



# RHINO SELECT PSS Series Power Supplies With Integrated UPS

## Overview

The RHINO SELECT PSS\*-U panel mount power supplies, with integrated DC UPS function, prevents end-product downtime for the customer in the event of failure/disruption or unexpected loss of input AC power. The power supply will switch to battery operation (batteries not included) without interruption to increase operational reliability. The TTL compatible monitoring signals for AC OK, DC OK and Battery Low will alert the user in the event of failure. This convection-cooled single-phase power supply has a wide operating temperature range from -20°C to + 70°C and is suitable for security system, access control, automatic doors, alarm system and other similar products. In addition to having overvoltage, overload, over temperature, deep battery discharge, and reverse battery polarity protections on the main output, there are also short circuit and overload protections when operating in the buffering (battery discharging) mode. The PSS\*-U design meets worldwide safety approvals, certified to Class B radiated and conducted emission requirements.

## Features

- LED indicators for DC OK (Green) and Battery Reverse
- Zero cut-over time from loss of AC, to battery operation
- Protection against reverse polarity battery connection
- Conforms to harmonic current IEC/EN 61000-3-2, Class A
- High MTBF > 700,000 hrs. per Telcordia SR-332
- Monitoring Signals for AC OK, DC OK and Battery Low indication
- Overvoltage / Overcurrent / Over temperature / Short circuit protections
- Built-in over current and short circuit protection in buffering (battery discharging) mode operation
- Certified according to IEC/EN/UL 62368-1
- 3-year warranty



| PSS Series Specifications          |         |                |                      |                            |
|------------------------------------|---------|----------------|----------------------|----------------------------|
| Part Number                        | Price   | Output Voltage | Maximum Output Power | Drawing Link               |
| <a href="#"><u>PSS12-155-U</u></a> | \$43.50 | 13.8 V         | 151W                 | <a href="#"><u>PDF</u></a> |
| <a href="#"><u>PSS24-155-U</u></a> | \$43.50 | 27.6 V         | 151W                 | <a href="#"><u>PDF</u></a> |



