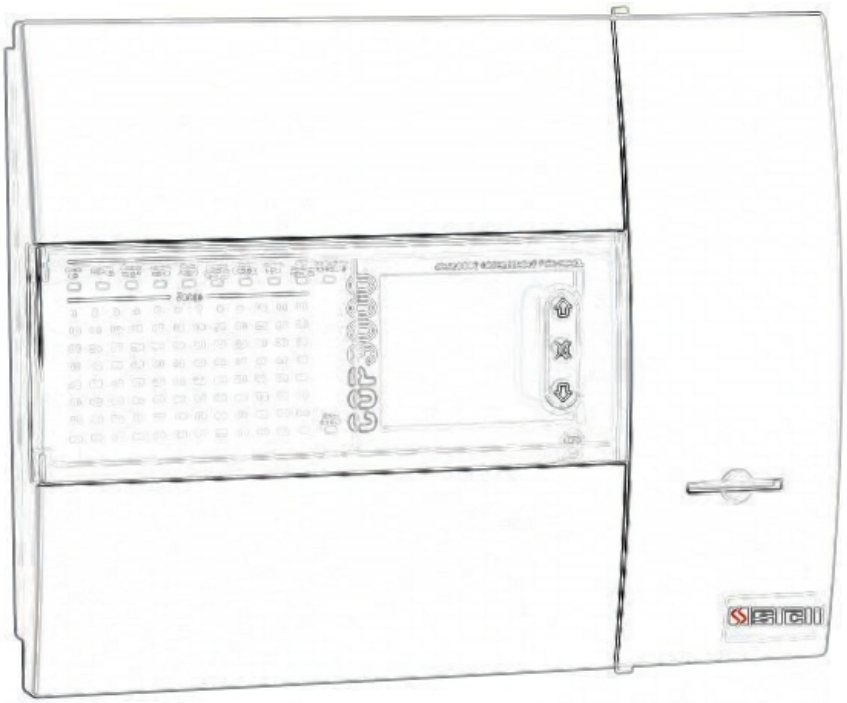
# ANALOG FIRE CONTROL PANEL

# COP3000



# INSTALLATION MANUAL

SA SICLI
Rue du Merlo 1 - 1180 Bruxelles
Tel 02 370 24 11 - Fax 02 370 24 24
Internet : www.sicli.be

Document Ref 25-17191-A

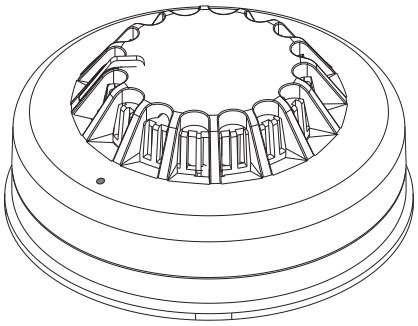
# Contents

# Section 1

# Installation

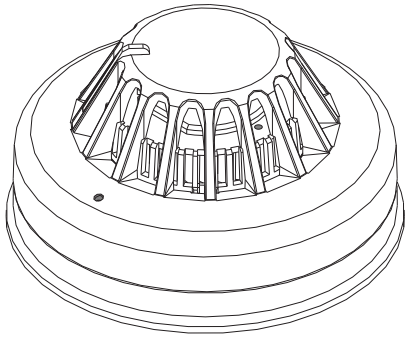
# Compatible Equipment

The range of compatible sensors for the COP3000 system consists of the following:



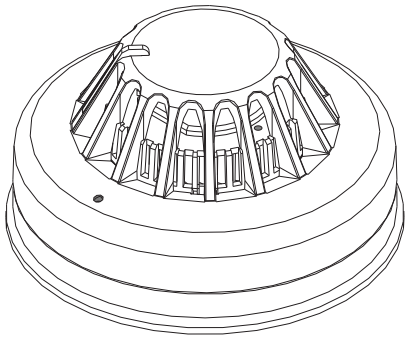
**COPP420 Analogue photoelectric sensor,** this is the most commonly used Sensor and is most suitable for detecting slow burning fires.

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the COP3000 control panel.



**COPOH450 Analogue photo/thermal sensor,** this is a new addition to the Cooper Fire Systems range of sensors. It is the ideal Sensorfor a multi-use environment as it has an excellent response to smouldering and fast burning fires. photo/thermal sensors can be programmed for thermal only operation at certain times of day

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the COP3000 control panel.



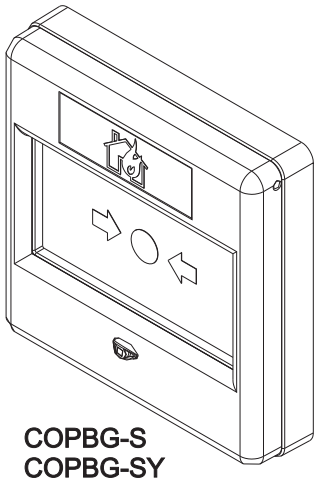
**COPH430 Analogue heat sensor,**
Heat sensors are suitable for dusty environments or environments where smoke is likely to be present under normal operating conditions. The CAH330 can be programmed to operate in A1R, BS or CS mode of operation depending on the required application and sensitivity requirements.

The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the COP3000 control panel.

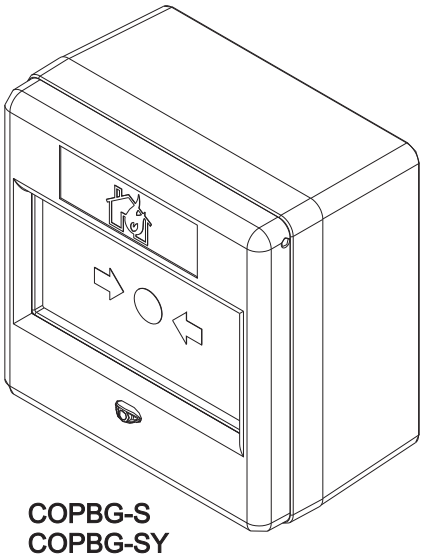
# Compatible Equipment

## Compatible callpoints

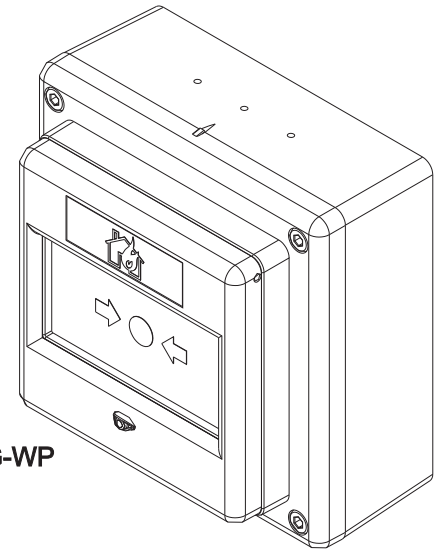
The range of purpose designed callpoints for COP3000 consists of a surface callpoint, a flush callpoint and a surface weatherproof callpoint.
A range of accessories is available including a hinged protective cover, resettable element kit and a flush bezel.
The status LED can be programmed to either be permanently off under normal conditions or to pulse in order to confirm that it is in communication with the COP3000 control panel.



COPBG-S
COPBG-SY



COPBG-S
COPBG-SY



COPBG-WP

## Compatible Sounders and Beacons

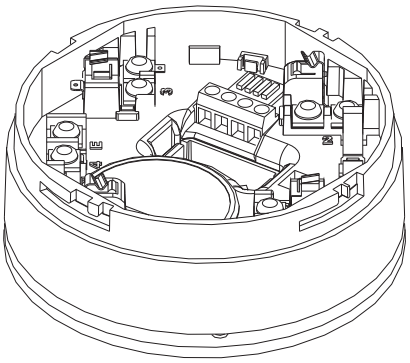
A wide range of loop powered sounders and beacons are available to operate with the COP3000, consisting of a combined sounder base with a maximum output of 95 dB(A), a standalone sounder with a maximum output of 100 dB(A) that is available in standard or weatherproof versions and a stand alone loop powered beacon.
For applications where a discreet dedicated sounder is required, a cover plate is available for the white base mounted sounder enabling it to be used as a stand alone wall or ceiling mounted sounder.
All of these devices are fully programmable via the sophisticated COP3000 multi stage cause and effect programming facilities.

All sounders have multiple selectable volume settings, the volume setting is controlled by the COP3000 panel and so can be altered without needing to access the sounder.

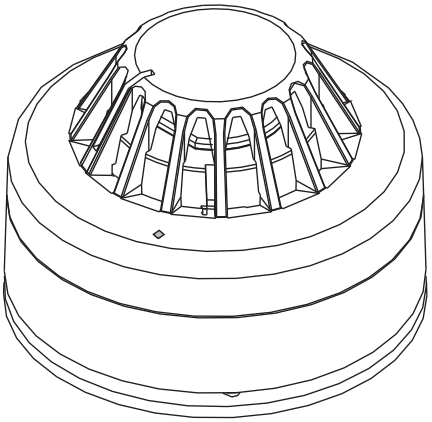
# Compatible Equipment

## Base sounder

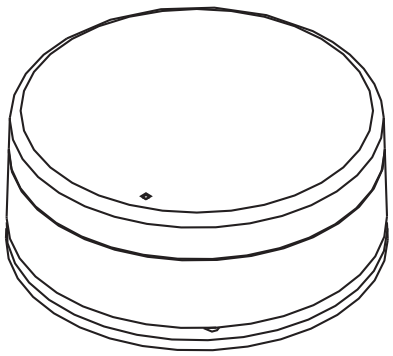
The CAS380 has been designed specifically to complement the latest generation of Cooper Fire Systems soft addressed sensors.
it consists of a first fix bracket, and a main body which clips onto the bracket incorporating the sounder and a Sensormounting base in a single composite assembly.



COPBS



COPBS with Sensor fitted

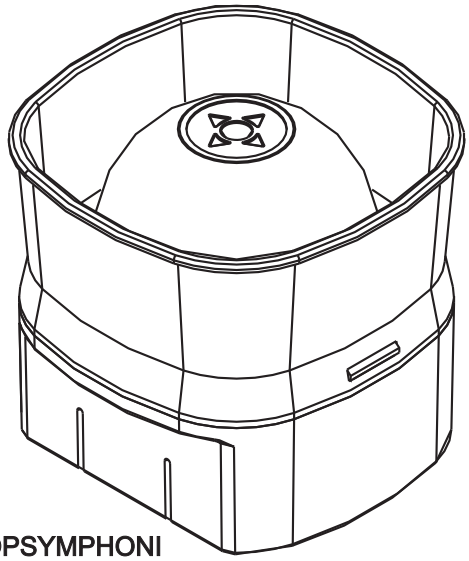


COPBS with CASC fitted

After the body has been clicked into place and connected, a Sensor or front cover is then added to complete a very simple, quick and neat installation.
The cover enables the CAS380 to be used as a discreet stand alone wall or ceiling mounted device.
The sounder base design incorporates a mechanism that can be activated if required to lock either the Sensor or the cover into place to prevent unauthorised removal.

## Dedicated Stand alone sounders

Stand alone sounders are ideal for applications where greater sound outputs are required than can be achieved with a base sounder or for applications requiring a higher level of resilience or ingress protection.
Two different versions are available standard version and an IP66 rated version.



COPSYMPHONI

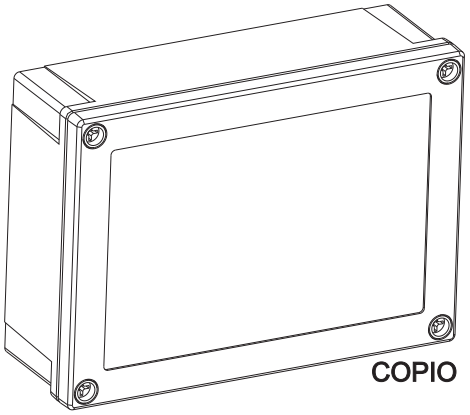
# Interfaces

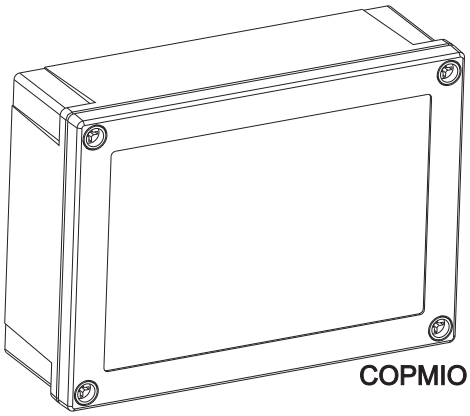
COP3000 has been designed to be suitable for a wide range of applications, various interfaces have been developed to enable the simple integration of other fire systems or building control and safety systems. The following devices are available:

## 3 Channel I/O device. (COPIO)

COPIO has 3 input channels and 3 output channels, it is used to monitor up to three separate inputs from equipment such as sprinkler flow switches and also to provide 3 separately controlled volt free output contacts which are intended to be used to control external equipment such as air handling plant or access control systems.
All inputs and outputs operate completely independently of each other and can be programmed using the sophisticated cause and effect capabilities of COP3000 to operate either globally or in response to activation of specific devices or specific inputs.
Inputs are monitored for open and short circuits, a specific resistance is required to activate an alarm condition, fully open or short circuit conditions are monitored and generate a system fault signal.
Inputs are suitable for use as fire signal inputs such as from a sprinkler flow switch , however they can also be used to monitor non fire inputs such as external keyswitches.

Outputs are rated to switch a maximum of 1A resistive at 30V DC.
The COPIO is supplied in a surface mounting IP65 box.


COPIO


COPMIO

## 1 Channel I/O device with mains rated switching capability (COPMIO)

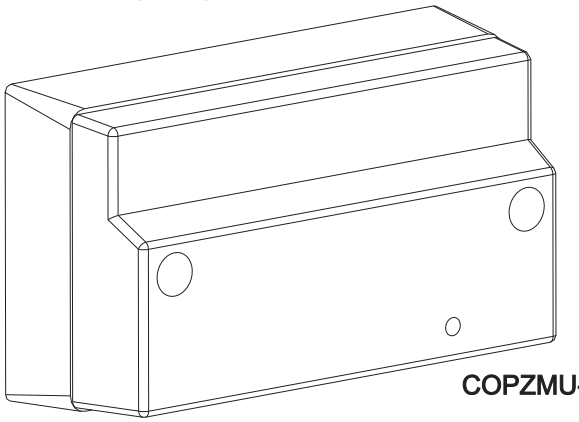
COPMIO is a single channel input / output unit, the output is capable of switching up to 1A at 230V AC.
Commonly used for applications such as door release controls and plant shut down signalling

The input is monitored for open and short circuits, a specific resistance is required to activate an alarm condition, fully open or short circuit conditions are monitored and generate a system fault signal.
The input is suitable for use as a fire signal input such as from a sprinkler flow switch, however it can also be used to monitor non fire inputs such as an external keyswitch to activate day night mode or other panel functions
The COPMIO is supplied in a surface mounting IP65 box.

