

FCP9001

FIRE ALARM CONTROL PANEL

INSTALLATION / DATA MANUAL

Single Zone Fire Panel

To meet the requirements of B.S.5839 Pt.4
B.S.5839 Pt.1 Installations

Catalogue No. FCP9001

The Surveyor 9000 range of control panels are all micro-processor based, thus giving many more features than advanced electronics can offer.

They have facilities to meet the exacting standards of B.S.5839 Part 4, such as Detector Head Removal, short circuit indicates a fault not fire etc. Additional facilities include features such as Latching Fault, Bell Walk Test and Engineer's Walk Test. Precinct point, remote Fire and Fault outputs, auxiliary relay with isolate, etc.

N.B: All panels in the 9000 Series can be supplied, upon request, suitable for "3 wire" working for retro-fit systems. When modified, detector removal monitoring, short circuit to fault and sounder cct monitoring, will all be inoperative as would possibly have been the case with the original system.

Surveyor 9001
Ref 174 May 94

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1.0 Equipment Suitability

PANEL: Surveyor FCP9001

BATTERIES: Normally 2 off 2.6 Ah sealed lead acid, mounted internally. Heavy loads or extended standby may require an external high current charger with larger batteries.

MANUAL CALL POINTS: KR70 or any call point with 470Ω resistor fitted.

SOUNDERS: Bells or electronic sounders. 24 Volt DC must be polarised and suppressed. (Special attention to be taken here when existing bells are used).
Recommended type: Synchrobell T6D24, Banshee, Bedlam, Fulleon etc.

AUXILIARY OUTPUTS: Ensure no voltage in excess of 50V is applied to the change-over relay contacts.

REPEATER PANELS: FCRP 12-2.

IMPORTANT

Detector Suitability

Most modern smoke and heat detectors are suitable for use on the FCP9001, but if the detector head removal indication is required, only the following smoke detectors have been tested and approved for use.

Detector	Max. combined Qty. per Zone	Dioding	Connection Drawing No:
Nittan: 2KH, 2KC, NID58 2IC, NMD	40	Schottky	9012/D01 Iss.2
Apollo Series 30	30	) Schottky plus	20991/1
Apollo Series 20	20	) polarising diode	20991/1
Apollo Series 60 (Ion.)	30	) Schottky, no	HSS92/019
Apollo Series 60 (Opt.)	20	) polarising diode	HSS92/019
Hochiki SH-E	18	) Schottky plus	10991/1
Hochiki SLX-E	18	) polarising	10991/1
Hochiki SIF-E	20	) diode	10991/1
Hochiki SIG-E	25	)	10991/1

We strongly recommend that we are consulted for the suitability of any detector not listed above.

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2.0 Front Panel Indications and Controls

2.1 Indications

Front panel LED indicators as follows:

Twin Fire
System Fault
Engineer Test
Zone Fault
Detector Removed
Auxiliary Isolated
Automatic Reset Warning (ARW)
Mains On

2.2 Control Switches

The four switches on the control panel front are as follows and are only functional when the 'Active' keyswitch has been operated:

- a) Evacuate: All the fire alarm sounders will operate irrespective of a fire condition.
- b) Silence Sounders: Will silence sounders when Evacuate has been operated or the Fire Zone activated. Depressing the switch will also silence the fault tone.
- c) Reset: The fire zone can be reset by this switch but only after operating the "Silence Sounders" control. Operation of this switch, when in standby, will perform an LED indicator test.
- d) Auxiliary Isolate: Press to isolate the internal auxiliary relay which may be used to control dialling machines, plant shutdown etc. To revert, press switch a second time.
- e) Keyswitch: The keyswitch on the front panel is used to restrict access to the controls listed above by de-activating the switches when in the "OFF" position.

3.0 Operation (User's Instructions)

3.1 Standby State

In standby state, the only indication visible is "Mains On" LED.

3.2 Fire Detected

Should a smoke, heat or break glass call point be operated then the following will occur:

Twin Fire LEDs pulse
Internal Sounder Operates (unmutable)
Sounders Operate

Turning the 'Activate' keyswitch allows the panel controls to be operated only in the following sequence:

- Silence Sounders - Cancels all sounders but does not mute the internal sounder. Fire LEDs will cease to pulse and become steady.
- Reset - Cancels internal sounder.
 - Performs Lamp Test.
 - Restores panel to standby state only if the original alarm cause has been corrected.

3.3 Evacuate Control

The Evacuate button will initiate operation of all sounders on the system. The sounders can only be silenced as described in 2.2. Evacuate does not produce any visual LED indications.

3.4 Fault Detected

Should a fault be detected on the system the "System Fault" LED will illuminate and the internal fault sounder will sound.

- a) "Mains On" extinguished - check supply to the control panel has not been switched off due to other work in the premises or a supply fuse blown.
- b) Detector removed or fault location LEDs can indicate the removal of an alarm device e.g. smoke detectors, heat detector or break glass call point. A visual check of the premises should reveal this.

4.0 Fault Indications

4.1 Zone Fault

Should a fault develop on a zone the relevant amber LED will light.

Short circuit fault	-	LEDs flash
Open circuit fault	-	LEDs steady

The internal fault tone will also sound.

If the Engineering Option (paragraph 5) is chosen which allows a short circuit to initialise a fire condition, the alarms will sound throughout the building.

In addition the Zone Fault LED and the System Fault LED will also illuminate.

4.2 Bell Fault

A bell fault occurring will cause the System Fault LED and Fault Tone to operate. Individual sounder fault LEDs will be found internally on the rear PCB.

