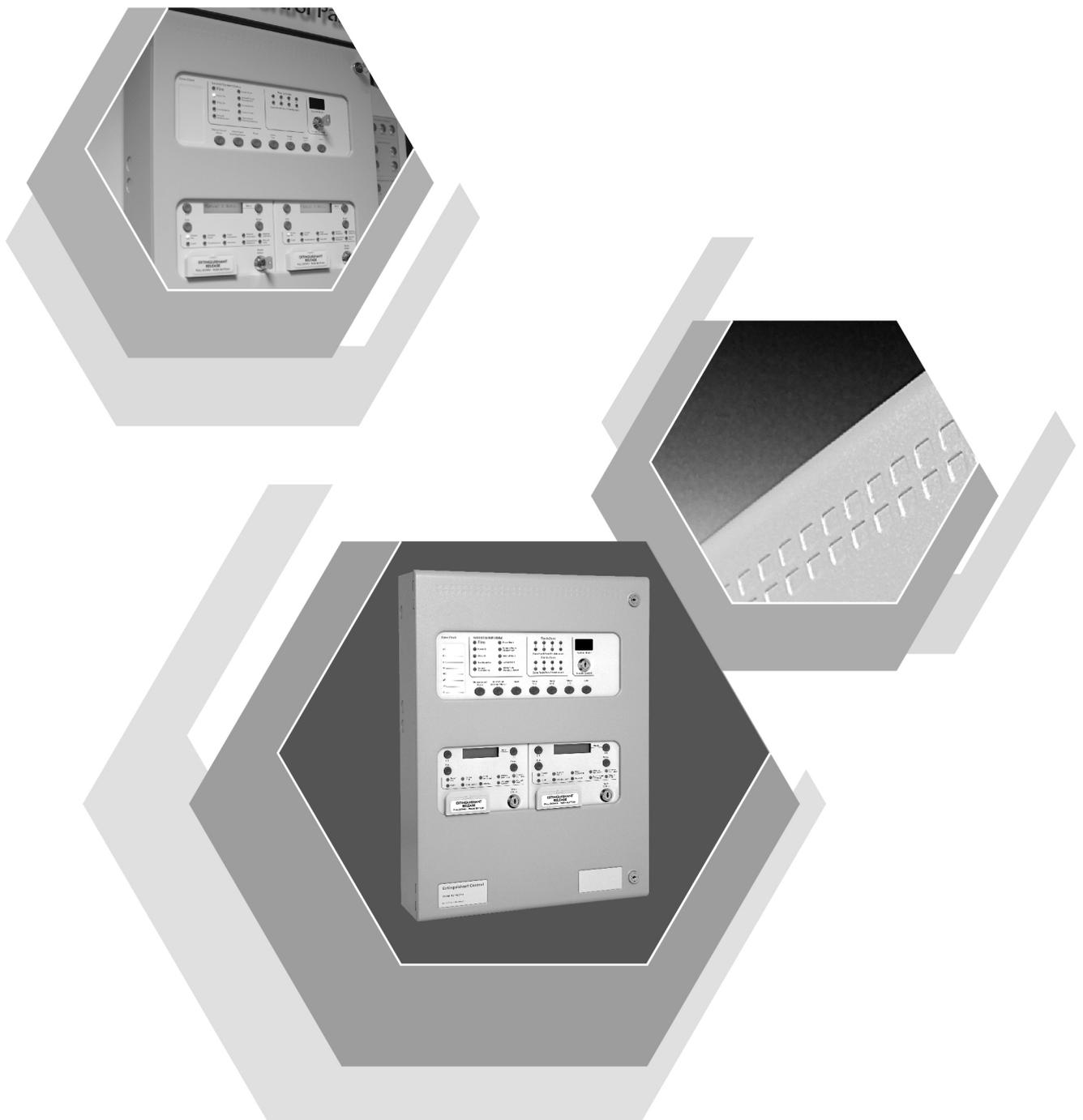# Sigma XT+

Extinguishant Control Panel

Operation and Maintenance Manual

Man-1112   Issue 26 Oct 2019

Index

1. Introduction

The SIGMA XT+ range of control panels are designed in accordance with European standards EN54-2 and EN54-4 Fire Detection and Fire Alarm systems - Control and Indicating Equipment and EN12094-1 Fixed firefighting systems - Components for gas extinguishing systems - Part 1: Requirements and test methods for electrical automatic control and delay devices.

The control equipment is a combined fire alarm control panel and extinguishing system with up to eight detection zones, and up to four extinguishant flooding areas.

Control panels have an integral, mains powered battery charger and power supply designed in accordance with the requirements of EN54-4.

In addition to the requirements of EN54-2 the control panel has the following facilities:

Test condition to allow the automatic resetting of zones in alarm for testing purposes. EN54-2 Section 10: option with requirements.

Delay of the actioning of fire alarm devices (sounders) so that an alarm may be verified before a premises is evacuated. EN54-2 Section 7.11: (option with requirements).

Fire alarm devices to enable an audible warning to be sounded throughout premises upon the detection of a fire condition or the operation of a manual call point. EN54-2 Section 7.8: (option with requirements).

In addition to the requirements of EN54-2, all control panels have voltage free relay contacts for fire and local fire which operate upon a fire condition. These are to be used for local control and signalling.

The following compulsory functions required by EN12094-1 are included:

4.3.2a Reception and processing of at least one input triggering signal from an f.d.a.s and an input triggering signal from manual triggering device(s) connected directly to the e.c.d.

4.3.2b Transmission of the extinguishing signal upon receipt of input triggering signal(s).

4.3.2c Activation of alarm devices upon receipt of input triggering signal(s).

4.2.2d Unambiguous indication of each condition.

4.2.3e Transmission of the information of the incorrect ststus of components and of the fault warning condition.

4.3.2f Transmission of the information of the released condition.

In addition to the compulsory requirements of EN12094-1 the control panel has the following facilities:
Delay of extinguishing signal of up to 60 seconds. EN12094-1 Section 4.17: (option with requirements).
Signal representing the flow of extinguishing agent to indicate the released condition. EN12094-1 Section 4.18: (option with requirements).
Monitoring of the status of components by way of a low pressure switch input. EN12094-1 Section 4.19 : (option with requirements).
Emergency hold device to enable the extinguishant delay time to be extended. EN12094-1 Section 4.20: (option with requirements).
Control of flooding time to deactivate the releasing output after a set period of time. EN12094-1 Section 4.21: option with requirements.
Manual only mode to disable the release of extinguishant via automatic detection devices. EN12094-1 Section 4.23: (option with requirements).
Triggering of equipment outside the system by way of first and second stage contacts, extract fan output etc. EN12094-1 Section 4.26: (option with requirements).

Activation of alarm devices with different signals to indicate pre- discharge and released warnings using different sounds. EN12094-1 Section 4.30: (option with requirements).

Emergency Abort device to inhibit the extinguishing signal until the emergency abort device has been de-activated and the panel has been reset. EN12094-1 Section 4.27: (option with requirements).
Extinguishing signals to spare cylinders. EN12094-1 section 4.25 (option with requirements)

2. Safety and mounting

2.1 Safety

Suppliers of articles for use at work are required under section 6 of the Health and Safety at Work act 1974 to ensure as reasonably as is practical that the article will be safe and without risk to health when properly used.

An article is not regarded as properly used if it is used 'without regard to any relevant information or advice' relating to its use made available by the supplier.

This product should be installed, commissioned and maintained by trained service personnel in accordance with the following:

(i)   IEE regulations for electrical equipment in buildings

(ii)   Codes of practice

(iii)   Statutory requirements

(iv)   Any instructions specifically advised by the manufacturer

According to the provisions of the Act you are therefore requested to take such steps as are necessary to ensure that you make any appropriate information about this product available to anyone concerned with its use.

This equipment is designed to operate from 230V 50Hz mains supplies and is of class 1 construction. As such it **must** be connected to a protective earthing conductor in the fixed wiring of the installation and a readily accessible double pole disconnect device meeting the requirements of EN60950/IEC950 which disconnects live and neutral simultaneously shall be incorporated in the fixed wiring.

Switch disconnect devices such as MK Sentry 63A or similar are suitable for this.

Failure to ensure that all conductive accessible parts of this equipment are adequately bonded to the protective earth will render the equipment unsafe.

This control panel is environmental class A and is designed for indoor use only at temperatures between -5^{0}C (+/- 3) and +40^{0}C (+/- 2) and with a maximum relative humidity of 95%.

The IP rating for the enclosure is IP30.

Operation outside of these limits may render the equipment unsafe.

2.2 Mounting

The control panel should be mounted on a dry, flat surface, at eye height to the displays and in a level position such that the enclosure is not distorted.

Screws or bolts of a minimum of 5mm diameter must be used to mount the enclosure in all four mounting positions.

It should be positioned in an accessible place as agreed with the end user.

Suitable fixings should be used at all fixing points such that the control panel is securely mounted and is not liable to move once fixed.

The control panel should not be mounted in another enclosure or near sources of excessive heat.

Cables should be connected using suitable cable glands fitted to the knockouts provided. If additional cable entry points are required, all swarf and debris caused by drilling of additional cable entries must be cleared before power is applied to the panel.

Cables should not be installed in the bottom of the enclosure. This space must be kept free for batteries.

SIDE VIEW   FRONT VIEW

5mm DIAMETER
SCREWS

FIX TO FLAT SURFACE USING
SUITABLE WALL PLUGS
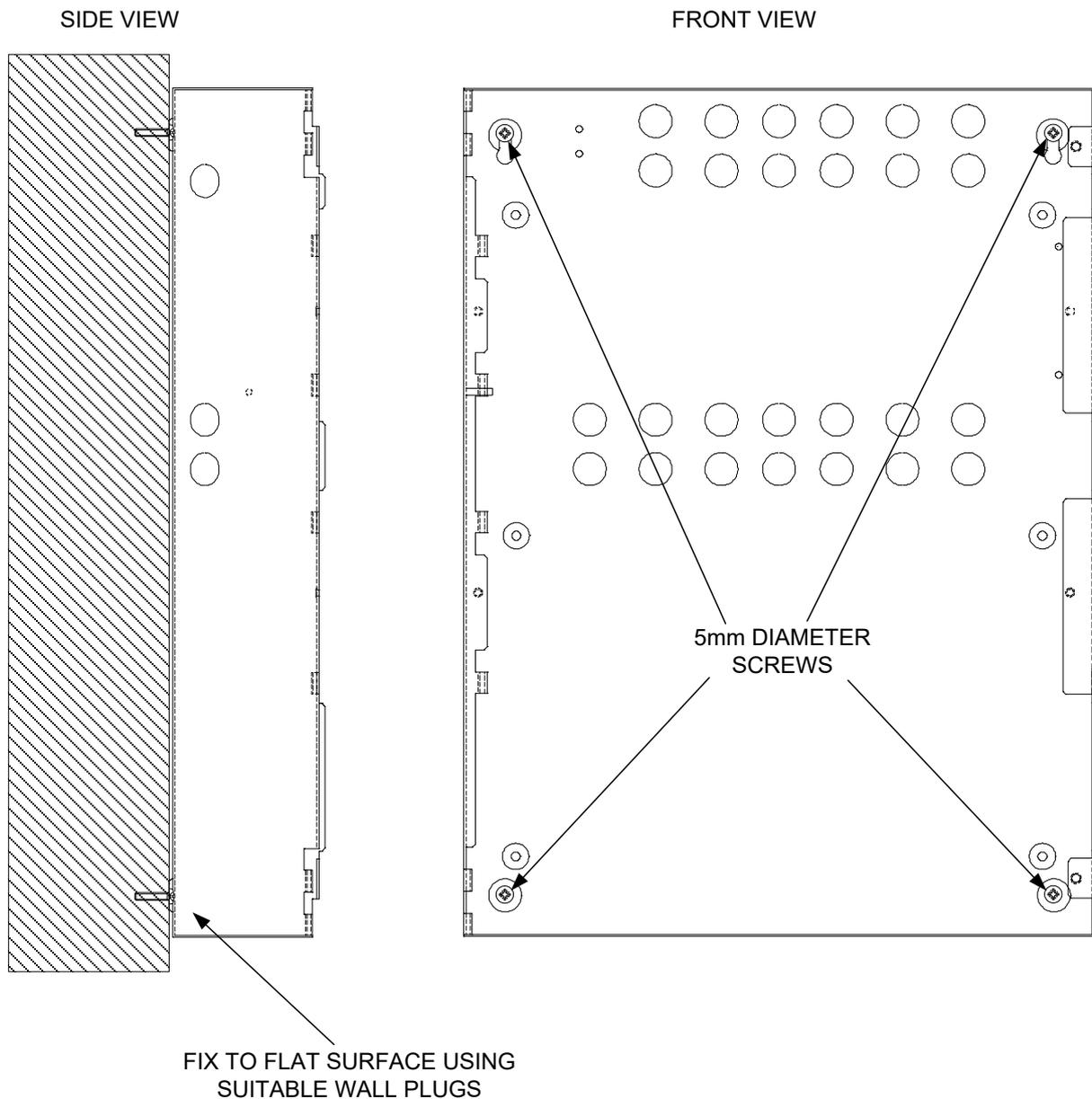
3. Technical specification

Table 1 - Electrical specifications

ITEM	ELECTRICAL RATING	*COMMENT*	*COMMUNICATION PARAMETERS*
Mains supply	230V AC, 50Hz +10% - 15% (100 Watts maximum)		*Standard European mains connection*
Mains supply fuse (K21021, K21041, K21042, K21081, K21082)	1.6 Amp (F1.6A L250V)	*Replace only with similar type*	
Mains supply fuse (K21083, K21084)	F3A 250V TD 20mm	*Replace only with similar type*	
Power supply rating (K21021, K21041, K21042, K21081, K21082)	3 Amps when battery charging is not required	*See section 19 for maximum loading for each model*	
Power supply rating (K21083, K21084)	5.25 Amps when battery charging is not required	*See section 19 for maximum loading for each model*	
Maximum ripple voltage	1 Volt		
Power supply output voltage	19 to 30V DC		
Battery type (Yuasa NP)	2 x 12 Volt sealed lead acid in series		
Battery charge voltage	27.6VDC nominal (temperature compensated)	*See chart below*	*Modulated DC*
Battery charge current	0.7A maximum - (K21021, K21041, K21042, K21081, K21082) 1,25A maximum - (K21083, K21084)		*Modulated DC*
Low Battery Voltage	21V		
Imax a	0.85A - K21021, K21041, K21042, K21081, K21082 4A - K21083, K21084		
Imax b	3A - K21021, K21041, K21042, K21081, K21082 5A - K21083, K21084		
Ri max	1.35R - K21021, K21041, K21042, K21081, K21082 1R - K21083, K21084		
Battery fuse	20mm, 3.15A glass (K21021, K21041, K21042, K21081, K21082) models only.	*Replace only with the same type*	
Current draw in mains fail condition	K21021- 119 milliamps quiescent – 207 milliamps full alarm K21041 – 130 milliamps quiescent – 317 milliamps full alarm K21042 – 185 milliamps quiescent – 424 milliamps full alarm K21081 – 150 milliamps quiescent – 657 milliamps full alarm K21082 – 200 milliamps quiescent – 764 milliamps full alarm K21083 – 255 milliamps quiescent – 871 milliamps full alarm K21084 – 300 milliamps quiescent – 978 milliamps full alarm	*Full alarm current consumption figure is with all zones in alarm and all modules activated.*	
Maximum current draw from batteries	3 Amps (K21021, K21041, K21042, K21081, K21082) 7 Amps (K21083, K21084)	*With main power source disconnected*	
Aux 24V output (Exting modules)	Fused at 500mA with electronic fuse – 1 per extinguishant area	*200 milliamp maximum continuous load (Min 16V @ Final Voltage)*	*16 to 30 V DC*
Aux 24V output (detection module)	Fused at 500mA with electronic fuse	*200 milliamp maximum continuous load (Min 16V @ Final Voltage)*	*16 to 30V DC*
Final Voltage (Cut off Voltage)	19V ±1V		
1st and 2nd stage Sounder outputs	18 to 30V DC Fused at 1A with electronic fuse	*1.0 Amp total load over all circuits*	*Voltage reversing DC*
Fault relay contact rating	5 to 30VDC 1A Amp maximum for each	*Maximum ratings not to be exceeded*	*Volt free changeover contact*
Fire relay contact rating	5 to 30VDC 1A Amp maximum for each	*Maximum ratings not to be exceeded*	*Volt free changeover contact*

