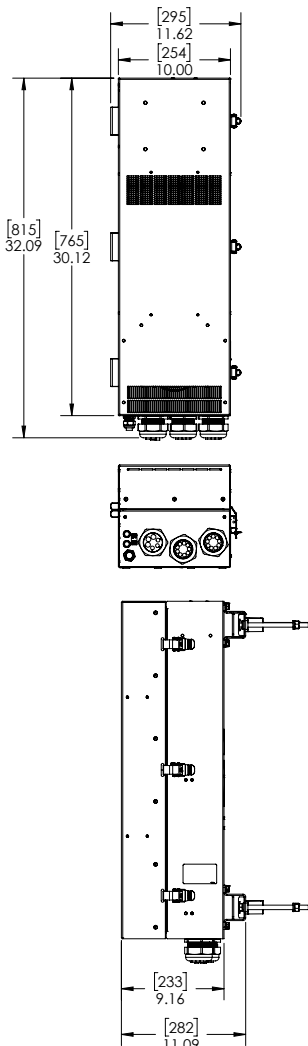


AC Disconnect with Integrated DC Power Supply for Small Cell Radio Heads

RUSAC-1AN2-P-240-1 • RUSAC-1AN2-P-240-2 • RUSAC-MOD-U

The RUSAC-1AN2-P-240 Series is an AC/DC Disconnect which integrates a DC power supply, AC and DC load centers, and surge protection on both the AC and DC circuits. The compact design makes it ideal for today's small cell radio systems. It employs patented Strikesorb® surge protection, capable of withstanding direct lightning currents up to 5kA (10/350 μ s), and induced surge currents up to 60 kA (8/20 μ s). The RUSAC-1AN2-P-240-1 and RUSAC-1AN2-P-240-2 provide protection for up to 6x AC circuits and 4x DC loads.



Strikesorb®



*RUSAC-MOD-U expands capacity
from 2kW to 4kW (@-53.5VDC)*

Features

- 100A main breaker
- 120/240VAC split phase configuration
- Up to six branch breakers providing (6) 120VAC circuits or (3) 240VAC circuits
- Employs the Strikesorb 30 Series Surge Protective Device (SPD)
 - The Strikesorb 30 Series are Class I SPDs, certified by VDE per the IEC 61643-11 standard as suitable for installation in areas where induced lightning exposure is expected
 - Strikesorb 30 Series withstand direct surge currents up to 5kA (10/350 μ s) and induced surge currents of up to 60kA (8/20)
 - Provides low let-through / clamping voltage - as it does not employ spark gaps or other switching elements
 - Strikesorb offers unique protection levels for wireless and small cell applications
- DC power supply capable of providing up to 2000 Watts @ -54VDC (RUSAC 1AN2-P-240-1)
 - Expandable to 4000 watts (RUSAC 1AN2-P-240-2)
- Externally visible indicator available for AC and DC
- 3x (M50) cable glands can be replaced with 1.5" conduit
- Patent pending design
- Unistrut or wall mounting holes
- Mounting bracket included for pole mounting options

Benefits

- Offers unique maintenance free protection
- Over current protection for up to 6x AC circuits and up to 4x DC circuits for customer use.
- Design allows easy installation and maintenance at the base of poles or towers
- Air-to-air heat-exchanger maintains closed loop NEMA Type 3 environment for equipment. Prevents ingress of contaminants and moisture

