



APPLICATIONS

- Military Applications (COTS)
- All mobile MIL applications as tanks and trucks
- Shelters and other building equipment
- Marine & other demanding environments

FEATURES

- 1600W of pure sine wave output power
- High performance battery charger
- Uninterruptible AC-Power due to patented technology
- Generator support
- MIL STD 461F
- Ruggedized parts of MIL STD 810G
- Parts of MIL STD 1275
- IP67 protected
- Environmentally Tolerant
- Vibration resistant
- Operating Temperature -40 to +70°C
- Full electronic protection
- Compact size, light weight
- Flexible design (connectors, shape)
- Field-proven design topology
- Battle-Switch
- „Flat-Battery“ startup

MPI-1600 MODULAR SINE WAVE INVERTER / CHARGER

The new modular inverter system only available from RIPEnergy will include one or several (up to 32) 2kVA/1.6kW inverter modules. N+1 is secured while every inverter/charger unit is independent. So we are able to offer Inverter/Charger Systems from 1.6kW to 50kW in one Phase or 3-Phase configuration. Further more the fully programmable inverter/charger modules can be configured for 230VAC/50Hz and 100VAC/60Hz Systems using the same hardware. The inverter modules offering a fully bidirectional function. The revolutionary technology enables to direct the Energy in any direction without Interruption. While AC-Power is available from a generator or grid, the batteries are charged at the same time. The AC-consumer have always first priority.

One supervisor unit is required in the system. The supervisor device can manage up to 32 modules. It communicates with each inverter module through a proprietary protocol on a RX/TX bus. With the supervising unit the system can be programmed, controlled and it serves as communication unit for external CAN-Bus, Ethernet and other protocols to integrate the inverter/charger system to the operating system of your project.

An optional „Battle-Switch,, enables the operator to reduce the protection functions of the system. In a real emergency the system can be operated beyond the normal limiting factors to ensure power as long as possible.

Each inverter/charger module is placed inside an IP67 enclosure.



