

## 400HZ SOLID STATE FREQUENCY CONVERTERS SP SERIES

The SP series of frequency converters utilise the latest in power conversion switching technology to provide aircraft with an extremely flexible and cost effective 400Hz power source for installation at convenient "point of use" locations and in avionics workshops, aircraft maintenance hangars and test laboratories where low noise, ease of use and compact dimensions are demanded.

In contrast to 400Hz systems, found in many older airports, the SP frequency converters have an inherently high power factor of up to 0.98 with a sine wave input low harmonics rectifier input stage. The inverter is an advanced design using high frequency pulse width modulation producing a sine wave output through an integral isolation transformer and via a circuit breaker for indoor use, or with optional contactors for outdoor use.

The frequency converter can be delivered with a single output or dual output circuits and fitted with industrial type of multiple socket outlets or could be supplied with flexible 400Hz power cables and supplementary sensing fitted with standard aircraft power connectors. The frequency converters are supplied with 115V single phase output up to 40kVA and from 10kVA to 180kVA with three phase output.

The basic mechanical construction is in vertical format with ingress protection IP20 with optional IP42 and IP54, there is a horizontal version available for mounting on a mobile trolley, trailer or on floor stands.

- Analogue supplementary metering
- 50 / 60Hz input frequency
- Output contractor with interlocking
- Horizontal configuration
- Output 400Hz flexible cable with aircraft connector
- No break power transfer to aircraft service
- Remote monitoring by interface PCB
- RS485 remote monitoring by computer
- Ingress protection of up to IP54
- Line drop compensation
- Trolley converters 45kVA and 90kVA



## TECHNICAL DATA SP SERIES 400HZ FREQUENCY CONVERTERS THREE-PHASE INPUT, THREE PHASE OUTPUT

### RECTIFIER

Nominal input voltage, 380, 400, 415, 440, 480 & 690 VAC three-phase Voltage tolerance +10% or -15%  
Frequency, 45 to 65 Hz  
Power factor  $\geq 0.95$  at 100% load  
Current harmonic distortion, (THDi)  $< 2\%$   
Soft start 0 to 100% in 60 seconds, adjustable

### INVERTER

Rated output power, (kVA) 30, 60, 80, 90, 120, 150 & 180  
Nominal Current,  
Nominal output voltage, 200/115 Vac 3Ph + N "Y" Static stability,  $\pm 1\%$   
Dynamic stability,  $\pm 5\%$   
Voltage distortion with linear load,  $< 3\%$   
Voltage distortion with non-linear load,  $< 4\%$   
Frequency, 400 Hz  
Crest factor, (I peak/I rms) 3:1  
Overload

- > In. x 1.1 for 60minutes,
- > In. x 1.25 for 10 minutes,
- > In. x 1.5 for 50 seconds
- > In. x 1.7 for 5 seconds
- > In. x 2.0 for 1second
- > Efficiency, Up to 99%

### METERING, STATUS, SIGNALLING AND ALARMS.

Digital metering by LCD panel  
Menu and keypad for diagnostics and data logging Remote signalling Voltage-free contacts  
Remote commands EPO and ON/OFF  
Communication RS232 or RS485

### DIMENSIONS AND WEIGHT, IP3

Dimensions, (w x d x h) (mm)  
10kVA & 15kVA 450 x 515 x 700  
20kVA & 30kVA 555 x 665 x 830  
40kVA, 50kVA, 60kVA & 80kVA 750 x 705 x 1,250  
90kVA, 120kVA, 150kVA & 180kVA, 950 x 1,000 x 2,000

#### Weight (kg) Approx.

10kVA - 115, 20kVA - 220, 30kVA - 340, 40kVA - 360,  
60kVA - 430, 80kVA - 490, 90kVA - 650, 120kVA - 720, 150kVA - 1,350, 180kVA - 1,530

### OPERATIONAL ENVIRONMENT

Noise level,  $< 63$  dBA at 1 m  
Operating ambient temperature,  $0^{\circ}\text{C}$  to  $40^{\circ}\text{C}$   
Operation in an ambient temperature of  $50^{\circ}$ , the converter output is reduced by 25%  
Relative humidity,  $< 95\%$  non-condensing  
Ingress protection degree, IP20 as standard, options of IP42 and IP54 available  
Colour, Light grey (RAL 7035)  
Finish, light textured  
Standards compliance  
Safety, EN 62040-1-1 (Directive 2006/95/EC); EMC, EN 62040-2 (Directive 2004/108/EC)  
Classification as per IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111  
Installation, indoors for IP20.