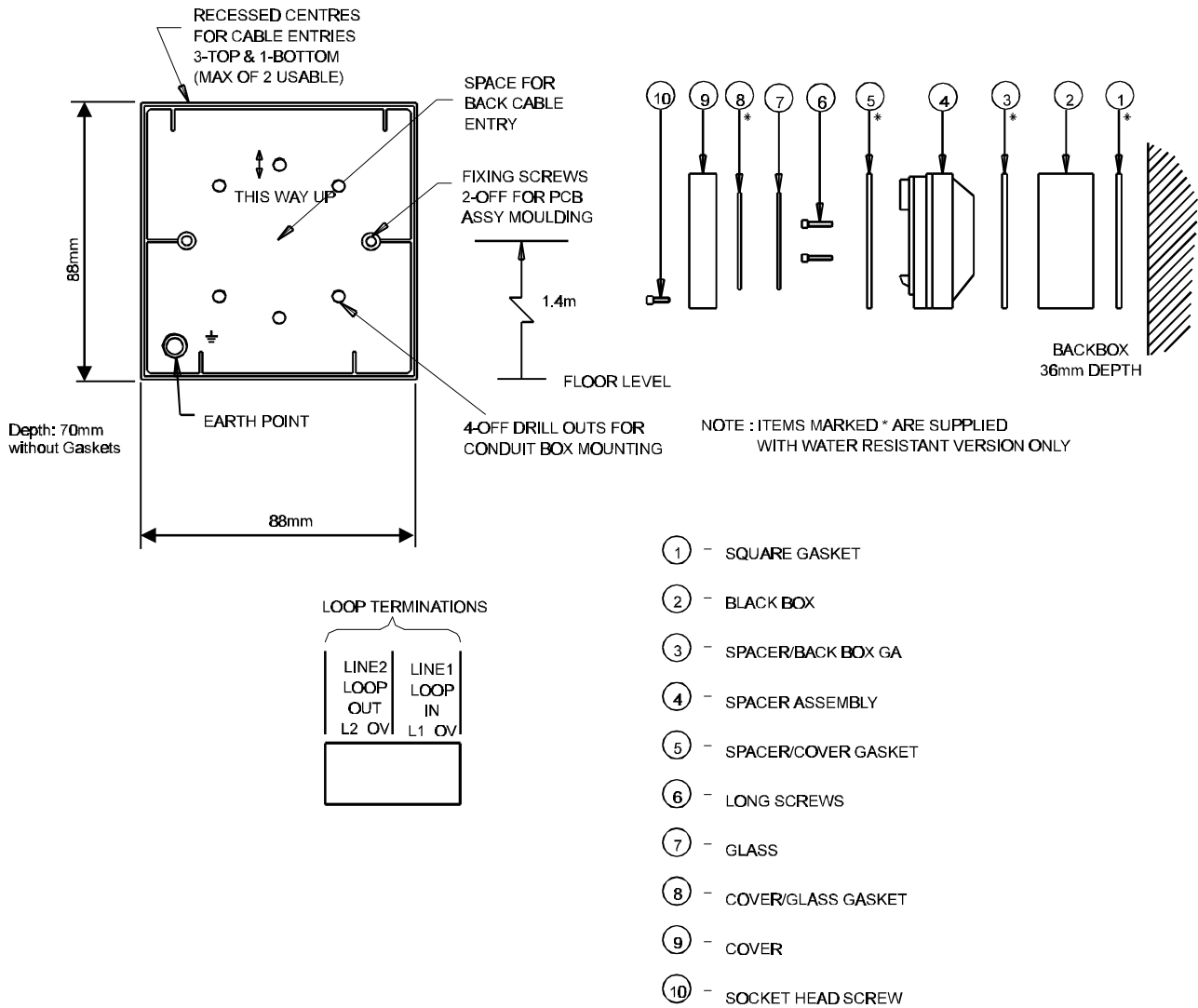


Figure 12-1 Manual Call Point parts
cdm263

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

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

- iv) Place the cover/glass gasket, if used, over the glass with its bevelled edge outwards.
- v) Hook the cover onto the main assembly securing the two parts with the allen screw, and remove the test key to leave the call point in its normal operating state.

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

- vi) Fit the socket head screw to secure the cover onto the main assembly. A weather 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 is required and must be installed between the back box and spacer assembly.

NOTE: The water resistant call points **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 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.

Component	Quantity
Horn Assembly	1
Back Box	1
Earth Link	1 (for 2 Way) 2 (for 3 Way)
Self Tapping Screw	2
Allen Key	1

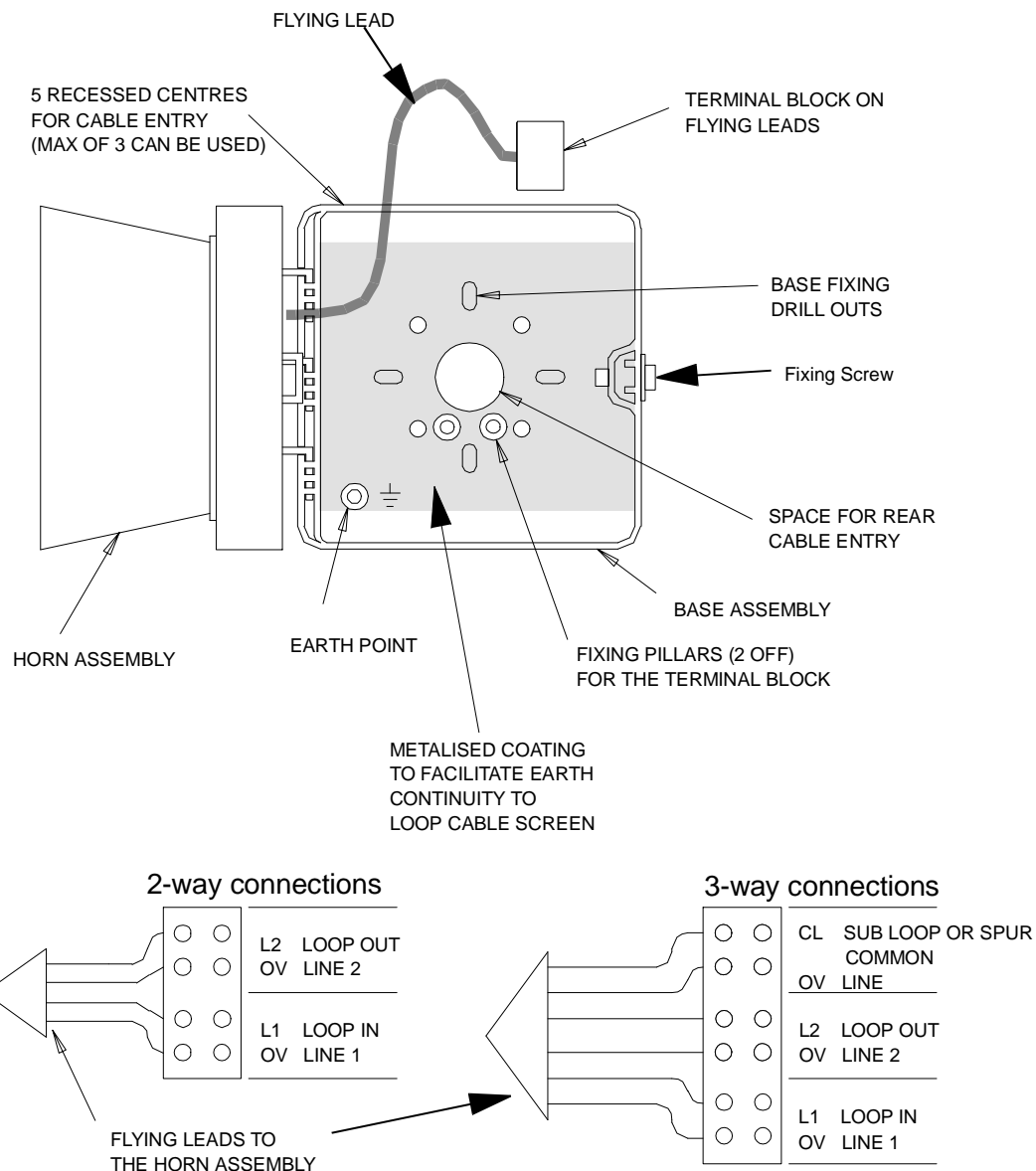


Figure 13-1 Alarm Sounder fixing and connections

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.

Repeat Sounder

The REPEAT SOUNDER 34777 is similar to the OPTICAL HEAT SENSOR SOUNDER 34770 and HEAT SOUNDER 34780, but does not include the sensor elements. The installation procedure is identical to the Fire Sensor installation instructions.

Fire Alarm Interface Unit (Mains powered)

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

Fuses and locations

Fuses	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

- a) Identify the MAINS POWERED INTERFACE UNIT 34440 package.
- b) Open the door using the key and check all components...

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

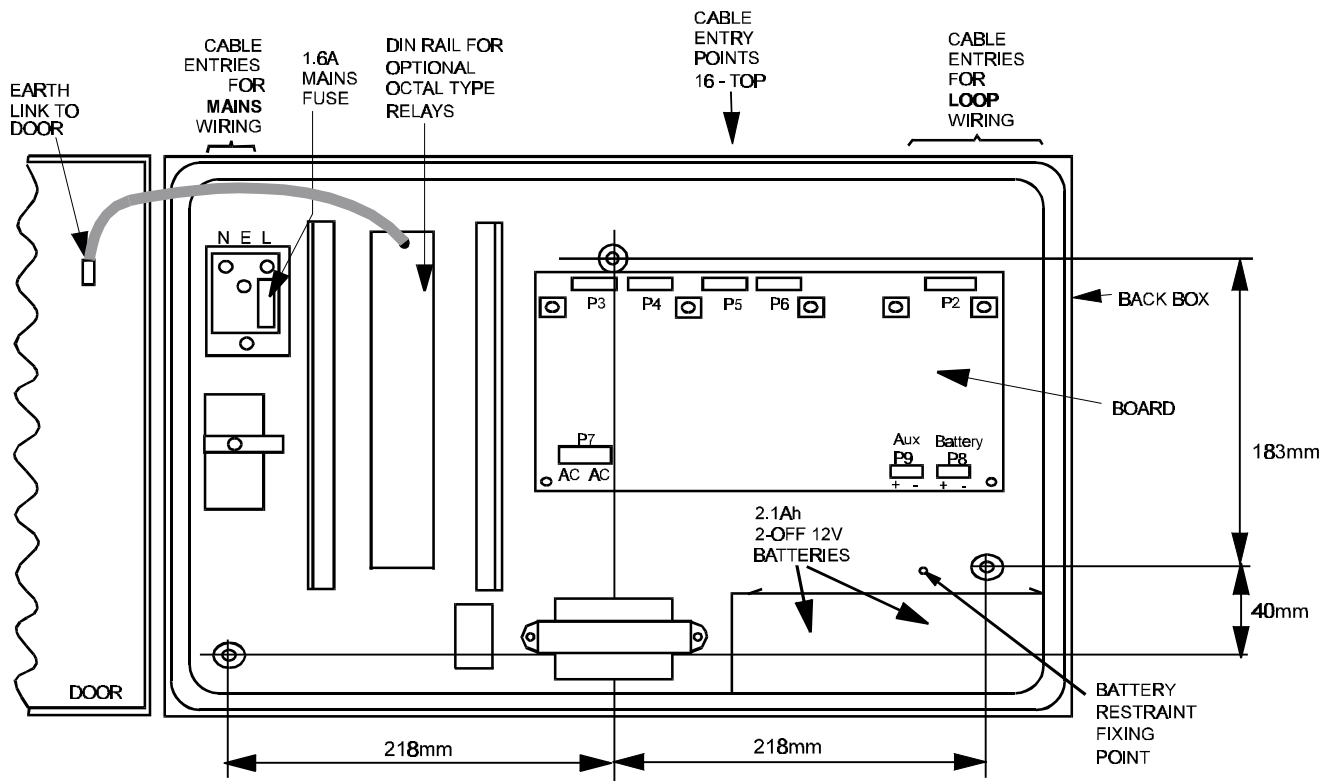
these components are packaged separately.

- c) If necessary, remove the door on the unit to ease installation.
- d) Remove the covers fitted over the mains terminal.
- e) Knockout the required cable entry points from the back box.
- f) Mark the 3 fixing positions on the wall to which the unit is to be mounted.

- g) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of 8.6kg.

NOTE: If the unit is to switch heavy **non-mains loads**, then optional **POWER RELAYS 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 14-1 Interface unit with door open
cdm264

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

Fire Alarm Interface Unit (Mains powered)

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

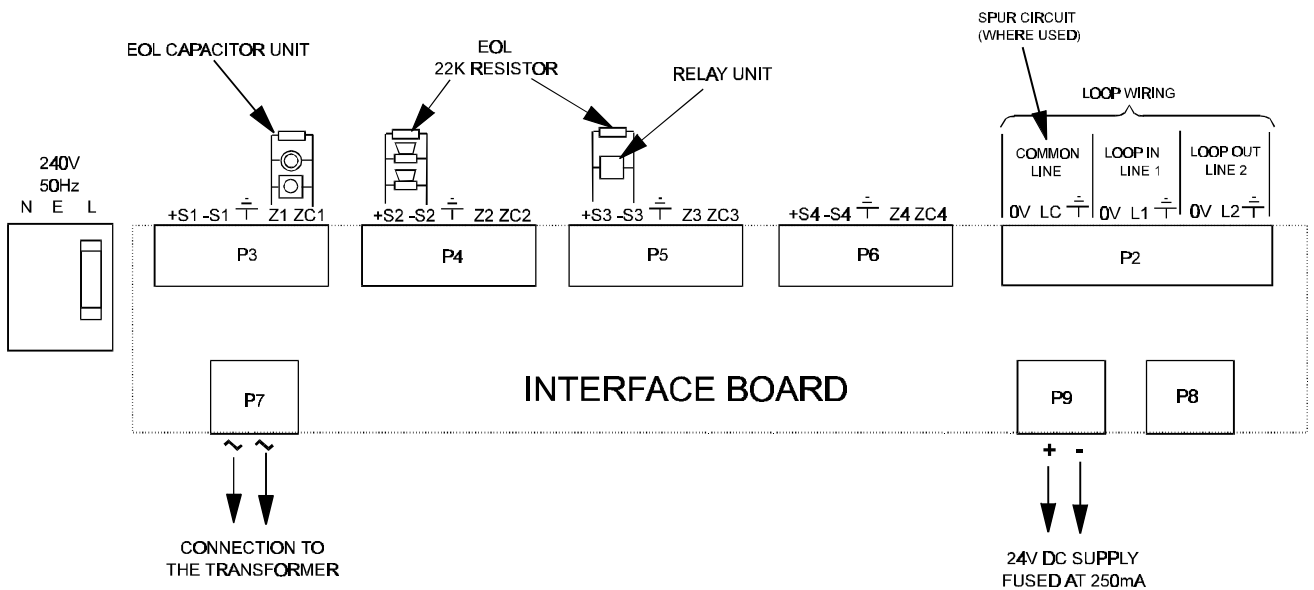


Figure 14-2 Connection Details
f1365_

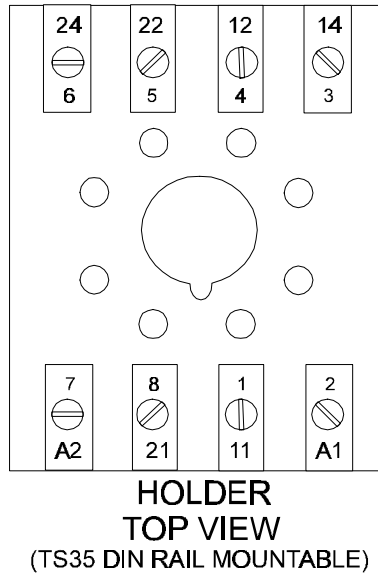
NOTE: The *capacitor unit* and the *22k Resistor* must be fitted to the *end-of-line (EOL)* of each circuit.