Local fire relay contact rating	5 to 30VDC 1A Amp maximum for each	*Maximum ratings not to be exceeded*	*Volt free changeover contact*
First stage contact rating	5 to 30VDC 1A Amp maximum for each	*Maximum ratings not to be exceeded*	*Volt free changeover contact*
Second stage contact rating	5 to 30VDC 1A Amp maximum for each	*Maximum ratings not to be exceeded*	*Volt free changeover contact*
Extract contact rating	5 to 30VDC 1A Amp maximum for each	*Maximum ratings not to be exceeded*	*Volt free changeover contact*
Zone quiescent current	0mA minimum, 2mA maximum	*See tables 2 and 3 for detector types*	
Terminal capacity	$0.5mm^2$ to $2.5mm^2$ solid or stranded wire		
Number of detectors per zone	*Dependent on type*	*See table 2*	
Number of sounders per circuit	Dependent on type and current consumption	*See table 4 for sounder types*	
Detection circuit end of line	6K8 +/- 5% ½ Watt resistor	*Supplied in terminals*	
Monitored input end of line	6K8 +/- 5% ½ Watt resistor	*Supplied in terminals*	
Sounder circuit end of line	10K +/- 5% ¼ Watt resistor	*Supplied in terminals*	
Extinguishant output end of line	1N4004 Diode	*Supplied in terminals*	
No. of detection circuits	Two to eight. 21 VDC	*Dependent on model*	
No. of sounder circuits	Dependent on model 18 to 30V DC	*2 x on detection section –1st stage and 1 x 2nd stage per exting area.*	*2nd stage sounders are outputs to alarm devices as required by EN12094-1*
Extinguishant release output	18 to 30V DC. Fused at 1 Amp	*1 Amp maximum load –for 5 minutes 3 Amps for 20 milliseconds*	*Voltage reversing DC with calibration facility*
Extinguishant release delay	Adjustable 0 to 60 seconds (+/- 10%)	*5 second steps*	
Extinguishant release duration	Adjustable 60 to 300 seconds	*5 second steps*	
SIL, AL, FLT, RST inputs	Switched -ve, min resistance 0 ohms, max resistance 100 Ohms	*Only to be used with Aux ROV terminal*	*Switched DC*
Zone normal threshold (Allowable EOL)	8K ohm to 1K ohm	*Use 6K8 end of line resistor*	
Detector alarm threshold	999 ohms to 400 ohms	*Nominal trigger resistance 470 ohms*	
Call point alarm threshold	399 ohms to 100 ohms	*Nominal trigger resistance 270 ohms*	
Short circuit threshold	99 ohms to 0 ohms		
Head removal condition	15.5 to 17.5 volts	*2-wire detector base or schottky diode base*	
Cabling	FP200 or equivalent (maximum capacitance 1uF max inductance 1 mH	*Metal cable glands must be used*	
Monitored inputs normal threshold (Allowable EOL)	10K ohm to 2K ohm		
Monitored inputs alarm threshold	2K ohms to 150 ohms +/- 5%		
Monitored inputs Short circuit threshold	140 ohms to 0 ohms +/- 5%		
Status unit/Ancillary board connection	Two wire RS485 connection (EIA-485 specification)	*Maximum of 7 units per area- RS485 data cable. Compatible status units - K911000M8, K911000F8, K911100M8, K911100F8, K911110M8, K911110F8, W911000W8, W911100W8, W911110W8*	*(EIA-485 specification)*
Status unit power output	18 to 30V DC, Fused at 500mA with electronic fuse	*250 milliamp maximum load*	*Max 3 per module – More status units must be supplied with external power supply*

Table 2 - Compatible detectors

Model	Type	Manufacturer	Maximum Number per zone
SLR-E/SLR-E3	OPTICAL	Hochiki	32
SIJ-E/	IONISATION	Hochiki	32
DCD-1E/DCD-AE3	HEAT	Hochiki	*32*
DCD-2E	HEAT	Hochiki	*32*
DCD-1RE/DCD-CE3	HEAT	Hochiki	*32*
DFG-60E	HEAT	Hochiki	*32*
DFJ-60E/DFJAE3	HEAT	Hochiki	*32*
DFJ90-E/DFJCE3	HEAT	Hochiki	*32*
SPB-ET	BEAM	Hochiki	*8*
SRA-ET	BEAM	Hochiki	*5*
55000-200/210 - SERIES 60	IONISATION	Apollo	*32*
55000-300 - SERIES 60	OPTICAL	Apollo	*32*
55000-100 - SERIES 60	HEAT	Apollo	*32*
55000-101 - SERIES 60	HEAT	Apollo	*32*
55000-102 - SERIES 60	HEAT	Apollo	*32*
55000-103 - SERIES 60	HEAT	Apollo	*32*
55000-104 - SERIES 60	HEAT	Apollo	*32*
55000-215 -SERIES 65	IONISATION	Apollo	*32*
55000-216 - SERIES 65	IONISATION	Apollo	*32*
55000-217 - SERIES 65	IONISATION	Apollo	*32*
55000-218 - SERIES 65	IONISATION	Apollo	*32*
55000-219 - SERIES 65	IONISATION	Apollo	*32*
55000-220 - SERIES 65	IONISATION	Apollo	*32*
55000-315 - SERIES 65	OPTICAL	Apollo	*32*
55000-316 - SERIES 65	OPTICAL	Apollo	*32*
55000-317 - SERIES 65	OPTICAL	Apollo	*32*
55000-120 - SERIES 65	HEAT	Apollo	*32*
55000-121 - SERIES 65	HEAT	Apollo	*32*
55000-122 - SERIES 65	HEAT	Apollo	*32*
53541-151 - SERIES 30	IONISATION	Apollo	32
53541-152 - SERIES 30	IONISATION	Apollo	32
53551-101 - SERIES 30	OPTICAL	Apollo	32
53531-221 - SERIES 30	HEAT	Apollo	28
53531-211 - SERIES 30	HEAT	Apollo	28
53531-212 - SERIES 30	HEAT	Apollo	28
53531-213 - SERIES 30	HEAT	Apollo	28
53531-214 - SERIES 30	HEAT	Apollo	28
ORB-OP-12001-APO	Optical	Apollo	15
ORB-OH-13001-APO	Multisensor	Apollo	15
ORB-HT-11001-APO	A1R Heat	Apollo	15
ORB-HT-11002-APO	A2S Heat	Apollo	15
ORB-HT-11003-APO	BR Heat	Apollo	15
ORB-HT-11004-APO	BS Heat	Apollo	15
ORB-HT-11005-APO	CR Heat	Apollo	15
ORB-HT-11006-APO	CS Heat	Apollo	15
NID-58	IONISATION	Nittan	32
2KC/2KD	OPTICAL	Nittan	32
2SA-LS/2SA-70T-LS	HEAT	Nittan	32
TCA-70-LS	HEAT	Nittan	32
NFD-18-2/NFD-18-5	FLAME	Nittan	3
NID-48F	IONISATION	Nittan	32
NS-12-7	HEAT	Nittan	32
NC-9C-70T	HEAT	Nittan	32
ECO1002	HEAT/PHOTO	System Sensor	21
ECO1003	PHOTO	System Sensor	26
ECO1005	HEAT	System Sensor	22
ECO1005T	HEAT	System Sensor	22

Although the current consumption of many detection devices would allow more than 32 to be connected to a zone, this number should be limited to 32 to ensure that a short or open circuit on the wiring does not prevent the indication of a fire alarm from more than 32 fire detectors and/or call points as required by European standard EN54-2. If an active end of line LCMU (K14060) is used fit a maximum of 20 detectors per zone.

Table 3 - Compatible detector bases and call points

Model	Type	Manufacturer	Comments
YBN-R/6	STANDARD WITH REMOTE LED	Hochiki	
YBO-R/4(IS)	STANDARD WITH REMOTE LED (I.S.)	Hochiki	
YBN-R/6SK	DIODE BASE	Hochiki	*Must be used with LCMU*
YBO-R/6R	STANDARD LATCHING RELAY	Hochiki	
YBO-R/6RN	STANDARD NON-LATCHING RELAY	Hochiki	
YBO-R/6RS	DIODE BASE WITH LATCHING RELAY	Hochiki	*Must be used with LCMU*
ECO1000R	STANDARD	System Sensor	
ECO1000BRSD	DIODE BASE	System Sensor	*Must be used with LCMU*
456821-200	STANDARD BASE	Apollo	
456821-201	DIODE BASE	Apollo	*Must be used with LCMU*
ORB-MB-00001-APO	Timesaver Base	Apollo	
ORB-DB-00003-APO	Timesaver Diode Base	Apollo	
ORB-RB-10004-APO	Timesaver Relay Base	Apollo	
MCP1	470 OHM CALL POINT	KAC	
CX	470 OHM CALL POINT	Fulleon	
NCP-T	CALL POINT	Nittan	
	ELECTRONICS FREE BASES	ALL	

Note: LCMU (Line Continuity Monitoring Device) part number K14060 allows call points mounted down line of detectors that have been removed from diode bases to continue to operate.

Table 4 - Compatible sounders

Model	Type	Manufacturer	Comments
BANSHEE	ELECTRONIC	VIMPEX	
WAFER	ELECTRONIC	VIMPEX	
FIRECRYER RANGE	ELECTRONIC VOICE	VIMPEX	
KOBELL	MOTORISED	VIMPEX	
ASKARI	ELECTRONIC	FULLEON	
ROSHNI	ELECTRONIC	FULLEON	
SQUASHNI	ELECTRONIC	FULLEON	
SYMPHONI	ELECTRONIC	FULLEON	
ELECTRONIC BELL	ELECTRONIC	FULLEON	
CFB BELLS	MOTORISED	FULLEON	
B6 AND B8 BELLS	SOLENOID	FULLEON	

Table 5 - Compatible I.S. barriers

Model	Type	Manufacturer
MTL5061	DETECTION ZONE GALVANIC ISOLATOR	MTL
MTL7778ac	ALL SOUNDER CIRCUITS	MTL

Note: Use galvanic isolator with Hochiki or Apollo detectors only

4. Control panel fascia's

This drawing shows the fascia's of the models available in the Sigma XT+ range.
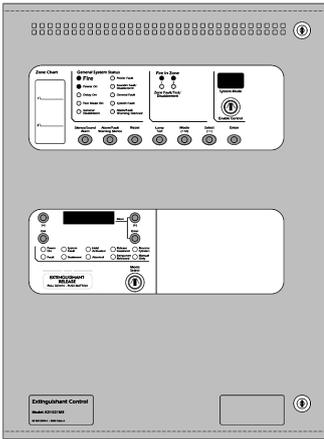
K21021M3
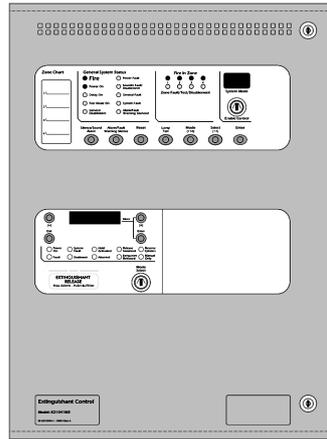
K21041M3
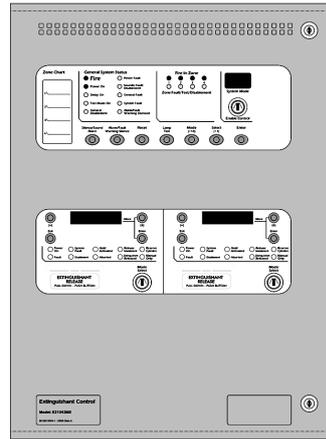
K21042M3
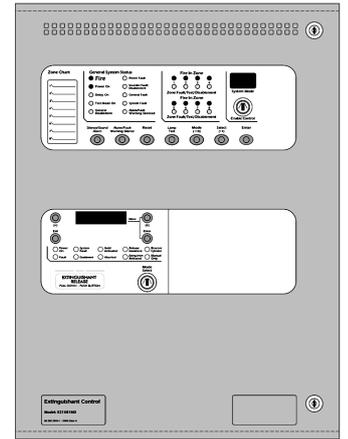
K21081M3
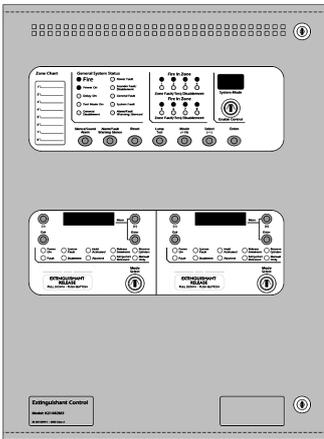
K21082M3
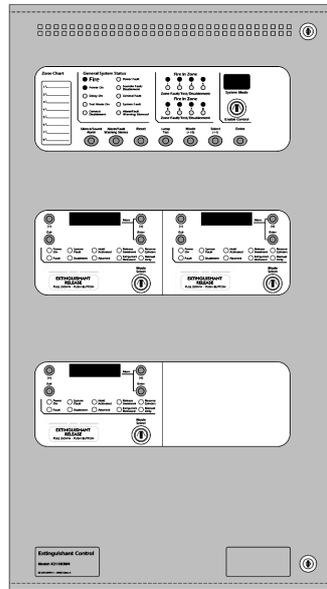
K21083M4
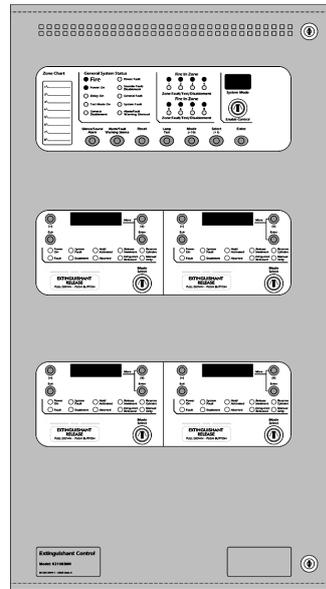
K21084M4

The fascia's are divided into sections for the detection panel and extinguishant modules. A standard EN54-2 control and indicating equipment section with up to eight zones is located in the top aperture of the panel fascia and EN12094-1 extinguishant modules are fitted in the lower apertures.

4.1 Removing the fire detection equipment chassis

Open the control panel lid using the two 801 lock keys.

Before the chassis can be removed it will be necessary to disconnect the power connector terminal block on the left hand side of the PCB. This is fitted on pins and can be pulled towards you to remove it. Do not remove the wires from the terminals.

The chassis is held in place by two screws. Undo the two screws and lift the chassis gently away from the box towards you.

With the chassis removed, there is much more room inside the panel for making off and dressing cables.

When cabling work is complete, the chassis can be re-fitted with the two screws and the terminal block plugged back onto the pins on the board.

The extinguishant module chassis should not be removed.
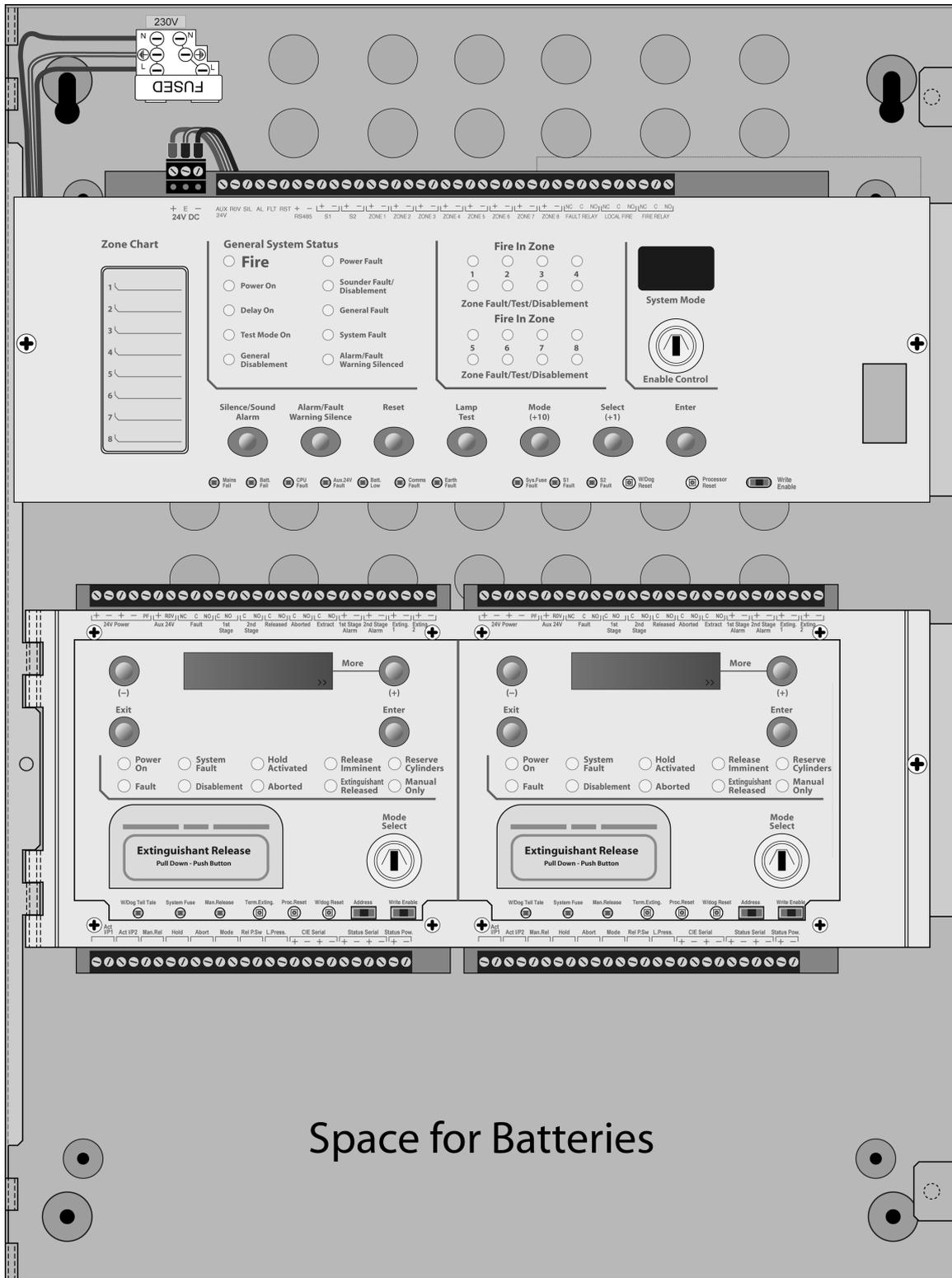
5. Connecting to the circuit boards

All connections for field wiring are to rows of terminals along the top and bottom of the circuit boards.

