



SINE331-SFC
STATIC FREQUENCY CONVERTER



SINEPOWER manufacture a variety of Static Frequency Converters. Static Frequency Converters convert the source power with a specific input voltage and frequency in to a different output voltage and frequency depending on what the client requires.

SINE33 SFC units can be used in a variety of applications: Civil and Military Aviation, Aeronautical industry, Maritime/Nautical Industry and Manufacturing sector.

Sinepower

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SINE33 Static Frequency Converters (Solid-state) have no moving parts, except for the fans to cool the systems down, and are highly efficient units (up to 95% efficiency).
Our High frequency IGBT Technology (Rectifier and inverter) guarantees a perfect sinewave input current with low THDi (THDi<1.5%) and unitary power factor (PF=1), perfect for all sorts of extreme electrical conditions (compatible with Genset output).



- **CE Mark Certified** (IEC 61000-6-4:2006+AMD1:2010 - Electromagnetic compatibility (EMC). Part 6-4: Generic standards - Emission standard for industrial environments; IEC 61000-6-2:2016 - Electromagnetic compatibility (EMC). Part 6-2: Generic standards - Immunity for industrial environments; Low Voltage Directive (LVD) 2014/35/EU)
- **State of the art semiconductor technology** (IGBT)
- **High Efficiency** (up to 95% efficiency)
- **User friendly control panel**
- **Data logging**
- **IP54 enclosures** for outdoor use in extreme environmental conditions
- **Low noise emission** (<65dBA@1m)

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POWER QUALITY

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 95% efficiency
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Low input harmonics (< 1.5 % THDi), to comply with the strictest regulations @ any load.

OUTPUT

- 4 Quadrant Operation
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY

- Up to 95%
- No load losses: <2% of full Load.

PROTECTION AND SAFETY

- Enclosure Protection class up to Ip54
- Over/under voltage at output
- Overload capability designed for:
 - Power stage 150% - Continuous
 - Magnetics 120% - Continuous
- Overload protections set at:
 - 120% for 600seconds
 - 150% for 60 seconds
 - 200% for 2 seconds
- Variable Fan Speed for Internal temperature Control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

INTERFACE AND COMMUNICATIONS

- Rs232

OPTIONAL FEATURES

- Communications
 - Monitoring by Web and SNMP
 - MODBUS Rs485
 - MODBUS TC/IP
 - Remote control box

NORMS AND STANDARDS

- **IEC 62040-1-1:2008** - Uninterruptible power systems (UPS). Part 1: General and safety requirements for UPS.
- **IEC 61558-2-6:2009** - Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1100 V. Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers.
- **IEC 61000-6-4:2006+AMD1:2010** - Electromagnetic compatibility (EMC). Part 6-4: Generic standards - Emission standard for industrial environments.
- **IEC 61000-6-2:2016** - Electromagnetic compatibility (EMC). Part 6-2: Generic standards - Immunity for industrial environments.

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SPECIFICATIONS

INPUT

3 phase 400V/415V AC $\pm 10\%^*$
 45Hz up to 65Hz
 Input current harmonics $< 1.5\%$ @ 100% load

OUTPUT

3 phase 200VAC/400VAC/480VAC $\pm 1\%^*$
 50Hz/60Hz & 400Hz $\pm 0.01\%^*$
 Overall Efficiency 87%-95%
 Max. Crest Factor 3:1

RECTIFIER

4 Quadrant Operation
 AC Voltage Range - 20% +15%
 Efficiency 93%-97%
 Overload Capacity 150% Continuous
 Inrush Current None
 Overall current limit 120% Continuous

INVERTER

Static Regulation 0 - 100% load $\pm 1\%$
 Dynamic regulation 100% 5%, recovering to 1%
 within 4 cycles
 Total harmonic distortion $< 2\%$ (Linear Load)
 Electronic Limit Overload 120%@600s;
 150%@60s; 200%@2s
 Overload Capacity (IGBT's) 150% Continuous
 Frequency stability $\pm 0.01\%$ Crystal Controlled
 Load power factor 0-1
 Efficiency 93%-98%
 Short circuit proof by electric current limiting and
 shutdown

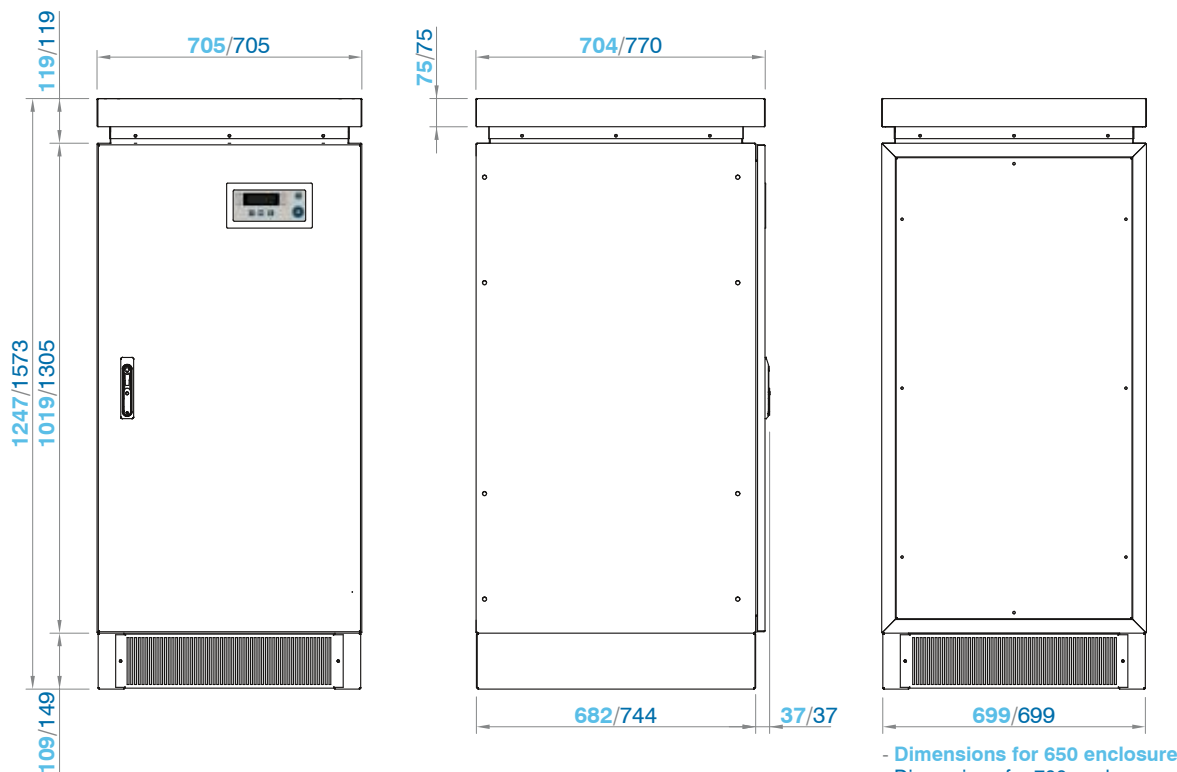
ENVIRONMENTAL CONDITIONS

Temperature range
 sea level: -40°C to $+40^{\circ}\text{C}$ (@100% Load)
 Above 2000m: 35°C (@100% Load)
 Relative Humidity 10%-100%
 Noise Level < 65 dBA@1 meter
 Altitude up to 2500 m without de-rating

* Other voltages and frequencies available on request

* Other Electronic Overload limits available on request

INDOOR | OUTDOOR | AERONAUTICAL APPLICATIONS



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