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

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

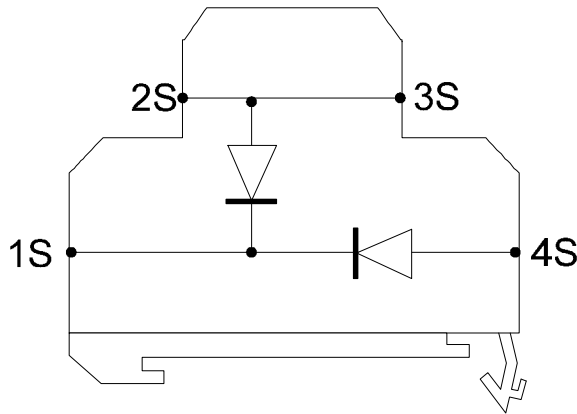
19104-52 Power relay

Figure 14-3 Relay holder



cdn36

Figure 14-4 Diode unit



cdn28

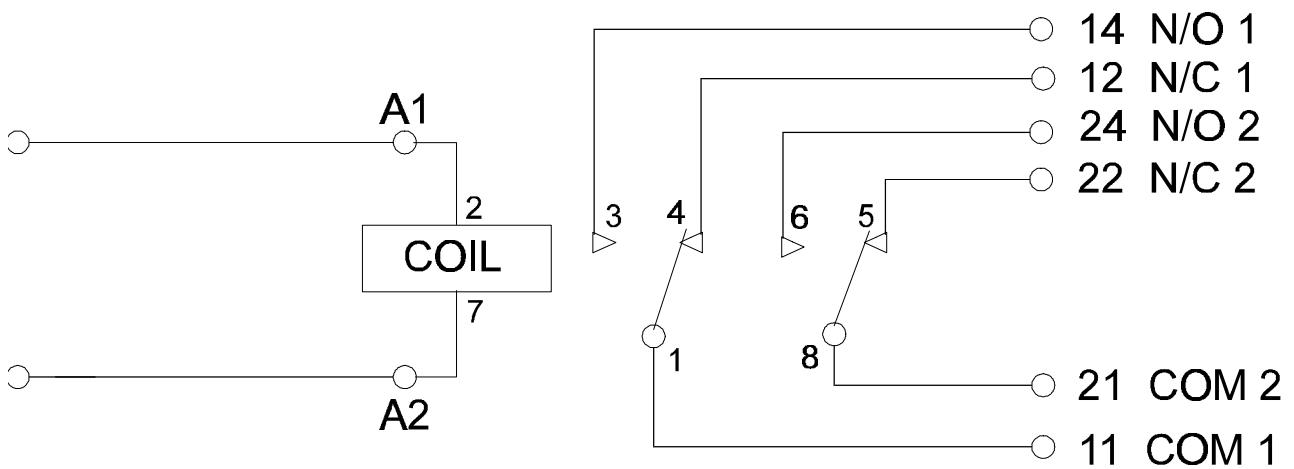


Figure 14-5 Relay connections

Fire alarm interface unit (Loop powered)

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

Fuses and locations

Fuses	Rating	Location
FS1 to FS4	20mm x 5mm 100mA	Board

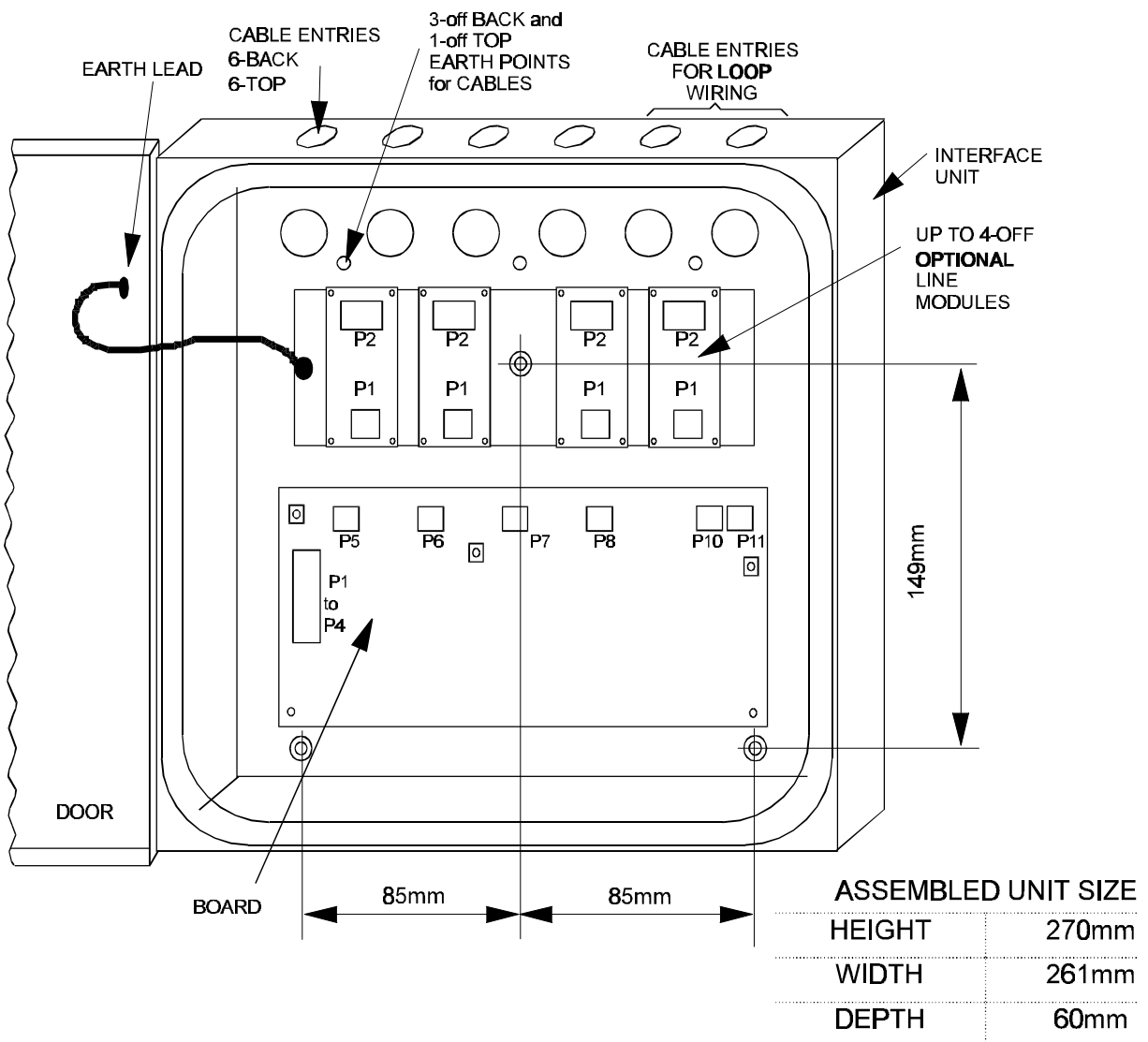


Figure 15-1 Interface unit fixing and connections
fl201_

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

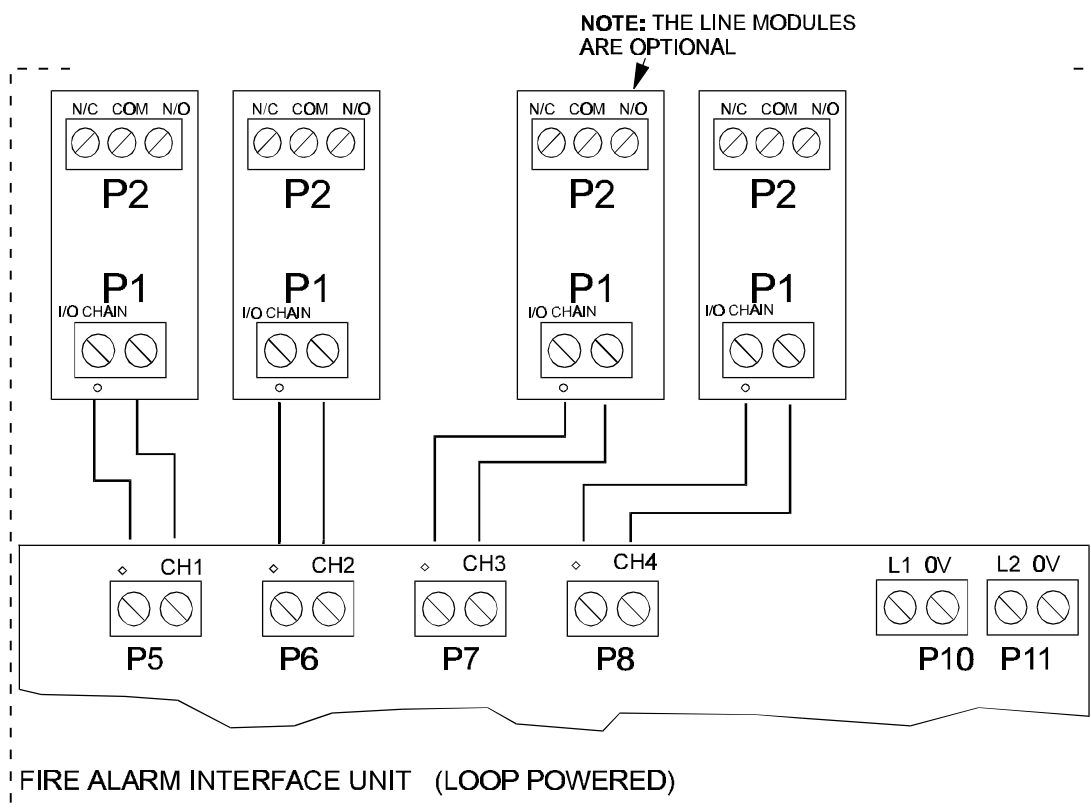


Figure 15-2 Line module internal connection details

f1202

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.

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

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

*A remotely installed line module should not be located more than **100m** cable distance away from the interface unit, assuming **1.5mm² 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. 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, no line module can be connected to that channel.*

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

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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 compliance, LVD compliance, cable types and loop circuit connections.

Fuses and locations

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

- a) Identify the package labelled SUPPLY UNIT numbered 19245-06.

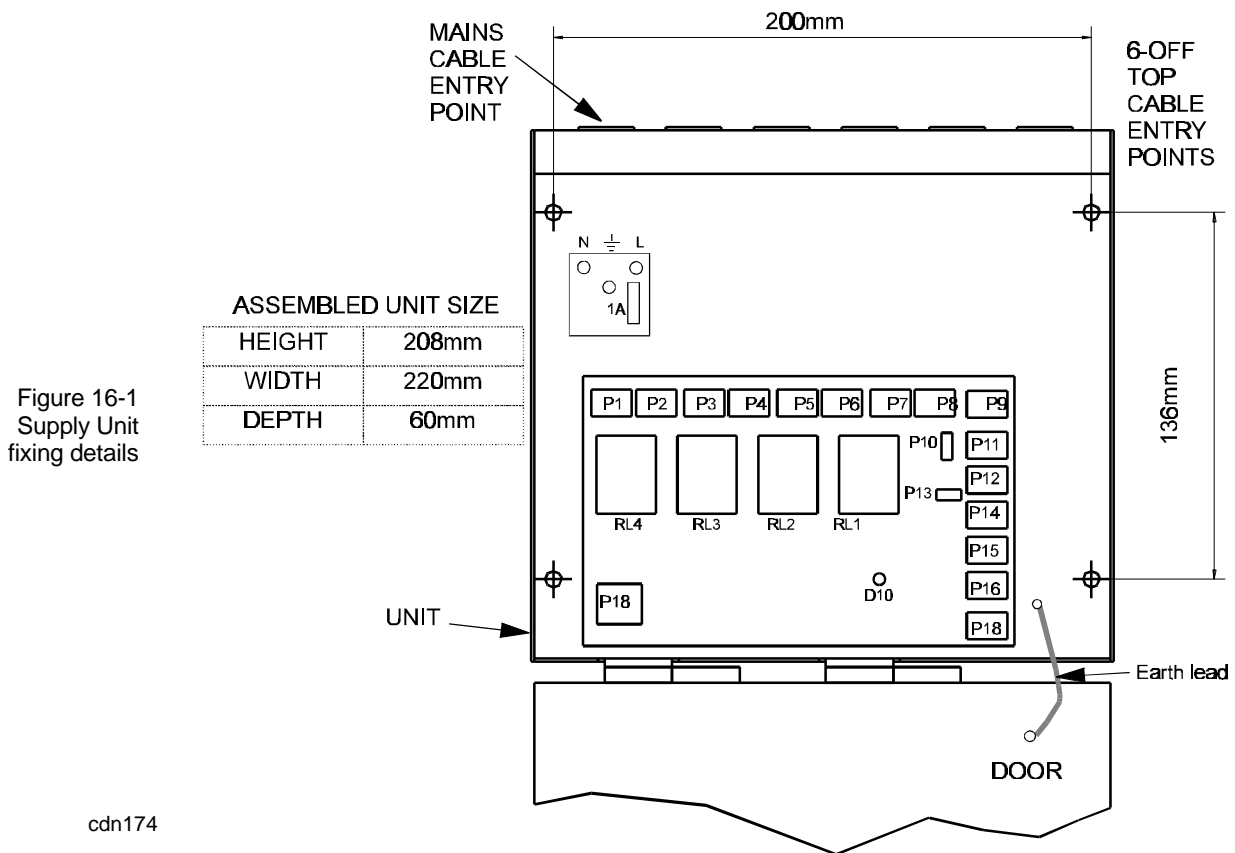


Figure 16-1
Supply Unit
fixing details

cdn174

- 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.

