INSTRUCTIONS

Installation/Operation/Maintenance



POWERSTAT®

Variable Transformers with POWERKOTE® Coils Metered L2M Series

UL and cUL listed for US and Canada under file E15506

ISO 9001:2000 SGS
Manufactured Under an ISO9001:2000 Compliant Quality Management System

The right to make engineering refinements on all products is reserved. Dimensions and other details are subject to change.

INSPECTION

A POWERSTAT® Variable Transformer is a precision product packed with care. Examine it carefully for any shipping damage when unpacking. The "Damage and Shortage" instructions packed with the unit outline the procedures to follow if any parts are damaged or missing.

Metered L2M Series POWERSTAT Variable Transformers are continuously adjustable autotransformers having a movable brush-tap riding on a precious metal plated commutator. Rotation of the knob delivers any output voltage in the range of zero to or above line voltage. Operating characteristics make them ideally suited for laboratory, testing and other applications requiring a portable source of variable AC voltage.

POWERSTAT Variable Transformers are ruggedly designed for heavy duty use. They provide excellent regulation with only negligible variation in output voltage from no-load to full-load current. Waveform distortion is also negligible. Over 70 years of variable transformer manufacturing experience with rigid inspection at every production stage in an ISO 9001:2000 certified environment assures a quality built product.

All L2M Series POWERSTAT Variable Transformers feature POWERKOTE Coils for longer life, increased ratings, greater overload capacity and better resistance to fungus, salt spray and other contaminating atmospheres. The precious metal plated commutator of the coil is imbedded in a high temperature material which holds the windings in place even under severe overloads. As a result, these units provide higher output ratings per pound and per dollar than competitive variable transformers.

MOUNTING

Although ideal for portable, benchtop or shelf use, L2M Series units can be wall mounted to any flat surface having a total thickness of ½-inch or less. Using the template (reverse side), locate and drill the four No. 10 clearance holes. Using the four thread forming screws provided, insert them thru the flat mounting surface and then into the holes on the back of the L2M Series unit.

INSTALLATION

Input connection is through a grounded NEMA 5-15 line cord approximately 6 feet long. Output connection is by means of a NEMA-style receptacle, 5-WAY® Binding Posts or a combination of both. Regardless of the method of output connection, the total output current rating of the unit must not be exceeded. Polarity of the circuit is maintained from input to output, therefore the polarity of the receptacle is always correct. Polarity of the 5-WAY Binding Posts is black for line, white for neutral and green for ground. Output metering is provided by separate analog voltmeter and ammeter having accuracies of ± 3%.

OPERATION

Connections and controls on L2M Series units are designed for easy operation.

1. Be sure the main power switch is in the "OFF" or "O" position.
2. Insert the input cord and plug assembly into a receptacle of the proper voltage and frequency.
3. Plug the load(s) into the receptacle and/or 5-WAY Binding Posts provided on the front of the unit. Be certain the load or total of the loads does not exceed the current rating of the unit.
4. Place the main power switch in the "ON" or "I" position. The brightly colored "ON" indicator of the rocker style thermal magnetic circuit breaker power switch will become visible and the voltmeter reading will match the output knob position indicated by the front panel markings. A switch guard protects from accidental switching. Voltage increases with a clockwise turn of the knob. The voltage level can be monitored using the voltmeter provided on the front panel.

In many test applications, it is advisable to turn power on with the output knob set at the zero position. This permits monitoring of the load current by the front panel ammeter as voltage is increased to safeguard against potential shorts or miswiring in the load.

CIRCUIT PROTECTION

Circuit protection is provided on the unit input and output by a thermal magnetic circuit breaker incorporating two poles. One pole is connected to the input line and the other to the output line. This configuration protects the unit from catastrophic overloading conditions which include substantial output overloads in the current derated portion of 0 to 280 VAC models (140-280 VAC).

ENVIRONMENTAL

To meet current ratings, average operating ambient temperature for any 24-hour period should not exceed 30°C (86°F) with maximum temperature not to exceed 40°C (104°F). When operated at higher temperatures, output current must be reduced as follows:

Maximum Ambient	Load Derating Factor
50°C (122°F)	90%
55°C (131°F)	83%
60°C (140°F)	75%
65°C (149°F)	65%
70°C (158°F)	52%

The units can be operated in ambient temperatures below -20°C (-4°F) but there is a danger of mechanical freezing. Storage ambient temperatures are -40°C to 70°C (-40°F to 158°F).

MAINTENANCE

Except for the possible replacement of a brush assembly, a POWERSTAT Variable Transformer should not require servicing if the ratings of the unit are not exceeded. Normally, brushes last for the life of the unit. They should be inspected periodically by removing the cover and replaced if badly worn. Use only the correct Superior Electric replacement brush assembly listed because they contain special materials to attain proper operation.

