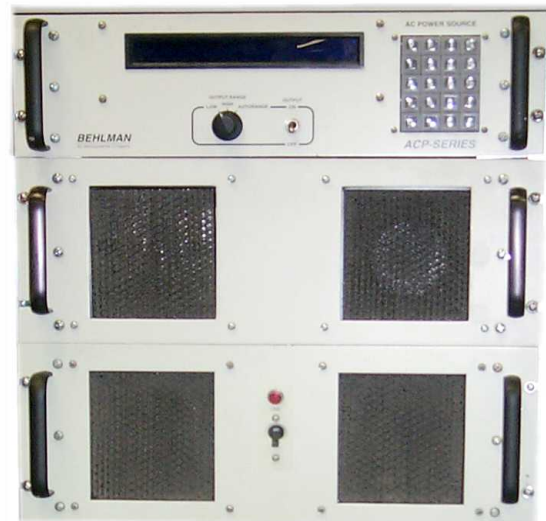


### FEATURES

- Microprocessor based, crystal referenced, synthesized sine wave
- Independent or simultaneous control of 3 phase voltage
- Remote programming and measurement
- Front panel programming and measurement
- IEEE-488 interface included
- Low distortion, wide bandwidth linear amplifier



ACP-250



ACP-3000

### PRECISION, HIGH QUALITY POWER FOR COMPUTER CONTROLLED APPLICATIONS

Behlman's ACP Series programmable AC Power Sources deliver clean, regulated linear power. Models provide from 250 VA up to 9000 VA of power at output frequencies from 45 to 10,000 Hz. The ACP Series combines highly advanced magnetics with solid state circuitry and computer programmability.

Programming is accomplished via a front panel keyboard or through a built-in IEEE-488 interface. ACP Series units allow for programming of simulated events such as voltage dropouts, transients and surges and provide truly independent measurements of output while tests are in progress.

The ACP series has many unique features including low output distortion, wide bandwidth, fast transient response, rapid programming, independent control of phase voltage and phase angle control.

A feedback system in the power amplifier ensures tight regulation and low distortion. Built-in test (BIT) circuits continuously perform fault monitoring and diagnostic self test. Sophisticated electronic overload and short circuit protection systems recover instantly when an overload is removed. The ACP Series is ideal for a variety of automatic test and manufacturing applications.

All rated specifications are based on 25 degree C ambient temperature, nominal input line, unity power factor and operation at 74 to 100% of voltage output range, unless otherwise specified.

Specifications subject to change without prior notice.

**Table 1: ACP SERIES MODEL SELECTION**

Model Number	Power Output		Output Current/Phase (Amps)		Weight. lbs (kgs)	Dimensions 19" (48.3 cm) Rack-mount chassis H" x D" (cm)	No. of chassis
	Rated	Maximum	135 V range	270 V range			
Single-phase output models							
ACP-250	250 VA	335 VA	2.5	1.3	40 (18.2)	5.25" x 22" (13.3 x 55.9)	1
ACP-750	750 VA	1000 VA	7.5	3.8	69 (31.3)	7.00" x 22" (17.8 x 55.9)	1
ACP-1500	1500 VA	2025 VA	15.0	7.5	126 (57.2)	14.00" x 22" (35.6 x 55.9)	2
ACP-3000	3000 VA	4050 VA	30.0	15.0	189 (85.8)	21.00" x 22" (53.3 x 55.9)	3
Three-phase output models							
ACP-3X100	300 VA	400VA	1.0	0.5	45 (20.4)	5.25" x 24" (13.3 x 60.9)	1
ACP-3X500 Note 1	1500 VA	2025 VA	5.0	2.5	153 (69.5)	14.00" x 22" (35.6 x 55.9)	2

1. Five chassis mounted in cabinet with casters, dimensions: 51.3"H x 32.7"D x 24.2"W (130.3 x 83.1 x 61.5 cm)
2. Designed to meet the requirements of IEC testing, includes Option 01 and 08/411... output impedance less than 10 milli-ohms
3. Requires an additional 7" (17.8 cm) chassis with Option 02

