Sigma

K1000 Series 1 Zone Economy Fire Control Panel

Operation and Maintenance Manual

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General Description

The single zone Sigma provides an economical and compact solution for the small detection and alarm system.
Built to comply with BS5839: part 4: 1988. The Sigma fulfils the essential requirements of a fire alarm system where interface and control of other systems is not necessary.
An integral power supply and battery charger is provided with space for up to 7.0 Ah batteries to provide an extensive stand-by in a power failure situation.
Housed in a compact ABS moulded enclosure of a neutral colour, the Sigma is simple to install and maintain.

SAFETY

IMPORTANT
READ THIS SECTION FIRST!

1.1 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.

1.2 This product should be installed, commissioned and maintained by or under the supervision of competent persons according to good engineering practice and:-

i) IEE regulations for the electrical equipment of 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 any appropriate information about this product is made available by you to anyone concerned with its use.

1.3 This equipment is designed to be operated from 220-240V AC mains supplies and is of class I construction. As such it must be connected to a protective earthing conductor in the fixed wiring of the installation.

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

INSTALLATION

2.1 Remove the front panel by unscrewing the two Socket screws with a key. This will expose the internal equipment and three fixing holes.

2.2 Place the circuit boards in a safe area for later installation.

2.3 Locate the unit on the wall in the agreed position and mark the fixing points through the dished mounting holes (see annex 2). Drill and fit suitable wall plugs and screw the panel to the wall.

2.4 Use the knockouts provided to make off the cables. Earth or drain wires should be kept as short as is practical and be connected to a metal cable gland making sound electrical contact with the enclosure.

2.5 If additional or larger cable entries are required, any swarf and debris must be cleared from the inside of the equipment. Failure to do this will result in equipment malfunction and could represent a danger to building occupants.

2.6 The mains fuse must only be replaced with a 2 amp fuse conforming to BS:4265.

INSTALLATION - *Continued*

2.7 This equipment is designed to be powered from the 220 - 240V AC mains supply. The mains connection must include a protective Earth conductor to the requirements of BS:7671 (see annex 2).

2.8 The mains supply must be from a separate dedicated fused spur labelled **"FIRE ALARMS DO NOT SWITCH OFF".**

2.9 The installation should be carried out by or under the supervision of a competent person and in accordance with the requirements of BS:7671:1992 requirements for electrical installation, BS:5839: Part 1:1988 fire detection and alarm systems for buildings.

2.10 Connection of the 24V battery supply should be carried out with great care and respect. Misconnection or short circuiting of the battery terminals will result in **FIRE**.

FRONT PANEL CONTROLS

3.1 **Enable Controls**
The evacuate, silence alarms and reset switches are disabled until the enable control key is inserted into the fascia.

3.2 **Silence Alarm Switch**
The alarms will silence upon operation of the silence alarms switch.

3.3 **Reset Switch**
The control panel will be reset to normal and all indicators illuminated (for testing purposes) upon operation of the reset switch.

3.4 **Evacuate Switch**
Pressing the evacuate switch will illuminate both fire indicators and operate both sounder outputs.

FRONT PANEL INDICATIONS

4.1 **Supply Healthy Indicator**
Under normal conditions only the green supply healthy indicator is illuminated. The system healthy indicator will extinguish in the event of:-

(1) Mains Failure
(2) Battery Disconnection.
(3) Total Power Failure
(4) Battery Fuse Failure

4.2 **Power Fault Indicator**
The power fault indicator will illuminate in the event of:

(1) Mains failure
(2) Battery disconnection
(3) Battery fuse failure

FRONT PANEL INDICATIONS - Continued

4.3 **Sounder Fault Indicator**
The sounder fault indicator will illuminate in the event of a short or open circuit fault on either of the sounder outputs.

4.4 **Alarm Silenced Indicator**
The alarm silenced indicator will illuminate if the alarms have been triggered by the detection input or evacuate switch and subsequently silenced by the silence alarms switch.

4.5 **Fire Indicators**
Fire indicators (one flashing and one steady) will illuminate upon operation of the detection input or the evacuate switch.
Their status will not change until the panel is reset

4.6 **Fault Indicators**
The fault indicator will illuminate in the event of a short or open circuit fault on the detection input.

DETECTION CIRCUIT

5.1 The detection circuit provides a nominal 24V DC supply for the operation of trigger devices such as smoke or heat detectors.
The connection terminals for detectors are labelled Z- and Z+ for negative and positive connections. It is important to observe the polarity of these connections for correct operation of the system.

5.2 The smoke detection circuit is supplied with a 6K8 resistor fitted at the terminals. This should be fitted on the outgoing terminals of the last detection device for correct monitoring.

