sinepower

YOUR POWER PARTNER

sinepower
YOUR POWER PARTNER

ABOUT US
Trustworthy Technology for Your Power Needs

At Sinepower, we design, manufacture, and commercialize Ground Power Units (GPUs), Static Frequency Converters (SFCs), EVCS (Electric Vehicle Charging Stations), and Inverters for diverse industries from Aviation, Nautical to EV Chargers.

Excellence is our motto. We have a highly qualified workforce, capable of solving unexpected problems, whilst delivering a functional product, respecting all our client's needs.

All the GPUs, SFCs, and EVCS you need in just one place.

OUR MISSION

Delivering high-quality industrial products, guaranteeing our title as a reliable power partner.

OUR VISION

Our focus is to expand to more countries, thus establishing our international position as a top-of-mind company in the Aviation, Naval, and EV charging industries, in the field of Power Electronics. Above all, we want to leverage more innovative solutions and bring added value to our customers.

OUR VALUES

We aim to ensure the highest possible satisfaction, both on the part of our customers and employees. We ensure that everyone involved in our processes feels they can trust our product and work ethic.
At Sinepower, communication occupies a very important place in our strategy.

OUR PRODUCTS

We deliver reliable power solutions for a diverse range of applications:
- Military Aviation
- Military Navy
- Custom made Solutions

As part of our commitment to offering the best quality products to our clients we have a quality management system - ISO 9001:2015 certified by TUV Rheinland.
We offer consultancy services in power electronics and acoustics (building acoustics and environmental acoustics) and develop custom made products.

OUR PRODUCTS

SINE SFC / GPU
- Static Frequency Converter / 60Hz, 50Hz or 400Hz / 10-2000KVA – SFC
- Ground power units / up to 180kVA – GPU, COMBIGPU
- DC Ground power units – GPU DC

SINE GPU MOBILE
- Mobile Ground power units / up to 180kVA – MGPU, MGPUCOMBI

SINE DC
- DC EV Charger units / up to 800KVA – DCCHR
- DC Power sypply /up to 300MVA - DCPH

TABLE OF CONTENTS

OUR CLIENTS

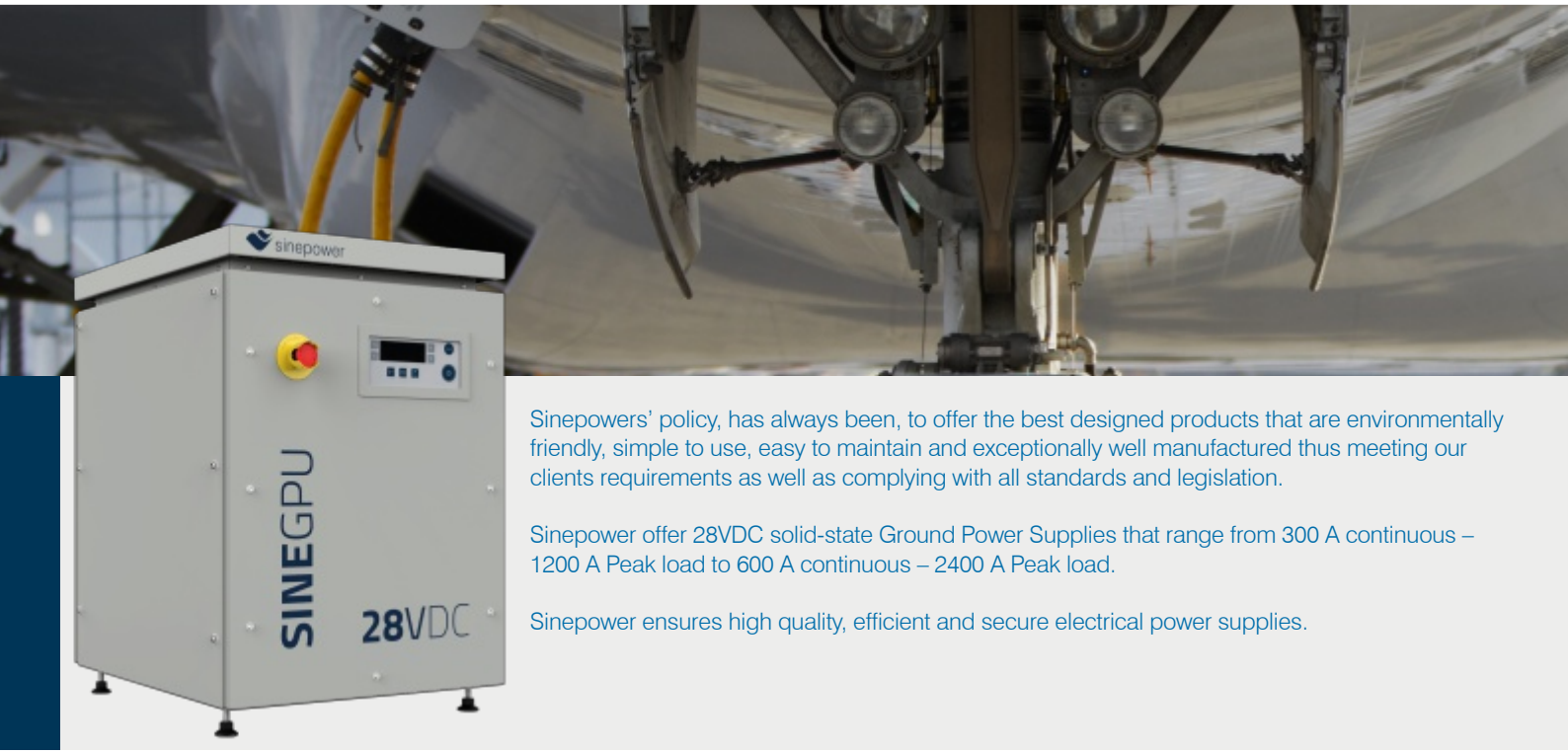
- SIEMENS
- BAE SYSTEMS
- RAF UK
- USAF
- ROYAL NAVY UK
- PORTUGUESE AIR FORCE
- SPANISH AIR FORCE
- MALAYSIAN ROYAL AIR FORCE
- VIETNAM PEOPLE´S AIR FORCE
- MSI DEFENCE
- MBDA
- VIRGIN ATLANTIC
- EASY JET
- LUFTHANSA TECHNIK
- BRITISH AIRWAYS
- BRUSSELS AIRLINE
- KLM
- AIR ACCIDENT INVESTIGATION
- INFLITE SERVICES
- AIRCRAFT SERVICES
- EUROCOPTER
- DUNLOP AEROSPACE
- LOCKHEED MARTIN
- PINNACLE AIRWAYS
- JET AVIATION
- OGMA – INDUSTRIA AERONAUTICA DE PORTUGAL
- LUXEMBOURG AIR AMBULANCE
- LIMAK KOSOVO INTERNATIONAL AIRPORT J.S.C.
- ANTONOV
- PVR POWERSTART
- PSI
- MAGNUS POWER
- LISATECH
- LEVON AVIATION
- MAK CONTROLS
- SOLARWORLD
- ENELEC
- DYSON
- THALES
- GENERAL DYNAMICS
- SELEX GALILEO
- SCOTTISH WATER
- PROCTER & GAMBLE
- SHARP
- BABCOCK NAVAL SERVICES
- NCR
- KLM
- QINETIQ
- PINNACLE AIRWAYS
- ROLLS ROYCE
- GOODRICH
- GE AVIATION
- SAAB UNDERWATER SYSTEMS
- CAE

CIVIL

sinepower

YOUR POWER PARTNER

SINEGPU 28VDC
28VDC GROUND POWER UNIT



Sinepowers' policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower offer 28VDC solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load to 600 A continuous – 2400 A Peak load.

Sinepower ensures high quality, efficient and secure electrical power supplies.

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- Up to 90% efficiency
- Low input harmonics (<1.5% THDi), to comply with the strictest regulations @ any load.

OUTPUT

- 800Hz DC-DC Converter
- Galvanic Isolation.

EFFICIENCY

- Up to 90% efficiency
- Green Standby Function - losses: 20 W
- No load losses: <0.5 kW.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY

- Enclosure Protection class up to Ip55
- Enclousre with C5-M coating
- Over/under voltage at output:
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V at current limit (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 1200A - 5 seconds
  - 2400A - 5 seconds
- Over temperature protection.

SPECIFICATIONS

INPUT

- **4 Wire** | 3 Wire Optional
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ± 10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

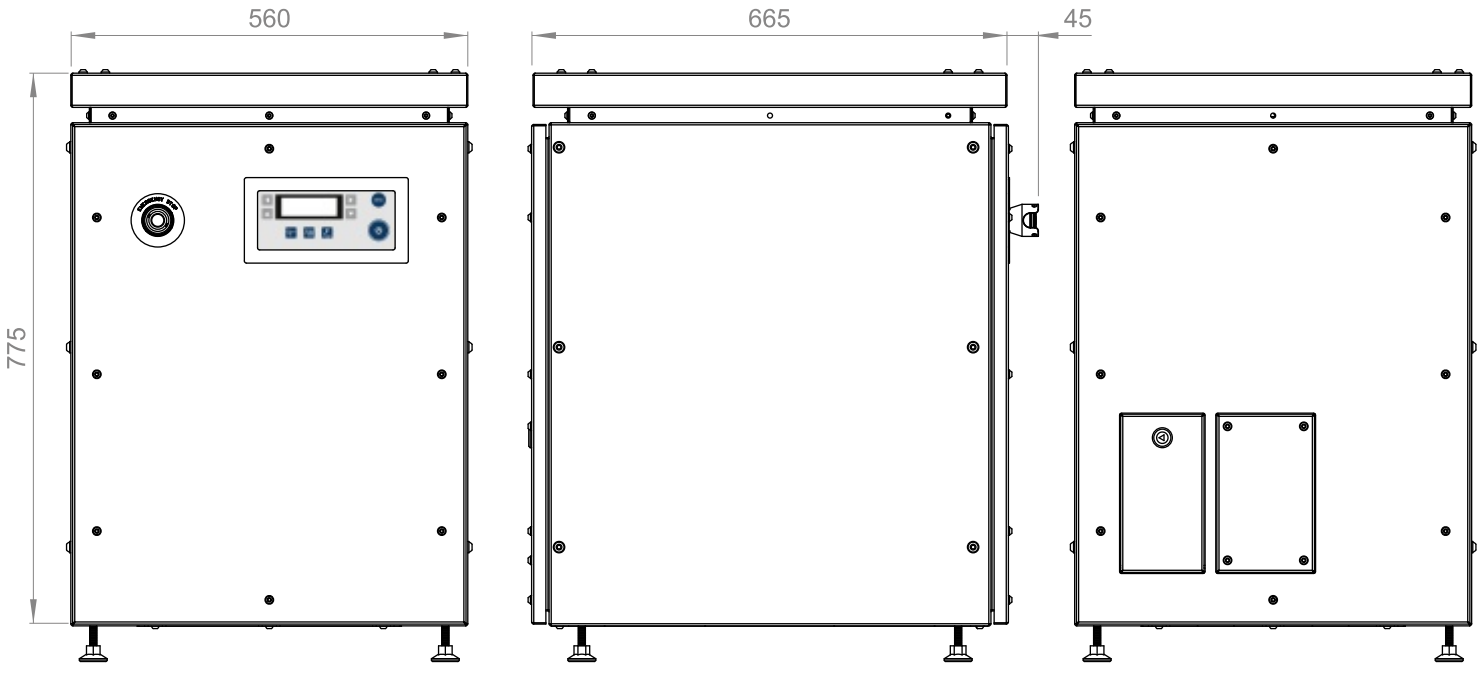
- **Output 28.5VDC** | ±1%*
- **Continuous current capability (at 28.5VDC)** | 300A/600A*
- **Maximum Current Limit (at 28VDC)** | 1200/2400A for up to 5sec
- **Current Limit adjusting steps (from 600A)** | ± 0.5%
- **Voltage regulation up to 600A** | 1%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU 28VDC
28VDC GROUND POWER UNIT (MOBILE)

Sinepowers' policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower offer 28VDC solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load to 600 A continuous – 2400 A Peak load.

Sinepower ensures high quality, efficient and secure electrical power supplies.

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- Up to 90% efficiency
- Low input harmonics (<1.5% THDi), to comply with the strictest regulations @ any load.

OUTPUT

- 800Hz DC-DC Converter
- Galvanic Isolation.

EFFICIENCY

- Up to 90% efficiency
- Green Standby Function - losses: 20 W
- No load losses: <0.5 kW.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY

- Enclosure Protection class up to Ip55
- Enclousre with C5-M coating
- Over/under voltage at output:
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V at current limit (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 1200A - 5 seconds
  - 2400A - 5 seconds
- Over temperature protection.

SPECIFICATIONS

INPUT

- **4 Wire** | 3 Wire Optional
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ± 10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

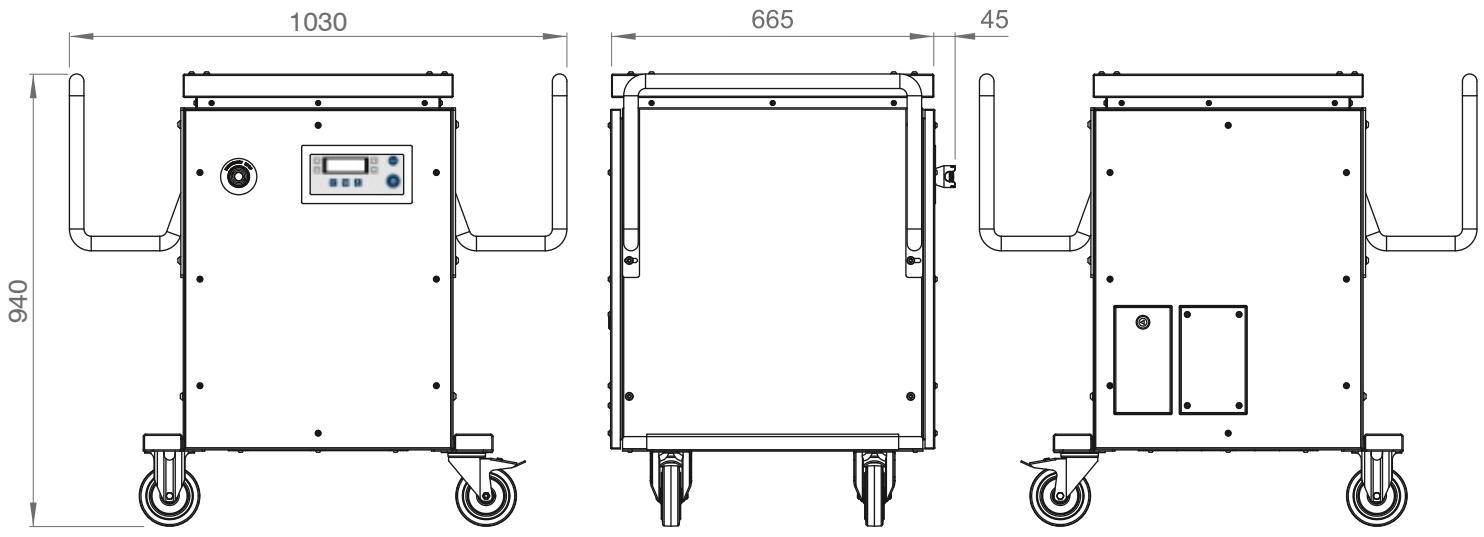
- **Output 28.5VDC** | ±1%*
- **Continuous current capability (at 28.5VDC)** | 300A/600A*
- **Maximum Current Limit (at 28VDC)** | 1200/2400A for up to 5sec
- **Current Limit adjusting steps (from 600A)** | ± 0.5%
- **Voltage regulation up to 600A** | 1%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SPECIFICATIONS

SINEGPU
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

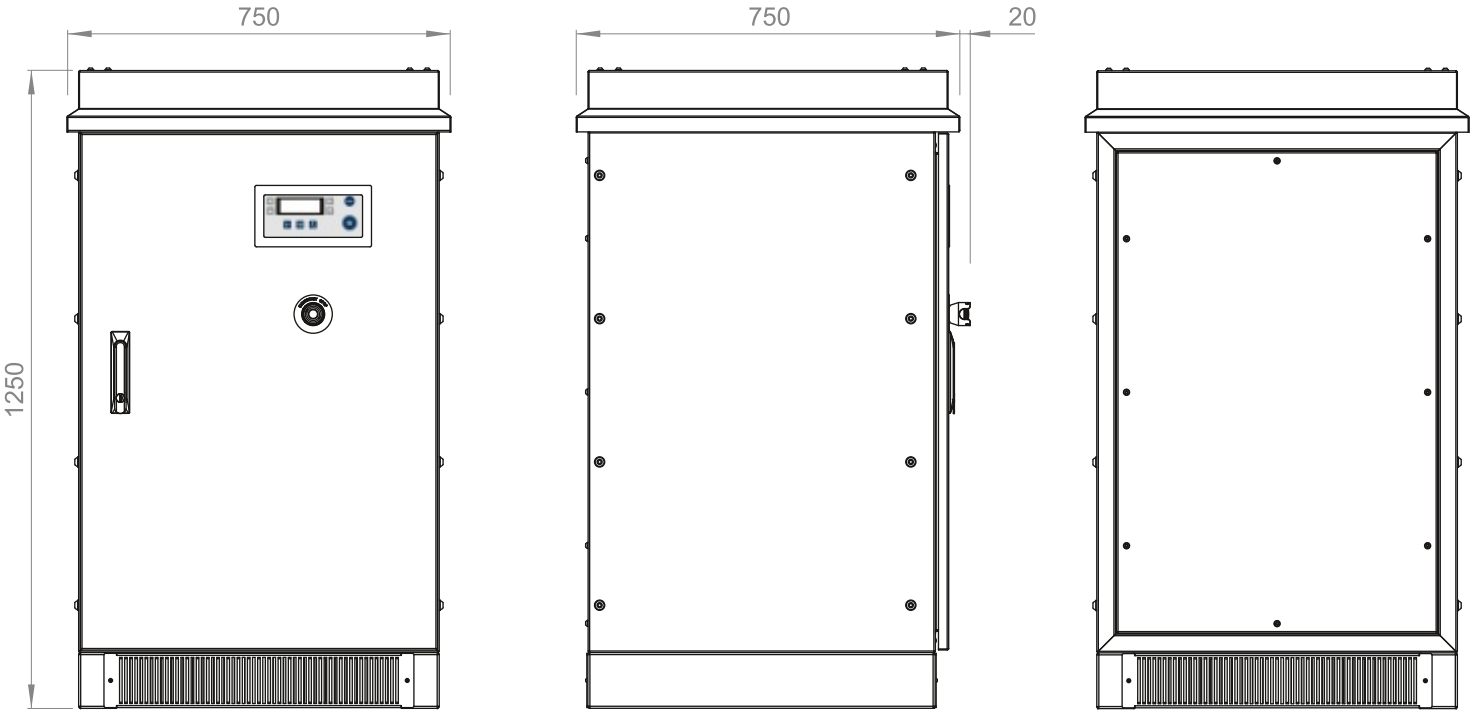
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

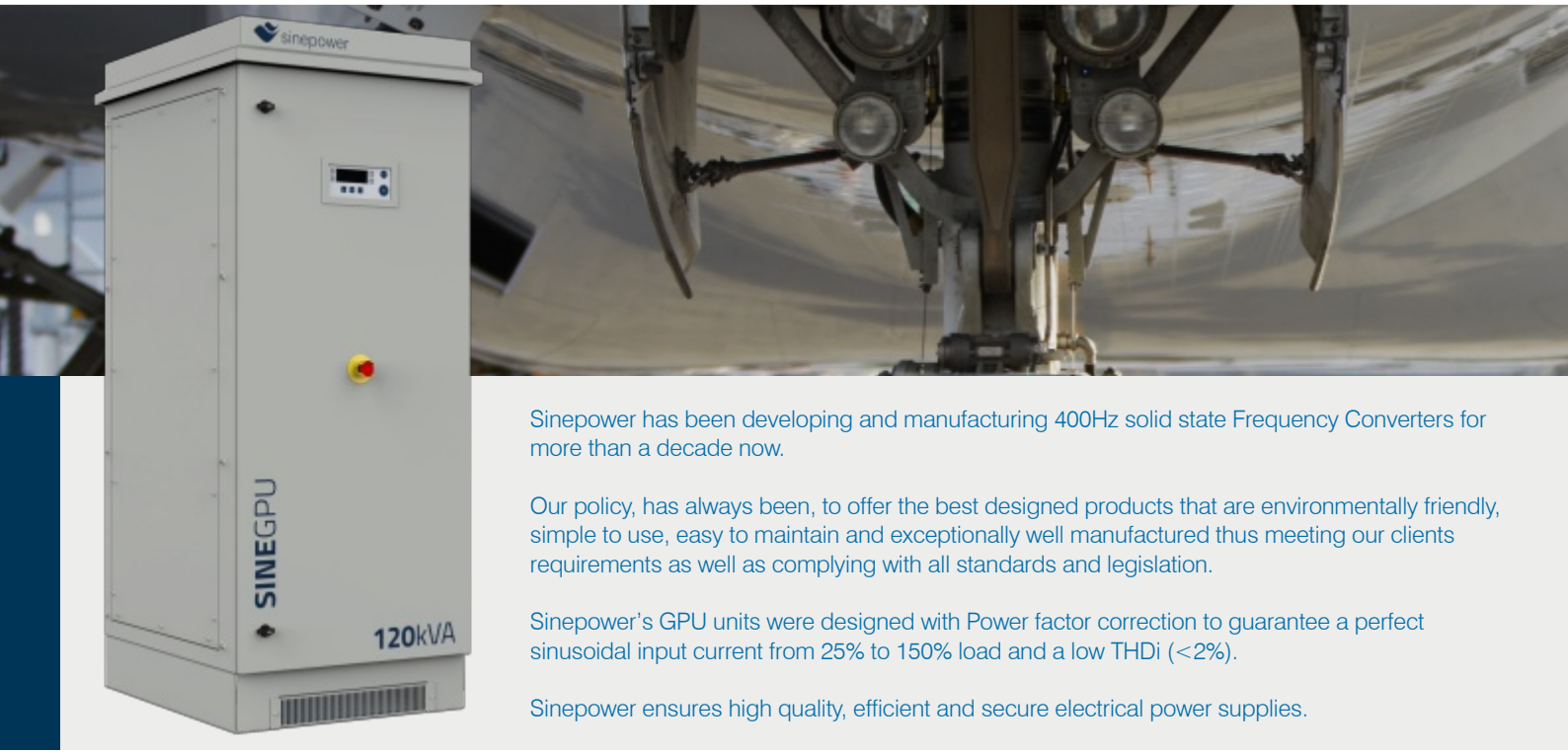
ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINEGPU
120 KVA SOLID STATE 400HZ GROUND POWER UNIT



Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 97% 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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 120kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SPECIFICATIONS

SINEGPU
120 KVA SOLID STATE
400HZ GROUND POWER UNIT

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -10% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

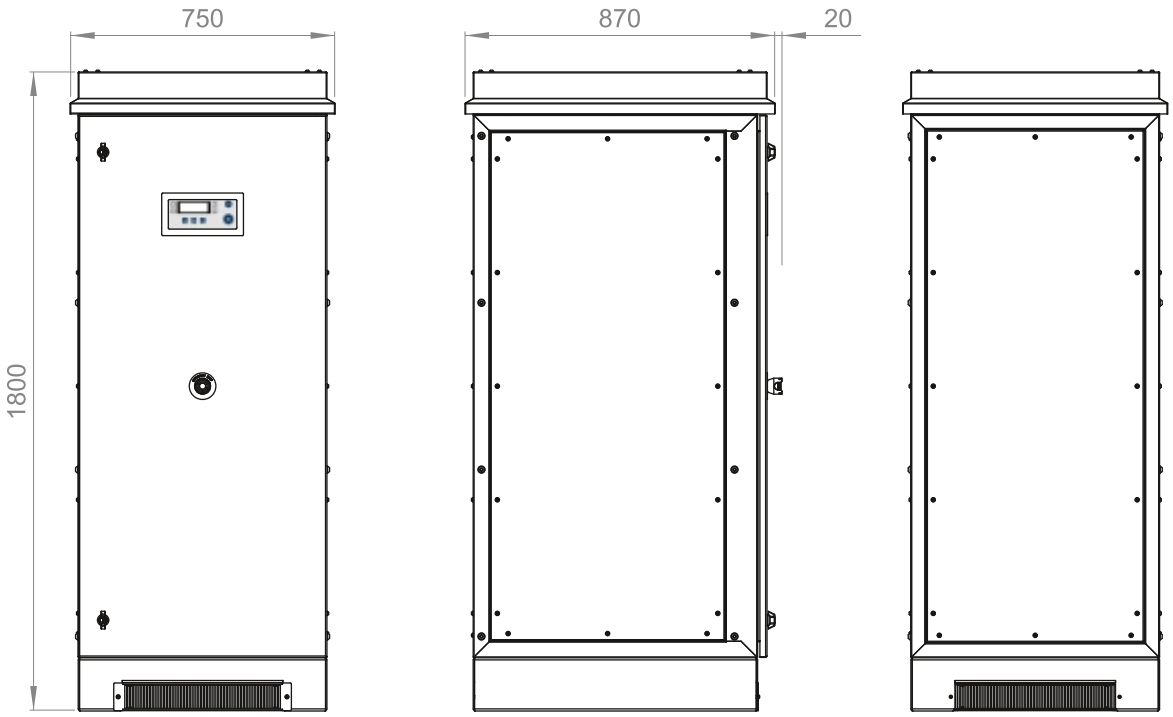
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINEGPU
180 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 180kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SPECIFICATIONS

SINEGPU
180 KVA SOLID STATE
400HZ GROUND POWER UNIT

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

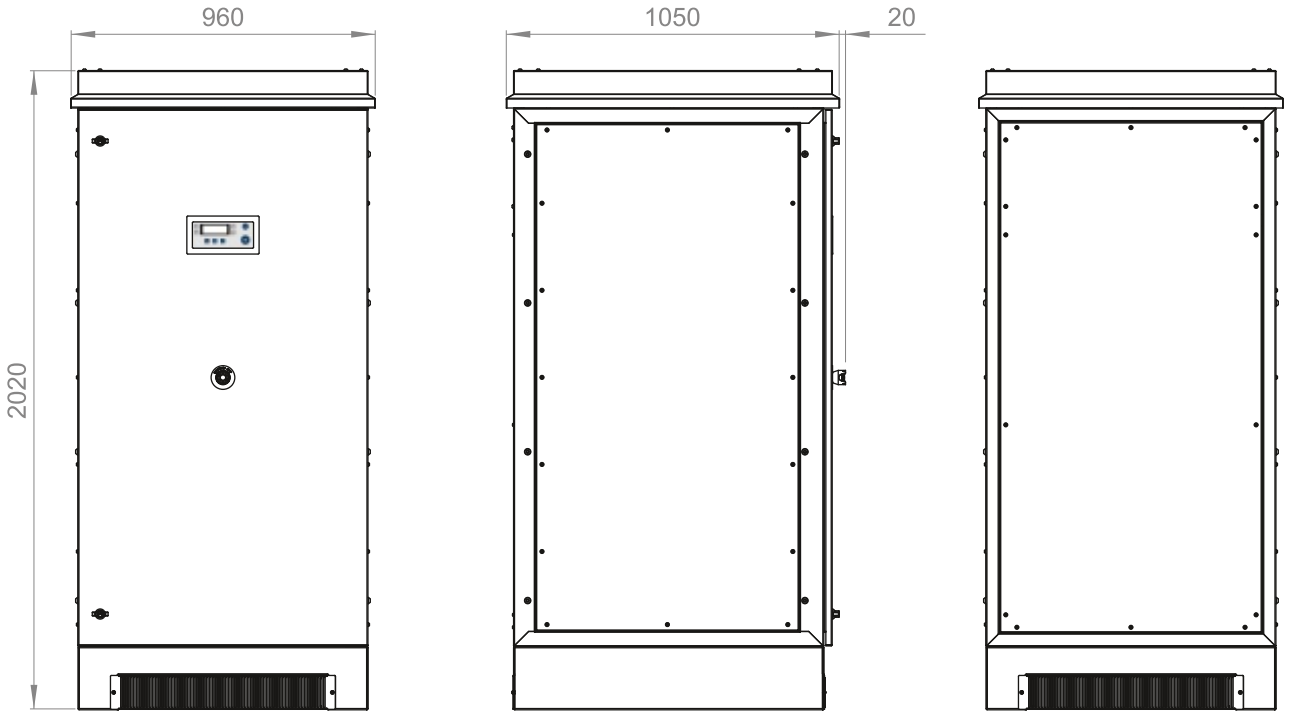
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Sinepower's GPU&DC units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<1.5%).

The 28VDC offers a solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load and 600 A continuous – 2400 A Peak load.

Sinepower ensure high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- DFS400 - Specification for 400 Hz aircraft power
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY (GPU)

- Enclosure Protection class up to IP55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1.5 kW.

TECHNOLOGY (DC)

- Over/under voltage at input
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 125% for 600seconds
  - 150% for 60 seconds
  - 400% for 5 seconds
- Over temperature protection.

SPECIFICATIONS

SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

GPU

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%,recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

DC

INPUT

- **3 phase 3 wire**
- **3 phase 400V/415V AC** | ±10%*
- **50Hz or 60Hz** | ± 5%(frequency independent)
- **Input current harmonics** | <1.5% @ nominal current

OUTPUT

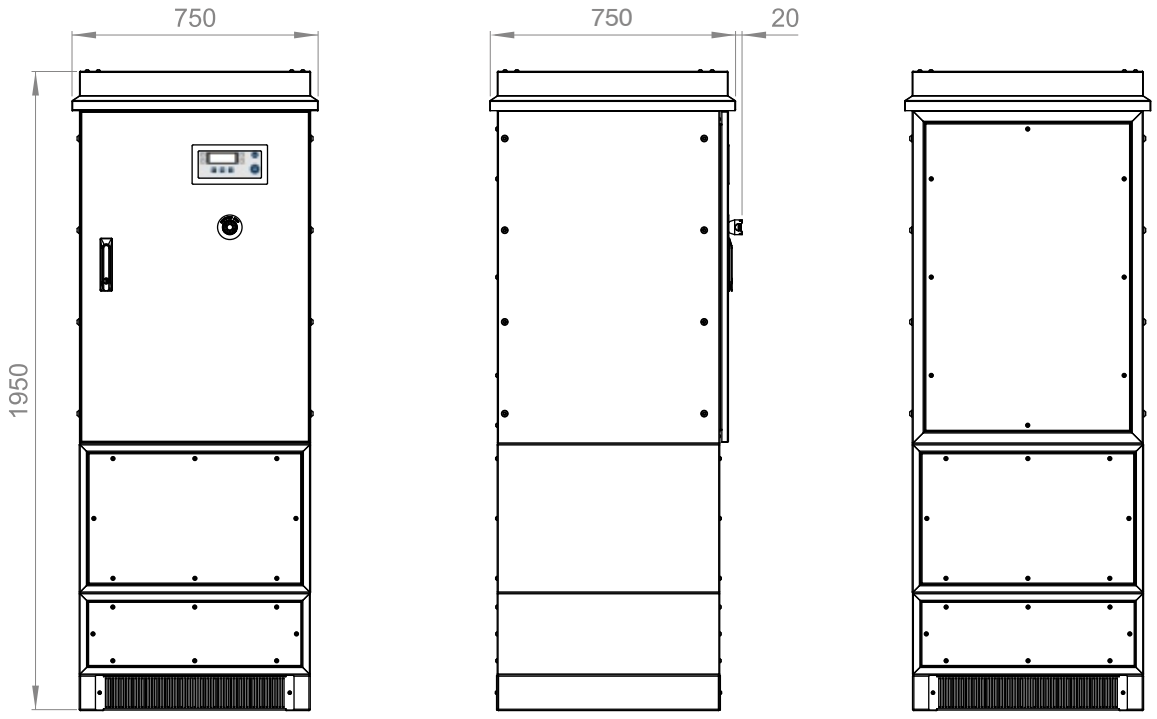
- **Output 28.5VDC**
- **Continuous current capability (@28.5VDC)** | 300A/600A/800A
- **Maximum Current Limit (@28VDC)** | 1200/2000A for up to 5sec
- **Current Limit adjusting steps (from 800A)** | 300A
- **Voltage regulation up to 600A** | ± 0.5%
- **Efficiency (@600A/800A)** | 80%-90%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier** | <0.5%

ENVIRONMENTAL CONDITIONS

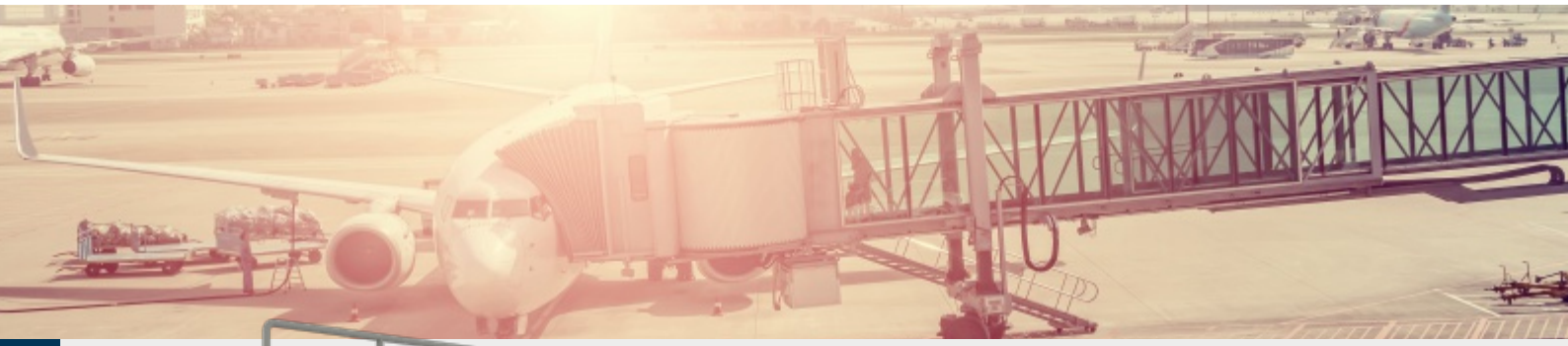
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT



Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Sinepower's GPU&DC units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<1.5%).

The 28VDC offers a solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load and 600 A continuous – 2400 A Peak load.

Sinepower ensure high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY (GPU)

- Enclosure Protection class up to IP55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1.5 kW.

TECHNOLOGY (DC)

- Over/under voltage at input
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 125% for 600seconds
  - 150% for 60 seconds
  - 400% for 5 seconds
- Over temperature protection.

SPECIFICATIONS

SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

GPU

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%,recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

DC

INPUT

- **3 phase 3 wire**
- **3 phase 400V/415V AC** | ±10%*
- **50Hz or 60Hz** | ± 5%(frequency independent)
- **Input current harmonics** | <1.5% @ nominal current

OUTPUT

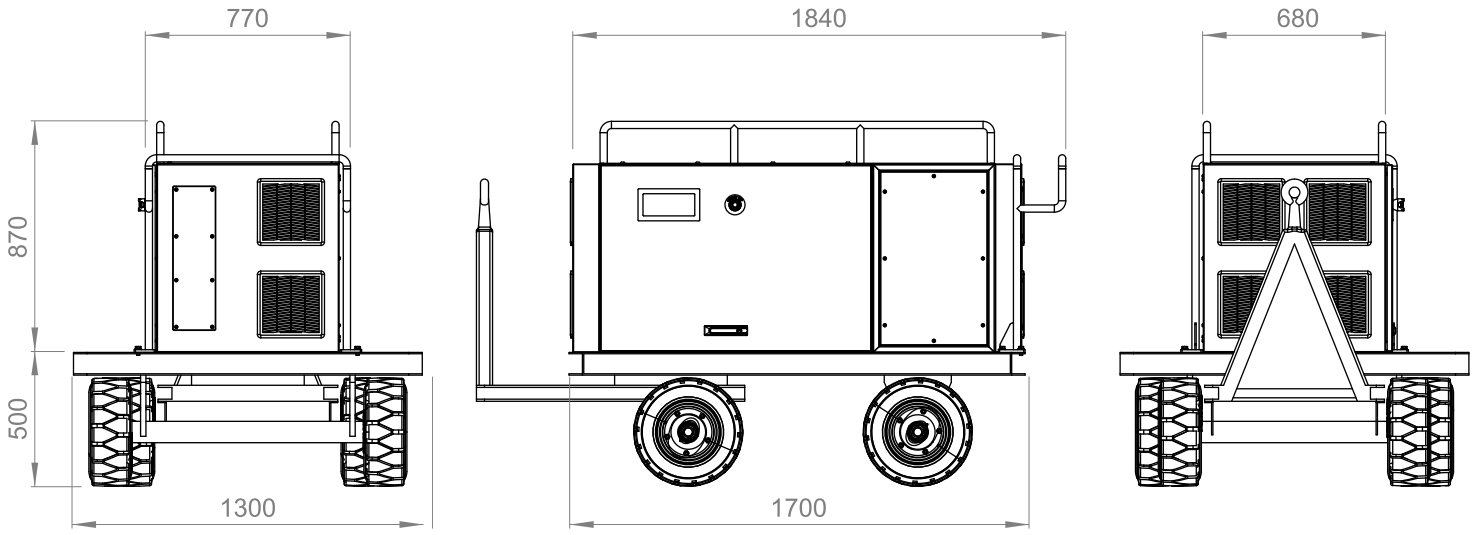
- **Output 28.5VDC**
- **Continuous current capability (@28.5VDC)** | 300A/600A/800A
- **Maximum Current Limit (@28VDC)** | 1200/2000A for up to 5sec
- **Current Limit adjusting steps (from 800A)** | 300A
- **Voltage regulation up to 600A** | ± 0.5%
- **Efficiency (@600A/800A)** | 80%-90%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier** | <0.5%

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



TROLLEY SPECIFICATIONS

- **Max. load** | 2500Kg
- **Max. speed** | 6Km/h
- **Useful length** | 1700mm
- **Useful width** | 1300mm
- **Platform height** | 500mm
- **Wheels** | 4.00x8 super elastic
- **Platform** | Non sliding steel plate

SINEGPU MOBILE
30, 45, 60 & 90 KVA SOLID STATE 400HZ MOBILE GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SINEGPU MOBILE
30, 45, 60 & 90 KVA SOLID STATE 400HZ MOBILE GROUND POWER UNIT

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

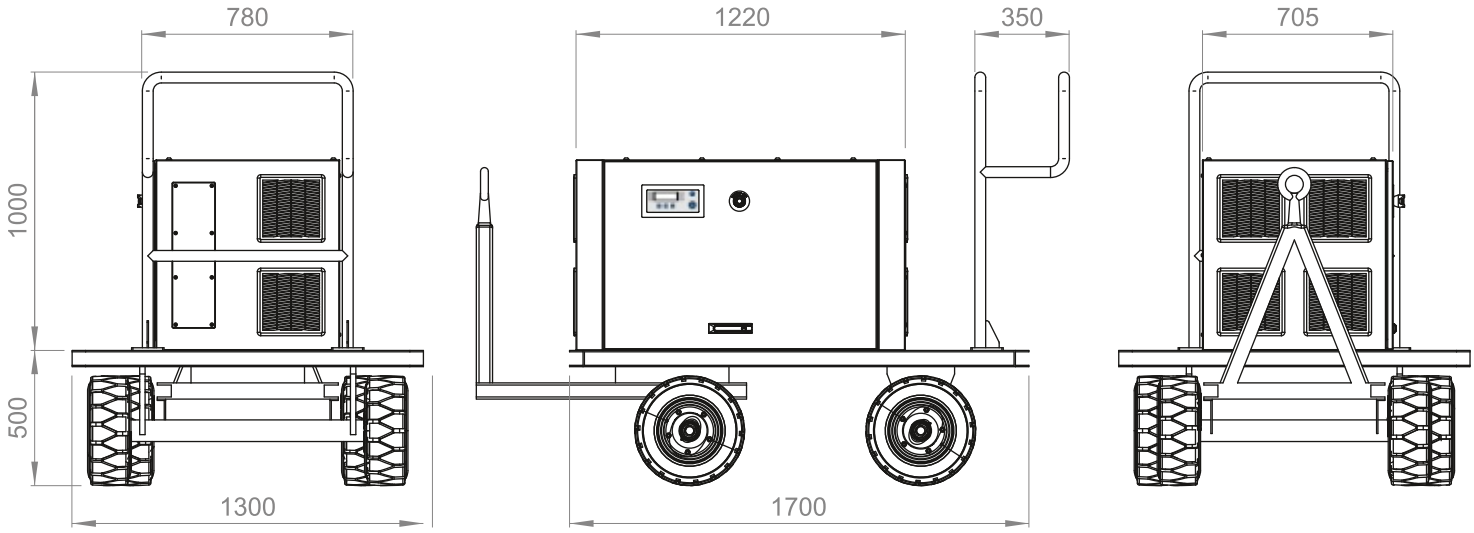
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



TROLLEY SPECIFICATIONS
- **Max. load** | 2500Kg
- **Max. speed** | 6Km/h
- **Useful length** | 1700mm
- **Useful width** | 1300mm
- **Platform height** | 500mm
- **Wheels** | 4.00x8 super elastic
- **Platform** | Non sliding steel plate

SINEGPU MOBILE
120 KVA SOLID STATE
400HZ MOBILE GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SINEGPU MOBILE
120 KVA SOLID STATE
400HZ MOBILE GROUND POWER UNIT

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

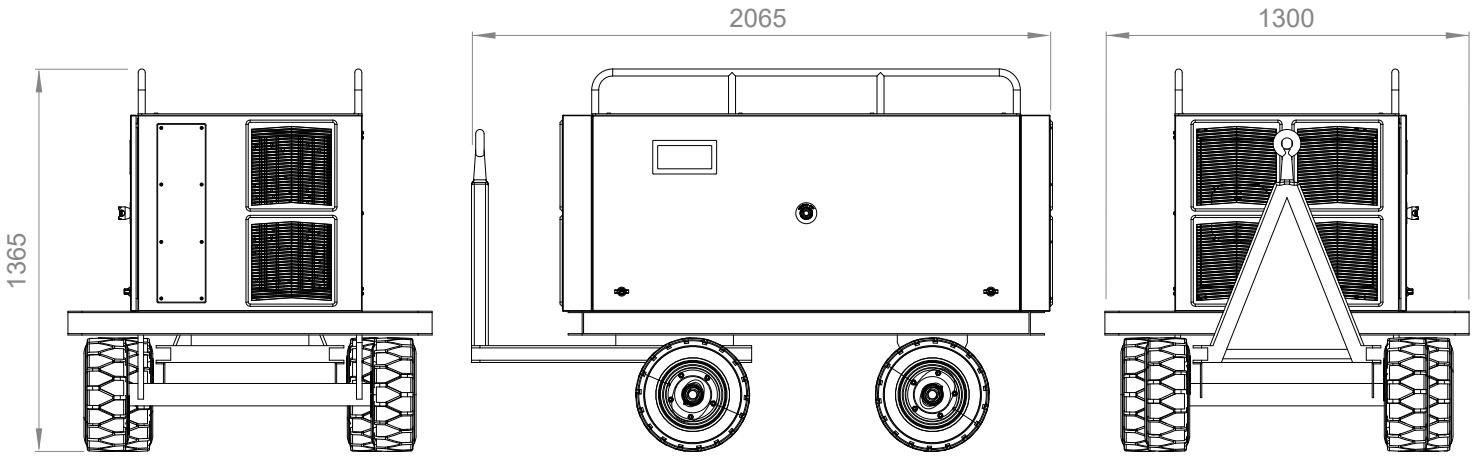
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

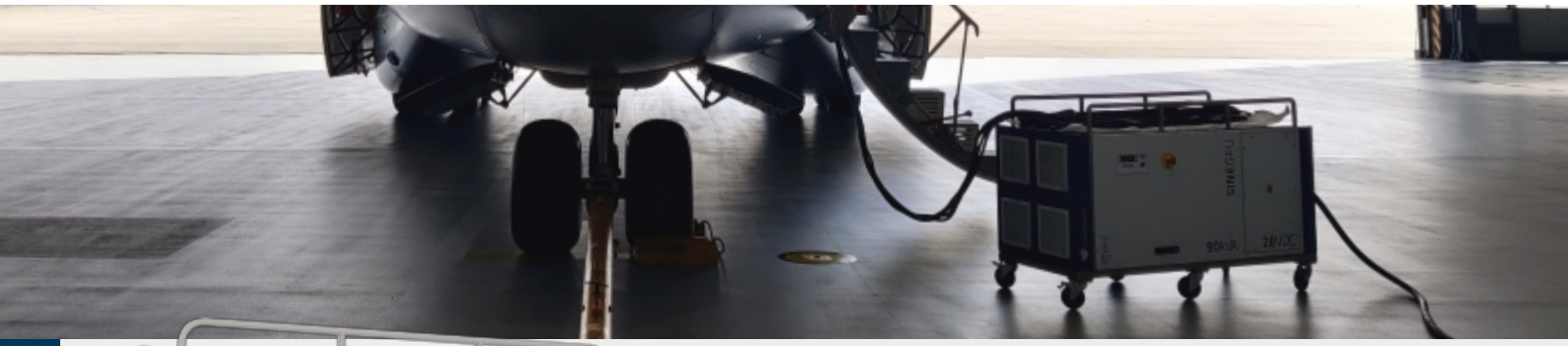
ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



TROLLEY SPECIFICATIONS
- **Max. load** | 2500Kg
- **Max. speed** | 6Km/h
- **Useful length** | 1700mm
- **Useful width** | 1300mm
- **Platform height** | 500mm
- **Wheels** | 4.00x8 super elastic
- **Platform** | Non sliding steel plate

SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT



Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Sinepower's GPU&DC units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<1.5%).

