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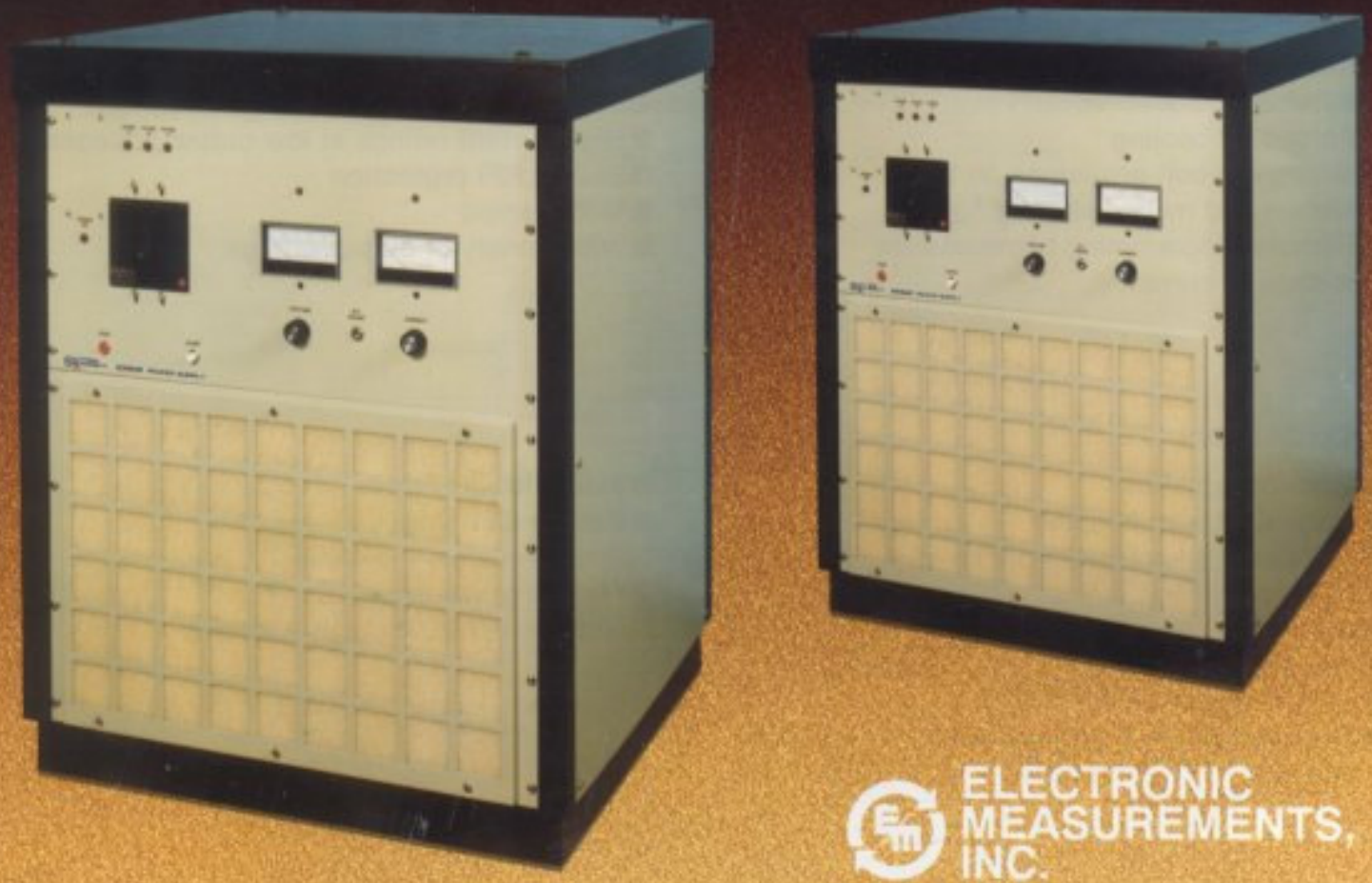
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EMHP Series Three-Phase, High Power DC Power Supplies



ELECTRONIC MEASUREMENTS, INC.

EMHP Series Three Phase AC Input SCR-Type DC Power Supplies



For over 40 years Electronic Measurements has been synonomous with DC power supplies. The EMHP Series described herein continues this tradition of both quality and value.

The EMHP series of power supplies is the broadest line of DC regulated, high power units available, in the range of 20-60 KW, using standard building blocks to achieve customized specifications with no up-front engineering costs. All models are fully programmable sources of constant/voltage constant/current with automatic crossover and fully metered.

