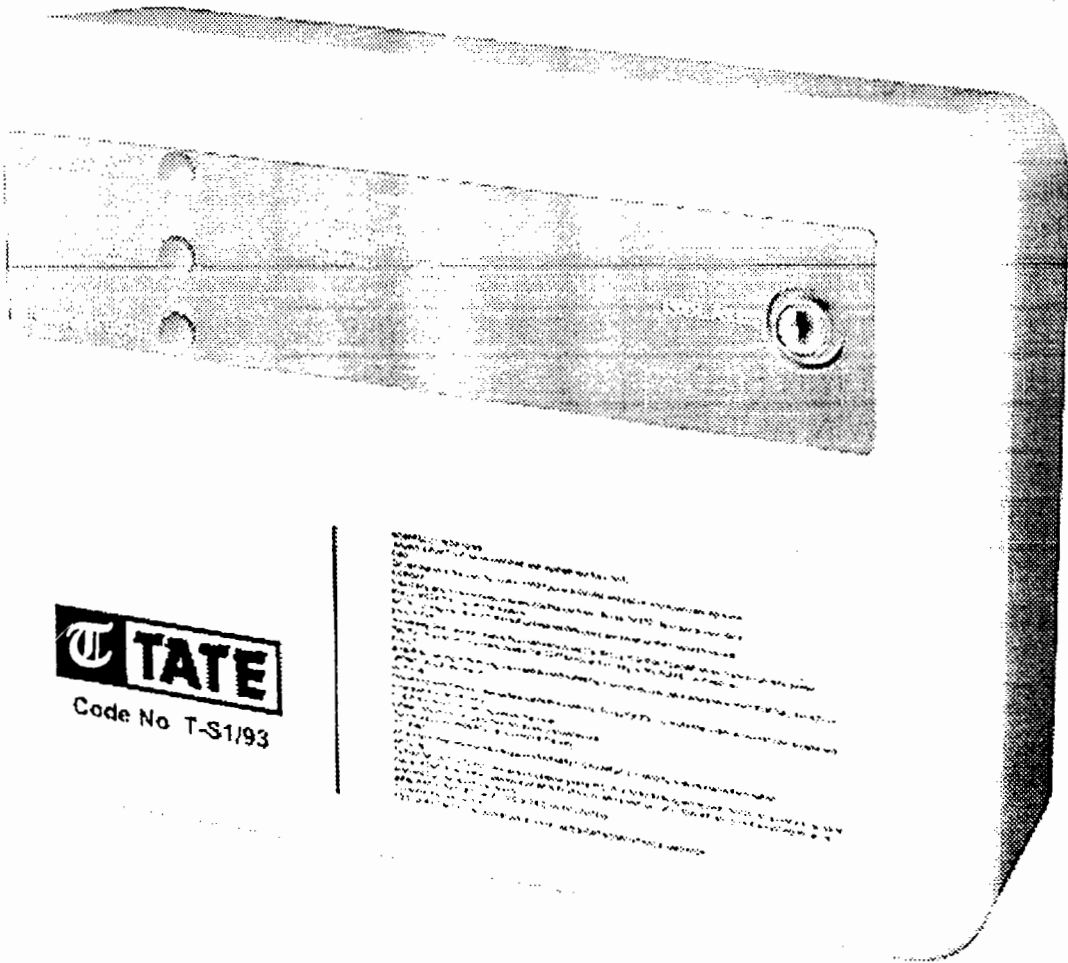


49 HATHERSAGE ROAD

# **TATE FIRE ALARM CONTROL PANEL**

T-S1/93/142 ONE ZONE  
T-S/2/93 TWO ZONE



CE

C031-075 Issue 3  
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## TATE FIRE ALARM CONTROL

The Tate fire alarm control panel is part of a range of fire controls that comply to BS5839 part 4 1988

### CONTROLS

1. Control enable Keyswitch.
2. Sounder mute push button. (Mutes sounders or fault buzzer)
3. Sound alarm push button. (To evacuate or resound the sounders)
4. Reset / Test push button. (To reset the control panel or test the circuitry)

### EXTERNAL INDICATIONS

Indicator No.	Colour	Description	
1	TWIN GREEN	MAINS ON	
2	TWIN RED	ZONE 1 FIRE	
3	TWIN RED	ZONE 2 FIRE	ONLY ON 2 ZONE MODELS
4	TWIN AMBER	ZONE 1 FAULT	
5	TWIN AMBER	ZONE 2 FAULT	ONLY ON 2 ZONE MODELS
6	TWIN AMBER	GENERAL FAULT	

### INTERNAL INDICATIONS

Indicator No.	Colour	Description
1	AMBER	ON BOARD MAIN PROCESSOR FAILURE
2	AMBER	BELL CIRCUIT FAULT
3	AMBER	POWER SUPPLY FAULT

### CONSTRUCTION

3mm polycarbonate box with removable lid (210 x 282 x 85 ). Inside this is the main circuit board and a mains cable clamp.

