SATECH POWER
Industrial Grade Power System

# AC Power Source / Variable Frequency Converter

## SPA Series IGBT/PWM Type 500VA～150KVA


## Application

### Industrial Field:

- AC Fan Test
- Air Conditioner Test.
- Compressor Test
- Computer / Monitor / Scanner & Peripherals
- Copier / OA Equipment
- Electric Machinery Products Test
- Electronic Ballast Testing
- Home Electrical Appliances
- Motor Test
- Product Test
- QA / QC / OQC (FQC) / Life & Safety Testing
- Switching Power Supply Testing
- Transformer / Triac / SCR Test
- Suitable for Any load, such as Capacitive (Switching Power Supply), Inductive (Motor driving Equipment, Compressor Transformer), Resistive & Non-linear loads

### General Lab:

- Product Researches & Development
- Product Test
- QA / QC / OQC (FQC) / Life & Safety Testing
- Standard Power Source for EMI / EMC / Safety Testing
- Superior AC Power Source for R&D or Lab

### *400 HZ:*

- Airport Grounding Facilities, Include Airport Terminal, Control Tower
- Any Equipment / Instruments Have 400Hz Frequency
- Avionics, Marine, Missile, Projectile Facilities
- Military System Diagnostics, Include Airforce, Army, Navy Navigation
- Switching Power Supply
- Telecommunication Facilities

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# SATECH POWER

**USA Military Approved Power System**

## SPA Series AC Power Source / Variable Frequency Converter

It is a machine that takes electrical input power at one frequency and voltage to provide variable output voltage and frequency for testing loads over their full voltage and frequency. Solid State units convert incoming AC Power into DC power, and then convert the DC into the required Output Power. Its design is based on advanced DSP and IGBT / High Frequency PWM (Pulse Width Modulation) technology. By employing advanced DSP circuit to offer precise and high speed measurement of true RMS voltage, true RMS frequency, true RMS current, true power and power factor, IGBT module to reduce circuit complexity, PWM technology to deliver high power output in a light weight and compact casing. Internally, a high quality Pure Sine wave is generated and crystal oscillation to enhance frequency stability.

SPA series AC Power Sources / Variable Frequency Converters have the ability to simulate the AC Voltage and Frequency used in all countries. It is good instrument for R&D design characteristics, production testing, and QA verification. The SPA series delivers maximum rated power for any output voltage up to 300Vac (520Vac per phase), and at any frequency between 40Hz to 499.9Hz. It is not only suitable for commercial applications (47~63Hz), but also for communication, military, avionics, marine application at 400Hz.

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- **40.00Hz to 499.9Hz Settable Output Frequency**
  By settings of 4 digital thumb switch, the output frequency is adjustable from 40.00Hz to 499.9Hz with precise and stable frequency.
- **0 ~ 150V, 0 ~ 300V Adjustable Output Voltage**
  Optional output voltage 0 ~ 600V. Full load current output even at lower voltage of 5V or 28V.
- **Concise Panel Display. Easy to Operate**
- **True RMS Frequency Meter, Voltmeter, Ammeter, Wattmeter**
- **Galvanic Isolated. No Harmonic Distortion (EMI, EMC)**
- **4 LED Digital Readings of Hz (Frequency), V (Voltage), A (Current), W (Power) and Display at One time, no need to change over.**
- **4 LED Digital Readings of Hz (Frequency), V (Voltage), A (Current), W (Power) per Phase Independent Display.**
- **Precise Output Voltage Regulation of +/-1% or Better**
  This helps to insure accurate test results of the SPA series or that your load equipment is operating properly from a fixed frequency source.
- **Precise and Stable Frequency (Crystal Controlled) Output.**
- **IGBT Module Generate High Efficiency, Low Noise & Max. Reliability**
- **PWM Technology Enhances Compact Size, Light Weight**
- **Fast Recovering Time: 2msecs**
- **Capable to Withstand Inrush Current up to 3 Times of Rated Current**
  Unique regulation function in providing capability to turn on high inrush current loads such as motor and compressor.
- **Electronic Circuit / Instant Trip Breaker / Alarm for Over Load, Short Circuit, Over Voltage and Over Temperature Protection.**

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# Technical Specification – Single Phase