FEATURES

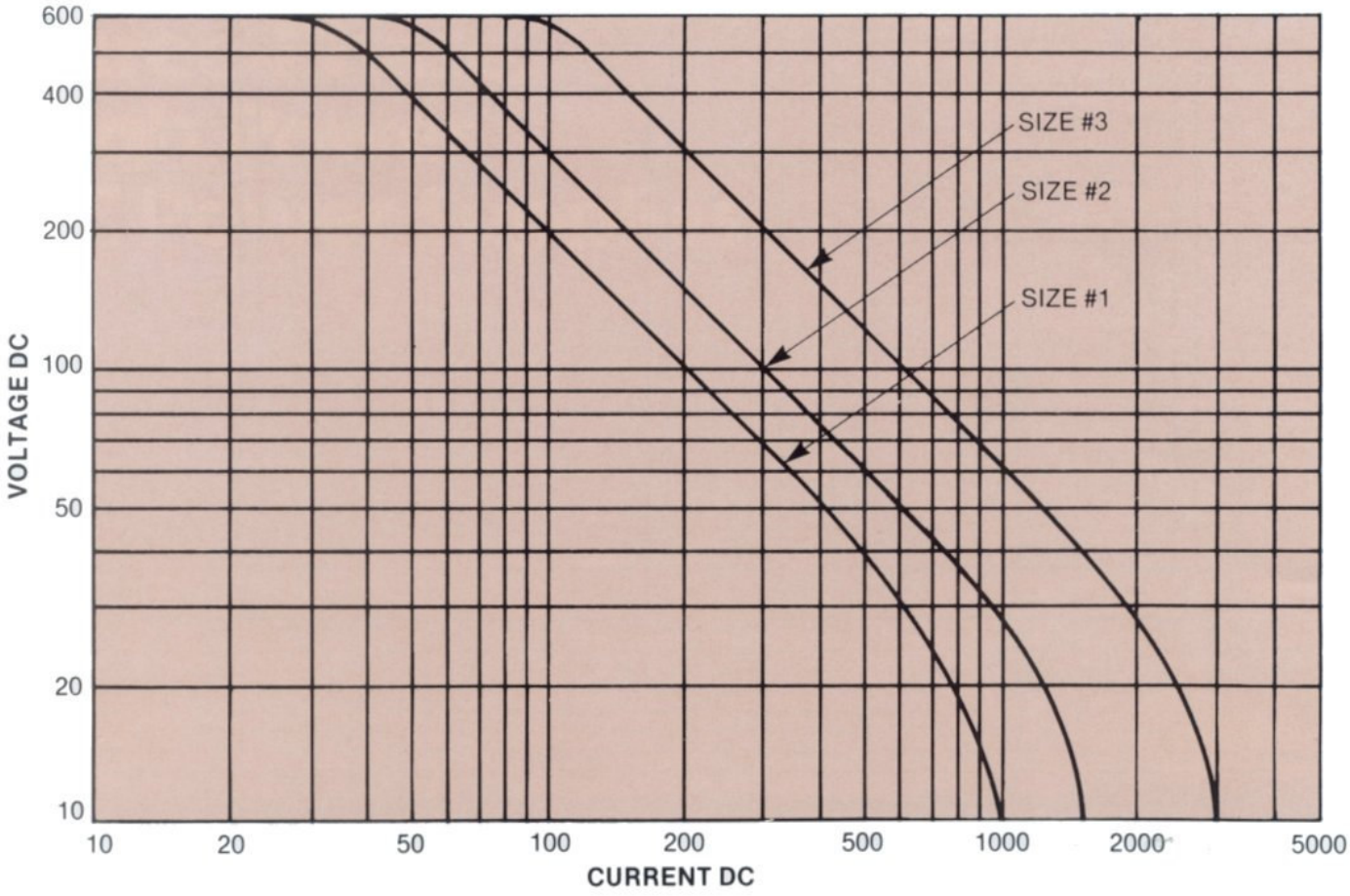
- Constant current/constant voltage — automatic crossover
- Forced air cooling
- Lifting eye-bolt provisions on top
- Meters and mode indicator lights
- Remote programming by resistance, voltage or current
- Circuit breaker protection
- Contactor on/off interlock control
- High current ratings at low output voltages
- Built-in RFI protection
- Mode lamps
- Wide variety of output ratings

APPLICATIONS

- Electromagnetics
- Magnetic beam bending
- Cryogenic magnets
- Large relay systems
- DC motor power
- Inverter power source
- High energy electronic systems
- Thermodynamic & thermoelectric research
- Industrial DC Power
- Battery charging
- Precision electro plating
- Plasma power source
- High Power illumination systems

