X10223

TRIGGER MODULES | SINGLE PHASE | PHASE TO PHASE

STOM1

Up to 25A, 440V
Microprocessor-Based Power Controller

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KEY FEATURES:

- ✓ Energy-Saving Design
- ✓ Soft-Start Functionality
- ✓ Selectable Phase-Angle or Burst-Firing Modes
- ✓ Simple, Efficient Wiring
- ✓ Standard 80mm Fixing
- ✓ Solid-State Reliability
- ✓ Isolated Input Signals
- ✓ Rugged and Compact Construction
- ✓ Integrated Power Device

APPLICATIONS:

The STOM1 is ideal for controlling resistive loads in industrial settings, including:

- ➢ Ovens
- ➢ Moulders
- ➢ Dryers
- ➢ Any unusual heating loads with low cold resistance

The **STOM1** is a high-performance microprocessor-based power controller designed for industrial applications requiring precise control of resistive loads. With a built-in power device capable of managing up to 25A at voltages up to 440V AC, the STOM1 offers exceptional reliability and versatility. This compact module provides two selectable power control modes—phase-angle and burst-firing—allowing for optimal energy management in various scenarios.

The **STOM1** features a soft-start function in phase-angle mode, automatically switching to burst-firing mode when the control signal reaches a preset threshold. This automatic transition ensures consistent performance even if the input signal fluctuates. Additionally, the controller includes a ramp-up feature, adjustable from 0 to 30 seconds, making it ideal for applications that require gradual heating.

With fully isolated input signals (0-5V DC or 4-20mA), the STOM1 can be seamlessly integrated with temperature controllers, PLCs, or PCs, offering unparalleled flexibility for equipment designers. Its robust construction and simple wiring make it suitable for various resistive loads, including ovens, moulders, and dryers. The STOM1 is particularly effective for managing heating loads with low cold resistance, ensuring energy efficiency and prolonged equipment life.

TECHNICAL SPECIFICATIONS

L^2t for fusing 10ms	250 As
Max. transient over volts	1.2kV ac
Max. electrical isolation	3.5kV
Power consumption	1.2W
Max load current @ 65°C	25A
Min load current @ 65°C	0.05A
Man. Control potentiometer	5k
Power terminals	M4 x 10mm
Min. line voltage	5V ac
Max. line voltage	440V ac
Control signals	0-5V dc & 4-20mA
Operating frequency	50 to 60 Hz +/- 5%
Supply voltage	10-18V ac
Peak one cycle surge	250A
Operating temp	0 to 65°C
Storage temp	0 to 85°C

YOU MUST READ THIS BEFORE INSTALLATION

ELECTRICAL SAFETY
WARNING: RISK OF ELECTRIC SHOCK
Always consult the Installation & Maintenance Instructions before connecting this product to the power supply.
WARNING: Disconnect Power Before Servicing
Ensure the electrical supply is safely disconnected before connecting to any supply, load, or control terminals.

INSTALLATION REQUIREMENTS
WARNING: Installation by Qualified Personnel Only
This product must only be installed or fitted by a competent, qualified installer familiar with the relevant electrical standards and installation practices.

USER RESTRICTIONS
WARNING: Not for Use by Vulnerable Individuals
This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or instructed by a person responsible for their safety.

USAGE ENVIRONMENT
WARNING: Industrial Use Only
This is an industrial-grade product and is not intended for household use.

HOT SURFACE WARNING
WARNING: Hot Surfaces
On certain models, surfaces marked with this symbol become hot during use. Avoid direct contact and follow all thermal safety precautions.

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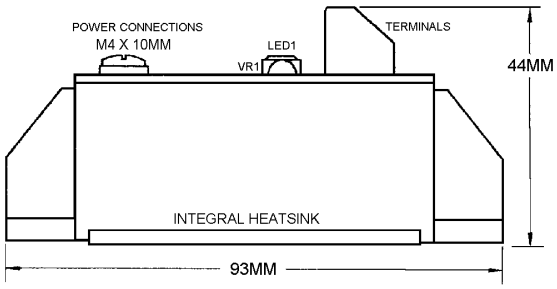
INSTALLATION