Basic Applications

- Telecommunications

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G02-01-865 200406

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SPECIFICATIONS

Strikesorb®

AC Disconnect with Integrated DC Power Supply for Small Cell Radio Heads

RUSAC-1AN2-P-240-1 • RUSAC-1AN2-P-240-2 • RUSAC-MOD-U

Electrical

| Model Number | RUSAC-1AN2-P-240-1 | RUSAC-1AN2-P-240-2 | RUSAC-MOD-U |
|---|--|--|--|
| Main Disconnect | 100A main breaker | 100A main breaker | |
| Number of AC Circuits | Available up to 6 for customer loads (2x 2-pole breakers feed rectifiers) | Available up to 6 for customer loads (2x 2-pole breakers feed rectifiers) | |
| AC Breakers | Up to six | Up to six | |
| Breaker Interrupt Rating (kAIC) | 10kA | 10kA | |
| DC Breakers | (4) 1-position for customer loads | (4) 1-position for customer loads | |
| Rated Power Output | (1) 2000W @-53.5VDC, 2000W Total | (2) 2000W @-53.5VDC, 4000W Total | (1) 2000W @-53.5VDC, 2000W Total |
| Rated Output Voltage | 53.5 VDC \pm 0.1 VDC | 53.5 VDC \pm 0.1 VDC | 53.5 VDC \pm 0.1 VDC |
| Rated Output Current (DC) | 35 Amps | 70 Amps | 35 Amps |
| Output Short Circuit Current Protected | Yes, long term with self-recovery | Yes, long term with self-recovery | Yes, long term with self-recovery |
| Input Voltage | 110/220VAC | 110/220VAC | 110/220VAC |
| Input Nominal Voltage | Full DC Power (176-280VAC); 42% Power (85-175VAC) | Full DC Power (176-280VAC); 42% Power (85-175VAC) | Full DC Power (176-280VAC); 42% Power (85-175VAC) |
| Input Current THD | <5% @50% 176 load; <8% @20% load | <5% @50% 176 load; <8% @20% load | <5% @50% 176 load; <8% @20% load |
| Rated Power Per Rectifier | 1x 2000W (176-290VAC); 830W (85-175VAC) | 2x 2000W (176-290VAC)(4000W Total) 1660W (85-175VAC) | 1x 2000W (176-290VAC); 830W (85-175VAC) |
| Power Factor | ≥ 0.99 @220VAC (20%-100% load) | ≥ 0.99 @220VAC (20%-100% load) | ≥ 0.99 @220VAC (20%-100% load) |
| Efficiency | @230 VAC: $\geq 96\%$ | @230 VAC: $\geq 96\%$ | @230 VAC: $\geq 96\%$ |
| Ripple Voltage | @200 mVp-p @25°C | @200 mVp-p @25°C | @200 mVp-p @25°C |
| Surge Protection Device (SPD) Type to UL | Strikesorb 30 Series | Strikesorb 30 Series | |
| Surge Protective Device (SPD) Type per UL 1449 4th Edition | Type 2 component assembly | Type 2 component assembly | |
| Surge Protection Device (SPD) Class to IEC 61643-11 | Class I | Class I | |
| Nominal Operating Voltage [U _n] | 120V / 240VAC split phase | 120V / 240VAC split phase | |
| Nominal Discharge Current [I _n] per UL 1449 4th Edition | 20 kA 8/20 μ s | 20 kA 8/20 μ s | |
| Maximum Discharge Current [I _{max}] per IEC 61643-11 | 60 kA 8/20 μ s | 60 kA 8/20 μ s | |
| Impulse Discharge Current [I _{imp}] per IEC 61643-11 | 5 kA 10/350 μ s | 5 kA 10/350 μ s | |
| Maximum Continuous Operating Voltage [U _c] (MCOV) | 150V per line | 150V per line | |
| Voltage Protection Level [U _p] per IEC 61643-11 | 700V | 700V | |
| Suppression Technology | MOV | MOV | |

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SPECIFICATIONS

Strikesorb®

AC Disconnect with Integrated DC Power Supply
for Small Cell Radio Heads

RUSAC-1AN2-P-240-1 • RUSAC-1AN2-P-240-2 • RUSAC-MOD-U

Mechanical

| Model Number | RUSAC-1AN2-P-240-1 | RUSAC-1AN2-P-240-2 | RUSAC-MOD-U | |
|--|---|--------------------|--|--|
| Connection Terminal (Power) | Compression Lug #6 - #14 AWG (13 - 2mm²) Terminal Block #10-#26 AWG (6 - 0.14mm²) | | | |
| Environmental Ingress Protection (IP) Rating | NEMA Type 3 | | | |
| Cooling Method | Closed-Loop air-to-air heat exchanger | | | |
| Operation Temperature (°C) | -40° C to +46° C | | | |
| Storage Temperature (°C) | -70° C to +80° C | | | |
| Enclosure Type (Outdoor) | Powder Coated Steel, NEMA Type 3 | | | |
| Enclosure Dimension (L x W x H) | 9.16" x 11.6" x 32.1" [233× 295 × 815mm] | | | |
| Weight | System w/ 1 Rectifier: | 44 lbs (19.96 kg) | System w/ 2 Rectifiers: 48.7 lbs (22.09 kg) | Rectifier Module: 4.7 lbs (2.13 kg) |
| | Mount: | 6 lbs (2.72 kg) | Mount: | 6 lbs (2.72 kg) |
| | Total: | 50 lbs (22.68 kg) | Total: | 54.7 lbs (24.81 kg) |

Standards Compliance & Certifications

Strikesorb modules are compliant to the following Surge Protective Device (SPD) standards:

UL 1449 4th Edition: 2011, IEC 61643-11: 2011, EN 61643-11: 2012, IEEE C62.11: 2005, IEEE C62.41: 2002, IEEE C62.45: 2002, NEMA-LS-1