EMHP DC OUTPUT GRAPH

(Maximum available output capability)



CUSTOMER APPLICATION DATA

It is important that each customer's application for EMHP systems be thoroughly evaluated to assure satisfactory operation. Some of the information we require includes:

- Exact application
- Load characteristic—resistive, inductance, capacitance
- Load demands—reverse current, pulsed loads and repetition rate, slew rates, overload demand
- Programming requirements
- Condition and type of AC power source
- Environmental conditions

EXTERNAL PROGRAMMING

Channel	Resistance	Voltage	Current
Voltage	0-5000 ohms	0-5 V	0-1 mA
Current	0-100 ohms	0-100 mV	0-1 mA

All values are for zero to full-rated output

OPTIONS

- Over-voltage protection
- Caster base
- I-beam base
- Input voltage
- Remote turn-on

Product information published in this brochure was current at time of printing, however E/M reserves the right to change specifications, designs and/or models without prior notice.

RATING TABLE

The models listed below represent the most commonly used voltage and current ratings. Other combination of ratings to 3000 amperes and 600 volts may be available within the power rating of each series. (Contact the factory.)

MODEL	VOLTAGE (V)	CURRENT (A)	60 HZ VOLTAGE RIPPLE (M vrms)	60 HZ CURRENT RIPPLE (A rms)
SIZE 1 (20 KW maximum)				
EMHP 10-1000	0-10	0-1000	50	5
EMHP 20-750	0-20	0-750	60	2.25
EMHP 30-600	0-30	0-600	70	1.4
EMHP 40-450	0-40	0-450	80	0.9
EMHP 60-300	0-60	0-300	100	0.5
EMHP 80-250	0-80	0-250	120	0.4
EMHP 150-130	0-150	0-130	180	0.2
EMHP 300-60	0-300	0-60	300	0.06
EMHP 600-30	0-600	0-30	400	0.02
SIZE 2 (30 KW maximum)				
EMHP 10-1500	0-10	0-1500	50	7.5
EMHP 20-1000	0-20	0-1000	60	3.0
EMHP 30-800	0-30	0-800	70	2.0
EMHP 40-600	0-40	0-600	80	1.2
EMHP 60-500	0-60	0-500	100	0.8
EMHP 80-375	0-80	0-375	120	0.6
EMHP 150-200	0-150	0-200	180	0.25
EMHP 300-100	0-300	0-100	300	0.10
EMHP 600-50	0-600	0-50	400	0.03
SIZE 3 (60 KW maximum)				
EMHP 10-3000	0-10	0-3000	50	15
EMHP 20-1500	0-20	0-1500	60	4.5
EMHP 30-1250	0-30	0-1250	70	3.0
EMHP 40-1000	0-40	0-1000	80	2.0
EMHP 60-750	0-60	0-750	100	1.3
EMHP 80-600	0-80	0-600	120	0.9
EMHP 150-350	0-150	0-350	180	0.42
EMHP 300-200	0-300	0-200	300	0.20
EMHP 600-100	0-600	0-100	400	0.07

Consult factory for non-standard output ratings and models over 60 KW.

SPECIFICATIONS

AC INPUT: The standard Ac input is 460 VAC ± 10% 30 60 Hz. The supply will function within full specification from 440 to 480 VAC. Phase-to-phase balance requirements ±2% is required for ripple specification but phase-to-phase rotation sequence of AC input is not required.

Current draw per phase: 20kW units is 81A @ 208 VAC & 44A @ 440 VAC; 30 kW units is 123A @ 208 VAC & 62A @ 440 VAC; 60 kW units is 119A @ 440 VAC, 208 VAC not available for 60kW units.

REGULATION: Effects of line and load variations (within the ratings of the supply) on output voltage or current are within 0.1%. Readings can be affected by output ripple which, by specification, can exceed this rating.

STABILITY: Output voltage and current remain within ±0.05% for 8 hours, with constant external effects.

TRANSIENT RESPONSE: Output variations, caused by line variations of 10%, and/or load variations between 50% & 100% of rated limits, will typically recover to within 1% of its final value within 200 MS.

REMOTE SENSING: Maintains regulation at the load, compensating for IR drops in the power output leads.

REMOTE PROGRAMMING: Resistance programming of either constant-voltage or constant-current modes. Units can also be programmed by an external reference voltage in either mode of operation. Consult factory for digital programming via IEEE 488 or RS232 (optional).

