

Modular Cabinet and Rack AC Power Systems

OPUS BRAVO INVERTER SYSTEMS



Features

- » Modularity, n+1 redundancy
- » Configurable default supply AC (EPC) or DC
- » Efficiency AC to AC (EPC) 96%, DC to AC 93,7%
- » Nominal AC input 220-277VAC, DC input models 48VDC and 110/125VDC
- » Nominal AC output 220-277VAC 50/60Hz
- » OPUS modular DC+AC UPS systems with internal battery backup up to 36kVA/30kW
- » Inverter cabinets 1-p and 3-p up to 96kVA
- » OPUS cabinet alternatives OC2066, OC1666, IC2066, IC1666, RC2066 Rittal VX25
- » Configurable load distribution
- » Options: A+B double DC input

Main features



Optional Warranty

Use cases



PRODUCT DESCRIPTION

OPUS Bravo Inverter Systems are high power density, modular N+1 redundant DC to AC power conversion solutions for critical infrastructure applications such as transmission and distribution substations, process industries and telecommunications.

Inverter modules include “internal bypass”, which allows to run systems with AC input in “EPC” mode. All grid over/under voltage peak voltages are filtered in EPC mode AC/DC conversion, which means perfect power quality for critical loads. Switching time between default and backup supplies in 0 ms. External static bypass is not needed.

System is managed by Inview controller and by redundant VID12 and inview controllers in OPUS DC+AC systems. Remote monitoring protocols such as Ethernet TCP/IP, Modbus TCP/IP, SCADA IEC61850, SNMP and RS-232 are supported. Double A+B system diode sets and manual bypass units can be configured for systems.



“Built-in Bypass”
Included in each inverter module



OPUS Bravo inverter modules

DAC 48-3000 Bravo
DAC 110/125-3000 Bravo
DC inputs 48VDC or 110/125VDC
AC input 220-277VAC
AC output 220-277VAC, 3kVA



OPUS Bravo 19" 2U rack systems

OPUS INV 48-12.0 R2U
OPUS INV 110/125-12.0 R2U
19" 2U racks systems 3kVA-12kVA

OPUS HE modular DC + AC systems

Cabinet Power systems, OC, IC, RC cabinets
OPUS HE 48-12.0 CS-xx66 F INV
OPUS HE 110/125-12.0 CS-xx66 F INV
DC 2kW-12kW, AC 3kVA – 36kVA 1-p/3-p

OPUS INV modular inverter systems

Cabinet Power systems, OC, IC, RC cabinets
OPUS INV 48-96.0 CS-xx66 F INV
OPUS HE 110/125-96.0 CS-xx66 F INV
AC 3kVA – 96kVA 1-phase or 3-phase

TECHNICAL SPECIFICATIONS, INVERTER MODULE AND RACK 19" 2U

GENERAL CONSTRUCTION	
Cooling, audible noise	Forced fan cooling, <65db @1m
Efficiency AC to AC (EPC) DC to AC	> 96% > 93.7%
MTBF	240 000 hrs (MIL-217-F) at 30°C ambient and 80% load
Dielectric strength DC/AC	48VDC inverter 4300VDC 110/125VDC inverter 2100VDC
Altitude	Max 4km, full power up to 1.5km above sea level, derating 0.8% per 100m between 1.5km-4km

ENVIRONMENT AND STANDARDS	
Humidity max	95% relative humidity, 96hours per year
Operating T° Storage T° Transport T	-20°C ... 65°C, derating +40 ... +65 °C -40°C ... 70°C -40°C ... 70°C
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
EMC	Cabinet: EN61439-1, EN61439-2 Inverter: EN300386V1.6.1 / EN61000-1-2-3-4
Safety	Cabinet: EN61439-1, EN61439-2 Inverter EN60950-EN62040-1-UL1778-IEC62109/1-IEC62109/2