Short circuit fault	-	LEDs flash
Open circuit fault	-	LEDs steady

4.3 Power Supply Faults

Under the above heading are a group of four indications, all associated with the power supply. These are as follows:

a)	Battery fault	-	LED steady
b)	Regulator fault	-	LED steady
c)	Voltage fault	-	LED steady
d)	Earth fault	-	LED steady

The above fault indications are located on the rear PCB.

These faults are accompanied by the "System Fault" LED and Fault Tone warnings.

"Mains Failure" is indicated on the front of the control panel by the absence of the "Mains On" LED together with the system fault LED illuminated.

4.4 ARW (Automatic Reset Warning)

The ARW LED is mounted on the front panel and indicates that the internal micro-processor has been automatically reset. This indicates that the WATCHDOG circuit has restarted the micro-processor as a result of a failure, which may have been caused by an external induced voltage spike etc. In such cases the operation of the panel is not affected and the ARW LEDs can be extinguished by depressing the "Reset" button. Should the fault reoccur on a regular basis then the problem should be investigated.

5.0 Installation

This should comply with the requirements of B.S.5839 Pt.1 1988 or any local requirements applicable.

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5.1 Cabling

It is recommended that a minimum of 1.5mm MICC, Pirelli FP200 or similar cable be used on all circuits. Where heavy sounder loads and/or exceptionally long sounder circuits are incorporated, then suitably sized cables should be chosen to avoid excessive volt drop.

N.B. Meggers or similar instruments must not be used while the control panel or any device containing electronic components is connected.

5.2 Mounting of the Control Panel

The front panel can be removed by lifting off the hinges after first disconnecting the ribbon cable connector from the front panel. Ensure that the components remaining in the back box are suitably protected from brick dust or swarf. Securely mount the back box to the wall by means of the four fixing holes provided.

5.3 Zone Wiring

Up to 30 Nittan detection devices may be connected to any zone, but to reduce search time we recommend that no more than 20 devices are fitted.

The panel can indicate removal of a maximum 10 smoke or heat detectors whilst maintaining the supply to any remaining devices. For this function a diode must be fitted to each detection device as shown on relevant drawings listed on page 3, para 1. These devices must be compatible with the system and approved by Haes Systems Ltd. e.g. Nittan 2IC/2KH range.

All detectors are to be connected in parallel across the zone which constitutes a continuous pair of wires, with no branches or spurs. The 4K7 End of Line device should be placed at the end of the zone in the last detector, as shown on Drawing No. 9001/D01.

Zones can be set to comply with the current B.S.5839 1988 requirements for open or closed circuit fault indication as well as smoke/heat detector head removal. Existing fire systems may not be adaptable to this B.S., in which case subject to the relevant authority's approval, the control panel may be set to the earlier B.S.3116 standards. For further details see paragraph 6.0 Engineering Indications and Options.

5.4 Sounder Circuits

Two sounder circuits are provided. Each is monitored for open and closed circuit faults. The circuit must be wired in parallel without spurs. A 4K7 End of Line Resistor must be fitted across the last sounder. All sounders should be polarized, with the load not to exceed 1.0 Amp shared between circuits, with a maximum of 800mA per output.

5.5 Additional Output Terminals

Output terminals are provided for the following with connection details shown on drawing nos. 9001/D01.

- a) Fire.
- b) Common Fault.
- c) Precinct Facility (Activate sounders or class change).
- d) Common Voltage Free, Changeover Relay Fused @ 800mA.
- e) 24 Volt Output, Fused 800mA.

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5.6 Mains Supply

The supply voltage should be 240 Volt 50Hz AC fed via an unswitched fused spur.

6.0 Engineering Indication and Options

6.1 Engineering Indications

- a) BATT ~ Battery fault or fuse failure
- b) VOLTS ~ Over or under voltage fault
- c) REG ~ Regulator fault or fuse failure
- d) ~ Earth Fault
- e) SDR1/2 ~ Open circuit - LED steady,
Short circuit - LED flashing.

6.2 Engineering Options

DIL Switches

The control panel has several engineering functions that allow great flexibility in system design.

They are accessed through a 4 way DIL switch located on the rear PCB.

With the DIL switch up:

- Position:
- 1) Fire Latch
 - 2) Fault Latch
 - 3) Short circuit to "Fire" and head removal monitoring disconnected. (Old BS).
 - 4) Spare

N.B. As supplied from manufacturer switch 1 is in the on position. In this mode the panel will operate in accordance with B.S.5839 1988.

6.3 Additional Test Switches

For full explanation of these functions see under paragraph 8.0. The following switches are found on the rear PCB and are push buttons. (Functional only with "Activate" switch on).

- a) Sounder Test will cause intermittent activation of both bell circuits (walk test).
- b) Zone Test 1-4. The fire zone can be independently walk tested and reset automatically.
- c) Panel buzzer volume can be adjusted with the potentiometer.

7.0 Short Circuit Zone Fault

7.1 B.S.5839 Pt 1 1988 Systems

For systems to conform to this British Standard, a short circuit across the detection zone will cause a fault to be indicated and not an alarm condition as allowed previously.

All detection devices on the fire detection zone should be compatible with the zone parameters and approved by the Company.

The current Nittan range of detectors are recommended but other manufacturers detectors may be suitable, providing that in alarm they present a resistance greater than 150Ω and less than 500Ω.

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7.2 Pre B.S.5839 Pt 1 1988 Systems

Prior to introduction of the latest British Standard it was acceptable for a short circuit across the zone to initiate an alarm condition. It may not be possible to upgrade existing systems without costly replacement of detection devices. The Surveyor 9001 panel can be set to operate existing equipment by switching DIL 3 up (ON). Any short circuit across the zone will activate the sounders.

8.0 Detection Head Removal

To identify the removal of a detector head while maintaining integrity of the fire zone, the fitting of detection devices and associated diodes must be in accordance with the relevant drawings listed on page 3, para 1. With the current Nittan range it is possible to remove up to 30 detector heads and still maintain continuity.

