



# MICROPROCESSOR BASED 25A AC POWER CONTROLLER

# STOM1

X10223

## DESCRIPTION

The STOM1 is a microprocessor based power controller, with a built in power device that is capable of controlling up to 25A at voltages up to 440V ac. The STOM1 has two types of power control, Phase Angle and Burst Firing, either can be selected separately. The module can also be used for soft starting in Phase Angle mode and it will automatically switch to Burst Fire mode when the control signal has reached a preset level. The controller will remain in the Burst Fire state even if the input signal drops below the preset level. The STOM1 also has a ramp up from cold, which can be set from 0 to 30 seconds. The controller will operate from a 0 to 5V dc or 4 to 20mA signal, these signal inputs are fully isolated and can be controlled from a Temperature Controller or PC etc. The STOM1 provides the equipment designer with flexibility in a wide range of applications.

## APPLICATIONS

Suitable for most resistive loads including ovens, moulders, and dryers with current ratings up to 25A when fitted onto a suitable heatsink (1.3°C/W). Ideal for unusual heating loads which have very low resistance when cold.

## FEATURES

Energy saving  
Simple wiring  
Isolated inputs

Soft start facility  
Standard 80mm fixing  
Rugged and compact

Phase angle and Burst firing  
Solid state reliability  
Integrated Power Device

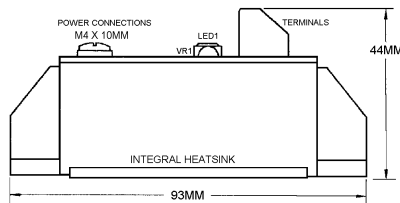
## INSTALLATION

### NOTE

THE STOM1 AC POWER CONTROLLER SHOULD BE MOUNTED ON A CLEAN OR UNPAINTED METAL THERMALLY CONDUCTIVE SURFACE. USING HEAT SINK COMPOUND THINLY APPLIED BETWEEN THE CONTROLLER AND THE MOUNTING PLATE.

IN ORDER TO COMPLY WITH THE CURRENT EMC DIRECTIVE WHEN USING IN PHASE ANGLE MODE A LINE FILTER MUST BE USED.

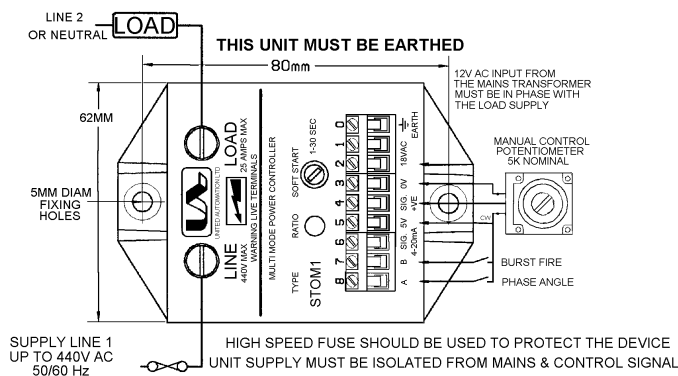
### DIMENSIONS



### CONTROL OPTIONS

- DC INPUT  
VOLTAGE CONTROL  
TERMINALS 3, 4 AND 5  
 3 = 0V  
 4 = 0 TO 5V  
 5 = 5V OUTPUT  
 5k INPUT  
CURRENT CONTROL  
TERMINALS 3 AND 6  
 3 = 0V  
 6 = 4-20mA  
 240R INPUT  
MODE A PHASE ANGLE  
TERMINALS A AND 5  
 A = 5V  
 5 = 5V  
MODE B BURST FIRE  
TERMINALS B AND 5  
 B = 5V  
 5 = 5V  
MODE A B STARTS IN  
PHASE ANGLE SWITCHES  
TO BURST FIRE  
TERMINALS A, B AND 5  
 A = 5V  
 B = 5V  
 5 = 5V  
PHASE REFERENCE AND  
SUPPLY TERMINALS 1 AND 2  
 10V TO 18V AT 75mA