# Interfaces

## Zone monitor unit

COPZMU-IS is designed to enable a zone of compatible conventional sensors and callpoints to be connected into the COP3000 loop,
For the compatibility refer to Sicli.
Please refer to local standards for details of the maximum allowable area to be covered by a single zone. COPZMU-IS fixes to a standard, deep, double gang back box and can be either surface or semi recess mounted. When semi recessed only the front section protrudes giving a maximum 29mm depth.



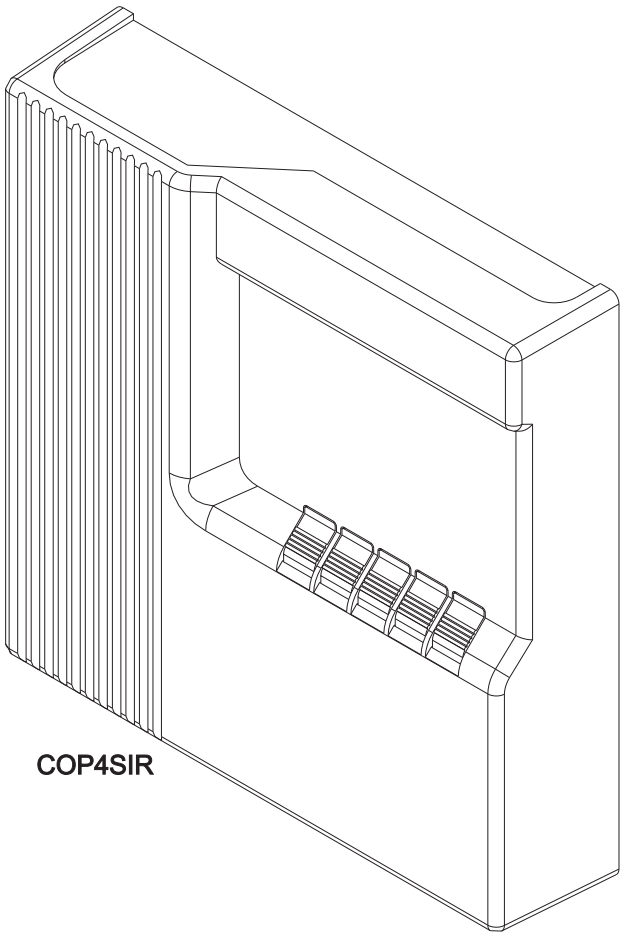
COPZMU-IS

# Interfaces

## 4 Way sounder circuit controller

COP4SIR provides power for 4 separately controllable conventional sounder circuits, each circuit can be separately programmed.
COP4SIR is designed to greatly simplify installation in applications where specialist sounders or beacons are required since it powers the sounders and allows full control of the sounder operation without having to wire the sounder back to the COP3000 control panel.

A 4 way unit takes up a single address but each circuit can be independently controlled.
A COP4SIR unit requires a local un-switched 230V supply and incorporates a back up battery to 24 hours of standby operation followed by a minimum of 30 minutes of full alarm ringing.
A standby of 72 hours can be achieved at the expense of reduced load capability.



COP4SIR

# Equipment Compatibility

## Relays / Auto-dialers and auxiliary equipment

A wide variety of relays and other equipment can be connected to the COP3000 system, but you should note the following constraints:

1) COP3000 provides monitored outputs to drive fire and fault relays mounted in external equipment. External relays should be suppressed. If a non-suppressed relay is used then a diode can be connected as shown in the wiring diagram in the appendix, to suppress any reverse EMF on the release of the relay which might cause the panel to malfunction.

2) A 24V DC output is provided at the panel to make it easy to connect ancillary equipment. The panel can supply a continuous quiescent load of up to 100mA.

# Equipment Compatibility

## Additional instructions for electromagnetic compatibility

When used as intended this product complies with EMC Directive (89/336/EEC) and the UK EMC regulations 1992 (SI 2372/1992) by meeting the limits set by the standards BS 5406 (Pts 2&3) 1988, EN50130-4 immunity and EN 61000-6-3 emission requirements.

The following installation guidelines must be followed.
1. External cables must be connected using the cable entries or knockouts provided.
2. When routing external cables inside the product they must be
 a) Kept as short as possible
 b) Routed close to the housing
 c) Kept as far as possible from the electronics

Any modifications other than those stated in this manual, or any other use of this product may cause interference and it is the responsibility of the user to comply with the EMC and Low Voltage Directives.

# System Overview

## Simple user interface

The main element of the COP3000 user interface is a large (120mm x 90mm visible area) touch screen display, which provides comprehensive user information and also acts as a multifunctional keypad.

Comprehensive context sensitive help information is provided throughout the menus to assist unfamiliar users with system operation.

The COP3000 touch screen display automatically reconfigures to suit the selected function, for example, if the change device text menu option is selected, the touch screen is automatically formatted as a full QWERTY keyboard to enable fast and simple text entry.

The use of the touch screen display enables a wide range of user and engineering facilities to be incorporated into the panel whilst still offering simple operation.

As well as a large format LCD display providing full system status information, the panel incorporates 96 traditional zone indication LED's to provide clear information about the status and spread of a fire even to a user who is completely unfamiliar with the operation of the system.
In addition there are a number of system status LED's designed to give clear status information to non technical users

## User configuration and maintenance facilities

COP3000 has comprehensive facilities for on site system configuration, whereby the user can add or remove simple devices or change device text directly via the panel, without the need for a service engineer to visit site.  For initial configuration or major system changes special PC configuration software is available enabling Cooper Service personnel to do this more efficiently than can be achieved using the system screen. Exiting configurations can be uploaded to the PC so that changes can be made to the existing system rather than having to revert to initial files.

## Sophisticated sounder control facilities

COP3000 has the ability to support highly complex ringing pattern requirements. Multistage cause and effect programming is possible whereby each addressable sounder or output interface can be programmed independently if required and can be set to respond to specific addresses, specific detection zones, specific panels on a networked system or standard global ringing.
The panel supports three separate sets of programming per sounder and each stage can be triggered differently For example, if a single sensor is triggered the panel can

be programmed such that the sounder nearest to the sensor operates immediately and continuously, the remaining sounders in the affected zone operate in pulsed mode and the other sounders delay for a selectable period to allow the cause of the alarm to be investigated before global ringing commences.

## Soft addressing

COP3000 utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes.
Once the system has been installed and the autolearn menu selected, the COP3000 control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop, this avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.

Every COP3000 analogue device incorporates an integral short circuit isolator ensuring maximum system integrity. A single short circuit will not disable any loop-mounted devices, the isolators in the devices each side of the short circuit will operate and the COP3000 control panel will drive communication from both ends of the loop.

## Simple future expansion

COP3000 is designed to ensure simplicity of future expansion.
If an additional device is added after the system has been programmed, the COP3000 will allocate the next available address, it will not alter any of the existing address numbers allocation thus enabling simple updating of as fitted drawings etc.
Similarly if a device is removed, the relevant address is saved as a spare address for future use, the addresses of the remaining devices are not altered.

## Integral Power Supply and Battery

The COP3000 panel is designed for ease of installation, the power supply and battery are integral to the main control panel so only a single panel is required even on large 4 loop systems.
Systems are available with either standard or extended capacity battery configurations. Where system loading and standby period requirements necessitate an extended capacity battery, a deeper backbox is utilised thus avoiding the need for a separate battery enclosure.
The COP3000 charger is suitable for both standard and extended capacity batteries.

# System Overview

## Optional printer

COP3000 panels are available with optional built in printers.
Where a printer is fitted, it is housed behind a printer cover door, which can be opened by means of a special tool (Supplied) to provide simple and safe access to the printer paper roll without exposure to any live equipment.
Paper replacement is extremely simple due to the drop in loading method and auto feed printer design, the paper roll is simply dropped into the purpose designed cradle and the end of the roll is then offered up to the printer, which will then automatically load the paper ready for use.
The printer can be set to either print automatically or to print on demand
When a printer is not fitted, a removable, flush fitting blanking plate is used to cover the printer paper aperture to enhance the appearance of COP3000 and to preserve its ingress protection rating.

## Hinged lockable cover.

With a standard panel, access to all panel functions is controlled by a series of pass codes, which are entered via the touch screen display, for maximum security, a facility is built into the COP3000 to enable the user to alter the user pass code as required.
To provide a high level of resilience, a clear hinged lockable front cover is available which allows the screen and all of the system status indicators to be clearly seen but prevents access without first unlocking the cover.
A single concealed locking mechanism provides access to both the printer door and the display cover.  Additional buttons are provided to scroll the display and to silence the fault buzzer without opening the lockable cover

# Technical Specification

## Power Supply (Approved EN54 pt 4)

Mains

| | | |
|---|---|---|
| Nominal Voltage | : 230 Vac + 10%, -15% | |
| Nominal Current | : 75mA | |
| Maximum Current | : 750mA | |
| Input Fuse R1 | : NTC SG39 Imax 4Amp | |
| Output Voltage including tolerances | : 26V | = 18.5 to 29.5Volts |
| | : 26V RAW | = 18.5 to 29.5Volts |
| | : 5Volt Output | = 4.6V to 5.5V |
| Ripple Voltages | : 26V | = 800mV |
| | : 26V RAW | = 800mV |
| | : 5Volt Output | = 430mV |
| Maximum Loadings | : 26V O/P | = 0.98A } * I max b |
| | : 26V RAW O/P | = 1.7A } |
| | : 5V | = 0.5A |
| Standby Current (4 Loops Loaded) | : 26V | = 280mA } * I max a |
| | : 26V RAW | = 150mA } |
| | : 26V | = 280mA } * I min |
| | : 26V RAW | = 150mA } |
| | : 5V | = 43mA |

COP6000 is protected by an internal thermal device, this requires no maintenance

* I max a, I max b & I min = Current as specified in BSEN54-4 Published 2006 (Amendments 1 & 2)

## Batteries

| | |
|---|---|
| Number of Batteries | : 2 |
| Manufacturer: | :YUASA NP12-12 |
| Capacity | : 12 Ah |
| Battery Fuse | : 6.3A Anti-Surge (F4) |
| Maximum battery current; | : 3.5 Amps |
| Standby current (mA) | : 175 (4 loops), 125 (2 loops) |
| Maximum Charging Current to the Batteries | : 1.0amp |
| Float Voltage | : 27.4 Volts |
| Final Voltage | : 21.0Volts |
| Charging Characteristics | : Constant Voltage with 0.970A limit with temperature compensation |
| Maximum current drawn from the batteries when the mains is not available | : 3.5Amps |
| Deep Discharge Protection | : 20.6 Volts |
| Battery Internal Impedance Fault | : >0.5 ohms |

## Inputs

Addressable Loops

| | |
|---|---|
| Max Number | : 1 - 4 |
| Max Loop Load per loop | : 220 mA |
| Max Number of Addressable Devices per loop | : 220 |
| Class Change | : Operated by external volt free contact |

## Outputs

### Conventional sounder circuits

| | |
|---|---|
| Number of sounder circuits | : 4 |
| Total sounder Load | : 1.5 Amps |
| Sounder Circuit Fuses (F1/2/3/4) | : 1.6 Amp (Quick Blow) |
| End of line resistor | : 6k8 |

### Fire Routing Equipment

| | |
|---|---|
| Max Load | : 60 mA |
| Fused (PTC2) | : 100mA polyswitch |
| End of Line resistor | : 6k8 |

# Technical Specification

End of Line resistor : 6k8

**Fire Protecting Equipment**
Max Load : 60 mA
Fused (PTC3) : 100 mA Polyswitch
End of Line resistor : 6k8

**Fault Routing equipment**
Max Load : 30 mA
Fused (PTC1) : 100 mA Polyswitch
End of Line resistor : 6k8

**Auxiliary Relays**
The auxiliary relays provide fused volt free change over contacts. These contacts are not monitored.
Max Load : 24 Volts 1 Amp
Fuse (PTC4) : 1.35 Amps Polyswitch

**Auxiliary 24V Supply**
Nominal Voltage : 24 Volts ±10%
Fuse (PTC5) : 100 mA Polyswitch
Maximum current : 30 mA
This output is not to be used for Fire protecting equipment or Fire alarm routing Equipment
Any power taken from the alarm system will effect the standby duration

**RS485 Port**
This is a serial output port for driving COP6000 Repeater panels, mimics etc..
This output is short circuit protected
Max Cable Length : 2 Km
Min Recommended cable size : 1 mm² (Screened)

**RS232 Port**
This is a serial output port for driving COP6000 Repeater panels, mimic etc..
This output is short circuit protected

**Printer** (Optional)
Type : High speed thermal
Number of Characters per Line : 40
Type of paper : 58mm x 46mm Thermal Roll
Replacement paper roll order code : .ADF6PRINTERPAPER

## Mechanical Specification

Weight including batteries : 18 Kg
Weight excluding batteries : 9 Kg
Dimensions (Standard batteries) : 495 mm (L) x 395 mm(H) x 180 mm(D)
Type of Material (backbox) : Mild Steel (Power Coated)
Type of Material (Facia) : PC/ABS
Flammability Rating : UL 94 V0
Total Number of knockouts : 51
Diameter of Knock out : 20 mm

Anti-Tamper Cover ( Optional)

Weight : 250 g
Material used : Polycarbonate
Flammability Rating : UL 94 5VA

TERMINAL BLOCKS : DO NOT USE EXCESSIVE FORCE WHEN TIGHTENING THE SCREWS ON THE TERMINAL BLOCK

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE
DISPOSE OF THE USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

# Optional Functions as per EN54 P2&4

COP3000 is approved to EN54 Parts 2 & 4 including all the following options which can be selected as required

## Panel Outputs

Panel Sounders: (OPTION 7.8 EN54 PT 2)

Two pairs of outputs are provided. ONLY polarised equipment should be used.
Ensure the polarity of the connections are observed at all times and end of line resistors (6K8 5%) are fitted for correct operation.
The total alarm load across all sounder outputs = 1.5 Amp
All outputs are fused with 1.6 Amp Glass fuse  Alarm devices should be spread equally across the 4 sounder circuits.
WARNING: DO NOT EXCEED THE RATED OUTPUT CURRENT

## Output Fire Alarm Routing Equipment (Option 7.9 EN54 PT 2)

This output, which is fused, and monitored using a 6.8k end of line resistor, is used for the automatic transmission of the fire signals to fire alarm routing equipment (e.g. Fire brigade). It operates by providing 24 Volt output to an auxiliary device ( e.g. relay).
It is current limited to 30 mA using a resettable polyswitch. Class change and test conditions  do not operate this output. If operated under a fire alarm condition, the indication will be displayed on the Touch screen display and will remain until the fire alarm is reset.
Ensure the polarity of the connections are observed at all times and end of line resistors ( 6K8 5% ) are fitted for correct operation.