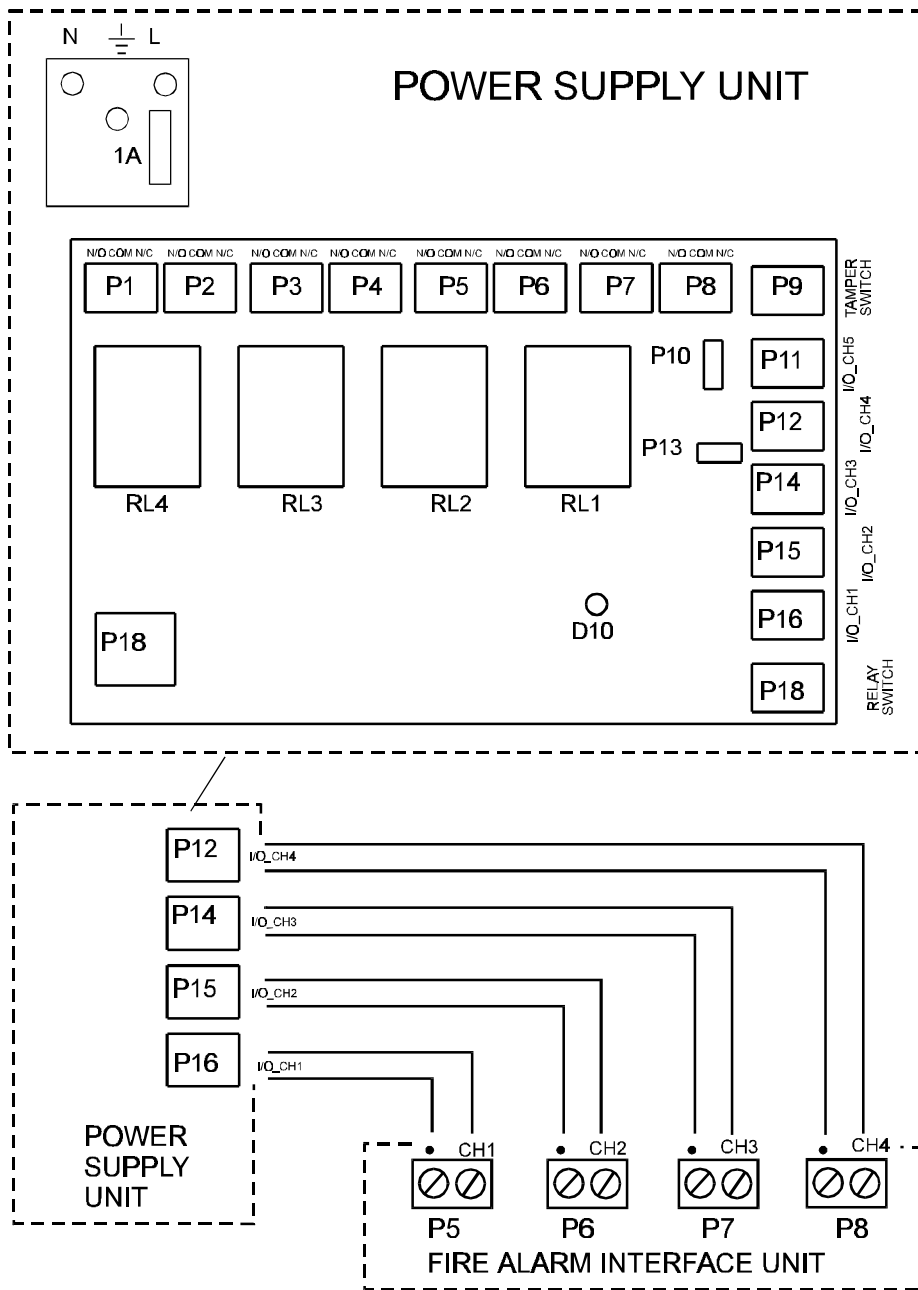


Figure 16-2 PSU to interface unit connections

- 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 Servicing organisation.

Single Channel Interface (Loop Powered)

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

- a) Identify the SINGLE CHANNEL INTERFACE (LOOP POWERED) package numbered 34415.
- b) Remove the lid to the module.

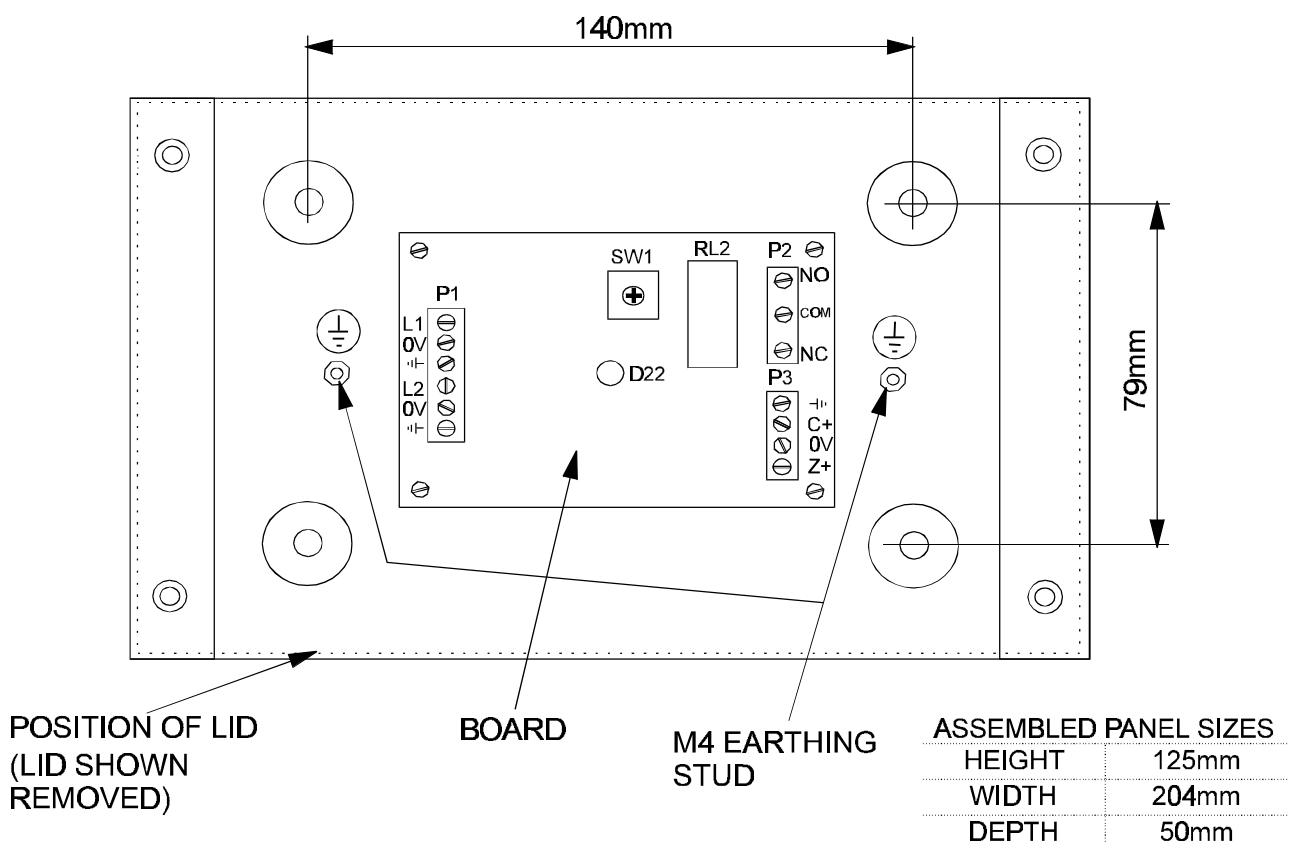


Figure 17-1 Single Channel Interface (lid removed)
cdn172

- c) Check that an end-of-line capacitor is supplied with the Unit.
- d) Remove the board from the unit and keep it in a safe place until required, together with the fixing screws.
- e) Knockout the required cable entry points from the module sides.
- f) Mark the four fixing positions on the wall to which the unit is to be mounted.

- g) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of 0.67kg.
- h) Terminate each cable at the entry point.
- i) Refit the board into the module.
- j) Connect the appropriate cable ends to the respective terminals.
- k) Secure the lid to the module.
- l) Leave all outstanding installation work to Servicing organisation.



Loop Powered Zone Module

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

- a) Identify the LOOP POWERED ZONE MODULE package numbered 34410.
- b) Remove the lid to the module.

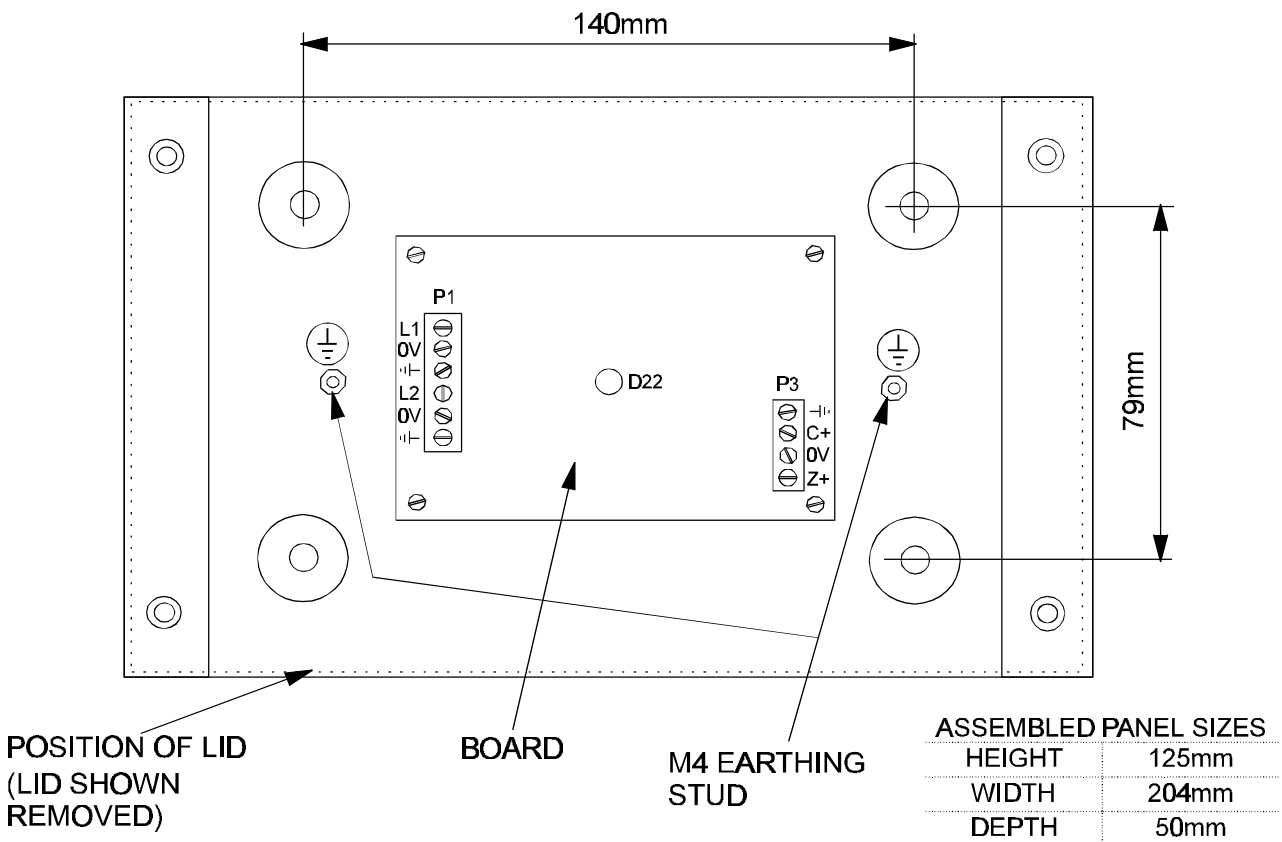


Figure 18-1 Loop powered zone module with lid removed
cdn171

- c) Check that an end-of-line capacitor is supplied with the Unit.
- d) Remove the board from the unit and keep it in a safe place until required, together with the fixing screws.
- e) Knockout the required cable entry points from the module sides.
- f) Mark the four fixing positions on the wall to which the unit is to be mounted.

- g) Secure the unit to the wall with suitable fixings to support an approximate full assembly weight of 0.67kg.
- h) Terminate each cable at the entry point.
- i) Fit the board into the module using the fixings provided.
- j) Connect the appropriate cable ends to the appropriate terminals.
- k) Secure the lid to the module.
- l) Leave all outstanding installation work to Servicing organisation.

