

 MICROTEC	R&D Department		
MANUAL	Microtec - Inverter 3.6 kVA 120v	Date: 21/10/2020	Page 1 of 4
Written by: L. Micheli	Last revision:1.1 (26-10-2020)		

DESCRIPTION OF MODELS

3.6kVA [120v] inverters are available in “Open Version” (without enclosure) and “Box Version”.
Open version are suitable to be inserted directly inside a generator box with engine and alternator.
Box version are suitable where is not possible or useful to have a complete generator inside a box.
It is possible to connect the output of two inverters in parallel (via an external synchronism cable) to obtain double power.

NOTE

To obtain Voltage AC at the output you have to connect PMG three-phase generator and an external 12V battery.

12 - 24 volts tolerant power supply (min = 9 volts - max = 36 volts); once switched on (9 volts minimum), the system remains switched on up to 7 volts.

SPECIFICATIONS

Storage temperature		-20...+55°C	
Operating temperature		-10...+40°C	
Humidity		5...85% without condensation	
Altitude		Max. 2000m	
Sealing protection		IP21	
Dimension L x W x D - Weight	OPEN VERSION	277 x 224 x 125 mm	6.5 kg
	BOX VERSION	326 x 315 x 142 mm	8.0 kg

Model	Continuous Power	Input Voltage (line to line)	Input Frequency	Continuous Output Current	Limited Time Power	Maximum Output Current	Output Voltage	Air Flow Speed @ T ≤ 40°C
4kw open 120V	3.6kVA	3*140..230 Vrms DC link = 220V	200...500Hz	31Arms	7.5kVA 1s	75Apk - 600ms	100...120V AC	8m/s
4kw box 120V	3.6kVA	3*140..230 Vrms DC link = 220V	200...500Hz	31Arms	7.5kVA 1s	75Apk - 600ms	100...120V AC	Internal

Output voltage stability:	+/- 5% (resistive load step 0-100%)
Voltage THD (total harmonic distortion)	< 3%
Output frequency	50 or 60Hz (USER parameters)
Frequency variations	97%
Nominal efficiency	95% @ full power

DC-LINK and PMG alternator

Voltage generation start after proper DCbus charging by external voltage source (PMG).