NOTE

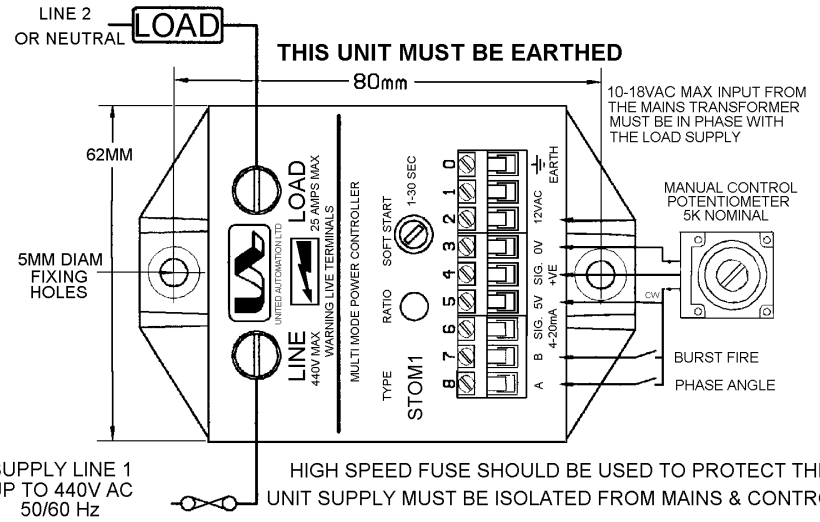
THE STOM1 AC POWER CONTROLLER SHOULD BE MOUNTED ON A CLEAN OR UNPAINTED METAL THERMALLY CONDUCTIVE SURFACE. USING HEAT SINK COMPOUND THINLY APPLIED BETWEEN THE CONTROLLER AND THE MOUNTING PLATE.

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

DIMENSIONS



WIRING AND CONNECTIONS



WARNING

SWITCH OFF SUPPLY BEFORE COMMENCING ANY SERVICING WORK

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
TERMINAL A AND 5
- ☐ A = 5V
- ☐ 5 = 5V

MODE B BURST FIRE
TERMINALS B AND 5
- ☐ B = 5V
- ☐ 5 = 5V

MODE A AND B START IN PHASE ANGLE SWITCHING TO BURST FIRE
TERMINAL A,B AND 5
- ☐ A = 5V
- ☐ B = 5V
- ☐ 5 = 5V

PHASE REFERENCE AND SUPPLY TERMINALS 1 AND 2
- ☐ 10V TO 18V AC AT 75 mA

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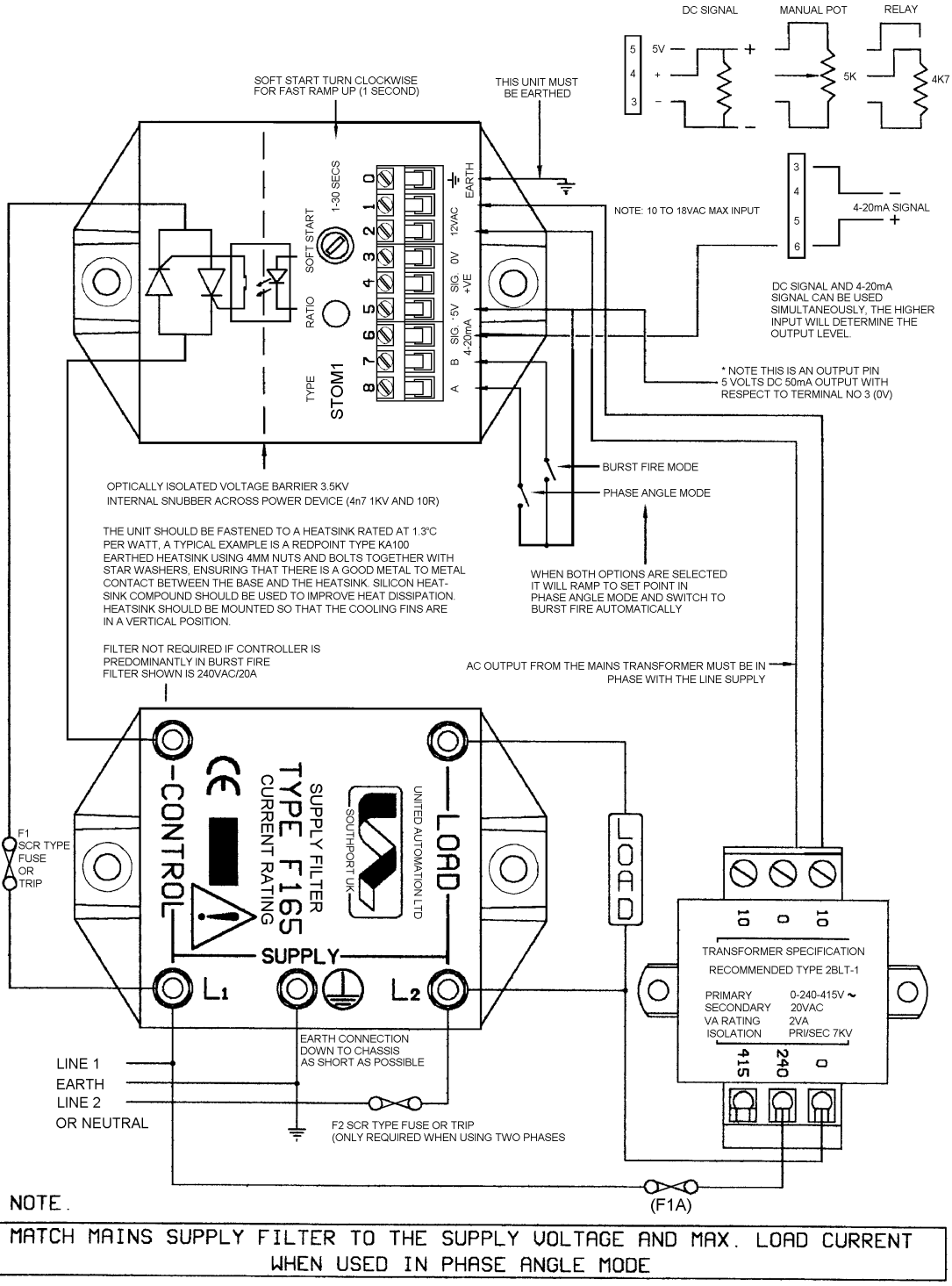