## INPUT

### Voltage:

#### ACP-250—ACP-1500 and ACP-3X100—ACP-3X500

Standard: 115/230 VAC +/- 10%, 1-phase  
Option 05: 100/200 VAC +/- 10%, 1-phase

#### ACP-3000

Standard: 120/208 VAC +/- 10%, 3-phase  
Option 03: 230/400 VAC +/- 10%, 3-phase  
Option 04: 240/415 VAC +/- 10%, 3-phase

Frequency: 48-72 Hz

## PROTECTIVE CIRCUITS

Input: Fast-acting main circuit breaker  
Overload: Electronic overload and short circuit protection, folds back the voltage and in instantaneously recovers when the over load is removed

Thermal: Internal temperature sensor prevents heat damage

## ENVIRONMENTAL / CONNECTIONS

Operating Temp: 32° F to 131° F (0-55° C)  
Humidity: 0-95% RH non-condensing  
Input Connections: Barrier strip on rear  
Output Connections: Barrier strip on rear  
Remote Control: IEEE-488 connector

## OUTPUT

### Power:

See Table 1

### Voltage:

0-135, 0-270 VAC, or Autorange...  
Automatic range change at 135 VAC Switch selectable or IEEE-488 programmable

Option 06: 0-34, 0-135 VAC, or Autorange...

Note : Current output on 0-34VAC range is 4 times the 0-135VAC range per phase up to maximum of 30 Amps per phase

Frequency: 45-2500 Hz

Option 07: 45-10000 Hz

### Current:

See Table 1

### Peak current:

200% of rated output current... Repetitive current required to charge a capacitor in a typical diode capacitor filter

Power Factor: 100% of rated output into any power factor load ... (unity to zero, leading or lagging)

Distortion: Less than 1.0% THD at rated power output into linear load, up to 2500 Hz  
Less than 2.0% THD at rated power output into linear load, up to 10000 Hz

Max. Power Output: Obtainable at 100% of either output voltage range

Max. Output Current : Up to 120% of rated current output for a maximum of one-half hour

Line Regulation:

+/- 0.1% for +/- 10% line change

Load Regulation:

+/- 0.5% no load to full load

Amplifier response:

50 microseconds to 90% of programmed value

**Table 2: SETTING AND MEASUREMENT SPECIFICATIONS** (Measured at output sense terminals)

Parameters	Setting / Programming		Measurement	
	Resolution	Accuracy	Resolution	Accuracy ( +/- 1 LSD )
Voltage	0.1 V	+/- 0.2% of max. Volts +/- 0.4% of max. Volts (Opt.02)	0.1 V	+/- 0.2% of max. Volts +/- 0.3% of max. Volts (Opt.02)
Frequency	0.1 Hz	+/- 0.005% of setting	< 1KHz: 0.1 Hz > 1KHz: 1.0 Hz, 0.1 Hz (Opt.02)	+/- 0.005% of reading
Current	NA	NA	≤ 2.5A*: 0.001 Amps ≤ 25A*: 0.01 Amps > 25A*: 0.1 Amps	+/- 0.5% of max. output current +/- 0.7% of max. output current (Opt. 02)
Current monitor	Same as current measurement resolution	+/- 2.0% of max. output current of low range...See Note 2	NA	NA
Current Limit (Opt. 02)	Same as current measurement resolution	+/- 0.7% of max. output current	NA	NA
Phase angle Ref. phase A	1.0 degree	+/- 1.0 degree	NA	NA
True Power (Opt. 02)	NA	NA	< 1000 VA/ Ø*: 0.001 > 1000 VA/ Ø*: 0.01 * at rated output current	+/- 2% of power output
Power Factor (Opt. 02)	NA	NA	0.001	+/- 0.03 from 10 to 100% of max. Volts and 10 to 120% of output current of low range