SOUNDER CIRCUITS

7.1 Two sounder circuits are provided and are labelled S+ and S-.
These outputs will operate together upon activation of the detection input or evacuate switch. Both outputs are individually fused at 250mA and are monitored for open and short circuit faults.

7.2 Each sounder circuit must be terminated with a 20K end of line resistor for correct monitoring operation.

The sounder circuits use the reverse polarity method of monitoring therefore all sounders must be suitably polarised.

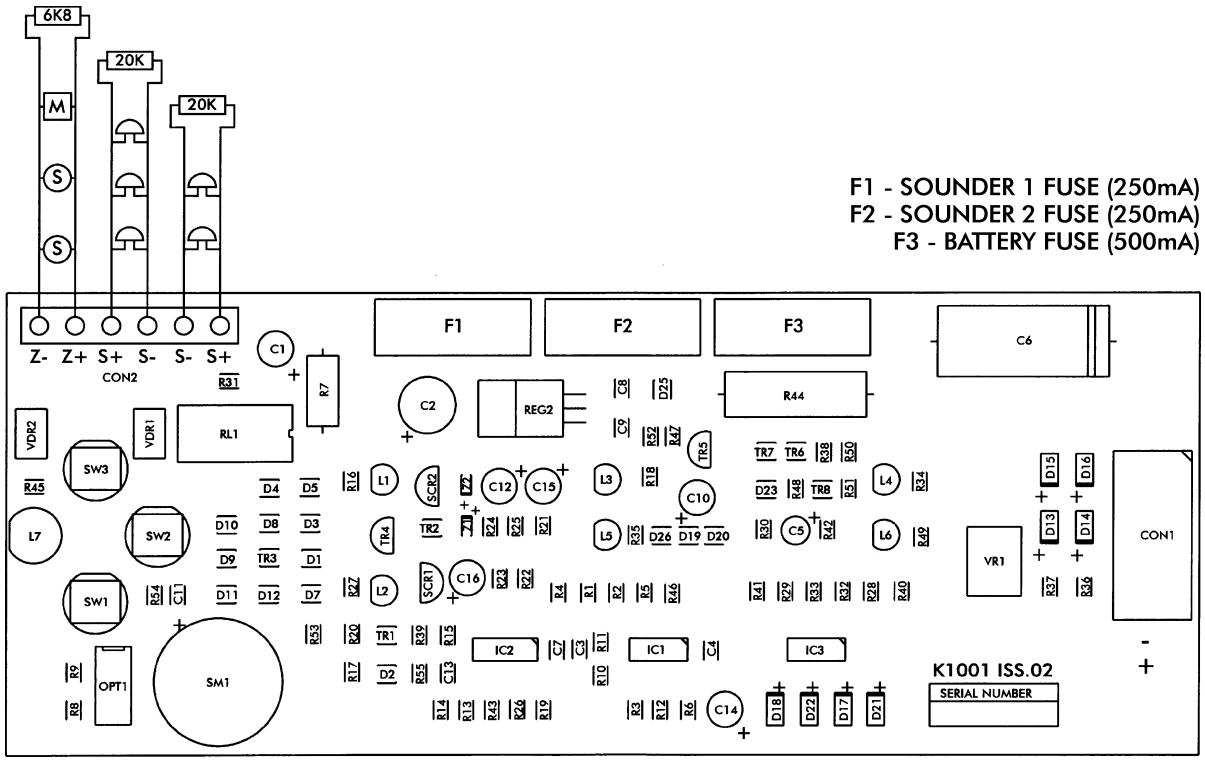
Sounders must also be fitted with a suitable suppression device which most modern sounders contain as supplied.

