



Vertiv™ NetSure™  
IPE Series, R48-2000C2  
Ordering Guide



## Benefits

- Rapidly deploy your wireless and broadband networks with outdoor rectifiers that easily mount directly to a pole or wall using quick connectors on battery, load and alarm cables
- Power your critical infrastructure in hard to reach spaces with IP65-rated high-density modules that operate up to +75 °C
- Keep network operating costs to a minimum by using highly available DC power that operates at 96% efficiency and requires no energy for cooling
- Eliminate voltage drops and running heavy cables to remote radio heads (RRHs) by placing these compact rectifiers directly on top of the tower
- Quietly support your network with silent, convection-cooled DC power

*Lightweight and maintenance-free, Vertiv™ NetSure™ IPE outdoor power systems with optional lithium-ion batteries power your network in harsh environments.*

## Description

The NetSure™ IPE series high-efficiency R48-2000C2 rectifier is designed to support 5G radio applications such as small cells and remote radio heads (RRHs) and broadband applications such as DSLAMs and OLTs. Fanless cooling eliminates maintenance and results in silent operation. Ideal for rapid deployment in urban, rural, or noise sensitive public areas.

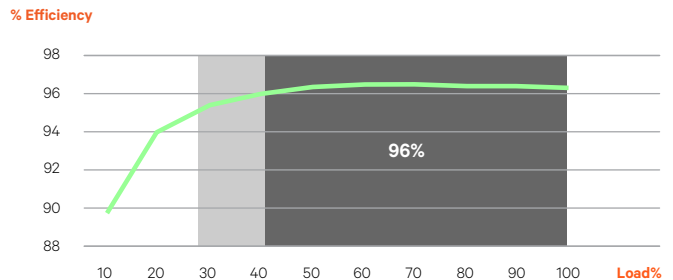


The rectifier meets IP65 rating for use in harsh outdoor environments. Flexible installation options include pole or wall mounting in flag or flat position. Quick connectors and a cable-strain relief plate offer the time to install both rectifier and battery cables is kept to a minimum.

The 96% high-efficiency rectifier includes an integrated controller that offers Bluetooth communication for initial system set-up. It can then be turned-off or left on for on-going monitoring and control depending on the operator's preference. All rectifiers are also equipped with alarm relay outputs and compatible with optional lithium batteries.

The space-saving NetSure™ IPE Series is ideal for use in network edge applications including 5G small cells, RAN, Distributed Antenna Systems (DAS) and broadband.

Rapid deployment outdoors is easy since the unit is hardened and does not require a separate housing for protection against the elements.



R48-2000C2 Efficiency Curve at 230 VAC Nominal

## Versatile Mounting Options



**Rectifier - Flag Orientation**  
(bracket 10024600\*)



**Rectifier - Flat Orientation**  
(bracket 10024600\*)



**Battery - Flag Orientation**  
(bracket 10025107\*\*)



**Rectifier & Battery - Flag Orientation**  
(brackets 10024600\* + 10025107\*\* + 10025108\*\*)

\* included with rectifier  
\*\* purchased separately

## Technical Specifications

### AC Input

Voltage, Nominal	85 VAC to 300 VAC
Voltage Range	100-120 VAC and 200-240 VAC
Single or Three-Phase	Single
Frequency	45 to 65 Hz
Maximum Current	12A
Power Factor	>0.90 for 25% to 50% load, >0.98 for 50% to 100%
Total Harmonic Distortion	≤5% from 50% to 100% of rated output current at 220 VAC to 240 VAC

### DC Output

Voltage, Nominal	-48 VDC
Voltage Range	-42 to -58 VDC
Maximum Power	2000 W (see figure 1)
Maximum Current	41.6 A @ -48 VDC (see figure 2)
Peak Efficiency	>93% at ≥ 100 VAC input, >96.3% at ≥ 230 VAC input
Load Outputs	1x2kW and 2x1kW fuse protected outputs

### Battery Distribution

Fuse Type	High Speed
Fuse Positions	1
Fuse Rating	70A
LVD	Internal to battery - see battery datasheet

### DC Load Distribution

Fuse Type	High Speed
Fuse Positions	3
Fuse Rating	2x 30A; 1x 70A

### Monitoring

Local Display	3x Status LEDs
Communication	Ethernet, Bluetooth & RS485 (for battery only)
Protocols	SNMPv2

### Environmental

Operating Temperature	-40 to 75°C / -40 to +167°F (see figure 3)*
Storage Temperature	-40 to +70°C / -40 to +158°F
Relative Humidity	5 to 100%
Altitude	-61 to 3048 (m): up to 3000 m at full power / -200 to 10000 (feet): up to 9842 feet at full POWER

### Physical

Body Color	Off White
Height	15.7"/400 mm
Width	11.8"/300 mm
Depth	2.4"/62 mm
Maximum Weight (Approximate)	21 lbs / 9.5 kg
Access	Bottom of rectifier
Cable Entry	Quick connectors

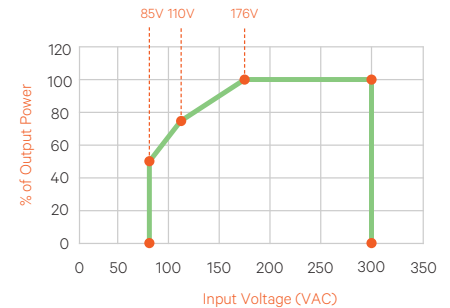
### Standards Compliance

Safety	IEC62368-1, UL62368-1, CSA-C22.2 NO. 62368-1
EMC	EN55022, ETSI EN300 386, FCC CFR 47 Part 15 (Class B), GR-1089-CORE Issue 7:2017
Environment	IEC 60529, REACH, RoHS, WEEE
Ingress Protection	IP65
Seismic	Zone 4