The 28VDC offers a solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load and 600 A continuous – 2400 A Peak load.

Sinepower ensure high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY (GPU)

- Enclosure Protection class up to IP55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1.5 kW.

TECHNOLOGY (DC)

- Over/under voltage at input
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 125% for 600seconds
  - 150% for 60 seconds
  - 400% for 5 seconds
- Over temperature protection.

SPECIFICATIONS

SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

GPU

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%,recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

DC

INPUT

- **3 phase 3 wire**
- **3 phase 400V/415V AC** | ±10%*
- **50Hz or 60Hz** | ± 5%(frequency independent)
- **Input current harmonics** | <1.5% @ nominal current

OUTPUT

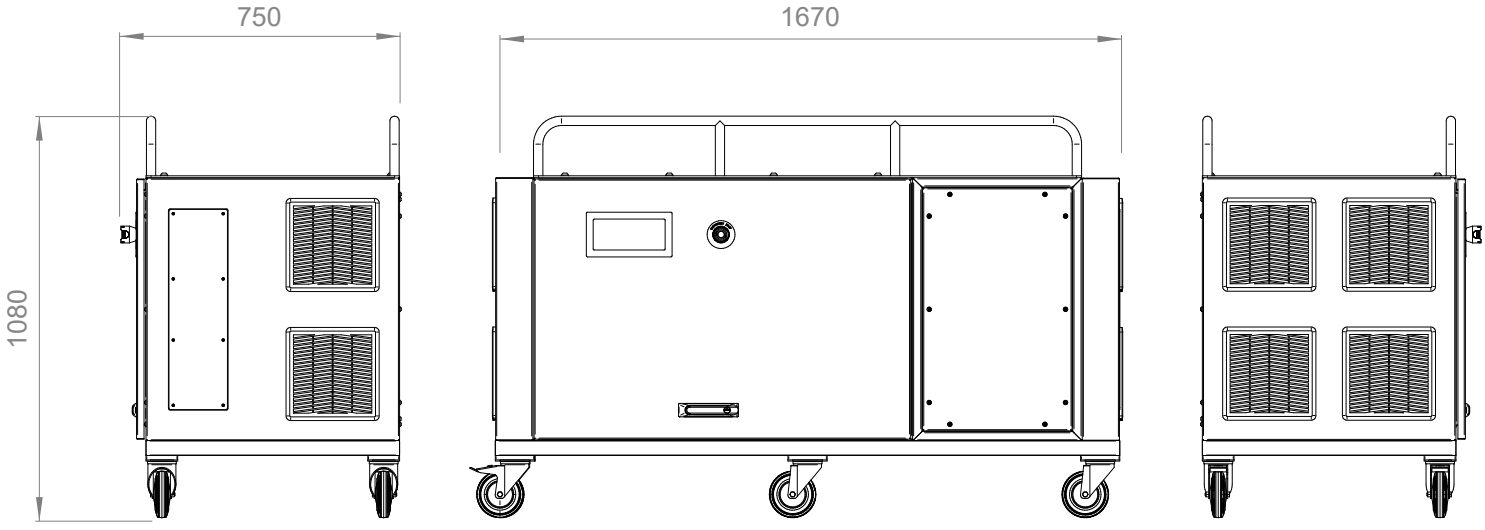
- **Output 28.5VDC**
- **Continuous current capability (@28.5VDC)** | 300A/600A/800A
- **Maximum Current Limit (@28VDC)** | 1200/2000A for up to 5sec
- **Current Limit adjusting steps (from 800A)** | 300A
- **Voltage regulation up to 600A** | ± 0.5%
- **Efficiency (@600A/800A)** | 80%-90%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier** | <0.5%

ENVIRONMENTAL CONDITIONS

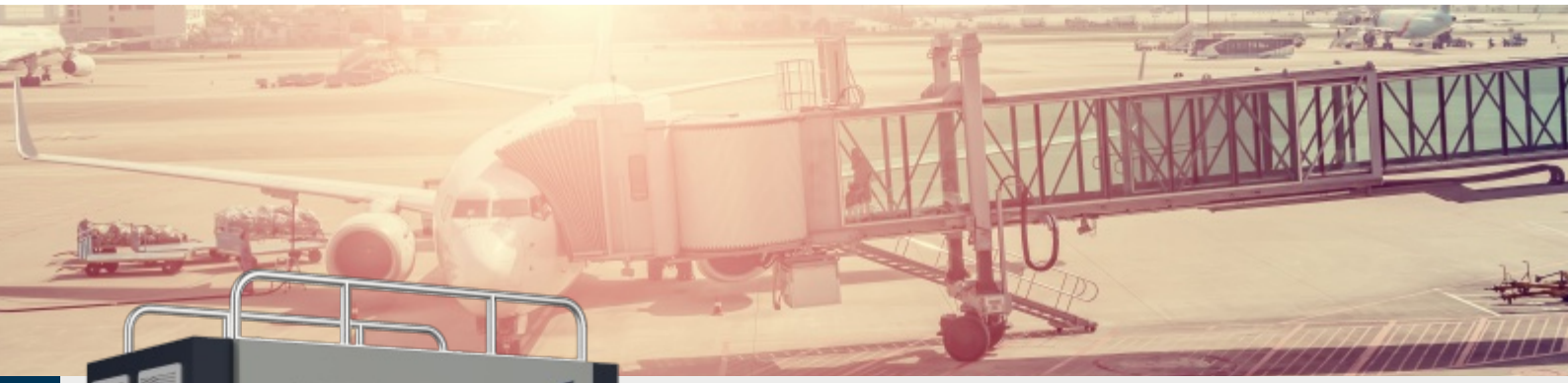
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT



Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SINEGPU MOBILE
30, 45, 60 & 90 KVA SOLID STATE 400HZ MOBILE GROUND POWER UNIT

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

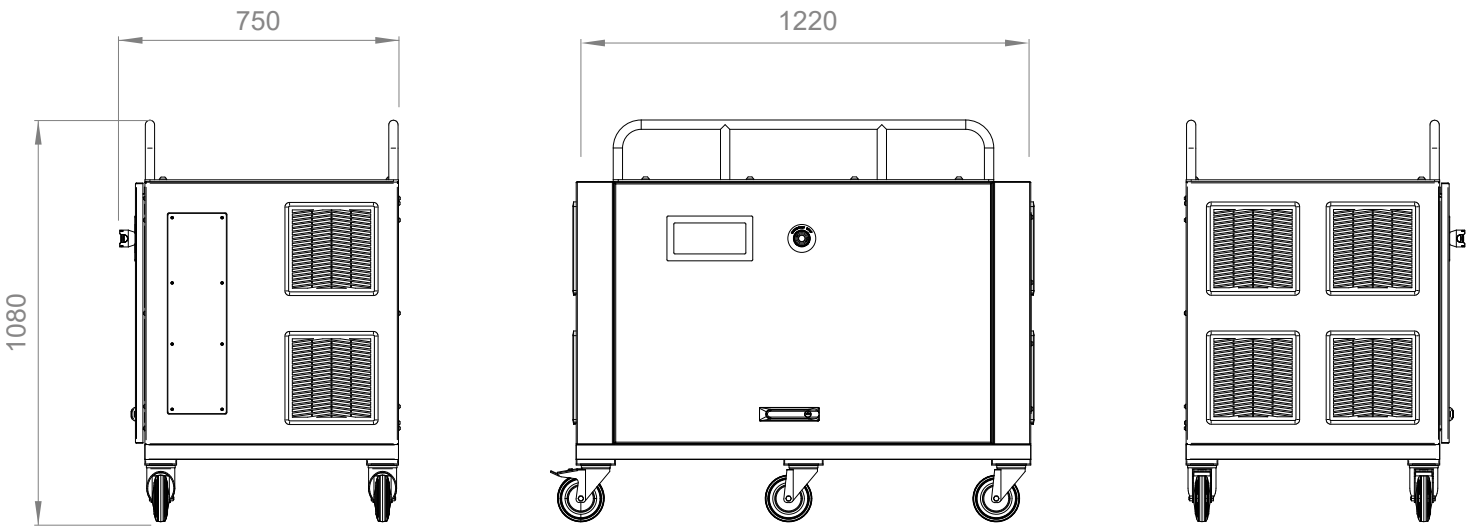
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
50-90kVA 60HZ or 50HZ

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
50-90kVA 60HZ or 50HZ

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

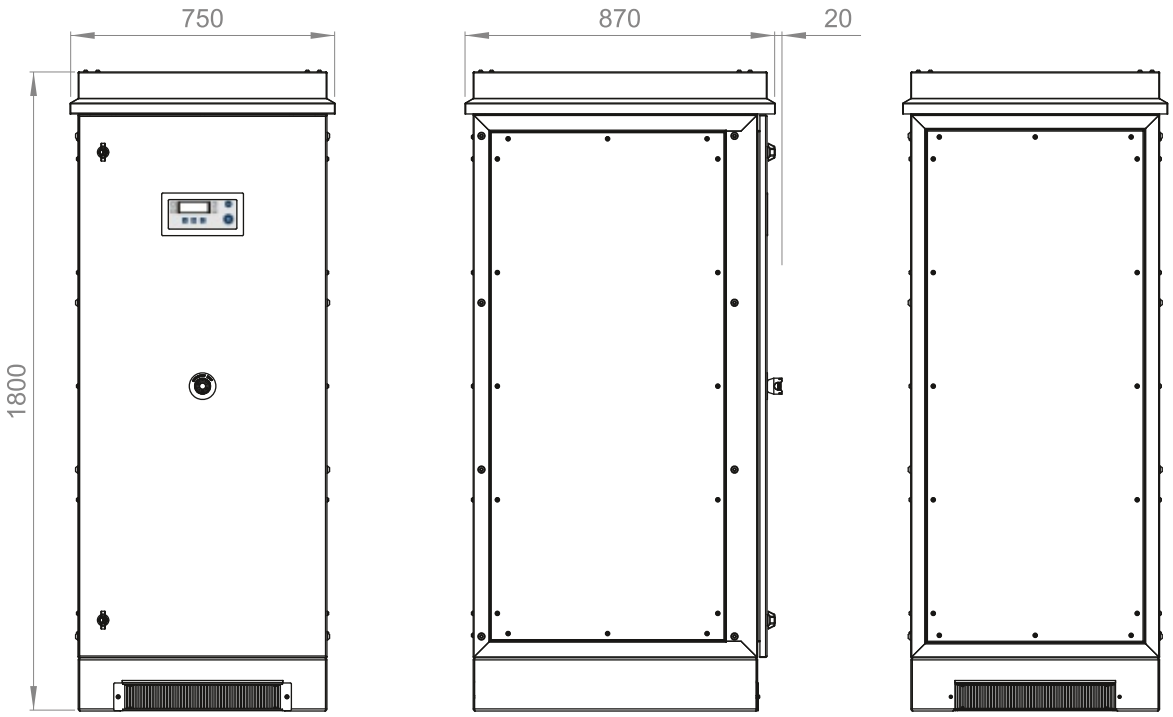
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150% Continuous

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
100-200kVA 60HZ or 50HZ

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SPECIFICATIONS

SINESFC
STATIC FREQUENCY CONVERTER
100-200kVA 60HZ or 50HZ

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150% Continuous

INVERTER

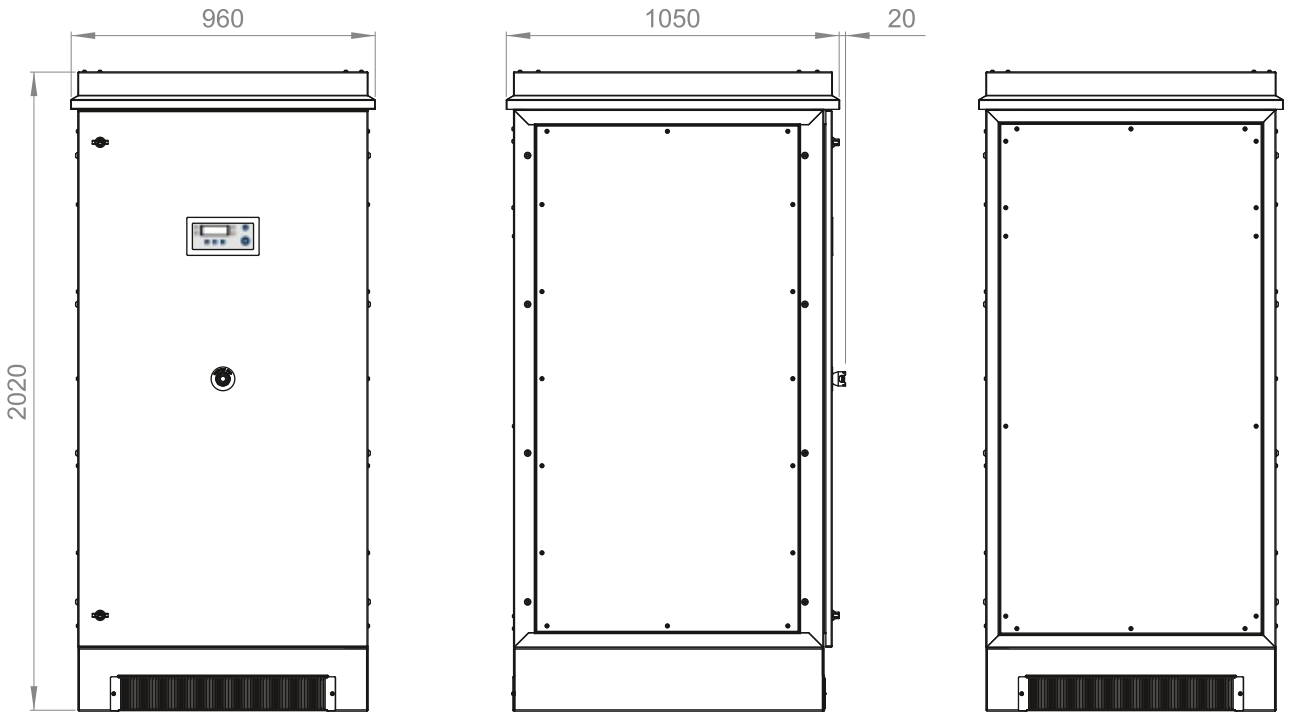
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



sinepower

SINESFC
STATIC FREQUENCY CONVERTER
300-400kVA 60HZ or 50HZ

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SPECIFICATIONS

SINESFC
STATIC FREQUENCY CONVERTER
300-400kVA 60HZ or 50HZ

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150% Continuous

INVERTER

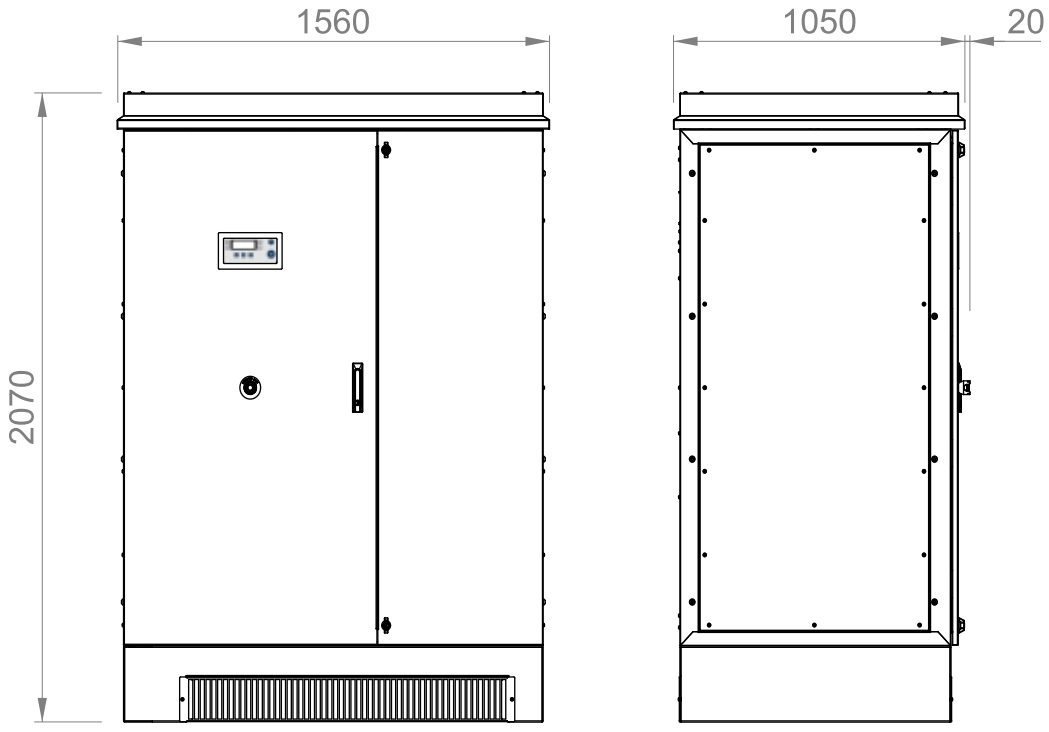
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
10-15kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SPECIFICATIONS

SINESFC
STATIC FREQUENCY CONVERTER
10-15kVA 400Hz

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC/ 400VAC/ 440VAC/ 480VAC** | ±1%*
- **400Hz** | ±0.01%*
- **Overall Efficiency** | 88%-90%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | 95%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

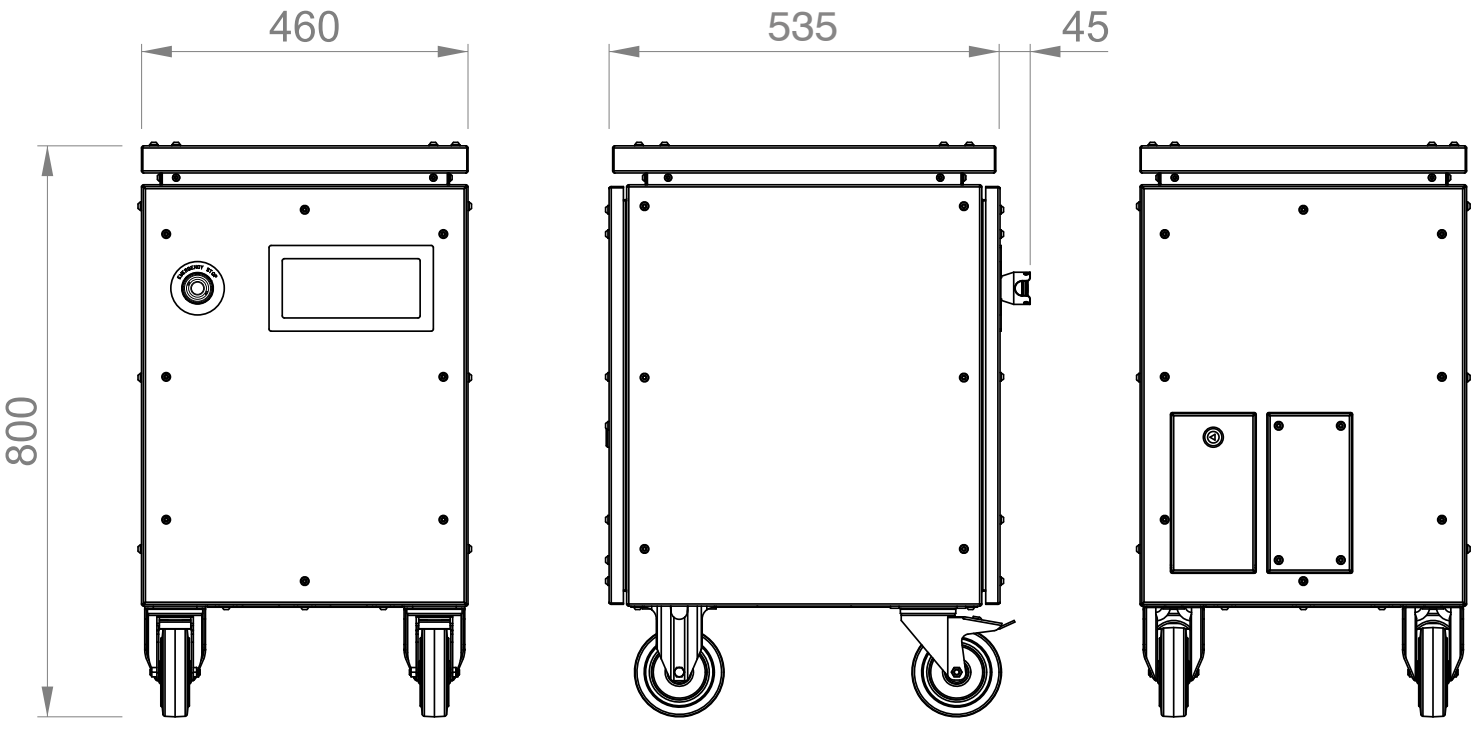
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 8%,recovering to 4% within 40ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
10-30kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY

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

TECHNOLOGY

- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS

- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
10-30kVA 400Hz

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200VAC/ 400VAC/ 440VAC/ 480VAC** | ±1%*
- **400Hz** | ±0.01%*
- **Overall Efficiency** | 88%-90%
- **Max. Crest Factor** | 1.4:1

RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | 95%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 8%,recovering to 4% within 40ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%
- **Short circuit proof by electric current limiting and shutdown**

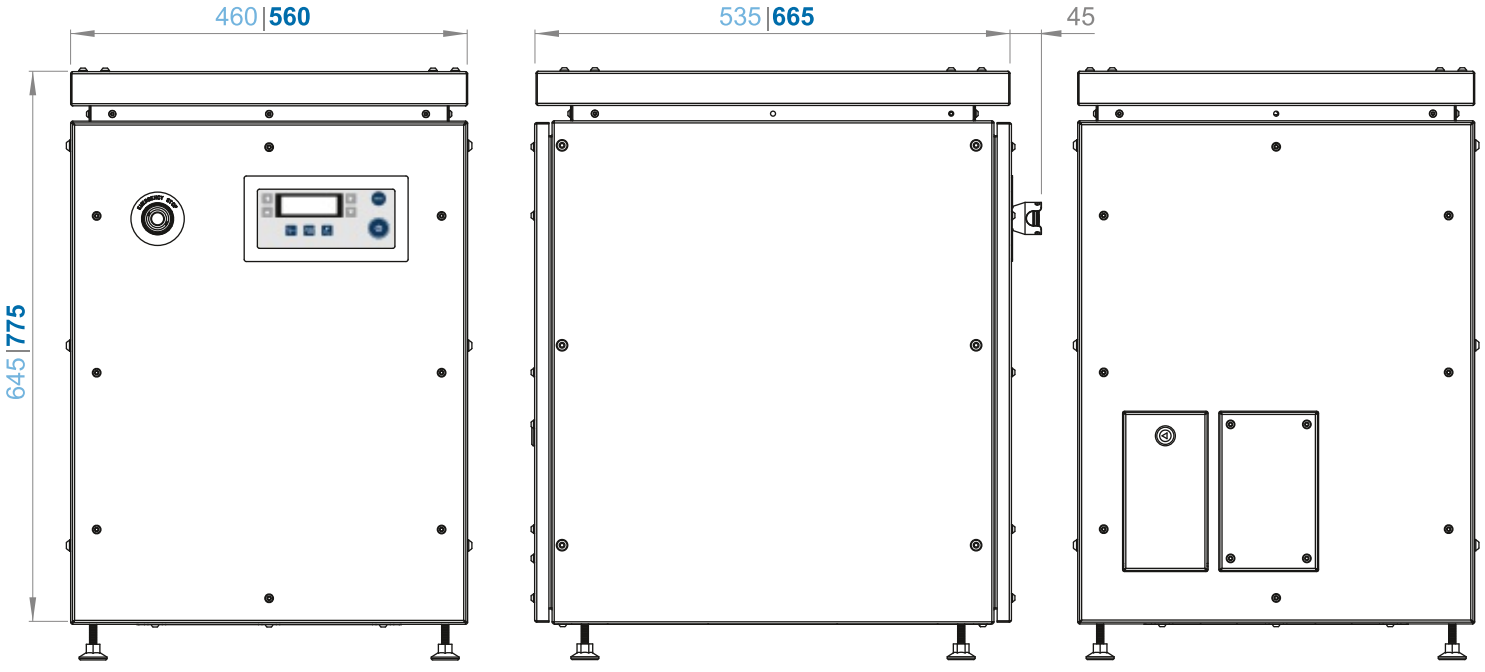
ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING

Dimensions for 450 enclosure
- 10-15kVA

Dimensions for 500 enclosure
- 20-30kVA



SINESFC
STATIC FREQUENCY CONVERTER
20-30kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
20-30kVA 400Hz

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200VAC/ 400VAC/ 440VAC/ 480VAC** | ±1%*
- **400Hz** | ±0.01%*
- **Overall Efficiency** | 88%-90%
- **Max. Crest Factor** | 1.4:1

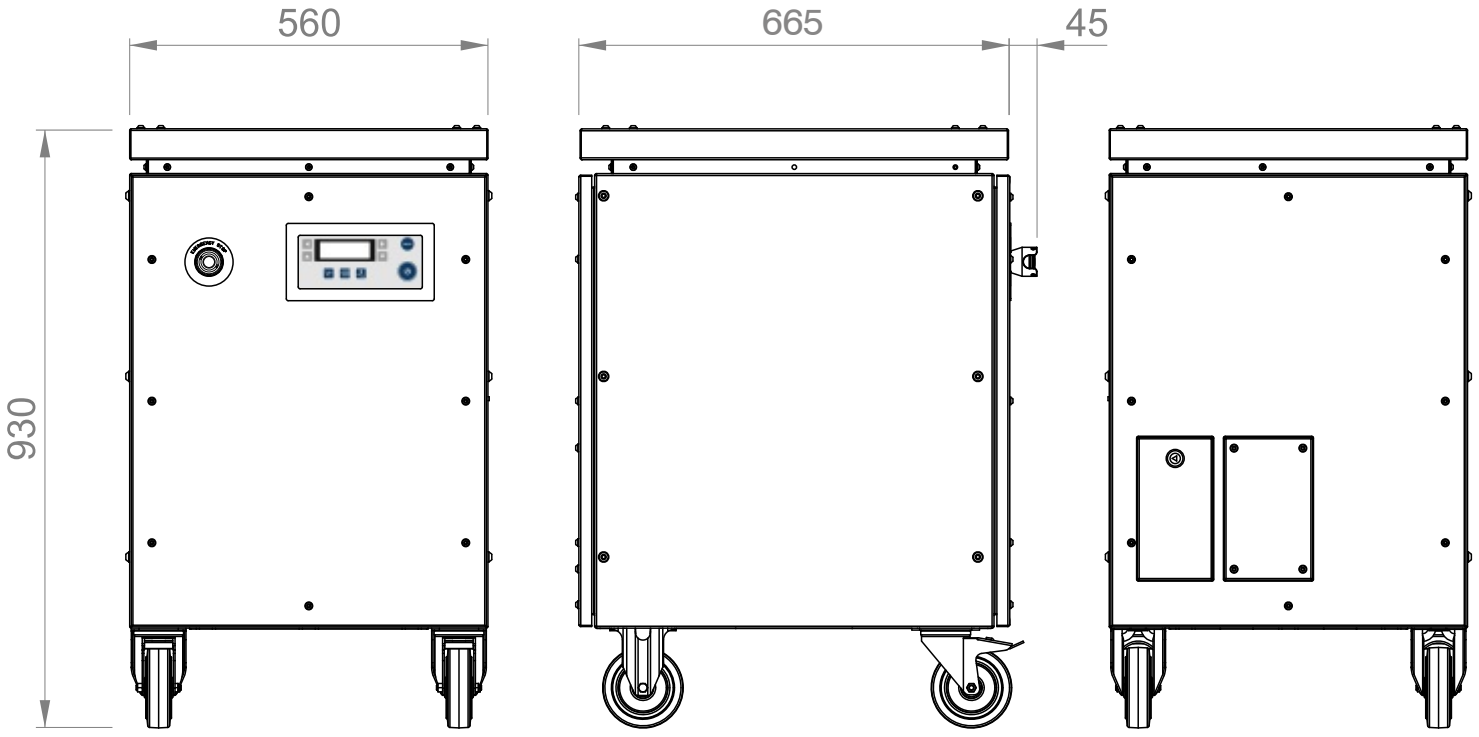
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | 95%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 8%,recovering to 4% within 40ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
30-90kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
30-90kVA 400Hz

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | +10 -15%*
- **50Hz / 65Hz** | +10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **Overall Efficiency** | up to 93%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

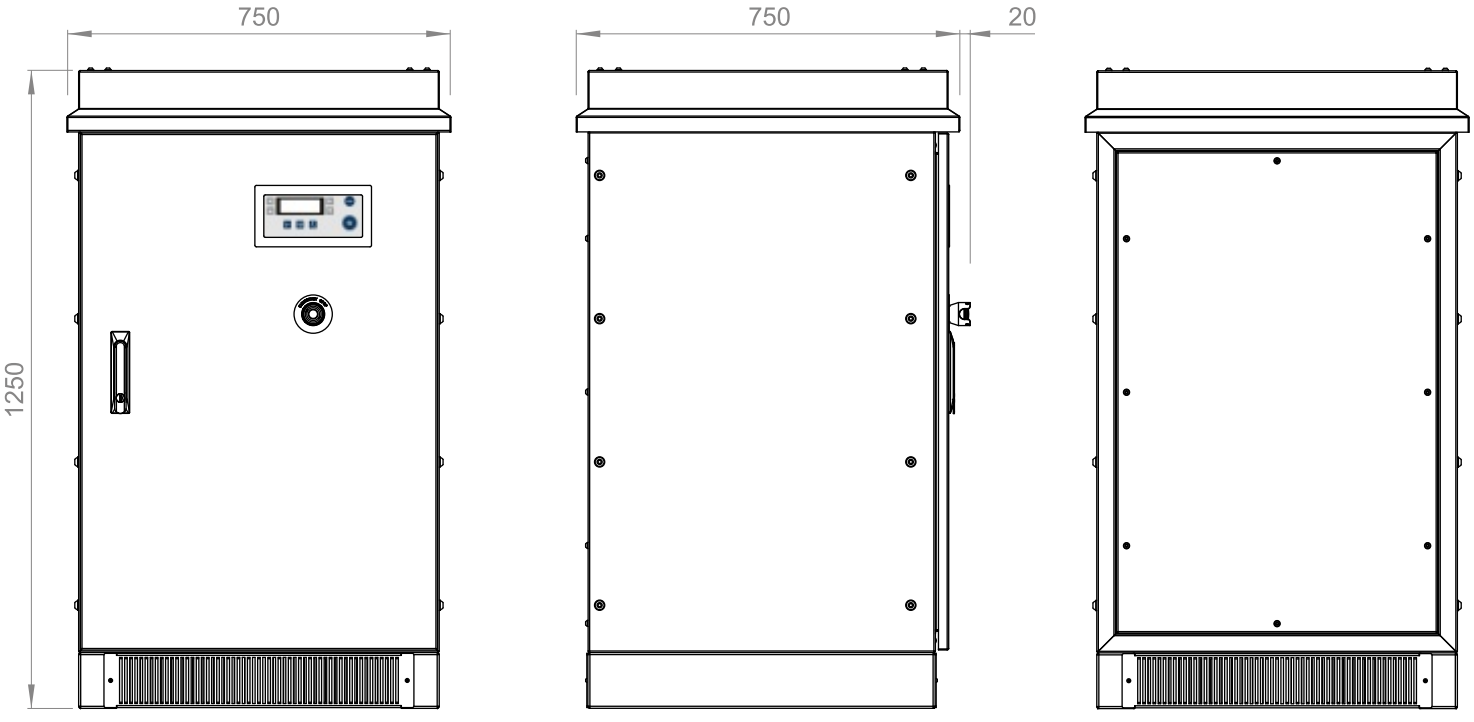
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
200-400kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
200-400kVA 400Hz

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **Overall Efficiency** | up to 93%
- **Max. Crest Factor** | 1.4:1

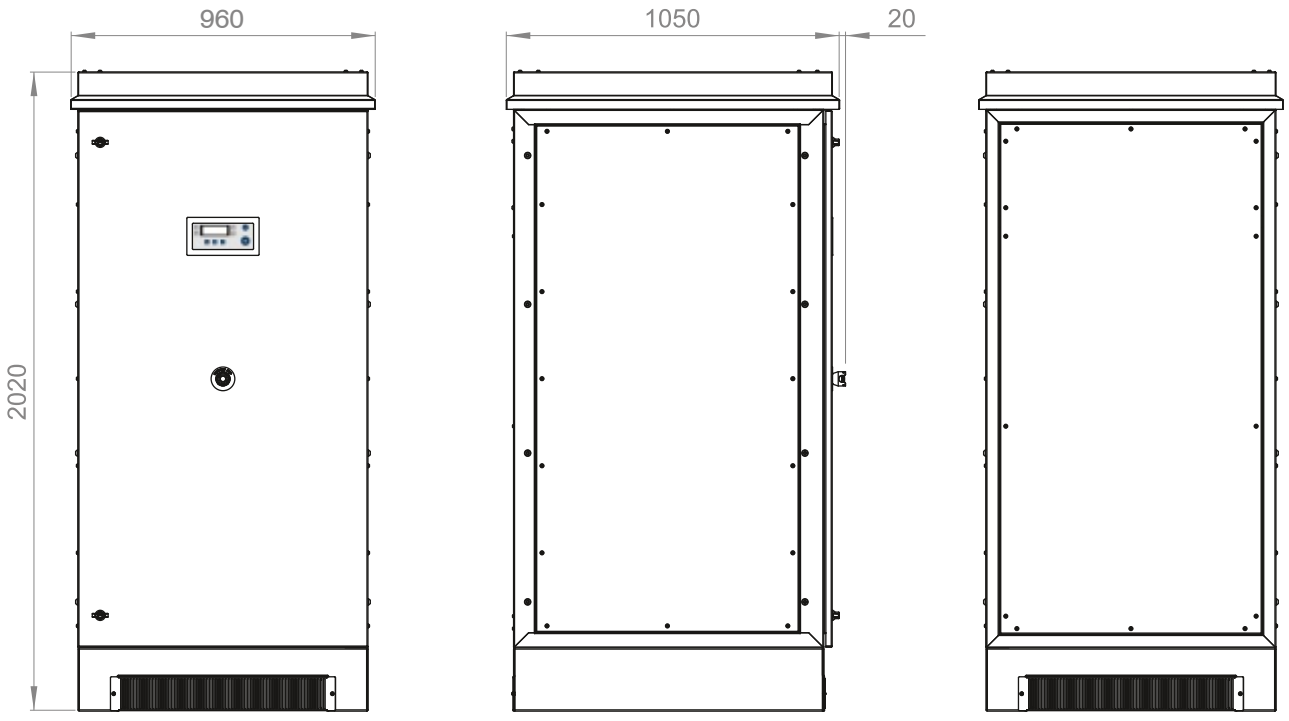
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



sinepower

SINESFC
STATIC FREQUENCY CONVERTER
500 to 2000kVA

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.

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

INPUT
- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 95% efficiency
- 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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- Enclosure Protection class up to IP54
- 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.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

MODELS
- 500kVA and 600kVA
- 800kVA and 900kVA
- 1000kVA and 1200kVA
- 1600kVA
- 2000kVA

SINESFC
STATIC FREQUENCY CONVERTER
500 to 2000kVA

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10*
- **50/60Hz** | ±10%
- **Input current harmonics** | <3% @ Full Load

OUTPUT
- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50Hz/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

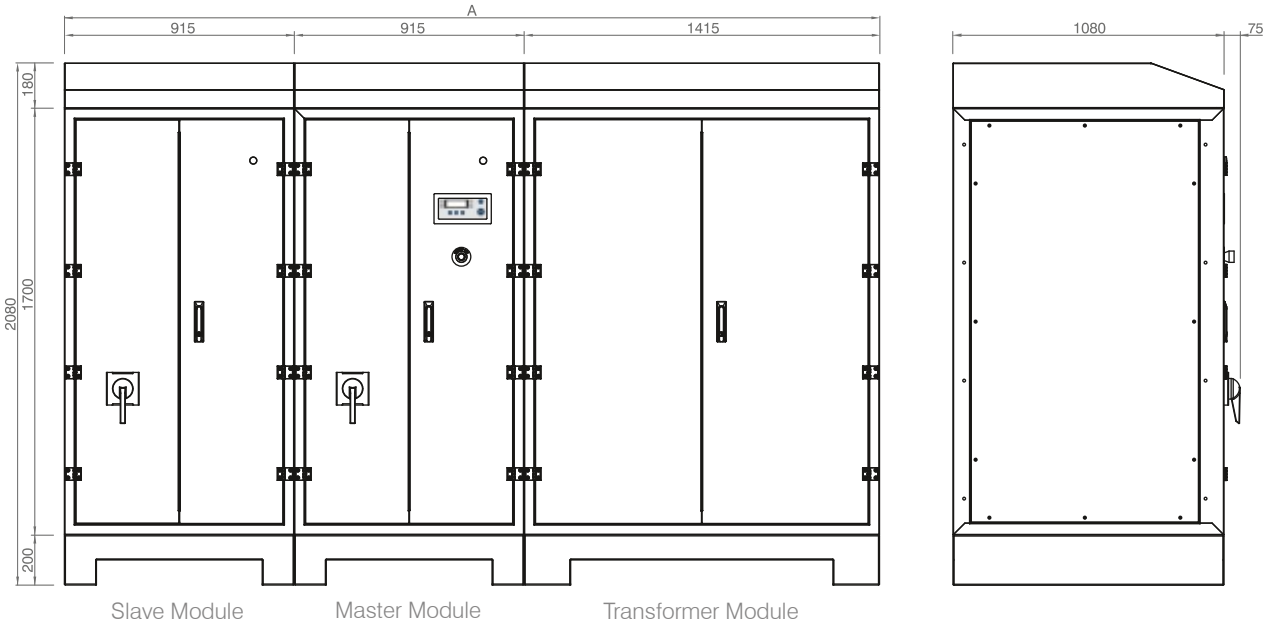
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -15% +10%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Current walk in** | 5 seconds to maximum
- **Overall current limit** | 120%

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



- 500kVA | 600kVA - A=2745mm (Transformer Module(same size as Slave Module) + MasterModule + Slave Module)
- 800kVA | 900kVA - A=4160mm (Transformer Module + MasterModule + Slave Module(2x))
- 1000kVA | 1200kVA - A=5075mm (Transformer Module + MasterModule + Slave Module(3x))
- 1600kVA - A=5990mm (Transformer Module + MasterModule + Slave Module(4x))
- 2000kVA - A=6905mm (Transformer Module + MasterModule + Slave Module(5x))

sinepower

SINE DCI
ELECTRIC VEHICLE CHARGER
50kW-1MW

SINEPOWER manufactures a variety of Electric Vehicle Chargers. The Electric Vehicle Chargers convert the source power with a specific input voltage and frequency in to a DC voltage and DC current that the client requires.

INPUT

- 400V/415V AC (±10)
- 50Hz / 65Hz (±1%)
- Input current harmonics (<5% @ Full Load)
- Power Factor Correction (PF=0.99)

OUTPUT

- Constant voltage (0V - 1000V)
- Constant Current (0A - max current)

OVERALL EFFICIENCY

- Up to 97%
- Stand-by power 100W.

TECHNOLOGY

- Enclosure Protection class up to IP54
- Over/under voltage at Input
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown
- Wired Ethernet
- WIFI
- 3G.