Shielded fire alarm cable such as FP200 and metal cable glands must be used for all connections to the panel.
The shield of the cable must be bonded securely to the enclosure earth via a metal cable gland.
The resistance of any core of any cable must not exceed 25 ohms. The shield of the cable must be bonded securely to the enclosure via the metal gland.

Wiring should enter the enclosure at the top or back of the panel using the knockouts provided and be formed tidily to the appropriate terminals ensuring that no cables are run close (minimum 50mm) to the surface of any of the circuit boards.

Route mains cables away from all other cables and segregate by 50mm.
Terminals are capable of accepting wires of up to 2.5mm^2.

Wiring must not go across the front of the circuit boards. If cable entries need to be in positions other than at the knockouts provided, wiring must be fed behind and well away from the surface of the circuit board.
The space at the bottom of the enclosure is largely occupied by the standby batteries so this must be borne in mind when considering cable entries.

Detection panel terminals

Zone Chart

1
2
3
4
5
6
7
8

General System Status

Fire

Power On
Delay On
Test Mode On
General Disablement

Power Fault
General Fault
System Fault
Sounder Fault/ Disablement
Alarm/Fault Warning Silenced

Silence/Sound Alarm
Alarm/Fault Warning Silence
Reset
Lamp Test
Mode (+10)
Select (+1)
Enter

Fire In Zone
1 2 3 4

Zone Fault/Test/Disablement
Fire In Zone
5 6 7 8

Zone Fault/Test/Disablement

Enable Control

System Mode

Mains Fault
Batt. Fail
CPU Fault
Aux 24V Fault
Batt. Low
Comms Fault
Earth Fault
Sys-Fuse Fault
S1 Fault
S2 Fault
W/Dog Reset
Processor Reset
Write Enable

Aux 24V output

Silence
Evacutate
Fault
Reset
} Remote Control Inputs

CIE Serial Output

Sounder 1
Sounder 2

Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Zone 7
Zone 8

} Fault relay contact

} Local Fire contact

} Fire relay contact

+
E
–
AUX 24V
RDV SIL AL FLT RST
RS485
S1
S2
ZONE 1 ZONE 2 ZONE 3 ZONE 4 ZONE 5 ZONE 6 ZONE 7 ZONE 8
FAULT RELAY LOCAL FIRE FIRE RELAY
NC C NO NC C NO NC C NO

Top terminal labels (left to right):

24V input from PSU
PF input from PSU
Aux 24V output
Fault relay contact
Stop Air Conditioning
Shutdown Power
Released relay contact
Aborted relay contact
Extract fan power
1st Stage sounders
2nd Stage sounders
Releasing Solenoid
Releasing Solenoid

Top terminal legend:

| + − | + − | + | PF | + | R0V | NC | C | NO | C | NO | C | NO | C | NO | C | NO | C | NO | + | − | + | − | + | − | + | − |
| 24V Power | | Aux 24V | | Fault | | | 1st Stage | | 2nd Stage | | Released | | Aborted | | Extract | | 1st Stage Alarm | | 2nd Stage Alarm | | Exting. 1 | | Exting. 2 | |

Display / controls:

(−)   More   (+)

Exit   Silence Buzzer   Silence Alarm   Reset   Enter

○ Power On   ○ System Fault   ○ Hold Activated   ○ Release Imminent   ○ Reserve Cylinders
○ Fault   ○ Disablement   ○ Aborted   ○ Extinguishant Released ○ Manual Only

Extinguishant Release
Pull Down - Push Button

Enable Control   Mode Select

Bottom terminal legend:

Act I/P1   Act I/P2   Man.Rel   Hold   Abort   Mode   Rel P.Sw   L.Press.   CIE Serial   Status Serial   Status Pow.
+ − + −   + −   + −

Bottom labels (left to right):

Remote Manual Release Switch
Remote Hold Switch
Remote Abort Switch
Remote Auto/ Manual Select Switch
Extinguishant released Pressure Switch
Extinguishant Low Pressure Switch
Internal connection from fire panel
Serial data to status units
Status Power

Extinguishant panel terminals

6. Detection zone wiring

The detection zones provide a nominal 20V DC to power conventional detectors and call points as listed in the compatibility tables 2 and 3.
The wiring is monitored for open and short circuit fault conditions by removing the 6K8 0.5W end of line monitoring resistors that are supplied fitted to the control panels' terminals and placing them across the last device that is wired to the zone circuit.

Detection zone circuits must be wired as a single, radial circuit with no spurs or T junctions to enable the monitoring circuit to work correctly.

For systems that are required to comply with BS5839 Part1:2002 detector removal requirements, either detector bases fitted with a Schottky diode should be used and the end of line resistor replaced with an LCMU active end of line monitoring device or zener clamping bases such as Hochiki PA6 or Apollo Savwire used.
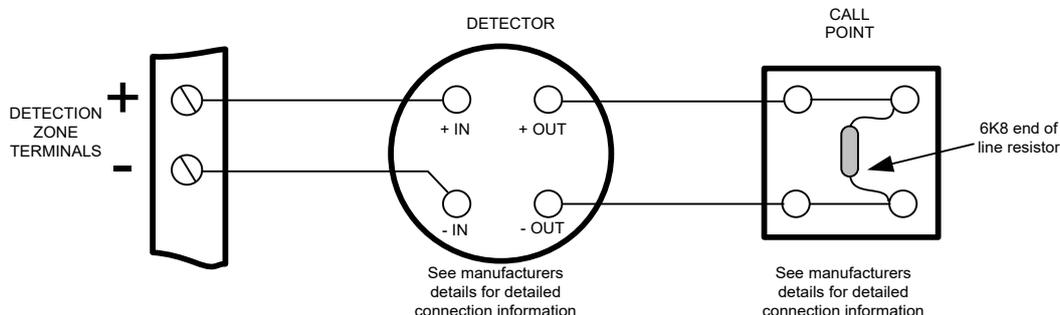
7. Sounder circuit wiring (alarm devices as required by EN12094-1)
All sounders must be of the polarised type. If non-polarised sounders are used the control panel will permanently show a fault condition. See table 4 for a list of compatible sounder types.
Sounder circuits are monitored for open and short circuit faults by placing a 10K 0.25W end of line monitoring resistor across the last device on the circuit.

Sounder circuits must be wired as a single, radial circuit with no spurs or T junctions to enable the monitoring circuit to work correctly.
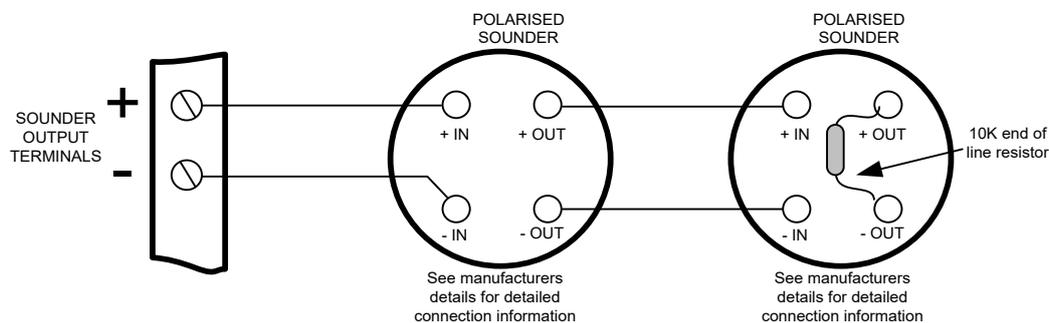
8. Using intrinsically safe barriers

SIGMA XT+ control panels support the use of I.S. barriers for connecting to equipment in hazardous areas.
Only certified detectors, call points and sounders may be used in hazardous areas and these must be connected to the control panel via a compatible I.S. barrier as listed in table 5.

Connection of the I.S. barrier changes the characteristics of the detection circuit so zones that have I.S. barriers connected must be adjusted to work with them.
Programmable options C61 to C68 on the detection section allow each zone to operate with I.S. barriers.

The amount of detectors and call points that can be connected to a zone is limited by the I.S. approval system diagram which should be supplied by the detector manufacturer. The power rating of the end of line resistor will be dependent upon the Zone classification rating (Gas class) this will be specified on the system diagram.
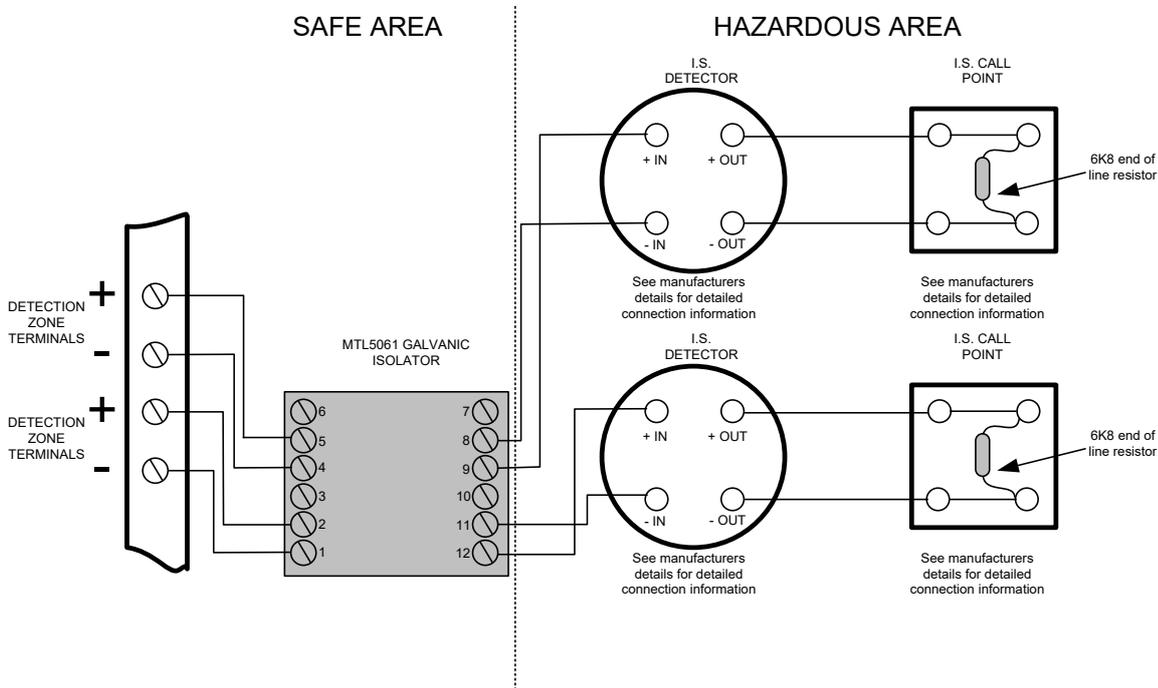
Detection zone wiring through an MTL5061 galvanic isolator
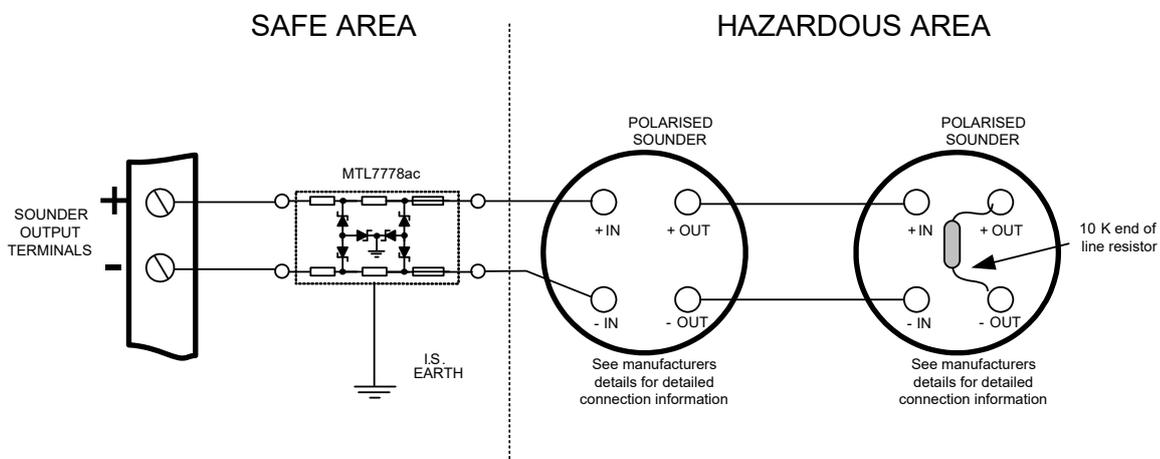
Sounder circuit wiring through an MTL7778ac I.S. barrier

9. Connection to monitored inputs

Monitored inputs (Mode select, manual release, Hold, Abort, Released pressure switch and Low pressure switch) have the same characteristics as detection zone inputs and require a 6K8 0.5W end of line monitoring resistor and a nominal, 470 ohm 1 W trigger resistor.

PRESSURE
SWITCH

6K8 END
OF LINE
REISTOR

470
OHMS
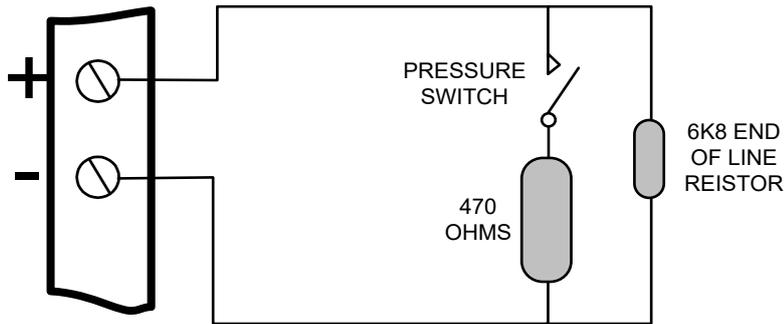
Example of wiring to a monitored input

10. Connection to extinguishant output

The extinguishant output is capable of supplying up to 1 Amp for the maximum duration to a solenoid or 3 Amps for 20 milliseconds to an igniting actuator or Metron.

The wiring for solenoids and igniting actuators is different as shown below. Igniting actuators of different types or from different manufacturers should not be mixed on the same circuit.

10.1 Solenoid wiring

Solenoids must have a resistance of greater than 28 ohms to ensure that the maximum current rating of the extinguishant output is not exceeded.
Solenoids should be fitted with a suppression diode to prevent EMF generated by the solenoid when it de-energises from upsetting the operation of the control panel.
Only polarised solenoids (i.e. solenoids fitted with an internal polarising diode) should be used.

