

Report No.: SU1017A/1985

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## REPORT ON THE ELECTRICAL SAFETY OF

**Keymat Technology Ltd**

### **Strikemaster and Codemaster Access Control Keypads**

Specification: EN 60950:1992/A4:1997

Result: Complied with the tests of the subclauses contained within.

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TESTING  
No. 0728  
No. 0728 SI  
No. 1359

## **SECTION I INTRODUCTION**

**Equipment tested:** Strikemaster and Codemaster Access Control Keypads

**Client:** Keymat Technology Ltd

**Address:** 14 Bentinck Court

West Drayton

UB7 7RQ

**Manufactured by:** Keymat Technology Ltd

**Specifications:** EN 60950:1992/A4:1997

**Procedure:** SF 006

**Classification:** Class III appliance (SELV input only)

### **General**

- i** The products were security coded entry modules, incorporating a twelve digit keypad. It is about 100x115x35mm in dimension.
- ii** The code master incorporated a plastic enclosure with plastic keys numbered 0-9, also incorporating a key marked '\*' and 'CLR' and a key marked '#' and 'ENT' either side of the 'O' key. It had a single LED. This was red when powered until the correct code was entered, where it turned green.
- iii** The strike master was the same construction as the code master, however the enclosure and keys were constructed from metal.
- iv** The power supplies for the equipment were excluded from testing, at the client's request. Test data for comparison purposes only.
- v** No testing was conducted on the polymeric parts contained in the equipment. Assessment was based upon the documentary evidence supplied. See comments for details.

- vi** No testing was conducted on the component parts contained in the equipment. Assessment was based upon the documentary evidence supplied. See comments for details.
- vii** TRL EMC Ltd is a DTI Notified Body under the Low Voltage Directive 73/23/EEC.
- viii** This report shall not be reproduced except in full without the written approval of the testing laboratory.

**SECTION II**

**RESULTS**

**EN 60 950 : 1992/A4 : 1997**

<u>Clause</u>	<b>PASS</b>	<b>FAIL</b>	<b>N/A</b>
<b>1</b> <b><u>General</u></b>			
1.5 <b>Components</b> .....	( X )	(    )	(    )
1.6 <b>Power interface</b> .....	( X )	(    )	(    )
1.7 <b>Marking and instructions</b> .....	( X )	(    )	(    )
<b>2</b> <b><u>Fundamental design requirements</u></b>			
2.1 <b>Protection against electric shock and energy hazards</b> .....	( X )	(    )	(    )
2.3 <b>Safety extra low voltage (SELV) circuits</b> .....	( X )	(    )	(    )
<b>4</b> <b><u>Physical requirements</u></b>			
4.4 <b>Resistance to fire</b> .....	( - )	( - )	( - ) †
<b>5</b> <b><u>Thermal and electrical requirements</u></b>			
5.1 <b>Heating</b> .....	( X )	(    )	(    )
5.4 <b>Abnormal operating and fault conditions</b> .....	( X )	(    )	(    )

† see comments

## SECTION II

### COMMENTS

#### Clause 1.5 Components

See appendix B for critical components list.

#### Clause 1.6 Power interface

The unit was set up under the conditions of normal load the following current readings were then taken after the heating test of clause 5.1. Measurements included for information only.

#### Codemaster powered using transformer supplied.

Input voltage (Vac)	Input current (Aac)
220	56mA
230	57mA
240	59.5mA

#### Strikemaster (Powered from Tower control unit)

Vin	Iin (normal)	Iin (max)
6Vdc	6.4mA	10mA

#### Clause 1.7 Marking and instructions

The Strikemaster and Codemaster keypad unit was marked on the back near the terminals, the following information was displayed:-

Specific product identification  
Cable connection details  
Manufacturer name and address

The requirements of this clause were satisfied.

**SECTION II  
COMMENTS (Continued)**

**Clause 2.1 Protection against electric shock and energy hazards**

The voltages present on the Codemaster and Strikemaster keypads, were at SELV levels, and presented no electric shock hazard to the user.

The requirements of this clause were satisfied.