It is advisable when using alternative manufacturers equipment that empirical tests are carried out to confirm compliance with B.S.5839 1988.

Each detection point in alarm should have a value of between 150 and 500Ω.

9.0 Testing

9.1 General

If unfamiliar with the equipment it is advisable to commence testing with all external wiring omitted.

The panel is supplied with all end of line devices fitted so by switching on the mains supply and fitting a 24 volt pack of Sealed Lead Acid Batteries the panel will be in its standby state.

N.B. When first powered up the ARW LED will be lit. With keyswitch activated pressing "Reset" will extinguish ARW.

9.2 Detector Zone Testing

Fit end of line resistor into the last device on the zone and connect cables into zone terminals.
Depress zone test button (with keyswitch "activated").
Engineers test LED will illuminate.
Internal Sounder operates with pulsed, low pitch.
Engineer is now free to test the system, as follows:
The alarming of any device on the zone will cause a short activation of the alarm sounders. A few seconds later a further activation will be heard, indicating that the device has reset. To cancel Engineer Test press panel reset button.

9.3 Sounder Test

Depressing the sounder test button will cause only a short activation of the sounders, which can alleviate undue annoyance when carrying out a walk test. The sounders will continue until Reset is pressed. For a full sounder test, alarm the detection zone, which will cause all sounders to operate.

9.4 Full Alarm Test

A full test should be made to ensure that, all detectors and sounders operate as selected by the Engineers Option switch. Cancellation of a fire test can only be done by first turning the keyswitch to Activate, depressing the Silence Sounder and then the Reset switch.

9.5 Ancillary Functions (if required)

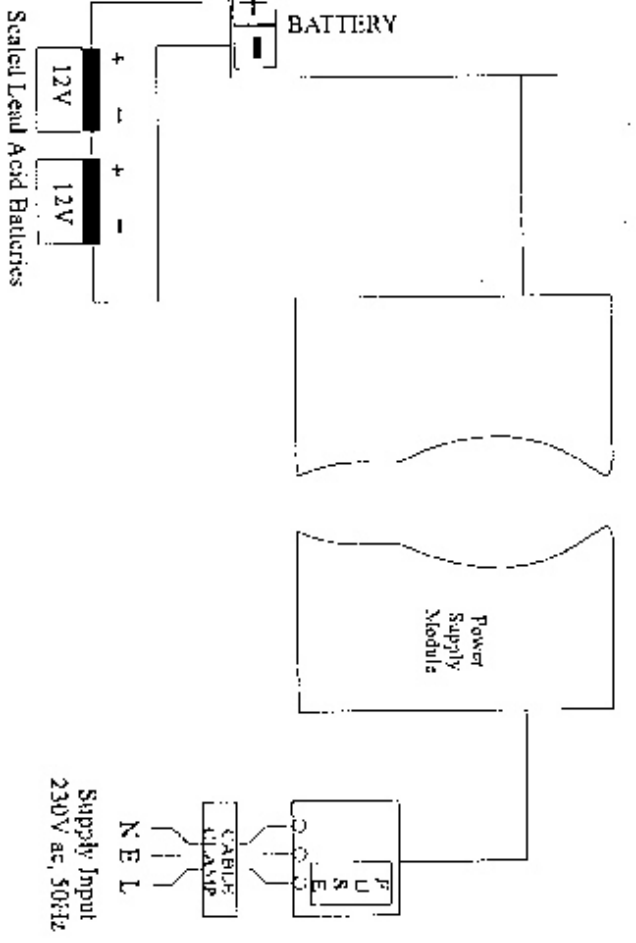
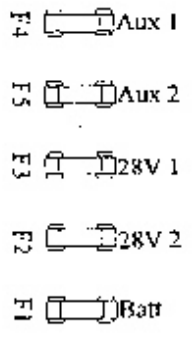
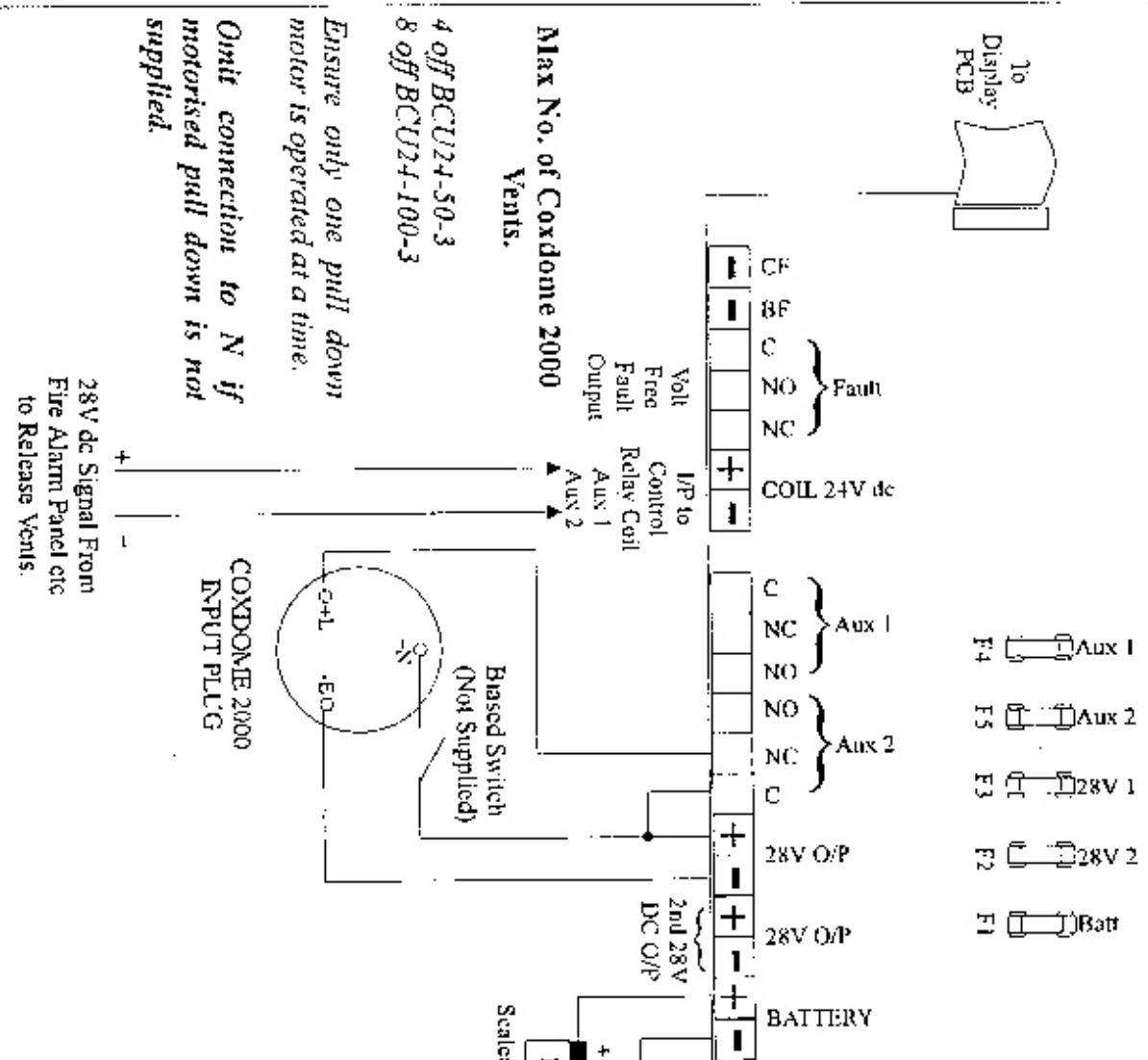
Whilst in full alarm it should be checked that 24 volt -ve appears at appropriate repeater outputs.