EXTING

+

DIODE 1N4004
BAND END TO +

-
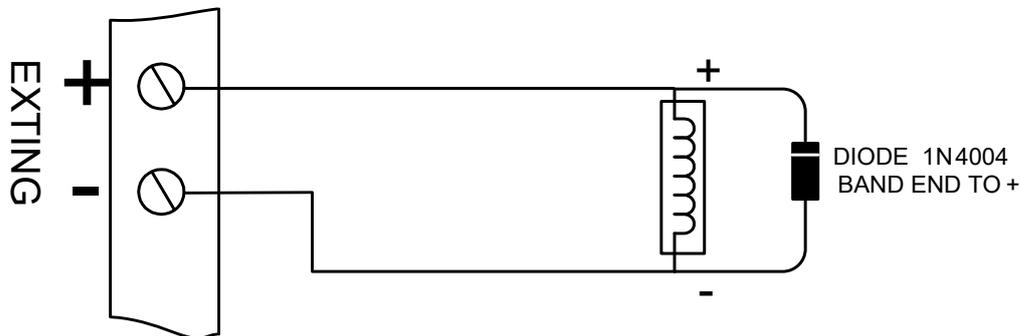
Example of wiring a solenoid

10.2 Igniting actuator wiring

A maximum of four igniting actuators can be wired in series. If only one or two actuators are fitted, a 2R2, 2.5 Watt resistor must be wired in series with them to provide the correct monitoring resistance. The end of line diode can be discarded when igniting actuators are used.
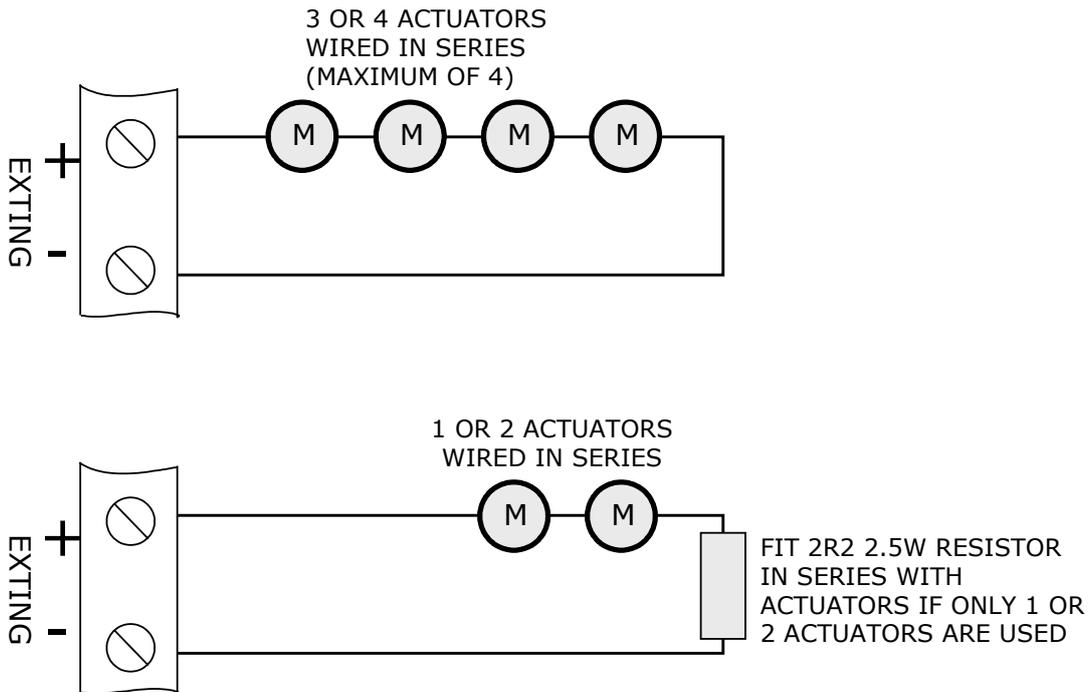
To guarantee firing under all conditions, the total resistance of actuators, monitoring resistor and cable should not exceed 7 ohms.

10.3 Setting up extinguishant monitoring circuit

The extinguishing output circuit is factory set to monitor the end of line diode that is fitted to the terminals and will normally show a value of around 270.

If the parameters of the extinguishant output change e.g. by connecting a solenoid in parallel with the monitoring diode or removing the diode and fitting igniting actuators, then the extinguishing output monitoring level will need to be "learnt". See section 15.2 for details. To do this, operate the enable controls keyswitch to put the system into access level 2.

The LCD will show:

```
Access  level  2  ►
ENTER  for  Menu
```

Operate the WRITE ENABLE switch by gently sliding it to the left. The LCD will show:

```
AL3  Updates  =  xx
 ENTER  for  Menu
```

Press the ENTER button and then the UP button repeatedly until the LCD displays:

```
Exting.  O/P  1
Level  =  XXX
```

The XXX displayed here is the previous (factory) level to which the monitoring level had been set.

Press the ENTER button. The LCD will now show:

```
Exting.  O/P  1
Level  =  XXX    ?
```

The XXX shown here is the current monitoring level detected on the extinguishing output. Press the ENTER button to learn the new monitoring level.
Press the UP button to set the monitoring level for output 2 in the same way if it is being used, otherwise switch the write enable slide switch to the right (off) position and check that an open or short circuit fault on the extinguishing output(s) is detected and shown on the control panel.

11. Connection to remote control terminals

Some functions of the control panel can be controlled externally from the panel if required. The external equipment operating inputs **must be restricted by an access level 2 control** as defined in EN54-2 The functions are abbreviated at the terminals block on the detection zone PCB in the top part of the control panel as follows:

- a) Remote 0 V supply – ROV
- b) Silence Alarm – SIL (Silences sounder outputs S1 &S2)
- c) Sound Alarm – AL (Operates sounder outputs S1 & S2)
- d) Fault – FLT (Generates a general fault and operates the fault relay)
- e) Reset – RST (Resets the system back to normal condition)

To activate these inputs, the remote 0 Volt (R0V) supply must be connected to the input via a normally open switch or contact and via a resistance of no greater than 100 ohms.
All of the remote control inputs are non-latching.
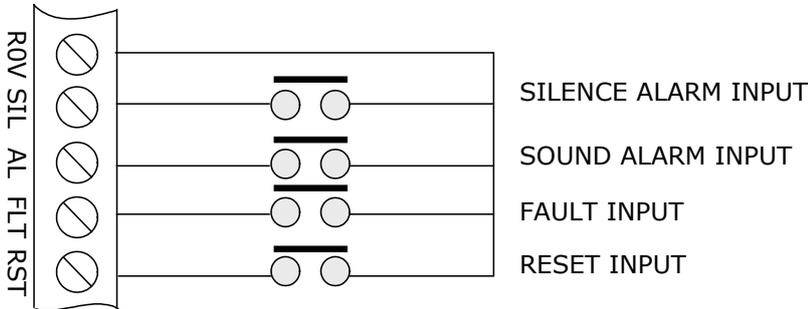
12. Aux 24V DC supply outputs (extinguishant modules only)

The terminals for the Aux 24V supply are labelled Aux 24V + and ROV. The ROV terminal is the negative terminal.
It is possible to have the Aux24V supply outputs removed for a few seconds when the panel is reset.
Aux 24V not removed upon reset is set as default on the extinguishing modules. To change this, switch the system to access level 2 by operating the enable control keyswitch and then operate the extinguishing module WRITE ENABLE switch by gently sliding it to the left.
The LCD will show:

```
AL3 Updates = xx
 ENTER for Menu
```

Press the ENTER button and then the UP button repeatedly until the LCD displays:

```
R0V Not Removed
On System Reset
```

Press the ENTER button. The LCD will now show:

```
R0V Not Removed
On System Reset?
```

Press the ENTER button. The LCD will now show:

```
R0V Removed
On System Reset
```

Press the exit button.

The Aux 24V supply outputs are fitted with an electronic, self resetting fuse rated at 0.5 Amps to protect the control panel's 24V supply in the event of a wiring fault. The Aux 24V outputs should not be loaded with any more than 100milliamps per module.
Any standing load on the Aux 24V supply outputs must be taken into account when calculating battery standby times as standby time will be significantly affected by even modest standing loads on these outputs. It is recommended that the Aux24V outputs are **not** used to power standing loads.
Where the Aux 24V supply outputs are used to power electromechanical devices such as relays or door retainers it is imperative that a suppression diode is fitted across the coil of the device to prevent the generation of high voltage transients back to the control panel power supply.

13. Connection to relay contacts

Volt free changeover relay contacts are provided for local control and signalling if required. These contacts are rated for switching signalling circuits only and the maximum ratings listed in table 1 should not be exceeded under any circumstances.

Typically, the Aux 24V outputs of the control panel are switched through these relays and used to control other systems.

13.1 Common Fault relay (on detection part of control panel)

The common fault relay is normally energised and will de-energise upon any fault condition on the detection part or the extinguishing part of the control panel including total loss of power.

The fault relay can be disabled by setting configuration option 22 at access level 3 as shown in the Fire Detection configuration options table.

13.2 Fault relay (on extinguishing part of control panel)

These fault relays are normally energised and will de-energise upon any fault condition on the extinguishing module or total loss of power. These relays provide individual "flooding zone fault" outputs

13.2 Local fire relay (on detection part of control panel)

The local fire relay will energise upon activation of a fire condition on any of the zones or pressing of the sound alarm button on the front panel. The relay will remain activated until the alarm is silenced or the panel is reset. This relay will not operate upon activation of the remote AL input or when a fire condition is triggered on a zone that is in test mode. This makes the Local fire relay suitable for inter panel signalling without the panels latching each other.

13.3 Fire relay (on detection part of control panel)

The fire relay will energise upon activation of a fire condition on any of the zones or pressing of the sound alarm button on the front panel. The relay will remain activated until the alarm is silenced or the panel is reset. This relay will not operate upon activation of the remote AL input and the Silenced/ Sound Alarm button. The fire relay can be disabled by setting configuration option 26 at access level 3 as shown in the Fire Detection configuration options table.

13.4 1st stage alarm relay (on extinguishing modules)

First stage alarm relays will operate upon activation of a zone that has been configured to contribute to the extinguishant release and will de-activate only when the panel has been reset.

This relay will also operate upon activation of the panel mounted or a remote manual release switch. The stage 1 relay output can be disabled at access level 2 via the menus on the Sigma XT+ module.

13.5 2nd stage alarm relay (on extinguishing modules)

Second stage alarm relays will operate when the panel enters the activated condition (i.e. the release countdown timer has started) and will de-activate only when the panel has been reset from the released condition.

The stage 2 relay output can be disabled at access level 2 via the menus on the Sigma XT+ module.

13.6 Released relay (on extinguishing modules)

The released relay on the extinguishing module will operate when the module enters the released condition either by being activated automatically via detection zones or by being activated by a manual release input. The released relay will also operate if the panel enters the released condition via the released pressure switch input.

The Released output can be disabled at access level 2 via the menus on the Sigma XT+ module.

13.7 Aborted relay (on extinguishing modules)

Aborted relays will operate when the panel is in the aborted condition via an abort switch input.

13.8 Extract relay (on extinguishing modules)

The extract relay will operate when selected at access level 2. This provides a means to vent a room of extinguishant gases but prevents the gases from being vented during a discharge.

To switch on the extract relay, operate the enable keyswitch and then press ENTER on the module on which the required Extract relay is fitted.

The LCD will show:

DISABLE
EXTING RELEASE ?   Press the down button until the display shows:

TURN ON
EXTRACT OUTPUT ?   Press ENTER to turn on the Extract output.

The display will show:

TURN Of f
EXTRACT OUTPUT ?

Pressing ENTER again with turn the extract output off.

14. Connection and configuration of status units and ancillary boards

The control panel should not be powered during the connection of status units or ancillary boards.

Status units and ancillary boards require a four-wire connection from the associated extinguishing module, which drops into each unit and connects to the corresponding data and power, in and out terminals. Two of the cables carry power to the units (24V) and the other two carry data. A four core cable suitable for carrying RS485 data should be used. If this is a twisted pair cable then one twisted pair should be used for the data connections and the second pair used for the power connections.

When fitting status or ancillary boards, link LK2 must be removed from the rear of the extinguishant module. The last status unit connected to the serial bus will have a terminating link fitted as described in manuals MAN-1089 and MAN-1095.

REMOVE LK2 WHEN FITTING STATUS UNITS OR ANCILLARY BOARDS
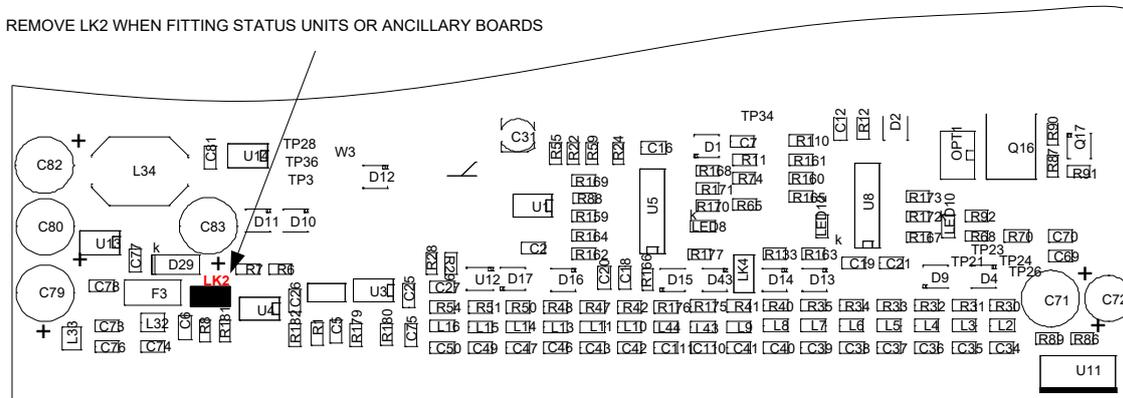
REAR VIEW OF EXTINGUISHING MODULE

Each status unit and ancillary board has a 3-bit DIL switch and must be allocated a unique address between 1 and 7. A maximum of 3 status units or Ancillary boards can be powered from the extinguishing module 24V output. More units should use external 24V power supply.

The system is able to distinguish between status units and ancillary boards so it is possible to have a status unit set to address 1 and an ancillary board set to address 1 if desired.

ADDRESS	SWITCH POSITIONS
1	
2	
3	
4	
5	
6	
7	

The address switch is located on the bottom left hand corner of the status unit or ancillary board PCB. Note: The address is only read when the boards are first powered or if the processor reset switch on the ancillary board or status unit is pressed, so address switches should not be altered on a system that has power applied.

It is important that each individual status unit and ancillary board is allocated a unique address in the range 1 to 7. Units of the same type with the same address will cause intermittent faults to be displayed.

NOTE: 10 lamp status units (models K911113M8, K911113F8 and W911113W8) are not compatible with Sigma XT+ extinguishant modules.

14.1 Adding new status units/ancillary boards

When the system is powered up, it will search for connected status units and/or ancillary boards connected to extinguishant modules.
If status units or ancillary boards are fitted and detected by the control panel, the LCD will display:

   X FAULTS   ►   X = the number of faults
ENTER TO VIEW

Press ENTER on the module to which the status units or ancillary boards are connected with the ENABLE control switch keyswitch off and use the UP button on the module to view the faults. If status units and/or ancillary boards are detected the LCD will display:

   STATUS UNIT X   X = the address of the status unit found
      FAULT

Or

   output unit x   X = the address of the ancillary board found
      fault

To accept the status units and/or ancillary boards found, turn the ENABLE controls keyswitch on and slide the WRITE ENABLE switch on the module to which the status units or ancillary boards are connected gently to the left.

The LCD will then display:

   STATUS UNIT X   X = the address of the status unit found
 ENTER TO ACCEPT

Or

   output unit X   X = the address of the ancillary board unit found
 ENTER TO ACCEPT

When the ENTER button is pressed on the module to which the status units or ancillary boards are connected, the selected status unit or ancillary board will be added to the system and the next unit to be added will be displayed. Press the ENTER button on the extinguishing module until all of the units have been accepted then gently slide the WRITE ENABLE switch on the module to the right.

All of the status units and ancillary boards found by the extinguishant module have now been added and disconnection of any of them will be displayed as a fault on the module and on the detection part of the system. If any status units are disconnected, a HOLD activated indication will also be displayed at the extinguishing module and all ancillary boards or status units that remain connected. With the ENABLE controls keyswitch off, the LCD will display:

   REMOTE BUS
      FAULT

When additional status units or ancillary boards are added to the system, these will be shown on the LCD of the extinguishing module when the system is powered up or the processor reset switch is pressed on the module to which the status unit or ancillary board is connected and can be added to the system by following the procedure above.

14.2 Removing status units or ancillary boards

If a status units or ancillary board needs to be removed from the system, disconnect the status unit or ancillary board taking care not to short power supply or data cables. The extinguishing module will display:

   REMOTE BUS
      FAULT

Press the processor reset button on the extinguishant module to which the status unit or ancillary board is connected. When the extinguishant module has re-started, it will display:

   STATUS UNIT X   X = the address of the disconnected status unit
      FAULT

Or

   output unit x   X = the address of the disconnected ancillary board
      fault

Turn the ENABLE controls keyswitch on and gently slide the write enable switch on the extinguishant module to which the status units or ancillary boards are connected, to the left.
The LCD will then display:

STATUS UNIT X   X = the address of the remaining status units found
ENTER TO ACCEPT

Or

output unit X   X = the address of the remaining ancillary boards unit found
ENTER TO ACCEPT

When the ENTER button is pressed on the module to which the status units or ancillary boards are connected, the selected status unit or ancillary board will be added to the system and the next unit to be added will be displayed. Press the ENTER button on the extinguishing module until all of the units have been accepted then gently slide the WRITE ENABLE on the extinguishing module switch to the right.

Full details of status units and ancillary boards can be found in documents MAN-1089 (Sigma XT Status unit operation an maintenance manual) and MAN-1095 (Ancillary board operation and maintenance manual).

SIGMA XT+ EXTINGUISHANT MODULE

CIE serial Status serial Status power

D1036S ISSUE 04
S/NO.