TEMPERATURE COEFFICIENT:

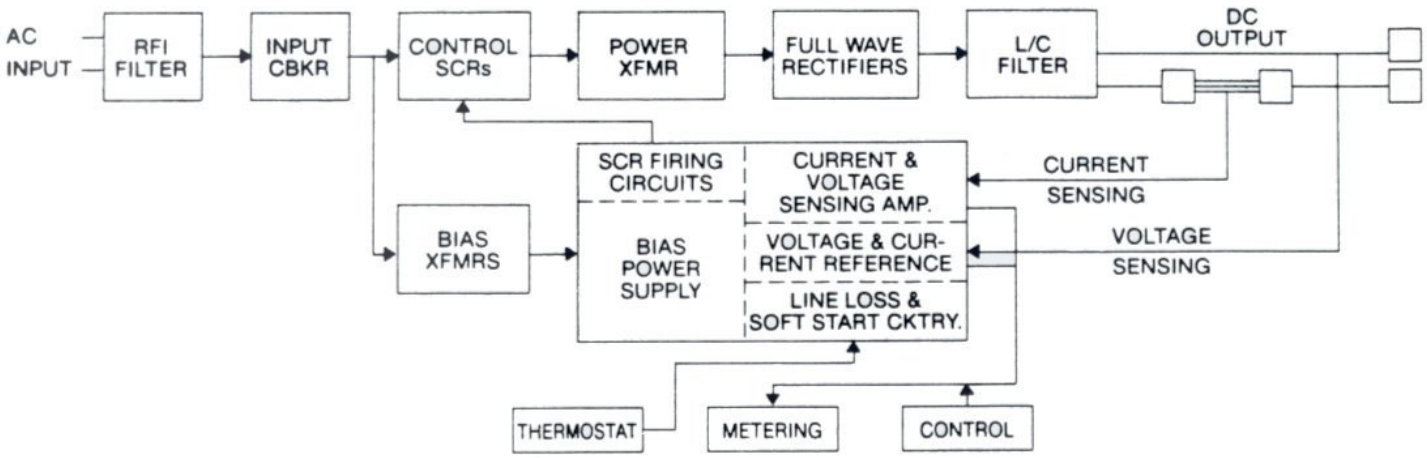
Output voltage 0.02%/°C of maximum rating.

Output current 0.02%/°C of maximum rating.

OPERATING TEMPERATURE: 0°C to 50°C. Derate current linearity to 50% of table rating at 71°C ambient.

STORAGE TEMPERATURE: −40°C to +85°C.

Theory of Operation



In an SCR phase-controlled DC Power Supply, output is controlled by modulating the conduction angle of the controlling SCRs. The EMHP Series, input AC is applied to pairs of bi-directionally connected SCRs placed within the primary circuit of the main power transformer. The secondary voltage of this transformer is rectified and L/C filtered to provide a low ripple DC output. Both output voltage and current are sensed and compared against internal references or externally applied control levels so the supply provides either constant voltage or constant current regulation with automatic crossover depending on control level. Additional circuitry provides bias levels, circuit protection and metering functions.

How to Order

The following chart explains the model numbers for the EMHP Three-Phase Power Supply family.