## Output to Fire Alarm  Protecting  Equipment (Option 7.10 EN54 PT 2)

This output, which is fused, and monitored using a 6.8k end of line resisters used for the transmission of the fire signals to controls for automatic fire protecting equipment (e.g. Door released units etc).It operates by providing 24 Volt output to an auxiliary device ( e.g. relay).
It is current limited to 30 mA using a resettable. polyswitch. Class change and test conditions  do not operate this output. If operated under a fire alarm condition , this output  remains energised until the fire alarm is reset.
Ensure the polarity of the connections is observed at all times and end of line resistors ( 6K8 5% ) are fitted for correct operation.

## Output to Fault Warning Routing Equipment (Option 9.4.1C EN54 PT 2)

This output, which is fused and monitored using 6.8k end of line resistor,  is used for the transmission of fault signals to fault warning routing equipment This output is monitored using 6k8 end of line resistor and it current limited to 30 mA.Under normal condition it operates by providing 12vdc which can be connected directly to a 12v auxiliary device.

relay).It is current limited to 30 mA.
Under fault conditions or even if the COP3000 is powered down, this output will be switch to O volts.
Ensure the polarity of the connections is observed at all times and end of line resistors ( 6K8 5% ) are fitted for correct operation.

## Delays to outputs (Option 7.11 of EN54pt 2)

The COP3000 has the option to delay the operation of panel sounders, the fire routing equipment output and the fire protecting Equipment. This delay is selectable using the COP3000 site installer download software .The delay is configurable in increments of 1 minute up to a maximum of 10 minutes.
This delay can be enabled and disabled at access level 2.
The COP3000 has the facility for a specific call point to override this delay by programming this call point via an input interface to provide an evacuate signal using COP3000 site Installer.

## Coincidence Detection (Option 7.12 of EN54 pt 2)

The COP3000 has the facility to inhibit the operation of the output sounders, Output to Fire routing equipment and the output of the fire protecting equipment until one more confirmatory signals are received from different zones. This feature is programmable using COP3000 Site Installer Software.

# Optional Functions as per EN54 P2&4

## Alarm Counter :  (OPTION 7.13 EN54 PT 2)

The panel records the number of instances that it enters the fire alarm condition. This is abbreviated in the touch screen by "AC" and it is displayed in the fire window at access level 2.This counter can only be reset by the manufacturer.

## Inputs/Outputs to the Fire Brigade Panel

Outputs

Output 1: AUX2 output

This output is ON in alarm condition to indicate that the COP3000 Control and indicating equipment has operated the AUX output

Output 2: Fire Routing Equipment operated "Fire Brigade Link"

This output is ON in alarm condition to indicate that the COP3000 Control and indicating equipment has operated the fire routing equipment (option 7.9 of EN54 pt2 ).

Output 3: Disablement of Fire Protecting Equipment

This output is ON to indicate that the fire Protecting equipment has been disabled either by the COP3000 Control and indicating equipment or the Fire Brigade Panel.

# Optional Functions as per EN54 P2&4

**Output 4: Disablement of the Fire Routing Equipment**

This output is ON to indicator that the fire routing equipment has been disabled either by the COP3000 Control and indicating equipment or the Fire Brigade Panel.

**Output 5: Reset from Fire Alarm Condition**

This output is ON to indicate that the COP3000 control and indicating Equipment is in alarm condition. This output will remain on for at least 15mins after reset or when the reset has been activated from the Fire Alarm Brigade Panel

**Output 6: Disablement of Sounders**

This output is ON to indicate that the sounders have been disabled either by the COP3000 control and indicating equipment or the Fire Brigade Panel.

## Inputs

**Input 1: Reset**

This input is used to reset the control and indicating equipment

**Input 2: Testing of Fire Routing Equipment**

This input is used to test the output to the fire routing equipment

**Input 3: Disablement of the Fire Routing Equipment**

This input is used to disable the fire routing equipment output of the COP3000. Whilst the FRE is disabled by this input, it can not be re-enabled by the COP3000 control panel

**Input 4: Disablement of the Fire Protecting Equipment**

This input is used to disable the fire protecting equipment output of the COP3000. Whilst the FRE is disabled by this input, it can not be re-enabled by the COP3000 control panel

**Input 5: Disablement of Sounders**

This input is used to disable the sounders of the COP3000. The disablement of sounders from the Fire Brigade Panel can be re-abled from the COP3000 control panel only when the system is not Alarm State.

# Cable & Wiring

Only the cable types listed below are allowable for loop connections.

1. Enhanced Fire TUF
2. Fire TUF™
3. FP200
4. MICC

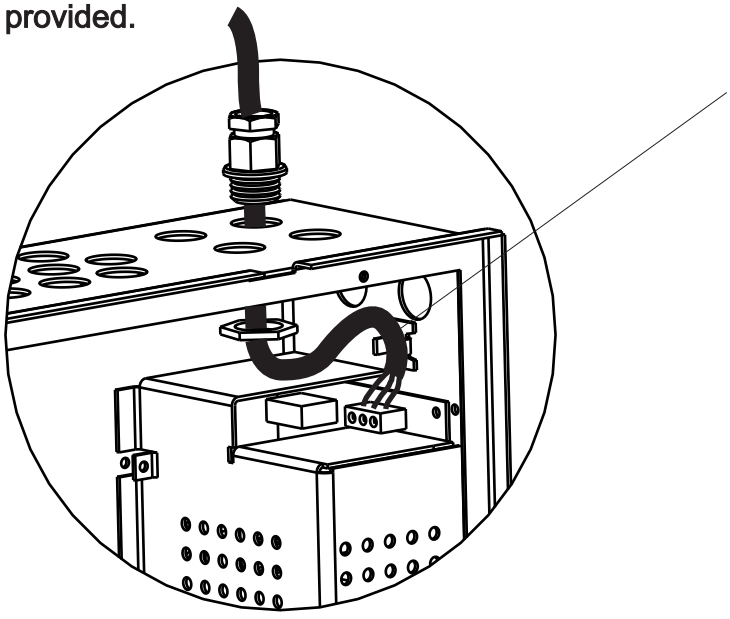
When choosing your preferred cable type, you must take note of the following cable and wiring requirements.

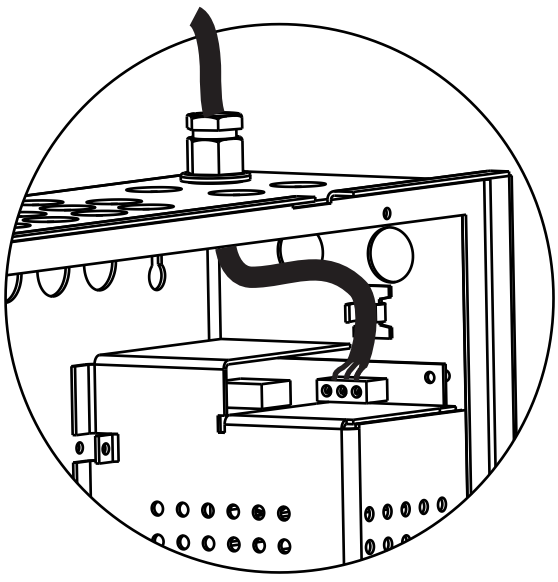
1. The cable must be 2 core screened with an over sheath.
2. Maximum loop length with any of the above cables is 2KM
3. Maximum volt drop must be limited to 7 volts.
4. The conductors should be 1.5mm minimum and no larger than 2.5mm
5. Multicore cable should not be used for Sensor wiring.
6. Different loops should **NEVER** be run within the same cable.
7. Loop feeds and returns should **NEVER** be used within the same cable.

## Cable Resistance

| Core Diameter | Typical FP200 Resistance |
|---|---|
| 1.0mm² | 18.1 Ohms/km/Core |
| 1.5mm² | 12.1 Ohms/km/Core |
| 2.5mm² | 7.41 Ohms/km/Core |
| 4.0mm² | 4.61 Ohms/km/Core |

**Cable Anchorage**
The mains cable must be fixed securely with a 20mm cable gland. Remove a suitably located knockout feed the cable through the gland and bolt the gland to the COP3000 backbox as shown. Secure the cable to the side of the box using the cable clip provided.





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

# Installation

The panel should be installed in a clean, dry, reasonably well ventilated place, and not in direct sunlight. Temperatures in excess of 40°C and below 5°C should be avoided, if in doubt consult Cooper Service. The panel should be located away from any potential hazard, in a position where it is readily accessible to authorised staff, and the fire services, ideally on the perimeter of a building near a permanent entrance. Mount the panel to the wall using dimensions provided on page 32. Do not drill through the panel to the wall as dust will contaminate the circuitry.

## Installation Guide

! Never carry out insulation tests on cables connected to electronic equipment.

! DO NOT OVER TIGHTEN TERMINAL CONNECTOR SCREWS

! Always use the correct type of cables specifically designed for the operation of fire detection and alarm circuits.

! Always adhere to volt drop limitation when sizing cables

! Always observe polarity throughout. Non colour coded conductors should be permanently identified.

! Screen continuity must be maintained throughout the entire loop circuit including at each junction point and at each device, terminals are provided on each device to facilitate this.

! The screen should be earthed at the connection point provided at the COP3000 panel and not at any other point. Both the loop start and the loop end must be connected to the appropriate earthing points.
Care must be taken to avoid connecting the screen to the earthed body of any metal devices, enclosures or cable containment. The screen or drain wire of the loop cables should not be considered as safety earth and therefore should not be connected to terminals marked with the earth symbol, except at the panel, and should not be insulated with green and yellow sleeving.

! COP3000 utilises intelligent soft addressing technology to greatly simplify the installation and commissioning processes. Once the system has been installed and the autolearn menu selected, the COP3000 control panel will automatically scan the detection loops and allocate each device with an address number corresponding with its position on the loop, this avoids the traditional need for manual addressing of the system devices which is time consuming and provides a potential for error.

! It is of vital importance that accurate details are kept of the exact wiring route in order to determine which address has been allocated to each device.

# Fixing details

Read all the installation instructions before commencing with the installation. The installation of this panel must be carried out by a suitably qualified /trained person. The installation must comply with IEE wiring regulations and with BS5839 part 1 2002

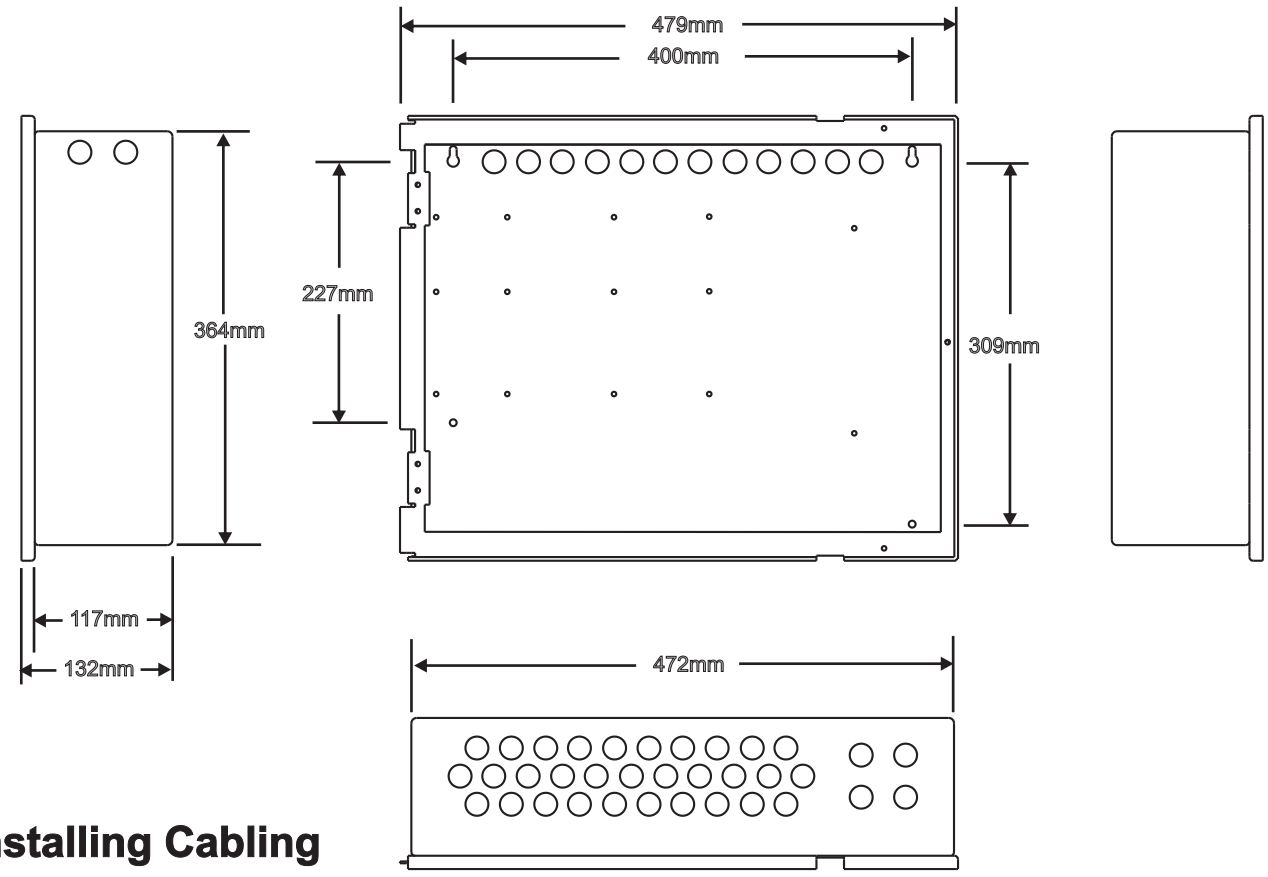
**The electronic components within the fire panel are Static Sensitive. Do not touch the electronics directly.**

## Mounting the Backbox

The COP3000 can be flush mount or surface mounted.