+ - PF Z1 FIRE Z2 FIRE Z3 FIRE MAN MODE DISAB REL ACT HOLD EXTR MAN REL RS485 IN RS485 OUT
24V DC 24V DC

W6 W5 D3 IC4 IC7 IC6
IC2 BZ1
IC3 IC1
XTAL1 IC5 C9
REG1 C10
W4 W3 SW5 SW2 SW1
ADDR PROC RESET WDOG RESET

MODE HOLD
RS485 IN OUT
24V DC

TO NEXT ANCILLARY BOARD OR STATUS UNIT

Z1 Z2 Z3 MAN DISAB REL ACT MAN REL EXTR HOLD OK FUSE FAIL

PROCESSOR RESET
SW
SW2
ADDRESS

Wiring to status units and ancillary boards

15. Configuring the panel

15.1 Detection part

Sigma XT+ control panels consist of 2 parts. The detection part has 2, 4 or 8 detection zones and has a number of configuration options which can be set at the time of commissioning to suit the requirements of the installation. These options are normally set once and will rarely need to change. The configuration options are only available at access level 3 which is accessed by operating the Write enable switch to the left as shown below. When the panel is at access level 3, the buzzer will "pip" three times every few seconds as an indication that it is at this access level.

WRITE ENABLE SWITCH
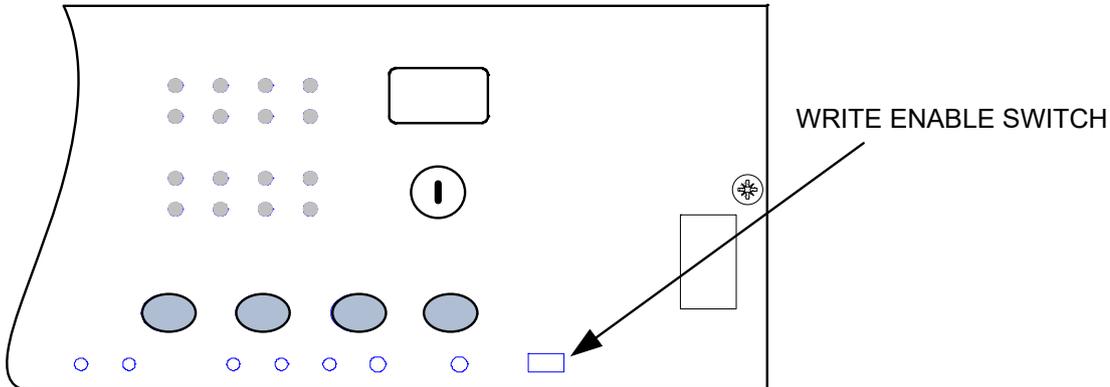
Access level 3 (Write enable) enable switch location – slide gently to the right to enable

Configuration options are simple to enter using the codes the table below. When the control panel is at access level 3, the sub-text of the *Mode* and *Select* buttons is used to enter a number using tens (+10) and units (+1).

When the required code number is displayed, pressing the enter button will cause the dot on the units seven segment display to flash. This indicates that a configuration option has been set.

To review which configuration options have been set previously, simply scroll through numbers 1 to 99, A1 to A8, C1 to C8 and E1 to E8 and those with a flashing dot indicate which options have been set.

ZONE 1 I.S. BARRIER OPTION SET
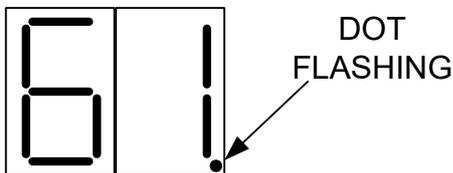
ZONE 1 I.S. BARRIER OPTION NOT SET

DOT FLASHING

NO DOT
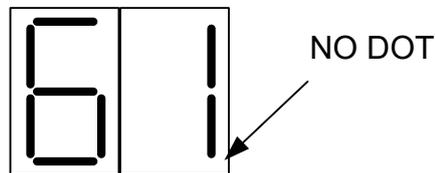
Example display showing option set and not set.

CODE	FUNCTION	COMMENTS
00	SOUNDER DELAY TIME = 30 SECONDS	Sets the time delay before sounders operate in combination with configuration codes 31 to 48 and access level 2 function AD.
01	SOUNDER DELAY TIME = 1 MINUTE	
02	SOUNDER DELAY TIME = 2 MINUTES	
03	SOUNDER DELAY TIME = 3 MINUTES	
04	SOUNDER DELAY TIME = 4 MINUTES	
05	SOUNDER DELAY TIME = 5 MINUTES	
06	SOUNDER DELAY TIME = 6 MINUTES	
07	SOUNDER DELAY TIME = 7 MINUTES	
08	SOUNDER DELAY TIME = 8 MINUTES	
09	SOUNDER DELAY TIME = 9 MINUTES	
10	COMMON ALARM MODE (default)	All sounders operate upon any fire condition
11	TWO-STAGE ALARM MODE	Continuous sounders in activated zone, pulsing elsewhere
12	ZONED ALARM MODE	Only sounders connected to zone in alarm operate
21*	DISABLE FIRE BUZZER	Buzzer will not operate on fire condition
22*	DISABLE FAULT OUTPUT	Fault relay will not operate except upon total power failure
23	DISABLE EARTH FAULT MONITORING	Connection of fire alarm wiring will not announce a fault
24	PULSED REMOTE CONTROL OUTPUT	Aux 24V supply pulses 1 sec on/1 sec off
25	ENABLE SOUNDERS ON DETECTION CIRCUITS	Not used
26	DISABLE FIRE OUTPUT	Fire relay will not operate upon any alarm
27	**DO NOT CHANGE**	**DO NOT CHANGE**
31	ZONE 1 ALARM FROM DETECTOR DELAYED	Sounder outputs will be delayed by time set at options 0-9 when selected zone(s) triggered by detector only. Note access level 2 function Ad must be set for this to take effect.
32	ZONE 2 ALARM FROM DETECTOR DELAYED	
33	ZONE 3 ALARM FROM DETECTOR DELAYED	
34	ZONE 4 ALARM FROM DETECTOR DELAYED	
35	ZONE 5 ALARM FROM DETECTOR DELAYED	
36	ZONE 6 ALARM FROM DETECTOR DELAYED	
37	ZONE 7 ALARM FROM DETECTOR DELAYED	
38	ZONE 8 ALARM FROM DETECTOR DELAYED	
41	ZONE 1 ALARM FROM CALL POINT DELAYED	Sounder outputs will be delayed by time set at options 0-9 when selected zone(s) triggered by call point only. Note access level 2 function Ad must be set for this to take effect.
42	ZONE 2 ALARM FROM CALL POINT DELAYED	
43	ZONE 3 ALARM FROM CALL POINT DELAYED	
44	ZONE 4 ALARM FROM CALL POINT DELAYED	
45	ZONE 5 ALARM FROM CALL POINT DELAYED	
46	ZONE 6 ALARM FROM CALL POINT DELAYED	
47	ZONE 7 ALARM FROM CALL POINT DELAYED	
48	ZONE 8 ALARM FROM CALL POINT DELAYED	
51	COINCIDENCE ZONE 1	Zone contributes to ancillary board coincidence O/P. Any number of zones can be selected to contribute.
52	COINCIDENCE ZONE 2	
53	COINCIDENCE ZONE 3	
54	COINCIDENCE ZONE 4	
55	COINCIDENCE ZONE 5	
56	COINCIDENCE ZONE 6	
57	COINCIDENCE ZONE 7	
58	COINCIDENCE ZONE 8	
61	CONFIGURE Z1 FOR I.S BARRIER	Detection threshold changed for use with IS barrier
62	CONFIGURE Z2 FOR I.S BARRIER	
63	CONFIGURE Z3 FOR I.S BARRIER	
64	CONFIGURE Z4 FOR I.S BARRIER	
65	CONFIGURE Z5 FOR I.S BARRIER	
66	CONFIGURE Z6 FOR I.S BARRIER	
67	CONFIGURE Z7 FOR I.S BARRIER	
68	CONFIGURE Z8 FOR I.S BARRIER	
71*	ZONE 1 SHORT CIRCUIT INDICATES ALARM	Changes the trigger threshold of the zone so that the control panel can be used on older systems that had no short circuit monitoring.
72*	ZONE 2 SHORT CIRCUIT INDICATES ALARM	
73*	ZONE 3 SHORT CIRCUIT INDICATES ALARM	
74*	ZONE 4 SHORT CIRCUIT INDICATES ALARM	
75*	ZONE 5 SHORT CIRCUIT INDICATES ALARM	
76*	ZONE 6 SHORT CIRCUIT INDICATES ALARM	

CODE	FUNCTION	COMMENTS
77*	ZONE 7 SHORT CIRCUIT INDICATES ALARM	
78*	ZONE 8 SHORT CIRCUIT INDICATES ALARM	
CODE	**FUNCTION**	**COMMENTS**
81*	ZONE 1 NON-LATCHING	Renders the zone self-resetting so that
82*	ZONE 2 NON-LATCHING	it can be used to receive signals from
83*	ZONE 3 NON-LATCHING	other systems and will reset when the
84*	ZONE 4 NON-LATCHING	input is removed.
85*	ZONE 5 NON-LATCHING	Note: It can take up to 20 seconds for zone to reset itself
86*	ZONE 6 NON-LATCHING	when sounders are operating
87*	ZONE 7 NON-LATCHING	
88*	ZONE 8 NON-LATCHING	
91	ZONE 1 DOES NOT SOUND ALARMS	Prevents the zone from operating the two common
92	ZONE 2 DOES NOT SOUND ALARMS	sounder outputs.
93	ZONE 3 DOES NOT SOUND ALARMS	
94	ZONE 4 DOES NOT SOUND ALARMS	
95	ZONE 5 DOES NOT SOUND ALARMS	
96	ZONE 6 DOES NOT SOUND ALARMS	
97	ZONE 7 DOES NOT SOUND ALARMS	
98	ZONE 8 DOES NOT SOUND ALARMS	
99		
A1*	ZONE 1 ANY ALARM DELAYED	Zone needs to be triggered for 30 seconds continuously
A2*	ZONE 2 ANY ALARM DELAYED	before an alarm is generated.
A3*	ZONE 3 ANY ALARM DELAYED	
A4*	ZONE 4 ANY ALARM DELAYED	
A5*	ZONE 5 ANY ALARM DELAYED	
A6*	ZONE 6 ANY ALARM DELAYED	
A7*	ZONE 7 ANY ALARM DELAYED	
A8*	ZONE 8 ANY ALARM DELAYED	
C1	ZONE 1 SOUNDERS INHIBITED	Not used
C2	ZONE 2 SOUNDERS INHIBITED	
C3	ZONE 3 SOUNDERS INHIBITED	
C4	ZONE 4 SOUNDERS INHIBITED	
C5	ZONE 5 SOUNDERS INHIBITED	
C6	ZONE 6 SOUNDERS INHIBITED	
C7	ZONE 7 SOUNDERS INHIBITED	
C8	ZONE 8 SOUNDERS INHIBITED	
E1*	ZONE 1 WILL NOT OPERTATE FIRE RELAY	Enables individual zones to be selected to not operate the
E2*	ZONE 2 WILL NOT OPERTATE FIRE RELAY	fire relay. This is sometimes combined with the non-
E3*	ZONE 3 WILL NOT OPERTATE FIRE RELAY	latching function to prevent ring around on
E4*	ZONE 4 WILL NOT OPERTATE FIRE RELAY	interconnected panels
E5*	ZONE 5 WILL NOT OPERTATE FIRE RELAY	
E6*	ZONE 6 WILL NOT OPERTATE FIRE RELAY	
E7*	ZONE 7 WILL NOT OPERTATE FIRE RELAY	
E8*	ZONE 8 WILL NOT OPERTATE FIRE RELAY	

NOTE: Setting the options marked with asterisks does not comply with EN54-2

15.2 Extinguishing modules

15.2.1 Language selection
The module is capable of displaying two languages if factory programmed to do so. The first access level 3 option
is to select the local language or the default language (English)

15.2.2 Extinguishant output mode
The Sigma XT+ module has two extinguishing outputs. These can be configured to operate together at the same
time (common) or be configured as main and reserve outputs.
The factory default setting for the extinguishing outputs is common.
To change this, switch on the enable controls keyswitch and slide the write enable switch on the module to be
configured gently to the left. Press the ENTER button on the extinguishing module. The display will show:

```
EXTING O/P MODE.
= COMMON              Press the ENTER button and the display will show:

EXTING O/P MODE.
= MAIN/RESERVE  ?     Press the ENTER button to select main/reserve.
```

To save the settings, slide the write enable switch gently to the right.
When the extinguishing module is activated, only extinguishant output 1 will switch on.
There will also be an additional menu item at access level 2 to allow the reserve extinguishant output to be
selected.

15.2.3 Configuring the activation mode

It is possible to configure the extinguishing modules to be activated by coincidence (any 2 zones in a range of zones) or a single zone in a range of zones. The activation mode is factory set to coincidence.

To change this, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button. The display will show:

```
ACTIVATION MODE.
= COINCIDENCE          Press the ENTER button and the display will show:


ACTIVATION MODE.
= single        ?      Press the ENTER button to select single zone activation mode.
```

To save the settings, slide the write enable switch gently to the right.

Operation of any of the zones in the range of zones selected to trigger the module (see below) will now put the module into the activated condition. Coincidence mode must not be set if single activation is required.

15.2.4 Configuring Stage 1 /Hold Output

The '1st Stage' relay output is factory set to activate when as a stage 1 alarm contact, it can be re-configured to activate when the 'Hold' input is activated.

To change this, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button. The display will show:

```
User O/p Mode
= Stage 1              Press the ENTER button and the display will show:

User O/p Mode
= Hold          ?      Press the ENTER button to change mode.
```

To save the settings, slide the write enable switch gently to the right.

15.2.5 Configuring the activation zones

The extinguishing modules are factory set to be activated by coincidence activation of the logical zones in the detection part of the panel and are addressed logically from 1 to 4.

This means that on an 8 zone, 4 extinguishing area panel for instance, zones 1 and 2 will be set to activate the extinguishing module at address 1, zones 3 and 4 will be set to activate the extinguishing module at address 2 and so on.

This can be changed if required so that any zones can activate the extinguishing module.

Note: The number of the first activation zone must be lower than the last activation zone.

To do this, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module and then the up button until the display will shows:

```
FIRST ACTIV.
ZONE = X               X will be the number of the zone currently selected to be the first activation zone.
```

This can be changed if required by using the UP and DOWN buttons to select the require zone number. When the required zone number is displayed, pres the ENTER button. The display will show:

```
FIRST ACTIV.
ZONE = X     ?         X will be the number of the zone selected to be the first activation zone.
```

Press the ENTER button and then the UP button. The display will then show:

```
LAST ACTIV.
ZONE = X               X will be the number of the zone currently selected to be the last activation zone.
```

This can be changed if required by using the UP and DOWN buttons to select the require zone number. When the required zone number is displayed, pres the ENTER button. The display will show:

```
last ACTIV.
ZONE = X     ?         X will be the number of the zone selected to be the last activation zone.
```

Activation of any of the zones in the range selected will now contribute to activation of this module.

15.2.6 Reset inhibit time

It is a requirement of the extinguishing control panel standard EN12094-1 to inhibit reset of the system after it has been activated until there is a signal representing the end of the discharge (a released input) or for an adjustable time period of up to 30 minutes. The factory default for the reset inhibit time is 0.

To change the reset inhibit time, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button until the display shows:

```
RESET INHIBIT
TIME = 0            Press the ENTER button and the display will show:
```

```
RESET INHIBIT
TIME = 0        ?   To change the reset inhibit time, press the UP or DOWN buttons until the time
                    required is displayed and then press ENTER.
```

To save the settings, slide the write enable switch gently to the right.
Resetting of the extinguishing module after it has been activated will now be prohibited until the set reset inhibit time.

15.2.7 Pre-release delay time

The extinguishing control panel standard EN12094-1 allows for a time delay to be set from activation of the extinguishing module to operation of the extinguishing release output. This time may be between 0 and 60 seconds with a maximum of 5 second steps.

The factory default time delay on the Sigma XT+ extinguishing modules is 30 seconds.

To change the pre release delay time, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button until the display shows:

```
pre-rel delay
TIME = 30 sec.     Press the ENTER button and the display will show:
```

```
pre-rel delay
TIME = 30 sec. ?   To change the time, press the UP or DOWN buttons until the required time is
                   displayed.
```

To save the settings, slide the write enable switch gently to the right.
The pre=release delay time will now be set to the chosen value.

15.2.8 Output 2 delay

If the configured extinguishing output mode is Common (rather than MAIN/RESERVE), it is possible to set extinguishing output 2 to have a further delay of up to 10 minutes in steps of 1 minute.
Extinguishing output 2 delay timer will be started when extinguishing output 1 is asserted.

This could be used to provide an additional discharge of extinguishing agent to maintain concentration for a longer period of time.

```
Output 2 Delay
TIME = 00 min.     Press the ENTER button and the display will show:
```

```
Output 2 Delay
TIME = 00 min. ?   To change the time, press the UP or DOWN buttons until the required time is
                   displayed
```

To save the settings, slide the write enable switch gently to the right.
The extinguishing release time will now be set to the chosen value.

Note: This option is available only on modules fitted with firmware version 1.59 or higher.

15.2.9 Extinguishant release time

The time that the extinguishant output is active for can be set between 60 and 300 seconds. The factory default time for this is 60 seconds. It is also possible to disable this timer such that the extinguishant outputs remain active until the module is reset. See Release timer menu option section 15.2.12.