Fixed Extinguishant Interface unit (Loop powered)

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

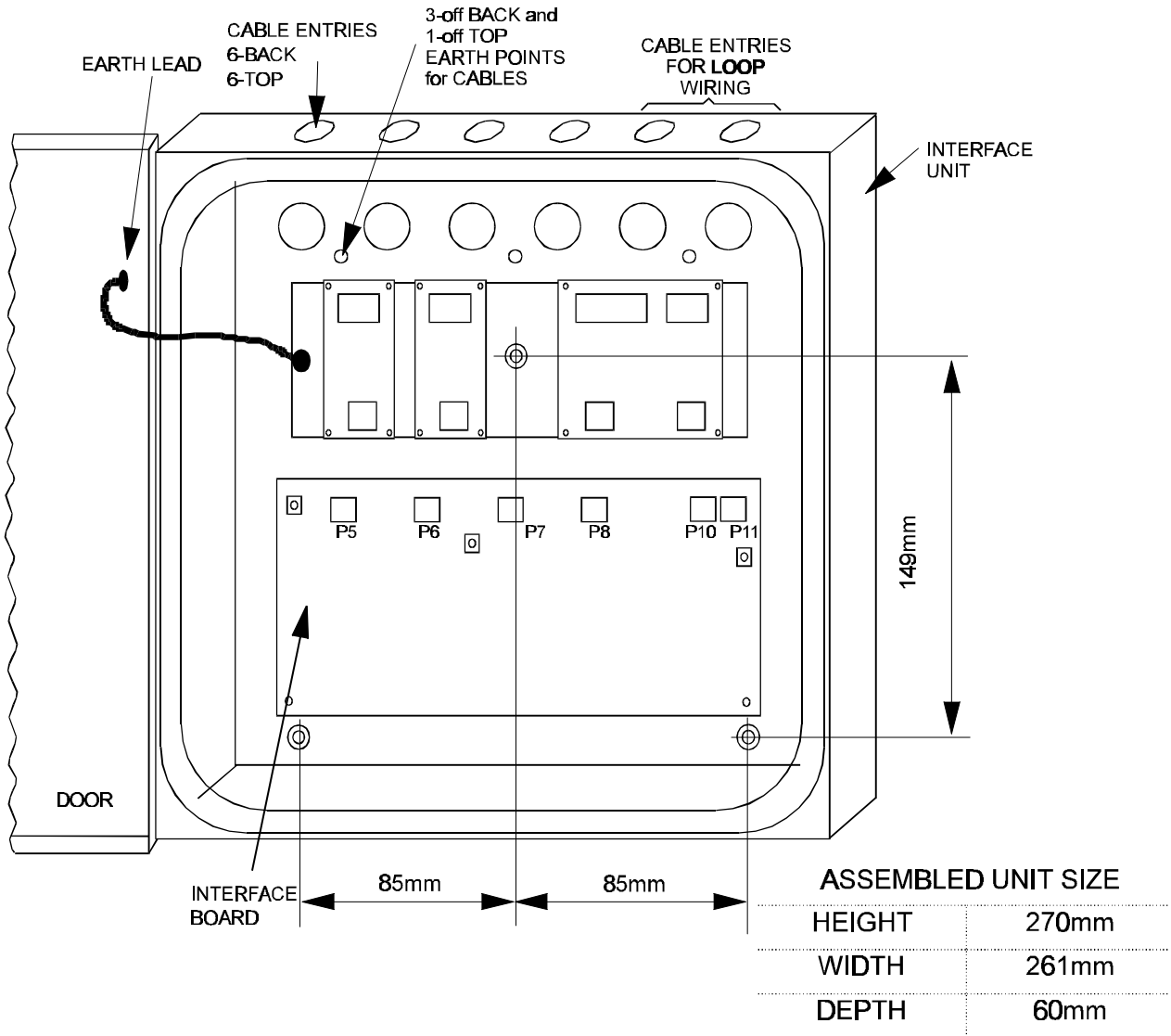


Figure 19-1 Unit fixing and connections
FL205

- 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 Servicing organisation.

Interface Rack Unit

Where appropriate, refer to the as fitted wiring drawings (if supplied), notes to the installer, EMC compliance, 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 13445-05

- a) Identify the INTERFACE RACK BACK BOX package number 13445-08 and check the contents.

Component	Quantity
Interface rack Back Box	1
Earth Link	1
Earth Lead Assembly	4
1U Plate (44.5mm Wide)	1
Caged Nut	4
M6 Screw and Washer	4
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.

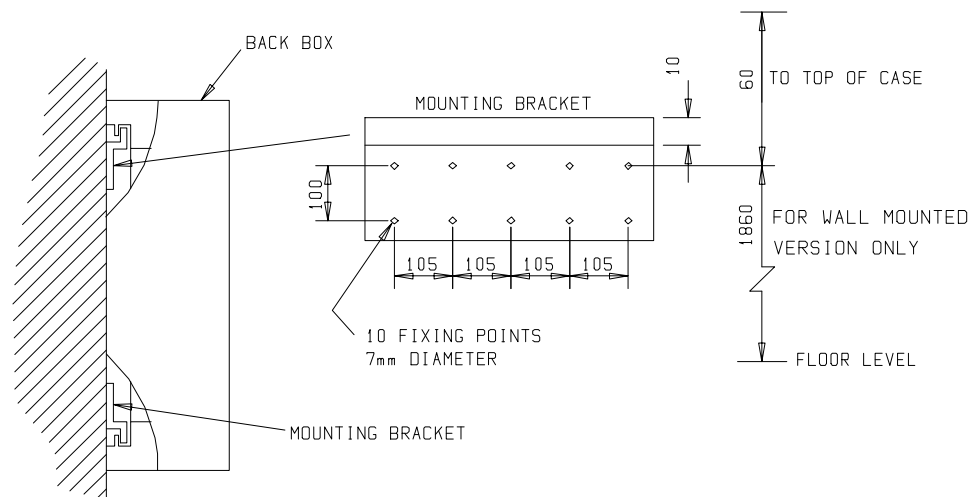
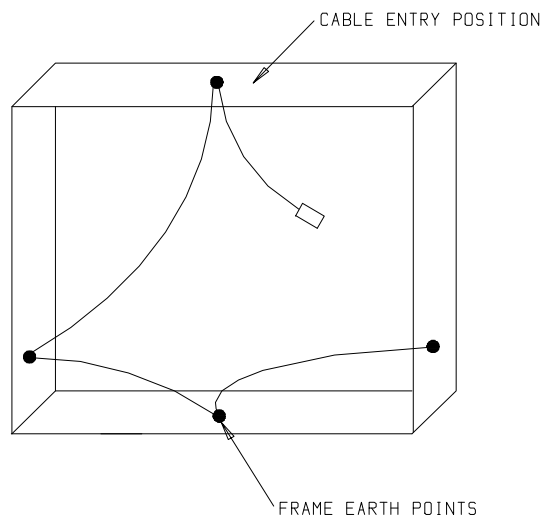


Figure 20-1
Interface Back
box fixing and
earth points

EARTHING THE BACK BOX ASSEMBLY



f1366_

- 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

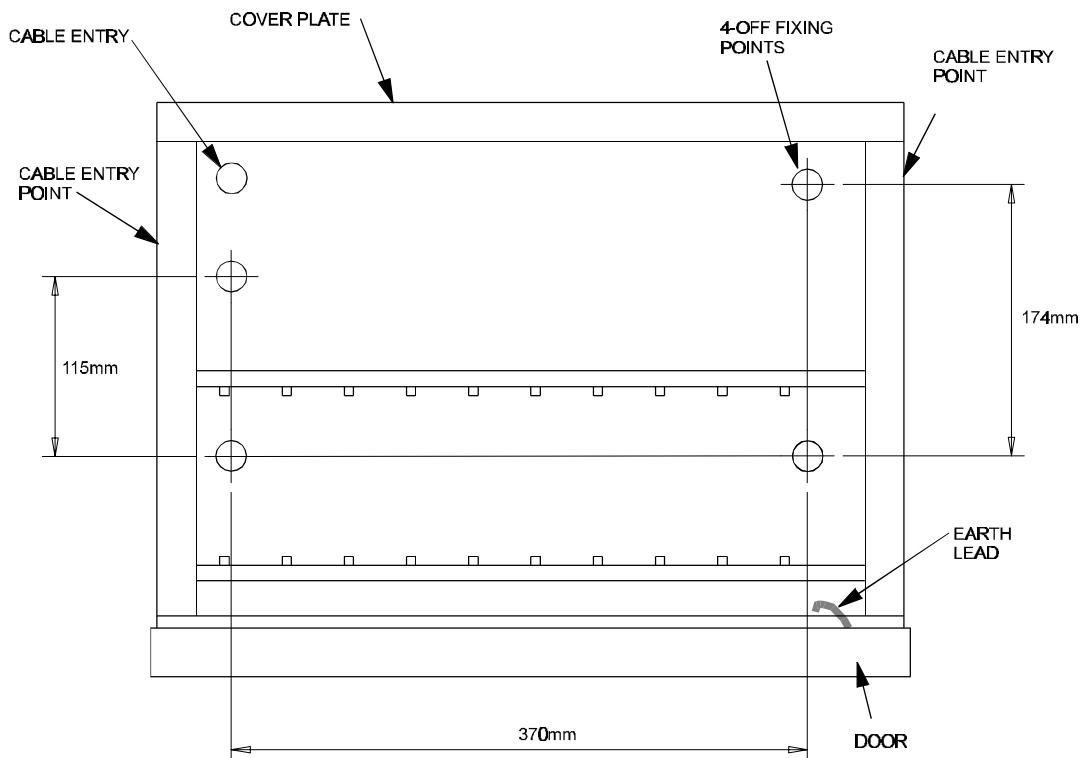


Figure 20-2 Rack unit fixing
fl136

- 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 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.

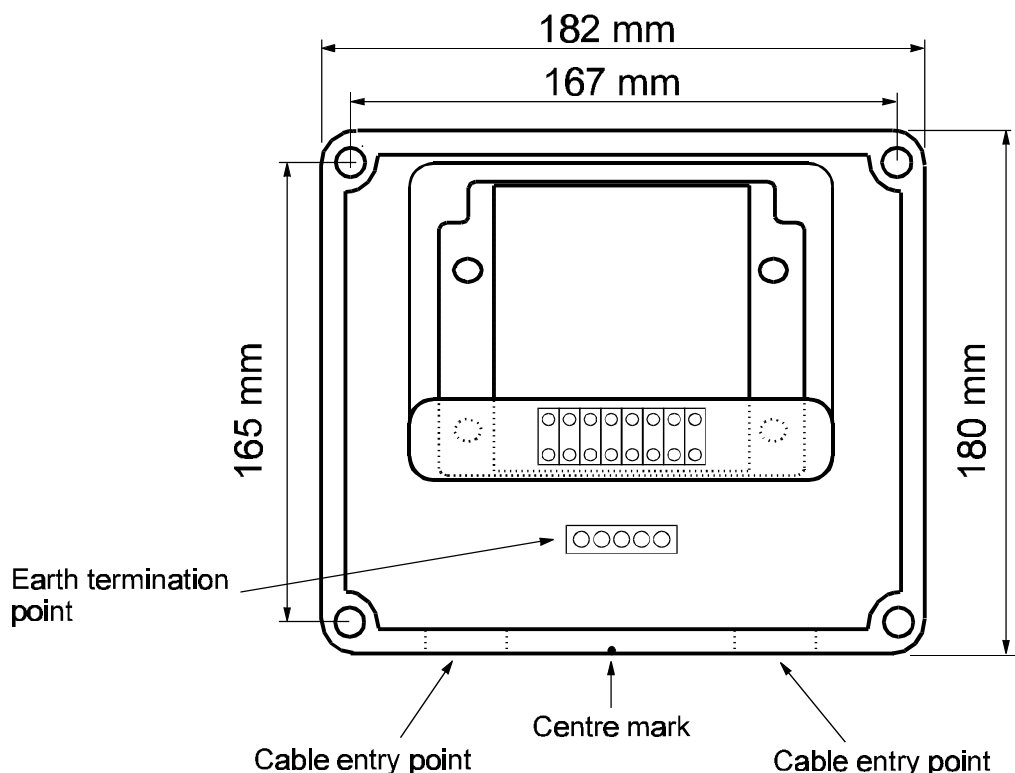
NOTE: *Incorrect installation of these products may result in premature failure and/or reduction of IP rating.*

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 21-1
Standard fixing details



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.

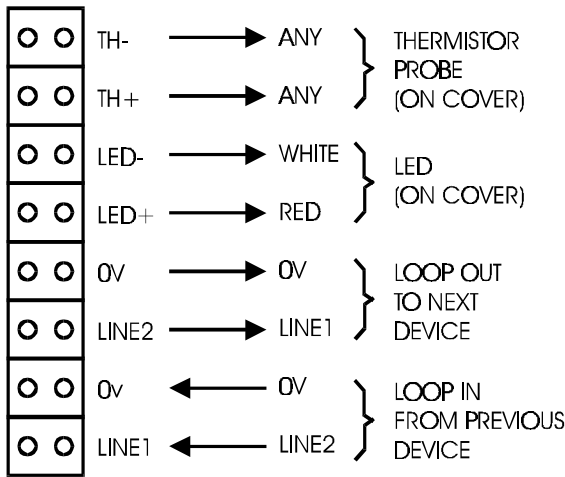
- g) Reconnect the flying leads from the cover into the appropriate terminals on the sealed printed circuit board module. Refit the cover to the unit. For maximum protection ensure that the cover screws are tight and secure.

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

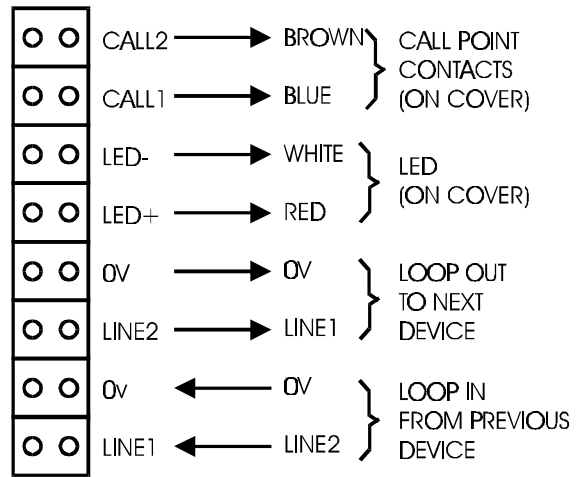
CAUTION: The unit is not square. Forcing the cover to fit the wrong way round will damage the unit.