# RHINO SELECT PSS Series Technical Specifications

| Technical Specifications                     |                |                                                                                                                                  |                     |                                     |                    |
|----------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------|--------------------|
| Specifications                               |                | PSS12-155-U                                                                                                                      |                     | PSS24-155-U                         |                    |
|                                              |                | V+                                                                                                                               | B+                  | V+                                  | B+                 |
| Input (AC)                                   |                |                                                                                                                                  |                     |                                     |                    |
| Input Voltage Range                          |                | 90-132 VAC, 180-264 VAC [Selectable by Switch]                                                                                   |                     |                                     |                    |
| Frequency                                    |                | 47-63 Hz                                                                                                                         |                     |                                     |                    |
| Nominal Current                              |                | < 2.5 A @ 115VAC, < 1.5 A @ 230VAC                                                                                               |                     |                                     |                    |
| Inrush Current Limitation I2t (+25 °C) typ   |                | < 25A @ 115VAC & 230VAC                                                                                                          |                     |                                     |                    |
| Leakage Current                              |                | < 0.5 mA @ 264VAC                                                                                                                |                     |                                     |                    |
| Recommend Circuit Breaker (Characteristic B) |                | 10A                                                                                                                              |                     |                                     |                    |
| Output (DC)                                  |                |                                                                                                                                  |                     |                                     |                    |
| Nominal Output Voltage / Adjustment Range    |                | 13.8 VDC / 12 - 14 VDC                                                                                                           | 13.3 VDC            | 27.6 VDC / 24 - 28 VDC              | 27.1 VDC           |
| Output Power                                 |                | 151W [max]                                                                                                                       |                     |                                     |                    |
| Output Current                               | Normal Mode    | 905 A [0 - 11A]                                                                                                                  | 1.5 A [0.5 - 1.5 A] | 4.0 A [0 - 5.5 A]                   | 1.5 A [0.5 -1.5 A] |
|                                              | Buffering Mode | –                                                                                                                                | 0 - 11A             | –                                   | 0 - 5.5 A          |
| PARD ripple and noise (20MHz)                | V+             | < 150mVpp @ 0 to -20°C<br>< 100mVpp @ > 0 to 70°C                                                                                |                     |                                     |                    |
| Start-up Time                                | V+             | < 1,000ms [115VAC @ 90% load, 230VAC @ 100% load]                                                                                |                     |                                     |                    |
| Hold-up Time                                 | V+             | > 20ms [115VAC @ 90% load, 230VAC @ 100% load]                                                                                   |                     |                                     |                    |
| Rise Time                                    | V+             | < 50ms [100VAC @ 90% load, 200VAC @ 100% load]                                                                                   |                     |                                     |                    |
| Efficiency                                   |                | > 85.0% @ 115VAC / > 86.0% @ 230VAC                                                                                              |                     | > 88.0% @ 115VAC / > 89.0% @ 230VAC |                    |
| Line Regulation                              | V+             | < 0.5% [90-132VAC @ 100% load, 180-264VAC @ 100% load]                                                                           |                     |                                     |                    |
| Load Regulation                              | V+             | < 1.0% [90-132VAC @ 0-90% load, 180-264VAC @ 0-100% load]                                                                        |                     |                                     |                    |
| Voltage Drop Between V+ and B+               | Normal Mode    | 0.5 V typ.                                                                                                                       |                     |                                     |                    |
|                                              | Buffering Mode | 0.2 V typ.                                                                                                                       |                     |                                     |                    |
| General Data                                 |                |                                                                                                                                  |                     |                                     |                    |
| Case Chassis / Cover                         |                | AL / SGCC                                                                                                                        |                     |                                     |                    |
| Weight                                       |                | 0.60 kg [1.32 lb]                                                                                                                |                     |                                     |                    |
| MTBF                                         |                | > 700,000 hrs. as per Telcordia SR-332, I/P: 115VAC, Ta: 25°C, O/P: 13.8 V/9.9 A for 13V model and 27.6 V / 4.95 A for 27V model |                     |                                     |                    |
| Noise                                        |                | Sound Pressure Level [SPL] < 30dBA                                                                                               |                     |                                     |                    |
| Cooling                                      |                | Convection                                                                                                                       |                     |                                     |                    |
| Input / Output Terminal                      |                | Terminal block M3.5 x 7-Pin [Rated 300V/15A]                                                                                     |                     |                                     |                    |
| Wire Size / Torque                           |                | AWG 16-14 / 11.3 lbf-in                                                                                                          |                     |                                     |                    |
| Status Connector                             |                | 400mm length, 4-pin JST: XHP-4 Mating connector: B4B-XH-A(LF)(SN)<br>Statuses available: DC OK, Low Battery, AC OK               |                     |                                     |                    |
| Shock Test                                   |                | IEC 60068-2-27, 30G (300m/S²) for a duration of 18ms,3 times per direction, 9 times in total                                     |                     |                                     |                    |
| Vibration                                    |                | IEC 60068-2-6, 10Hz to 150Hz @ 50m/S² (5G peak);<br>displacement of 0.35 mm; 20 min per axis for all X, Y, Z direction           |                     |                                     |                    |