OPTIONS

- OCPP (charger managment)
- Dual CCS output

NORMS AND STANDARDS

- IEC 61851-1
- IEC 61851-23:AA (CHAdeMO)
- IEC 61851-23:CC (CCS)

SINE DCI
ELECTRIC VEHICLE CHARGER
50kW-1MW

SPECIFICATIONS

INPUT / RECTIFIER - 12P

- **3P+PE 400V/415V AC** | ±10%*
- **50Hz / 60Hz** | ±1%
- **Input current harmonics** | <5% @ Full Load
- **12 Pulse Bridge**
- **High Efficiency**
- **Low Inrush Current** | Soft Start <10%

ENVIRONMENTAL CONDITIONS

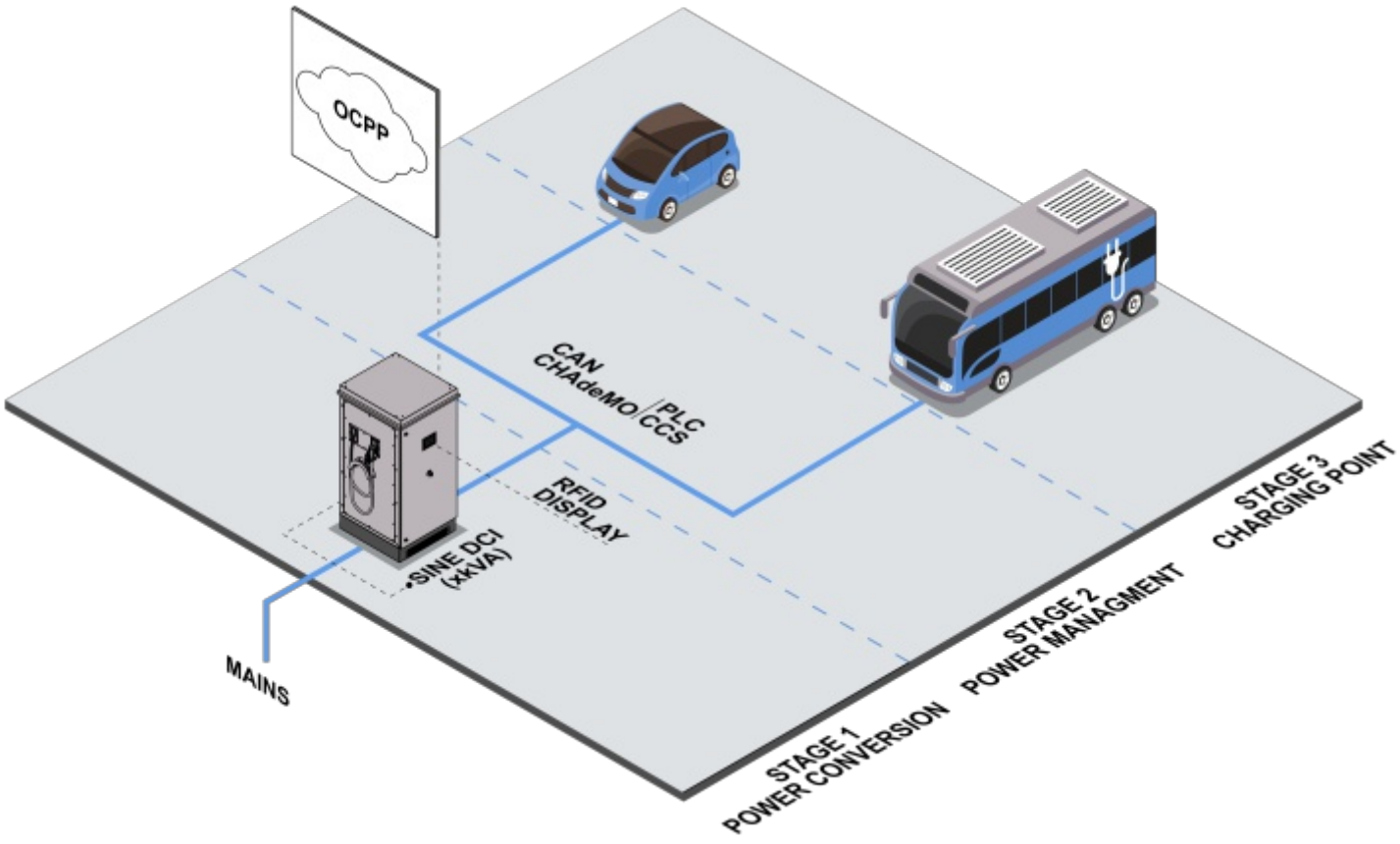
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Altitude** | Up to 2000m

OUTPUT / DC-DC CONVERTER

- **0-1000 VDC** | ±1%
- **0-MAX ADC** | ±0.25A
- **High efficiency buck IGBT Converter, constant voltage, constant current**

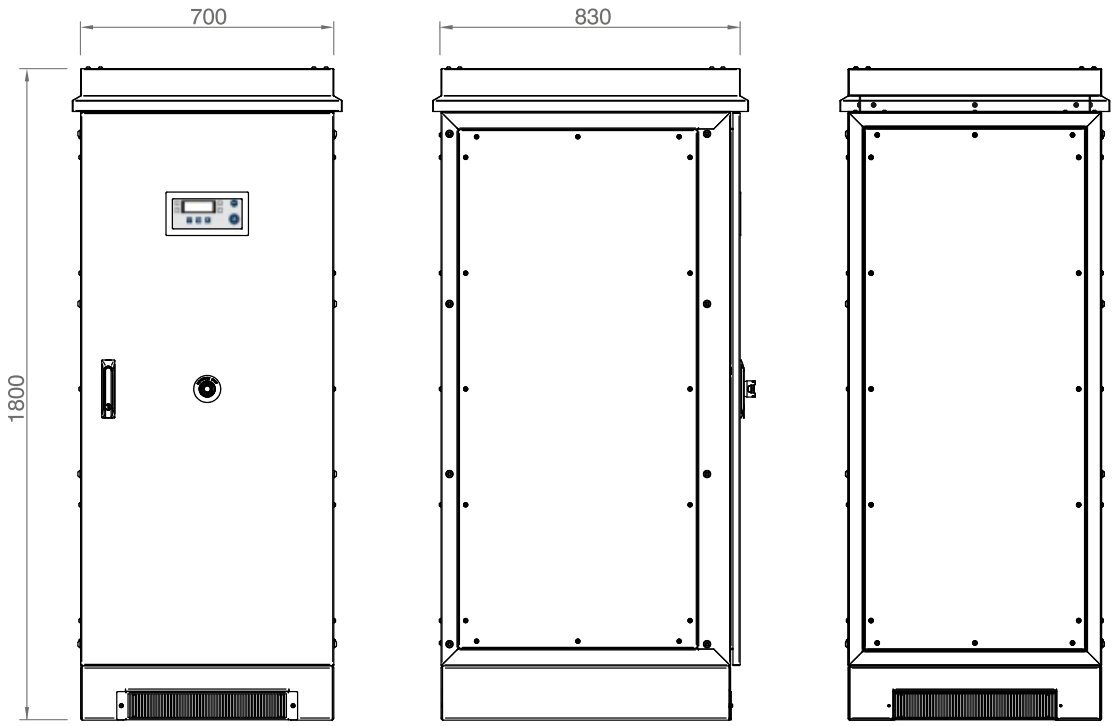
* Other voltages and frequencies available on request

PROTOCOLS

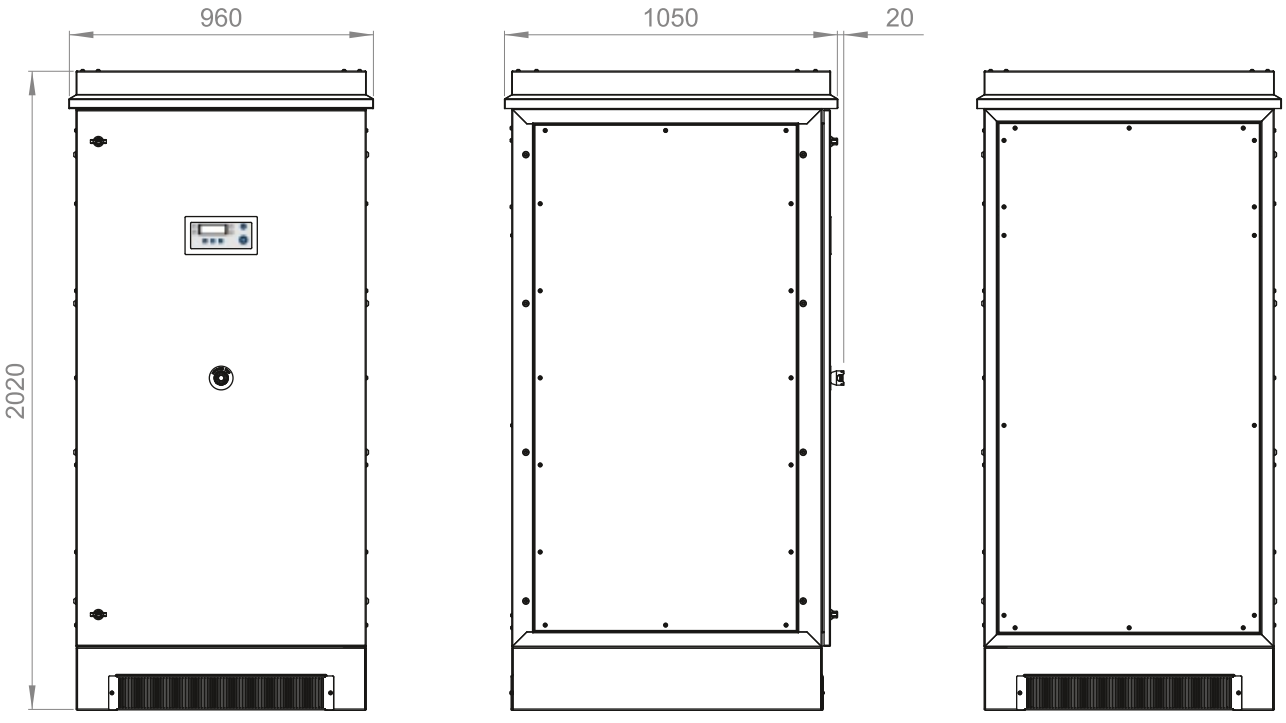


TECHNICAL DRAWING

SINE DCI
ELECTRIC VEHICLE CHARGER
50kW-1MW



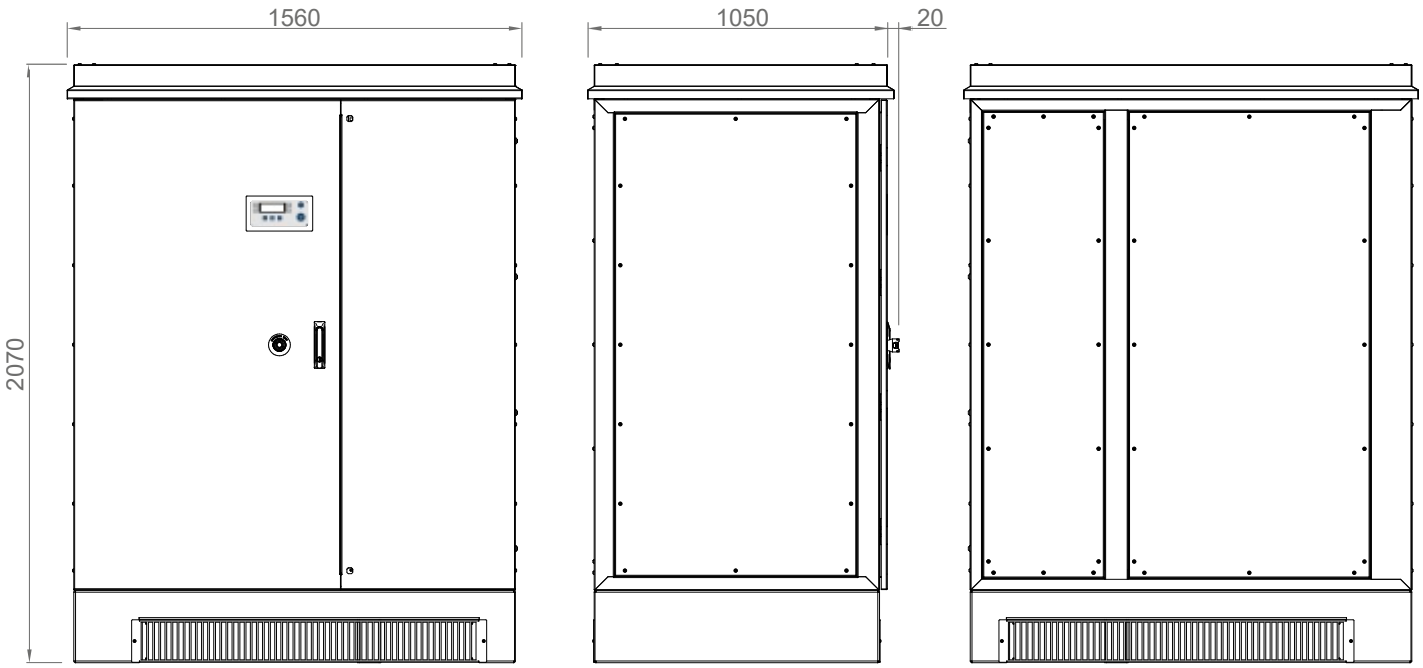
Enclosure for 50-100kW



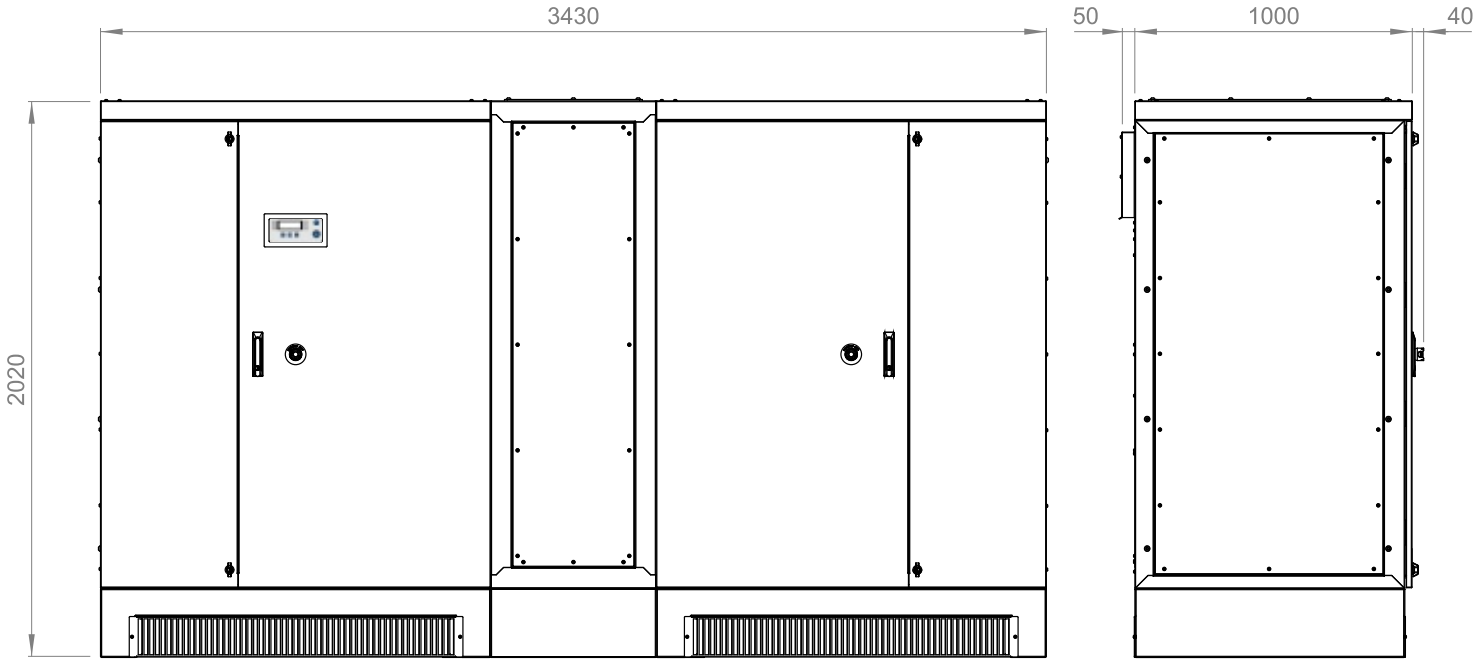
Enclosure for 200kW

TECHNICAL DRAWING

SINE DCI
ELECTRIC VEHICLE CHARGER
50kW-1MW



Enclosure for 300 and 400kW



Enclosure for 600 and 800kW

sinepower
Zona Industrial do Mamodeiro
Rua Augusto Marques Branco, Lote 21-A
3810-783 Aveiro, Portugal

Phone: +351 234 946 000
Fax: +351 234 946 007
GPS: N40º34'20'', W8º33'48''

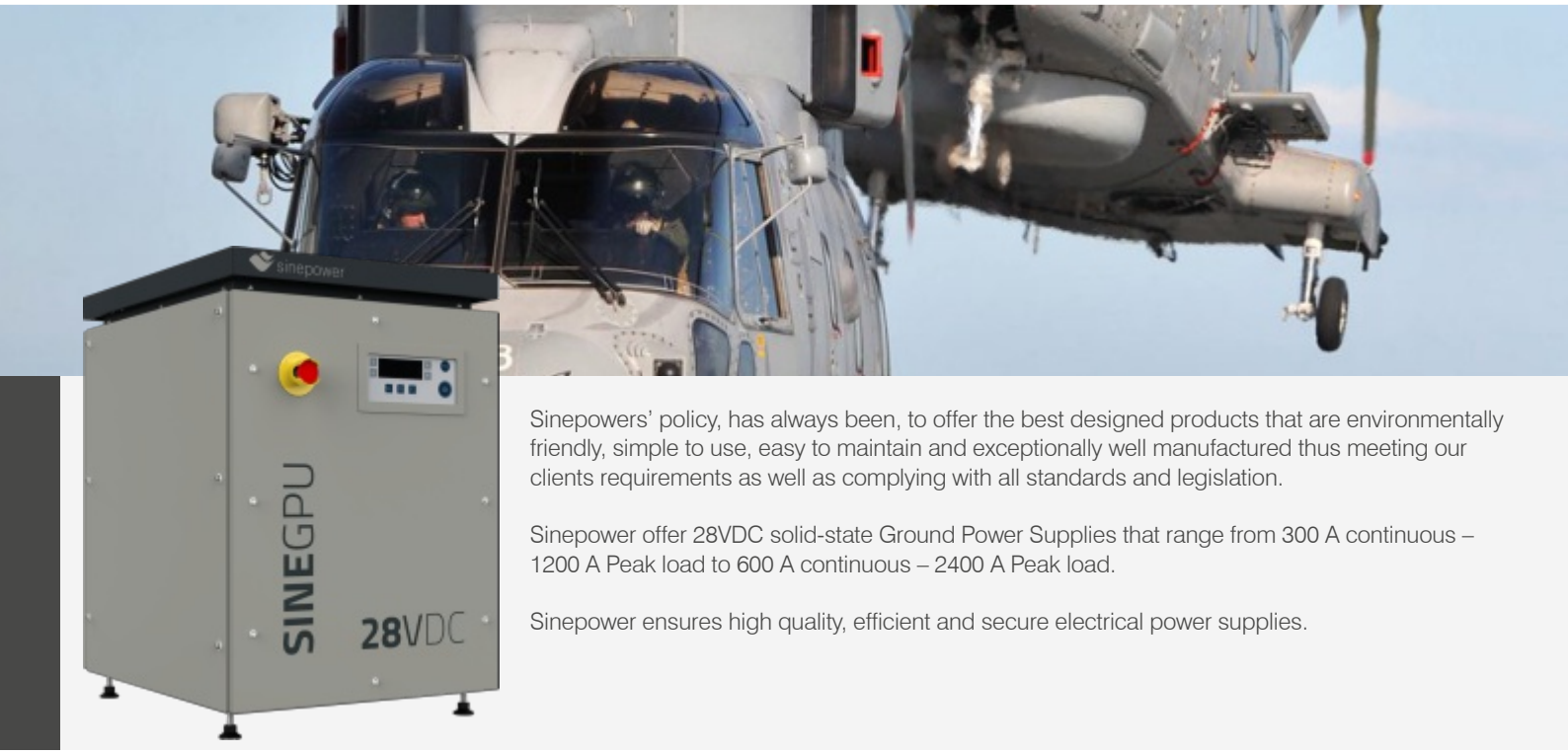
sinepower@sinepower.pt
www.sinepower.com

MILITARY

sinepower

YOUR POWER PARTNER

SINEGPU 28VDC
28VDC GROUND POWER UNIT



Sinepowers' policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower offer 28VDC solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load to 600 A continuous – 2400 A Peak load.

Sinepower ensures high quality, efficient and secure electrical power supplies.

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- Up to 90% efficiency
- Low input harmonics (<1.5% THDi), to comply with the strictest regulations @ any load.

OUTPUT

- 800Hz DC-DC Converter
- Galvanic Isolation.

EFFICIENCY

- Up to 90% efficiency
- Green Standby Function - losses: 20 W
- No load losses: <0.5 kW.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY

- Enclosure Protection class up to Ip55
- Enclousre with C5-M coating
- Over/under voltage at output:
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V at current limit (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 1200A - 5 seconds
  - 2400A - 5 seconds
- Over temperature protection.