Heat Probe

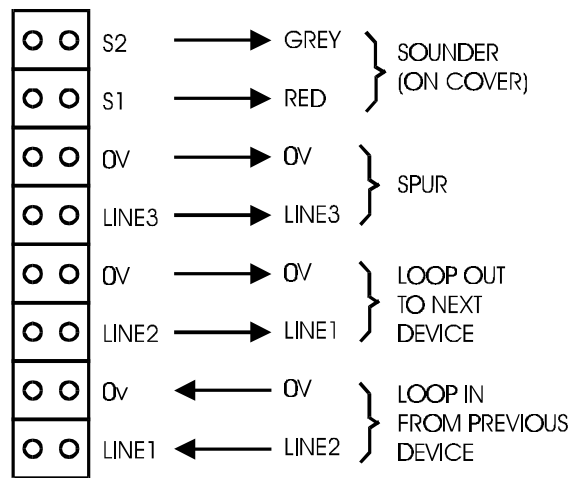
For carriage purposes the probe on the heat sensor is fully retracted. It is important that the heat probe is positioned correctly. There should be a minimum of 20mm of the probe protruding from the front face of the probe gland. The probe gland can only be tightened up once, as the gland uses an olive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

Figure 21-2 Connection details for EP products
cdm265

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

A4 Mimic display unit

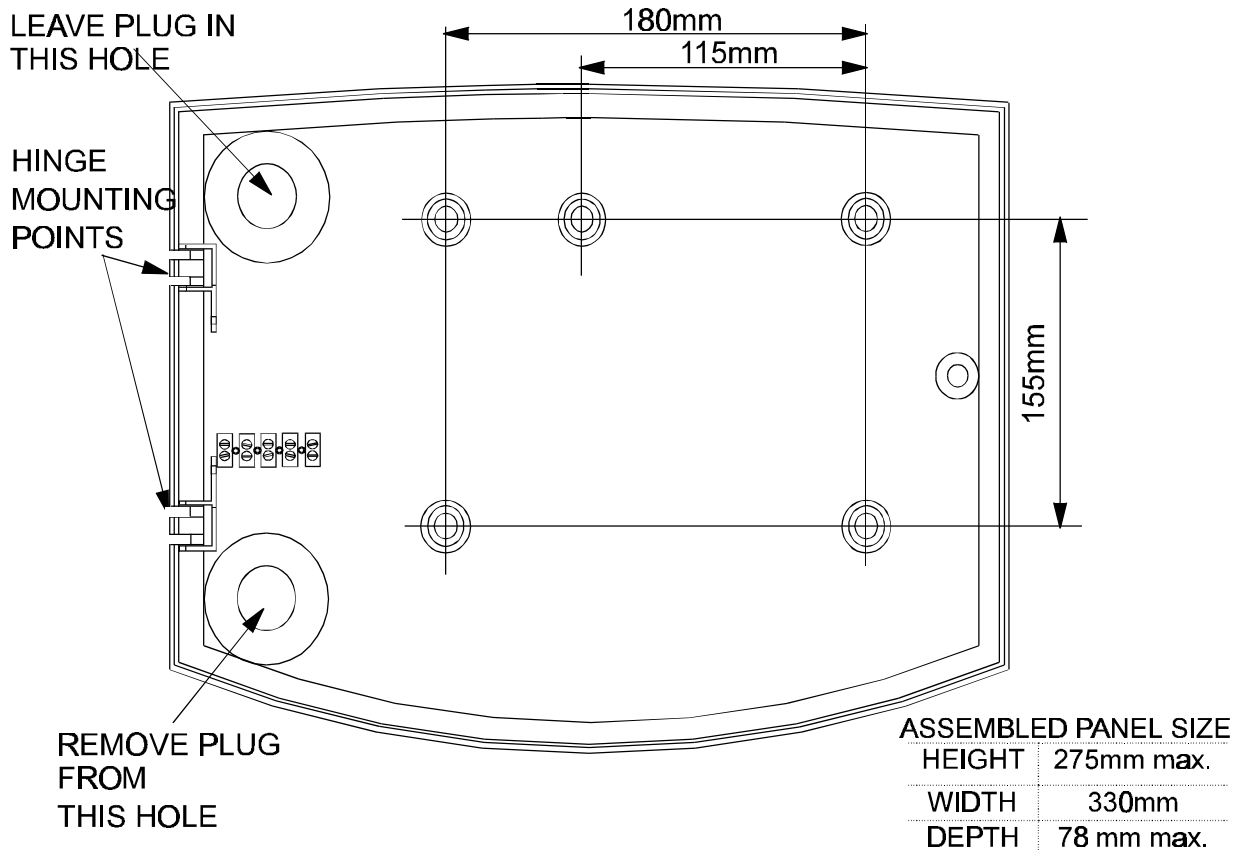


Figure 22-1 A4 Mimic case with mounting details
11349_

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

- a) Identify the A4 Mimic display or A4 Zonal display packages numbered 34K-MIM-A4 and 34K-ZONE-A4 respectively.
- 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.

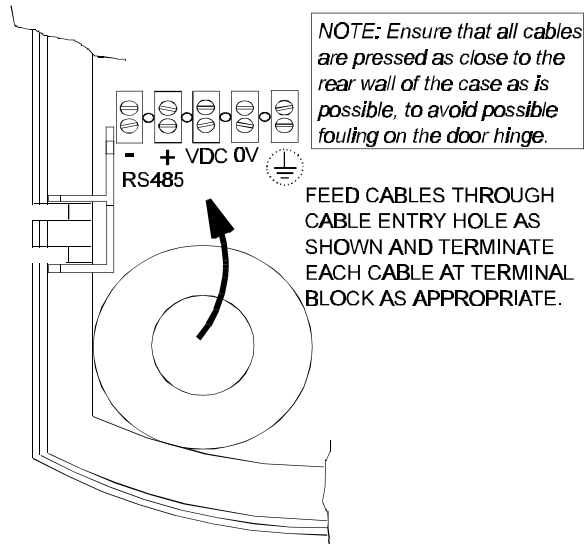


Figure 22-2 Terminal block details 11350

- d) Mark the five fixing positions on the wall to which the unit is to be mounted.
- 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.

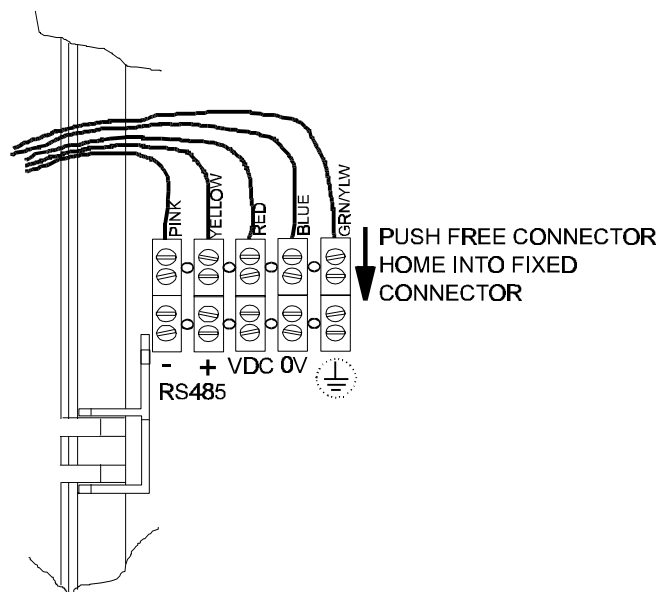


Figure 22-3 Connector details 11352

- i) Ensure that the hinge pin is pressed home into the slot on the hinge mounting point as shown.

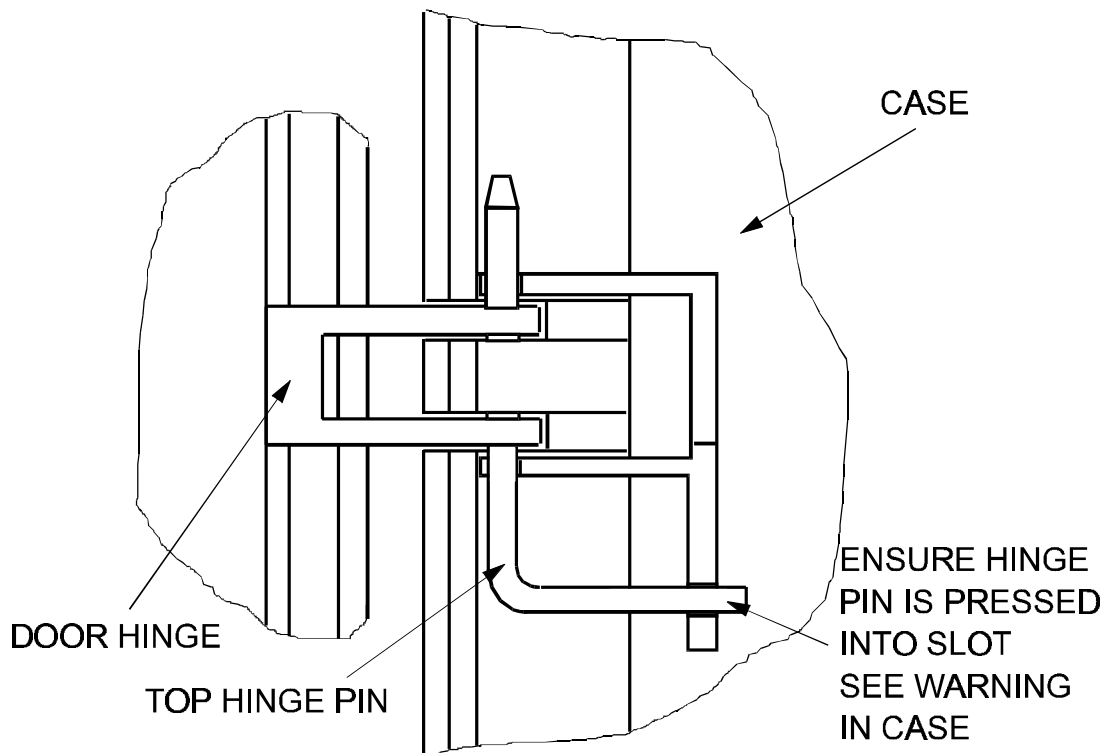


Figure 22-4 Hinge mounting details
f1351

- 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 Servicing organisation.

A4 Mimic Control Unit

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

Fuses and locations

Fuses	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.

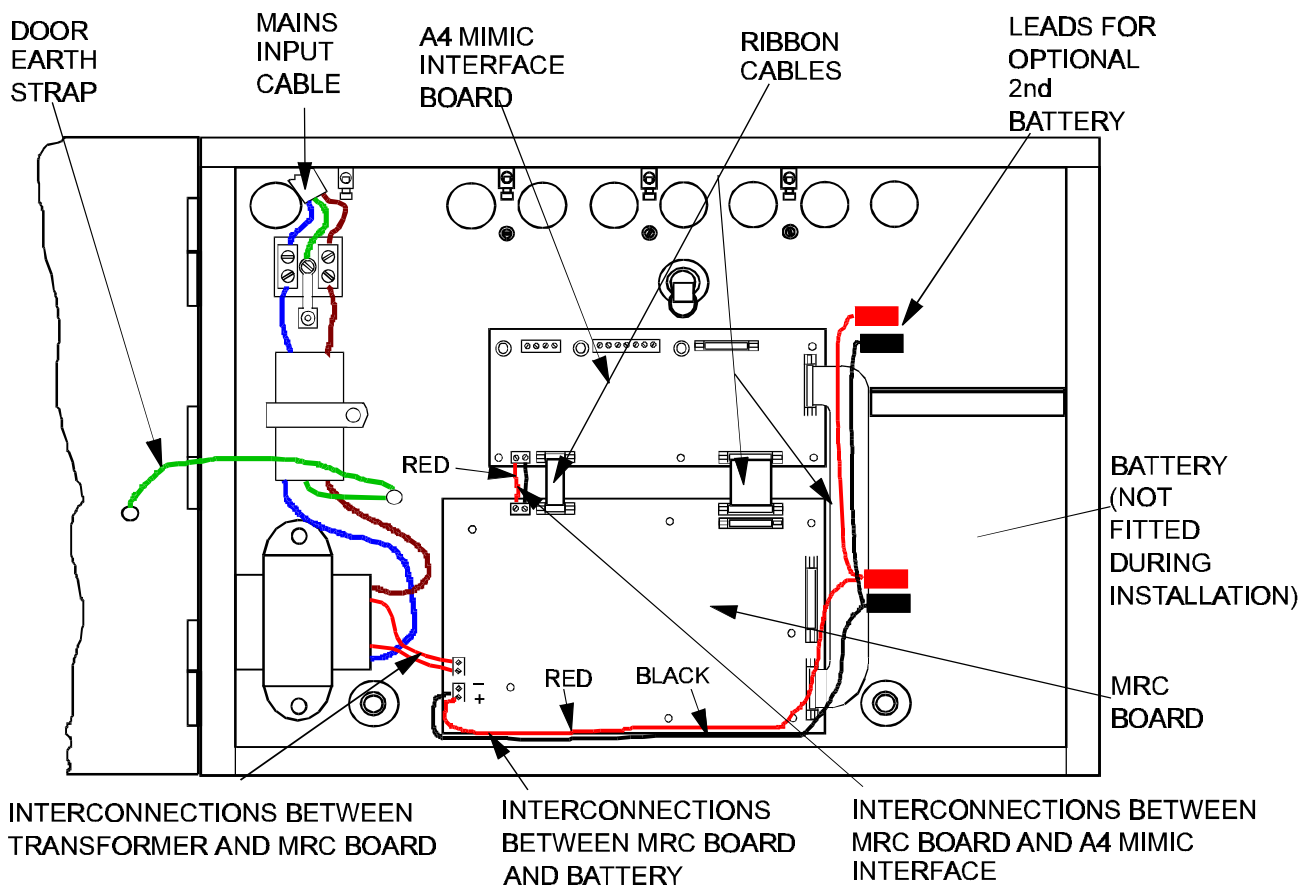


Figure 22-5 A4 Mimic Control Unit with board unfitted
cdm266

- 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) Mount the MRC board onto the backbox.

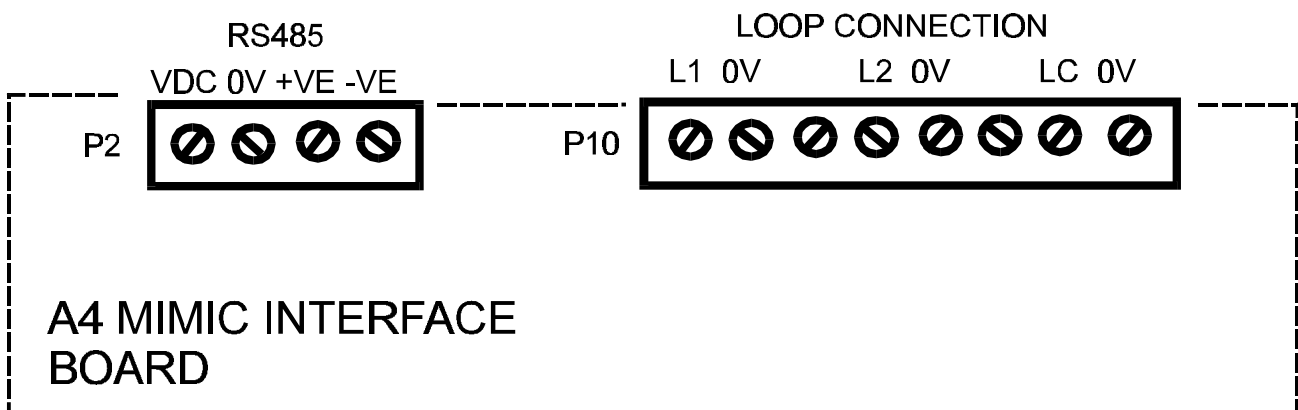


Figure 22-6 Terminal details
cdm268

- 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.