COOLING REQUIREMENTS

STOM1 COOLING REQUIREMENTS

HEATSINK CALCULATIONS

THIS APPLICATION NOTE PROVIDES ADDITIONAL INFORMATION AND SIMPLE CALCULATIONS TO ALLOW YOU TO DETERMINE A MAXIMUM PERMISSABLE 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 WATTS

2 CALCULATE THE TEMPERATURE DIFFERENCE BETWEEN T_j AND THE HEATSINK

31 WATTS X 1.1°C/W = 34.1°C

3 T_j MUST NOT RISE ABOVE 125°C

125 – 34.1 = 90.9°C

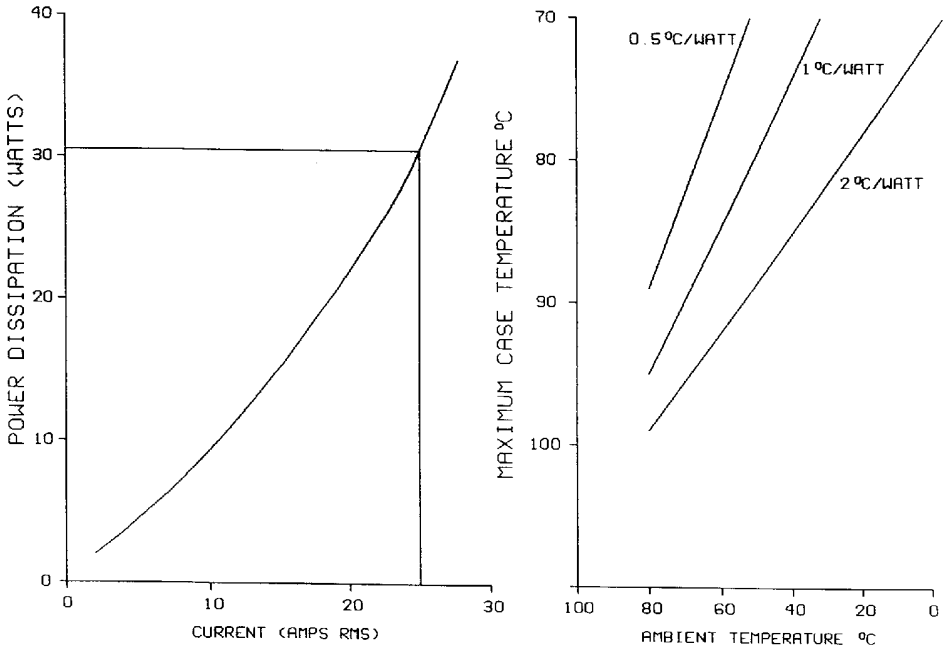
4 THE MAXIMUM AMBIENT TEMPERATURE IS 50°C

90.9 – 50 = 40.9°C

5 DIVIDING THIS TEMPERATURE BY THE WATTAGE (1) GIVES

40.9 ÷ 31 = 1.32°C/W

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



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RECOMMENDATIONS

FUSING

It is recommended to use semiconductor (fast acting) type fuses or circuit breakers (semiconductor-MCB) for protection. On initial 'switch on', some loads may need an increased Factor of Safety (F of S) for unit and/or device protection. See SRA datasheet for further information.

DOCUMENTS

Other documents available on request, which may be appropriate for your application:

Code	Identity	Description
X10229	RFI	Filter recommendations: Addressing the 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 and Fusing Recommendations
X10378	ILR	Inductive loads remedy sheet for use with Phase angle controllers
P01.1	COS	UAL Conditions of Sale

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

OPTIONAL EXTRAS

Product Code	Product Description
Z01062	Heatsink Compound Syringe (Must be applied while fitting)
T30201	Transformer 2VA Dual Primary, Dual Secondary
A403001	5K Potentiometer
Available on request	EMI Filter

PRODUCT CODE AND RELATED PRODUCT CODE

Product Code	Product Description
A34511	STOM1-Microprocessor-Based Power Controller