To change the extinguishant release time, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button until the display shows:

```
EXTING. RELEASE
TIME = 60 sec.     Press the ENTER button and the display will show:
```

```
EXTING. RELEASE
TIME = 60 sec. ?
```
To change the time, press the UP or DOWN buttons until the required time is displayed

To save the settings, slide the write enable switch gently to the right.
The extinguishing release time will now be set to the chosen value.

15.2.10 Second stage alarm pulsing/continuous (alarm devices as required by EN12094-1)
The second stage alarm output can be configured to be steady or pulsing at about 1 second on, 1 second off to suit the desired application.
The factory default for the second stage alarm is pulsing.

To change the operation of the second stage sounders, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button until the display shows:

```
PULSED
ACTIV. ALARMS
```
Press the ENTER button and the display will show:

```
STEADY
ACTIV. ALARMS ?
```
To change to steady second stage alarms, press the ENTER button.

To save the settings, slide the write enable switch gently to the right.
The second stage alarm output will now be steady when the module is activated.

Note: Setting the option for `STEADY ACTIV. ALARMS` **is not compliant with EN12094-1**

15.2.11 Released indication
It is possible to select whether the released indication on a module is operated at the same time as the extinguishant release outputs operate or by operation of a pressure switch connected to the released, pressure switch input.
The factory default setting is for the released indication to be operated by operation of a pressure switch connected to the released, pressure switch input.

To change the operation of the released indication, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the right. Press the ENTER button on the extinguishing module then press the UP button until the display shows:

```
RELEASED IND ON
RELEASED INPUT
```
Press the ENTER button and the display will show:

```
RELEASED IND ON
EXTING. REL ?
```
To change to this, press the ENTER button.

To save the settings, slide the write enable switch gently to the right.
The released indication will now be lit when the extinguishant outputs operate.

15.2.12 Delay on manual release
The manual release function (panel mounted and remote) can be configured to have a pre-release time delay (as per the set pre-release time) or to have no pre-release delay allowing immediate operation of the extinguishant outputs when a manual release is operated.
The factory default setting for this is for the manual release to have a delay time the same as the pre-release delay.

To configure the module to have no delay when a manual release is operated, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the UP button until the display shows:

```
DELAY ON
MANUAL RELEASE
```
Press the ENTER button and the display will show:

```
NO DELAY ON
MANUAL RELEASE ?
```
To change to this, press the ENTER button.

To save the settings, slide the write enable switch gently to the right.
Operation of a manual release will now operate the extinguishant outputs immediately with no delay.

15.2.13 Release timer (infinite extinguishant duration)
The release timer can be disabled such that once the extinguishant outputs have operated; they remain operated until the system is reset.

To disable the release timer, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

```
RELEASE  TIMER
ENABLED                        Press the ENTER button and the display will show:


RELEASE  TIMER          To disable the release timer, press the ENTER button.
DISABLED        ?
```

To save the settings, slide the write enable switch gently to the right.
With the release timer disabled, the extinguishant outputs will remain operated until the system is reset.

15.2.14 R0V not removed on reset
It is possible to configure the AUX24V output on the Sigma XT+ module to be removed for a few seconds when the system is reset.
The factory default setting is for the Aux24V output not to be removed when the system is reset.

To configure the module such that Aux24V output is removed for a few seconds when the system is reset, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

```
R0V  NOT  REMOVED
ON  SYSTEM  RESET       Press the ENTER button and the display will show:


R0V  REMOVED
ON  SYSTEM  RESET?      To select this option, press the enter button.
```

To save the settings, slide the write enable switch gently to the right.
With the release module configured to remove the R0V output on system reset, the Aux 24V output will be removed for a few seconds when the reset button is pressed.

15.2.15 Disable earth fault monitoring
The earth fault monitoring facility can be disabled on each module individually.
The factory default setting is for the earth fault monitoring facility to be enabled.

To disable the earth fault monitoring, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

```
EARTH  FAULT
ENABLED                        Press the ENTER button and the display will show:


EARTH  FAULT
DISABLED        ?        To select this option, press the enter button.
```


To save the settings, slide the write enable switch gently to the right.
The earth fault monitoring facility on the module will now be disabled, the Aux 24V output will be removed for a few seconds when the reset button is pressed.

15.2.16 Disable fault output
The fault output relay can be disabled on each module individually.
The factory default setting is for the fault output relay to be enabled.

 To disable the fault output relay, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

```
FAULT  output
ENABLED                        Press the ENTER button and the display will show:


FAULT  output
disABLED         ?        To select this option, press the enter button.
```

To save the settings, slide the write enable switch gently to the right.
The fault output relay on the module will now be disabled.
Note: Disabling the fault output does not comply with the requirements of EN54-2.

15.2.17 Invert low pressure switch input

To enable low pressure switches to be used which have normally closed rather than normally open contacts, it is possible to invert the low pressure switch input.
The factory default setting is for the low pressure switch input to use a normally open contact.

To invert the low pressure switch input, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

LOW PRESS. I/P
MODE = NORMAL   Press the ENTER button and the display will show:

LOW PRESS. I/P
MODE = INVERTED ?   To select this option, press the enter button.

To save the settings, slide the write enable switch gently to the right.
The low pressure switch input will now require a normally closed contact via a 470R trigger resistor and 6K8 end of line resistor for correct supervision.

Note: If the Low pressure input is configured as INVERTED in the menu option, an error will display EXTING.PRESS.FAULT if the switch is not configured correctly.
The INVERTED input is looking for the 470 ohm trigger resistor to be removed on activation.

15.2.18 Invert Released Pressure switch input

To enable Released pressure switches to be used which have normally closed rather than normally open contacts, it is possible to invert the Released pressure switch input.
The factory default setting is for the Released pressure switch input to use a normally open contact.

To invert the Released pressure switch input, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

Released Input
MODE = NORMAL   Press the ENTER button and the display will show:

Released INPUT
MODE = INVERTED ?   To select this option, press the enter button.

To save the settings, slide the write enable switch gently to the right.
The Released pressure switch input will now require a normally closed contact via a 470R trigger resistor and 6K8 end of line resistor for correct supervision.

Note: When Released pressure input is configured as INVERTED in the menu option, the released condition will be established and indicated.
The INVERTED input is looking for the 470 ohm trigger resistor to be removed on activation.

15.2.19 Extinguishant output monitoring levels

The extinguishant outputs are able to monitor both solenoid and igniting actuator releasing devices. This requires that the outputs be calibrated with the releasing device and the cable to it, fitted as it will be in the working system. The extinguishant outputs are fitted with a 1N4004 diode at the factory and the default monitoring level will be set at approximately 206 but may be between 204 and 208.
Before calibrating the extinguishant outputs ensure that the releasing device is fitted to the cable as shown in section 10.
To change the monitoring level for extinguishing output 2, switch on the enable controls keyswitch and slide the write enable switch on the module to be configured gently to the left. Press the ENTER button on the extinguishing module then press the DOWN button until the display shows:

exting. o/p 2
level = 206   Press the ENTER button and the display will show:

exting. o/p 2   The XXX here will be the actual monitoring level read by the module.
level = xxx   ?   To save this setting press the ENTER button.

To set the monitoring level for extinguishant output 1, press the DOWN button. The display will show:

exting. o/p 1

l e v e l   =   2 0 6   Press the ENTER button and the display will show:

e x t i n g .   o / p   1   The XXX here will be the actual monitoring level read by the module.
l e v e l   =   x x x   ?   To save this setting press the ENTER button.

To save the settings, slide the write enable switch gently to the right.
The extinguishing output levels will now be set and any significant variation detected in the monitoring levels will be announced as and EXTING. O/P fault.

16. Panel operation – Access levels 1 and 2

16.1 Normal condition
Under normal conditions and with all modules in Manual & Auto mode, control panels will have only the green, *Power On* LED lit on the Fire detection part and on each of the extinguishing modules. With the ENABLE controls keyswitch off, the display on the detection part of the panel will be blank and, the LCDs on the extinguishing modules will show:

M a n u a l   &   A u t o

Any modules that are in Manual Only mode with have an additional, Manual only yellow LED lit and their display will show:

MANUAL   MODE

The control panel has 3 access levels. Access level 1 is available at all times and allows operation the Alarm/Fault warning buzzer silence and Lamp test buttons on the detection part of the panel only. Access level 2 is enabled after operation of the front panel mounted Enable Controls keyswitch and Access level 3 allows configuration options to be set on both the detection part of the panel and the extinguishing modules following operation of their respective Write Enable switches at access level 2 (Enable Controls keyswitch operated).

When the ENABLE controls keyswitch is operated (Access level 2) the display on the detection part of the control panel will show ⊢¦ and the LCDs on the extinguishing modules will show:

A c c e s s   l e v e l   2   ►
ENTER   f o r   Me n u

16.2 Detection section – Access level 2.
16.2.1 Test mode
It is possible to put one or more zones into Test mode. When a zone is in test mode it will self reset after a few seconds. This enables the system to be tested without having to return to the control panel to reset between each device activation on the zone that is being tested.
To put a zone into test mode, switch the Enable Controls keyswitch on.

The 7 segment display will show ⊢¦ (test zone 1)
To put zone 1 into test mode, press the ENTER button on the Sigma CP detection part.

The display will now show a flashing dot next to the ⊢¦. and the yellow Test LED will be lit.
To select further zones to put into test mode, press the Select button and then the Enter button so that the flashing dot appears next to the selected display e.g. ⊢2.

To remove test mode from a zone, press the Select button to reveal any zones that have a flashing dot and then press the Enter button to take that zone out of test mode. Once all zones have been taken out of test mode, the yellow, Test LED will go off.

16.2.2 Disable zones
It is possible to disable one or more zones. When a zone is disabled it will not report fire or fault conditions. This enables the system to be worked on without false fire or fault conditions being announced.
To disable one or more zones, switch the Enable Controls keyswitch on.

The 7 segment display will show ⊢¦ (test zone 1)

Press the Mode button and the display will show ⊓¦

To disable zone 1 press the Enter button. The display will show ⊓¦. and the yellow Disablement LED will be lit.

To select further zones to disable, press the Select button and then the Enter button so that the flashing dot appears next to the selected display e.g. ⊓2.

To remove disablements, press the Select button to reveal any zones that have a flashing dot next to the displayed zone number and then press the Enter button. Once all zones have been enabled, the yellow, Disabled LED will go off.

16.2.3 Disable sounder outputs
The sounder outputs on the detection part of the panel can be disabled if required.

To disable the panel sounder outputs, switch the Enable Controls keyswitch on.

The 7 segment display will show ⊑ ⌐ (test zone 1)

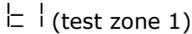Press the Mode button until the display shows ⊓⊓

Press the Enter button. The display will now show ⊓⊓. the yellow disablement and sounder fault LEDs will be lit.

To enable the sounder outputs, press the Mode button while at Access level 2 (Enable keyswitch operated) and scroll with the mode button until ⊓⊓. is displayed. Press the Enter button. The display will change to ⊓⊓ and the Sounder fault and Disablement LEDs will go off if there are no other disablements active on the panel.

16.2.4 Activate delays

It is possible to set delays before sounder outputs will operate (see section 15.1). Before these time delays become effective it is necessary to turn on the Activate delays function.
To do this, switch the Enable Controls keyswitch on.

The 7 segment display will show ⊑ ⌐ (test zone 1)

Press the Mode button until the display shows ⌐⊔

Press the Enter button, the display will now show ⌐⊔. and the yellow Delay On and Disablement LEDs will be lit.

To switch off the delay, press the Mode button while at Access level 2 (Enable keyswitch operated) and scroll with the mode button until ⌐⊔. is displayed. Press the Enter button. The display will change to ⌐⊔ and the Alarm delay and Disablement LEDs will go off if there are no other disablements active on the panel.

16.3 Extinguishant modules – Access level 2

With the Enable Control keyswitch operated, all extinguishant modules will display:

```
Access  level  2  ►
ENTER  for  Menu
```

16.3.1 Disable extinguishant release outputs.

To disable both of the extinguishant release outputs, press the UP button on the module while at access level 2. The display will show:

```
DISABLE
EXTING.  RELEASE  ?
```
Press the Enter button to select this function. The display will show:

```
ENABLE
EXTING.  RELEASE  ?
```
The yellow disabled LED on the module that has been disabled will be lit.

Turn the Enable keyswitch off to leave the disablement active. To re-enable the extinguishant outputs repeat the procedure above.

16.3.2 Disable Manual release

To disable all Manual release inputs (front panel mounted and remotely connected), press the UP button on the module while at access level 2 until the module displays:

```
DISABLE
manual  RELEASE  ?
```
Press the Enter button to select this function. The display will show:

```
enable
manual  RELEASE  ?
```
The yellow disabled LED on the module that has been disabled will be lit.

Turn the Enable keyswitch off to leave the disablement active. To re-enable the manual release facility repeat the procedure above.

16.3.3 Disable Stage 1 output

To disable the 1st Stage relay output, press the UP button on the module while at access level 2 until the display shows:

```
DISABLE
stage  1  output  ?
```
Press the Enter button to select this function. The display will show:

```
ENABLE
STAGE  1  OUTPUT  ?
```
The yellow disabled LED on the module that has been disabled will be lit.

Turn the Enable keyswitch off to leave the disablement active. To re-enable the Stage 1 relay output repeat the procedure above.

16.3.4 Disable Stage 2 output
To disable the 2nd Stage relay output, press the UP button on the module while at access level 2 until the display shows:

DI SABLE
s t age 2 ou t pu t ?   Press the Enter button to select this function. The display will show:

ENABLE
STAGE 2 OUTPUT ?   The yellow disabled LED on the module that has been disabled
will be lit.

Turn the Enable keyswitch off to leave the disablement active. To re-enable the Stage 2 relay output repeat the procedure above.

16.3.5 Disable Released output
To disable the Released relay output, press the UP button on the module while at access level 2 until the display shows:

DI SABLE
r e l e a s e d o u t p u t ?   Press the Enter button to select this function. The display will show:

ENABLE
r e l e a s e d OUTPUT ?   The yellow disabled LED on the module that has been disabled
will be lit.

Turn the Enable keyswitch off to leave the disablement active. To re-enable the Released relay output repeat the procedure above.

16.3.6 Disable Extract output
To disable Extract relay output, press the UP button on the module while at access level 2 until the display shows:

DI SABLE
e x t r a c t o u t p u t ?   Press the Enter button to select this function. The display will show:

ENABLE
e x t r a c t OUTPUT ?   The yellow disabled LED on the module that has been disabled
will be lit.

Turn the Enable keyswitch off to leave the disablement active. To re-enable the Extract relay output repeat the procedure above.

16.3.7 Turn on Extract output
To turn on the extract relay output, press the DOWN button on the module while at access level 2 until the display shows:

TURN ON
EXTRACT OUTPUT   Press the Enter button to select this function. The display will show:

TURN OFF
EXTr aCT OUTPUT ?   The yellow disabled LED on the module that has been disabled
will be lit.

Turn the Enable keyswitch off to leave the Extract output active. To turn off the Extract output, repeat the procedure above. Note: the extract output does not turn off when the module is reset.

16.3.8 Select Reserve Solenoid Output (Configuration Option)
If the extinguishing module is configured for Main/Reserve solenoid operation (See section 15.2.1) then an additional menu option is given to select which output is used.

To turn on the Reserve Solenoid output, press the UP button on the module while at access level 2 until the display shows:

SELECT RESERVE
EXTI NG. OUTPUT   Press the Enter button to select this function. The display will
show:

SELECT MAI N
EXTI NG. OUTPUT ?   The yellow Reserve Cylinders LED indicator on the module
will be lit.

Turn the Enable keyswitch off to leave the Reserve solenoid output active. To revert to the Main solenoid output, repeat the procedure above.

Note: This menu option is not shown if the panel is configured to Common Solenoid mode.

16.4 Single zone Fire condition

Upon receipt of a fire condition by activation of a detector or call point, the *Common Fire* indicator on the detection section will light, the fire buzzer will sound and the zonal *Fire* indicator(s) will flash at around 2Hz.

The fire and local fire relays will also operate and signal any systems to which they are connected.

Any sounders connected to the sounder circuits S1 & S2 on the detection section will operate. These sounders may be silenced by operation of the silence alarm button with the enable keyswitch operated such that the panel is at access level 2.

If the zone that has activated is contributing to the extinguishant release sequence on an extinguishant module and the module is configured for coincidence activation, the Release Imminent LED on the module will flash, the first stage relay contact will operate, the first stage sounder output will operate and the display will show:

p r e a c t i v a t e d ►

Pressing the Silence alarm button on the detection section will turn off the sounder outputs on the detection section and the first stage alarm outputs on the extinguishant module.