DIGITAL METERS
WITH: INSERT D
WITHOUT: OMIT D

NO AVAILABLE OPTION
INSERT 1

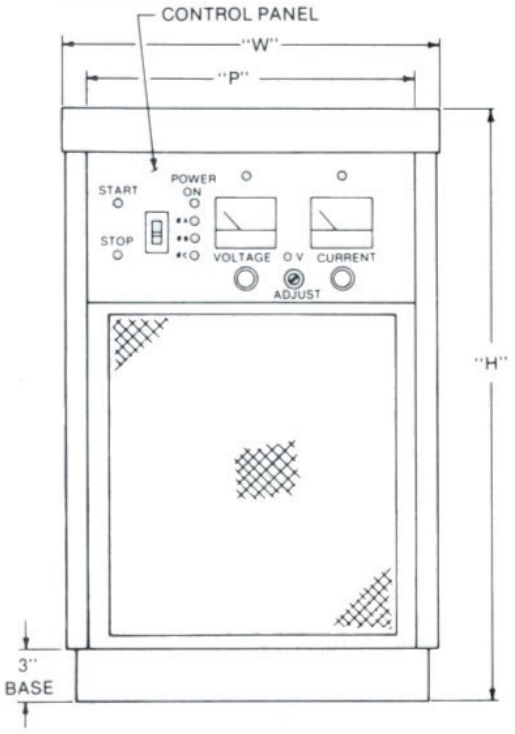
EMHP XX - XX - D - XXXI X

PRODUCT
DC VOLTAGE
DC CURRENT

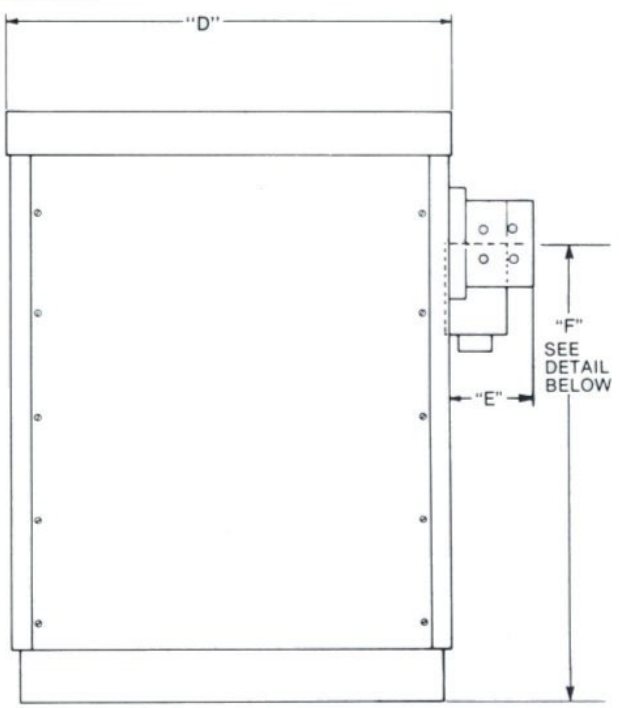
AC INPUT		EXTERNAL MTG		OVP		REMOTE TURN ON	
1	208/220V *	1	BASE STD	1	WITHOUT	1	230VAC
2	380V-50HZ	2	CASTERS	2	WITH	2	115VAC
3	415V-50HZ	3	I-BEAM			3	NA
4	440-460-480V					4	24VDC
5	240V-60HZ						
6	230V-50HZ						
7	440V-50HZ						
8	480/550V						

*Not available in 60kW (sizes)!

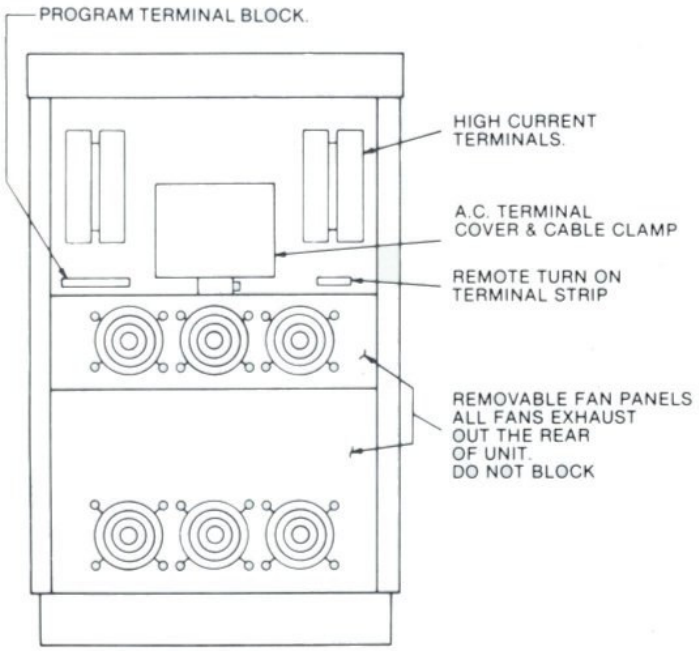
FRONT VIEW



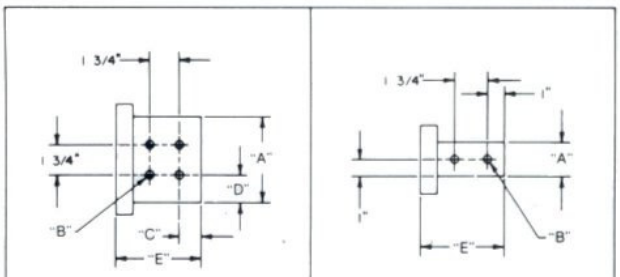
SIDE VIEW



BACK VIEW



NOTE: I-beam option adds 4" to height; caster option adds 5½" to height.



OUTPUT TERMINALS					
AMPS	A	B	C	D	E
100A THRU 600A	2.0	.41	–	–	4.75
700A THRU 1500A	3.0	.53	.875	.625	5.50
1600 THRU 3000	5.0	.53	1.125	1.62	7.12

WEIGHT: **Size 1—** 500— 750 lbs.
Size 2— 750— 900 lbs.
Size 3— 1000—1500 lbs.

ELECTRONIC MEASUREMENTS INC.

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