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 Servicing organisation.

Network Overview

This section covers an overview of Secure 34000 Network which shows the connection of control panels, network node, remote printer and GENT Supervisor.

Network Capacity

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

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

Network Cables

See the part on network cables.

System 34000 network and GENT Supervisor

NOTE: The connection of a Gent Supervisor is only applicable to a System 34000 networked system.

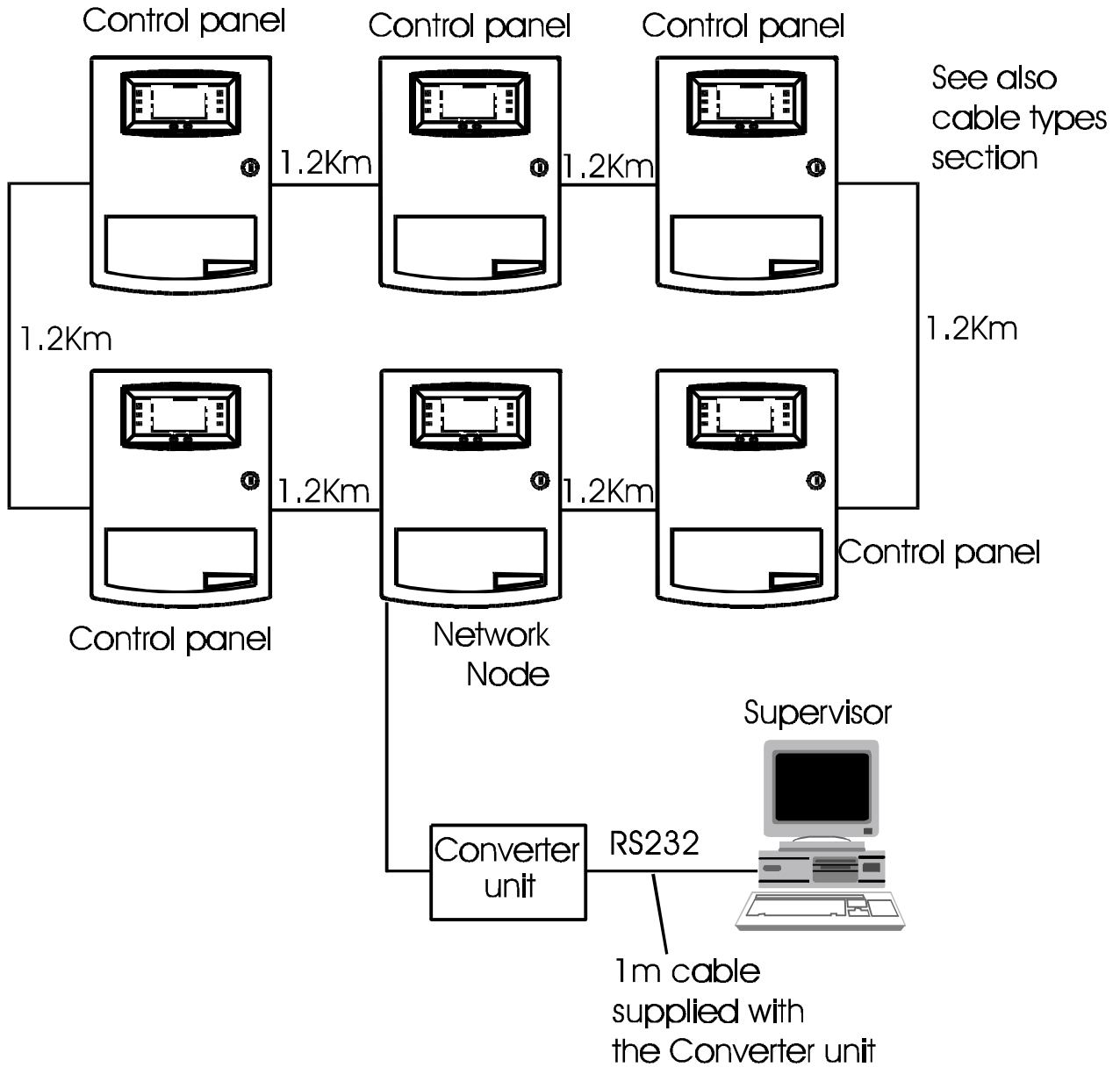


Figure 23-1 Vigilon network and Gent supervisor
cdn444

A Secure System 34000 Network can have up to three GENT Supervisors.

NOTE: Two out of the three possible GENT Supervisors must be connected to a Network interface.

To Control panel

Control panel

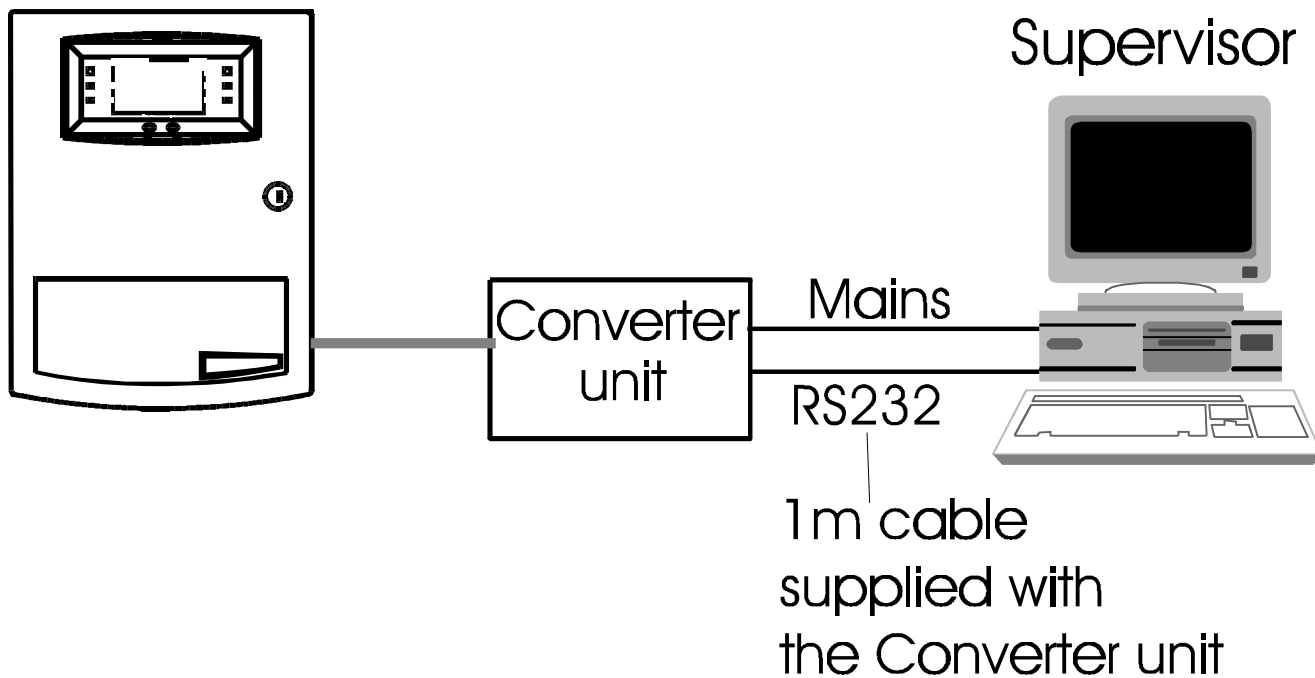


Figure 23-2 GENT Supervisor connection - control panel
cdn445

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Terminal Node

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

Refer to the instructions for installing the control panel and battery box.

NOTE: *The Terminal node has no loop supporting capability, therefore the respective terminals are not applicable.*

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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

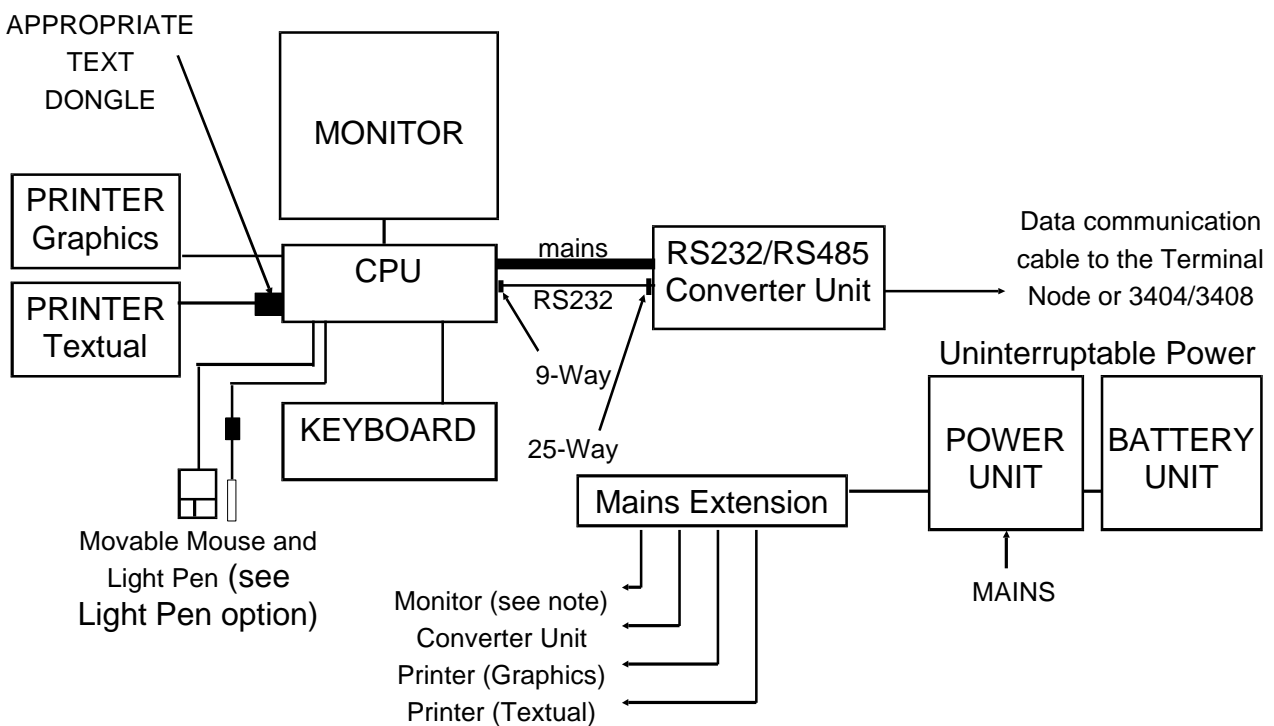


Figure 25-1 Connecting the GENT Supervisor

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

Component	Quantity
Textual Software	1 (dongle and manual)
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, 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

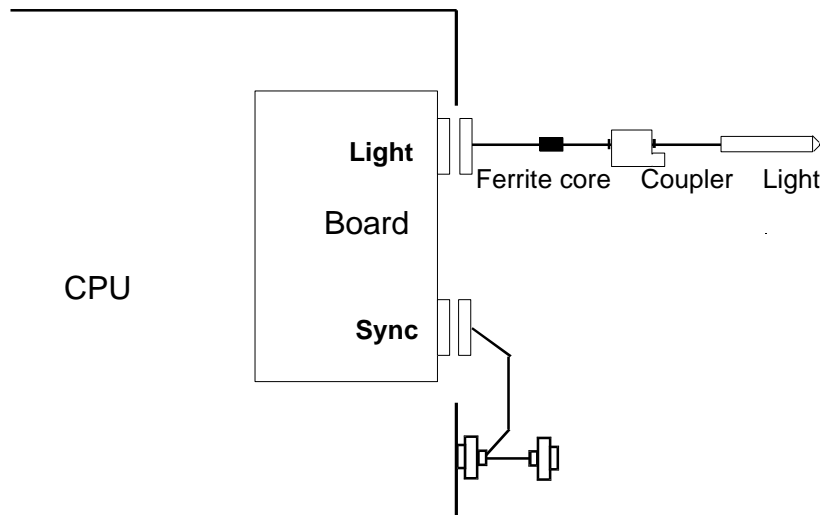


Figure 25-2 Light pen installation

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 / Splitter unit

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

Splitter Unit

By changing the links in the Converter Unit the unit can be configured as a splitter. As a splitter an incoming RS232 signal can output two RS232 signals.