Pure Sinewave



Charger



High frequency technology



Light weight, compact size



Full electronic protection



Extended temperature range

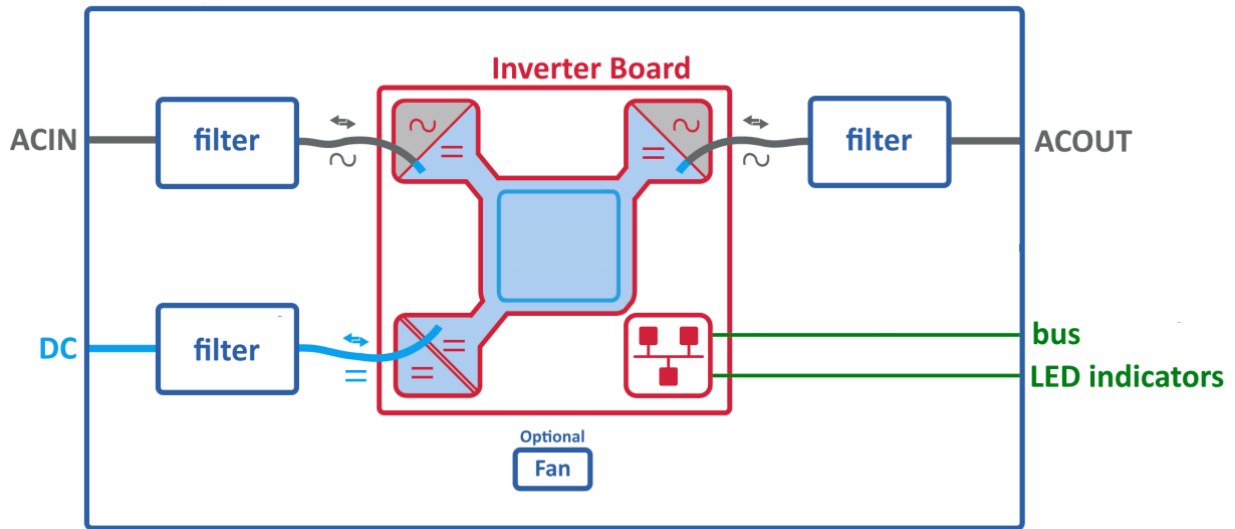


Optional Remote control



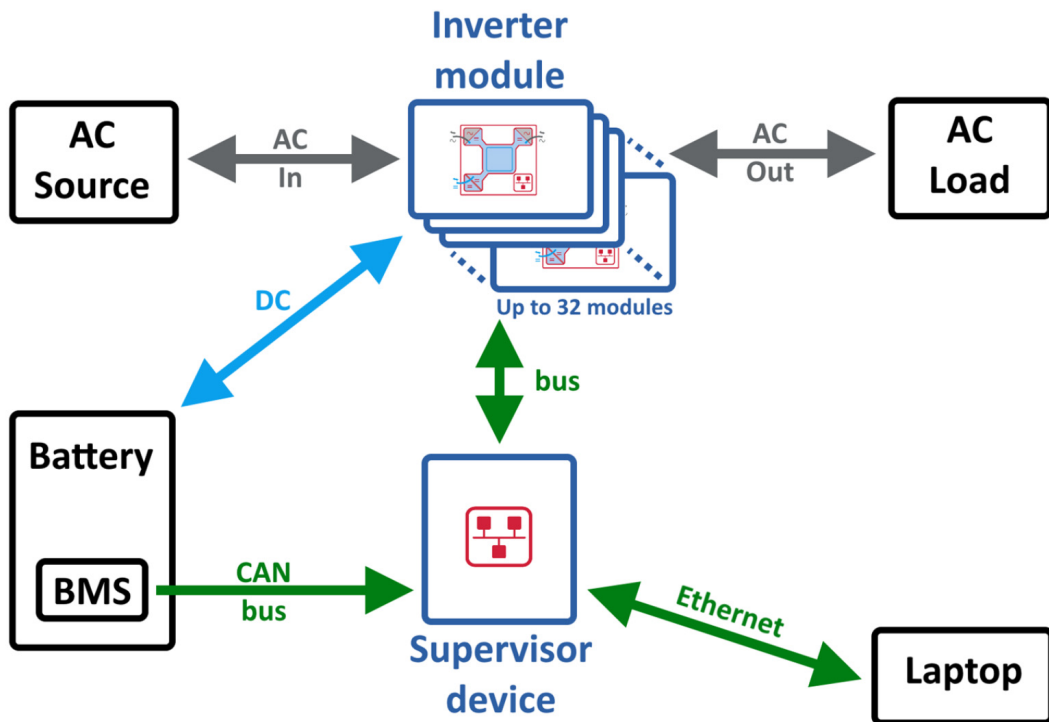
Optional Two Alarm relays contacts

MPI-1600 MODULAR SINE WAVE INVERTER / CHARGER



Block diagram of the modular 1.6kW inverter module

This inverter module allows direct transfer from the AC source to the DC source (or the opposite) without any delay and without the use of a mechanical transfer switch.



Modular inverter system

This block diagram shows a 1-Phase configuration (one AC source).

Another available configuration is 3-Phase configuration. In 3-Phase configuration, up to 32 inverter modules could be randomly distributed between phases. One parameter in the supervisor device is used to determine on which phase each inverter module is connected.

SPECIFICATIONS

DC Input	
Nominal Voltage	28 Vdc (16-32 V) Power derating below 22Vdc, 50% at 16Vdc, 100% at 22Vdc during 2 minutes
Nominal current (at 1600 W output)	72 A
Maximum input current (for 15 seconds)	80 A @ 22 Vdc / voltage ripple < 10 mV RMS
Under-voltage protection turn OFF	21 V (Adjustable)
Under-voltage protection turn ON	25 V (Adjustable)
Under-voltage protection hysteresis	4 V (Minimum 2 V is recommended)
Idle power	65 W AC Output ON, AC Input not connected
Standby power	3 W AC Output OFF
Revers polarity protection	Yes
AC Input	
Nominal Voltage	230 Vac (90-295 V) derating below 125 Vac
Nominal Current at 230Vac	7.2 A
Brownout	900 W @ 90 Vac and 1600 W at 125 Vac linear decreasing
Frequency (selectable) / synchronization range	50 Hz (range 47 – 53 Hz) / 60 Hz (range 57 – 63 Hz)
Power factor	0.99
THD	3 %
AC Output	
Nominal voltage	230 Vac (100 - 240 Adjustable)
Frequency (inverter mode)	50 or 60 Hz
Nominal Current at 230Vac	8.7 A
Short circuit current	22.5 A for 15 seconds
Frequency stability (inverter mode)	± 0.03 %
Nominal Output Power	2000 VA / 1600 W @ 230 Vac , 1300 W @ 120 Vac
Short time overload capacity	150 % (15 seconds)
Total harmonic distortion (resistive load)	< 3 %
Load impact recovery time (10% - 90%)	≤ 0.4 ms
Load Regulation	± 5 %
Line Regulation	± 2 %
Crest factor at nominal power	3 : 1 for load P.F. ≤ 0.7
Voltage stability	± 1 % (From 10 to 100% load)
Efficiency AC to AC	96 %
Efficiency DC to AC	93 %
Admissible load power factor	Full power rating from 0 inductive to 0 capacitive
DC Output	
Nominal Voltage (Float Voltage)	27.2 Vdc (16 - 32 V Adjustable)
Maximum Current @ 24 Vdc	67 A (Adjustable)
Charging Power	1600 W (1)
Efficiency AC to DC	> 93 %
Revers polarity protection	Yes
Transfer Performance	
Max. Voltage interruption	0 sec
Total transient voltage duration (max)	0 sec

(1) AC output load has higher priority. If AC load is 1 kW, DC power maximum is lower depending on AC input voltage.

SPECIFICATIONS

General	
Operating Temperature	-40° C to +70° C derating above 50° C Compliant to ETSI 300-019-1-4 class 4.1E
Operating relative humidity	0 - 95 % Non-condensing
Storage Temperature	-40° C to +70° C Compliant to ETSI 300-019-2-4 class 4.1E
Storage relative humidity	0 - 95 % Non-condensing
MTBF	200 000 h (MIL-217F)
Shock & Vibration	Design for on board vehicles and ship
Cooling	Convection, Conduction
Indicators	Trichromatic LED
Safety & EMC	
Electrical Safety	EN60950, EN62368-1, EN62040-1
EMC	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8 CISPR22 Class B, ETSI EN 300386 v1.9.1 Level3, VG95373, MIL-STD-1275E MIL-STD-461F CS101, CS114, CS115, CS116, MIL-STD-461G RE101, RE102, RS103
Environment	Parts of MIL-STD-810G and MIL-STD-1275
Dielectric isolation DC/AC	4300 Vdc
Dimensions & Mass	
Inverter module	660 x 295 x 90 mm Including mounting brackets
Weight	15.3 kg
Connectors	DC Input: CAN CA3102E24-9PB111 AC Input: CAN CA3102E16-10PB AC Output: CAN CA3102E16-10SB Communication: ASX RJFTV21G #1 green cadmium coated connectors not RoHS conform RoHS conform connectors available on request
RoHS Compliance	Fully compliant (depending on connectors, see #1)
Optional	
External Monitoring Device	Supervision / Programming
Connectivity	CAN Bus, Ethernet
Alarm Output	Two independent programmable relays contacts
Control unit	300 x 155 x 74 mm
Weight	2.6 kg

