



TSI BRAVO ST 230 VAC



STANDALONE INVERTER SYSTEM

INPUT 24 / 48 / 110 / 220 Vdc
OUTPUT 230 Vac

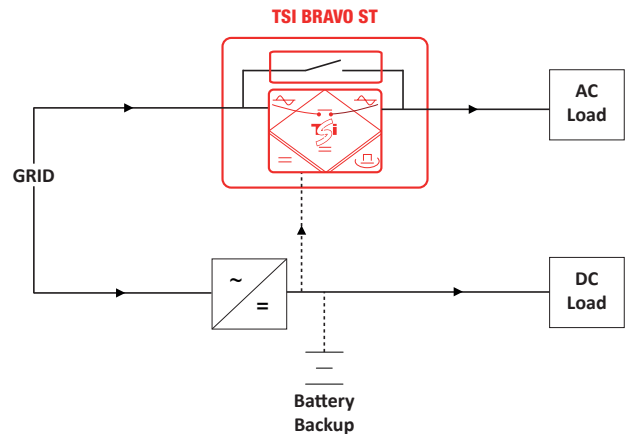
DESCRIPTION

BRAVO-ST is a compact inverter with automated by-pass solution providing a pure sine wave AC supply. In conjunction with a DC Power system, it provides an excellent AC backup solution. It uses the latest inverter technology, providing superior energy efficiency in a compact size.

The "Twin Sine Inverter" (TSI) technology allow 3 operations mode (EPC double conversion AC to AC, ON LINE DC to AC from battery and off line by-pass to AC). The automatic by-pass to AC allow easy hot plug module replacement without stopping the load giving highest AC output availability and avoid the need of an external manual by-pass.

APPLICATIONS

All business critical applications and all types of AC loads. The solution is design for highest AC output availability. Both inverter modules and by-pass are hot-swappable which ensures low Mean Time to Repair (MTTR), reduction in service costs.



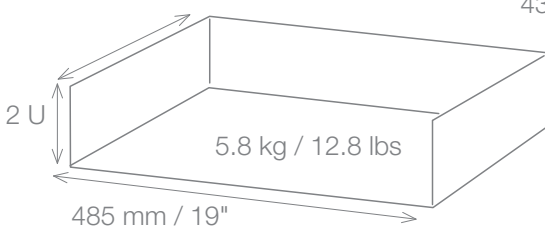
MAIN FEATURES

- » Dual input sources (AC & DC) with wide AC input range 150 VAC to 265 VAC
- » Compact design
- » High efficiency 94% in 24 V and 96% in 48 V, 110 V, 220 Vdc
- » Transfer time AC/DC and DC/AC 0 ms
- » up to 5 kVA in 2 U with power module and automatic by-pass