120V – version

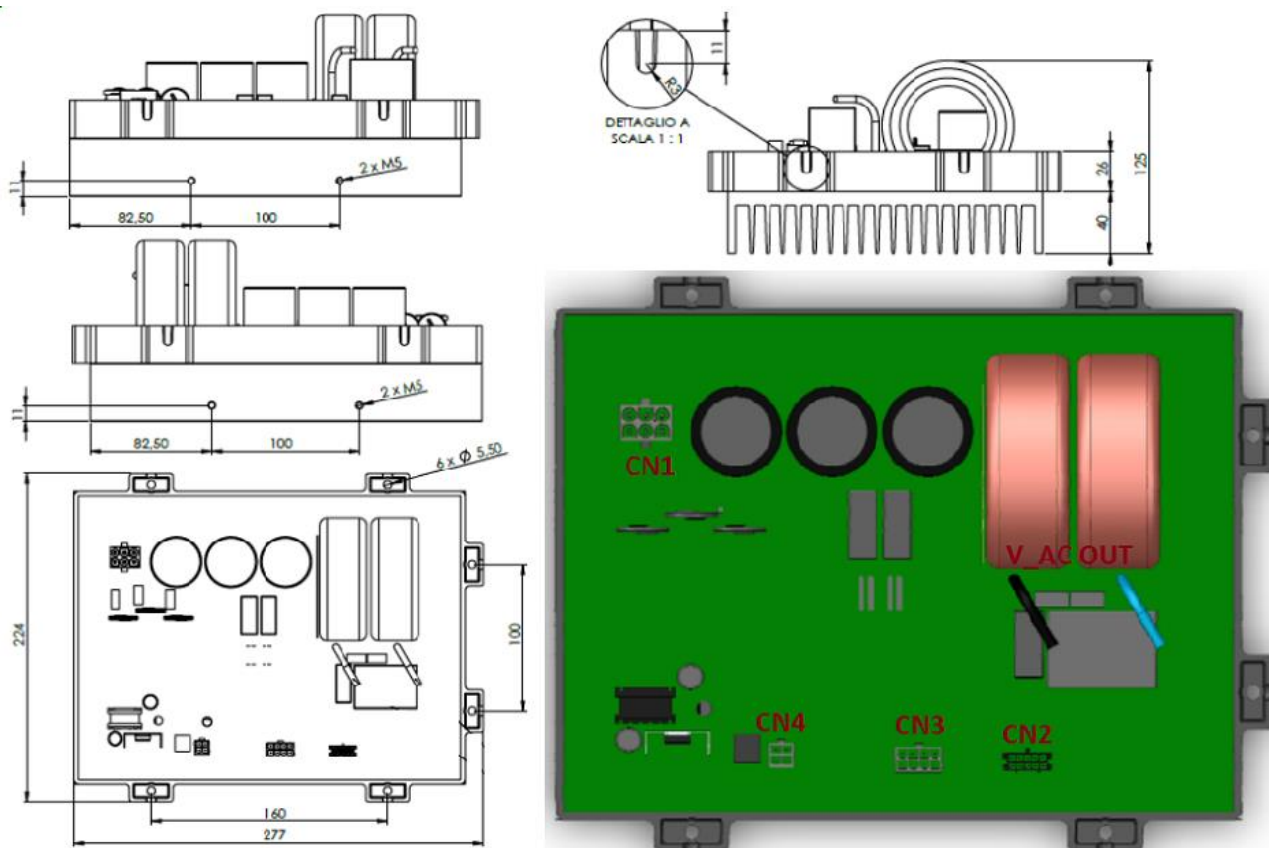
Nominal DCbus voltage is 220Vdc and 150Vdc is required to start output generation.
150Vrms line to line are required to guarantee a stable output voltage AC (nominal voltage at full load).
The power limit is set in current; you can adjust the output voltage between 105 – 120 volts.

	Not exceed 450Vrms phase to phase for input voltage in any case
	Not exceed 500Hz for input voltage in any case

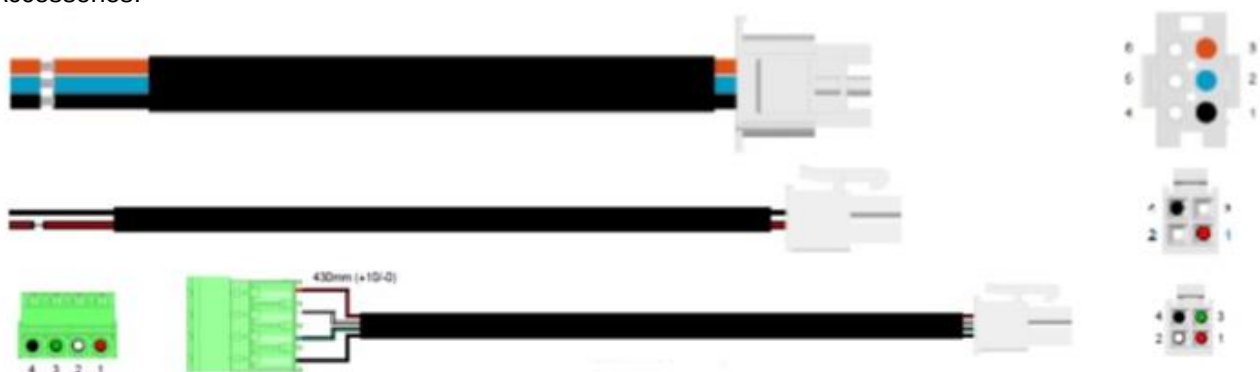
 MICROTEC	R&D Department		
MANUAL	Microtec - Inverter 3.6 kVA 120v	Date: 21/10/2020	Page 2 of 4
Written by: L. Micheli	Last revision:1.1 (26-10-2020)		

OPEN VERSION

Dimension:



Accessories:

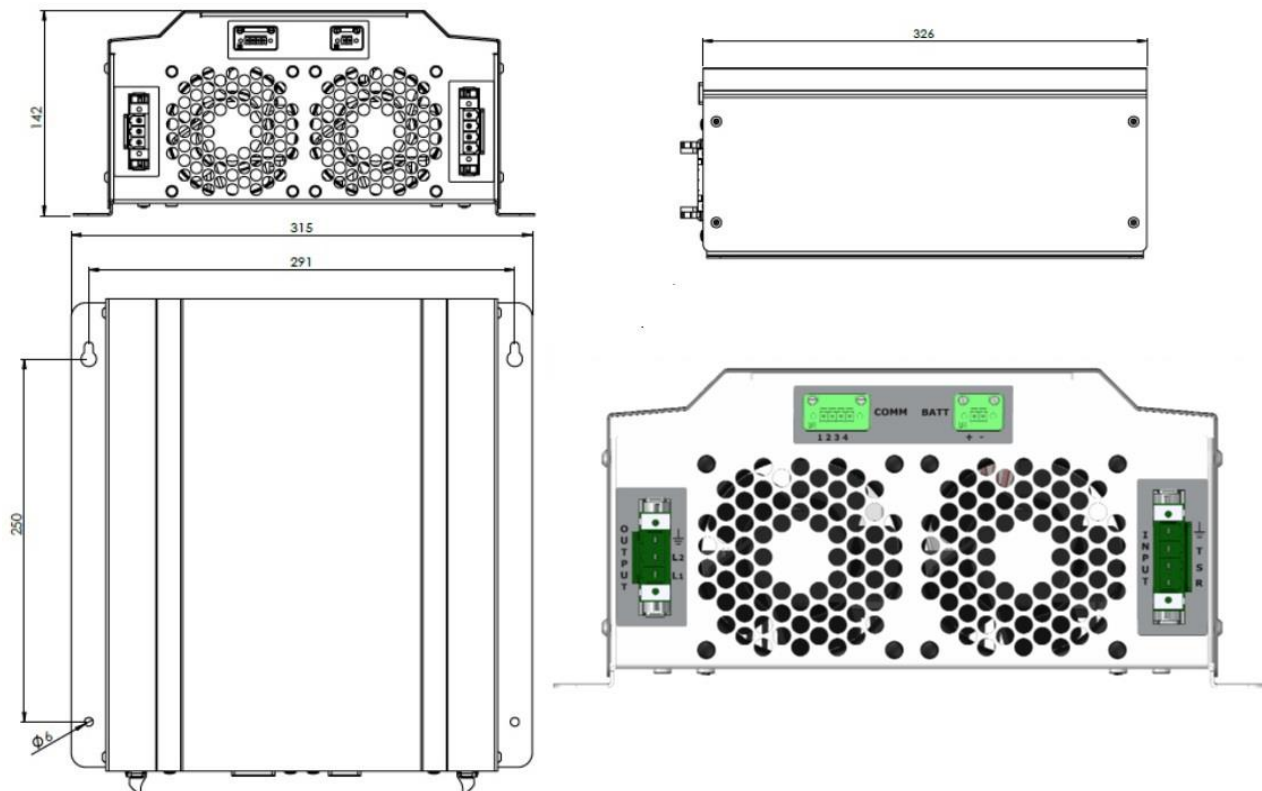


CONNECTOR	PIN	DESCRIPTION	CONNECTOR	PIN	DESCRIPTION
CN1	1 – wire black	Input phase U	CN4	1 – wire red	+12V - Power Supply
	2 – wire blue	Input phase V		2 – wire white	CAN_H
	3 – wire red	Input phase W		3 – wire green	CAN_L
	4	DC_BUS+		4 – wire black	GND - Power Supply
	5	NC			
	6	DC_BUS-			