Certification UL, VDE, CE

Panel Board Certification UL 60950 (Pending)

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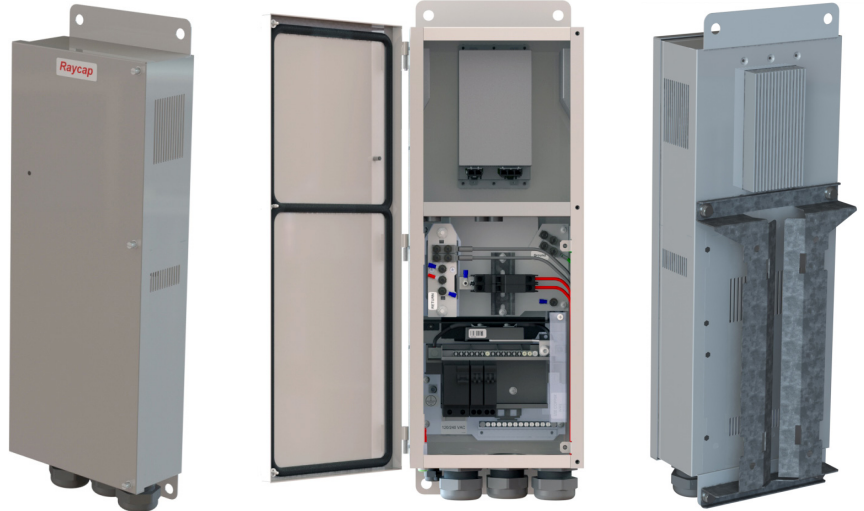
AC Disconnect with Integrated DC Power Supply for Small Cell Radio Heads

RUSAC-1440-P-240-1

The RUSAC-1440-P-240-1 is an AC/DC Disconnect which integrates a DC power supply, AC and DC load centers, and surge protection on both the AC and DC circuits. The compact design makes it ideal for today's small cell radio systems. It employs patented Strikesorb® surge protection, capable of withstanding direct lightning currents up to 5kA (10/350 μ s), and induced surge currents up to 60 kA (8/20 μ s).

The RUSAC-1440-P-240-1 provides protection for up to ten AC circuits and two DC loads.

Strikesorb®



Mounting Bracket Included

Features

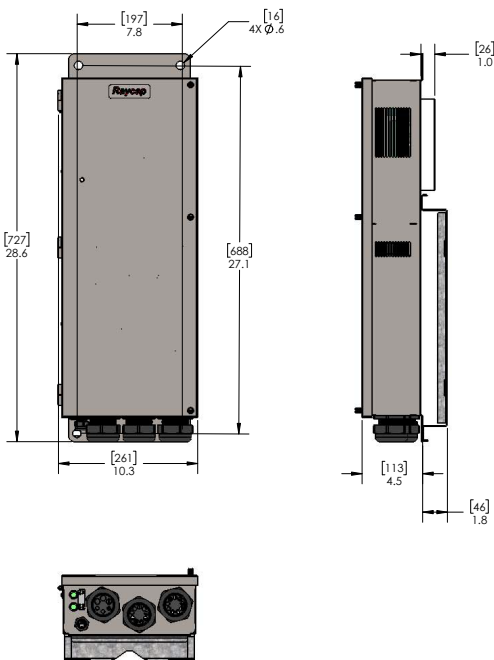
- 60A main breaker
- 120/240VAC split phase configuration
- Up to six duplex branch breakers providing (10) 120VAC circuits which can be bridged to provide 240V (two circuits rectified to DC power)
- Employs the Strikesorb 30 Series Surge Protective Device (SPD)
 - The Strikesorb 30 Series are Class I SPDs, certified by VDE per the IEC 61643-11 standard as suitable for installation in areas where induced lightning exposure is expected
 - Strikesorb 30 Series withstand direct surge currents up to 5kA (10/350 μ s) and induced surge currents of up to 60kA (8/20)
 - Provides low let-through / clamping voltage - as it does not employ spark gaps or other switching elements
 - Strikesorb offers unique protection levels for wireless and small cell applications
- DC power supply capable of providing up to 600 Watts @ -54VDC
- Passive Cooling
- Indicator LEDs for AC available (1) and DC available (2)
- 3x (M50) glands can be replaced with 1.5" conduit
- Patent pending design
- Unistrut or wall mounting holes
- Mounting bracket included for pole mounting options