Check aux relay changes when fire condition occurs and that it can be isolated by use of Activate and Auxiliary Isolate switch.

9.6 Battery Charging Voltage

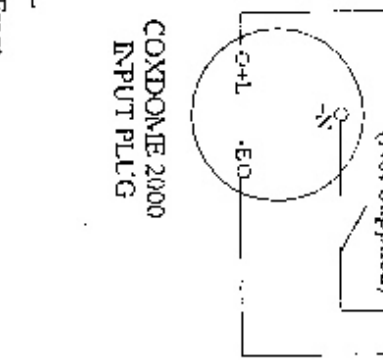
After commissioning or any routine test the battery charging voltage should be checked at the battery leads (batteries disconnected) and if necessary adjusted to 27.4 - 27.8 Volt DC. A voltage adjusting pot will be found on the top right of the box mounted PCB and is marked 24V ADJ.

To Display PCB



Max No. of Coxdomes 2000
Vents.
4 off BCU24-50-3
8 off BCU24-100-3

Ensure only one pull down motor is operated at a time.
Omit connection to N if motorised pull down is not supplied.



Power Supplies are rated for fire alarm use. Derate for standing loads by 20%.
ie 5 amp model = 4 amps
10 amp model = 8 amps

Fuse	BCU24-50-3	BCU24-100-3
1	5 Amp	10 Amp
2	5 Amp	10 Amp
3	5 Amp	10 Amp
4	5 Amp	10 Amp
Mains	5 Amp	10 Amp

28V dc Signal From Fire Alarm Panel etc to Release Vents.

HAES
Chartered Building Surveyors
Chartered Engineers
Chartered Fire Engineers
Chartered Quantity Surveyors
Chartered Structural Engineers
Chartered Surveyors
Chartered Technicians
Chartered Technicians (Building Services)