**Clause 2.2 Safety extra low voltage (SELV) circuits**

See clause 2.1

**Clause 4.4 Resistance to fire.**

See appendix C for details

**Clause 5.1 Heating**

**Codemaster**

The unit was set up under the conditions of normal load specified. The voltage was then increased to the upper limit of the voltage range. Temperatures were monitored using fine wire thermocouples once thermal equilibrium was achieved.

Ambient temperature:        20    °C

Test Voltage:                240   Vac

The unit was operated using the tower access controller unit, supplied by the client. This was supplied with a linear transformer and regulated power supply, therefore was only necessary to be powered at 240Vac.

<b>Position</b>	<b>Temperature rise</b>
PCB nr large cap	2
Terminal block	2
PCB nr 77	2
RN2 body	2
Back enclosure	2
Keypad face	2

**SECTION II  
COMMENTS (Continued)**

**Strikemaster**

<b>Position</b>	<b>Location</b>	<b>Rise</b>
Relay 1	Keypad	8
IC2	Keypad	6
PCB Nr IC4	Keypad	9
Enclosure Nr CN1	Keypad	3
Enclosure	Lock strike	21
Enclosure	Lock strike	21
Transformer case #1	Power supply	49
Transformer case #2	Power supply	49
Enclosure	Power supply	24

The voltage was reduced to 207Vac and all temperatures either reduced in value or remained constant. Temperatures monitored using fine wire type '7' thermocouples and temperatures were recorded at thermal stabilisation. The lock strike was permanently energised during the thermal test as this proved to be the condition where the unit dissipated the most heat.

The ambient temperature was recorded at 22°C.  
The input voltage was set at 254Vac.

**SECTION II  
COMMENTS (Continued)**

**Clause 5.4 Abnormal operation and fault conditions**

The following abnormal conditions were simulated.

**Strikemaster**

<b>Fault</b>	<b>Result</b>
Short circuit regulator O/P (C5) (No overload conducted as regulator did not shutdown)	200mA recorded short circuit current. Maximum temperature recorded = 84°C on IC4 regulator.  No hazard. <span style="float: right;"><b>PASS</b></span>
Short circuit C2	5.5A short circuit current was recorded temperatures began to rise on the PCB near the fault before the power supplies PTL operated. No significant temperatures. No hazard. <span style="float: right;"><b>PASS</b></span>

**Codemaster**

<b>Fault</b>	<b>Result</b>
Short circuit C4	Input current of the key pad was recorded at 113mA. Maximum temperature recorded at 28°C. No significant temperatures. No hazard. <span style="float: right;"><b>PASS</b></span>
Short circuit CE1	Input current recorded at 140mA, all temperatures monitored decreased in temperature. No hazard. <span style="float: right;"><b>PASS</b></span>

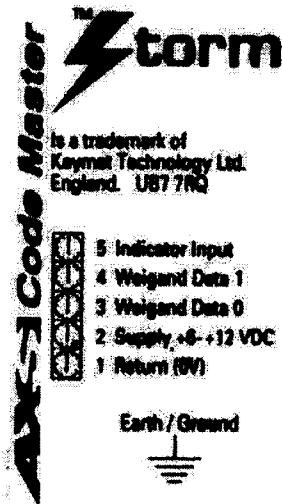
The requirements of this clause were satisfied.

## APPENDIX A

### Equipment included within the scope of this report:

- 1). Strikemaster and Codemaster Access Control Keypads

### Rating plate:



**APPENDIX B**

**Critical component parts:**

<b>ITEM</b>	<b>MANUFACTURER</b>	<b>TYPE NO.</b>	<b>RATING</b>
PCB	Keymat Tech	WES-ENC-02 ISSD	N/A
Terminal block	Chiri	622	N/A

## APPENDIX C

### Flammability of polymeric parts:

ITEM	MANUFACTURER	MATERIAL	UL RATING	UL FILE NO.
PCB	Electroconnect	91, 92, 93	UL94-V0	E162584
Enclosure and Key Pad	General Electric Plastics	Xenloy CL100	UL94-HB	N/A