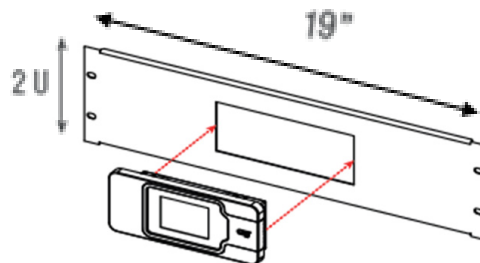
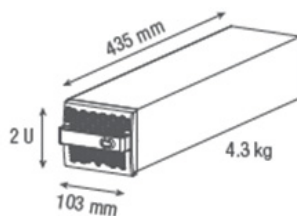
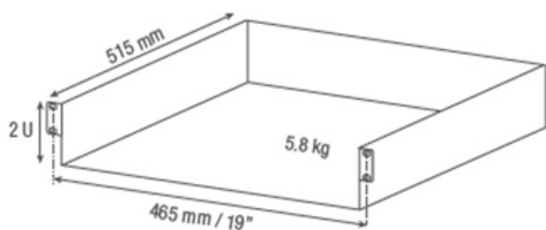
AC input		
	48VDC	110/125 VDC
Nominal voltage	220-277VAC	220-277VAC
Voltage range	150 - 293 VAC derating 195-150 VAC	150 - 293 VAC derating 195-150 VAC
Frequency (Synchronization range)	50 Hz (47 - 53 Hz) or 60 Hz (57 - 63 Hz)	
Power factor / THD	> 0.99 / < 3%	
Nominal current per inverter	11.8A @ 230VAC	11.8A @ 230VAC
Nominal current per 19" 2U rack (4 inverters)	47.2A @ 230VAC	47.2A @ 230VAC
Input Protection per rack	1 x MCB 63A 2-p	1 x MCB 63A 2-p
Input terminals, rack	1 x M5 (L-N-PE) Min 3x16mm2 cable	1 x M5 (L-N-PE) Min 3x16mm2 cable

DC input		
	48VDC	110/125 VDC
Nominal voltage	48 VDC	110 VDC / 125 VDC
Voltage range	32-63 VDC, de-rating <44V	90-150 VDC
Nominal current per inverter	54.4 A @ 48VDC	24.3 A @ 110VDC
Max current per inverter, 15 sec overload	66.8 A	30.3 A
Nominal current per 19" 2U rack (4 inverters)	217.6 A @ 48VDC	97.2 A @ 110VDC
Max current per rack, 15 sec overload	267.2 A	133.2 A
Input Protection per rack	4 x MCB 63A	4 x MCB 32A
Input terminals, rack	4 x M5 (DC+ DC-) Min 2x16mm2 cable	4 x M5 (DC+ DC-) Min 2x6mm2 cable

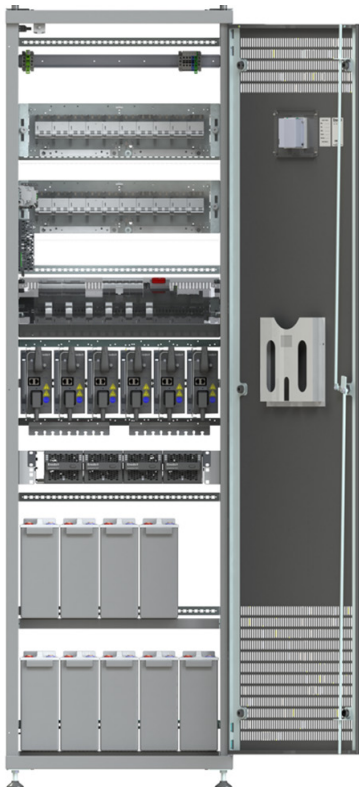
AC output		
	48VDC	110/125 VDC
Nominal voltage	220-277VAC	220-277VAC
Nominal frequency	50 Hz or 60 Hz	
Nominal power per inverter	3kVA / 2.4kW	3kVA / 2.5kW
Nominal current per inverter	13A @ 230VAC	13A @ 230VAC
Short time overload capacity	125%, 15 seconds	
Admissible load power factor	Full power rating from 0 inductive to 0 capacitive	
Total harmonic distortion	< 3% (resistive load)	
Load impact recovery time	10% -> 90% / ≤ 0.4 ms	
Crest factor at nominal power	3 : 1 for load P.F. ≤ 0.7	
Short circuit clear up capacity	<20ms: AC input 104 A for 20 ms / DC input 30.2 A for 20 ms >20ms: 18.6 A for 15 seconds (AC or DC input)	
AC output voltage stability	±1% from 10% to 100% load	
Static / Dynamic voltage regulation	±1% between 10% and 100% load / <5% from 0 to 100% to 0 load impact (100 ms)	
AC output voltage stability	±1% from 10% to 100% load	
Nominal power per rack	12kVA / 9.6kW	12kVA / 10kW
Nominal current per rack	52A @ 230VAC	52A @ 230VAC
Output terminals, rack	1 x M5 (L-N-PE) Min 3x16mm ² cable	1 x M5 (L-N-PE) Min 3x16mm ² cable