### DETECTORS

The zone terminals serve four functions:-

1. To monitor cables for open circuit (fault).
2. To monitor cables for short circuit (fault).
3. To supply the detectors with 22 volts DC.
4. To DETECT A FIRE CONDITION

A Fire condition is detected when a current of between approximately 17mA and 41mA is detected. Anything outside this range and a fault condition will be detected.

Monitoring is achieved with an END OF LINE (EOL) resistor (6K8) or EMU. The panel will still go into fire even if a processor fault occurs. The zone cabling must be taken in and out of each detector in turn with the monitoring resistor or EMU at the END of the line. Do not spur off to additional detectors. A maximum of 20 smoke or heat detectors may be fitted to the zone wiring (low current types) there is no limit to the number of call points.

## SOUNDER OUTPUTS

There are two separately fused sounder outputs. Both circuits are monitored for open and short circuits with EOL monitoring resistors (6K8).

Sounders must be polarised, fully suppressed and designed for 24 VDC operation. The total load for both circuits must not exceed 750 mA. The same wiring rules apply as for the detector circuits.

If unpolarised sounders are fitted a sounder fault will be indicated.

## POWER SUPPLY

The control is fitted with a regulated power supply capable of supplying 1 Amp and is fully monitored for mains failure, battery fuse failure, battery disconnection or regulator failure.

## AUXILIARY RELAY

The control is fitted with a double pole auxiliary 1 Amp relay which operates only when a fire condition is recognised. The relay does not operate if the manual sound alarm is pressed.

## IMPORTANT NOTE

When using call points, check that a series resistor is fitted to limit the current when the switch is operated. A suitable value would be 470 ohms rated at 1 watt and of a carbon film type. If an electronic detector gives a fault condition instead of a fire condition when tested consult your supplier. You may require a different base for that unit.

When replacing equipment manufactured to earlier standards (may be marked BS3116 part 4), the detectors fitted may not limit the current in an alarm condition, this will register by a zone fault being generated instead of being registered as a fire condition. For some makes of detectors, replacement bases fitted with current limiting resistors are available. If call points are fitted then see the note above.

## SPECIFICATION

### ZONE CIRCUIT SPECIFICATION

Detector line voltage	Quiescent	: 21VDC +/- 10%
	Alarm	: dependent upon device
Minimum alarm current		: 20mA
Minimum zone current before fault		: 50mA
Minimum zone short circuit current		: 60mA
End of line resistor		: 6.8K Ohms
End of line monitoring		EMU (Code T-ZC/90/EMU)
Maximum circuit resistance		: 20 Ohms
Detector line monitoring		: Open and short circuit
Maximum no. of electronics detectors		: 20 low current types (30uA)
Maximum no. of call points		: Unlimited

### SOUNDER CIRCUIT SPECIFICATIONS

Number of sounder circuits	Quiescent	: 2
Sounder line voltage	Active	: 14v nominal (reverse polarity) : 24v nominal
Circuit fuses		: 1 Amp
Circuit monitoring resistors		: 6.8K Ohms
Sounder monitoring		: open and short circuit
Maximum sounder load current		: 750 mA
Maximum no. of sounders @ 30mA ea.		
With a 1.2 Ah battery		: 10

With a 1.9 Ah battery :25

## FUSE VALUES - MONITORED

Sounder circuits :1 Amp  
Battery :2 Amp

## INTERNAL POWER SUPPLY

Constant voltage charge :27.2V  
Output current :1 Amp total MAX  
Low battery monitored at :22V  
Battery monitoring :O/C, S/C, Reversal  
Battery charger monitored :failure  
Standby consumption (buzzer muted) :48mA (2 zone model)

## AUXILIARY RELAY

Change over contacts :rated at 1 Amp MAX  
(voltage free)

## OPERATION

When power is first applied, the unit will power up in reset mode to clear the system. All LEDs and the buzzer will be on for 3 seconds. When the reset time is over the buzzer will stop. The GENERAL FAULT LEDs and the internal processor light will be on. This is to indicate the power has been removed. When a manual reset is done the internal PROCESSOR led will clear as will the general fault condition.