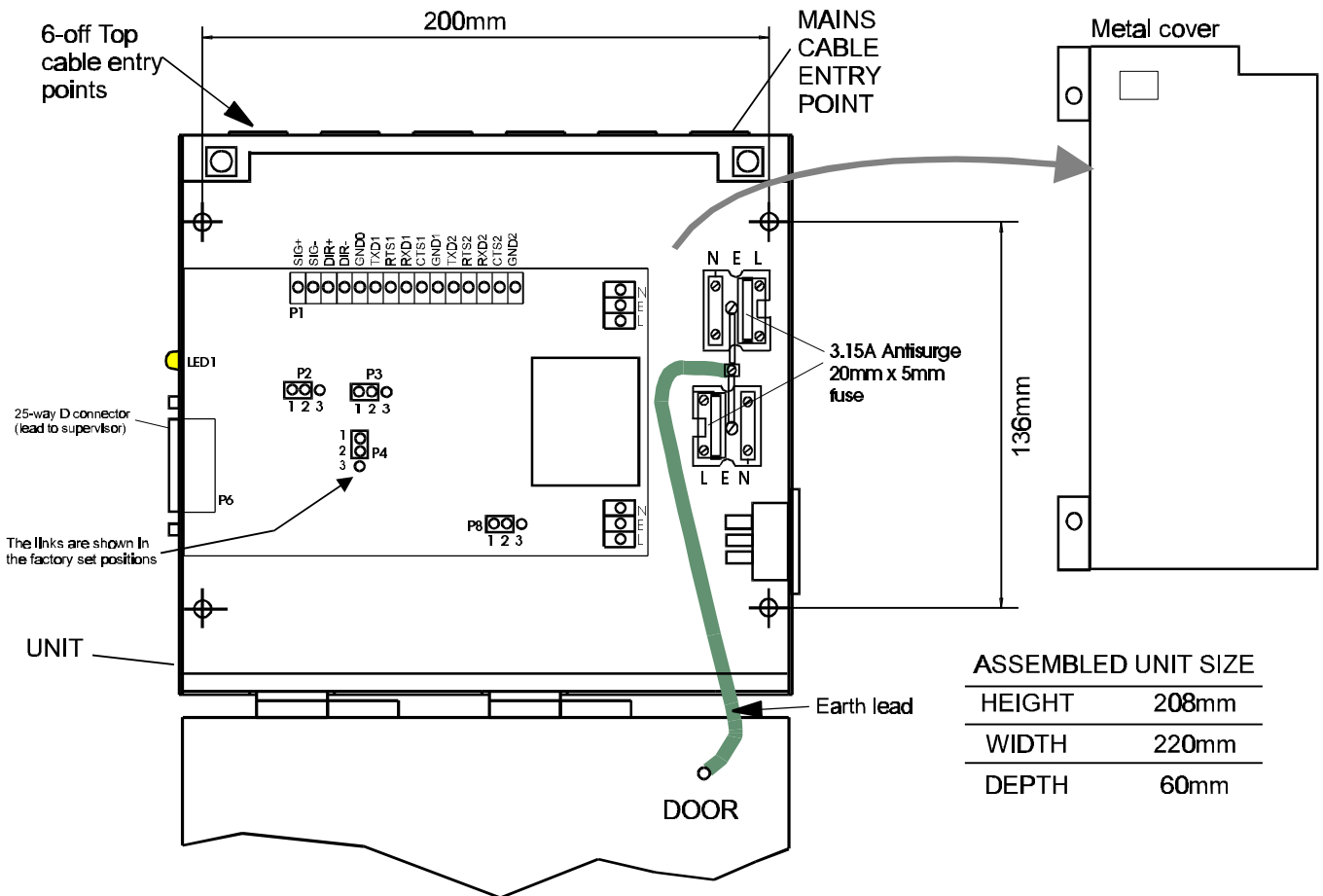


Figure 26-1 Converter link configuration

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

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 servicing organisation.

13548-03 Compactor Unit

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

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

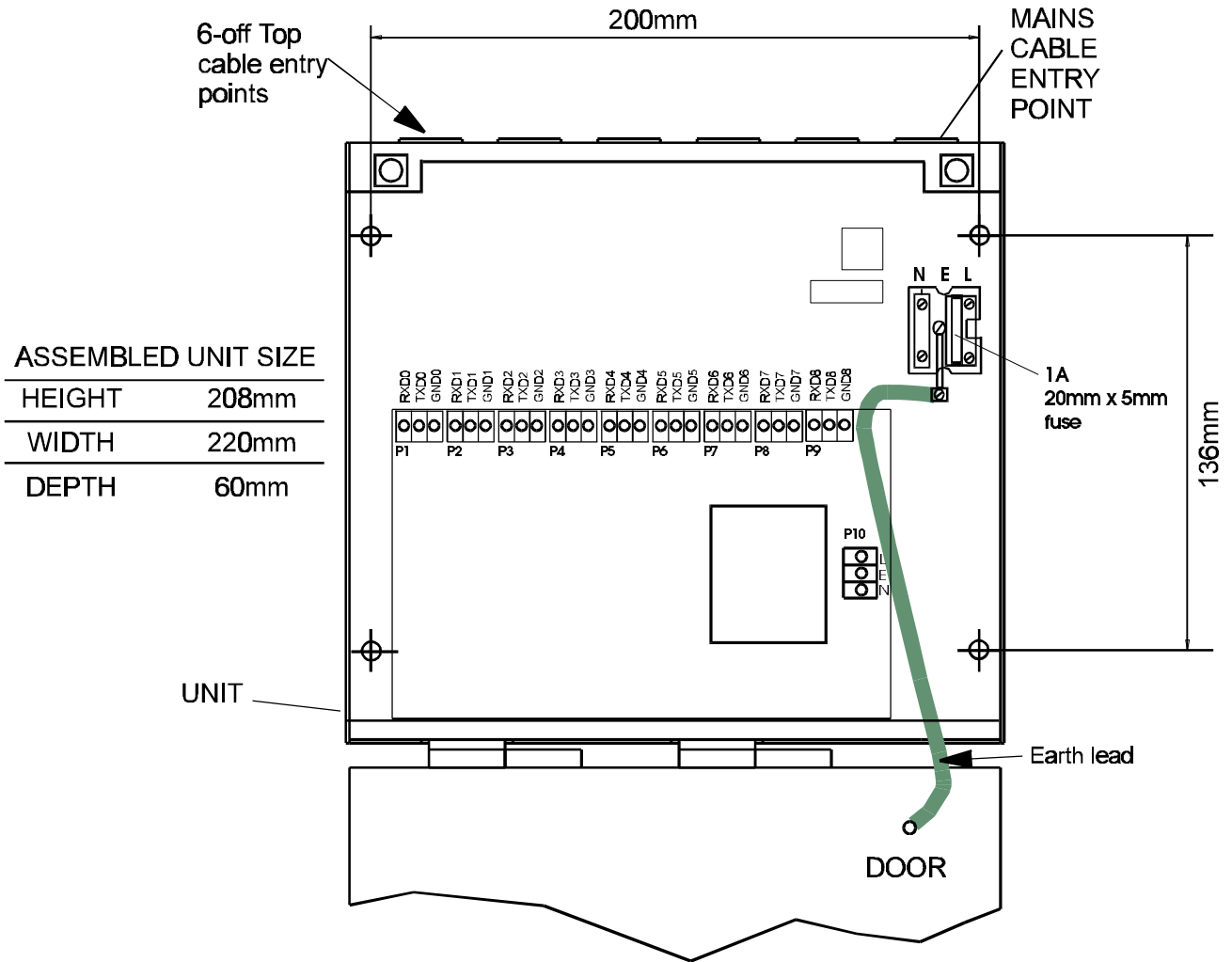


Figure 27-2 Compactor unit cdm282

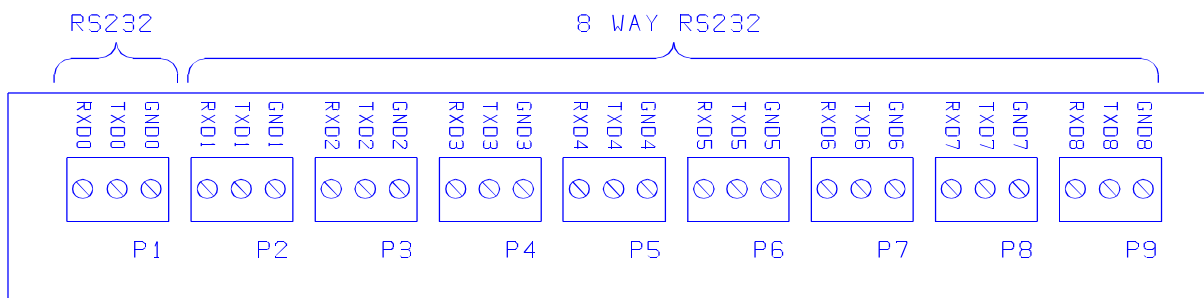


Figure 27-1 Compactor unit connections m5732

Fuses and locations

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

- a) Identify the package labelled COMPACTOR UNIT numbered 13535-03.
- b) Use the allen key provided to open the door on 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

- 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 an Engineer from the servicing organisation.

Modems

Modems allow the data link between a Control panel/Network node and Gent Supervisor (via a converter unit). This is done using BT STD Keyline which is a leased telephone line specifically for alarm application. If the distance between the modem is large then STD Keyline 3 should be used, for advice contact British Telecommunications.

Pair of Modems

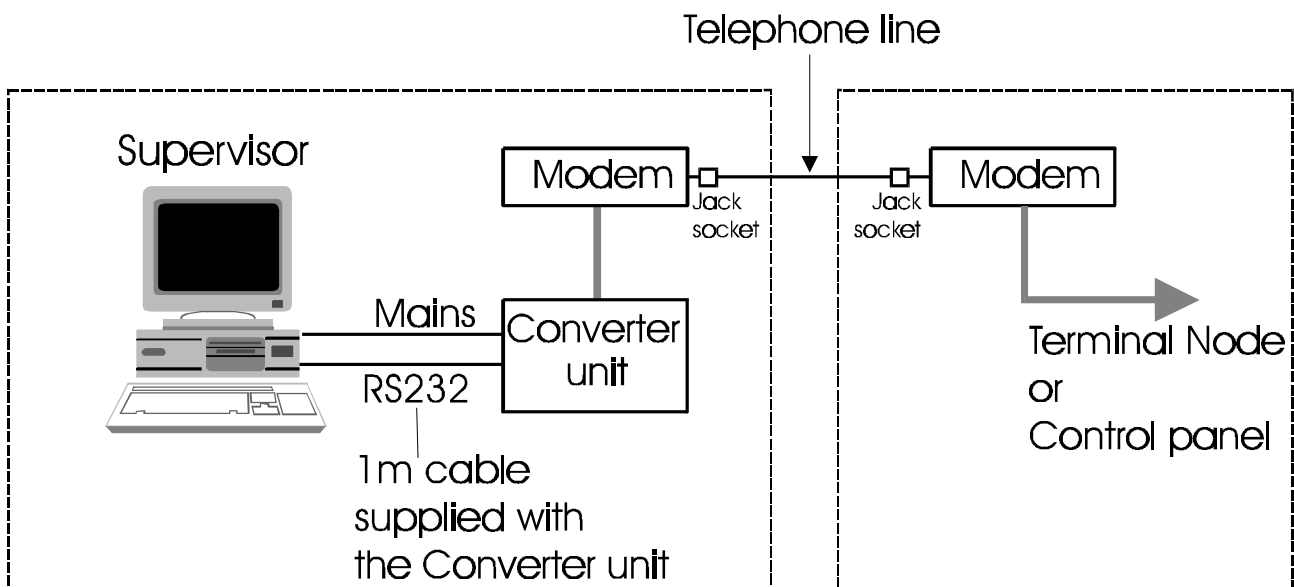


Figure 28-1 Supervisor link to pair of modem
cdn434

The maximum cable length of 15m is allowed between:

- Modem and GENT Supervisor
- Modem and Terminal Node
- Modem and Control Panel

Modem connection details

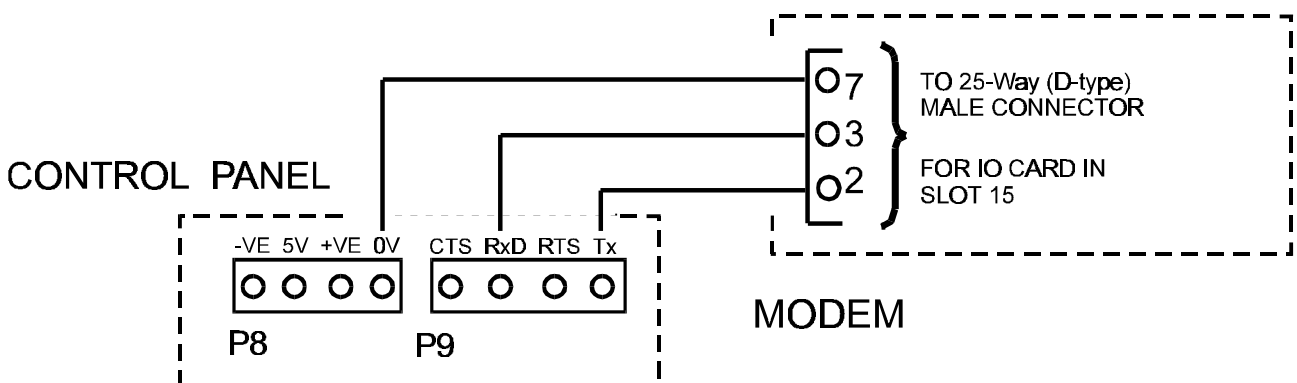
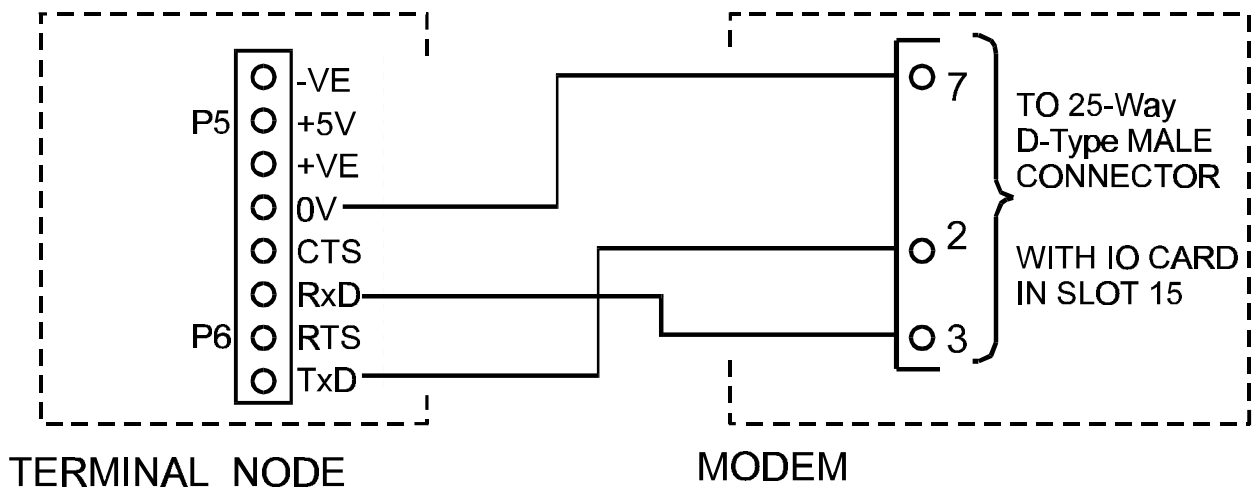
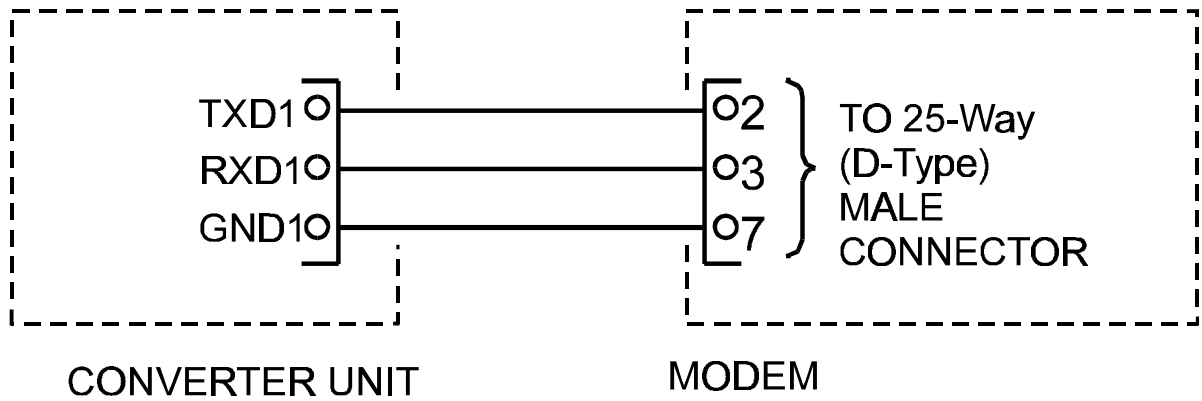


Figure 28-2 Modem connection details
cdn435

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.