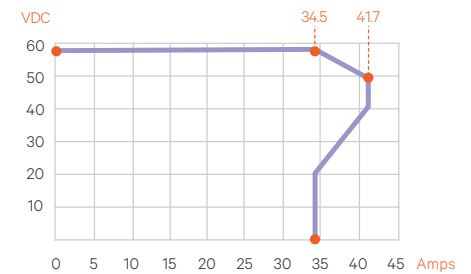
### Warranty

Standard Warranty	1 Year
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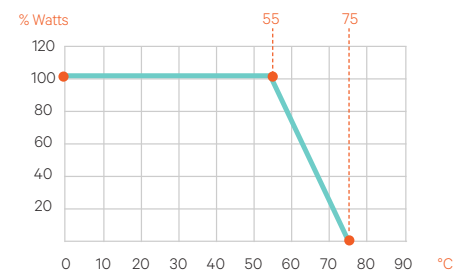
## Figures



**Figure 1:** Output Power vs. Input Voltage and  $V_o > 48V$  at  $Temp < 55^\circ C$



**Figure 2:** Output Voltage vs. Output Current at Maximum Output Power 2000 W



**Figure 3:** Output Power vs. Temperature at 290 VAC  $\geq V_{in} \geq 200$  VAC

## Ordering Information

Part Number	Description
<b>2000 Watt Rectifier</b>	
1R482000C2-6	Vertiv™ NetSure™ IPE, -48 VDC, 2000 W, with controller, quick connections. Standard mounting kit included with cable-strain relief plate.
<b>2000 Watt Rectifier Kits (see matrix below for details - cables and mounting brackets can be ordered individually on following page)</b>	
Kit 1 - 10032448	1R482000C2-6 rectifier with input, communication and (1) 2kW output cables
Kit 2 - 10032449	1R482000C2-6 rectifier with input, communication and (2) 1kW output cables
Kit 3 - 10032450	1R482000C2-6 rectifier with input, communication, (2) 1kW output and Narada power & communication cables + Narada/rectifier flag mounting kit
Kit 4 - 10032451	1R482000C2-6 rectifier with input, communication, (2) 2kW output, (2) 1kW output cables
Kit 5 - 10032452	1R482000C2-6 rectifier with input, communication, (2) 1kW output and Narada power & communication cables + battery mounting kit

Category	Description	Length	Part Number	Rectifier 1R482000C2-6	Kit 1 10032448	Kit 2 10032449	Kit 3 10032450	Kit 4 10032451	Kit 5 10032452
	2kW Rectifier	-	1R482000C2-6	1	1	1	1	1	1
Power Cables	AC Input	16.4 ft	10024814						
	AC Input	32.8 ft	10023461		1	1	1	1	1
	1kW Load	30.0 ft	10023471			2	2	2	2
	2kW Load	30.0 ft	10023420		1			2 **	
	Narada Battery	31.5 in	10023549				1		
	Narada Battery	49.25 in	10023604						1
Communication Cables	Alarm/Ethernet	32.8 ft	10039061		1	1	1	1	1
	Narada Battery	31.5 in	10023684				1		
	Narada Battery	49.25 in	10023685						1
Mounting Brackets	Narada Battery	-	10025107				1		1
	Rectifier Add to Narada *	-	10025108				1		
	Rectifier (included w/ rectifier)	-	10024600	1	1	1	1	1	1

AC input, Load and Alarm/Ethernet Cables are pre-connectorized on one end and raw ended on the other

Narada Battery Power and Communication Cables are pre-connectorized on both ends

\* For flag side by side mounting, must be used with rectifier (10024600) and battery (10025107) mounting brackets

\*\* Second 2kW load cable connects to battery port in battery-less applications

## 2000 Watt Rectifier Cables

10024814	AC input power cable, IP65 quick connector/unterminated - 16.4 ft
10023461	AC input power cable, IP65 quick connector/unterminated - 32.8 ft
10023471	1 kW output power cable, IP65 quick connector/unterminated - 30 ft
10023420	2 kW output power cable, IP65 quick connector/unterminated - 30 ft
10039061	Alarm/Ethernet communication cable, DB-15 connector/unterminated - 32.8 ft
10023549	Narada battery power cable, IP65 quick connector/battery connector- 31.5 in
10023604	Narada battery power cable, IP65 quick connector/battery connector - 49.25 in
10023684	Narada battery communication cable, DB9 connector/battery connector - 31.5 in
10023685	Narada battery communication cable, DB9 connector/battery connector - 49.25 in

AC input, Load and Alarm/Ethernet Cables are pre-connectorized on one end and raw ended on the other  
Narada Battery Power and Communication Cables are pre-connectorized on both ends

## Battery Mounting Brackets

10025107	Narada battery mounting bracket - flag and flat orientation
10025108	Rectifier and Narada battery side by side mounting kit - flag orientation *
	* Must be used with rectifier (10024600) and battery (10025107) mounting brackets

## Spare/Replacement Parts

10026784	Fuse, 160 VDC, 30 A - for 1kW outputs
10026786	Fuse, 300 VAC, 70 A - for 2kW output and battery input/output

## Lithium-ion Battery

48-BKB01030050-2UA	Narada FEN4850-NA-VR01 - 50Ah LFP lithium-ion battery
10042264	Narada FEN4850 CBLComPC laptop communications cable



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