Benefits

- Offers unique maintenance free protection
- Over current protection for up to ten AC circuits and two DC circuits (two AC circuits rectified to DC power)
- Utilizes a NEMA 3R rated enclosure, allowing for indoor or outdoor installation
- Lightweight design allows easy installation

Basic Applications

- Telecommunications



SPECIFICATIONS

Strikesorb®

AC Disconnect with Integrated DC Power Supply
for Small Cell Radio Heads

RUSAC-1440-P-240-1

Electrical

| | |
|---|---|
| Model Number | RUSAC-1440-P-240-1 |
| Main Disconnect | 60A main breaker |
| Number of AC Circuits | Available up to 10 (two circuits rectified) |
| AC Breakers | Up to (6) duplex |
| Breaker Interrupt Rating (KAIC) | 10kA |
| DC Breakers | (2) 15 amp |
| Rated Power Output | 600W |
| Rated Output Voltage | 54 VDC \pm 0.5 VDC |
| Rated Output Current | 11.2A |
| Output Over Current Protection | \geq 31.5A |
| Output Short Circuit Current Protected | Yes, long term with self-recovery |
| Input Under Voltage Protection | 85 VAC \pm 5 VAC |
| Input Under Voltage Recovery | 95 VAC \pm 5 VAC |
| Input Over Voltage Protection | 332 VAC \pm 5 VAC |
| Input Over Voltage Recovery | 320 VAC \pm 5 VAC |
| Power Factor | \geq 0.98 (load \geq 50%); \geq 0.99 (load \geq 100%) |
| Efficiency | @ 240 VAC: \geq 94% |
| Ripple Voltage | @ 20 MHz: \leq 100mVpp |
| Surge Protection Device (SPD) Type to UL | Strikesorb 30 Series |
| Surge Protective Device (SPD) Type per UL 1449 4th Edition | Type 2 component assembly |
| Surge Protection Device (SPD) Class to IEC 61643-11 | Class I |
| Nominal Operating Voltage [U _n] | 120V / 240VAC split phase |
| Nominal Discharge Current [I _n] per UL 1449 4th Edition | 20 kA 8/20 μ s |
| Maximum Discharge Current [I _{max}] per IEC 61643-11 | 60 kA 8/20 μ s |
| Impulse Discharge Current [I _{imp}] per IEC 61643-11 | 5 kA 10/350 μ s |
| Maximum Continuous Operating Voltage [U _c] (MCOV) | 150V per line |
| Voltage Protection Level [U _p] per IEC 61643-11 | 700V |
| Suppression Technology | MOV |

Mechanical

| | |
|--|--|
| Connection Terminal (Power) | Compression Lug #6 - #14 AWG (13 - 2mm ²) Terminal Block #10-#26 AWG (6 - 0.14mm ²) |
| Environmental Ingress Protection (IP) Rating | NEMA 3R |
| Cooling Method | Passive |
| Operation Temperature (°C) | -40° C to +65° C |
| Storage Temperature (°C) | -70° C to +80° C |
| Enclosure Type (Outdoor) | Powder Coated Steel, NEMA 3R |
| Enclosure Dimension (L x W x H) | 4.5" x 10.3" x 28.6" [113 x 261 x 727mm] |
| Weight | System: 35 lbs (15.88 kg) Mount: 5 lbs (2.26 kg) Total: 40 lbs (18.14 kg) |

Standards Compliance & Certifications

Strikesorb modules are compliant to the following Surge Protective Device (SPD) standards:

UL 1449 4th Edition: 2011, IEC 61643-11: 2011, EN 61643-11: 2012, IEEE C62.11: 2005, IEEE C62.41: 2002, IEEE C62.45: 2002, NEMA-LS-1

| | |
|---------------------------|-----------------|
| Certification | UL, VDE, CE |
| Panel Board Certification | UL 67 (Pending) |

AWG=American Wire Gauge



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G02-01-528 190302

2000W Rectifier Module for use in RUSAC-1AN2-P-240 Series Products

2kWRECTMOD

The 2kWRECTMOD is a hot-pluggable rectifier module that can easily be installed in any of Raycap's RUSAC-1AN2-P-240 Series AC/DC Disconnect products. It is designed to increase capacity from 2000W to 4000W for the DC power-system (37A to 74A @ -54VDC).



