

INSTRUCTION MANUAL
SCR SINGLE PHASE POWER SUPPLY

SECTION I
GENERAL INFORMATION

1.1 DESCRIPTION

This manual contains operation and maintenance instructions covering the Electronic Measurements, Inc. series of Single Phase SCR controlled power supplies. These supplies are constant voltage/constant current automatic crossover sources of regulated DC power packaged in 3½, 5½, and 7" high relay rack enclosures.

1.2 SPECIFICATIONS

The following specifications describe the published operational characteristics of this series of power supplies.

Number of package ratings: (4) - 500W, 800W, 1600W and 2400W nominal output.

AC INPUT: 500W, 800W and 1600W models, 117VAC \pm 10% 47-63 HZ; 208/220 VAC \pm 10% 47-63 HZ optional. 500W and 800W units shipped with line cord and plug. 1600W and 2400W units have barrier strip AC input. 2400W models, 208/220VAC \pm 10% 47-63 HZ standard.

REGULATION:

VOLTAGE MODE: For line voltage variations and load current variations within the rating of the supply, the output voltage will not vary more than .1% of the maximum voltage rating.

CURRENT MODE: For line voltage variations and load voltage variations within the rating of the supply, the output current will not vary more than .25% of the maximum current rating.

RIPPLE: Measured with either positive or negative grounded and 100% output voltage and current into a resistive load. (See Rating Chart.)

STABILITY: The output voltage or current will remain within 0.05% for 8 hours after warm-up, with constant external effects.

TRANSIENT RESPONSE: Upon instant application of loads up to 50% or the maximum rating of the supply, the output voltage will typically recover to within 1.0% of its final value within 50ms. Instantaneous line variations are corrected for within 50ms of their occurrence.

TEMPERATURE COEFFICIENT: Output voltage T.C. is 0.02% per degree C of maximum rating. Output current T.C. is 0.03% per degree of maximum rating.

OPERATING TEMPERATURE: 0-50 C with no derating required. Consult factory for output ratings at higher temperatures.

STORAGE TEMPERATURE: -40 to +85 C.

NOTES: For operation at 50HZ, ripple and transient response are degraded by a factor of 30% from 60HZ ratings.

On those units in which the percentage of voltage or current ripple exceeds the specified load regulation, the load regulation will appear to be degraded due to the effect of this ripple on the measurement.

1.3 FEATURES

The single phase SCR line contains electrical and mechanical features, many of which will be described in additional detail in other sections. Some of these features are as follows:

- Circuit Breaker input protection.
- Optional adjustable over voltage protection.
- Remote programming of voltage and current by external voltage, current and resistance.
- Remote sensing.
- 10 turn high resolution voltage control.
- 1 turn, cermet (high resolution) current control. 10 turn current control optional.

1.4 COOLING

Each power supply enclosure is cooled by a suitable sized blower fan exhausting warm air to the rear. Fresh air intake is from each side. No surface of the supply radiates heat to adjacent equipment. At least five inches of space should be allowed behind the supply and one inch along each side in the vicinity of the air inlet holes for unimpeded air flow.

1.5 MECHANICAL

The supply is capable of being rack or bench mounted. For rack mounting, additional support other than that provided by the front panel is required, except for short term stationary mounting. Angle iron slide in mounting support or cross beam member support are required for permanent mounting. The sides of each supply are equipped with mounting holes for rack slide mounting.

Model numbers C-300-S-18, non tilt, C-300-B-18, tilting, and C-300-D-18, tilt lock, from chassis Trak Corp. are used for 500W and 800W power supplies. Model CSXX-Xsm/220300 from Encor is used for 1600W and 2400W power supplies. For bench mounting, four mounting feet are provided which are adhesive mounted to the base surface of the supply.

1.6 INSTALLATION

This supply is intended for rack or bench mount. Horizontal mounting is preferred, however mounting in any position is allowed. DO NOT operate the supply continuously with the covers removed since the air flow pattern within the chassis will be adversely affected.

1.7 POWER REQUIREMENTS

A suitable source of AC power is required for this supply. The unit will operate on 50 or 60HZ line frequency. The line impedance from the power source should be fairly low since high peak currents are drawn. The service rating and connecting wire awg is in the table shown below. Note that this rating is not the actual specified line current, but a slightly higher service rating.

RATINGS AND ADDITIONAL SPECIFICATIONS

VOLTAGE	CURRENT (AMPS)	CV-rms RIPPLE	CC-rms RIPPLE	% EFF. (NOMINAL)	AC INPUT CUR. @ NOM. AC INPUT
0-7.5	60	80mv	640ma	62	8
	100	75mv	1000ma	63	13
	180	80mv	1920ma	65	26
	250	80mv	2990ma	66	20
0-10	40	80mv	320ma	65	8
	80	75mv	600ma	65	13
	150	80mv	1200ma	68	26
	210	80mv	1680ma	69	19
0-20	25	80mv	100ma	67	8
	40	60mv	120ma	67	13
	80	80mv	320ma	70	25
	120	80mv	480ma	73	18
0-40	13	100mv	33ma	68	8
	20	60mv	30ma	68	13
	40	100mv	100ma	75	24
	60*	100mv	150ma	80	18
0-60	9	120mv	18ma	70	8
	13	70mv	15ma	70	13
	26	90mv	39ma	81	23
	40	90mv	60ma	81	18
0-80	6	150mv	11ma	75	8
	10	80mv	10ma	77	12
	20	120mv	30ma	83	21
	30**	100mv	35ma	82	18