Vertiv™ NetSure™ V200 DC Power Retrofit

Key benefits

- Achieve peak power efficiency of up to 96.75%.
- Improve current harmonics to <5% and power factor (PF) to .99 at loads of >50%.
- Integrate with legacy large vortex power system (LVPS) rectifiers for seamless expansion.
- Deploy with ultra high-efficiency Vertiv™ eSure™ rectifiers and standard Vertiv™ NetSure™ rectifiers.
- No meter, control, alarm (MCA) or LMS1000 controller update is required.

High-efficiency Vertiv™ eSure™ rectifiers help reduce energy costs and provide advanced features for large Vortex power plants.

Vertiv™ NetSure™ V200 Retrofit

The Vertiv™ NetSure™ V200 Retrofit is designed to improve system efficiency and support capacity expansion. This solution enables high-efficiency Vertiv™ eSure™ rectifiers to be used in existing large power plants without modifying the Vortex controller.*

Each retrofit module consists of a chassis that accepts two Vertiv eSure R48-5800e rectifiers and mounts in place of a Vertiv NetSure V200E50 rectifier. The existing controller communicates with the chassis on the serial bus, where information is translated into CAN protocol for use by Vertiv eSure or Vertiv NetSure rectifiers. Communication back to the controller follows the reverse process. This enables the controller to operate with Vertiv rectifiers and achieve up to 97% efficiency.

The Vertiv™ NetSure™ V200 Retrofit is designed with active power factor (PF) correction circuitry that delivers a PF greater than 99% with less than 5% total harmonic distortion (THD). Integrating the Vertiv NetSure V200 Retrofit into an existing large Vortex power plant also helps optimize current harmonics.

Upgrading an existing plant is designed to be straightforward. Simply unplug the old rectifiers one at a time and replace each unit with a Vertiv NetSure V200 Retrofit module. No modifications to the controller or monitoring system are required (see MCA compatibility table, page 2). Voltage settings and alarm thresholds are retained during conversion. Once all rectifiers have been converted, reduced THD and improved PF can contribute to more stable emergency generator operation.

The Vertiv NetSure V200 Retrofit provides an efficient way to upgrade existing power infrastructure. It helps reduce the cost and complexity of engineering and installing a completely new plant while minimizing the work associated with hot transitions.

* **Note:** *Will only work with MCA versions 5.0.0 and higher (earlier versions will not load share properly).*

MCA compatibility

MCA controller version[1]	Release date	Upgrade	Remote sense lead drop[2]
5.2.0	After 9/13/2006	Not required	50 mV
5.1.0	After 10/8/2004	Not required	50 mV
5.0.0	After 9/2/2003	Not required	50 mV

[1] To determine MCA controller version, go to the front panel: System OK (enter) / Configure Menu (enter) / Verify Inventory (enter) / Navigate to "MCA SWV ########".

[2] Maximum voltage drop between local bus and sense point.

Technical specifications

Part number	486531003 (replaces V200E50 486531000/01)
AC input	
Nominal voltage	Three-phase 480VAC
Operating voltage range	260-530 VAC
Frequency	45-65Hz
Power factor (Pf)	0.99
Total harmonic distortion	<5% from 50-100% load
Input current	16A
Inrush current	Does not exceed 150% of rated input steady state peak value
Input protection	If the input decreases or increases beyond an nonadjustable predetermined value, the rectifier circuitry shuts down disabling the output. The rectifier will recover once the AC input is reestablished and exceeds 95VAC (low voltage restart point) or when it decreases to 285VAC (high voltage restart point). Overcurrent is protected by an internal fuse.
Operating efficiency	Up to 96.75% Peak.
DC output	
Output voltage range	42.0-58.0 VDC
Output power	Constant power limiting operation; 11,600 W maximum
Output current	240A max
Regulation	Steady state output voltage remains within +/- 0.25% for any combination of input and output voltage from 5% to 100% load
Voice band noise	The voice frequency noise generated does not exceed 32dBrnC from 10% to 100% load
Wide band noise	Does not exceed 250 mV peak-to-peak, or 30 mV rms per Telcordia GR-947-CORE
Psophometric noise	Does not exceed 1 mV, 10% to 100% load
Current limiting protection	Output is limited to 240 amps
Over current protection	Internal fuse
High voltage shutdown	If the rectifier detects an overvoltage condition, it will shut down and automatically restart after five seconds. If another overvoltage condition is detected within the next five minutes, the rectifier will shut down and remain locked out until it is manually cycled.
Environmental	
Temperature	-40 to +176°F (storage), 0 to +45°C (operating)
Altitude	Up to 6562 ft. (2000m) at full rated output
Relative humidity	0-95%
Ventilation	Front to back with speed controlled fan (field replaceable)
Audible noise	<53dB(A)
Status/alarm indicators	
Normal operation	Green LED
Alarm	Yellow LED
Rectifier fail alarm	Red LED
Fan failure alarm	Flashing red LED
Status settings	The MCA recognizes the upgraded Vertiv™ NetSure™ V200 Retrofit as a conventional Vertiv NetSure V200E250 model.
Rectifier physical specifications	
Mounting	Plugs into same slot as Vertiv NetSure V200E50
Dimensions	8.63" H x 23.36" W x 15.33" D
Weight	44 pounds
Safety compliance	UL/EN/IEC 60950-2000 CE & EMC