



# TSI BRAVO 48/120



## MODULAR INVERTER MODULE

POWER 2.5 kVA  
INPUT 48 Vdc and 120 Vac  
OUTPUT 120 Vac



### DESCRIPTION

TSI Bravo – 48/120 is a compact modular inverter that converts **48 Vdc** power source into **120 Vac** and provides a pure sine wave. By using several modules, we can offer solutions for **two-phase** (2x120Vac + N) or **three-phase** (3x208Vac + N) infrastructures.

The extra AC input ensures a **high overall efficiency** (up to 95%) which results in a reduction of energy loss and heat dissipation.

This module has a **modularity from 2.5 kVA to up to 80 kVA** in order to be able to evolve with your needs. The hot swap feature makes maintenance easier and reduces the risk of errors.

The low ripple voltage avoids any disturbances on DC loads and batteries.

### APPLICATIONS

All business critical applications and all types of AC loads. The design is modular and scalable with hot-swappable inverter modules which ensures low Mean Time to Repair (MTTR), reduction in service costs and meets the changing needs for future expansion.

### MAIN FEATURES

- » Extra AC input for increased efficiency
- » Compact design
- » Up to 80 kVA
- » No disturbances on DC loads & batteries

**TSI Bravo - 48 / 120**

<b>GENERAL</b>	
Part number	T321330201
EMC (immunity)	IEC 1000 - 4
EMC (emission) (class)	FCC part 15
Safety	cUL 1778 Recognized
Cooling / Isolation	Forced / Doubled
MTBF	240 000 hrs (MIL-217-F)
Efficiency (Typical): Enhanced power conversion / on line	95% / 91%
Dielectric strength DC/AC	4300 Vdc
True Redundant Systems – compliant	3 disconnection levels on AC out and DC in power ports 4 disconnection levels on AC in port
RoHS	Compliant
Vibration	GR63 office vibration 0 to 100 hz-0.1 g / transport vibration 5-100 Hz 0.5 g 100 to 500 hz-1.5 g / Drop test
Operating ambience / Ingress Protection	Free from dust and corrosive materials / NEMA 1
Altitude above sea without de-rating	< 1500 m / derating > 1500 m – 0.8 % per 100 m
Ambient / storage temperature / relative humidity	-20 to 50 ° C / -40 to 70 ° C / 95 %, non-condensing
Material (casing)	Coated steel-ALU ZINC

<b>AC OUTPUT POWER</b>	
Nominal Output power (VA) / (W)	2500 / 2000
Short time overload capacity	150 % (15 seconds) 110 % permanent within T° range
Admissible load power factor	Full power rating from 0 inductive to 0 capacitive
Internal temperature management and switch off	2 %/°C derating beyond 50° C with cut off at 65° C

<b>DC INPUT SPECIFICATIONS</b>	
Nominal voltage (DC)	48 V
Voltage range (DC)	40 - 60 V
Nominal current	56 A (at 40 Vdc and 2000 W output)
Maximum input current (for 15 second) / voltage ripple	84 A / <2 mV Psopho
Input voltage boundaries	User selectable with T2S interface

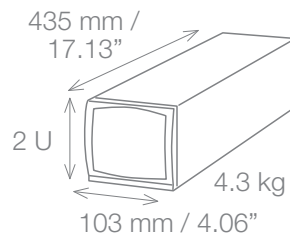
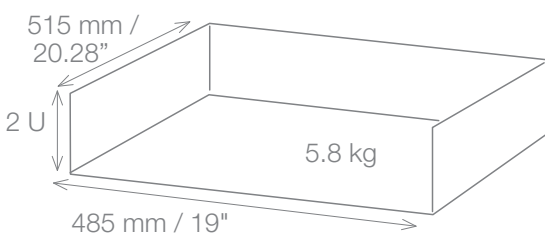
<b>AC INPUT SPECIFICATIONS</b>	
Nominal voltage (AC)	120 Vac (120/240 V or 120/208 V with combination of shelves)
Voltage range (AC)	100 - 138 Vac (without derating) (can be disabled)
Brownout	80 - 100 Vac use DC source contribution if need be (can be disabled) 2000 VA/1600 W @ 150 VAC
Conformity range before transfer to DC	Adjustable
Power factor	> 99%
Frequency range (selectable) / synchronization range	50 - 60 Hz / range 47 - 53 Hz / 57 - 63 Hz

<b>AC OUTPUT SPECIFICATIONS</b>	
Nominal voltage (AC*)	120 V
Frequency / frequency accuracy	50 - 60 Hz / 0.03 %
Total harmonic distortion (resistive load)	< 1.5 %
Load impact recovery time	0.4 ms
Turn on delay	20 s to 40 s depending on the number of module installed
Nominal current. Protected against reverse current	21 A
Crest factor at nominal power	3 : 1
With short circuit management and protection	
Short circuit clear up capacity	10 x I <sub>n</sub> for 20 msec - Available while Mains is available at AC input port With magnitude control and management
Short circuit current after clear up capacity	2.1 I <sub>n</sub> during 15 s and 1.5 I <sub>n</sub> after 15 s

<b>IN TRANSFER PERFORMANCE</b>	
Max. voltage interruption / total transient voltage duration (max)	0 s / 0 s

<b>SIGNALING &amp; SUPERVISION</b>	
Display	Synoptic LED
Alarms output / supervision	Dry contacts on shelf / Standard USB port and MODBUS on T2S, optional : Candis Display / Candis TCP-IP
Remote on / off	on rear terminal of the shelf via T2S

TSI Bravo - 48/120 - Datasheet v1.0 Specifications can change without notice. New data will be updated on our Web site: [www.cet-power.com](http://www.cet-power.com). The present equipment is protected by several international patents, trademarks and copyrights.



\*Operation within lower voltage networks leads to de-rating of power performances.

Illustrations are non-binding and may include customized fittings.