TECHNICAL SPECIFICATION

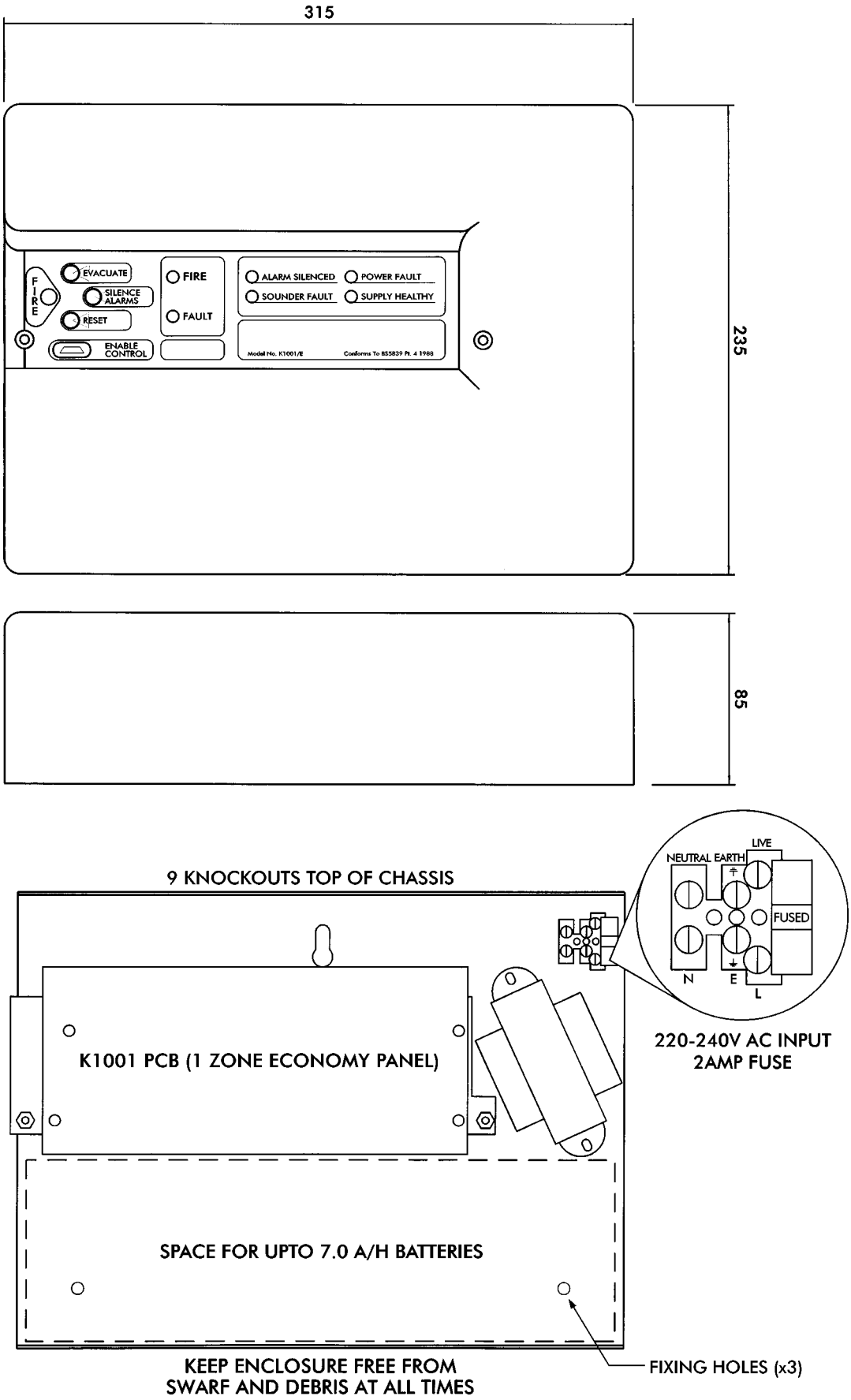
Panel size	-	315mm wide x 235mm high x 84mm deep
Weight	-	3kgs
Packed weight	-	3.2kgs
Packed size	-	330mm x 250mm x 100mm
Cover	-	Flame retardant moulded ABS
Finish	-	Light texture
Colour	-	Stone grey
Chassis	-	l.2mm Mild steel
Mains supply	-	23OV AC
Detection line QI	-	2mA max
Short CCT threshold	-	0-40 ohms
Alarm threshold	-	40-740 ohms
Open circuit threshold	-	>10K ohms
Operating temperature	-	-5°C to +50°C
Operating humidity	-	10% to 95% (Non -Condensing)
Call points	-	470 ohms
Sounders end of line	-	20K ohms
End of line detection circuit	-	6K8
Mains fail quiescent current	-	50mA
Mains fail full alarm current	-	82mA

ANNEXE 1

K1001 PCB layout - 1 zone economy Sigma, typical wiring connections & fuse locations.

