SECTION 2

SPECIFICATIONS

2.0 SPECIFICATIONS

The following specifications apply to the Models 110-HE and 310-HE. Each specification is assumed to apply to both models unless noted otherwise.

2.1 ELECTRICAL SPECIFICATIONS

2.1.1 INPUT PERFORMANCE SPECIFICATIONS

INPUT VOLTAGE:

110-132 VAC	47-63 Hz	Single Phase
OR		
200-240 VAC	47-63 Hz	Single Phase

- - - C A U T I O N - - -

DO NOT APPLY EXCESSIVE INPUT VOLTAGE
MACHINE DAMAGE WILL RESULT

- - - C A U T I O N - - -

2.1.2 OUTPUT PERFORMANCE SPECIFICATIONS

OUTPUT VOLTAGE RANGE:

Model 110-HE	0-136.5 VAC
Model 310-HE	0-136.5/236 VAC
	Adjustable in 0.1V steps.

OUTPUT CURRENT:

Model 110-HE	8.3 Amps RMS
	18 Amps peak available at crest of sine wave to drive peak type loads such as DC power supplies.
Model 310-HE	3 Amps RMS per phase
	9 Amps peak per phase available at crest of sine wave to drive peak type loads such as DC power supplies.

OUTPUT POWER FACTOR:

Model 110-HE	Full rated kVA $\pm$ 0.5 to 1.0pf derates to 85% @ $\pm$ 0.0pf
Model 310-HE	Full rated kVA at all power factors.

OUTPUT FREQUENCY:

Variable, Autoranging

20.00 to 49.99 Hz in 0.01 Hz steps
50.0 to 499.9 Hz in 0.1 Hz steps
500 to 2000 Hz in 1.0 Hz steps

CURRENT LIMIT:

Model 110-HE	12.0 Amps Maximum
	Adjustable in 0.1 Amp steps
Model 310-HE	6.0 Amps per phase Maximum
	Adjustable in 0.1 Amp steps

PHASE SEPARATION: (Model 310-HE only)

Phase A:	0° (Reference Phase)
Phase B:	Adjustable 0-360° in 1 degree steps
Phase C:	Adjustable 0-360° in 1 degree steps

2.1.2 OUTPUT PERFORMANCE SPECIFICATIONS (CON'T)

INPUT LINE REGULATION:

± 0.1%, Maximum for a ± 10% line change

OUTPUT VOLTAGE REGULATION:

Less than 0.5% (0.1% Typical)

OUTPUT DISTORTION:

Less than 1.0% THD (0.50% THD Typical)

OUTPUT MODULATION:

Less than 0.8Vp-p @ 120 VAC RMS Output

SMALL SIGNAL BANDWIDTH:

20 TO 20,000 Hz

TRANSIENT RESPONSE TIME:

Less than 50 microseconds for a no load to full step transient.

OUTPUT DC OFFSET:

Less than 10mVDC

OUTPUT ISOLATION:

Output is completely isolated from chassis ground and the input. Any one leg may be grounded to provide local reference.

METERING:

OUTPUT VOLTAGES:

Model 110-HE: Output voltage is displayed on front panel LCD display.
Resolution: 0.1 VAC
Accuracy: 1% ± 1 count

Model 310-HE: Output line to neutral voltages displayed simultaneously on front panel LCD.
Resolution: 0.1 VAC
Accuracy: 1% ± 1 count

2.1.2 OUTPUT PERFORMANCE SPECIFICATIONS (CON'T)

METERING: (con't)

OUTPUT FREQUENCY:

Output frequency is displayed on front panel display.
Resolution: 0.1 Hz
Accuracy: 1% ± 1 count

OUTPUT CURRENT:

Model 110-HE: Output current displayed on front panel LCD.
Resolution: 0.1 AAC
Accuracy: 1% ± 1 count

Model 310-HE: Each phase output displayed on front panel LCD.
Resolution: 0.1 AAC
Accuracy: 1% ± 1 count

FAULT INDICATORS:

A) Overtemp

B) Output device failure. (Failsafe circuit allows power source to continue operation at reduced output capability).

C) Overload. If unit is in current limit for more than 30 seconds, a overload message is displayed.

PROGRAMMABLE INTERFACE:

The HE equipment is supplied with the IEEE-488 instrumentation interface. The bus is capable of controlling amplitude frequency, phase displacement, current limit and the output contactor.

The HE Power Source can be addressed as a listener and a talker. Output frequency, voltages and currents are transmitted back to the IEEE controller upon command.

Programming Accuracy:

Frequency:	± 0.01%
Voltage:	± 0.1% ± 1 count @ 120 VAC output
Phase Displacement:	± 0.1°
Current Limit:	± 0.1% ± 1 count @ full scale

2.2 MECHANICAL SPECIFICATIONS

Height:		5.25 inches
Width:	Front Panel	19.00 inches
	Chassis	16.75 inches
Depth:		23.00 inches
Weight:		65 pounds

Refer to Figure 2.2.1.

INPUT CONNECTION:

The HE is supplied with an input power cord. A NEMA Type 5-15P plug is attached to the end of the power cord when ordered with the 115 VAC input form.

OUTPUT CONNECTION:

Output is taken from the HE equipment via a single row terminal strip supplied with #6-32 binding head screws.

CHASSIS SLIDES:

The chassis of the HE-Series equipment has been designed to accept the following chassis slides:

P/N 310-22 as manufactured by
Jonathan Manufacturing Company
Fullerton, California.

2.3 ENVIRONMENTAL SPECIFICATIONS

POWER DISSIPATION:

Power dissipation is directly proportional to the output power produced. Worst case dissipation is at full rated output load and high line input, approximately 500 watts.

AMBIENT TEMPERATURE:

The HE-Series equipment is designed to operate in ambient temperatures of 0-55 degrees Celsius.

VENTILATION REQUIREMENTS:

The HE-Series equipment contains 2 each 70 CFM fans. Air intake is along the sides. Exhaust is through the rear panel.

AUDIBLE NOISE:

Audible noise generated by the HE-Series is less than 50 dbA when measured 1 meter from the front panel.