1, Surface Mount; drill four holes and fix the backbox to the wall.

2, Flush mounting the backbox requires a hole 364x 472 with a depth of 117mm (standard battery / backbox ) or 217 mm if deep backbox is used.




## Installing Cabling

Once the backbox is mounted the next stage is to install the power and loop cables and fit the glands.

# External Connections (Mains Supply)

The mains supply should be installed in accordance with the current edition of the IEE wiring regulations. Connection to the mains supply must be via an isolating device (e.g. an isolating fuse rated at 3Amps maximum) reserved solely for the fire alarm system. The cover should be coloured red and labelled “FIRE ALARM - DO NOT SWITCH OFF”. The isolating protective device should be secure from unauthorised operation and ideally installed in a securely closed box with a breakable cover.

An additional warning label should be provided, depending on whether:-

a) The isolating protective device is fed from the live side of the main isolating device in which case the label on the isolating protective device, should read in addition - “WARNING: THIS SUPPLY REMAINS ALIVE WHEN THE MAIN SWITCH IS TURNED OFF”. A further label should be placed on the main isolating device reading “WARNING: THE FIRE ALARM SUPPLY REMAINS LIVE WHEN THIS SWITCH IS TURNED OFF.

Or

b) If the isolating protective device is fed from the dead side of the main isolating device, a label should be fixed to the main isolating device reading “WARNING: THIS SWITCH ALSO CONTROLS THE SUPPLY TO THE FIRE ALARM SYSTEM”.

**Distributed Power Supplies**
The above also applies to any distributed power supply (i.e. mains connections for COP3000/PR repeat units CSC354/O relay units, etc.)

**Cable Segregation**
All cables for the fire alarm system should be segregated from any other cables/wiring/services.

**Wiring configurations**
Spurs can be taken off the loop in the following ways:

1) CZMU352/O Addressable Interface - Allows up to 20 conventional smoke detectors and unlimited Cooper conventinal call points.
2) Direct Loop Spur Wiring - Allows a zone of analogue sensors and callpoints to be directly spurred off the loop

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

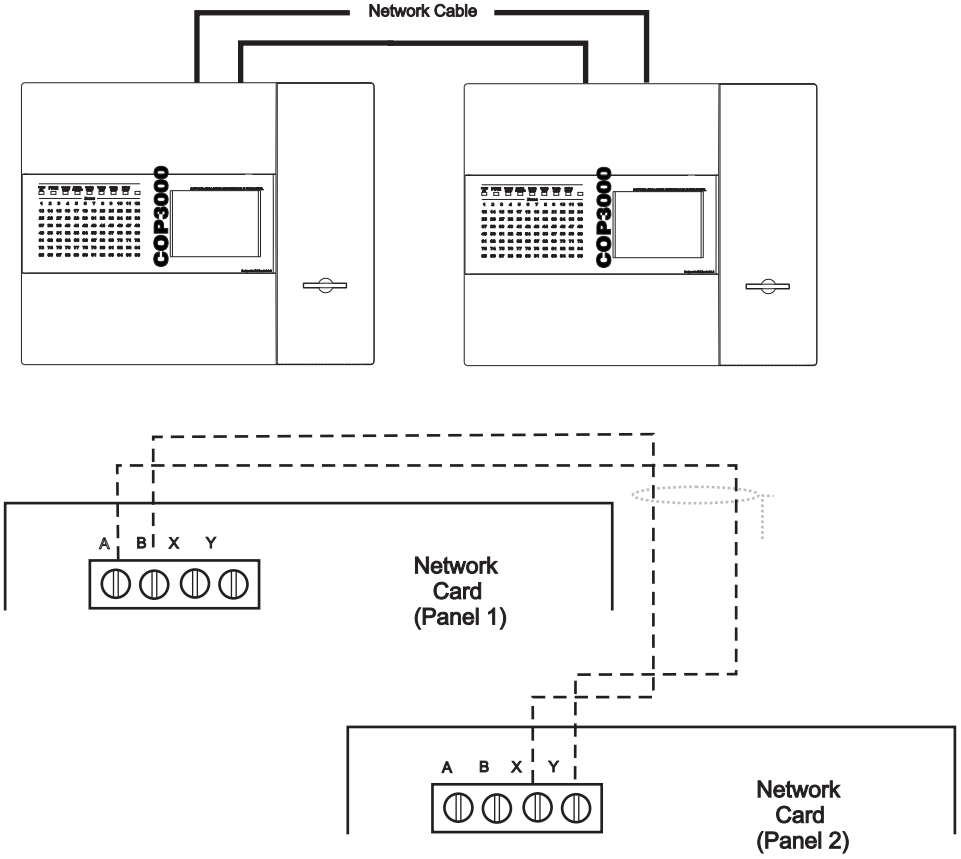
# Networking

Up to sixty three COP3000 panels, or passive repeaters can be networked together to operate as a single networked system. To achieve this each panel must be fitted with a network card (supplied at additional cost.)
When operating as a networked system all fire and fault event information is displayed at every panel, silencing and resetting of alarms can also be carried out from any panel on a networked system if panels are suitably configured.

Networked panels are connected using a loop topology as illustrated.

Networked panels can be used as active repeaters, alternatively a low cost passive repeater is available.
This can either be connected to a loop of an individual panel or it can be connected to the network, via a network card.

The recommended network cable for the network connection between panels is an enhanced Firetuf cable Manufactured by Draka cables (part number 910234.)
Screen continuity must be maintained throughout the entire network circuit including at each junction point. The cable should be grounded at least once per segment and preferably at each device. Grounding the shield at every device assists in suppressing 50/60Hz standing waves.The screen or drain wire of the network cable should not be considered as a safety earth and therefore should not be connected to terminals marked with the earth symbol, except at the panel, and should not be insulated with green and yellow sleeving
Where the network cable passes between buildings, screen continuity should not be maintained from building to building. A booster device must however be used irrespective of cable length and should be fitted at a suitable point in the link between buildings. The cable screen should be connected to the earth of one panel in each building.

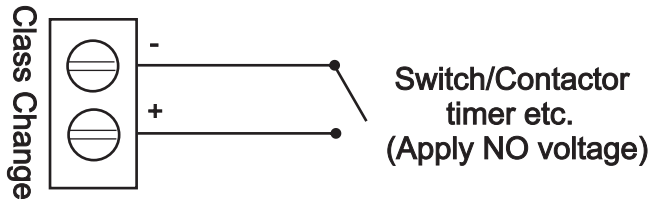


# Input/Outputs

**PANEL INPUTS**
Class Change: ( OPTION NOT REQUIRED BY EN54)
A pair of terminals are provided for class change. By shorting these terminals together (e.g. Switch, Time clock) the alarm will sound (Panel sounders + loop sounders only). The Panel will not indicate a Fire. The alarm will cancel when the short circuit is removed. If the short circuit is not removed the alarms will not cancel.

NOTE: IT IS RECOMMENDED THAT THIS INPUT IS WIRED USING FIRETUF, FP200 OR MICC CABLE WITH THE SCREEN CONNECTED TO THE EARTHING POINTS IN THE PANEL ENCLOSURE

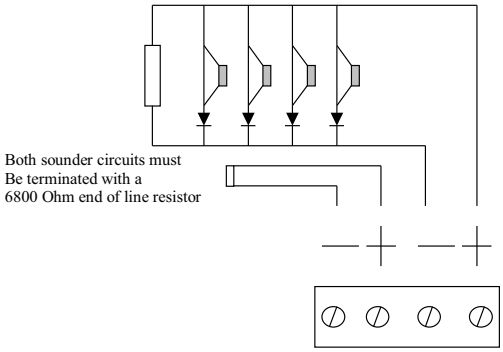
WARNING: NO VOLTAGE SHOULD BE APPLIED TO THIS INPUT




**PANEL OUTPUTS**
Panel Sounders: (OPTION 7.8 EN54 PT 2)
Two pairs of outputs are provided. ONLY polarised equipment should be used. Ensure the polarity of the connections are observed at all times and end of line resistors (6K8 5%) are fitted for correct operation. The total alarm load across all sounder outputs = 1.5 Amp. All outputs are fused with 1.6 Amp Glass fuse Alarm devices should be spread equally across the 4 sounder circuits.

WARNING: DO NOT EXCEED THE RATED OUTPUT CURRENT

**All Sounders must be polarised**




OUTPUT FIRE ALARM ROUTING EQUIPMENT (OPTION 7.9 EN54 PT 2)

This output, which is fused and monitored using a 6.8k end of line resistor, is used for the automatic transmission of the fire signals to fire alarm routing equipment (e.g. Fire brigade). It operates by providing 12 Volt output to an auxiliary device ( e.g. relay).
It is current limited to 30 mA using a resettable polyswitch.
Class change and test conditions do not operate this output. If operated under a fire alarm condition, the indication will be displayed on the Touch screen display and will remain until the fire alarm is reset.
Ensure the polarity of the connections are observed at all times and end of line resistors ( 6K8 5% ) are fitted for correct operation.

# Input/Outputs

**PANEL INPUTS**
Class Change: ( OPTION NOT REQUIRED BY EN54)
A pair of terminals are provided for class change. By shorting these terminals together (e.g. Switch, Time clock) the alarm will sound (Panel sounders + loop sounders only). The Panel will not indicate a Fire. The alarm will cancel when the short circuit is removed. If the short circuit is not removed the alarms will not cancel.

WARNING: NO VOLTAGE SHOULD BE APPLIED TO THIS INPUT

**PANEL OUTPUTS**
Panel Sounders: (OPTION 7.8 EN54 PT 2)
Two pairs of outputs are provided. ONLY polarised equipment should be used.
Ensure the polarity of the connections are observed at all times and end of line resistors (6K8 5%) are fitted for correct operation.
The total alarm load across all sounder outputs = 1.5 Amp
All outputs are fused with 1.6 Amp Glass fuse  Alarm devices should be spread equally across the 4 sounder circuits.
WARNING: DO NOT EXCEED THE RATED OUTPUT CURRENT

OUTPUT FIRE ALARM ROUTING EQUIPMENT (OPTION 7.9 EN54 PT 2)

This output, which is fused and monitored using a 6.8k end of line resistor, is used for the automatic transmission of the fire signals  to fire alarm routing equipment (e.g. Fire brigade). It operates by providing 12 Volt output to an auxiliary device ( e.g. relay).
It is current limited to 30 mA using a resettable polyswitch.
Class change and test conditions  do not operate this output. If operated under a fire alarm condition, the indication will be displayed on the Touch screen display and will remain until the fire alarm is reset.
Ensure the polarity of the connections are observed at all times and end of line resistors ( 6K8 5% ) are fitted for correct operation.

