# NETSURE™ V200 DC POWER RETROFIT

## KEY FEATURES

- Achieves efficiency levels approaching 97%.
- Improves current harmonics from 26% to <5% and power factor from 0.94 to 0.99.
- Eliminates typical transition cost and risk.
- Works with legacy LVPS rectifiers for expansion.
- Compatible with ultra high-efficiency eSure™ rectifiers and standard NetSure™ rectifiers.
- Does not require an updated MCA* or LMS1000 controller.

* MCA versions 5.0.0 and higher do not require update. Earlier versions will not load share proportionately and we recommend upgrading to the latest MCA version.

High efficiency eSure™ rectifiers provide dramatic reductions in energy costs and advanced features for large Vortex® power plants.

The NetSure V200 Retrofit is designed to improve system efficiency and permit expansion. This elegant solution enables ultra high-efficiency eSure rectifiers or standard NetSure rectifiers from Vertiv to be used in existing large power plants without modifying the Vortex® controller.* The NetSure V200 Retrofit also functions side-by-side with existing legacy rectifiers.

Each retrofit module consists of a chassis that mounts in the place of a V200D50 or V200E50 rectifier. The 208V chassis accepts three R483500e rectifiers and the 480V chassis accepts two R485800e rectifiers. The existing controller communicates with the chassis on the serial bus, where information is translated into CAN protocol for use by the eSure/ NetSure rectifiers. Communication back to the controller occurs in reverse order. This process enables the controller to work with Vertiv's high-efficiency rectifiers and achieve efficiency levels near 97%.

The NetSure V200 Retrofit is designed with active power factor correction circuitry providing a power factor greater than 99% with less than 5% total harmonic distortion. Thus, integrating a NetSure V200 Retrofit into an existing large Vortex® power plant improves overall system efficiency while optimizing current harmonics.

Upgrading an existing plant could not be simpler. Simply unplug the old rectifiers one at a time, replacing each unit with an updated NetSure V200 Retrofit module. An average size plant can be upgraded in less than an hour. No modifications to the controller or monitoring system are required.* Voltage settings and alarm thresholds are retained during conversion. When all rectifiers have been converted, the plant will be nearly 6% more efficient, THD will be minimized and operation of the emergency generators will improve.

The NetSure V200 Retrofit provides a simple way to upgrade existing large power plants without the cost of engineering and installing a completely new plant, the need for difficult transition work, and the associated risk of outage related to hot transitions.

*Legacy System*

*Partial Conversion*

*High-Efficiency System*

*NetSure® V200 Retrofit*

## MCA Compatability

| MCA CONTROLLER VERSION1 | RELEASE DATE | UPGRADE | REMOTE SENSE LEAD DROP2 |
|---|---|---|---|
| 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 |
| 4.9.9 or less | Prior 9/2003 | Requires a New MCA | 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

| AC INPUT | 486527803 (REPLACES V200D50 486527800/01) | 486531003 (REPLACES V200E50 486531000/01) |
|---|---|---|
| Nominal voltage | Three phase 208VAC | Three phase 480VAC |
| Operating voltage range | 85-300 VAC | 260-530 VAC |
| Frequency | 45-65Hz | 45-65Hz |
| Power factor (Pf) | 0.99 | 0.99 |
| Total harmonic distortion | <5% from 50-100% load | <5% from 50-100% load |
| Input current | 30A | 16A |
| Inrush current | Does not exceed 150% of rated input steady state peak value | 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 | 96.7% Peak | 96.2% Peak |

| DC OUTPUT | | |
|---|---|---|
| Output voltage range | 42.0-58.0 VDC | 42.0-58.0 VDC |
| Output power | Constant power limiting operation; 10,500 W maximum | Constant power limiting operation; 11,600 W maximum |
| Output current | 219A max | 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 250mV peak-to-peak, or 30mV rms per Telcordia GR-947-CORE | |
| Psophometric noise | Does not exceed 1 mV, 10% to 100% load | Does not exceed 1 mV, 10% to 100% load |
| Current limiting protection | Output is limited to 219A | Output is limited to 240 amps |
| Over current protection | Internal fuse | Internal fuse |
| High voltage shutdown | If the rectifier detects overvoltage it will turn off. 5 seconds later it will restart. If it encounters another over voltage condition within the next 5 minutes it shuts down and locks out until it is manually cycled. | |

| ENVIRONMENTAL | | |
|---|---|---|
| Temperature | -40 to +167°F (storage), 0 to +50°C (operating) | -40 to +176°F (storage), 0 to +45°C (operating) |
| Altitude | Up to 6562 ft. (2000m) at full rated output | Up to 6562 ft. (2000m) at full rated output |
| Relative humidity | 0-95% | 0-95% |
| Ventilation | Front to back with speed controlled fan (field replaceable) | Front to back with speed controlled fan (field replaceable) |
| Audible noise | <53dB(A) | |

| STATUS/ALARM INDICATORS | | |
|---|---|---|
| Normal operation | Green LED | Green LED |
| Alarm | Yellow LED | Yellow LED |
| Rectifier fail alarm | Red LED | Red LED |
| Fan failure alarm | Flashing Red LED | Flashing Red LED |
| Status settings | The MCA controller establishes all rectifier settings.<br>The upgraded NetSure V200 Retrofit appears to the MCA the same as a conventional V200D50. | The MCA controller establishes all rectifier settings.<br>The upgraded NetSure™ V200 Retrofit appears to the MCA the same as a conventional V200E50. |

| RECTIFIER PHYSICAL SPECIFICATIONS | | |
|---|---|---|
| Mounting | Plugs into same slot as V200D50 | Plugs into same slot as V200E50 |
| Dimensions | 8.63" H x 23.36" W x 15.33" D | 8.63" H x 23.36" W x 15.33" D |
| Weight | 33.1 pounds | 44 pounds |
| Safety compliance | UL/EN/IEC 60950-2000 CE & EMC | UL/EN/IEC 60950-2000 CE & EMC |

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