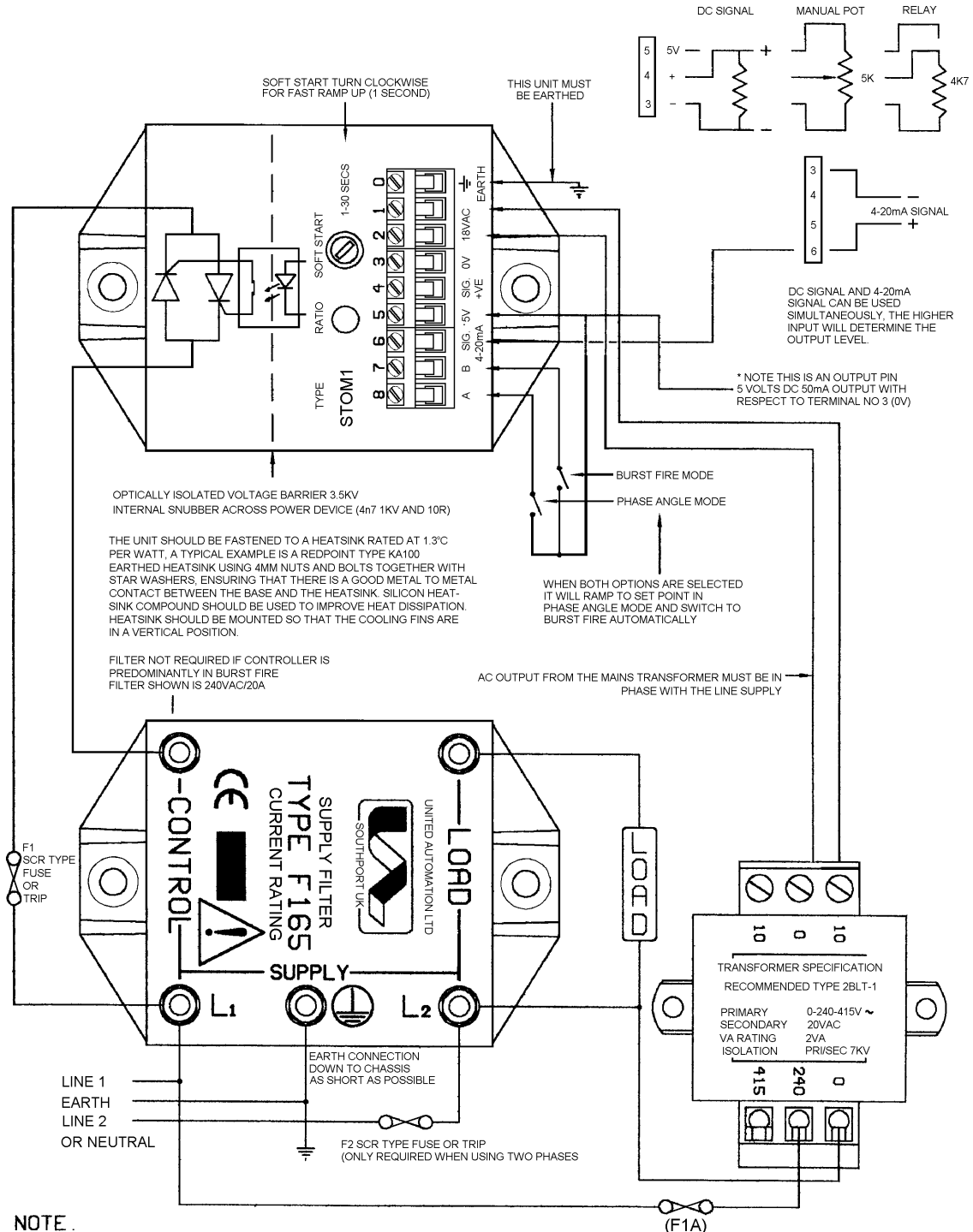
### WIRING AND CONNECTIONS



### WARNING

SWITCH OFF SUPPLY BEFORE COMMENCING ANY SERVICING WORK

# INSTALLATION



NOTE.

MATCH MAINS SUPPLY FILTER TO THE SUPPLY VOLTAGE AND MAX. LOAD CURRENT WHEN USED IN PHASE ANGLE MODE

## INSTALLATION

STOM1

## COOLING REQUIREMENTS

### HEATSINK CALCULATIONS

THIS APPLICATION NOTE PROVIDES ADDITIONAL INFORMATION AND SIMPLE CALCULATIONS TO ALLOW YOU TO DETERMINE A MAXIMUM PERMISSIBLE HEATSINK THERMAL RESISTANCE FOR A GIVEN SET OF OPERATING CONDITIONS. WHEN THE CONTROLLER IS ON THE TEMPERATURE, ( $T_j$  MAX), AT THE SEMICONDUCTOR JUNCTION WILL OBVIOUSLY BE HOTTER THAN THE ATTACHED HEATSINK. THIS IS DUE TO RESISTANCE TO HEAT TRANSFER WHICH IS CALLED THERMAL RESISTANCE, AND IT IS MEASURED IN DEGREES CELCIUS PER WATT.