MONITORING, INVIEW S CONTROLLER	
Display	2.8" capacitive touchscreen
Hardware interfaces	1 x Ethernet, 1 x RS-485, 1 x CAN, 1 x USB
Supported protocols	Modbus RS485, Modbus TCP, SNMP v1, v2C and v3, HTTP/HTTPS
Relay alarms	2pcs, configurable
Digital inputs	2pcs, configurable
Buzzer	Yes
Mounting	DIN / Panel / Door
Power supply	12 VDC (10 VDC - 14 VDC), power consumption 5W
Operating Temperature Range	-20°C ... +50°C
RAM	512 MB
Dimension (W x H x D)	180 x 83 x 31 mm
Weight	240 g

MECHANICAL DIMENSIONS

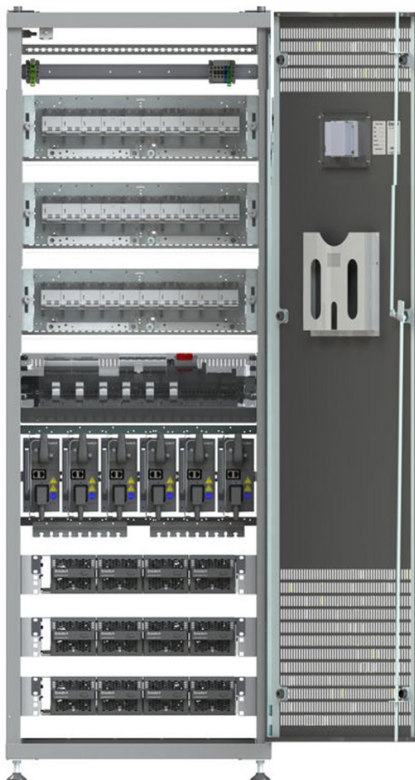


CONFIGURABLE OPUS INVERTER CABINET SYSTEMS, OC CABINETS, IC CABINETS, RC RITTAL CABINETS



OPUS HE 110-12.0 INV
OC2066, Modular UPS

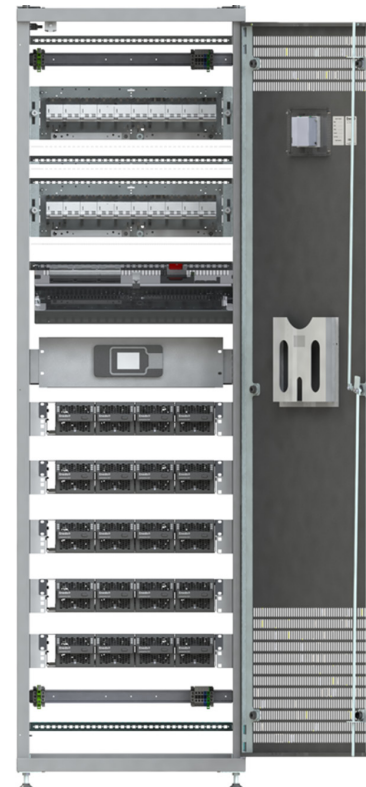
H2000 x W600 x D600mm
DC 110V power 12kW
AC 230V power 12kVA/10kW
AC-AC or DC-AC default conversion
Internal battery 110V/125Ah
Option manual bypass
Load Distribution DC+AC



OPUS HE 48-12.0 INV
OC1666, Modular UPS

H1600 x W600 x D600mm
DC 48V batt. charger 12kW
AC 230V power 36kVA/30kW
Default AC-AC conversion
External battery
Option manual bypass
Load Distribution AC (+DC)

A+B DC Input OPTION
2 x input, 2 + 2 diodes



OPUS INV 125-45.0 3-p
IC2066, 3-p Inverter

H2000 x W600 x D600mm
AC out 400/230V 36kVA/30kW
DC input 125VDC
AC-AC or DC-AC default conversion
Option manual bypass
Load Distribution AC

ORDER INFORMATION, OPUS BRAVO INVERTERS

ITEM CODE	DESCRIPTION
C02514	DAC 48-3000 Bravo Inverter module 48VDC/230-277VAC 3kVA/2.4kW, T621D30201
C02394	DAC 110/125-3000 Bravo Inverter module 110-125VDC/230-277VAC 3kVA/2.5kW, T621D50201
C02515	INVIEW S Controller, display 2,8", T602004100
C02395	MBP 20kVA, manual bypass 1-p 19" 3U, T324731021
C02516	OPUS INV 48-12.0 R2U OPUS Bravo 19" 2U rack 12kVA/9.6kW, T624730000
C02517	OPUS INV 110/125-12.0 R2U OPUS Bravo 19" 2U rack 12kVA/10kW, T624D50000
D03124 D03125	Inview 19" 2U installation KIT 48V, incl 48VDC/12VDC aux converter Inview 19" 2U installation KIT 110/125V, incl 110-220V/12V aux conv