SPECIFICATIONS

INPUT

- **4 Wire** | 3 Wire Optional
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ± 10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

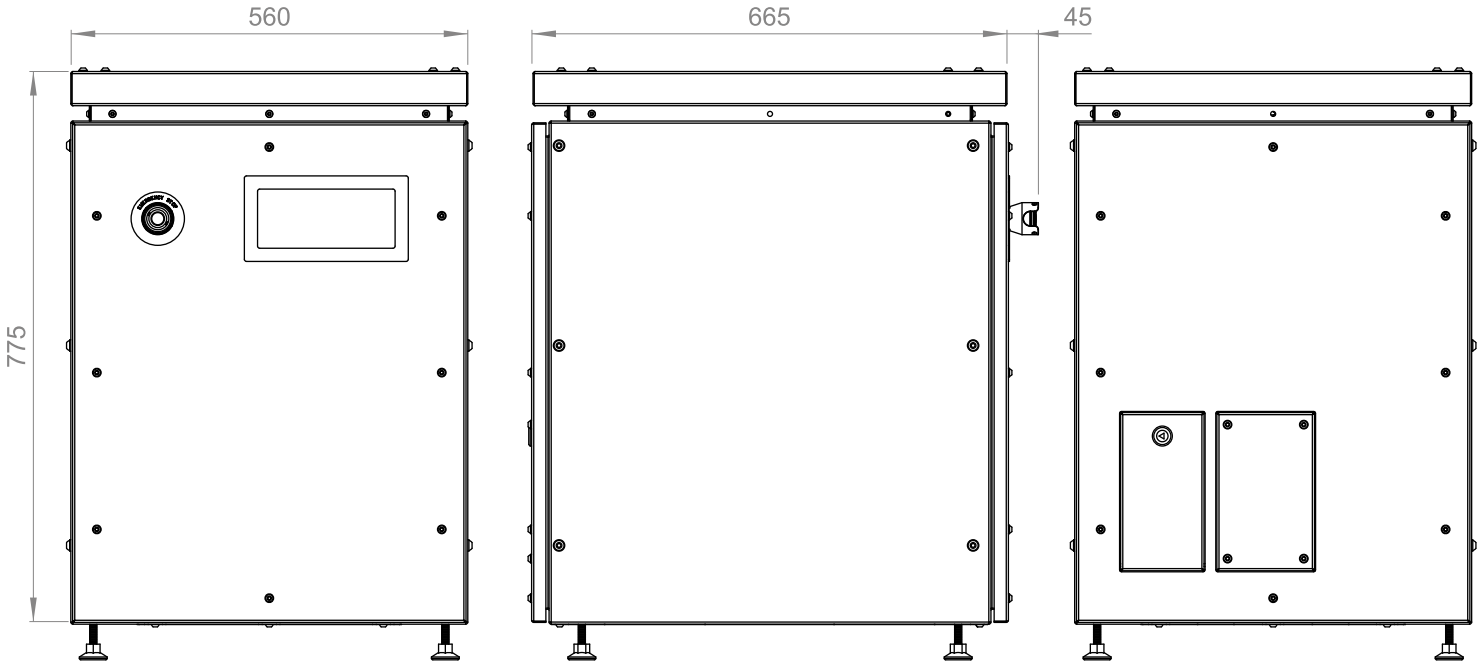
- **Output 28.5VDC** | ±1%*
- **Continuous current capability (at 28.5VDC)** | 300A/600A*
- **Maximum Current Limit (at 28VDC)** | 1200/2400A for up to 5sec
- **Current Limit adjusting steps (from 600A)** | ± 0.5%
- **Voltage regulation up to 600A** | 1%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU 28VDC
28VDC GROUND POWER UNIT (MOBILE)

Sinepowers' policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower offer 28VDC solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load to 600 A continuous – 2400 A Peak load.

Sinepower ensures high quality, efficient and secure electrical power supplies.

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- Up to 90% efficiency
- Low input harmonics (<1.5% THDi), to comply with the strictest regulations @ any load.

OUTPUT

- 800Hz DC-DC Converter
- Galvanic Isolation.

EFFICIENCY

- Up to 90% efficiency
- Green Standby Function - losses: 20 W
- No load losses: <0.5 kW.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY

- Enclosure Protection class up to Ip55
- Enclousre with C5-M coating
- Over/under voltage at output:
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V at current limit (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 1200A - 5 seconds
  - 2400A - 5 seconds
- Over temperature protection.

SPECIFICATIONS

INPUT

- **4 Wire** | 3 Wire Optional
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ± 10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

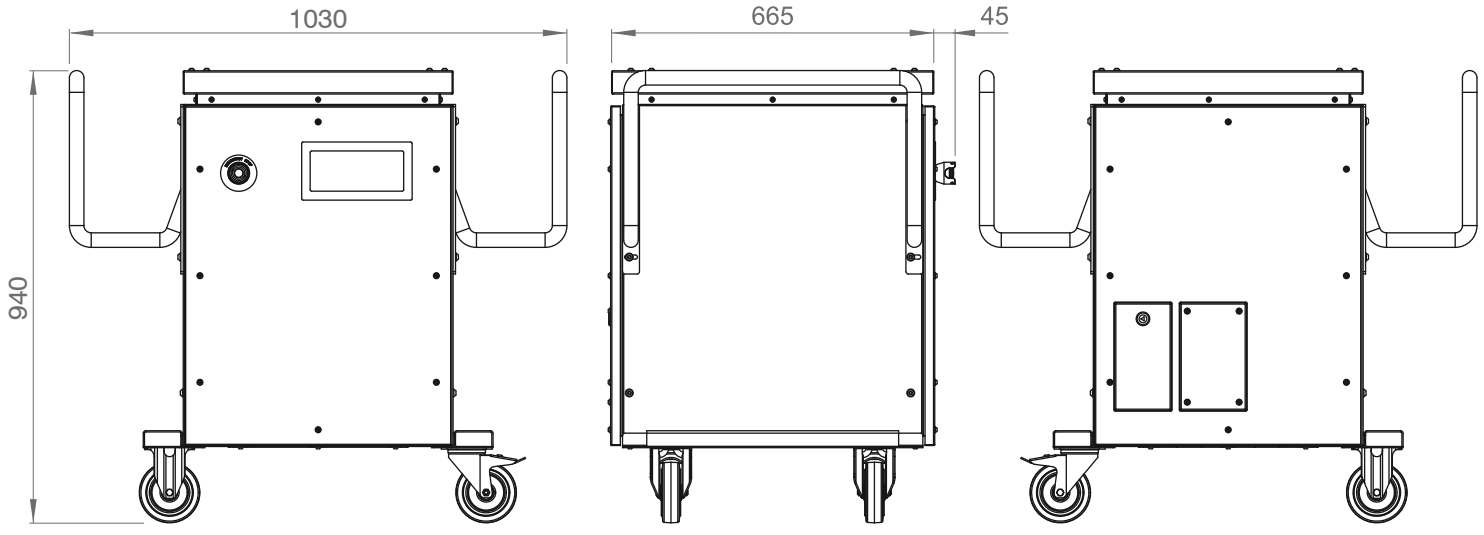
- **Output 28.5VDC** | ±1%*
- **Continuous current capability (at 28.5VDC)** | 300A/600A*
- **Maximum Current Limit (at 28VDC)** | 1200/2400A for up to 5sec
- **Current Limit adjusting steps (from 600A)** | ± 0.5%
- **Voltage regulation up to 600A** | 1%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SINEGPU
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

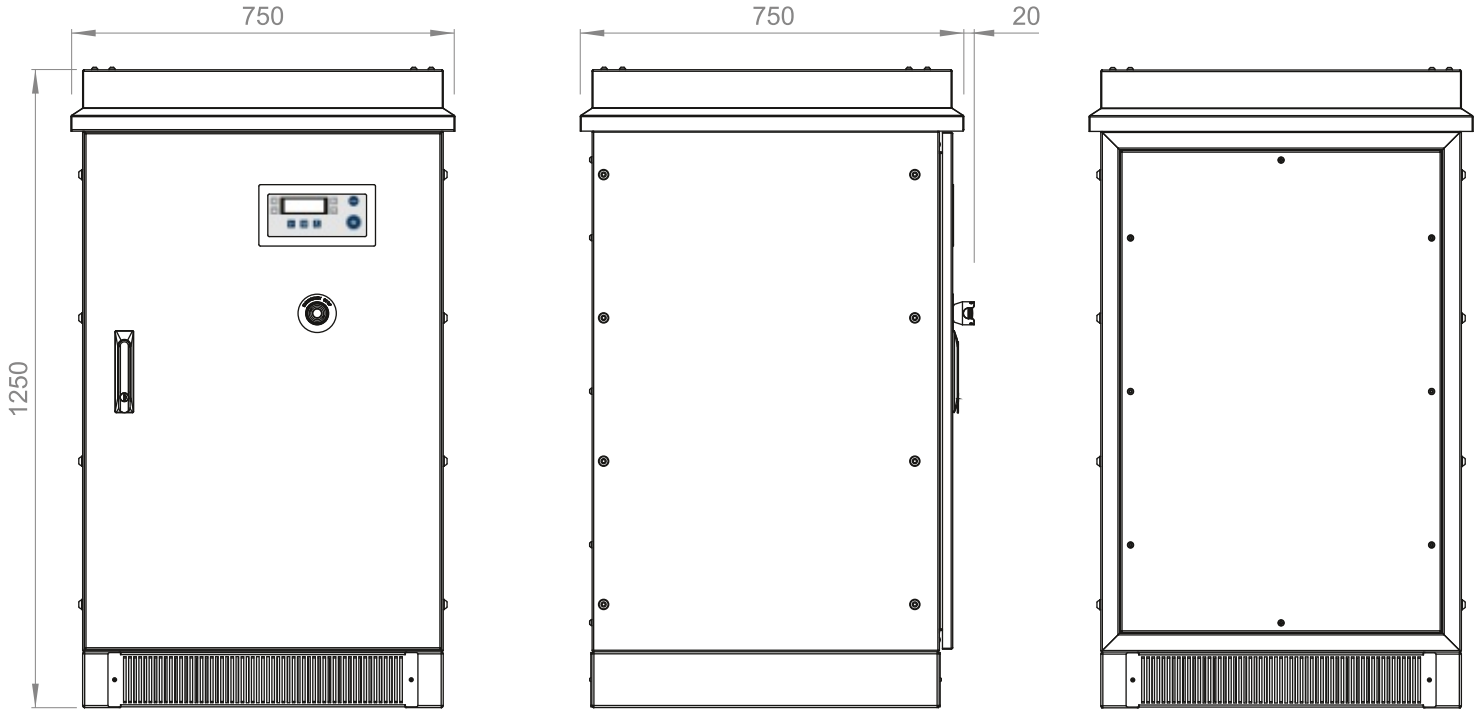
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINEGPU
120 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

INPUT

- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 97% 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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 120kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SPECIFICATIONS

SINEGPU
120 KVA SOLID STATE
400HZ GROUND POWER UNIT

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -10% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

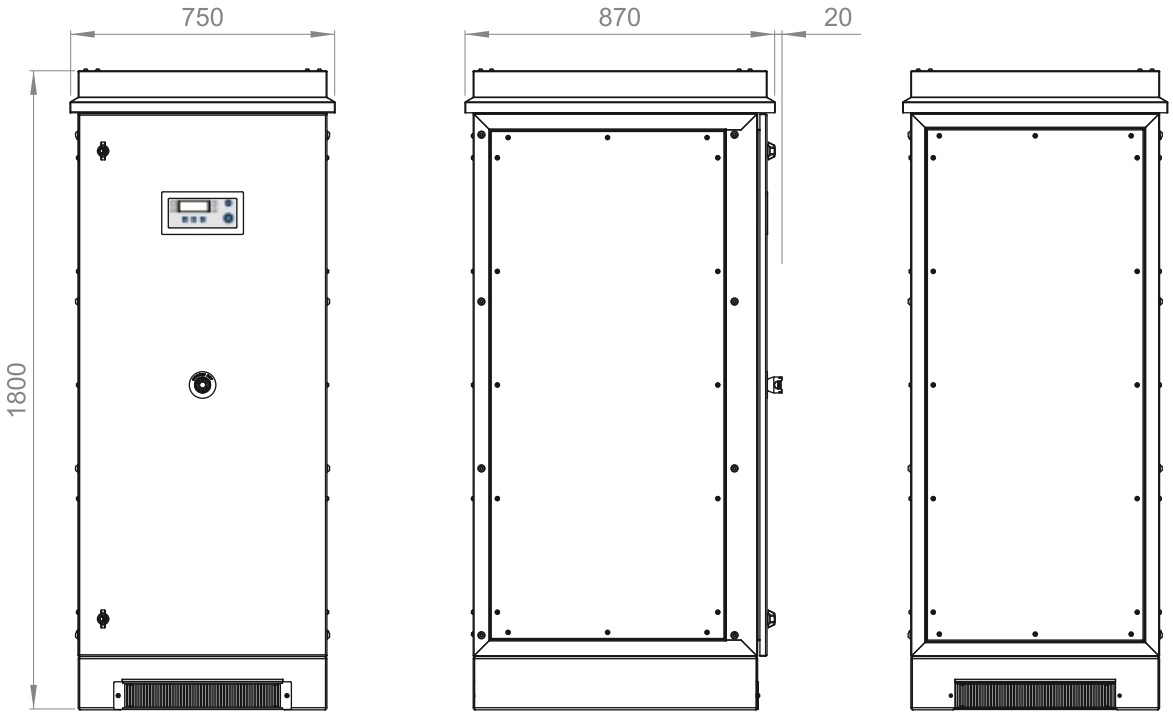
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINEGPU
180 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 180kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SPECIFICATIONS

SINEGPU
180 KVA SOLID STATE
400HZ GROUND POWER UNIT

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

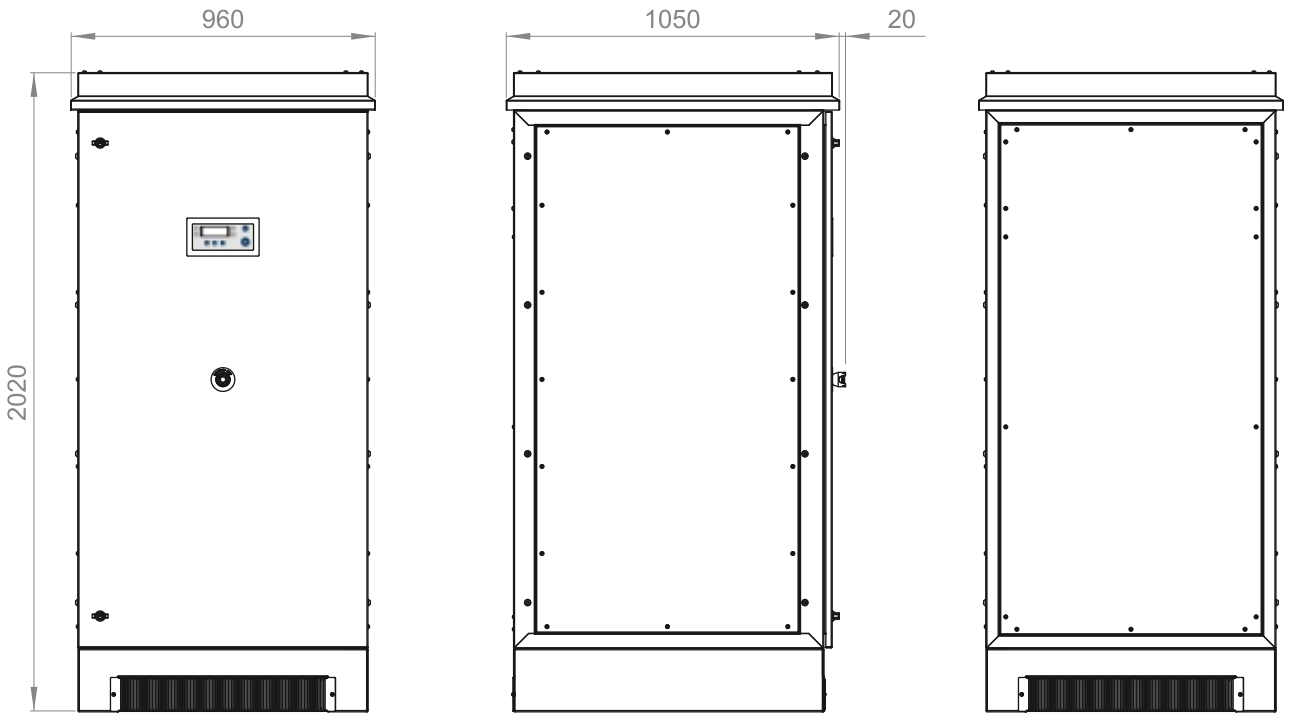
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Sinepower's GPU&DC units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<1.5%).

The 28VDC offers a solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load and 600 A continuous – 2400 A Peak load.

Sinepower ensure high quality, efficient and secure electrical power supplies.

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.

NORMS AND STANDARDS

AVIATON
- DFS400 - Specification for 400 Hz aircraft power
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1.5 kW.

OUTPUT

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

TECHNOLOGY (GPU)

- Enclosure Protection class up to IP55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

TECHNOLOGY (DC)

- Over/under voltage at input
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 125% for 600seconds
  - 150% for 60 seconds
  - 400% for 5 seconds
- Over temperature protection.

SPECIFICATIONS

SINEGPU COMBI
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

GPU

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%,recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

DC

INPUT

- **3 phase 3 wire**
- **3 phase 400V/415V AC** | ±10%*
- **50Hz or 60Hz** | ± 5%(frequency independent)
- **Input current harmonics** | <1.5% @ nominal current

OUTPUT

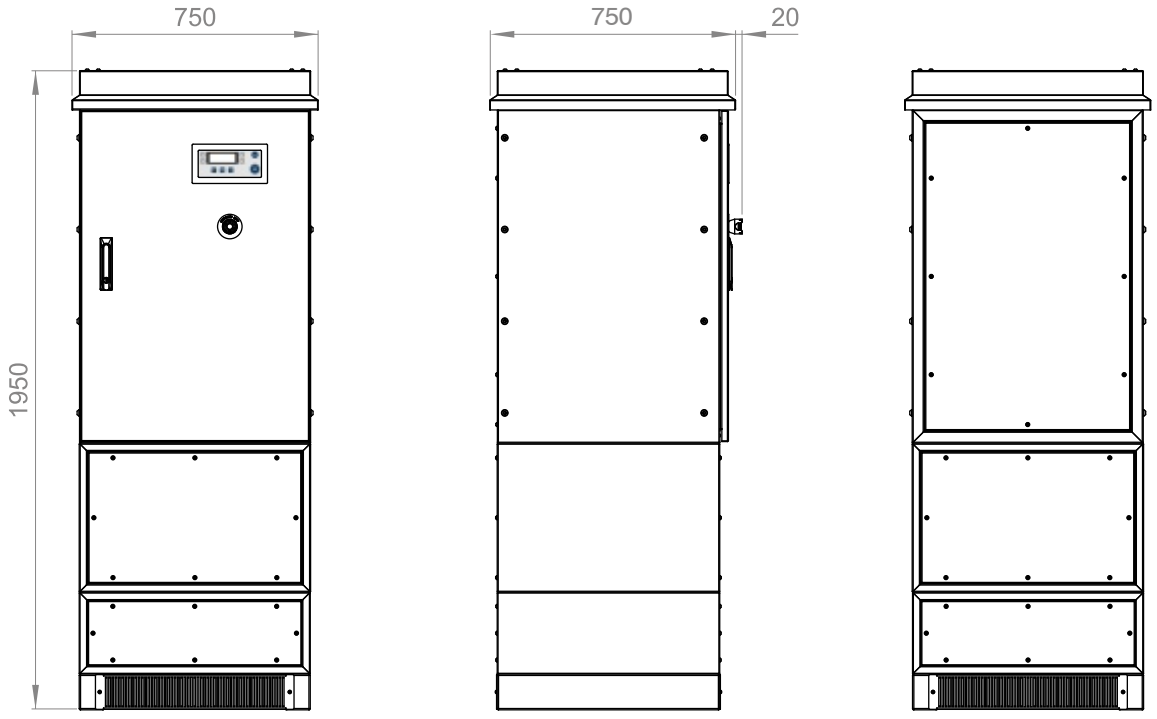
- **Output 28.5VDC**
- **Continuous current capability (@28.5VDC)** | 300A/600A/800A
- **Maximum Current Limit (@28VDC)** | 1200/2000A for up to 5sec
- **Current Limit adjusting steps (from 800A)** | 300A
- **Voltage regulation up to 600A** | ± 0.5%
- **Efficiency (@600A/800A)** | 80%-90%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier** | <0.5%

ENVIRONMENTAL CONDITIONS

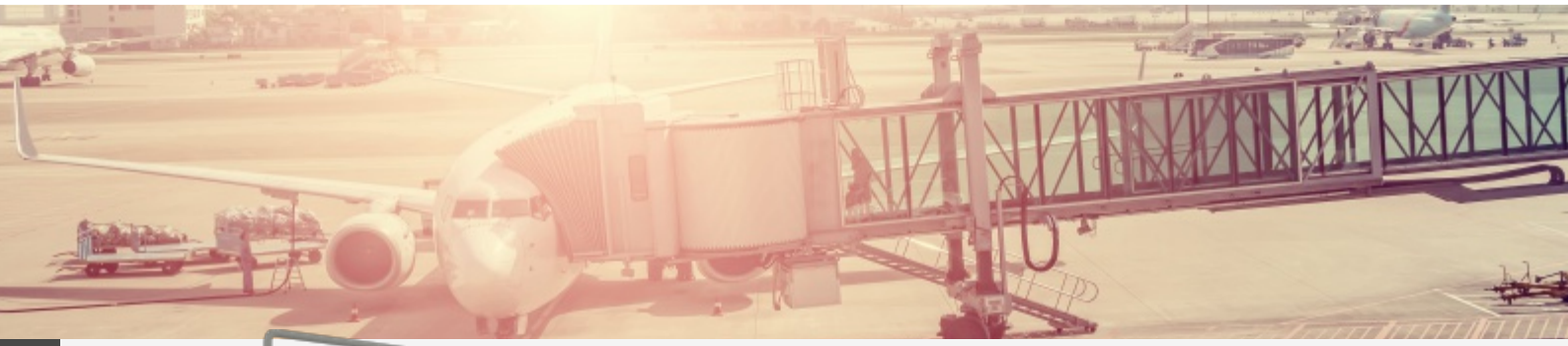
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINEGPU COMBI MOBILE
30, 45, 60 & 90 KVA SOLID STATE 400HZ GROUND POWER UNIT



Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Sinepower's GPU&DC units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<1.5%).

The 28VDC offers a solid-state Ground Power Supplies that range from 300 A continuous – 1200 A Peak load and 600 A continuous – 2400 A Peak load.

Sinepower ensure high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

TECHNOLOGY (GPU)

- Enclosure Protection class up to IP55
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1.5 kW.

TECHNOLOGY (DC)

- Over/under voltage at input
  - Under voltage <20V (4 sec)
  - Over voltage >34V (4 sec)
  - Short Circuit <5V (4 sec)
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Overload protections set at:
  - 125% for 600seconds
  - 150% for 60 seconds
  - 400% for 5 seconds
- Over temperature protection.