REPLACEMENT BRUSH ASSEMBLIES

TYPE	PART NO.	DESCRIPTION
L2M116C	065431-001	RB116C
L2M216C	065431-002	RB216C
L2M126C	122819-001	RB126
L2M226C	122819-002	RB226

RATINGS

TYPE	INPUT		OUTPUT				
	VOLTS	HERTZ	VOLTS	LOAD			RECEPTACLE
				0-140 V	@280 V*		
				MAX AMP	MAX AMP	MAX KVA	
L2M116C	120	50/60	0-140	10.0	N/A	1.4	(1) NEMA 5-15R
L2M216C			0-280	3.5	1.5	0.49	(1) NEMA 6-15R
L2M126C			0-140	15.0	N/A	1.8	(1) NEMA 5-15R
L2M226C			0-280	7.5	3.1	1.05	(1) NEMA 6-15R

***STEP-UP**. Types L2M216C and L2M226C are wired to a lower input voltage tap that permits operation from a 120 VAC input source to obtain an output voltage of 0-280 V. Because of the increased copper loss in the voltage boost section of the winding, the output current must be reduced according to Figure A whenever the output exceeds 125% of the output voltage.

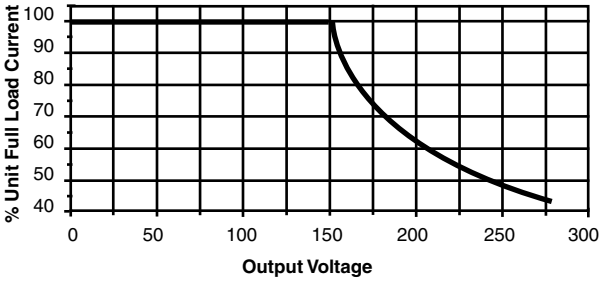
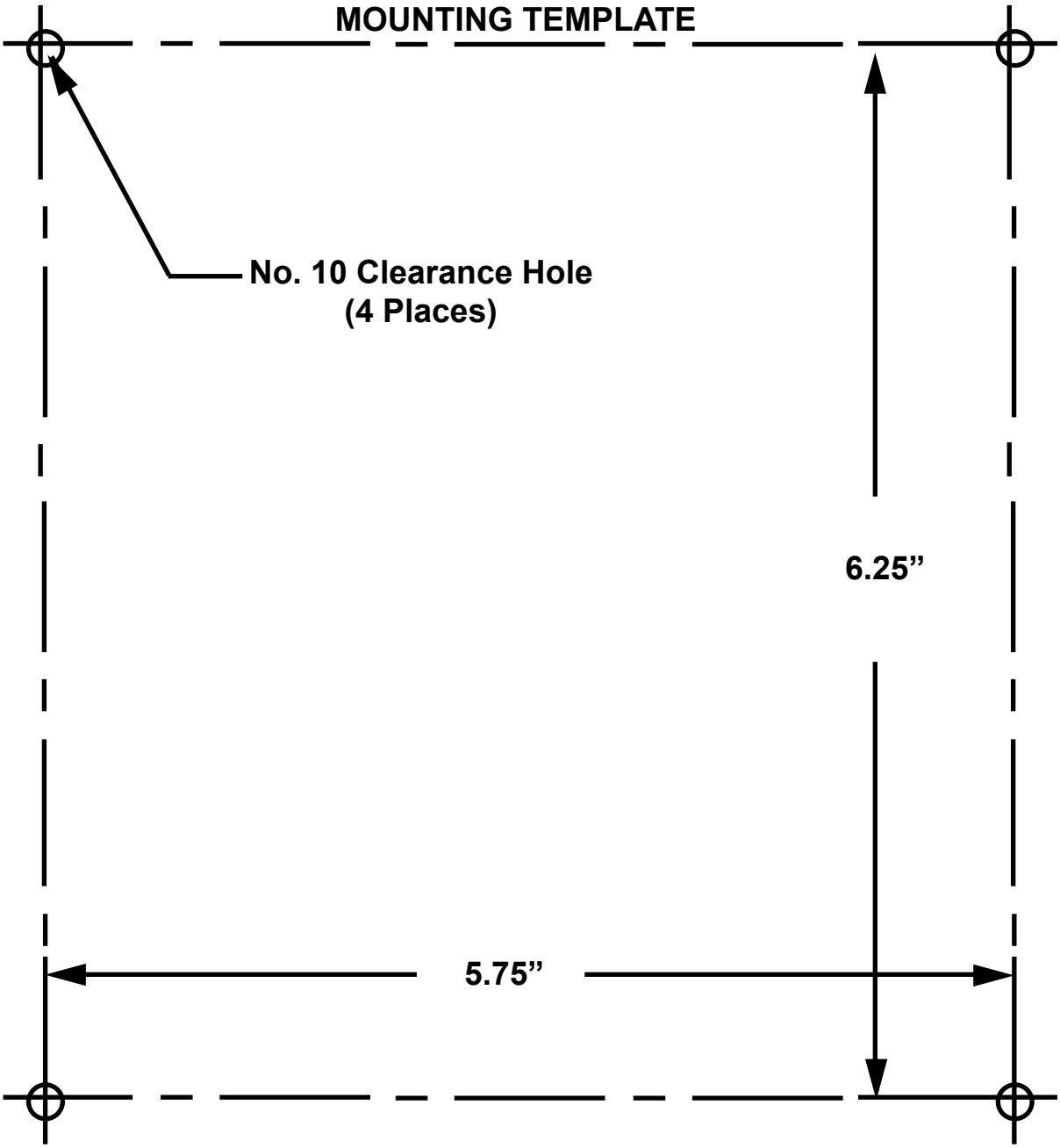


FIGURE A
Current De-Rating Beyond 150 VAC
Types L2M216C and L2M226C Only

MOUNTING TEMPLATE



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