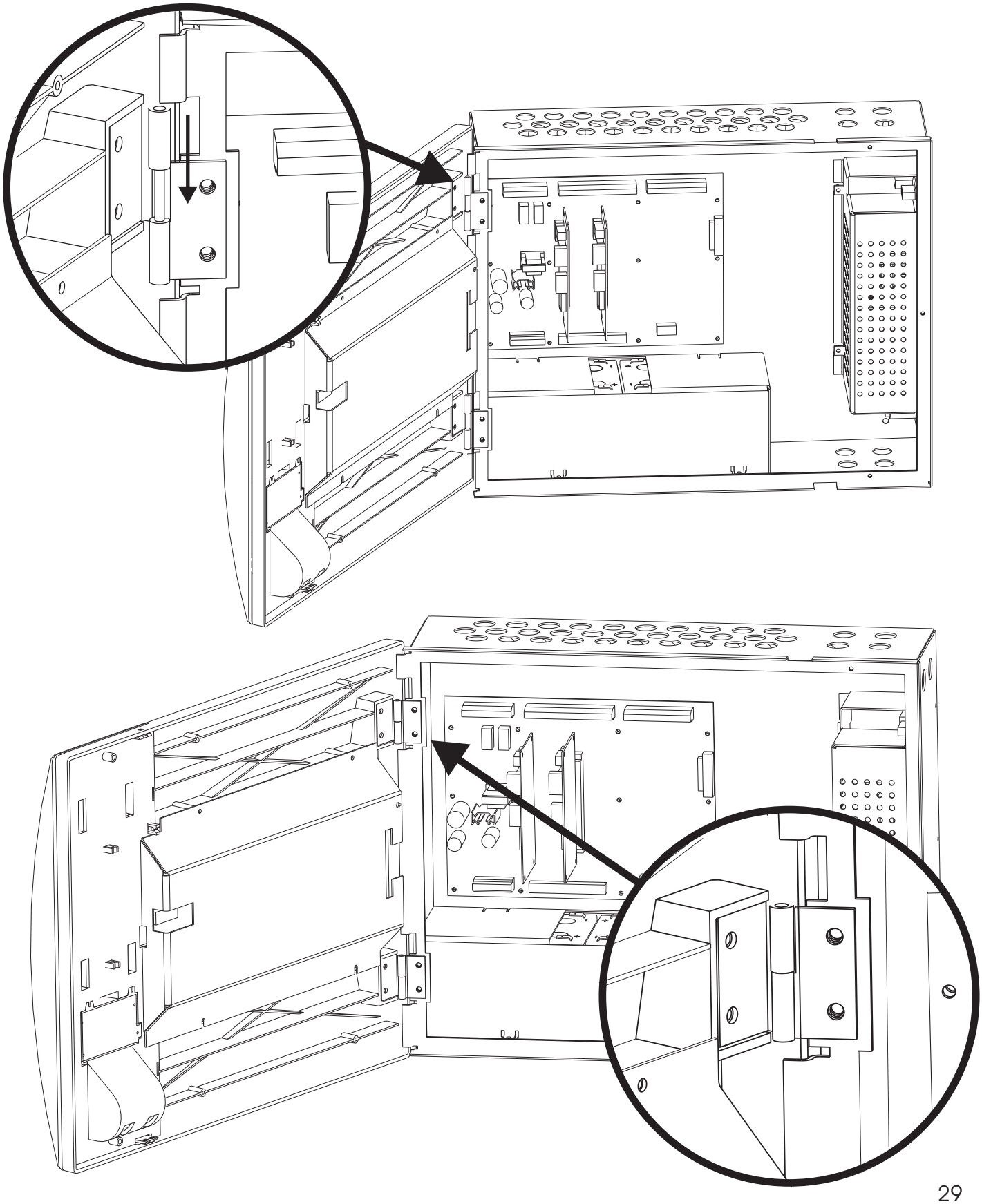
OUTPUT AUX2

# Section 2

# Panel Assembly Information

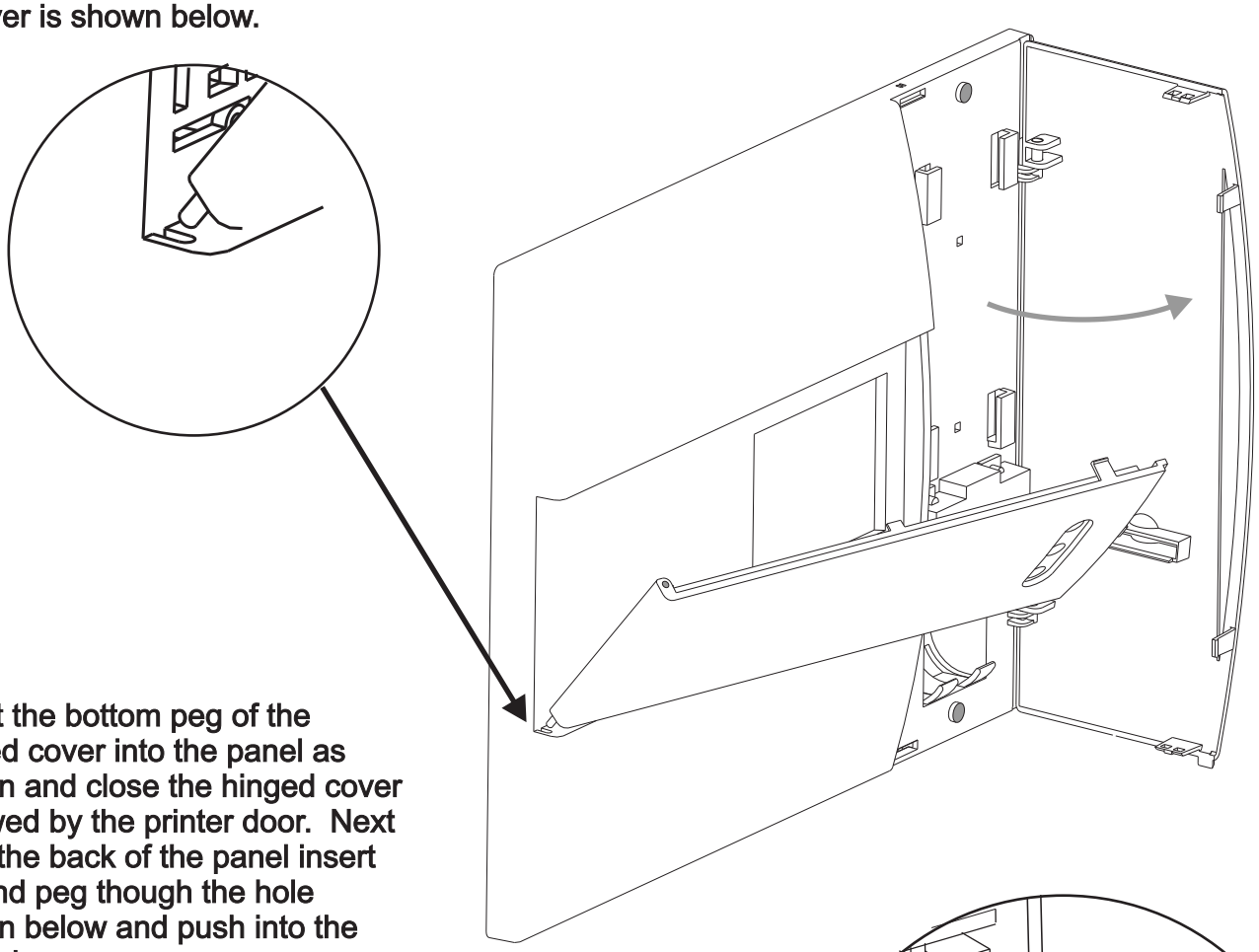
# Attaching the door

The door is designed as a drop on fit. Offer the door up to the back box in the open position as shown below. Align the hinges and lower the door onto the hinge pins. Check the hinges are secure.

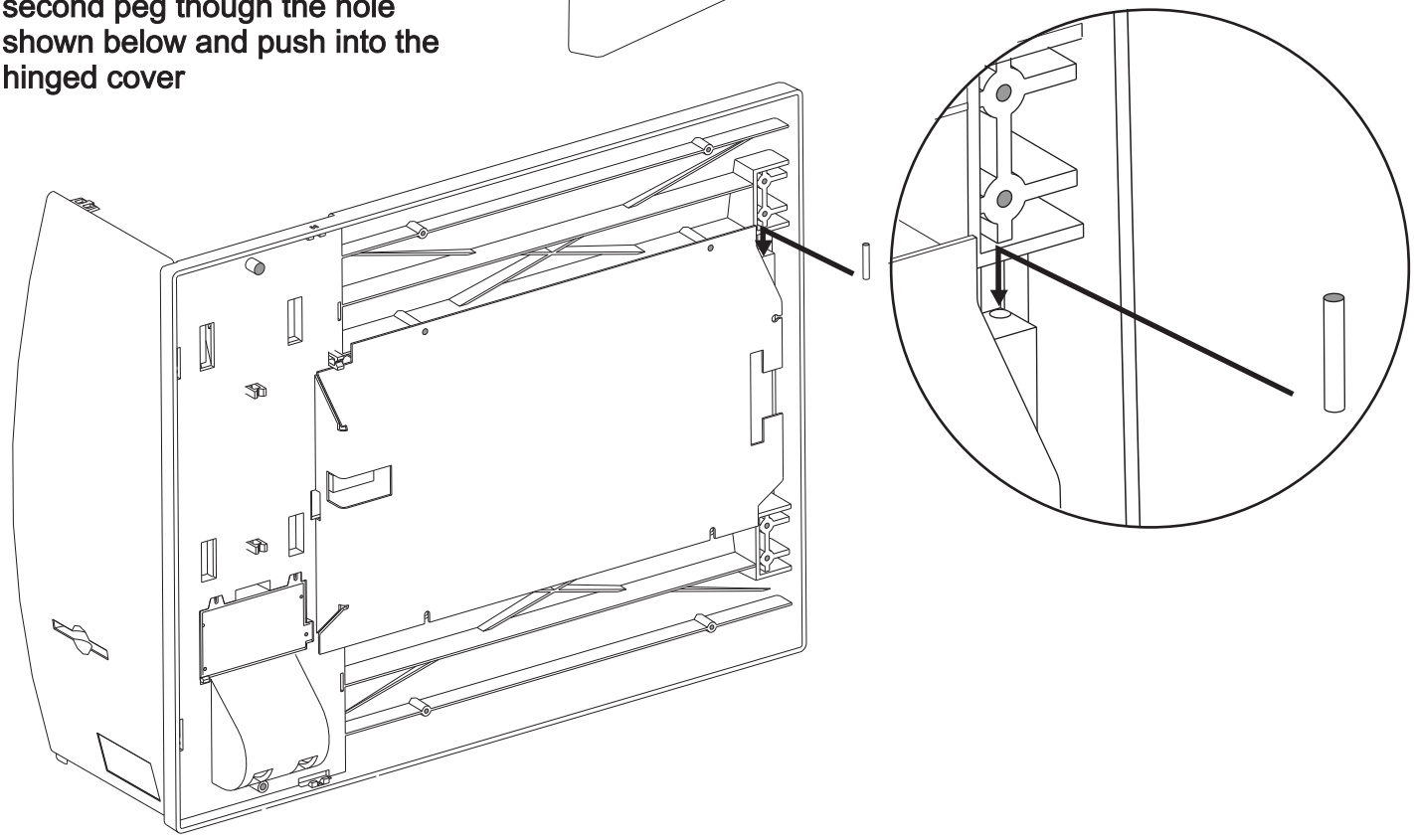


# Installing a screen cover

An option hinged cover is available as an optional extra item for COP3000. This can be fitted as standard equipment prior to despatch or retro-fitted later. The method for fitting a cover is shown below.



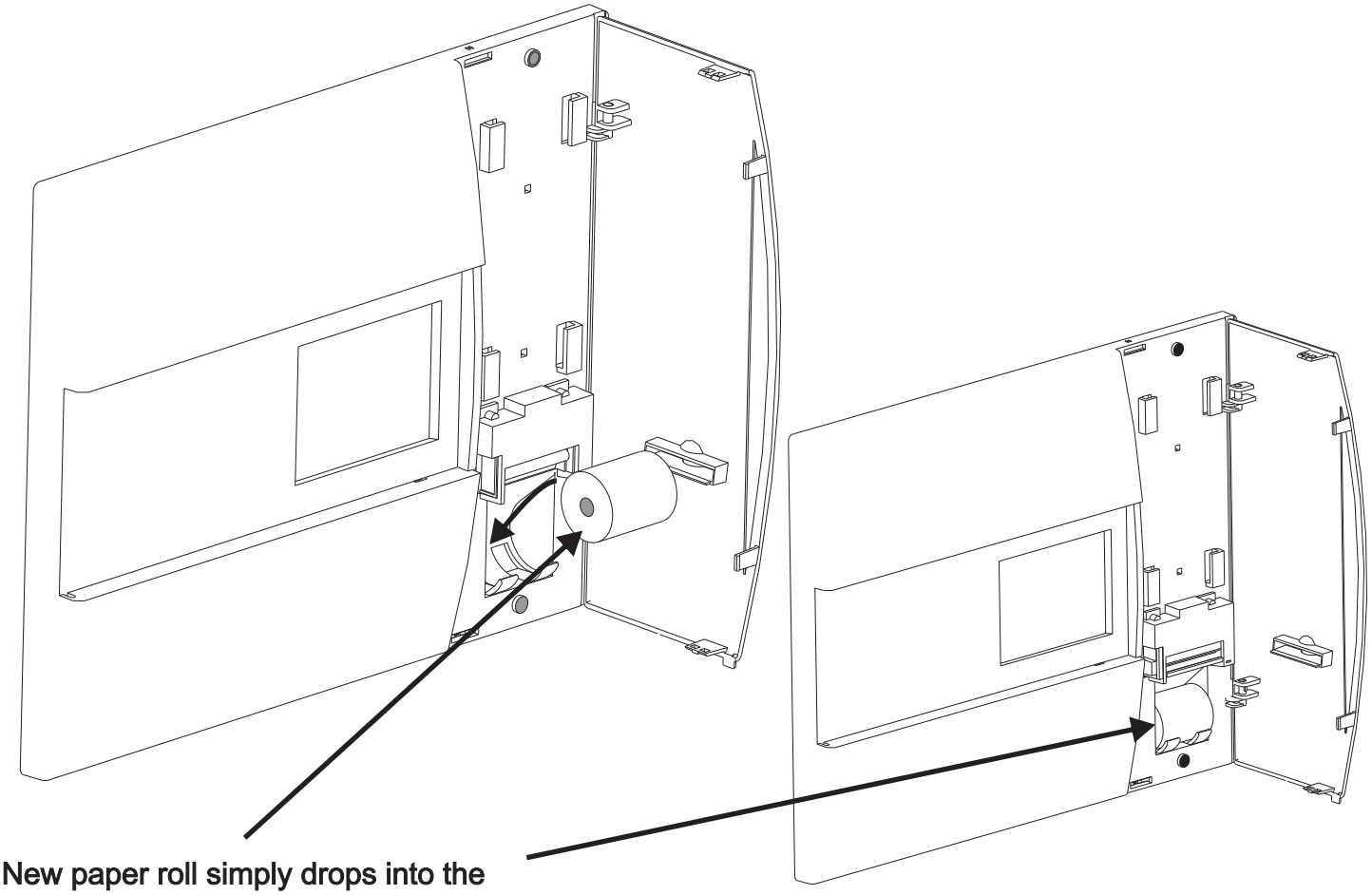
Insert the bottom peg of the hinged cover into the panel as shown and close the hinged cover followed by the printer door. Next from the back of the panel insert second peg though the hole shown below and push into the hinged cover



# Replace Printer Paper Roll

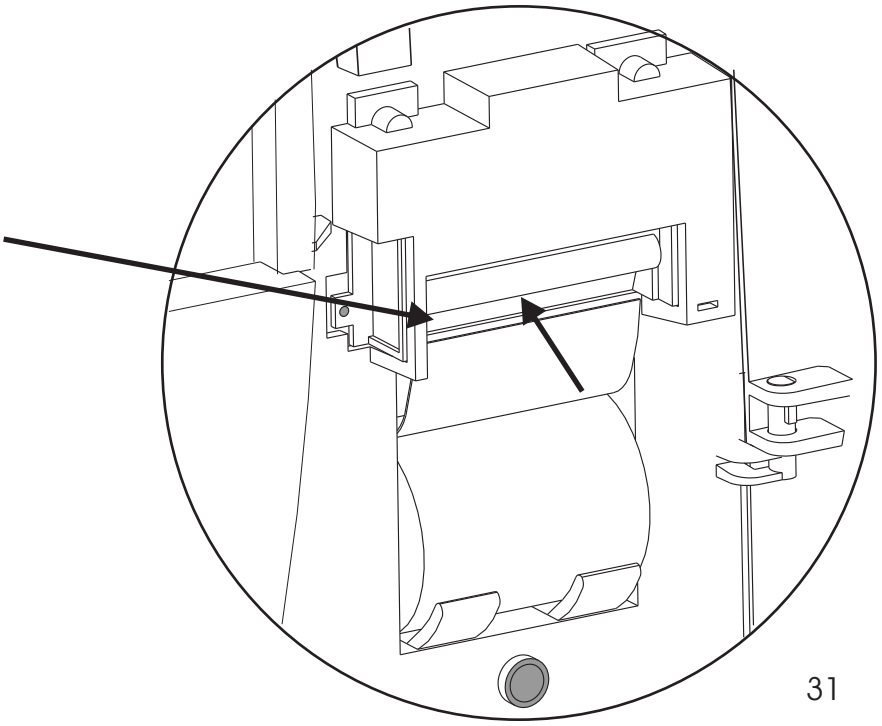
Open the printer access door on the right hand side of the panel using the key provided. Drop the paper roll into the paper holder and feed paper into the printer. The printer will then automatically pull the paper through if the panel is powered up. Tear off the excess paper them close and secure the printer access door.