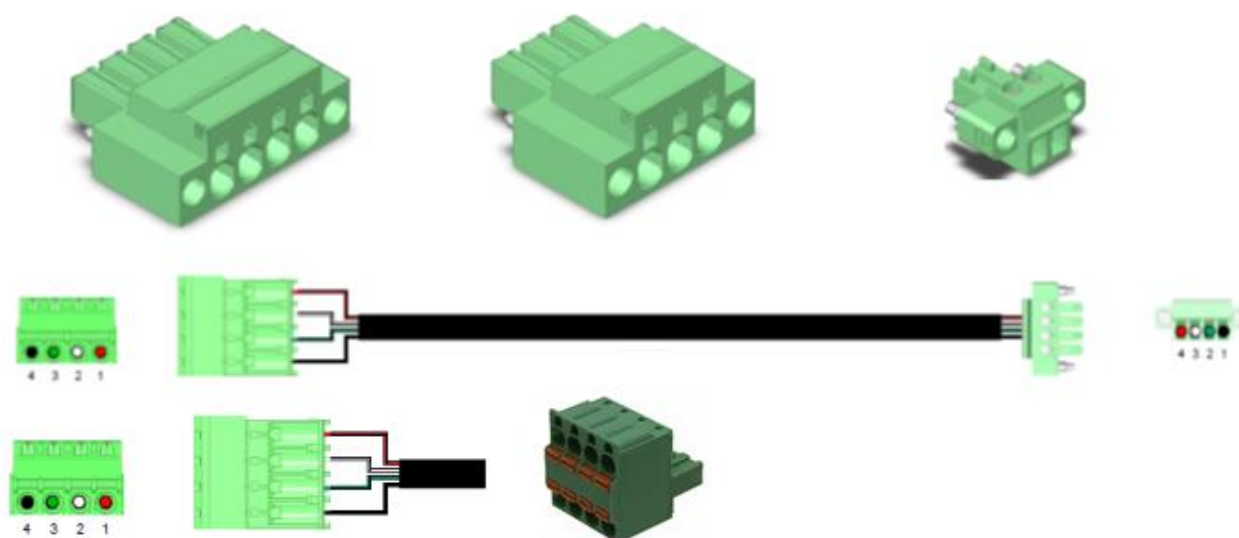
 MICROTEC	R&D Department		
MANUAL	Microtec - Inverter 3.6 kVA 120v	Date: 21/10/2020	Page 3 of 4
Written by: L. Micheli	Last revision:1.1 (26-10-2020)		

BOX VERSION

Dimension:



Accessories:



 MICROTEC	R&D Department		
MANUAL	Microtec - Inverter 3.6 kVA 120v	Date: 21/10/2020	Page 4 of 4
Written by: L. Micheli	Last revision:1.1 (26-10-2020)		

ALARMS

Overload

Load exceed limits indicated in the specifications.

Short circuit

Short circuit at the output of inverter for more time than limit (inverters do not stop supply during a short circuit).

Under voltage

Output voltage lower than 95Vrms for more than 2.5s (output voltage goes down because input voltage from alternator goes down).

Over temperature

Heatsink temperature reached maximum temperature (due to high ambient temperature).

General error

Internal error due to internal failure, communication error or synchronization error.

To reset these alarms it is necessary:

- Use remote panel control (*optional*)
- Turn off inverter that means switch off external battery.

	Overload	Short circuit	Over temperature
3.6 kVA	$I \cdot t = 32A \cdot s$ over 31Arms	Current limited @ 75A_{pk} for 600ms	70°C (Heatsink)

CALCULATION OF OVERLOAD

Using table above it is possible to calculate permissible overloads for the different electrical sizes of inverters

- example we want to know permissible time to supply 6kVA without alarms:

$$6000/120 = 50Arms$$

$$50Arms - 31Arms = 19Arms \text{ over the limit}$$

$$32A \cdot s / 19A = 1.68s$$

$$T = 1.68s = \text{maximum time @ 6kVA}$$

APPLICABLE STANDARDS

Low voltage directive	LVD (2006/95/EC)
Power electronics safety	EN50178
EMC directive	EMC (2004/108/EC)
Emission	EN55022
Immunity	EN61000-6-1
Harmonics	EN61000-3-2 <16A; EN61000-3-12 >16A