16.5 Double zone Fire condition

Upon receipt of a second fire condition that contributes to extinguishant release on modules that are switched to Automatic and Manual mode with their Hold inputs not active and the Disable Extinguishant function has not been invoked, the detection section will respond as above and extinguishant modules will respond as listed below:

  a) The second stage alarm output will operate. (Sounder circuit S3)
  b) The 2nd stage contact will operate.
  c) The Activated indicator will operate
  d) The display will indicate A c t i v a t e d and show the time remaining until release in seconds.
  e) The extinguishant output will operate after the configured delay time and for the configured duration.
  f) The display will show A c t i v a t e d   D i s c h a r g i n g for the duration of the release time.

When detection zones have activated and the activated condition is reached (i.e. the Activated indicator is lit) it shall not be possible to reset the extinguishant section of the panel until the Reset Inhibit timer has elapsed.

16.6 Silence/sound alarms

The *Silence/Sound alarm* button can only be operated at access level 2. (Enable Control keyswitch operated).

To silence the sounders, insert the Enable Control key, turn to the right and press the Silence/Sound alarm button. When the sounders have been silenced, the Zone Fire LEDs will change from flashing to a steady state.

Pressing the Silence/Sound alarm whilst the control panel is in this silenced condition will cause the sounders to operate again.

The sounders can be toggled on and off with the Silence/Sound alarm button as required.

16.7 Reset

To reset the panel, insert the Enable key, turn to the right then press the Reset button.

The extinguishant section will reset only after the Reset Inhibit timer has expired once the activated condition has been established.

16.8 Detection Zone fault

Removal of a detector from its base or a fault on any of the zone wiring will cause the Fault LED and Zone Fault LEDs to flash, indicating the zone in which the fault has occurred.

16.9 Sounder fault

A fault on the wiring to the detection section sounder circuits will cause the Fault LED to light and the Sounder Fault LED to flash. A fault on the sounder circuits of extinguishant modules *(alarm devices as required by EN12094-1)* will light the Fault LED on the detection section and on the extinguishant module. The extinguishant module will display:

s t a g e 1 a l a r m s
       f a u l t

or

s t a g e 2 a l a r m s
       f a u l t

16.10 Power fault

Failure of the mains power or disconnection of the standby battery will cause the *Fault* and *Power Fault* LEDs to light on the detection section indicating an abnormality in the power supply to the control panel. There will be no indication of this condition on the extinguishant modules.

16.11 System fault – Detection section

The System Fault and general fault LEDs will light if the configuration memory has not been set or has become corrupted.

16.12 System fault – Extinguishant modules
The System Fault and general fault LEDs will light if the configuration memory has not been set or has become corrupted.

16.13 General fault – Detection section
The General fault LED will be illuminate under any fault condition.
This LED will also light if the write enable switch has been left in the access level 3 position and the Enable Controls keyswitch is turned off.

16.14 Lamp test
All LED indicators on the panel can be tested at any time by pressing the Lamp Test button on the Detection part. The Enable Control keyswitch does not need to be operated test the indicators.
Indicators on individual extinguishant modules cam be lamp tested by holding down the EXIT button for more than 2 seconds.

16.15 Hold condition
Activation of the Hold input or a fault on the monitored wiring of the Hold circuit on a module or at a remotely mounted status unit will cause the Hold Activated indicator to light on the module and on any status units or ancillary boards connected to it.

If the extinguishant module is in the Activated condition and the pre-release timer is running then the extinguishant release sequence will be halted and the pulsing, 2nd stage sounders shall change to 1 second on, 2 seconds off.
Release of the Hold input will re-start the pre-release timer from maximum.

16.16 Released condition
The released pressure switch input will be connected to a pressure switch mounted on the extinguishant cylinder which operates when the extinguishant has been released. This will activate the released indicator on the control panel. If the extinguishant has been released by mechanical means i.e. the control panel is not in the activated condition, operation of the released pressure switch input will establish the Released condition. (See also 15.2.8)

16.17 Low pressure switch
The low pressure switch input will be connected to a pressure switch on the extinguishant cylinder which will operate if the pressure in the cylinder falls below a set point. This will happen after the extinguishant has been released but may happen before release through a leak. The fault LED on the module and on the detection part will light and the buzzer will sound when this input is operated.

16.18 Manual only mode
The mode of the system can be toggled between Manual Only and Automatic & Manual by operating the Mode select keyswitches on the modules.
When a module is in Manual Only mode, the extinguishant cannot be released by the operation of automatic detectors.
The mode can also be changed to manual by the external mode select input or a keyswitch on a status unit. Any mode select input that is switched to Manual only mode will override any keyswitches switched to Automatic and Manual mode. All inputs must be switched to Manual and Automatic mode for a module to be in Automatic and Manual mode.

16.19 Manual Release
Extinguishant modules may be activated by Manual release inputs via the manual release control on the front of each module, a remotely mounted Manual release control connected the monitored manual release inputs or by a manual release control mounted on a status unit.
Activation of any of these Manual release controls will immediately activate the extinguishant module and begin the pre-release timer if the module is configured to have a time delay for Manual release inputs.

16.19 Abort input
Each module has the facility for connection of an Abort control. Operation of the Abort input or a fault on the monitored wiring of the Abort circuit during the pre-release delay time or before activation will light the Abort indicator on the module and the extinguishant release timer will be canceled i.e. the extinguishant will not be released. The module can be immediately reset from this condition.

17. Internal Controls
17.1 Detection part

17.1.1 Watchdog reset
If for any reason the microprocessor in the detection part of the control panel fails to carry out its operation correctly it will attempt to restart. This process is called a "watchdog" and the control panel must record and indicate these events.
If a watchdog event occurs, the detection part panel will show the Fault and System Fault LEDs on the front panel, the CPU fault LED inside the panel will light and the buzzer will sound. This fault can only be cleared by pressing the Watchdog Reset button on the PCB inside the control panel. The control panel buzzer will continue to sound until the watchdog activation is reset.
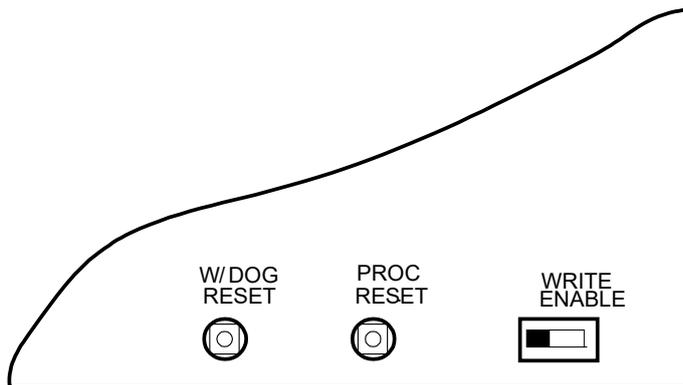
17.1.2 Processor reset
Once started, the microprocessor controlling the detection part of the panel should continue to run continuously without interruption. If the microprocessor fails to run correctly it can be reset by pressing the Processor Reset button on the PCB inside the control panel.
This should not normally be necessary but should be done as a matter of course if the system is behaving abnormally. The system should resume normal operation within a couple of seconds of pressing the processor reset button. It will be necessary to pres the Watchdog Reset button a few seconds after pressing the Processor Reset button to clear the Watchdog indication and buzzer.

17.1.3 Write enable switch
It is necessary to protect the configuration memory of the panel while it is running normally. To do this a memory Write Enable switch is provided. The memory Write Enable switch must be switched on before any changes can be made to the configuration. The Write Enable switch is quite fragile and should be operated with care.

Internal controls on detection part of control panel

17.2 Extinguishant modules

17.2.1 Watchdog reset
If the microprocessor on an extinguishant module fails to carry out its operation correctly it will attempt to restart.
If a watchdog event occurs, the Extinguishant module will show Fault and System Fault LEDs on the front panel, the detection part of the panel will show a fault and the buzzer will sound and the display on the Extinguishant module will show CPU fault
This fault can only be cleared by pressing the Watchdog Reset button on the Extinguishant module. The control panel buzzer will continue to sound until the watchdog activation is reset.

17.2.2 Processor reset
If the microprocessor on an Extinguishant module fails to run correctly it can be reset by pressing the Processor Reset button on the PCB inside the control panel.
This should not normally be necessary but should be done as a matter of course if the system is behaving abnormally. The system should resume normal operation within a couple of seconds of pressing the processor reset button.

17.2.3 Terminate extinguishant
Once the extinguishant outputs have been operated they can not be switched off until after the reset inhibit timer has elapsed. For test purposes a terminate extinguishant button is provided which will terminate operation of the extinguishant outputs and allow the system to be reset.

17.2.4 Write enable switch
It is necessary to protect the configuration memory of extinguishant modules while the system is running normally. To do this a memory Write Enable switch is provided on each module. The memory Write Enable switch must be switched on before any changes can be made to the configuration. The Write Enable switch is quite fragile and should be operated with care.

17.2.5 Address switch

Extinguishant modules are connected to the serial bus of the Sigma CP detection part of the control panel and each module must be allocated an address between 1 and 7 using the binary coded DIP switch.

The switch setting are shown in this table

ADDRESS	SWITCH POSITIONS
1	
2	
3	
4	
5	
6	
7	

Internal controls on extinguishant modules
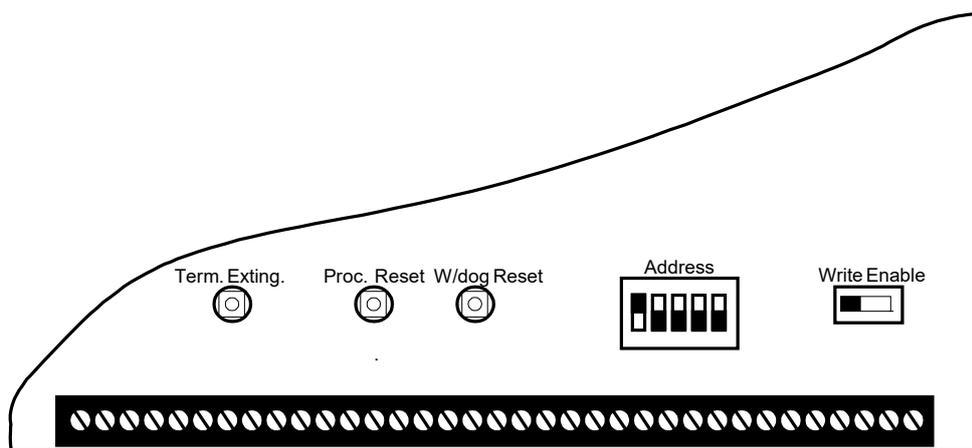
18. Internal indications

18.1 Detection part

To assist in identifying fault conditions which are not detailed on the front of the control panel, a number of internal indicators are visible with the control panel door open as follows:

18.1.1 Mains fail

Indicates that the 230V AC supply is not present and the system is running on standby batteries.
If there is not a power cut, check the panels mains fuse.

18.1.2 Batt fail

Indicates that the standby battery has become disconnected or that the charging circuit of the control panel has failed. Check that both batteries are connected and linked together. Test battery. Disconnect battery and ensure that 28 Volts can be measured on battery charger leads.

18.1.3 CPU fault

Indicates that the processor has failed to correctly execute code and has been re-started by the system watchdog. The watchdog reset switch must be pressed to clear the CPU fault condition.
Press watchdog reset. If system does not return to normal then the panel is probably damaged and needs the circuit board replacing.

18.1.4 Aux 24V fault

The Aux 24V and R0V terminals provide a 100 milliamp, 24V DC power supply for power fire alarm ancillary equipment. This LED indicates that fuse protecting the R0V output has operated and the rating of this output has been exceeded. The fuse is a self resetting type and the supply will resume when the fault condition is removed.

18.1.5 Batt low

Illuminates when the system is running on batteries and the battery voltage is between 21.5 V and 20.5 V (the minimum battery voltage).

18.1.6 Comms fault

Indicates that communication has been lost with an Extinguishant module, Repeater panel or Ancillary board. Check for comms fault at all Extinguishant modules, Repeaters and Ancillary boards to identify the source of the problem.

18.1.7 Earth fault

Indicates that part of the system wiring is connected to earth. Remove all system wiring and re-connect cables one at a time until the earth fault returns. This will indicate which cable the earth fault is present on.

18.1.8 Sys fuse fault

Indicates that the total power rating of the power supply has been exceeded and that the system fuse has come into operation. Remove and review all loads then re-connect one at a time.

18.1.9 S1 fault

Indicates a short or open circuit on sounder outputs. Remove wiring and refit end of line resistors. Check sounder circuit wiring.

18.1.10 S2 fault

Indicates a short or open circuit on sounder outputs. Remove wiring and refit end of line resistors. Check sounder circuit wiring.

18.2 Extinguishant modules
18.2.1 Watchdog

Indicates that the processor has failed to correctly execute code and has been re-started by the watchdog circuit. The watchdog reset switch must be pressed to clear the Watchdog fault condition.
Press the Watchdog reset button. If system does not return to normal then the module is probably damaged and needs the circuit board replacing.

18.2.2 System fuse

Indicates that the modules main fuse has been overloaded and the module is shut down. Remove and review all loads then re-connect one at a time.

18.2.3 Man. Release

Indicates that either the front panel mounted or a remotely connected Manual release control has been operated. This indication can only be cleared by power cycling the module or pressing the processor reset switch.

19. Power supply

The control panel requires a 230V (+10%/-15%), 50/60Hz, AC mains power supply which connects to the fused terminal block labelled "230V".

Panels with a 3A power supply have a 20mm, F1.6A L250V mains fuse.
Panels with a 5.25A power supply have a 20mm T3A L250V mains fuse.
These fuses should only be replaced with fuses of the same or similar types.

The table below shows the power supply rating and recommended battery capacity for each model in the Sigma XT+ range.

Model	Description	Power supply rating	Batteries recommended for 24 hour standby
K21021M3	Two zone single area	3A	7Ah
K21041M3	Four zone single area	3A	7Ah
K21042M3	Four zone two area	3A	7Ah
K21081M3	Eight zone single area	3A	7Ah
K21082M3	Eight zone two area	3A	7Ah
K21083M3	Eight zone three area	5.25A	12Ah
K21084M3	Eight zone four area	5.25A	12Ah

The maximum loading on the power supply must be carefully considered when connecting externally powered equipment such as sounders and solenoids.

Exceeding the maximum power supply rating may cause a fuse or other protective device to operate and render the equipment inoperative until the fuse is replaced or protective devices are reset.

The tables below can be used to calculate the loading for all models by adding the loads in the second column.

K21021M3 2 zone single area	Current in milliamps
Detection section max alarm load	100
Extinguishing module max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module total sounder load	
Extinguishant module extinguishant output load	
Extinguishant module Aux 24V supply	
TOTAL LOAD (must be less than 3A)	

K21041M3 4 zone single area	Current in milliamps
Detection section max alarm load	210
Extinguishing module max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module total sounder load	
Extinguishant module extinguishant output load	
Extinguishant module Aux 24V supply	
TOTAL LOAD (must be less than 3A)	

K21042M3 4 zone two area	Current in milliamps
Detection section max alarm load	210
Extinguishing module 1 max alarm load	105
Extinguishing module 2 max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module 1 total sounder load	
Extinguishant module 2 total sounder load	
Extinguishant module 1 extinguishant output load	
Extinguishant module 2 extinguishant output load	
Extinguishant module 1 Aux 24V supply	
Extinguishant module 2 Aux 24V supply	
TOTAL LOAD (must be less than 3A)	

K21081M3 8 zone single area	Current in milliamps
Detection section max alarm load	550
Extinguishing module max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module total sounder load	
Extinguishant module extinguishant output load	
Extinguishant module Aux 24V supply	
TOTAL LOAD (must be less than 3A)	

K21082M3 8 zone two area	Current in milliamps
Detection section max alarm load	550
Extinguishing module 1 max alarm load	105
Extinguishing module 2 max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module 1 total sounder load	
Extinguishant module 2 total sounder load	
Extinguishant module 1 extinguishant output load	
Extinguishant module 2 extinguishant output load	
Extinguishant module 1 Aux 24V supply	
Extinguishant module 2 Aux 24V supply	
TOTAL LOAD (must be less than 3A)	

K21083M4 8 zone three area	Current in milliamps
Detection section max alarm load	550
Extinguishing module 1 max alarm load	105
Extinguishing module 2 max alarm load	105
Extinguishing module 3 max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module 1 total sounder load	
Extinguishant module 2 total sounder load	
Extinguishant module 3 total sounder load	
Extinguishant module 1 extinguishant output load	
Extinguishant module 2 extinguishant output load	
Extinguishant module 3 extinguishant output load	
Extinguishant module 1 Aux 24V supply	
Extinguishant module 2 Aux 24V supply	
Extinguishant module 3 Aux 24V supply	
TOTAL LOAD (must be less than 5.25A)	

K21084M4 8 zone four area	Current in milliamps
Detection section max alarm load	550
Extinguishing module 1 max alarm load	105
Extinguishing module 2 max alarm load	105
Extinguishing module 3 max alarm load	105
Extinguishing module 4 max alarm load	105
Detection section total sounder load (S1&S2)	
Detection section Aux 24V supply	
Extinguishant module 1 total sounder load	
Extinguishant module 2 total sounder load	
Extinguishant module 3 total sounder load	
Extinguishant module 4 total sounder load	
Extinguishant module 1 extinguishant output load	
Extinguishant module 2 extinguishant output load	
Extinguishant module 3 extinguishant output load	
Extinguishant module 4 extinguishant output load	
Extinguishant module 1 Aux 24V supply	
Extinguishant module 2 Aux 24V supply	
Extinguishant module 3 Aux 24V supply	
Extinguishant module 4 Aux 24V supply	
TOTAL LOAD (must be less than 5.25A)	

The output voltage of the power supply is between 18 and 30V depending on mains and battery condition and the total current rating is either 3A or 5.25A depending on the model (see tables above).
The incoming mains cable should be routed well away from other lower voltage wiring by a distance of at least 50mm.
Mains wiring should include an earth conductor, which is securely bonded to the building earth and should enter the enclosure as close as possible to the mains terminal block. Mains wires should be kept very short inside the enclosure and secured together close to the mains terminal block with a cable tie.
The maximum capacity batteries that should be fitted are 7Ah for KXXXXM3 models and 17Ah for KXXXXM4 models.
The maximum current drawn from the batteries when the main power source is disconnected is 3 Amps for KXXXXM3 models and 5.25 Amps for KXXXXM4 models.