Please note for paper feed to operate correctly, paper end must be straight

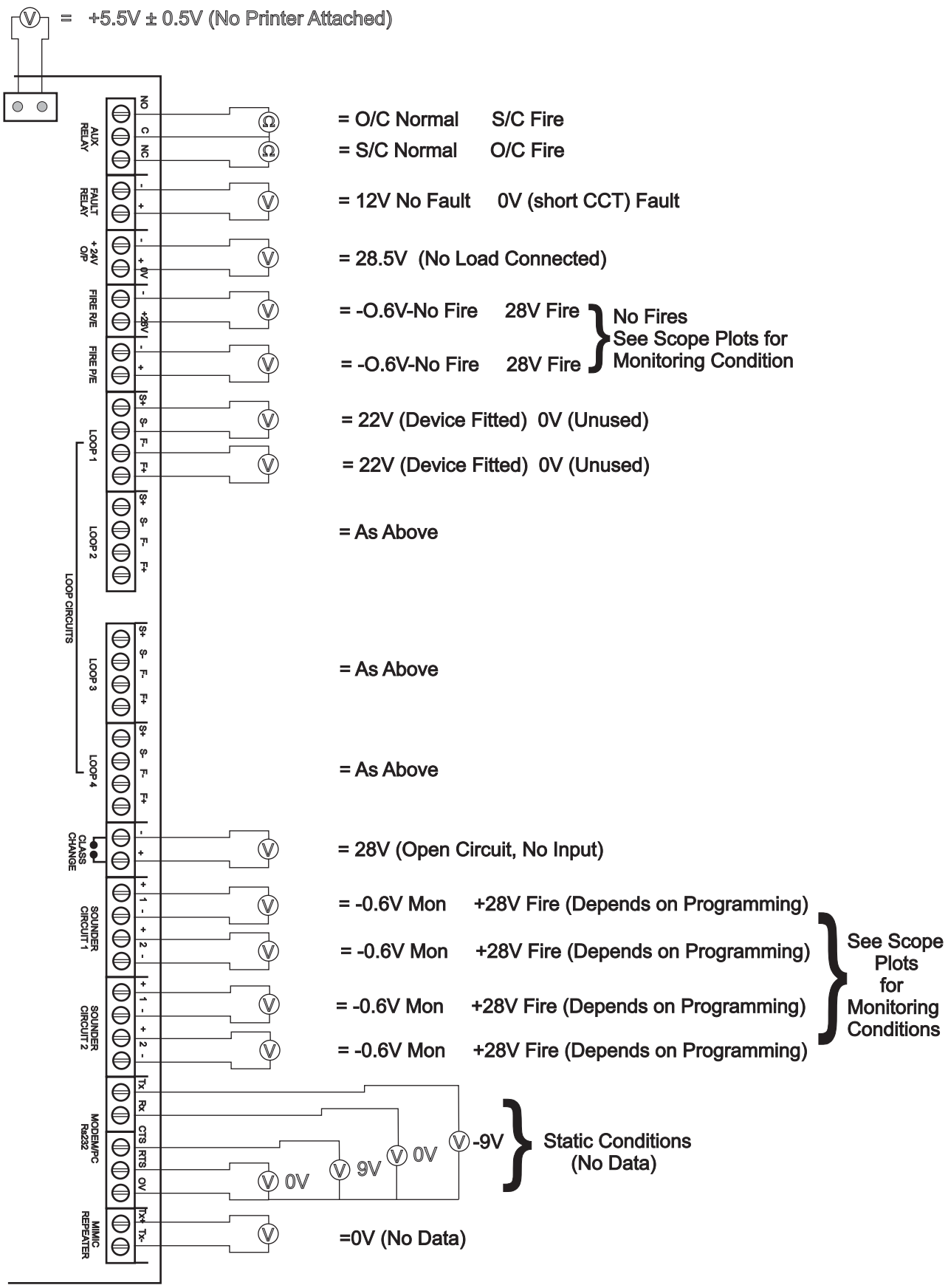


New paper roll simply drops into the holder.

Push paper underneath the roller as shown until printer automatically loads the paper. Tear off excess paper and close the printer compartment door.



# Panel Fault Finding



# Section 3

# Appendix

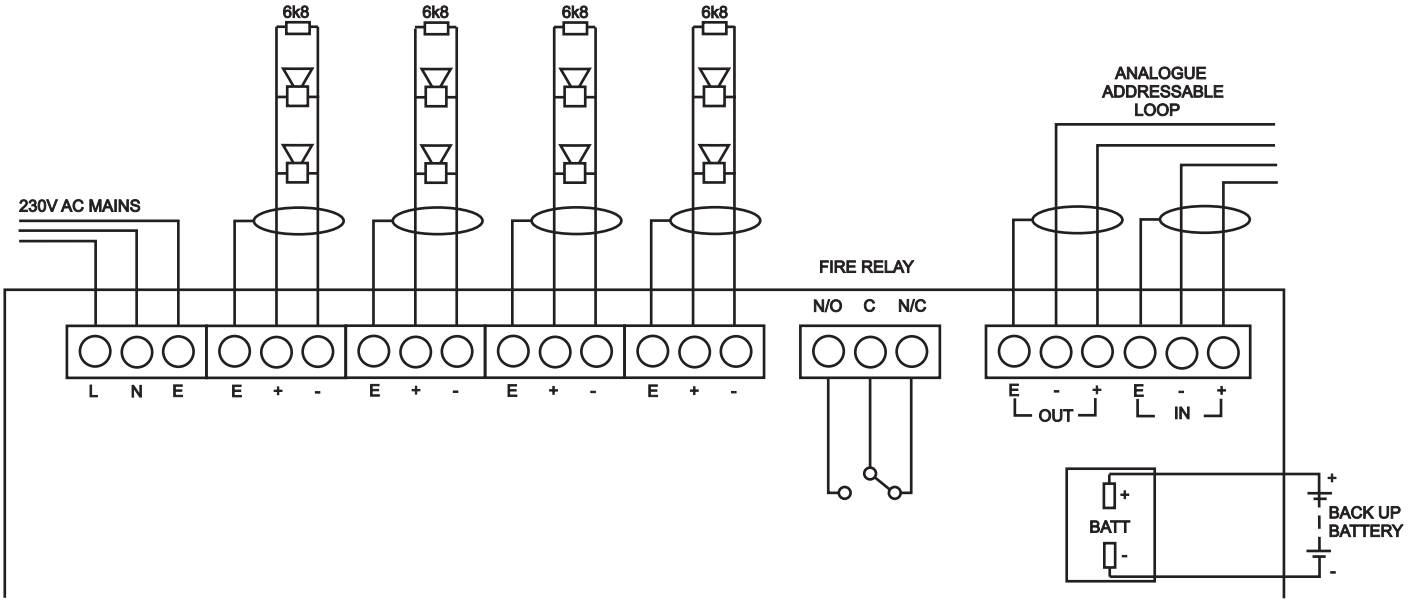
# 4 Way Sounder Controller COP4SIR

Installation

1. Remove the cover of the unit.
2. Fit the back-plate in position and pass the wires into it taking care not to damage the circuit board.
3. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.
This unit requires a permanent 230V AC supply.

Standard Connections




Notes:
1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistors must always be fitted, even if the sounder circuits are Unused

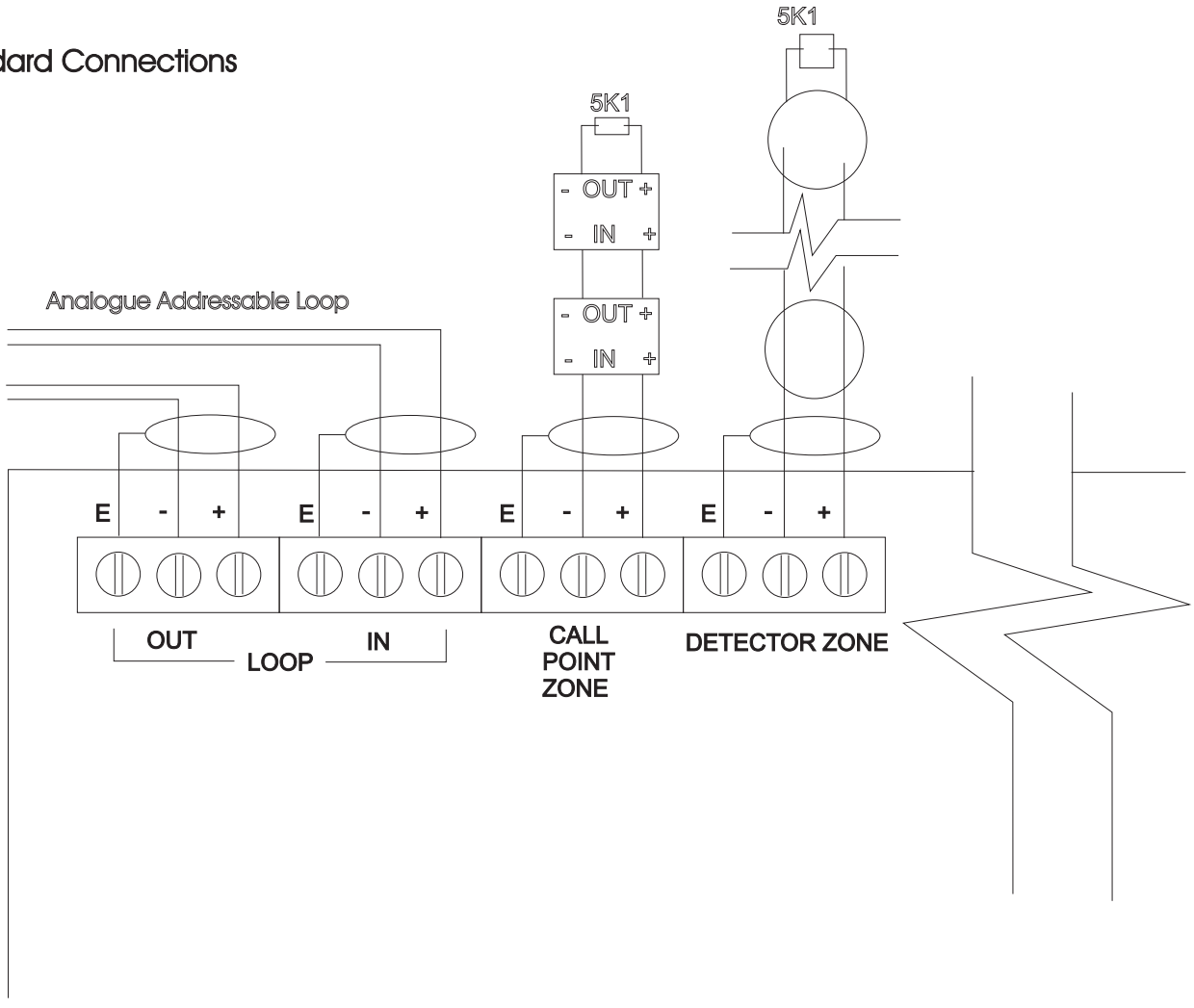
# Zone Monitor Unit COPZMU-IS

Installation

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections




Notes:
1. This unit can only be used with compatible detectors (refer to Sicli).
2. Only connect cable screen to its adjacent earth terminal.
3. The end of line resistor must always be fitted, even if the spur is unused.
4. Maximum number of call points allowed is 30

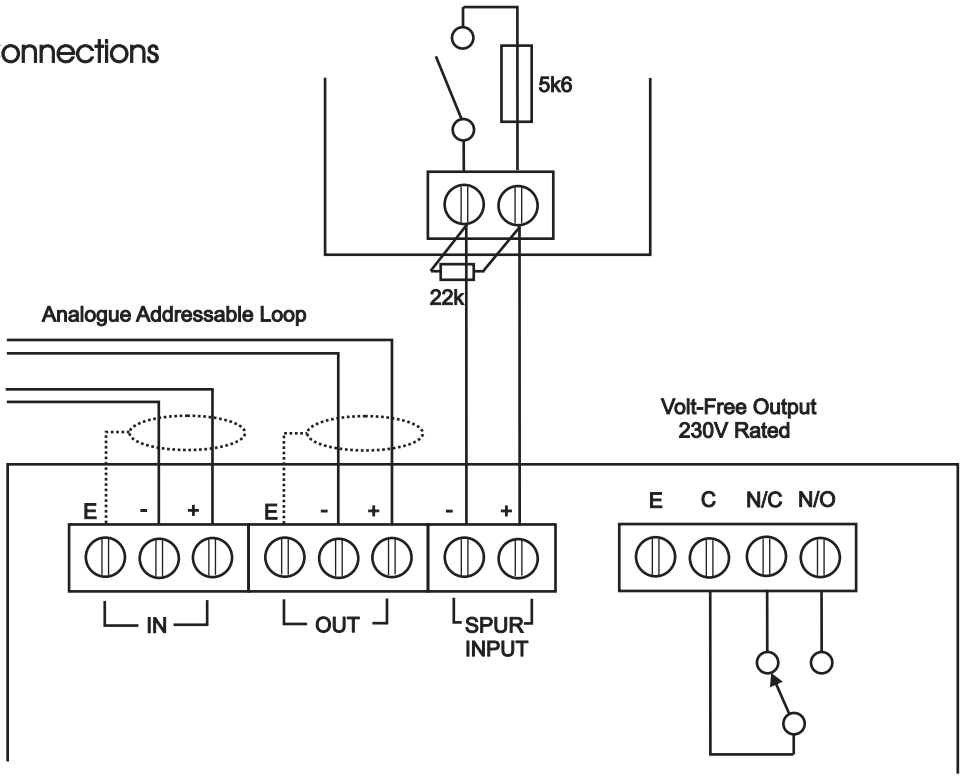
# 1 way Input Output Unit COPMIO

Installation

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according the diagram below.

Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections




Notes:

1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor must always be fitted, even if the spur is unused.