| MODEL | SPA 11005 | SPA 1101 | SPA 1102 | SPA 1103 | SPA 1105 | SPA 1108 | SPA 1110 | SPA 1115 | SPA 1120 | SPA 1130 | SPA 1145 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CAPACITY (KVA / KW) | 0.5 | 1 | 2 | 3 | 5 | 8 | 10 | 15 | 20 | 30 | 45 |
| PHOTO |  | |  | | | |  | | |  | |
| TYPE | IGBT / Pulse Width Modulation Type | | | | | | | | | | |
| **INPUT** | | | | | | | | | | | |
| Voltage (Select One) | 1phase 2wire: 110V (2 to 5KVA) / 220V / 230V / 240V ±10% | | | | | | | | | | |
| Frequency (Select One) | 47 ~ 63Hz | | | | | | | | | | |
| **OUTPUT** | | | | | | | | | | | |
| Voltage (L-N) Low Range | 0 ~ 150V | | | | | | | | | | |
| Voltage (L-N) High Range | 0 ~ 300V (Option: 0 ~ 600V) | | | | | | | | | | |
| Line Regulation | < 1% | | | | | | | | | | |
| Load Regulation | ≦ ±1% (Linear Load) | | | | | | | | | | |
| Frequency | 40.0Hz to 499.9Hz (Numeric Key Lock Setting) | | | | | | | | | | |
| Frequency Stability | ≦ ±0.01% | | | | | | | | | | |
| Distortion (THD) | Pure Sine Wave, ≦2% | | | | | | | | | | |
| Frequency Meter | 4 Led Digital Display Res. 0.1Hz / Step | | | | | | | | | | |
| Voltmeter | 4 Led Digital Display Res. 0.1V | | | | | | | | | | |
| Ammeter | 4 Led Digital Display Res. 0.1A | | | | | | | | | | |
| Wattmeter | 4 Led Digital Display Res. 0.1W | | | | | | | | | | |
| **CURRENT LIMIT (L-N)** | | | | | | | | | | | |
| LOW Range @120V | 4.2A | 8.4A | 16.8A | 25.0A | 41.6A | 63.0A | 83.2A | 125.0A | 166.4A | 250A | 375A |
| HIGH Range @240V | 2.1A | 4.2A | 8.4A | 12.5A | 20.8A | 31.5A | 41.6A | 62.5A | 83.2A | 125A | 188A |
| **OVERALL CHARACTERISTICS** | | | | | | | | | | | |
| Protection | Input No-fuse Circuit Breaker, Electronic Circuits Instant Trip for Over Load, Over Voltage, Over Temperature, Short Circuit Protection | | | | | | | | | | |
| Ambient Temperature | 0 ~ 40℃ | | | | | | | | | | |
| Relative Humidity | 0 ~ 90% (Non-Condensing) | | | | | | | | | | |
| Dimension (W*D*H/cm) | 42.5*50*19 | | 35*53*67.5 | | | | 35*65*85.5 | | | 45*63*100 | |
| Net Weight (Kgs) | 27 | 28 | 45 | 60 | 70 | 80 | 120 | 130 | 150 | 200 | 265 |

- All specifications are subject to change without prior notice.
- Custom-made specifications are acceptable.

# Technical Specification – Three Phase

| MODEL | SPA 3303 | SPA 3306 | SPA 3310 | SPA 3315 | SPA 3320 | SPA 3330 | **SPA 3345** | SPA 3360 | SPA 3375 | SPA 33100 | SPA 33120 | SPA 33150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAPACITY (KVA / KW) | 3 | 6 | 10 | 15 | 20 | 30 | **45** | 60 | 75 | 100 | 120 | 150 |
| **PHOTO** |  | | |  | | |  | | | |  | |
| **TYPE** | IGBT / Pulse Width Modulation Type | | | | | | | | | | | |
| **INPUT** | | | | | | | | | | | | |
| Voltage **(Select One)** | 3Phase 4Wire: 200V Y / 208V Y / 220V Y / 380V Y / 400V Y/ 415V Y/ 440V Y ±10%<br>(Option: 460V Y / 480V Y / 600V Y) ±10% | | | | | | | | | | | |
| | 3Phase 3Wire: 200VΔ / 208VΔ / 220VΔ / 380VΔ / 400VΔ / 415VΔ / 440VΔ ±10%<br>(Option: 460VΔ / 480VΔ / 600VΔ) ± 10% | | | | | | | | | | | |
| Frequency (Select One) | 47 ~ 63Hz | | | | | | | | | | | |
| **OUTPUT** | | | | | | | | | | | | |
| Voltage – Line Voltage | Low Range: 0 ~ 260V / High Range: 0 ~ 520V | | | | | | | | | | | |
| Voltage – Phase Voltage | Low Range: 0 ~ 150V / High Range: 0 ~ 300V / (Option: 0 ~ 600V) | | | | | | | | | | | |
| Line Regulation | < 1% | | | | | | | | | | | |
| Load Regulation | ≦±1% (Linear Load) | | | | | | | | | | | |
| Frequency | 40Hz to 499.9Hz (Numeric Key Lock Setting) | | | | | | | | | | | |
| Frequency Stability | ≦ ±0.01% | | | | | | | | | | | |
| Distortion (THD) | Pure Sine Wave, ≦2% | | | | | | | | | | | |
| Frequency Meter | 4 LED Digital display Res. 0.1Hz / Step | | | | | | | | | | | |
| Voltmeter | 4 LED Digital display Res. 0.1V | | | | | | | | | | | |
| Ammeter | 4 LED Digital display Res. 0.1A | | | | | | | | | | | |
| Wattmeter | 4 LED Digital display Res. 0.1W | | | | | | | | | | | |
| **CURRENT LIMIT (L-N)** | | | | | | | | | | | | |
| LOW Range @120V (A) | 8.4 | 16.8 | 27.6 | 41.6 | 55.6 | 83.2 | 125.0 | 166.4 | 208.4 | 277.6 | 333.4 | 694.4 |
| HIGH Range @240V (A) | 4.2 | 8.4 | 13.8 | 20.8 | 27.8 | 41.6 | 62.5 | 83.2 | 104.2 | 138.8 | 166.7 | 347.2 |
| **OVERALL CHARACTERISTICS** | | | | | | | | | | | | |
| Protection | Input No-fuse Circuit Breaker, Electronic Circuits Instant Trip<br>for Over Load, Over Voltage, Over Temperature, Short Circuit Protection | | | | | | | | | | | |
| Ambient Temperature | 0 ~ 40℃ | | | | | | | | | | | |
| Relative Humidity | 0 ~ 90% (Non-Condensing) | | | | | | | | | | | |
| Dimension (W*D*H/cm) | 35*65*85 | | | 50*80*105.5 | | 60*80*140 | 85*85*160 | | 85*85*160 | | 120*100*180 | |
| Net Weight (Kgs) | 100 | 115 | 130 | 190 | 240 | 360 | 455 | 570 | 660 | 720 | 1000 | 1250 |

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