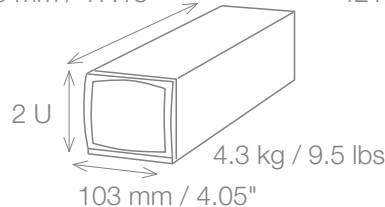
| | ST - 24 / 230 | ST - 48 / 230 | ST - 110 / 230 | ST - 220 / 230 |
|--|---|--|---|--|
| GENERAL | | | | |
| EMC (immunity) | EN 61000-4-2 / EN 61000-4-3 / EN61000-4-4 / EN 61000-4-5 / EN 61000-4-6 / EN 61000-4-8 | | | |
| EMC (emission) (class) | EN 55022 (A) | EN 55022 (B) | EN 55022 (B) | |
| Safety | IEC 60950 / EN62040-1 / EN62040-2 | | | |
| Cooling / Isolation | Forced / Doubled | | | |
| MTBF | 240 000 hrs (MIL-217-F) | | | |
| Efficiency (Typical): Enhanced power conversion / on line | > 95.5% / > 89.5% | 96% / 91% | | 96.5% / 92.5% |
| Dielectric strength DC/AC | 4300 Vdc | | | |
| RoHS 6 | 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 conditions | Designed for installation in an IP20 or IP21 environment. When installed in a dusty or corrosive environment, appropriate measures (air filtering, ...) must be taken. | | | |
| 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 | | | |
| AC OUTPUT POWER | BRAVO ST 1500 - ST 3000 | | BRAVO ST 2500 - ST 5000 | |
| Nominal Output power (VA) | 1500 / 3000 | | 2500 / 5000 | |
| Nominal Output power (W) | 1200 / 2400 | | 2000 / 4000 | |
| 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 | Above 50°C ambient T° derating up to 65°C. Automatic restart with hysteresis +/- 5°C | | | |
| DC INPUT SPECIFICATIONS | | | | |
| Nominal voltage (DC) | 24 V | 48 V | 110 V | 220 V |
| Voltage range (DC) | 19 – 35 V | 40 - 60 V | 90 - 160 V | 170 - 300 V |
| Nominal current at nominal DC voltage and max power W | 56 A @ 1200 W/1500 VA 112 A @ 2400 W/3000 VA | 46A (at 48 Vdc and 2000 W output) 93 A (at 48Vdc and 4000 W output) | 20,2 A (at 110 Vdc and 2000 W output) 41 A (at 110Vdc and 4000 W output) | 10,1 A (at 220 Vdc and 2000 W output) 20,5 A (at 220 Vdc and 4000 W output) |
| Maximum input current (for 15 second) / voltage ripple | 84 A / < 100 mV rms | 84 A / < 2 mV Psopho | 29 A / < 200 mV rms | 14.9 A / < 200 mV rms |
| Input voltage boundaries | User selectable with T2S interface min and max value | | | |
| AC INPUT SPECIFICATIONS | | | | |
| Nominal voltage (AC) | 220 Vac / 230 Vac / 240 Vac | | | |
| Voltage range (AC) | 150-265 V | | | |
| Brownout | 150 to 185 V linear derating 150 VA/120 W per 10 Vac for 2500 VA model and 300 VA/240 W for 5000 VA model | | | |
| AC input range min and max value | Adjustable between 150 Vac and 265 Vac (fixed hysteresis 10 Vac) | | | |
| AC input power factor (EPC operation mode) | > 99% | | | |
| Frequency range (selectable) / synchronization range | 50 – 60 Hz / range 47 – 53 Hz / 57 – 63 Hz | | | |
| AC OUTPUT SPECIFICATIONS | | | | |
| Nominal voltage (AC*) | 230 V / 220V / 240 Vac adjustable (default 230 Vac - 50 Hz) | | | |
| 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 | 6.6 A | 10.9 A | | |
| Crest factor at nominal power | 2.8 : 1 | 3 : 1 | | |
| With short circuit management and protection | 10 x I _n for 20 msec - Available while Mains is available at AC input port With magnitude control and management | | | |
| Short circuit clear up capacity | 2.1 I _n during 15 s and 1.5 I _n after 15 s | | | |
| Short circuit current after clear up capacity | | | | |
| IN TRANSFER PERFORMANCE | | | | |
| Max. voltage interruption AC to DC module - Module to bypass | 0 ms between DC to AC and AC to DC / <10 ms between BRAVO mode and automatic bypass | | | |
| SIGNALING & SUPERVISION | | | | |
| 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 ST 230 – Datasheet v1.2 Specifications can change without notice. New data will be updated on our Web site: www.cet-power.com. The present equipment is protected by several international patents, trademarks and copyrights.

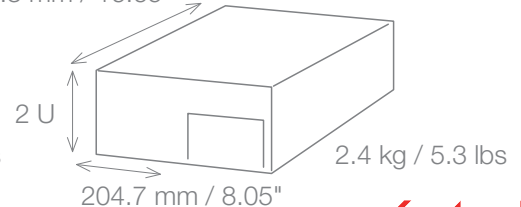
515 mm / 20.28"



435 mm / 17.13"



421.3 mm / 16.65"



Illustrations are non-binding and may include customized fittings.