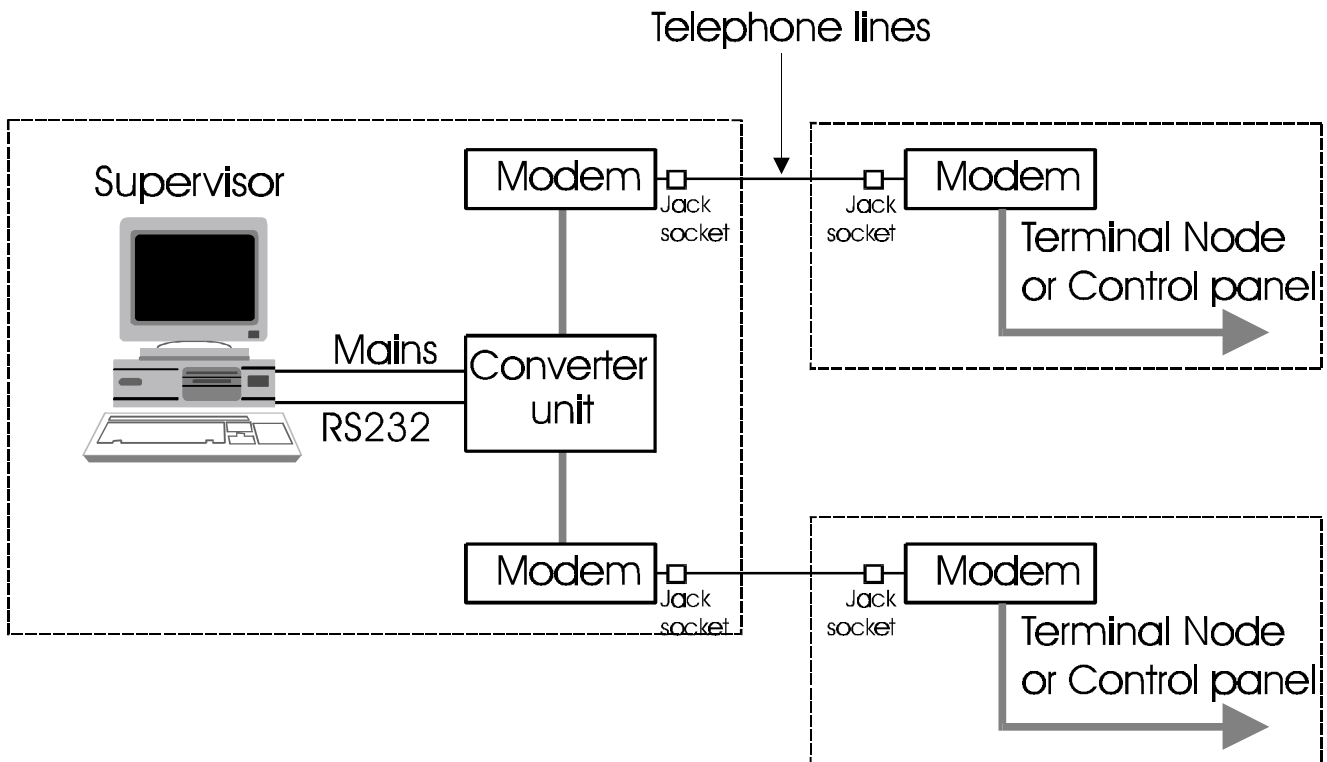


Figure 28-3 Supervisor to two modems

cdn436

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.

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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.

Panel to printer connections

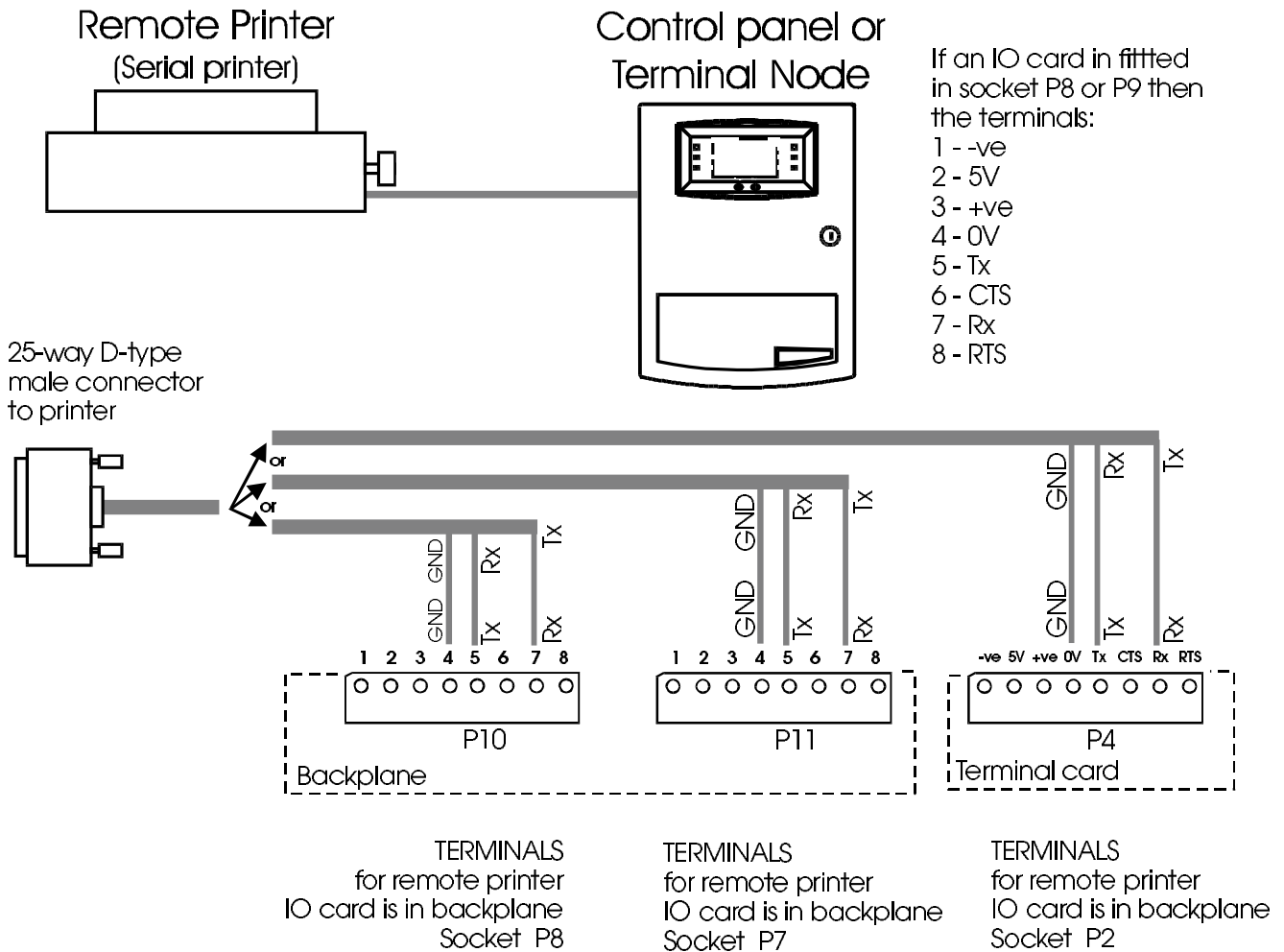


Figure 29-1 Control panel to remote printer connections
cdn437

Printer I/O Card slot and connections

The printer I/O card can be installed in the appropriate slots of the control panel backplane.

The printer I/O card can be located in a required slot

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System 34000 system parts

Introduction

This section lists parts used in the System 34000 system. For further details on the availability of the parts, contact GENT.

Control and indicating equipment

* - First fix products

- Not available at the time of issue

Control Panels	34K-1ST-FIX*	Control panel backbox + Battery box
	34K1-V3+	Control panel (V3+) c/w 1 loop card
	34K1-LB-V3+	Control panel (V3+) c/w 1 loop card (less batteries)

NOTE: The Control Panel is supplied as **two** parts, ie 34K-1ST-FIX and 34K1-V3+.

Control panel accessories	34K-FLUSH	Control panel flush surround
	34K-19-RACK	Control panel 19" Rack mounting bracket
Terminal Node	34K-NODE-V3+	Terminal Node
	34K-NODE-LB-V3+	Terminal Node (less batteries)
Repeat panel	34K-RPT-1ST-FIX	Repeat Panel Backbox
	34K-RPT-V3+	Repeat panel (V3+)
	34K-RPT-LB-V3+	Repeat Panel (less battery)
	34K-RPT-FLUSH	Repeat Panel Flush Surround

NOTE: The Repeat Panel is supplied as **two** parts, ie 34K-RPT-1ST-FIX and 34K-RPT.

Mimic panels	34K-MIM	Mimic panel c/w drawing
	34K-MIM-LB	Mimic panel c/w drawing (less battery)
	34K-ZONE	Zonal mimic panel
	34K-ZONE-LB	Zonal mimic panel (less battery)

	34K-MIM-A4	A4 Mimic Panel
	34K-MIM-A4-LB	A4 Mimic Panel (less battery)
	34K-ZONE-A4	A4 Zonal Mimic Panel
	34K-ZONE-A4-LB	A4 Zonal Mimic Panel (less battery)
Spares	34K-BATT	Spare control panel battery box
	34K-BATT-RPT	Spare repeat/mimic panel battery pack
	34K-PAPER	Spare printer roll Mtp 401
Extra cards	34K-LCC-V3+	Local controller card
	34K-LCC-NOD-V3+	Local Controller Card for Terminal Node
	34K-LPC-V3+	Loop Card
	34K-RAM	RAM Card
	34K-NC-V3+	Network card
	34K-IOC-V3+	Input/Output card
	34K-IOC-SLV-V3+	Slave Input/Output Card (for Terminal Node)
	34K-IOC-DOM-V3+	Domain Bridge Input/Output Card
	34K-IOC-UNI-V3+	Universal Communications Input/Output card
	34K-IOC-UFD-V3+	Universal Communications Input/Output card Full Duplex
	34K-IOC-PRT-V3+	Remote printer input/output card

Sensors and Accessories

Sensors	34710	Optical heat sensor
	19271-01	Optical chamber
	34710-RL	Optical heat sensor with Remote LED connection Remote LED
	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
	34740	Beam sensor pair
	34741-01	Angle bracket with base
	34741-90	IP65 Angle bracket with base
	34741-03	Parallel bracket with base
	07012-31	Conventional Flame detector
	34760	Duct sensor (inc 17908-05 Probes & 34702 Slave LED unit)
Tools	17918-22	Sensor chamber Extractor cup
	17918-23	Optical chamber electronics module removal tool
	17918-24	Ionisation chamber electronics module removal tool
	17918-25	Heat sensor electronics module removal tool
	17918-26	Sensor removal tool kit
Terminal Plate	34700	3-way terminal plate
	34704	4-way terminal plate
	19279-01	Semi-flush sensor mounting kit
	07700-21	Base for Conventional flame detector
T Breaker and Slaves	34701	T breaker Unit
	34702	Slave LED unit
	34703	Slave Relay unit

Alarm sounders

34202	Sounder
34203	Sounder T-Breaker
34213	Environmentally protected Sounder T-Breaker
34777	Repeat sounder (VIG-SEN-TERM required)

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
Spares	13480-09	Spare MCP glasses 10 pack for LPCB approved
	14112-09GR	Spare MCP glasses 10 pack non LPCB approved

Interfaces

Mains powered	34440	Mains powered fire alarm interface
	19104-52	Power relay (for mains powered interface) (up to 4 maximum can be used - supplied with base and diode)
4- Channel Loop powered	34450	Loop powered fire alarm interface
	19245-05	Interface line module -up to 4 can be fitted in a loop powered fire alarm interface
	34454	4 way keyswitch door for loop powered interface
1- Channel Loop powered	34410	Loop powered zone module
	34415	Single Channel Interface (Loop Powered)
	19245-05	Interface line module
Rack	13445-80	Rack interface back box
	13445-05	Rack interface
	13445-06	Interface rack door
	13445-15	4 way interface line module assembly

Keyswitches	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)
Power supply Unit	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)
Fix Extinguishant	34460	Loop powered fixed extinguishant interface

Manuals & Accessories

34K-MAN-INS	System 34000 Installation manual
34K-MAN-OPS-V3+	System 34000 Operator's Manual
13563-011	GENT Supervisor Operator's Manual

GENT Supervisor

13563-10	Supervisor Text computer
13563-11	Supervisor Graphic II computer

NOTE: The Gent Supervisor graphics software requires custom graphics pages

Text software	13565-01	Supervisor Information mode software
	13565-04	Supervisor Configuration mode software
Graphics software	13566-05	Supervisor Text (information)/Graphics II software
	13566-06	Supervisor Text (Configuration)/Graphics II software
	13563-09	Supervisor Text/Graphics II software Upgrade
Accessories	13563-03	Supervisor Text Printer
	13563-04	Supervisor Graphics Printer
	13563-05	Supervisor Light pen

4214-006	Fan fold paper (for 13563-03)
4214-054	A4 paper 5 reams (for 13563-04)

Converter / Compactor / UPS / Printer

13547-14	Uninterrupted power supply (70 minutes standby)
13547-15	Uninterrupted power supply (55 minutes standby)
13563-02	Supervisor Converter/Splitter unit (RS232/RS485)
13548-03	RS232 Compactor unit (1 to 8 - RS232)
13562-01	Remote printer
13563-01	Supervisor Modem (pairs)