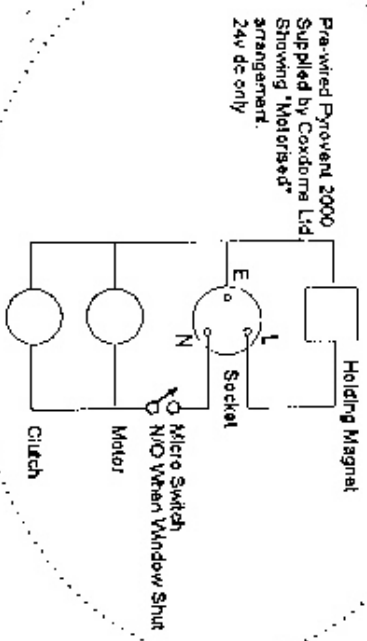
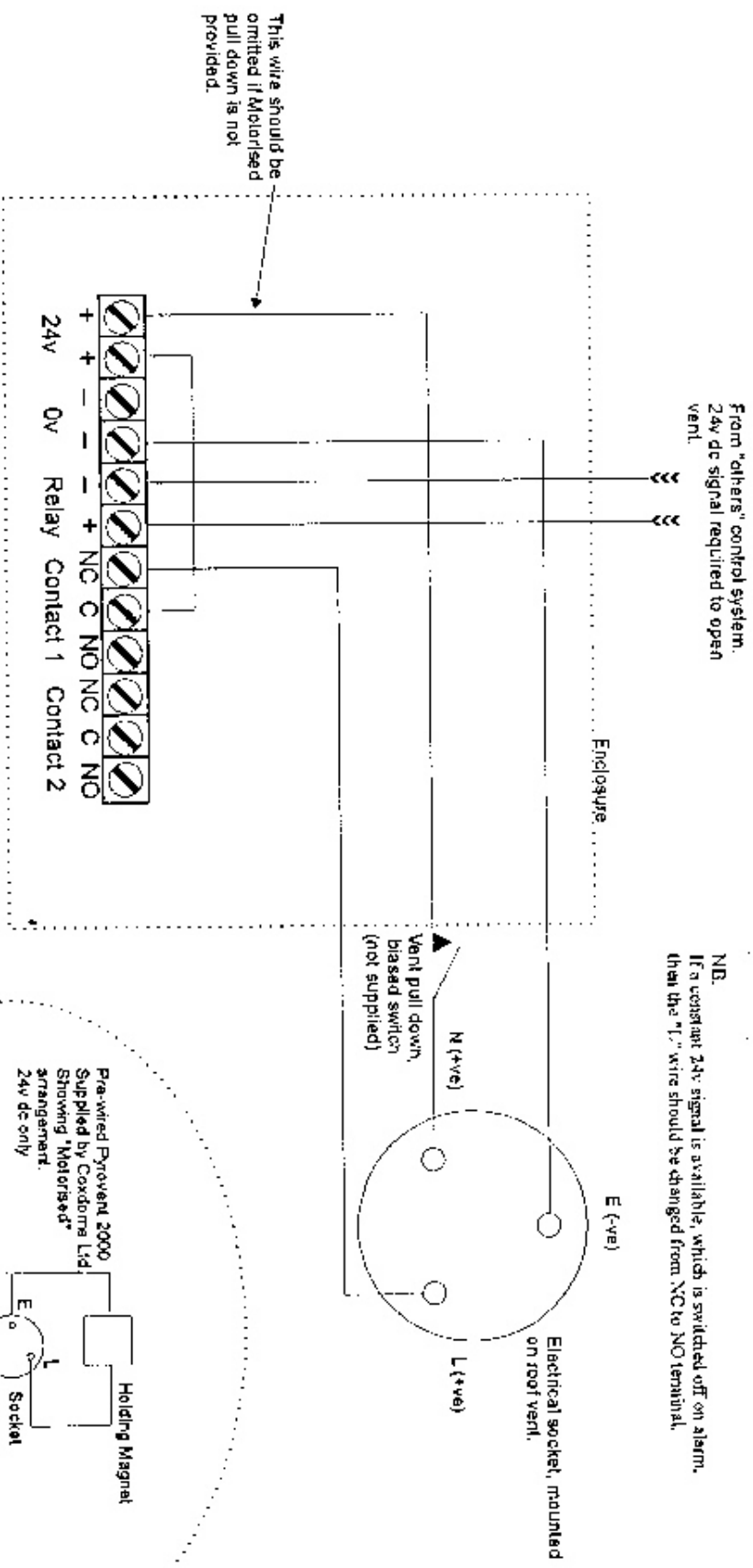
Cambridge Road, 57-61 South Lane, Colchester, Essex
Suffolk, UK
Tel: 0206 244 444
Fax: 0206 244 444

Approved by	Date	Issue	Title/Description
MRD	07-09-99	1	BCU24-50-3 & BCU24-100-3 CONNECTIONS FOR COXDOME 2000 PYROVENT WITH BATTERY BACKUP.

Drawn by: RRB/LC

1. This unit should power only one vent with Motorised pull down, or up to four vents without.
2. No standby power is supplied with this method. Loss of mains supply will result in the vents opening.

NE:
If a constant 24v signal is available, which is switched off on alarm, then the "T" wire should be changed from NC to NO terminal.



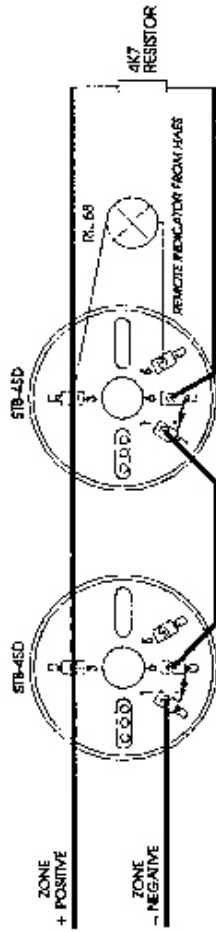
HAES
S Y N T E M S
Culverden House, Picket Post Lane, Cowley Parkway
Milton Keynes, MK11 2TP
Tel: 01908 420600

Approved by	Date	Issue	Title/Description
	02-09-98	1	COXDOME 2000 VENT WIRING, WITH AND WITHOUT MOTORISED PULL DOWN, 24V DC.

Drawn by: RRB/DC

Lxitan SENSORTEC (CONVENTIONAL)