PARAMETERS -

230V AC SUPPLY AT 25A AND A MAXIMUM AMBIENT AIR TEMPERATURE OF 50°C

1 FROM THE GRAPH BELOW FIND THE MAXIMUM POWER DISSIPATION FOR 25A

$$25A = 31 \text{ WATTS}$$

2 CALCULATE THE TEMPERATURE DIFFERENCE BETWEEN  $T_j$  AND THE HEATSINK

$$31 \text{ WATTS} \times 1.1^\circ\text{C/W} = 34.1^\circ\text{C}$$

3  $T_j$  MUST NOT RISE ABOVE 125°C

$$125 - 34.1 = 90.9^\circ\text{C}$$

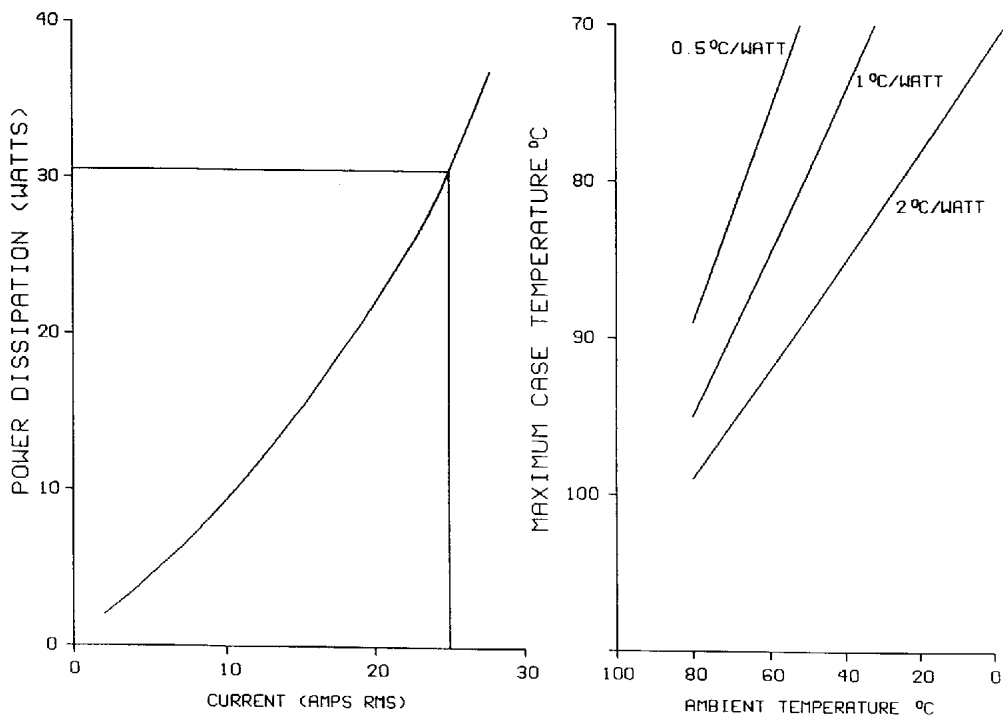
4 THE MAXIMUM AMBIENT TEMPERATURE IS 50°C

$$90.9 - 50 = 40.9^\circ\text{C}$$

5 DIVIDING THIS TEMPERATURE BY THE WATTAGE (1) GIVES

$$40.9 \div 31 = 1.32^\circ\text{C/W}$$

THEREFORE ANY HEATSINK OF 1.32°C/W OR LESS WILL BE SATISFACTORY.



### **SPECIFICATIONS**

I <sup>2</sup> t for fusing 10ms	250 A <sup>2</sup> s	Min line voltage	5V ac
Max, transient over volts	1200V ac	Max line voltage	440V ac
Max electrical isolation	3500V	Control signals	0-5V dc & 4-20mA
Power consumption	1.2 watts	Operating frequency	50 to 60 Hz +/- 5%
Max load current @ 65°C	25A	Supply voltage	10-18V ac
Min load current @ 65°C	0.05A	Peak one cycle surge	250A
Man. control potentiometer	5K	Max operating temp	0°C to 65°C
Power Terminals	M4 X 10mm	Max operating temp	-20°C to +85°C

### **FUSING**

It is recommended to use semiconductor (fast acting) type fuses and or circuit breakers (semiconductor - MCB) for unit protection. (see SRA datasheet for further information).

### **CE MARKING**

This product family carries a "CE MARKING". When using phase angle option a suitable remote filter will be required. For information see recommendation section and contact our sales desk. (See Declaration of Conformity).

### **RECOMMENDATIONS**

Other documents available on request, which may be appropriate for your applications.

#### **CODE IDENTITY DESCRIPTION**

X10229	RFI	Filter recommendation - addressing EMC Directive
X10213	ITA	Interaction, uses for phase angle and for burst fire control.
X10255	SRA	Safety requirements - addressing the Low Voltage Directive (LVD) including:- Thermal data/cooling ; "Live" parts warning & Earthing requirements; Fusing recommendations.
AP02/4	COS	UAL Conditions of sale.

### **NOTE**

It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.E. wiring regulations (BS7671) by suitably qualified/trained personnel. The regulations contain important requirements regarding safety of electrical equipment. (For International standards refer to I.E.C directive IEC 950).

### **ORDER CODE:**

State part number STOM1  
Optional extras Potentiometer, Supply transformer, Heatsink compound, Filters.



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