# Base Wiring CABB300

| | |
|---|---|
| Supply Voltage | 18 - 30 V DC |
| Cable Size | 0.5 - 2.5mm² |
| Recommended cable types | FIRETUF,FP200 or MICC |
| Mounting Hole Centres | 50 - 80mm |

## Wiring Hints

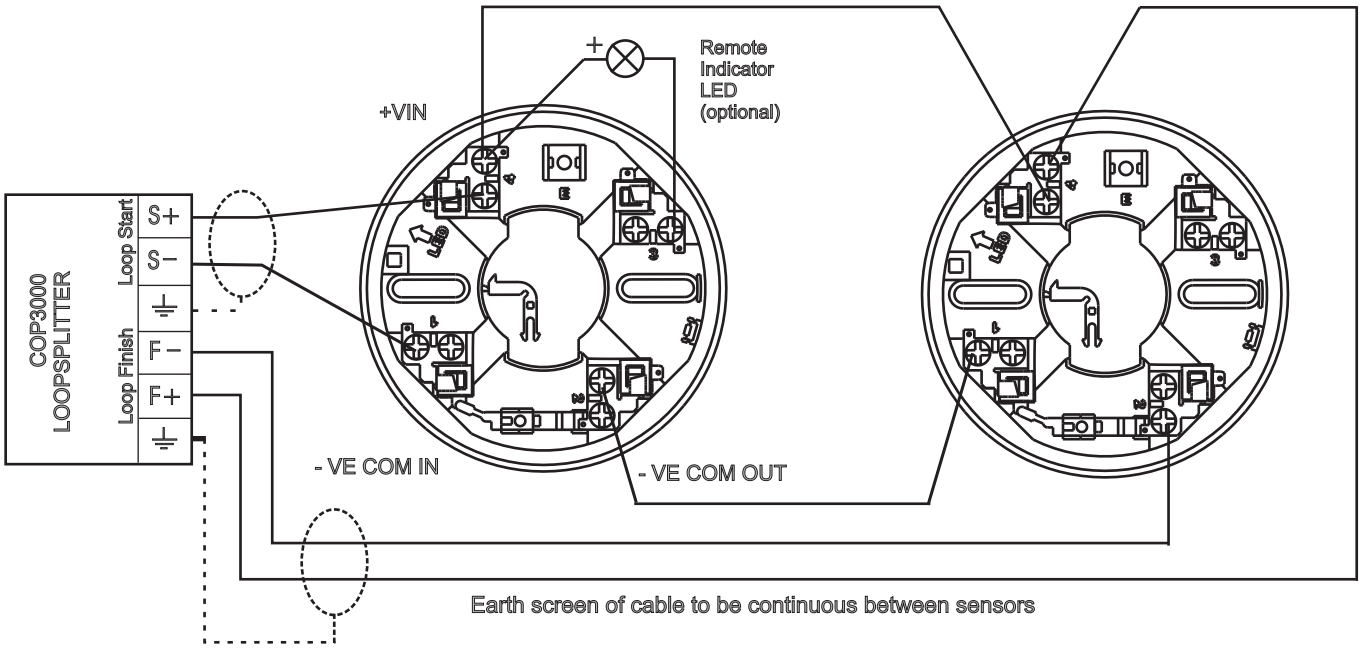
! Each terminal is suitable for clamping up to 2 wires
! Clamping of 2 wires of very different diameters under one screw is not recommended.
! Suitable for mounting to mounting boxes with 50-80mm fixing centres.

## General

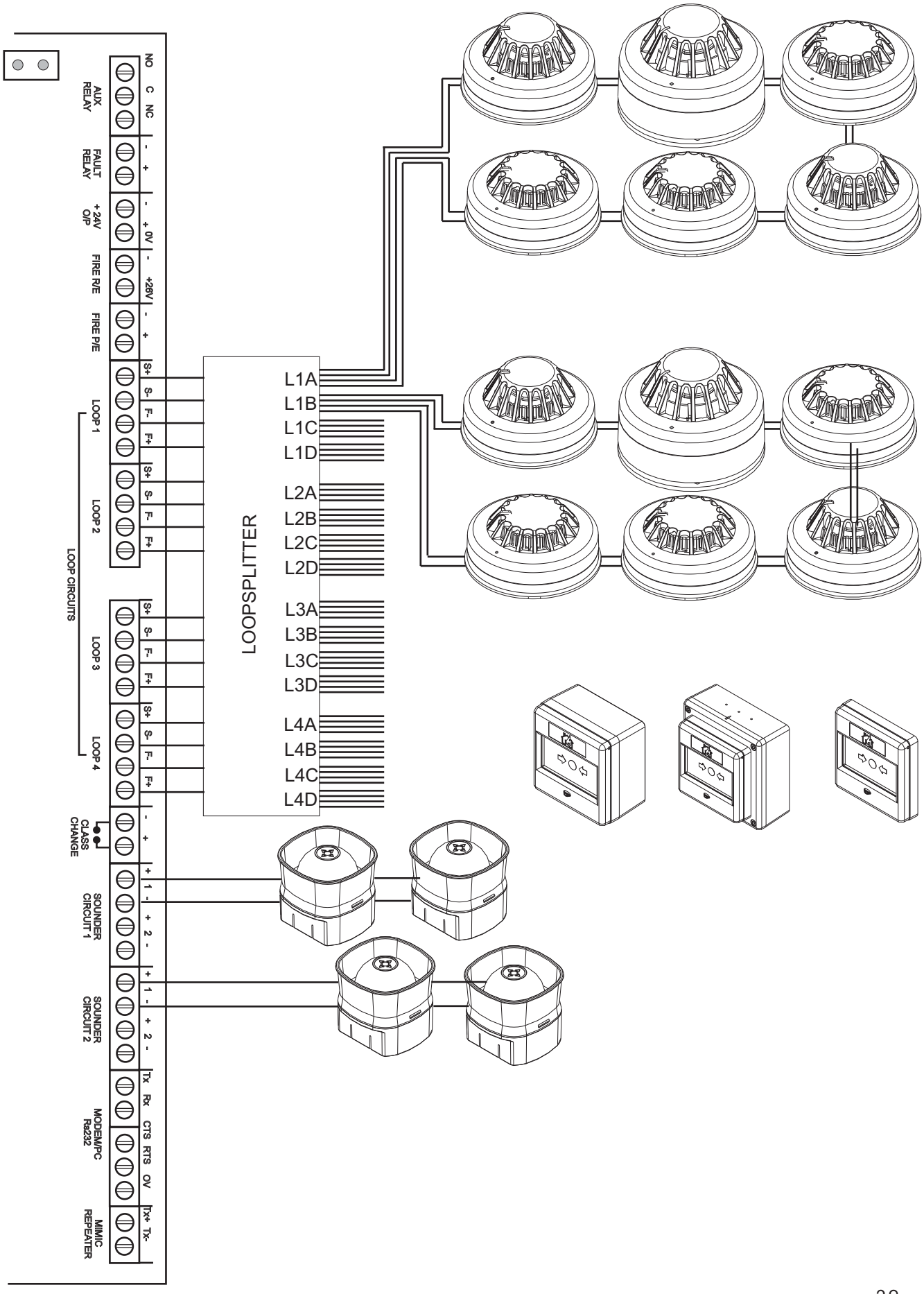
If difficulty is experienced when mounting the sensor, this may be due to the following:

! Wiring causing an obstruction - move or shorten wires.
! Although the base is tolerant to uneven mounting surfaces, a very uneven surface may cause the base to deform when the mounting screws are tightened down - loosen screws to reduce this or slide base to a flat position.

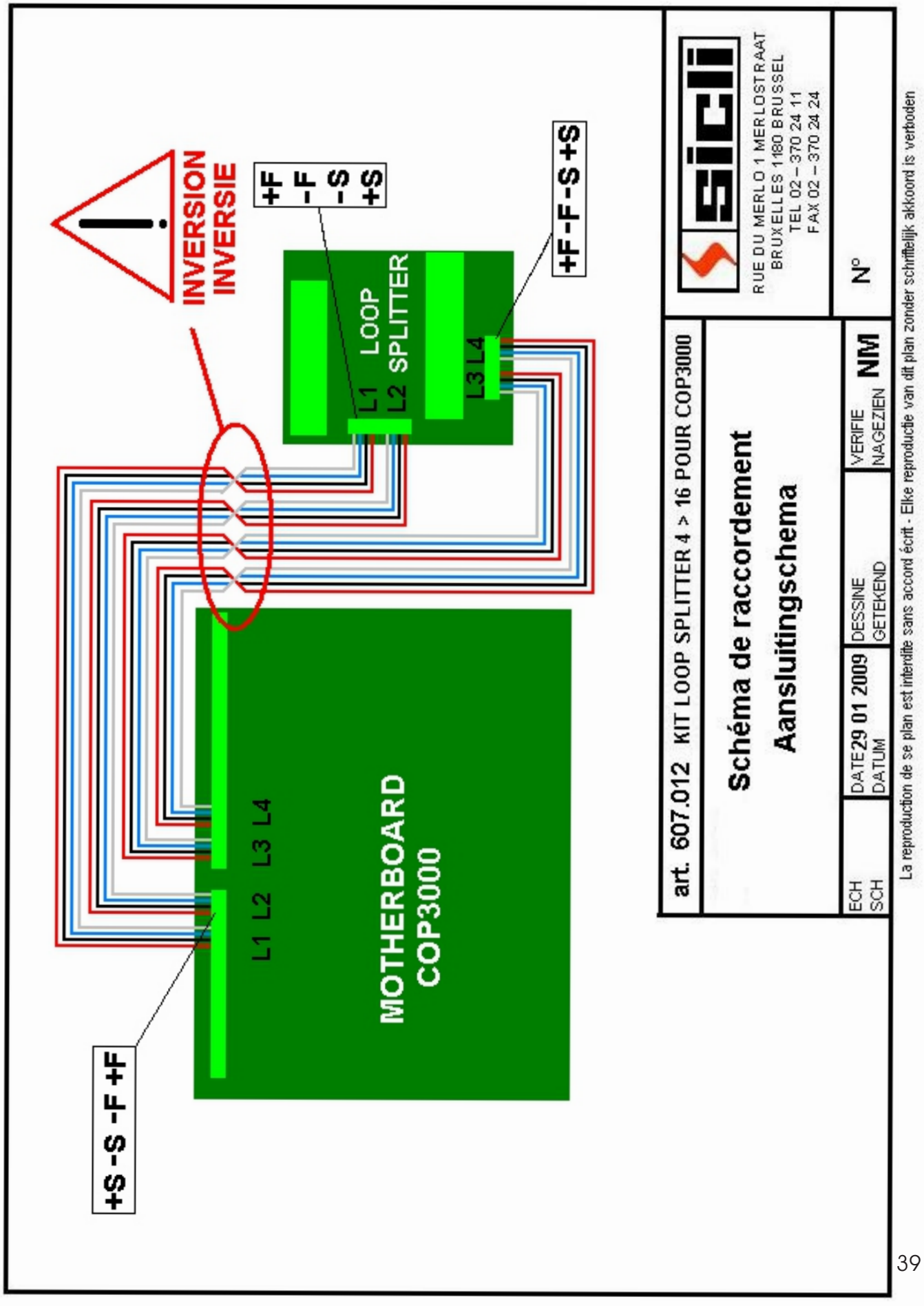
WARNING: DO NOT USE HIGH VOLTAGE TESTERS WHEN SENSORS OR CONTROL PANEL ARE CONNECTED TO THE SYSTEM.



# System Wiring



# System Wiring



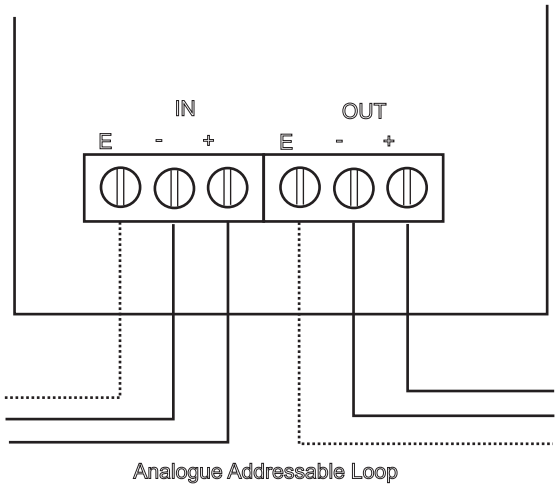
# Internal wall Sounder COPSYMPHONI

Installation

1.Fix to mounting surface using two suitable screws - the rear gasket fits underneath the base and the sounder gasket fits inside the base.

Connection

WARNING: Do NOT use high voltage testers if ANY equipment is connected to the system. Earth scrreen must be continuous along entire length of loop.



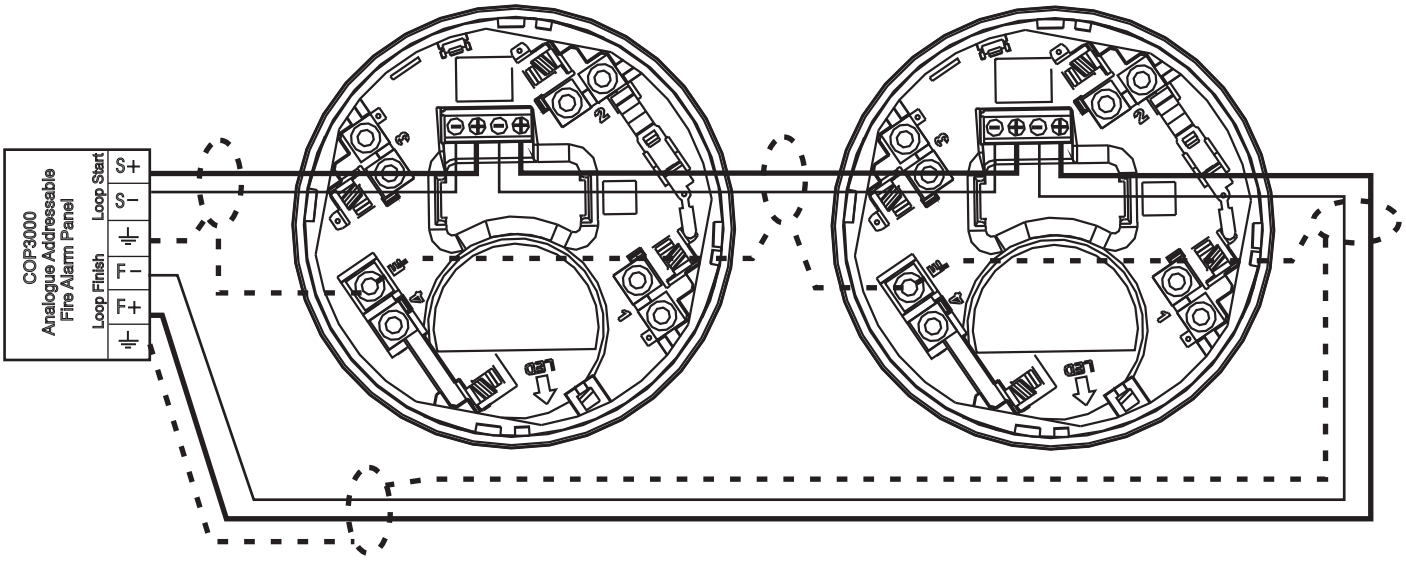

Analogue Addressable Loop

NOTE

Care should be taken to ensure the cable does not put stress on the circuit board