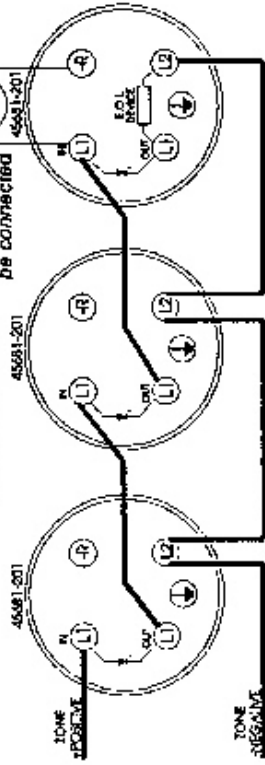
SUITABLE FOR CONTROL PANELS FROM 9000, 2000 & LEVEL SERIES



Zone Wiring Showing Head Removal Monitoring Diodes Fitted

Apollo Series 60

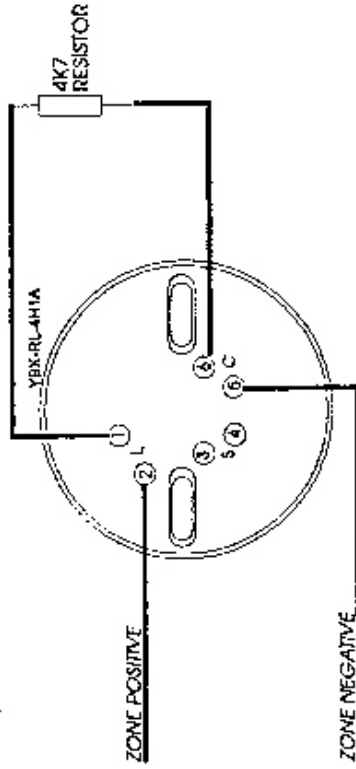
L2 is a line in & line out connection
When remote indicator is used L1 must be connected



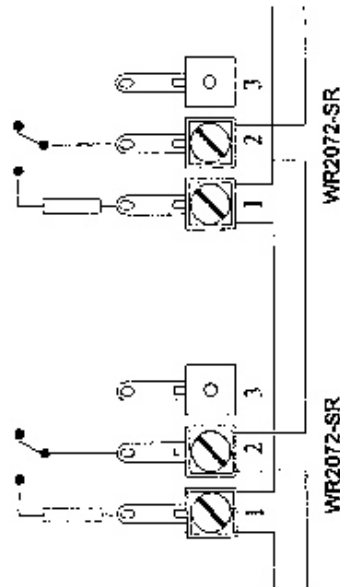
The Diode Shown across L1 IN & L1 OUT should be a Schottky BYV-10-60 or Equivalent.

Correct Polarity of all cables is important and should be as shown.

Hochiki



Hochiki "SafeLine" Base YBK-RL-4H1A Should Be Used To Achieve Head Removal Monitoring With Haes 2000 & LEVEL Series Control Panels.



Standard Break Glass Call Point Connection Details With 470 OHM Resistor Fitted.