SPECIFICATIONS

SINEGPU COMBI MOBILE
30, 45, 60 & 90 KVA SOLID STATE
400HZ GROUND POWER UNIT

GPU

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%,recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

DC

INPUT

- **3 phase 3 wire**
- **3 phase 400V/415V AC** | ±10%*
- **50Hz or 60Hz** | ± 5%(frequency independent)
- **Input current harmonics** | <1.5% @ nominal current

OUTPUT

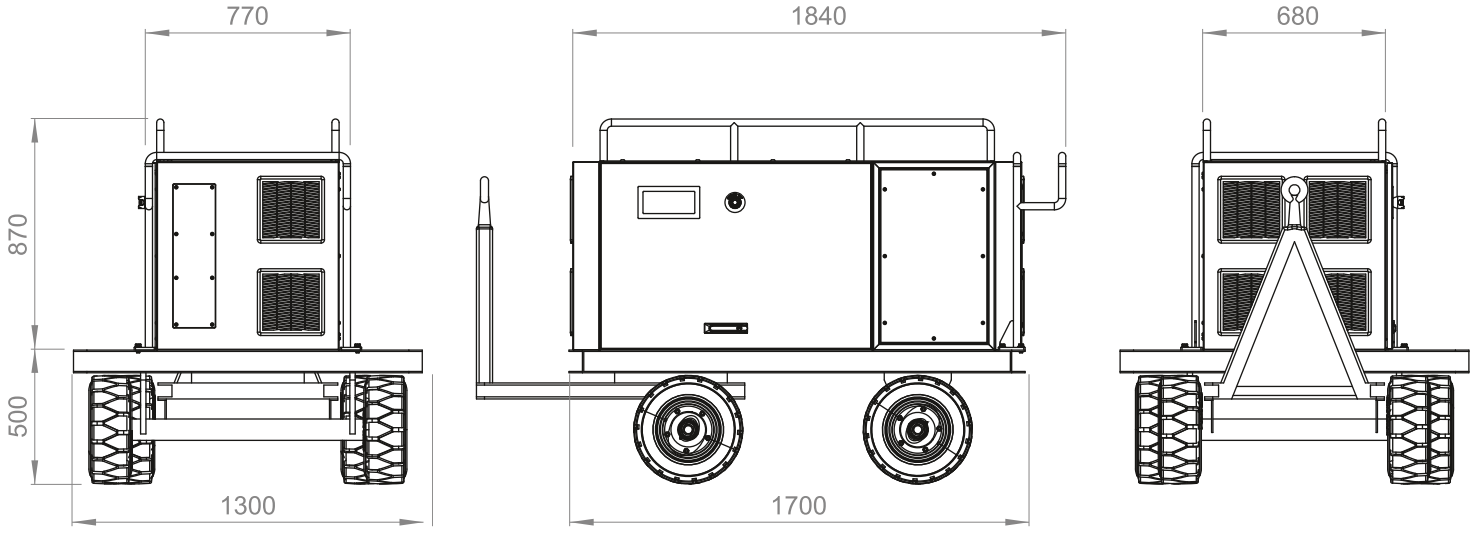
- **Output 28.5VDC**
- **Continuous current capability (@28.5VDC)** | 300A/600A/800A
- **Maximum Current Limit (@28VDC)** | 1200/2000A for up to 5sec
- **Current Limit adjusting steps (from 800A)** | 300A
- **Voltage regulation up to 600A** | ± 0.5%
- **Efficiency (@600A/800A)** | 80%-90%
- **Ripple** | <0.5%
- **Dynamic Recovery to 90% VDC** | <40ms
- **Voltage Compensation** | 0-4V up to 600A (remote feedback)
- **Galvanic Isolation** | 800Hz Transformer
- **IGBT + DIODE Rectifier** | <0.5%

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



TROLLEY SPECIFICATIONS

- **Max. load** | 2500Kg
- **Max. speed** | 6Km/h
- **Useful length** | 1700mm
- **Useful width** | 1300mm
- **Platform height** | 500mm
- **Wheels** | 4.00x8 super elastic
- **Platform** | Non sliding steel plate

SINEGPU MOBILE
30, 45, 60 & 90 KVA SOLID STATE 400HZ MOBILE GROUND POWER UNIT

Sinepower has been developing and manufacturing 400Hz solid state Frequency Converters for more than a decade now.

Our policy, has always been, to offer the best designed products that are environmentally friendly, simple to use, easy to maintain and exceptionally well manufactured thus meeting our clients requirements as well as complying with all standards and legislation.

Sinepower's GPU units were designed with Power factor correction to guarantee a perfect sinusoidal input current from 25% to 150% load and a low THDi (<2%).

Sinepower ensures high quality, efficient and secure electrical power supplies.

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

- Voltage compensation (Load Dependent or via Remote Feedback – Real PLUG &PLAY. Connect GPU to aircraft and voltage compensation is done automatically, no user adjustment required or additional accessories)
- 4 Quadrant Operation (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

NORMS AND STANDARDS

AVIATON
- ISO 6858 - Aircraft ground support electric supplies
- SAE ARP 5015 - Ground equipment 400 Hz gound power performance requirement

MILITAR
- MIL-STD-704 - Aircraft electric power characteristics

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

EFFICIENCY

- Up to 94% - 30KVA to 90kVA @ load PF=0.8 to 1.0
- 90% - < 30 kVA @ load PF=0.8 to 1.0
- Green Standby Function - losses: 20 W
- No load losses: <1%.

TECHNOLOGY

- Enclosure Protection class up to IP55
- Enclousre with C5-M coating
- No break power transfer compatibility (NBPT)
- Over/under voltage at output
- Overload capability designed for:
  - Power stage 150% - Continuous
  - Magnetics 120% - Continuous
- Regulator 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
- 90% switch interlock

SINEGPU MOBILE
30, 45, 60 & 90 KVA SOLID STATE
400HZ MOBILE GROUND POWER UNIT

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT
- **3 phase 200V AC -400Hz** | ±1%*
- **Overall Efficiency** | 90%-95%
- **Max. Crest Factor** | 1.4:1

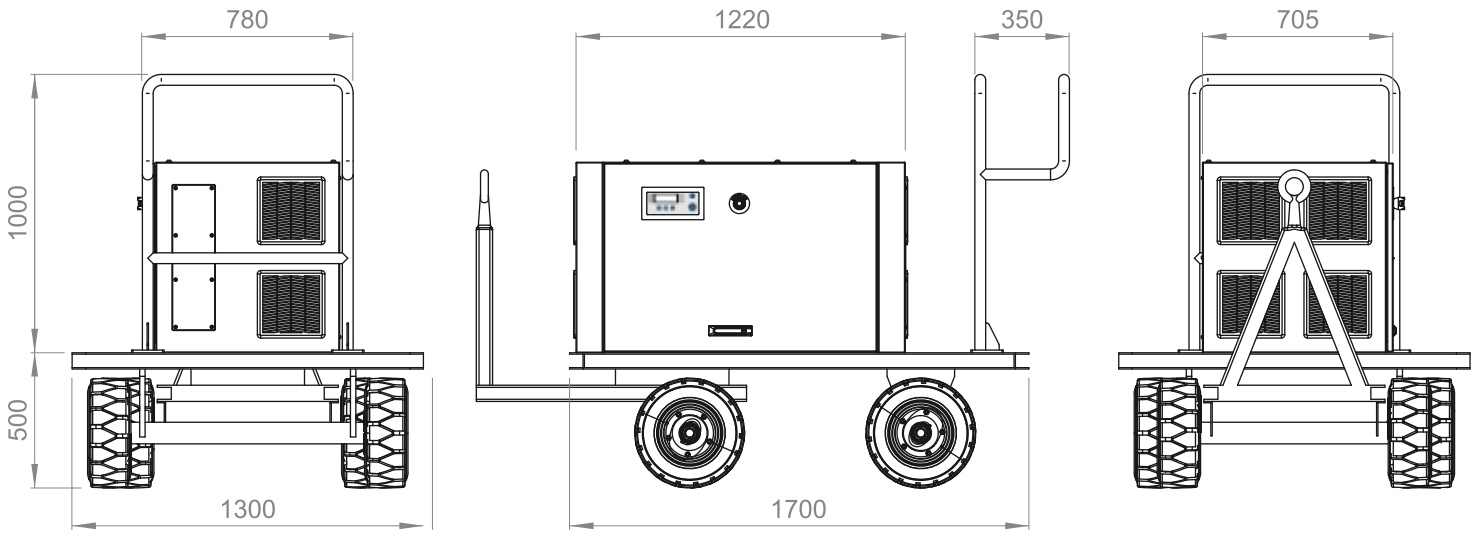
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +10%
- **Efficiency** | 95%-97%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 10%, recovering to 1% within 20ms
- **Total harmonic distortion** | Better than 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%-98%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



TROLLEY SPECIFICATIONS
- **Max. load** | 2500Kg
- **Max. speed** | 6Km/h
- **Useful length** | 1700mm
- **Useful width** | 1300mm
- **Platform height** | 500mm
- **Wheels** | 4.00x8 super elastic
- **Platform** | Non sliding steel plate

SINESFC
STATIC FREQUENCY CONVERTER
100-200kVA 60HZ or 50HZ

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SPECIFICATIONS

SINESFC
STATIC FREQUENCY CONVERTER
100-200kVA 60HZ or 50HZ

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150% Continuous

INVERTER

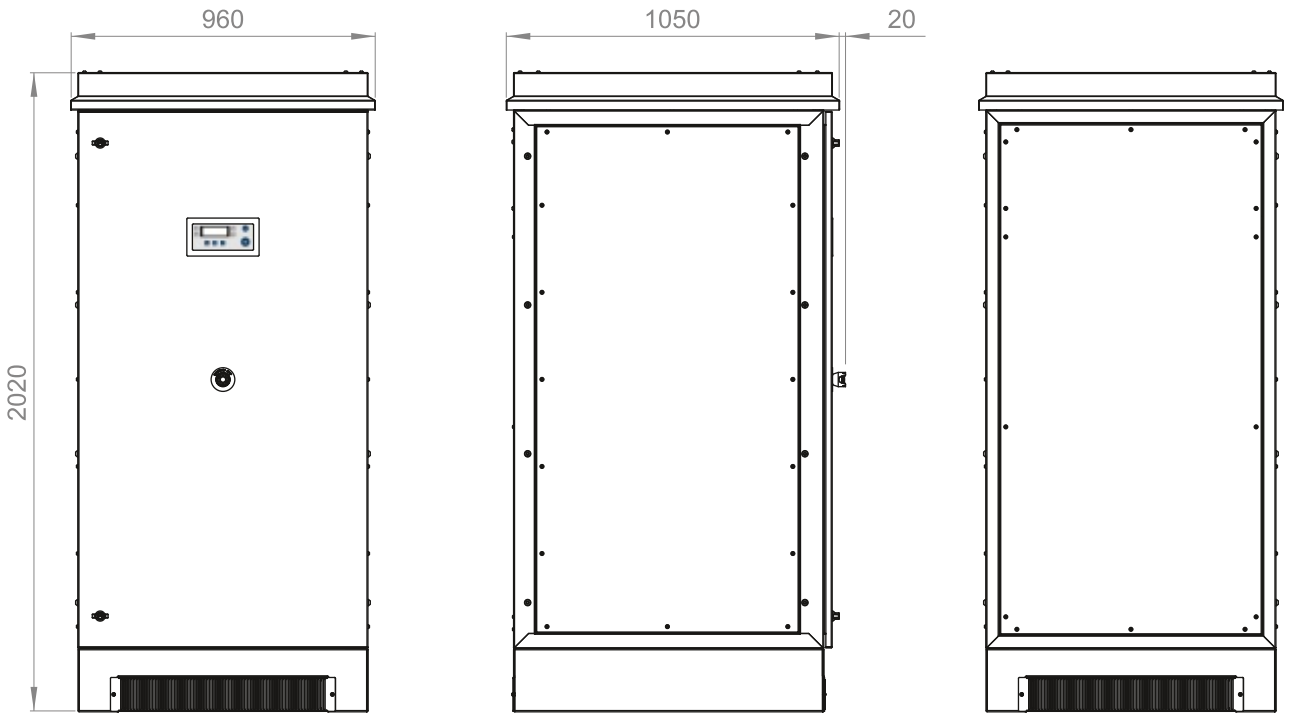
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
300-400kVA 60HZ or 50HZ

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SPECIFICATIONS

SINESFC
STATIC FREQUENCY CONVERTER
300-400kVA 60HZ or 50HZ

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150% Continuous

INVERTER

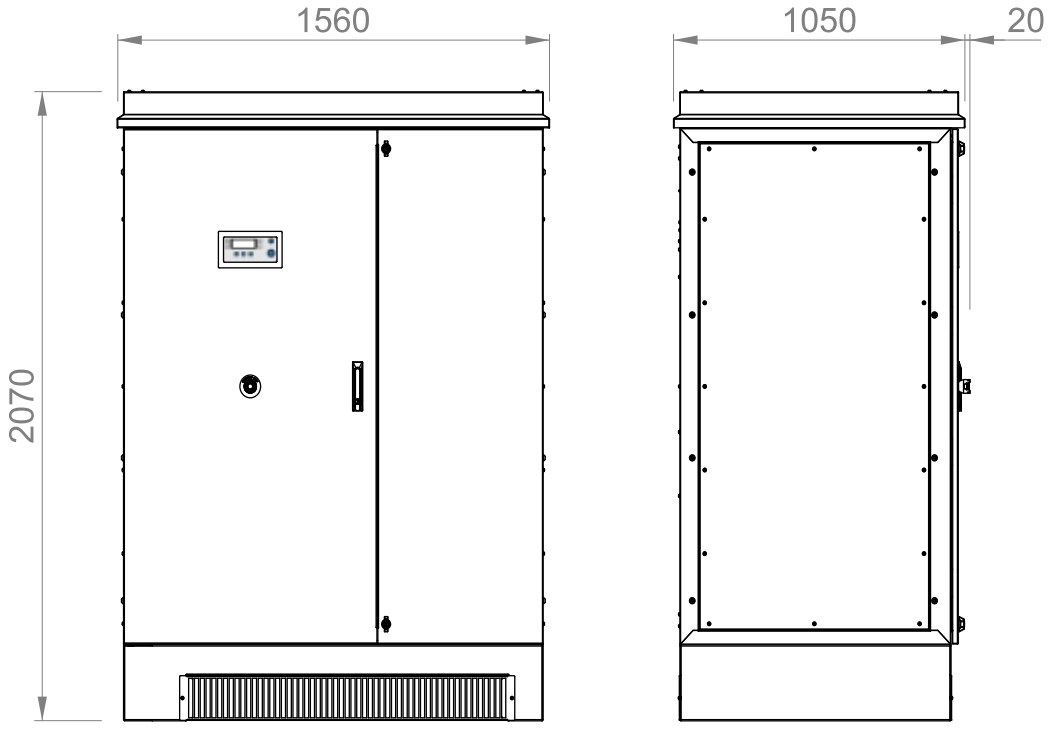
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
10-15kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
10-15kVA 400Hz

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC/ 400VAC/ 440VAC/ 480VAC** | ±1%*
- **400Hz** | ±0.01%*
- **Overall Efficiency** | 88%-90%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | 95%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

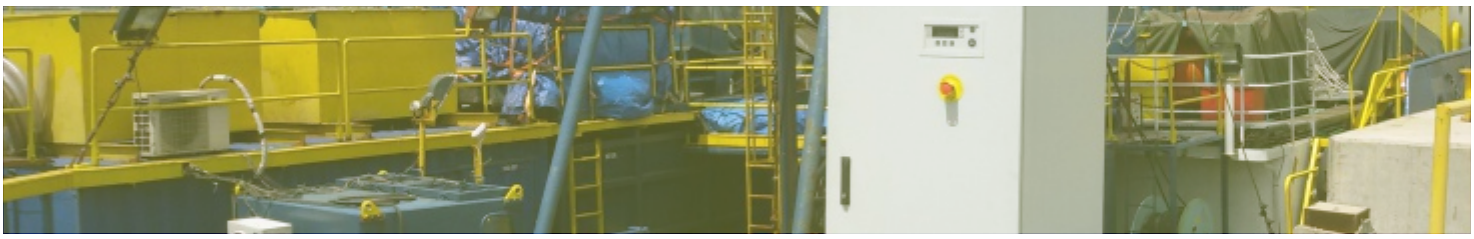
* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER

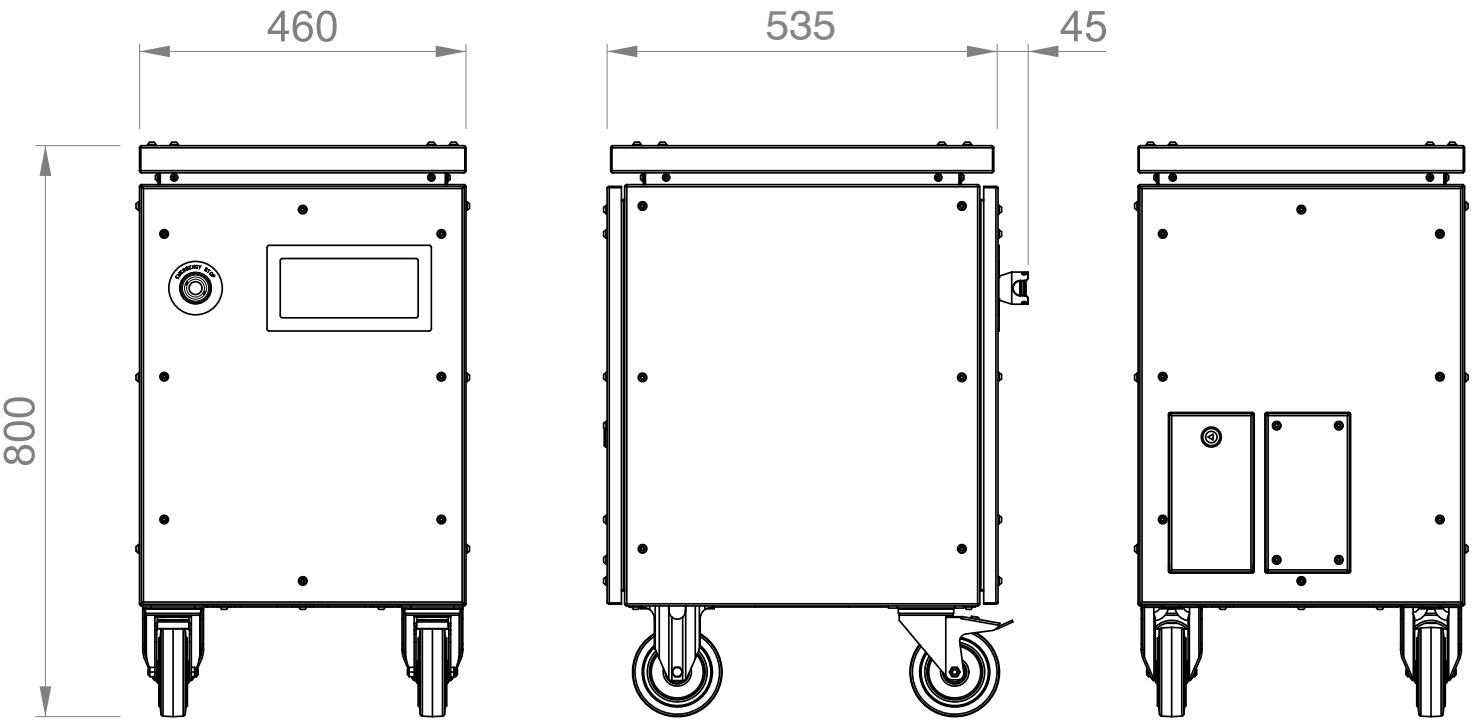
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 8%,recovering to 4% within 40ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m



TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
10-30kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
10-30kVA 400Hz

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC/ 400VAC/ 440VAC/ 480VAC** | ±1%*
- **400Hz** | ±0.01%*
- **Overall Efficiency** | 88%-90%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | 95%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

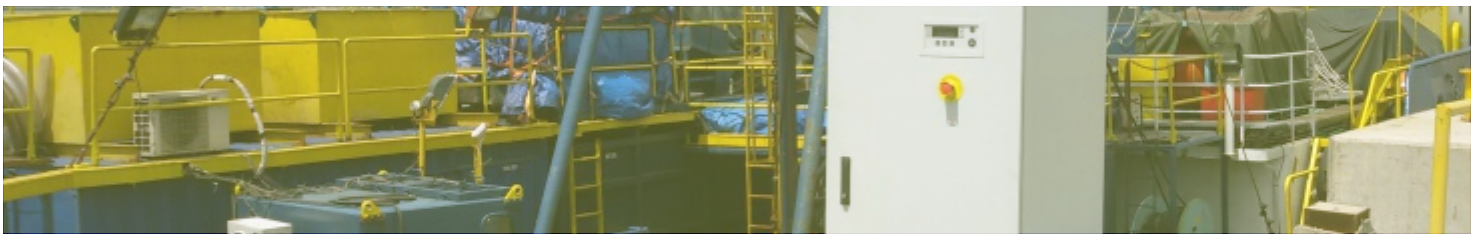
* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 8%,recovering to 4% within 40ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