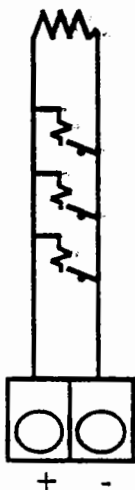
After a fire condition, the bells can be silenced (muted) by turning the keyswitch to the enabled position and then pressing the mute button. To reset the system press the RESET button. Should a fire condition still occur, the sounders will re-sound.

A zone fault will be shown by the twin amber LEDs for that zone being illuminated. Faults other than zone faults will cause the twin general fault LED's to illuminate. The internal fault lamps will show what is causing the fault.

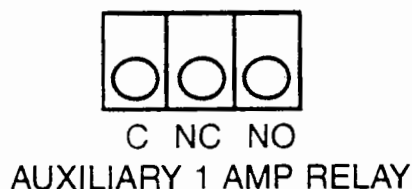
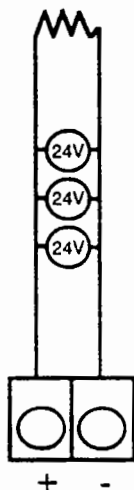
Mains failure will cause the twin green LED's to go out and the twin amber general lights to illuminate. The internal power LED will be lit showing a lack of recharge to the battery. The buzzer may be muted by enabling the keyswitch and pressing the mute button.

The REMOTE RING terminals can be used to force trigger the bell relay without a fire condition occurring. This gives the ability to wire remote evacuation switches. This is NOT a latching trigger and will return to a normal state when the connection is broken.

ZONE WIRING  
6K8 or EMU



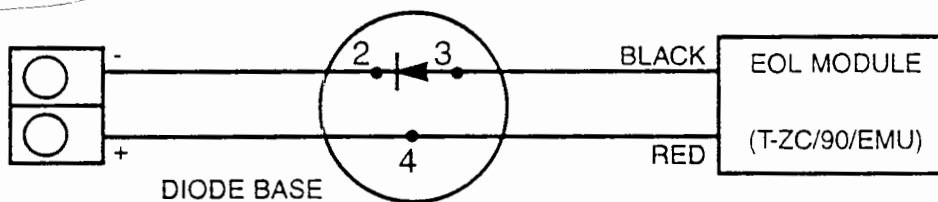
BELL WIRING  
6K8



APPENDIX 1

Active EOL Module (CODE: T-ZC/90/EMU) for head removal monitoring.

If detectors and call points need to be fitted on the same zone it is not always convenient to put all the call points first. If any detectors are fitted before call points then use a diode base and the active EOL module (EMU) should replace the EOL resistor. The active EOL module will keep the entire zone active even if detector heads have been removed. The advantage to this type of EOL module over normal zone monitor PCB's is that you only require 1 active EOL module per zone.



ZONE 1 RESISTANCE				
ZONE 2 RESISTANCE				
BATTERY VOLTAGE				
MAINS VOLTAGE				
AUXILIARY VOLTAGE				

## APPENDIX 2

### ADDITIONAL COMMISSIONING INFORMATION

1) It is recommended that installers of fire alarm equipment obtain a copy of BS 5839 part 1:1988 entitled "Fire detection and alarm systems for buildings • Code of practice for system design, installation and servicing"

2) Sound levels (BS 5839 Part 1:1988, section 9.4)

Sound levels should be a minimum of 65dB or 5dB above any other noise lasting longer than 30 seconds. If the premises require the alarm to rouse sleeping persons then the minimum level at the bedhead with all the doors closed must be 75dB.

In cases where you are in doubt it is suggested that a sounder be fitted in every bedroom or flat etc. (i.e. a T-181 sounder)

Please note that all the sounders throughout the premises **MUST BE** of the same type i.e. sounders or bells, **NOT BOTH**.

3) A minimum of two sounder circuits **MUST** be used.

4) There must be no spurring or "T offs" from the sounder.

5) The 24VDC circuit of the control panel cannot be used for powering any other circuit other than the control panel, e.g. if 24V magnetic door closures are required then these need a **SEPARATE** power supply unit. (i.e. a T-160)

Note. Magnetic door units have an inductive load. When calculating relay contact value, allow six times the running current for each unit.

Tate Technical Helpline (During normal working hours of 9am - 5pm Mon to Fri)  
**01934 744044**

## APPENDIX 3

### Replacing an old (pre 1990) Fire Alarm Panel

When using Tate control panels T-S1/93, T-S2/93, T-S4/90 and T-S5-14/90 to replace a pre 1990 standard panel which has failed, cut the diode marked "A" for the relevant **Zones** and this will revert that zone back **to a dead short** which will give a fire condition. Always fit new batteries

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