# Base Sounder (COPBS (+ CASC)

| | |
|---|---|
| Supply Voltage | : 17 ~ 32 Vdc |
| Cable Size / type | : 0.5 ~ 2.5mm/ FIRETUF, FP200 or MICC |
| Standby current | : < 320 uA |
| Operating temperature | : -10 to +55 degrees C (95%RH) |
| Sound output @ +/-3dB | : Low volume : 84dB @ <4mA |
| (set by panel) | : Medium volume : 92dB @ <8mA |
| | : High volume : 95dB @ <12mA |
| Tones | : Continuous 910Hz |
| (set by panel) | : Pulsed 910Hz / 0Hz pulse 1Hz |
| | : Two tone 610 / 910Hz @ 1Hz cycle |
| | : Slow whoop 500-1200Hz in 3.5 seconds / 0.5secs gap |



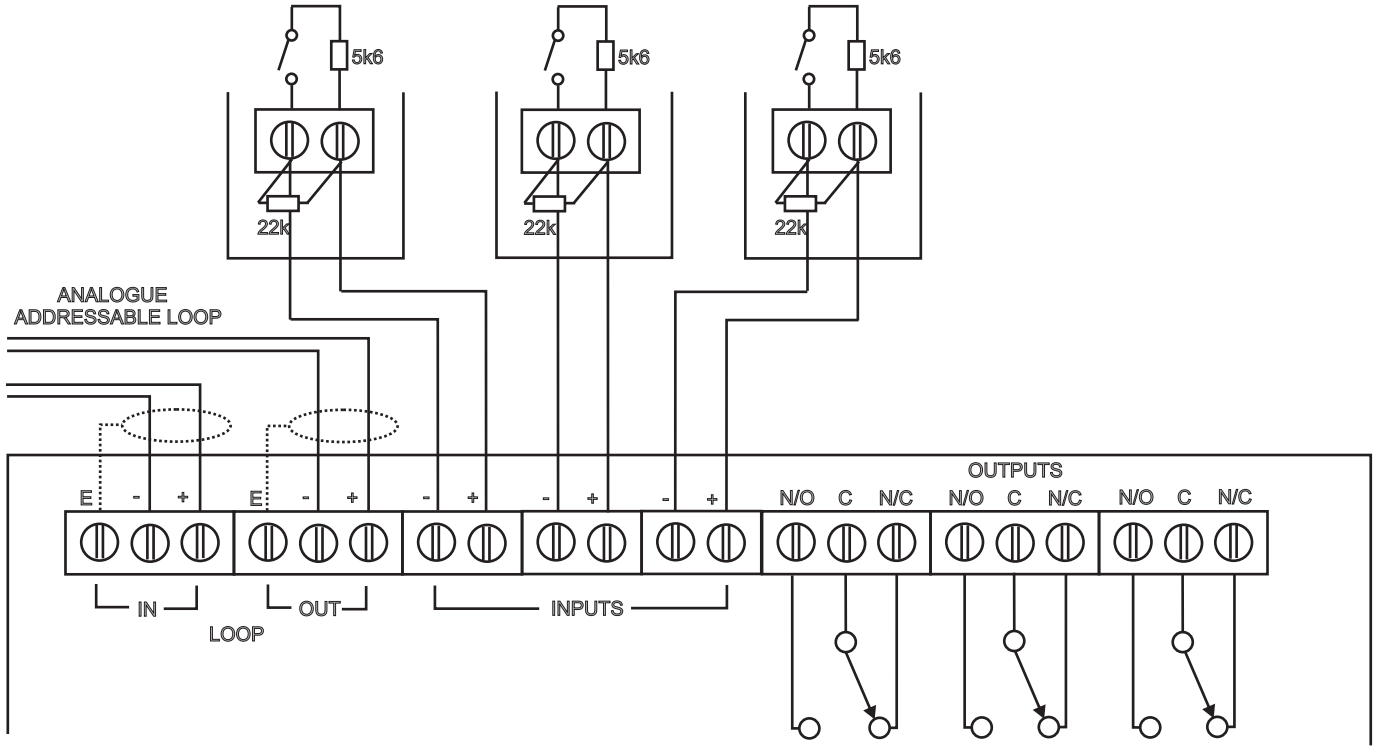
# 3 way Input output unit COPIO

Installation

1. Separate the two halves of the unit.
2. Drill out (or knock out) the required cable entries in the surface mounting back-box.
3. Fit the back-box in position and pass the wires into it.
4. Connect the unit according to the diagram below.

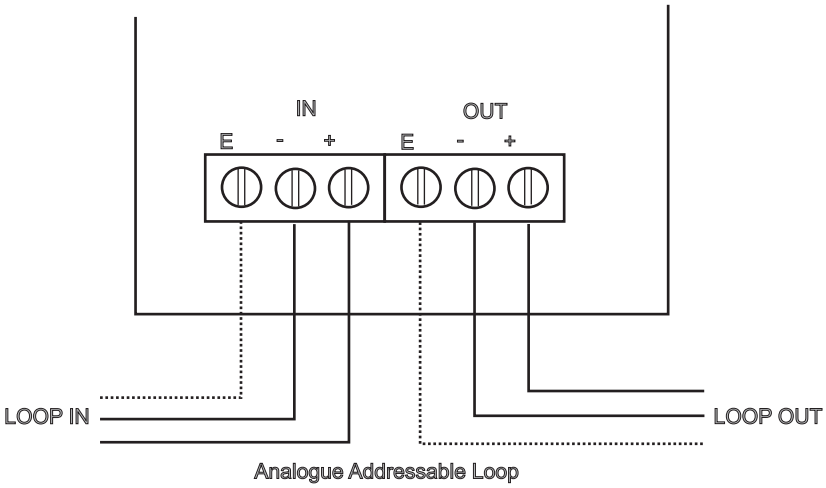
Notes:
No addressing of the interface is required. See control panel operation for details.

Standard Connections



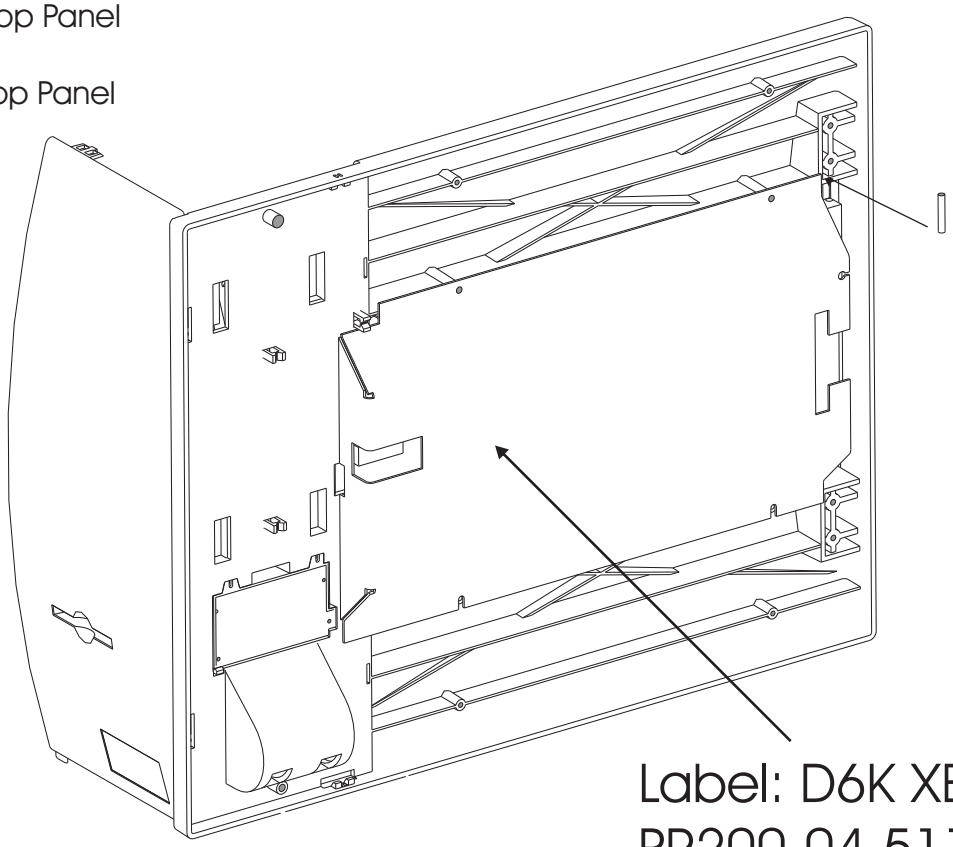

Notes:
1. Only connect cable screen to its adjacent earth terminal.
2. The end of line resistor must always be fitted, even if the inputs are unused.
3. Monitored inputs can detect open or short circuit faults.
4. Output relays are volt-free contacts and are not monitored.

# Call Point (COPBG-S, COPBG-SY, COPBG-WP)

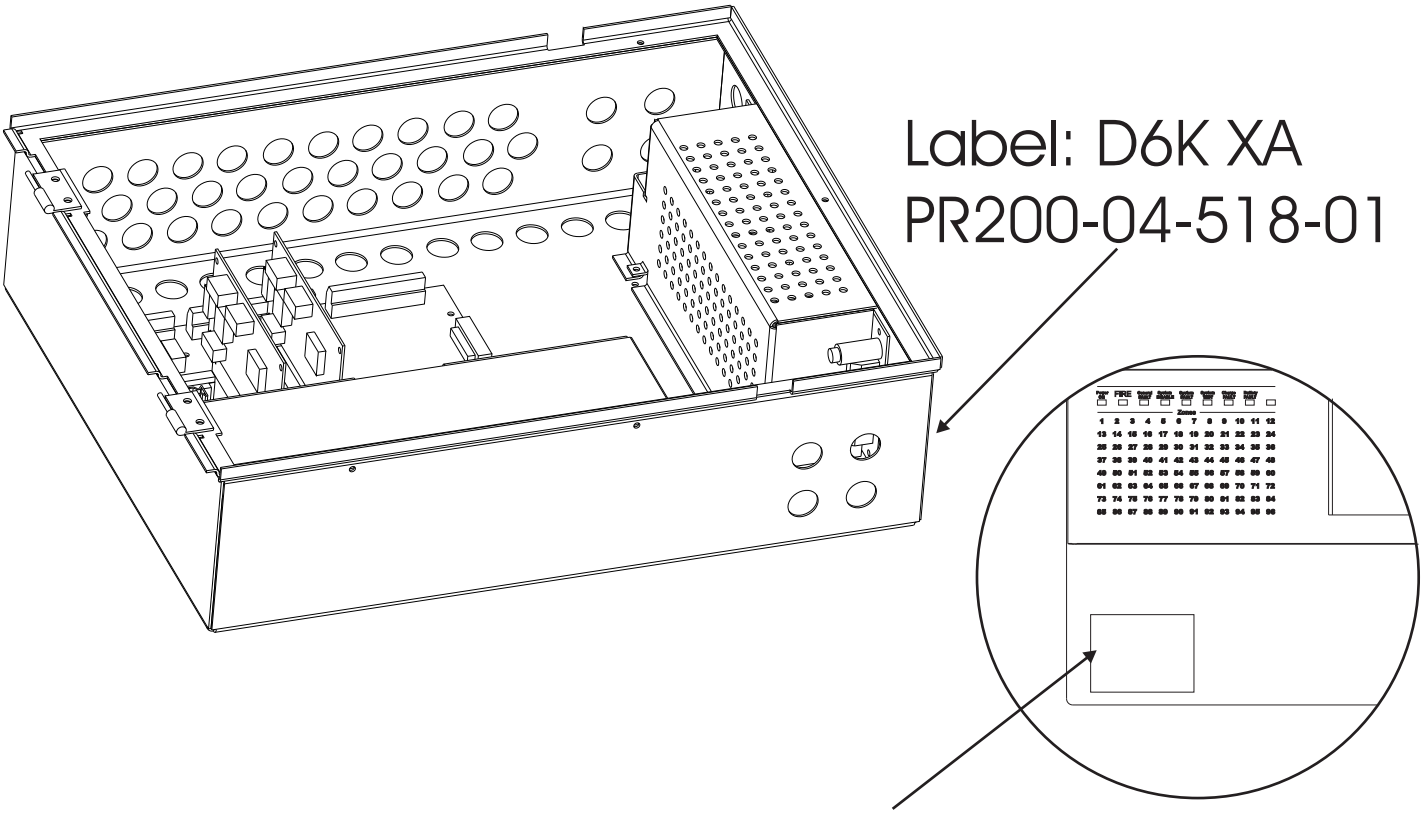


# EN54 Spec label positioning

EN54 Product Spec Label
Note: X=2 on a 2 Loop Panel
or
X=4 on a 4 Loop Panel



Label: D6K XB
PR200-04-517-01



Label: D6K XA
PR200-04-518-01

NOTE: If the panel is recessed this label must be placed on the front of the panel as indicated.

# Battery Disposal Instructions

Although batteries contain lead and small amounts of antimony and arsenic, they are safe if handled according to the accompanying guide. The battery cells must not be dismantled as this involves several hazards, which are best handled under controlled conditions, using specialised equipment. No attempt should be made to repair any batteries; they should be treated as disposable when they have outlived their use.

Batteries must be disposed of in accordance with current waste disposal and pollution legislation and in particular; The Environment Protection Act 1990, Special Waste Regulation 1996. It is recommended that the following authorities are contacted before any attempt is made to dispose of batteries; Environment Agency Local office, Local Authority Environmental Health or Waste Handling department.

# CE Marking

09

2831

DoP0230

714w/01

Eaton Electrical Systems Ltd
Wheatley Hall Road
Doncaster
South Yorkshire
DN2 4NB

09

EN 54-2 1997 & A1:2006

COP3000
Control and indicating equipment for fire detection and fire alarm systems for buildings
EN 54-2 Clause

Options Provided

| | |
|---|---|
| 7.8 | Output to fire alarm devices |
| 7.9.1 | Output to fire alarm routing equipment |
| 7.10.1 | Output to automatic fire protection equipment (type A) |
| 7.10.2 | Output to automatic fire protection equipment (type B) |
| 7.11 | Delays to outputs |
| 7.12.3 | Dependencies on more than one alarm signal-Type C |
| 7.13 | Alarm counter |
| 8.9 | Output to fault routing equipment |
| 9.5 | Disablement of each point |
| 10 | Test condition |

Other technical data: see Doc. PR200-04-586 held by the manufacturer

09

2831

DoP0230

714w/01

Eaton Electrical Systems Ltd
Wheatley Hall Road
Doncaster
South Yorkshire
DN2 4NB

09

EN 54-4 1997 & A1:2002 A2:2006

COP3000
Power supply equipment for fire detection and fire alarm systems for buildings

Other technical data: see Doc. PR200-04-586 held by the manufacturer