### STANDARD FEATURES

- Remote Interface:** IEEE-488 (GPIB) Listener/ Talker controls all operating parameters and reports measured values in addition to operating status.
- Self Test:** A user requested test which compares published specs with actual output values... out of tolerance conditions are indicated via the front panel display and remote Interface
- Internal Fault monitor:** Examines operating conditions and parameters on a continuous basis.
- Parameters include:**
- Input line voltage
  - Internal cabinet temperature
  - Output characteristics in relation to specifications. Faults are reported via the front panel display and Remote Interface
- High Rate Programming:** Allows host computer to program rapid voltage and frequency deviations of less than 200 microseconds per step
- Programming:** Independent or simultaneous programming of output voltage, current monitor, current limit and independent phase measurements on three-phase units

### CONTROLS/INDICATORS

- Power On/Off:** Circuit breaker and indicator
- Display:** 40 character, alphanumeric, blue vacuum fluorescent display
- Displayed Information:** Any combination of 3 (4 on 3 phase models) of the following measurements are available:
- Frequency
  - Voltage (by phase)
  - Current (by phase)
  - Phase Angle on 3 phase models
- Programming Information Internal self test / fault monitor error status
- Option 02:**
- True Power (by phase)
  - Power Factor (by phase)
- Data entry:** Alphanumeric Keypad
- Output On/Off:** Toggle switch
- Range Select:** 3 position rotary switch for selecting output range. There is a 200-300 msec output dead-time when the voltage transitions through the range boundary in auto-range setting.

## AC Power Source/ Frequency Converter

### Option 01: Event Programming

Includes all of the standard features and features designed to simulate events such as line dropouts, voltage transients, surges, etc.

**Number of Events** Four

#### Voltage

Changes / Event: Up to three

Programming: 0-100% of selected voltage range

#### Timing

Duration: 0 to 6553.5 milliseconds

Resolution: 0.1 millisecond

Accuracy: 0.1 millisecond except at 0 duration, then 0.2 milliseconds

### Programmable Transition Time

Allows user to specify a point in time when programmed voltage changes occur after zero crossing

#### Delay

Range: 0-25.5 milliseconds

Resolution: 0.1 milliseconds

Accuracy: +/- 0.1 milliseconds

Repeatability: +/- 0.05 milliseconds

Accuracy of zero crossing trigger:

+/- 0.1 milliseconds

### External Frequency Sync Input

Allows output to be frequency synchronized to external source

#### Input:

2-10 V peak square wave  
(50% duty cycle)

Phase Lock: +/- 5 degrees referenced to zero crossing of output

### Frequency Sync Output

5.1 volt square wave synchronized to "A" phase

### Voltage/Frequency Transition Trigger Output

Five volt pulse of approximately 20 microseconds duration generated at the time a programmed voltage or frequency change takes place

### Output Inhibit

Allows output to be disabled remotely by a high level TTL input

### Option 02: True RMS measurements

Includes all standard features, Option 01 features and adds true RMS responding measurement of voltage, current, true power and power factor, plus a user programmable output current limit

The current limit maintains current at user programmed value by automatically adjusting output voltage amplitude...replaces adjustable current monitor

### ADDITIONAL OPTIONS:

08: Expanded event programming (requires Option 01)  
Enhanced programming capabilities to include:

- Frequency transients
- Phase angle transients
- 16 Events with arbitrary length and command order
- Precision delays
- Greater than 7 Kilobytes of battery backed-up storage RAM
- Timed linear ramps of amplitude, frequency & phase angles

08/160C: Preprogrammed events for RTCA/DO-160C testing

08/411: Preprogrammed events for CEI/IEC 61000-4-1 testing

08/704D: Preprogrammed events for MIL-STD-704D testing

09: Bi-directional RS-232 Interface

10: Provides the ability to incorporate three user defined waveforms in addition to the standard sine wave.

13: Allows user to parallel phases on three phase models

CE: Available with CE mark

[www.behlman.com](http://www.behlman.com)



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