*2kWRECTMOD expands capacity
of the RUSAC-1AN2-P240-1
from 2kW to 4kW (@-53.5VDC)*

Features

- Provides 2000W capacity (37A @-53.5VDC) for output loads (with 176-290VAC input)
- $\geq 96\%$ Efficient @ 230VAC supply-voltage
- Operates from -40° to $+75^{\circ}\text{C}$ (-40° to 167°F)

Benefits

- Hot-swappable
- Durable 500,000 Hour (57.1 years) MTBF Construction (@ 25C)
- Reverse polarity protected

Basic Applications

- Telecommunications

SPECIFICATIONS

2000W Rectifier Module for use in RUSAC-1AN2-P-240 Series Products **2kWRECTMOD**

Electrical

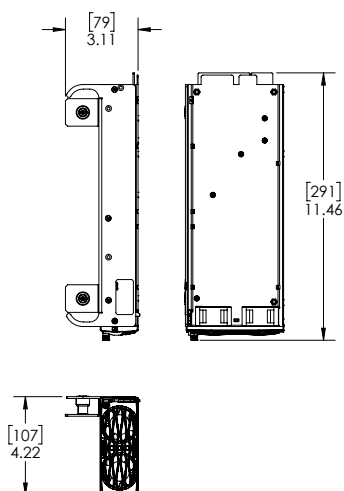
| | |
|--|--|
| Model Number | 2kWRECTMOD |
| Rated Power Output | (1) 2000W @ -53.5VDC, 2000W Total |
| Rated Output Voltage | 53.5 VDC \pm 0.1 VDC |
| Rated Output Current (DC) | 35 Amp |
| Output Short Circuit Current Protected | Yes, long term with self-recovery |
| Input Voltage | 110/220VAC |
| Input Nominal Voltage | Full DC Power (176-280VAC); 42% Power (85-175VAC) |
| Input Current THD | <5% @ 50% 176 load; <8% @ 20% load |
| Rated Power Per Rectifier | 1x 2000W (176-290VAC); 830W (85-175VAC) |
| Power Factor | \geq 0.99 @ 220VAC (20%-100% load) |
| Efficiency | @ 230 VAC: \geq 96% |
| Ripple Voltage | @ 200 mVp-p @ 25°C |
| Input Current THD | <5% @ 50% Load; <8% @ 20% Load |
| Leakage Current | <3.5mA @ 264VAC |
| Surge Current | Design Standard: EN/IEC61000-4-5 |
| Reverse Polarity Protection | Triggered in case of incorrect input polarity |
| Maximum Capacitive Load | 4000uF |
| Output Ripple and Noise | 200mVp-p @ 25°C (53.5VDC) |
| Output Temperature Derating | 100% Output (-40° to 50°C) Linear Derating (50° to 65°C) 80% Output (65°C) Linear Derating (65-75°C) 40% Output (75°C) |

Mechanical

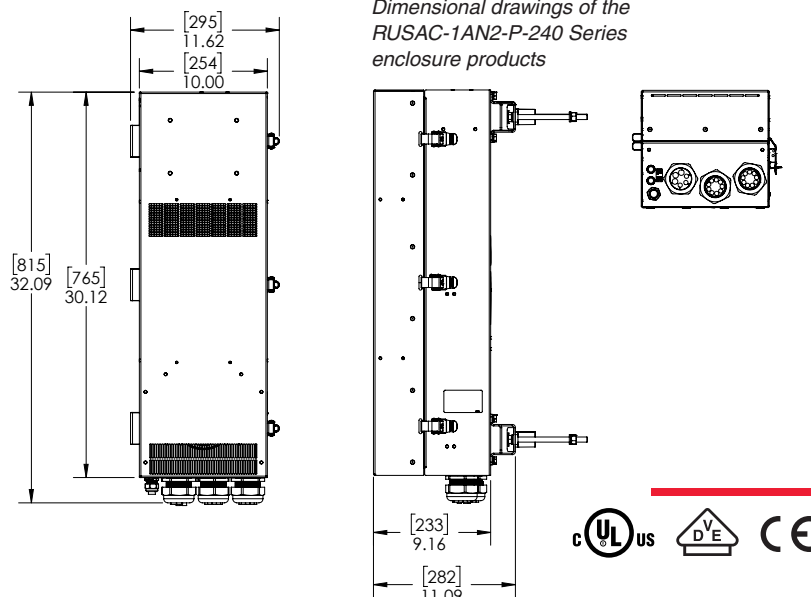
| | |
|----------------------------|---|
| Operating Temperature (°C) | Full Output: -40° to 50°C (-40° to 122°F); Linear Derating (50° to 65°C) |
| Storage Temperature (°C) | -40° to 75°C (-40° to 167°F) |
| Dimensions | 11.46" x 4.22" x 3.11" |
| Weight | 4.7 lbs (2.13 kg) |

Dimensional Drawings

Dimensional drawings of the
2kWRECTMOD



Dimensional drawings of the
RUSAC-1AN2-P-240 Series
enclosure products



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