TEMPERATURE
SENSOR WIRE →

TEMPERATURE
SENSOR →
TAPE →
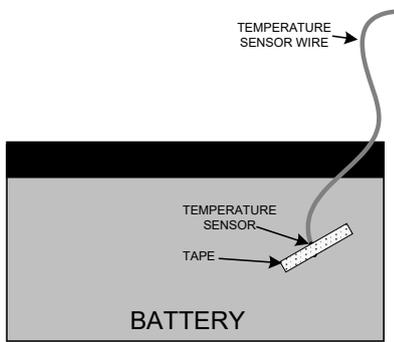
BATTERY

K21083M4 and K21084M4 models have a temperature compensation sensor held in place on the power supply chassis with adhesive tape. The tip of the sensor must be fitted to one of the batteries with the tape supplied for correct temperature compensation.

Battery leads are supplied wired to the power supply along with a link to connect the two batteries together.
It is most important that the polarity of the batteries is carefully observed when connecting. Wrongly connected batteries could cause damage to the control panel.

21. Maintenance

SIGMA XT+ control panels do not require any specific maintenance but should the control panel become dirty it can be wiped over with a barely damp cloth. Detergents or solvents should not be used to clean the panel and care must be taken that water does not enter the enclosure.

The control panel contains sealed lead acid batteries to provide standby power in the event of mains failure.
These batteries have a life expectancy of around 4 years. It is recommended that these batteries be tested in accordance with the battery manufacturer's recommendations annually to determine their suitability for continued standby applications.

Testing of the extinguishant system should only be carried out by trained personnel and must be done with appropriate isolation measures in place to ensure that accidental discharge of the extinguishant agent is avoided.

Should the control panel become faulty the complete electronic assemblies and front plates can be replaced.

To do this, any configured options should be noted then both mains and battery power should be removed before the work is started.

The field wiring should be carefully labelled and removed from the terminals. The power terminal block can be unplugged from the PCB by pulling it towards you.

The faulty PCB plate assembly can now be taken out of the panel by removing the 2 screws.
Fitting the new PCB is the reverse of the procedure for removing the board.

23. CE Mark

All control panels have a label affixed to the inside of the lid as shown below.
This label should not be removed under any circumstances.

Kentec Electronics Ltd.
Dartford DA1 1JQ U.K.

2797 CPR 496748

CE 0086

EN12094-1
Electrical automatic control and delay device.
Environmental Class A. Flooding Zones 1-4.
CO_2-low-pressure, inert gas systems.
Provided options:
- Delay of extinguishing signal.
- Signal representing the flow of extinguishing agent.
- Monitoring of the status of components.
- Emergency hold device.
- Control of flooding.
- Manual only mode.
- Triggering of equipment outside the system.
- Activation of alarm devices with different signals.
Response delay activated condition maximum 3 sec.
Response delay triggering of outputs maximum 1 sec.
Install in accordance with Operation and Maintenance
manual Man-1112.
Power rating: 230V AC 1A 50Hz.
Mains terminal fuse (K21021, K21041, K21042, K21081,
K21082) - F1.6A L250V
Mains terminal fuse (K21001, K21083, K21084) -
F3A 250V TD 20mm
Disconnect power before servicing.

W/O number: Date:

Model No:

Lab-1237 B3226

24. Commissioning instructions

24.1 Before applying power to the panel, any solenoids or igniting actuators must be physically isolated from the system by disconnecting both wires to it. This will prevent any accidental release of extinguishant.

24.2 When power is applied, if all connections are correct, only the green Power On indicators should be lit. If any fault indicators are lit the wiring to the appropriate input or output should be checked an all faults cleared before proceeding.

24.3 Once the panel is fault free, it can be configured with the desired options as described in section 15 .

24.4 Once the panel has been configured the system should be thoroughly tested to ensure that the control panels responds as expected and required.

24.5 After satisfactory testing, any final connections should be made (such as to the extinguishant release actuator).

24.6 A record of the configuration options that have been set should be recorded in the tables below and this manual provided as part of the documentation recommended by BS5839:Part 1:2002 section 40.2 b).

Detection section

CODE	FUNCTION		TICK IF SET
00	SOUNDER DELAY TIME = 30 SECONDS		
01	SOUNDER DELAY TIME = 1 MINUTE		
02	SOUNDER DELAY TIME = 2 MINUTES		
03	SOUNDER DELAY TIME = 3 MINUTES		
04	SOUNDER DELAY TIME = 4 MINUTES		
05	SOUNDER DELAY TIME = 5 MINUTES		
06	SOUNDER DELAY TIME = 6 MINUTES		
07	SOUNDER DELAY TIME = 7 MINUTES		
08	SOUNDER DELAY TIME = 8 MINUTES		
09	SOUNDER DELAY TIME = 9 MINUTES		
10	COMMON ALARM MODE (default)		
11	TWO-STAGE ALARM MODE		
12	ZONED ALARM MODE		
21*	DISABLE FIRE BUZZER		
22*	DISABLE FAULT OUTPUT		
23	DISABLE EARTH FAULT MONITORING		
24	PULSED REMOTE CONTROL OUTPUT		
25	ENABLE SOUNDERS ON DETECTION CIRCUITS		
26	DISABLE FIRE OUTPUT		
27	**DO NOT CHANGE**		
28	INDICATE CALL POINT ACTIVATION	Activation of a call point with a 270R resistance fitted is indicated by a flashing zone indicator and "Pu" on the 7 segment display. Activation of a detector will be indicated by a steady zone indicator and nothing on the 7 segment display.	
29	DO NOT RE-SOUND ALARMS FROM ANOTHER ZONE	Silenced sounders will not re-sound upon further zone activations.	
31	ZONE 1 ALARM FROM DETECTOR DELAYED		
32	ZONE 2 ALARM FROM DETECTOR DELAYED		
33	ZONE 3 ALARM FROM DETECTOR DELAYED		
34	ZONE 4 ALARM FROM DETECTOR DELAYED		
35	ZONE 5 ALARM FROM DETECTOR DELAYED		
36	ZONE 6 ALARM FROM DETECTOR DELAYED		
37	ZONE 7 ALARM FROM DETECTOR DELAYED		
38	ZONE 8 ALARM FROM DETECTOR DELAYED		
41	ZONE 1 ALARM FROM CALL POINT DELAYED		
42	ZONE 2 ALARM FROM CALL POINT DELAYED		
43	ZONE 3 ALARM FROM CALL POINT DELAYED		
44	ZONE 4 ALARM FROM CALL POINT DELAYED		
45	ZONE 5 ALARM FROM CALL POINT DELAYED		
46	ZONE 6 ALARM FROM CALL POINT DELAYED		
47	ZONE 7 ALARM FROM CALL POINT DELAYED		
48	ZONE 8 ALARM FROM CALL POINT DELAYED		
51	COINCIDENCE ZONE 1		

nt

52	COINCIDENCE ZONE 2	
53	COINCIDENCE ZONE 3	
54	COINCIDENCE ZONE 4	
55	COINCIDENCE ZONE 5	
56	COINCIDENCE ZONE 6	
57	COINCIDENCE ZONE 7	
58	COINCIDENCE ZONE 8	
61	CONFIGURE Z1 FOR I.S BARRIER	
62	CONFIGURE Z2 FOR I.S BARRIER	
63	CONFIGURE Z3 FOR I.S BARRIER	
64	CONFIGURE Z4 FOR I.S BARRIER	
65	CONFIGURE Z5 FOR I.S BARRIER	
66	CONFIGURE Z6 FOR I.S BARRIER	
67	CONFIGURE Z7 FOR I.S BARRIER	
68	CONFIGURE Z8 FOR I.S BARRIER	
71*	ZONE 1 SHORT CIRCUIT INDICATES ALARM	
72*	ZONE 2 SHORT CIRCUIT INDICATES ALARM	
73*	ZONE 3 SHORT CIRCUIT INDICATES ALARM	
74*	ZONE 4 SHORT CIRCUIT INDICATES ALARM	
75*	ZONE 5 SHORT CIRCUIT INDICATES ALARM	
76*	ZONE 6 SHORT CIRCUIT INDICATES ALARM	
77*	ZONE 7 SHORT CIRCUIT INDICATES ALARM	
78*	ZONE 8 SHORT CIRCUIT INDICATES ALARM	
81*	ZONE 1 NON-LATCHING	
82*	ZONE 2 NON-LATCHING	
83*	ZONE 3 NON-LATCHING	
84*	ZONE 4 NON-LATCHING	
85*	ZONE 5 NON-LATCHING	
86*	ZONE 6 NON-LATCHING	
87*	ZONE 7 NON-LATCHING	
88*	ZONE 8 NON-LATCHING	
91	ZONE 1 DOES NOT SOUND ALARMS	
92	ZONE 2 DOES NOT SOUND ALARMS	
93	ZONE 3 DOES NOT SOUND ALARMS	
94	ZONE 4 DOES NOT SOUND ALARMS	
95	ZONE 5 DOES NOT SOUND ALARMS	
96	ZONE 6 DOES NOT SOUND ALARMS	
97	ZONE 7 DOES NOT SOUND ALARMS	
98	ZONE 8 DOES NOT SOUND ALARMS	
99		
A1*	ZONE 1 ANY ALARM DELAYED	
A2*	ZONE 2 ANY ALARM DELAYED	
A3*	ZONE 3 ANY ALARM DELAYED	
A4*	ZONE 4 ANY ALARM DELAYED	
A5*	ZONE 5 ANY ALARM DELAYED	
A6*	ZONE 6 ANY ALARM DELAYED	
A7*	ZONE 7 ANY ALARM DELAYED	
A8*	ZONE 8 ANY ALARM DELAYED	
C1	ZONE 1 SOUNDERS INHIBITED	
C2	ZONE 2 SOUNDERS INHIBITED	
C3	ZONE 3 SOUNDERS INHIBITED	
C4	ZONE 4 SOUNDERS INHIBITED	
C5	ZONE 5 SOUNDERS INHIBITED	
C6	ZONE 6 SOUNDERS INHIBITED	
C7	ZONE 7 SOUNDERS INHIBITED	
C8	ZONE 8 SOUNDERS INHIBITED	
E1*	ZONE 1 WILL NOT OPERTATE FIRE RELAY	
E2*	ZONE 2 WILL NOT OPERTATE FIRE RELAY	
E3*	ZONE 3 WILL NOT OPERTATE FIRE RELAY	
E4*	ZONE 4 WILL NOT OPERTATE FIRE RELAY	
E5*	ZONE 5 WILL NOT OPERTATE FIRE RELAY	
E6*	ZONE 6 WILL NOT OPERTATE FIRE RELAY	
E7*	ZONE 7 WILL NOT OPERTATE FIRE RELAY	

Extinguishant module 1

Extinguishant module 1

CONFIGURATION OPTION	WRITE SETTING
Extinguishant output mode =	
ACTIVATION MODE =	
User O/p Mode =	
FIRST ACTIV. ZONE =	
LAST ACTV. ZONE =	
RESET INHIBIT TIME =	
PRE-REL. DELAY TIME =	
EXTING. RELEASE TIME =	
PULSED ACTIV. ALARMS ?	
STEADY ACTIV. ALARMS ?	
RELEASED IND. ON RELEASED INPUT ?	
RELEASED IND. ON EXTING RELEASE ?	
DELAY ON MANUAL RELEASE ?	
NO DELAY ON MANUAL RELEASE ?	
RELEASE TIMER ENABLED ?	
RELEASE TIMER DISABLED ?	
ROV NOT REMOVED ON SYSTEM RESET ?	
ROV REMOVED ON SYSTEM RESET ?	
EARTH FAULT ENABLED ?	
EARHT FAULT DIASLABLED ?	
FAULT OUTPUT ENABLED ?	
FAULT OUTPUT DISABLED ?	
LOW PRESS. I/P NORMAL ?	
LOW PRESS. I/P INVERTED ?	
EXTING. O/P 1 LEVEL =	
EXTING O/P 2 LEVEL =	

Extinguishant module 2

CONFIGURATION OPTION	WRITE SETTING
Extinguishant output mode =	
ACTIVATION MODE =	
User O/p Mode =	
FIRST ACTIV. ZONE =	
LAST ACTV. ZONE =	
RESET INHIBIT TIME =	
PRE-REL. DELAY TIME =	
EXTING. RELEASE TIME =	
PULSED ACTIV. ALARMS ?	
STEADY ACTIV. ALARMS ?	
RELEASED IND. ON RELEASED INPUT ?	
RELEASED IND. ON EXTING RELEASE ?	
DELAY ON MANUAL RELEASE ?	
NO DELAY ON MANUAL RELEASE ?	
PRE-REL DELAY RESET ENABLED ?	
PRE-REL DELAY RESET DISABLED ?	
RELEASE TIMER ENABLED ?	
RELEASE TIMER DISABLED ?	
ROV NOT REMOVED ON SYSTEM RESET ?	
ROV REMOVED ON SYSTEM RESET ?	
EARTH FAULT ENABLED ?	
EARHT FAULT DIASLABLED ?	
FAULT OUTPUT ENABLED ?	
FAULT OUTPUT DISABLED ?	
LOW PRESS. I/P NORMAL ?	
LOW PRESS. I/P INVERTED ?	
EXTING. O/P 1 LEVEL =	
EXTING O/P 2 LEVEL =	

Extinguishant module 3

CONFIGURATION OPTION	WRITE SETTING
Extinguishant output mode =	
ACTIVATION MODE =	
User O/p Mode =	
FIRST ACTIV. ZONE =	
LAST ACTV. ZONE =	
RESET INHIBIT TIME =	
PRE-REL. DELAY TIME =	
EXTING. RELEASE TIME =	
PULSED ACTIV. ALARMS ?	
STEADY ACTIV. ALARMS ?	
RELEASED IND. ON RELEASED INPUT ?	
RELEASED IND. ON EXTING RELEASE ?	
DELAY ON MANUAL RELEASE ?	
NO DELAY ON MANUAL RELEASE ?	
PRE-REL DELAY RESET ENABLED ?	
PRE-REL DELAY RESET DISABLED ?	
RELEASE TIMER ENABLED ?	
RELEASE TIMER DISABLED ?	
R0V NOT REMOVED ON SYSTEM RESET ?	
R0V REMOVED ON SYSTEM RESET ?	
EARTH FAULT ENABLED ?	
EARHT FAULT DIASLABLED ?	
FAULT OUTPUT ENABLED ?	
FAULT OUTPUT DISABLED ?	
LOW PRESS. I/P NORMAL ?	
LOW PRESS. I/P INVERTED ?	
EXTING. O/P 1 LEVEL =	
EXTING O/P 2 LEVEL =	

Extinguishant module 4

CONFIGURATION OPTION	WRITE SETTING
Extinguishant output mode =	
ACTIVATION MODE =	
User O/p Mode =	
FIRST ACTIV. ZONE =	
LAST ACTV. ZONE =	
RESET INHIBIT TIME =	
PRE-REL. DELAY TIME =	
EXTING. RELEASE TIME =	
PULSED ACTIV. ALARMS ?	
STEADY ACTIV. ALARMS ?	
RELEASED IND. ON RELEASED INPUT ?	
RELEASED IND. ON EXTING RELEASE ?	
DELAY ON MANUAL RELEASE ?	
NO DELAY ON MANUAL RELEASE ?	
PRE-REL DELAY RESET ENABLED ?	
PRE-REL DELAY RESET DISABLED ?	
RELEASE TIMER ENABLED ?	
RELEASE TIMER DISABLED ?	
R0V NOT REMOVED ON SYSTEM RESET ?	
R0V REMOVED ON SYSTEM RESET ?	
EARTH FAULT ENABLED ?	
EARHT FAULT DIASLABLED ?	
FAULT OUTPUT ENABLED ?	
FAULT OUTPUT DISABLED ?	
LOW PRESS. I/P NORMAL ?	
LOW PRESS. I/P INVERTED ?	
EXTING. O/P 1 LEVEL =	
EXTING O/P 2 LEVEL =	