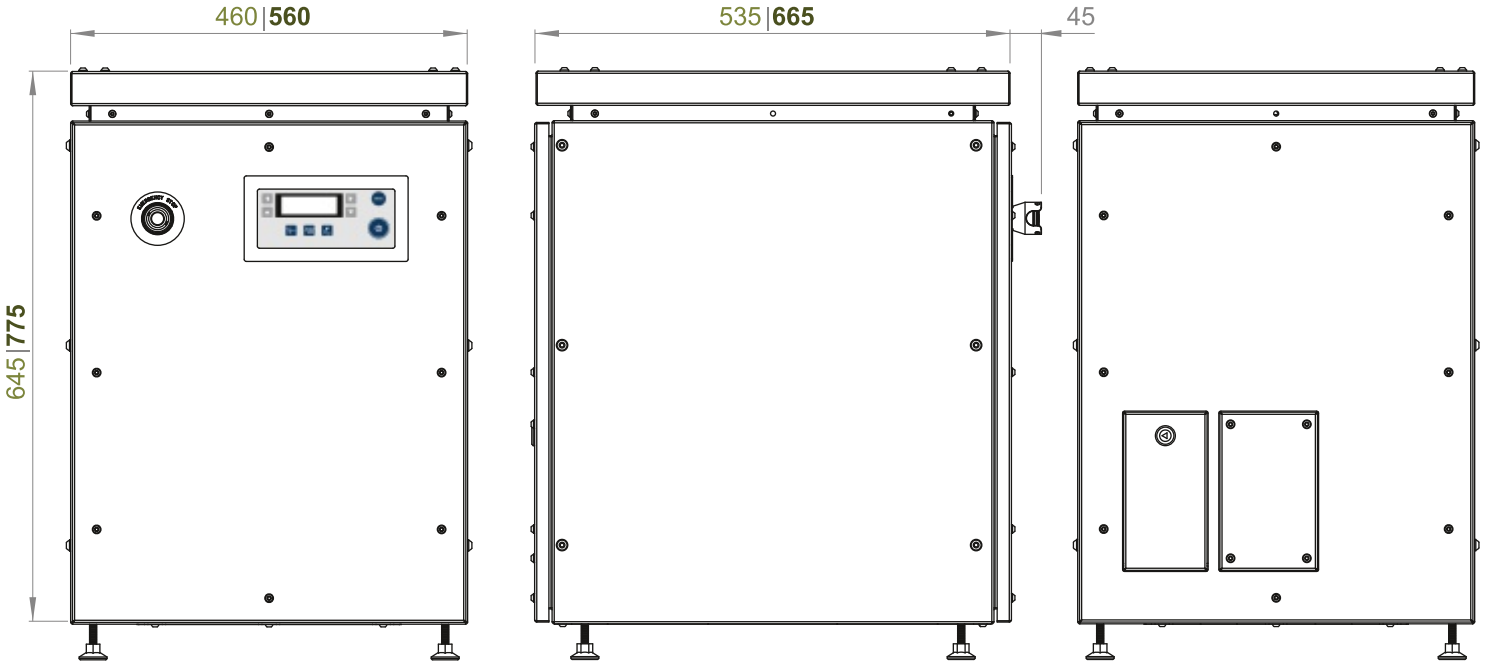
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m



TECHNICAL DRAWING

Dimensions for 450 enclosure
• 10-15kVA

Dimensions for 500 enclosure
• 20-30kVA



SINESFC
STATIC FREQUENCY CONVERTER
20-30kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
20-30kVA 400Hz

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC/ 400VAC/ 440VAC/ 480VAC** | ±1%*
- **400Hz** | ±0.01%*
- **Overall Efficiency** | 88%-90%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | 95%
- **Input Frequency Deviation** | 10%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

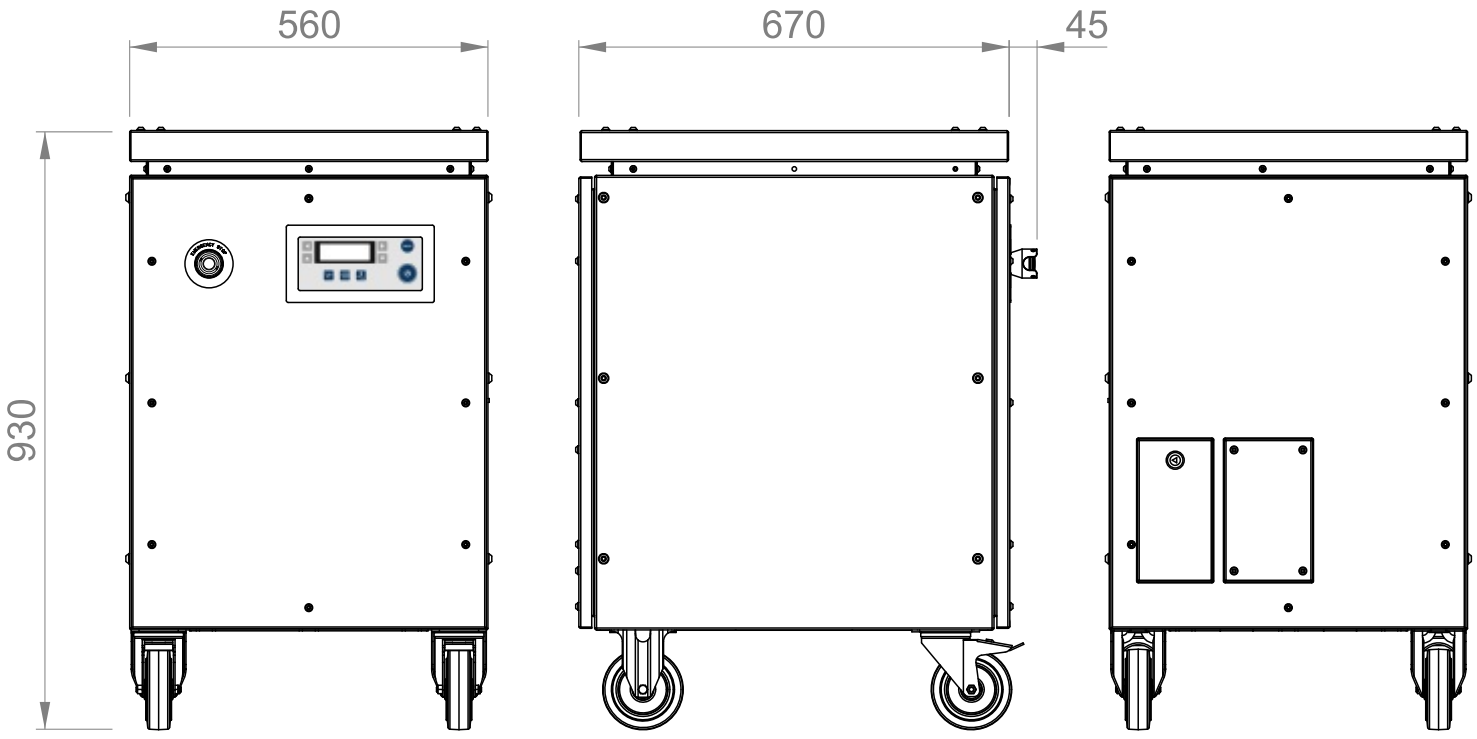
INVERTER

- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 8%,recovering to 4% within 40ms
- **Total harmonic distortion** | Better than 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | 95%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
30-90kVA 400Hz

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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2:2007 subclause 5.3
- Damp heat test IEC 60068-2-78:2012 subclause 6
- Vibration test IEC 60068-2-6:2007 subclause 6
- Salt mist test IEC 60068-2-52:1996 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
30-90kVA 400Hz

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | +10 -15%*
- **50Hz / 65Hz** | +10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **Overall Efficiency** | up to 93%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

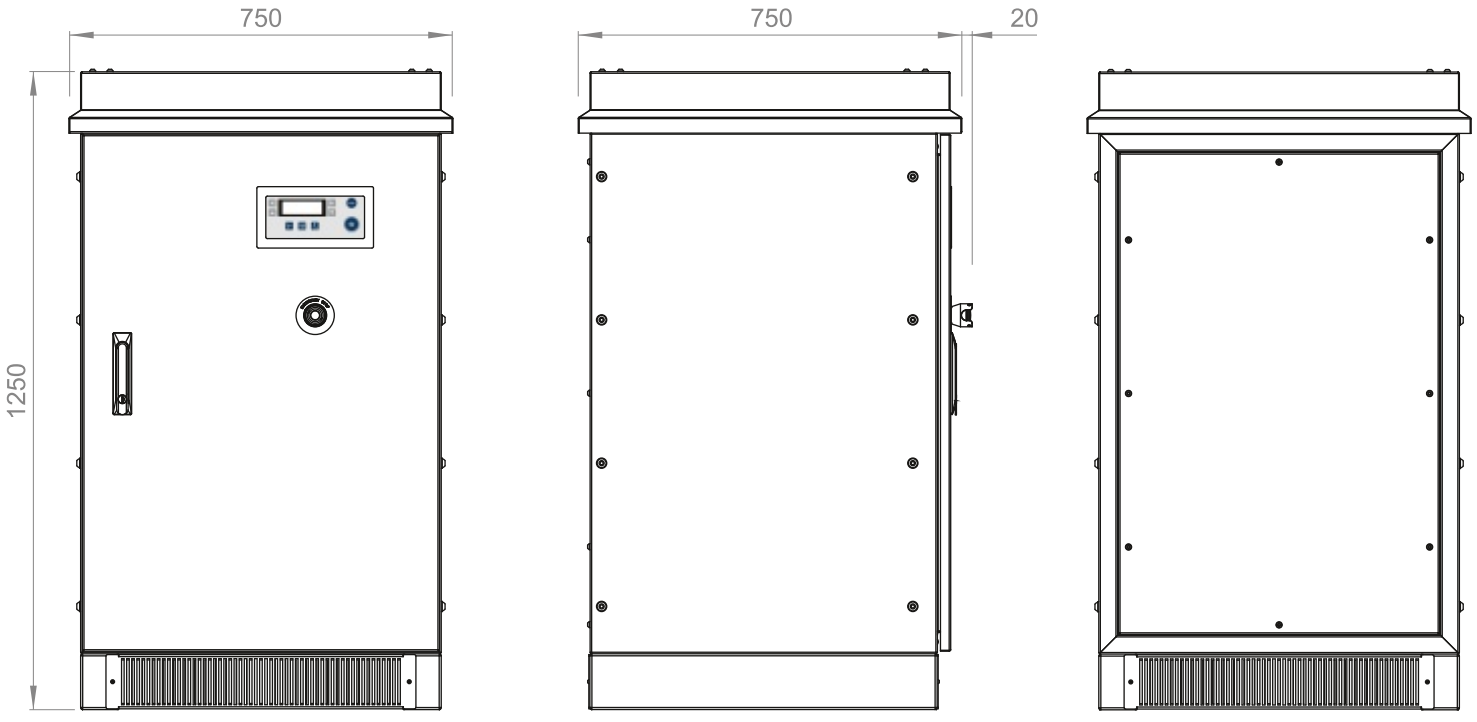
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

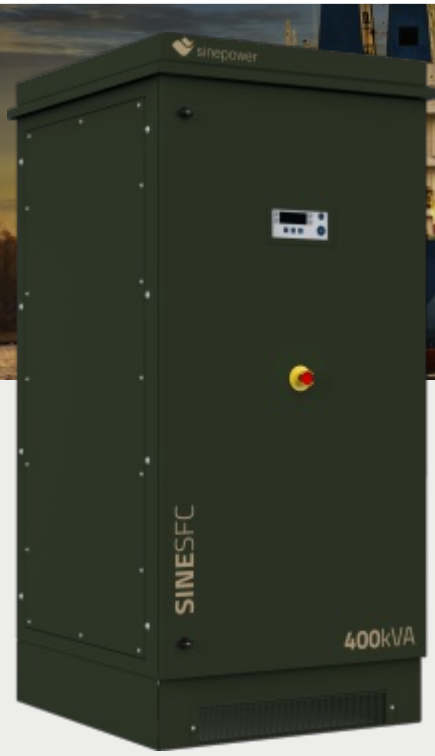
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
200-400kVA 400Hz



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.

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

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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

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

TECHNOLOGY
- 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 5 seconds
- Variable fan speed for internal temperature control
- Over temperature protection
- Short circuit proof by electric current limiting and shutdown.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnetic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

SINESFC
STATIC FREQUENCY CONVERTER
200-400kVA 400Hz

SPECIFICATIONS

INPUT

- **3 phase 400V/415V AC** | ±10%*
- **50/60Hz** | ±10%
- **Input current harmonics** | <2% @ Full Load

OUTPUT

- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **Overall Efficiency** | up to 93%
- **Max. Crest Factor** | 1.4:1

RECTIFIER

- **4 Quadrant Operation**
- **AC Voltage Range** | -25% +15%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Inrush Current** | None
- **Overall current limit** | 150%

INVERTER

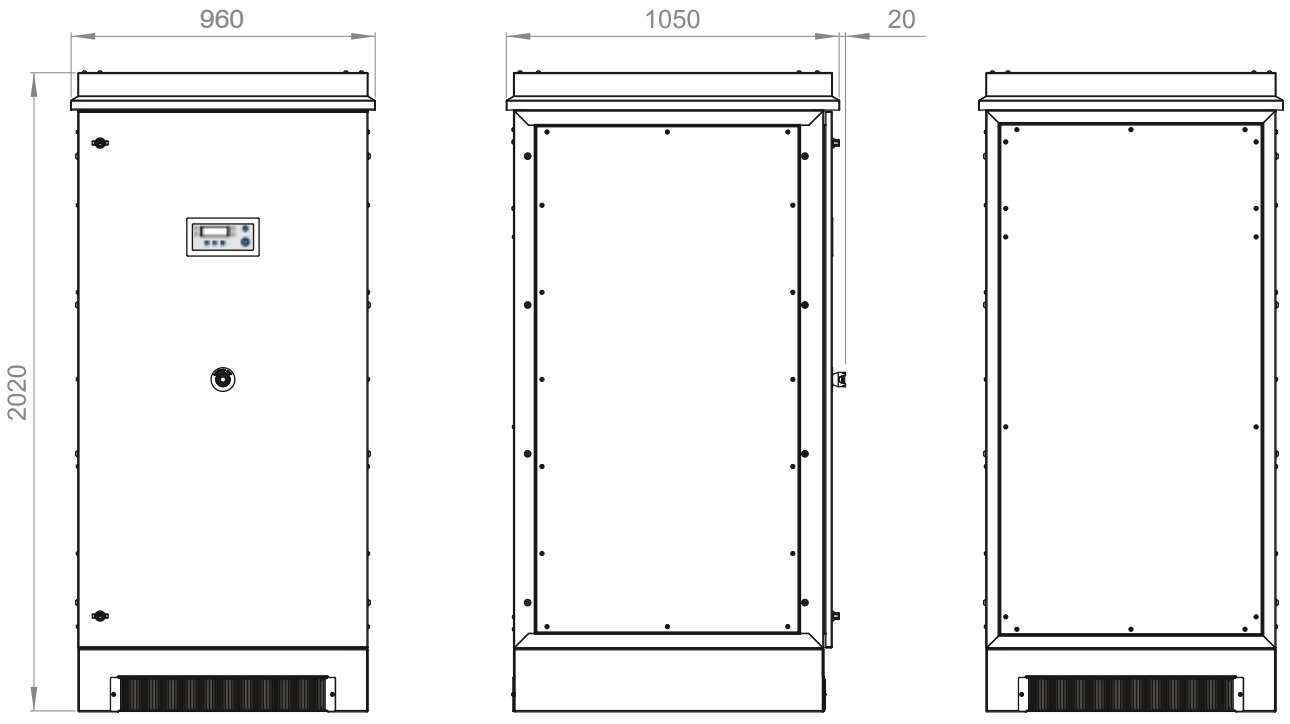
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 2% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@5s*
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS

- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



SINESFC
STATIC FREQUENCY CONVERTER
500 to 2000kVA

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.

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

INPUT
- State of the art semiconductor technology (IGBT) Rectifier
- Power Factor Correction (PF=1)
- 95% efficiency
- 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 (better response of the system and safer operation for NBPT)
- Vector control Inverter for better response and higher efficiency.

EFFICIENCY
- Up to 94%
- No load losses: <2% of full Load.

TECHNOLOGY
- 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.

OPTIONS
- Communications
  - MODBUS Rs485
  - Remote control box

NORMS AND STANDARDS

EMC
- EN61000-6-4 - Electromagnectic compatibility - Generic emission standard
- EN61000-6-2 - Generic immunity standard

SAFETY
- IEC 60529 - Degrees of protection provided by enclosures (IP Code)
- IEC 62477-1 - Safety requirements for power electronic converter systems and equipment

ENVIRONMENTAL
- Dry heat test (steady state) IEC 60068-2-2 subclause 5.3
- Damp heat test IEC 60068-2-78 subclause 6
- Vibration test IEC 60068-2-6 subclause 6
- Salt mist test IEC 60068-2-52 subclause 6
- Dust and sand test Test Lc1 of IEC 60068-2-68

MODELS
- 500kVA and 600kVA
- 800kVA and 900kVA
- 1000kVA and 1200kVA
- 1600kVA
- 2000kVA

SINESFC
STATIC FREQUENCY CONVERTER
500 to 2000kVA

SPECIFICATIONS

INPUT
- **3 phase 400V/415V AC** | ±10*
- **50/60Hz** | ±10%
- **Input current harmonics** | <3% @ Full Load

OUTPUT
- **3 phase 200VAC / 400VAC / 480VAC** | ±1%*
- **50Hz/60Hz** | ±1%*
- **Overall Efficiency** | up to 94%
- **Max. Crest Factor** | 3:1

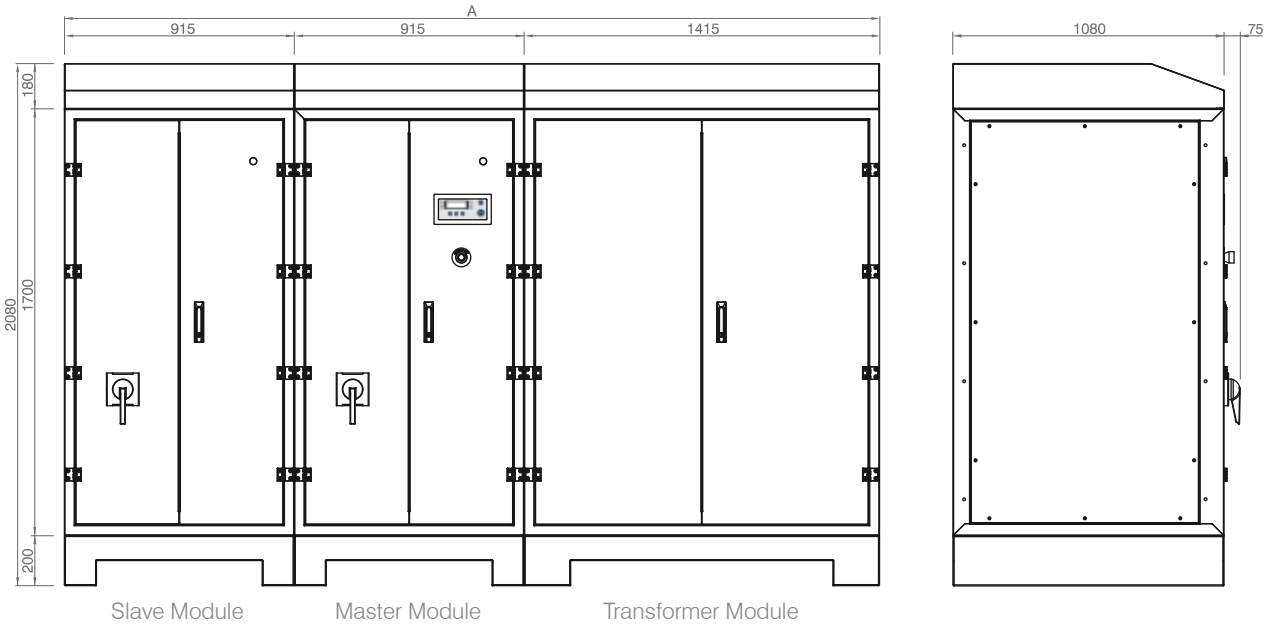
RECTIFIER
- **4 Quadrant Operation**
- **AC Voltage Range** | -15% +10%
- **Efficiency** | up to 97%
- **Overload Capacity** | 120% Continuous
- **Current walk in** | 5 seconds to maximum
- **Overall current limit** | 120%

INVERTER
- **Static Regulation 0 - 100% load** | ± 1%
- **Dynamic regulation 100%** | 5%,recovering to 1% within 40ms
- **Total harmonic distortion** | < 3% (Linear Load)
- **Electronic Limit Overload** | 120%@600s; 150%@60s; 200%@2s
- **Overload Capacity (IGBTs)** | 150% Continuous
- **Frequency stability** | ±0.01% Crystal Controlled
- **Load power factor** | 0-1
- **Efficiency** | up to 97%
- **Short circuit proof by electric current limiting and shutdown**

ENVIRONMENTAL CONDITIONS
- **Coolant temperature (max)** | Forced air up to 40ºC
- **Ambient temperature (min/max)** | -40ºC to +40ºC
- **Relative humidity (min/max)** | 0% to 90% without condensation
- **Pollution degree** | 2
- **OVC (Overvoltage Category)** | 3
- **Altitude** | Up to 2000m

* Other voltages and frequencies available on request
* Other Electronic Overload limits available on request

TECHNICAL DRAWING



- 500kVA | 600kVA - A=2745mm (Transformer Module(same size as Slave Module) + MasterModule + Slave Module)
- 800kVA | 900kVA - A=4160mm (Transformer Module + MasterModule + Slave Module(2x))
- 1000kVA | 1200kVA - A=5075mm (Transformer Module + MasterModule + Slave Module(3x))
- 1600kVA - A=5990mm (Transformer Module + MasterModule + Slave Module(4x))
- 2000kVA - A=6905mm (Transformer Module + MasterModule + Slave Module(5x))

sinepower
Zona Industrial do Mamodeiro
Rua Augusto Marques Branco, Lote 21-A
3810-783 Aveiro, Portugal

Phone: +351 234 946 000
Fax: +351 234 946 007
GPS: N40º34'20'', W8º33'48''

sinepower@sinepower.pt
www.sinepower.com

COM.CAT.EN.GENERAL.MIL.00.23/04