Approved by _____ Title/Description

Issue

09-10-97

3

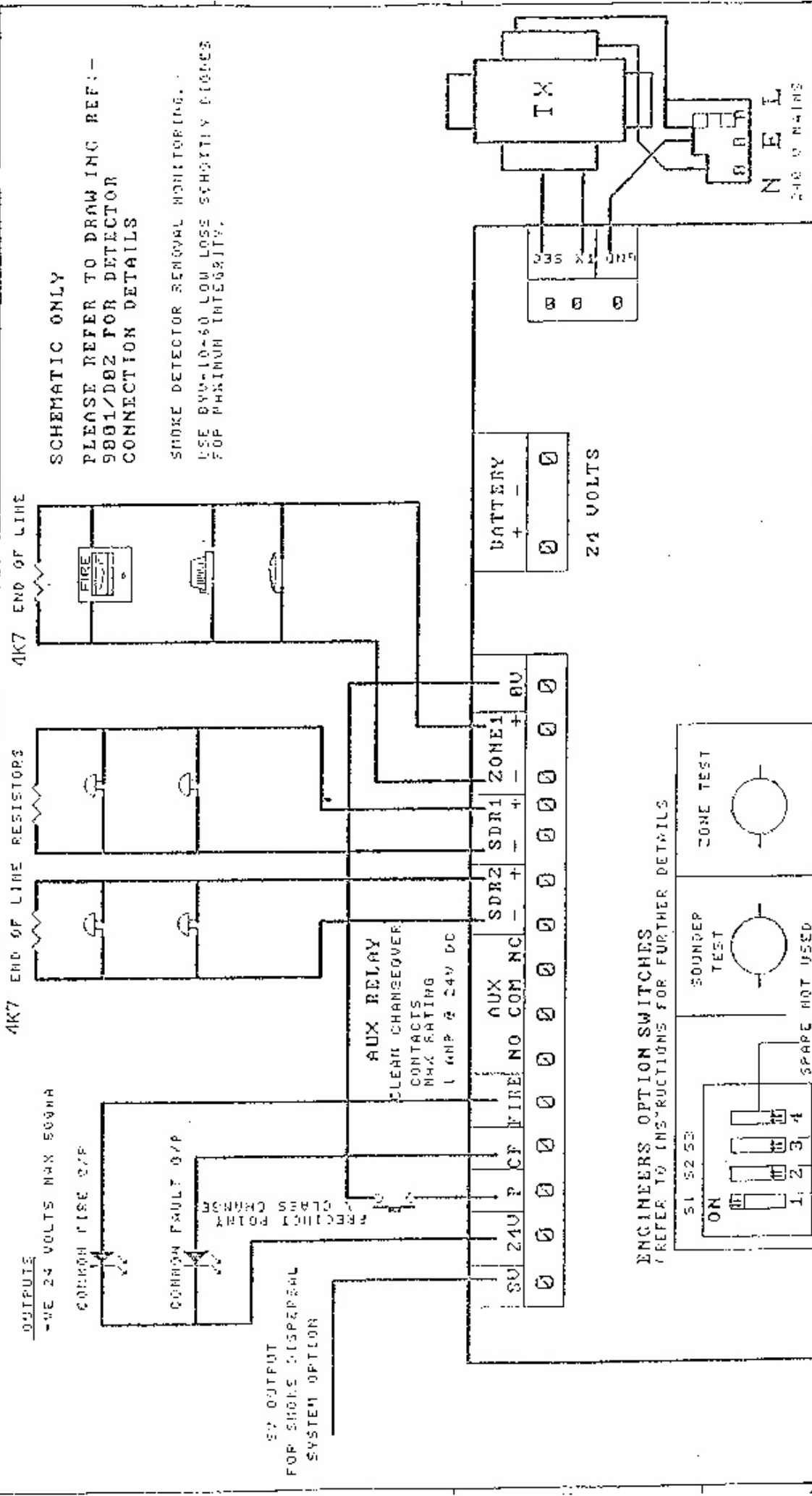
DRAWING NO S1561-A

DETECTOR BASE CONNECTION DETAILS

Drawn by: DC

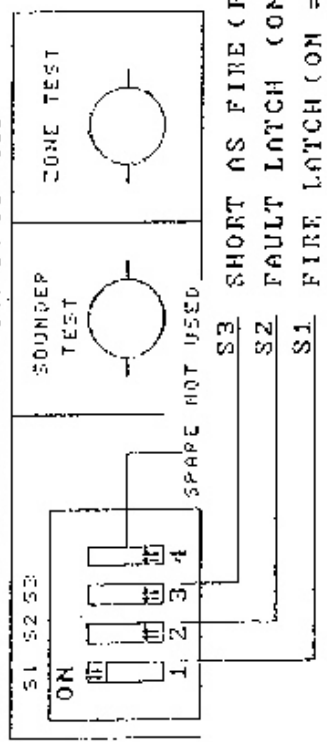


1 2 3



SCHEMATIC ONLY
 PLEASE REFER TO DRAWING REF:-
 9001/D02 FOR DETECTOR
 CONNECTION DETAILS
 SMOKE DETECTOR REMOVAL MONITORING.
 USE BYD-10-50 LOW LOSS SCHOTTKY DIODES
 FOR MAXIMUM INTEGRITY.

ENGINEERS OPTION SWITCHES
 (REFER TO INSTRUCTIONS FOR FURTHER DETAILS)



S3 SHORT AS FIRE (PRE 1988 SYSTEMS)
 S2 FAULT LATCH (ON = LATCHING)
 S1 FIRE LATCH (ON = LATCHING FIRE)

TITLE	
Size	Number
A4	9001/D01
Col: 22-JAN 1992	Sheet 1 of 4
Dist: 9001/1	Group: Bvt

FCP9001-SD SMOKE DISPERSAL CONTROL PANEL SUPPLEMENTARY INFORMATION

Single zone smoke dispersal control panel, for the control of smoke dispersal vents.

To meet the requirements of B.S.5839 Pt4, B.S.5839 Pt1 Installations.

This information should be read in conjunction with FCP9001 INSTALLATION/DATA MANUAL Ref: 174 May 94.

The Surveyor FCP9001-SD is a single zone fire control panel with an up-rated power supply and output, for controlling smoke dispersal vents.

All other control panel functions and facilities are detailed in the enclosed instruction manual.

7Ah batteries may be fitted in the control panel , to provide up to 2 hours standby for 1.5 amp or 5 hours for 0.75 amp vent solenoid load, in the event of a mains failure.

Smoke vent solenoids may be wired as a pair in suitable sized twin and earth cable, Pyro etc, as required.

Please refer to drawing No 9001/D03 for panel connection details.

The unit is rated for a continuous loading of 1.5 amps. Please refer to smoke vent manufacturers data for current consumption details, before use. Please ensure any equipment connected is rated for operation up to 27.6 v D.C. (I.E battery charging voltage.)

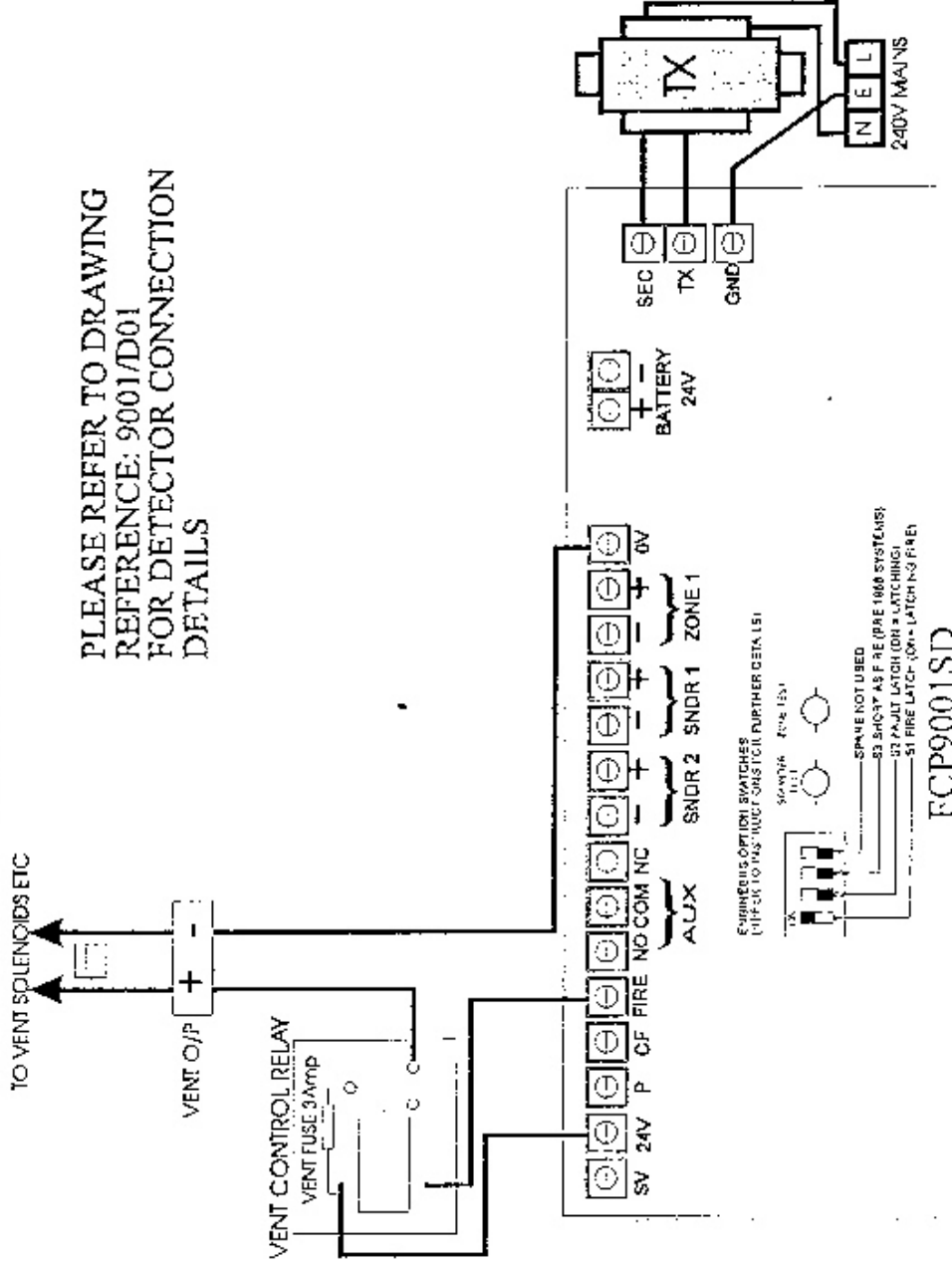
The smoke vent supply output is 24v D.C. continuous and is switched off during the following events to open the smoke vents.

