

## Bravo TSI 230

Telecom

Datacom

Mass Transit

Oil &amp; Gas

Power Utilities



Bravo TSI 230 Module

### Product Description

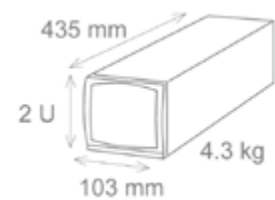
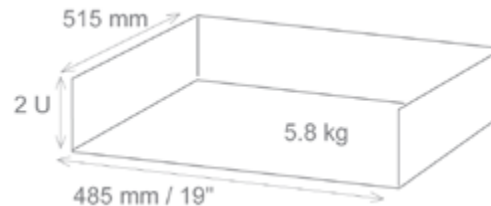
The Bravo TSI 230 is a compact and scalable modular inverter providing a pure sine wave AC supply with up to 96% efficiency. In conjunction with a DC Power system, it provides an excellent AC backup solution and uses the latest inverter technology, providing superior energy efficiency in a compact size and zero transfer time from AC to DC sources. The "Twin Sine Innovation" (TSI) technology eliminates all single points of failure with full scalability; up to 32 modules in parallel and high efficiency of up to 96% reducing operating costs.

### 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.

### Features

- Dual input sources (AC & DC) with wide AC input range 150 to 265VAC
- Compact design
- High efficiency
- Transfer time reduced to 0
- Up to 10kVA in 2U
- Up to 225kVA in 3 enclosures of 75kVA each



	24 / 230	48 / 230	60 / 230	110 ** / 230	220*** / 230
General Specifications					
EMC (immunity)	EN 61000-4-2   EN 61000-4-3   EN 61000-4-4   EN 61000-4-5   EN 61000-4-6 EN 61000-4-8				
EMC (emission) (class)	EN 55022 (A)	EN 55022 (B)	EN 55022 (A)	EN 55022 (B)	
Safety	EN62040-1				
Cooling / isolation	Forced / Doubled				
MTBF	240,000 hours (MIL-217-F)				
Efficiency (Typical): Enhanced power conversion / on line	>95.5% >89.5%	96% / 91%			96.5% / 92.5%
Dielectric strength DC/AC	4,300VDC				
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 0-100Hz-0.1 g / transport vibration 5-100Hz-0.5g / 100-500Hz-1.5g / Drop test				
Operating conditions	Designed for installation in an IP20 or IP21 environment				
Altitude above sea without de-rating	<1500m / derating > 1500m – 0.8% per 100m				
Environmental	Ambient: -20 - 50 ° C   Storage: -40 - 70°C   Humidity: 95%, non-condensing				
Material (casing)	Coated steel-ALU ZINC				

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AC Output Power					
Nominal output power (VA) / (W)	1500 / 1200	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 temp management	Yes				
DC Input Specifications					
Nominal voltage (DC)	24V	48V	60V	110V	220V
Voltage range (DC)	19 - 35V	40 - 60V	48 - 72V	90 - 160V	170 - 300V
Nominal current	56A (at 24V, 1200W output)	46A (at 48V, 2000W output)	35A (at 60V, 2000W output)	19A (at 110V, 2000W output)	9.8A (at 220V, 2000W output)
Maximum input current (for 15 second) / voltage ripple	84A <100mV rms	84A <2mV Psopho	52A <100mV rms	29A <200mV rms	14.9A <200mV rms
Input voltage boundaries	User selectable with T2S interface				
AC Input Specifications <i>(AC input available only with EPC modules, REG modules do not have any AC in)</i>					
Nominal voltage (AC)	220 / 230 / 240V 1P or 3P (Min 3 shelves for 3P)				
Voltage range (AC)	150-265V				
Brownout	150 to 185V linear derating 150VA / 120 Watts per 10VAC				
	1200VA / 960 W @ 150VAC	2000VA / 1600W @ 150VAC			
Conformity range before transfer to DC	Adjustable				
Power factor	>99%				
Frequency / sync range (selectable)	50 – 60Hz / range 47 – 53Hz / 57 – 63Hz				
AC Output Specifications					
Nominal voltage (AC*)	220 / 230 / 240V				
Frequency / frequency accuracy	50 - 60Hz / 0.03%				
Total harmonic distortion	<1.5% (resistive load)				
Load impact recovery time	0.4ms				
Turn on delay	20 s to 40 s depending on the number of module installed				
Nominal current. Protected against reverse current	6.6A	10.9A			
Crest factor at nominal power	2.8 : 1	3 : 1			
With short circuit mgmt. and protection					
Short circuit clear up capacity	10 x In 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 In during 15s and 1.5 In after 15s				
In Transfer Performance					
Max. voltage interruption / total transient voltage duration (max)	0s / 0s				
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				

## Ordering Information

Model No.	Description
Bravo TSI 230	5kVA, 230VAC Modular Inverter System