



**SINE33I MOD - SFC**  
STATIC FREQUENCY CONVERTER 250KVA - 1200KVA



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.

The SINE33 three phase Static Frequency Converter guarantees a supply free of disturbances and of high quality with maximum reliability

SINE33 SFC units can be used in a variety of applications:

- Civil and Military Aviation
- Aeronautical Industry
- Maritime/Nautical Industry
- Manufacturing Sector.

**Sinpower**

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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 94% 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** (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 94% efficiency)
- **User friendly control panel**
- **Data logging**
- **IP20 enclosures**
- **Low noise emission** (<70dBA@1m)

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## POWER QUALITY

### INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 4 Quadrant Operation (better response of the system)
- 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 94%
- No load losses: <2% of full Load.

### PROTECTION AND SAFETY

- Enclosure Protection class up to IP20
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 120% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 120% for 600seconds
  - 150% for 60 seconds
  - 200% for 2 seconds
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.
- Safety Isolation Transformer.

### OPTIONAL FEATURES

- Communications
  - Rs232
  - 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.

### MODELS

- 250KVA and 300KVA
- 400KVA, 500KVA and 600KVA
- 800KVA and 900KVA
- 1000KVA and 1200KVA

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## SPECIFICATIONS

### INPUT

3 phase 400V/415V AC .....  $\pm 10\%^*$   
 50.0Hz/60.0Hz .....  $\pm 10\%$   
 Input current harmonics .....  $<15\%$  @ 100% load

### OUTPUT

3 phase 200VAC/400VAC/480VAC .....  $\pm 1\%^*$   
 50Hz/60Hz .....  $\pm 1\%^*$   
 Overall Efficiency ..... 94%  
 Max. Crest Factor ..... 3:1

### RECTIFIER

4 Quadrant Operation  
 AC Voltage Range ..... - 15% +10%  
 Efficiency ..... 97%  
 Overload Capacity ..... 120% Continuous  
 Current walk in ..... 5 seconds to maximum  
 Overall current limit ..... 120% Continuous

\* Other voltages and frequencies available on request

\* Other Electronic Overload limits available on request

### INVERTER

Static Regulation 0 - 100% load .....  $\pm 1\%$   
 Dynamic regulation 100% ..... 5%, recovering to 1%  
 within 40 ms  
 Total harmonic distortion .....  $< 3\%$  (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 ..... 97%  
 Short circuit proof by electric current limiting and  
 shutdown

### ENVIRONMENTAL CONDITIONS

Temperature range

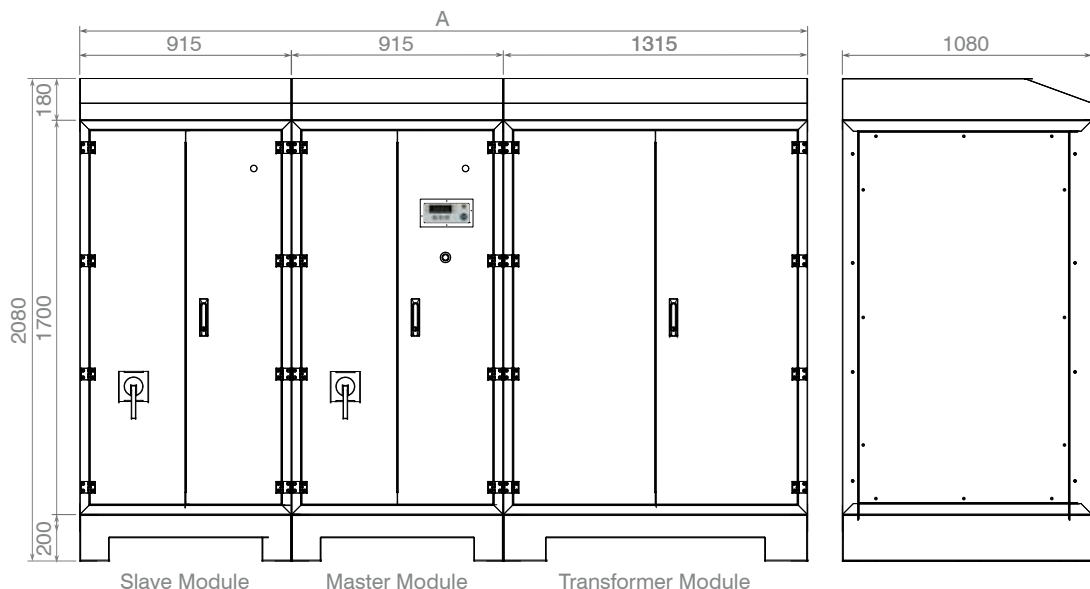
- Sea level: ..... -40 to 40 °C (@100% Load)
- Above 2000m: ..... -40 to 30 °C (@100% Load)

Relative Humidity ..... 0%-90% without condensation

Noise Level .....  $< 70$  dBA @ 1 meter

Altitude ..... up to 2000 m without de-rating

## INDOOR | OUTDOOR | AERONAUTICAL APPLICATIONS



- 250KVA | 300KVA - A= 1830mm (Master/Transformer Module + Slave Module)
- 400KVA | 500KVA | 600KVA - A=3145mm (Transformer Module + MasterModule + Slave Module)
- 800KVA | 900KVA - A=4060mm (Transformer Module + MasterModule + Slave Module(2x))
- 1000KVA | 200KVA - A=4975mm (Transformer Module + MasterModule + Slave Module(3x))

## Sinepower

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