1. Operation of the evacuate (test vents switch.)
2. Fire condition from the detection zone.
3. Open circuit fault on the detection zone.
4. Short circuit fault on the detection zone.
5. Detector removed fault on the detection zone.
6. Operation of the precinct point, (P) terminal.

The operation of smoke vents may be isolated by pressing the Aux Isolate, (isolate vents) switch. This will prevent opening of the smoke vents for testing purposes. Press switch again to reinstate smoke vent operation.

NOTE: VENT / WINDOW MAGNETS MUST BE SUPPRESSED.
RECOMMENDED DIODE: 1N4002

PLEASE REFER TO DRAWING
REFERENCE: 9001/D01
FOR DETECTOR CONNECTION
DETAILS



Approved by	Date	Issue	Title/Description
	27-03-95	1	CONNECTION DETAILS FOR FCP9001SD SMOKE DISPERSAL CONTROL PANEL.
DRAWING No 1554			
Drawn by: MD/DC			

HAES
SYSTEMS
Consulting House, Pochter Road, Lower Cooboy, Peachey
Melbourne, Victoria, 3067
Australia. Tel: (03) 9451 4226
Fax: (03) 9451 4266

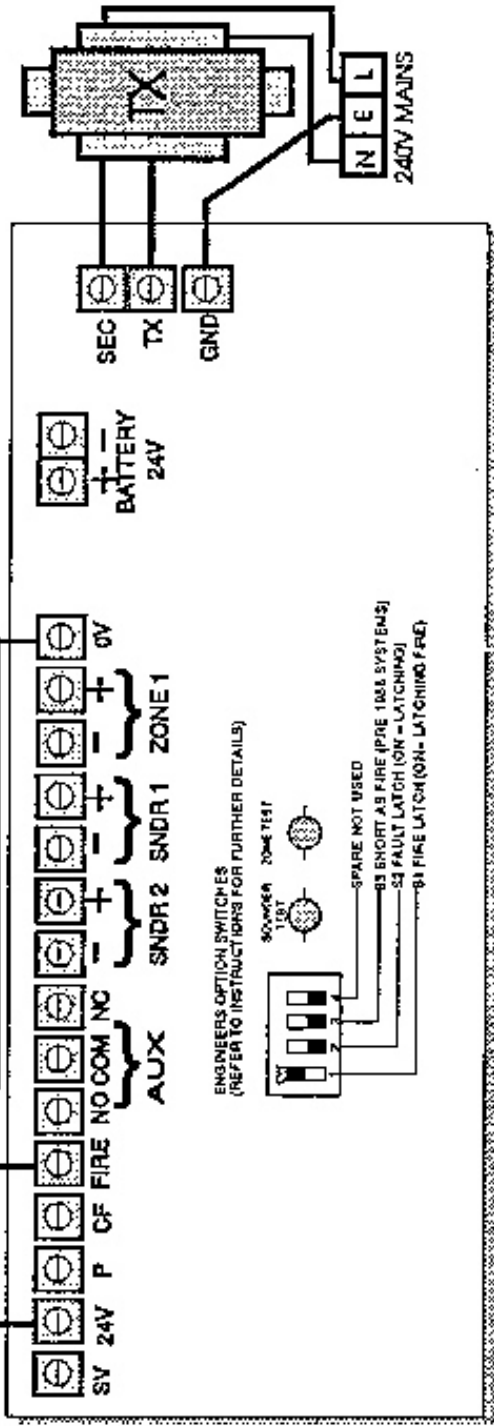
TO VENT SOLENOIDS ETC

PLEASE REFER TO DRAWING
REFERENCE: 9001/D01
FOR DETECTOR CONNECTION
DETAILS

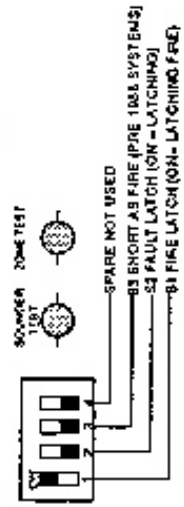
VENT O/P

VENT CONTROL RELAY

VENT FUSE 3AMP



ENGINEERS OPTION SWITCHES
(REFER TO INSTRUCTIONS FOR FURTHER DETAILS)



FCP9001-SD