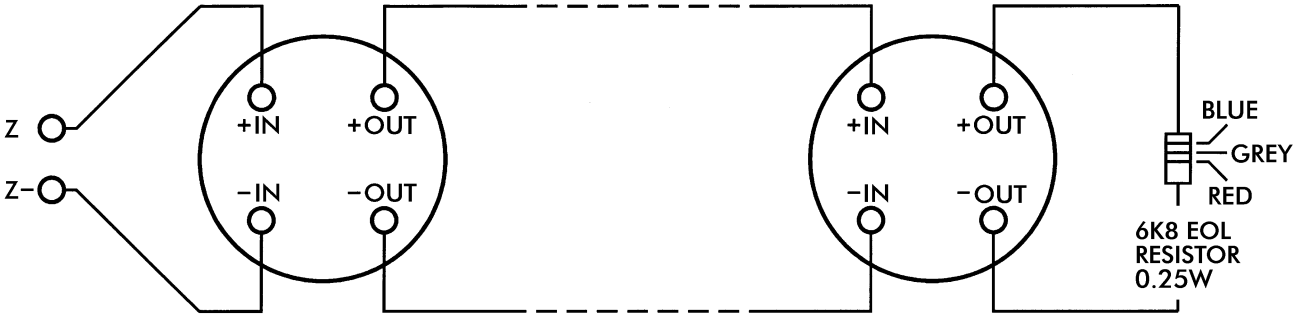


ANNEXE 2

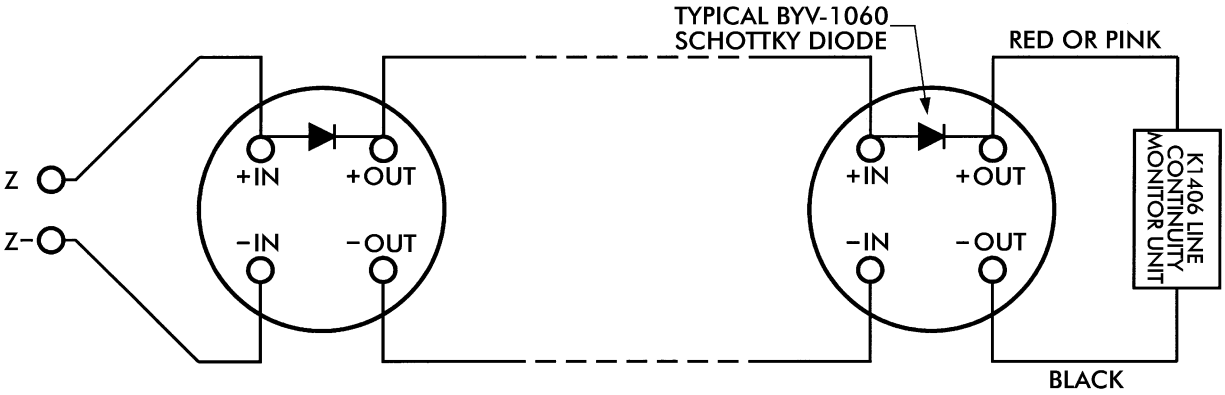
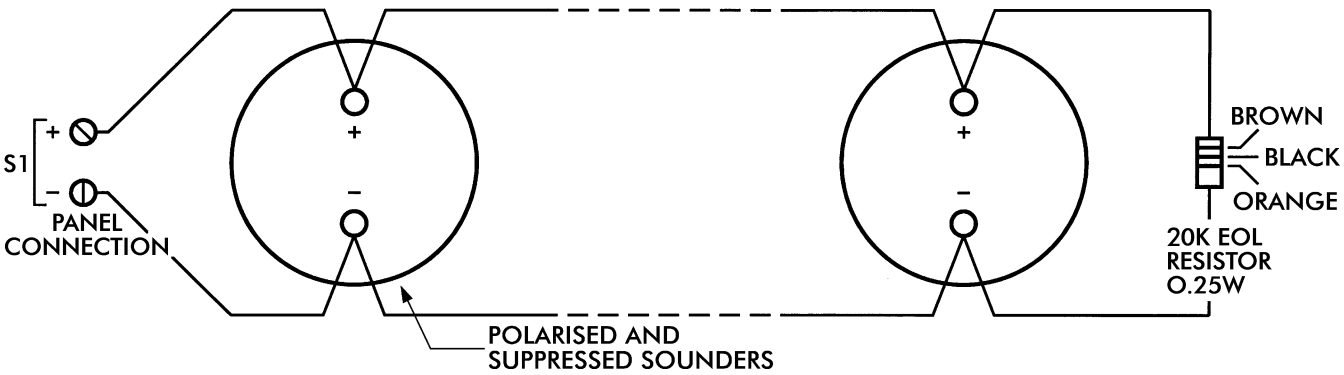

315
235
85
FIRE
EVACUATE
SILENCE ALARMS
RESET
ENABLE CONTROL
FIRE
FAULT
ALARM SILENCED
POWER FAULT
SOUNDER FAULT
SUPPLY HEALTHY
Model No. K1001/E
Conforms To BS5839 Pt. 4 1988
9 KNOCKOUTS TOP OF CHASSIS
LIVE
NEUTRAL EARTH
FUSED
N
E
L
220-240V AC INPUT
2AMP FUSE
K1001 PCB (1 ZONE ECONOMY PANEL)
SPACE FOR UPTO 7.0 A/H BATTERIES
KEEP ENCLOSURE FREE FROM
SWARF AND DEBRIS AT ALL TIMES
FIXING HOLES (x3)

ANNEXE 3

Resistor monitoring wiring. Standard bases are used. Removal of a detector indicates fault but detectors beyond the removed one will be inoperative.



Line continuity unit wiring. Diode bases are used. Removal of a detector indicates fault and detectors beyond the removed one remain operative.



Connections to sounders.