Continued on next page



# RHINO SELECT PSS Series Technical Specifications

| Technical Specifications                   |                                                                                                                                                                                                       |    |             |    |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------|----|
| Specifications                             | PSS12-155-U                                                                                                                                                                                           |    | PSS24-155-U |    |
|                                            | V+                                                                                                                                                                                                    | B+ | V+          | B+ |
| <b>Safety / Environmental</b>              |                                                                                                                                                                                                       |    |             |    |
| <b>EMC / Emissions</b>                     | CISPR 22, CISPR 32, EN 55022, EN 55032, FCC Title 47: Class B GB9254.1                                                                                                                                |    |             |    |
| <b>Immunity</b>                            | EN 55024, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-12                                                                                    |    |             |    |
| <b>Voltage Dips</b>                        | Conform to IEC 61000-4-11                                                                                                                                                                             |    |             |    |
| <b>Galvanic Isolation</b>                  | Input to Output : 3.0K VAC, Input to Ground : 1.5K VAC, Output to Ground : 0.5K VAC                                                                                                                   |    |             |    |
| <b>RoHS Compliant</b>                      | Yes                                                                                                                                                                                                   |    |             |    |
| <b>Operating Temperature</b>               | -20 to 70°C [-4 to 158°F]                                                                                                                                                                             |    |             |    |
| <b>Storage Temperature</b>                 | -40 to 85°C [-40 to 185°F]                                                                                                                                                                            |    |             |    |
| <b>Humidity at +25 °C, no condensation</b> | 5 to 95% RH [Non-Condensing]                                                                                                                                                                          |    |             |    |
| <b>Approvals</b>                           | SIQ Bauart: EN 62368-1<br>UL 62368-1 and CSA C22.2 No. 62368-1; File No. E508040<br>CB scheme: IEC 62368-1,<br>CE (In conformance with EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU) |    |             |    |

| PSS Series Battery Input / Output Characteristics                   |                                  |                                                                                                                                                             |    |                                                                                   |    |
|---------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|----|
| Specifications                                                      |                                  | PSS12-155-U                                                                                                                                                 |    | PSS24-155-U                                                                       |    |
|                                                                     |                                  | V+ <sup>4</sup>                                                                                                                                             | B+ | V+                                                                                | B+ |
| Nominal Battery Voltage<br>(Battery not included with Power Supply) |                                  | 12VDC<br>SLA Sealed lead acid battery                                                                                                                       |    | 24VDC<br>SLA Sealed lead acid battery<br>2x12 VDC<br>SLA Sealed lead acid battery |    |
| Battery Voltage Range                                               | Continuously Operating           | 11.0 to 13.8 VDC [nominal at 12V]                                                                                                                           |    | 22.0 to 27.6 VDC [nominal at 24V]                                                 |    |
|                                                                     | Maximum Allowed Voltage          | 16VDC Max                                                                                                                                                   |    | 32VDC Max                                                                         |    |
|                                                                     | Battery Low Voltage <sup>1</sup> | 11.5 VDC typ                                                                                                                                                |    | 22.5 VDC typ                                                                      |    |
|                                                                     | Minimum Voltage <sup>2</sup>     | 9.0 VDC +/- 0.5 VDC                                                                                                                                         |    | 18.0 VDC +/- 0.5 VDC                                                              |    |
| Battery Capacity                                                    |                                  | 3.3 AH/ 7AH/ 12AH/ 15AH                                                                                                                                     |    |                                                                                   |    |
| Buffering Time                                                      |                                  | Approx. 1 hr 15 mins for battery 12V/15AH                                                                                                                   |    | Approx. 2 hrs 30 mins for battery 24V/15AH                                        |    |
| Charging Time <sup>3</sup>                                          |                                  | 2-10 hrs @ charging current of 1.5A                                                                                                                         |    |                                                                                   |    |
| Recommended Extended Fuse for Battery                               |                                  | Automotive 30A / 80V FK3 type from Littelfuse, or similar, in the battery B+ path.<br>The battery fuse protects the wires between the battery and the unit. |    |                                                                                   |    |
| Battery Charging (Normal Mode)                                      |                                  | CC-CV mode [constant current-constant voltage] at 0 to 1.5 A                                                                                                |    |                                                                                   |    |
| End-Of-Charge Voltage                                               |                                  | The unit always charges battery to a fixed voltage value.                                                                                                   |    |                                                                                   |    |

1. The voltage level of battery to enable "Battery Low" function.
2. Minimum battery voltage required for power supply to detect battery in order to begin charging. Battery must be connected to power supply, with the correct polarity, across B+ and B- terminals; and, with input and output loads disconnected.
3. Charging time depends on the state/condition of battery discharge; and will depend on the amount of buffering/discharging time, and load current that battery was discharged at.
4. V+ and V- terminals are for power supply voltage output.

## Wiring Diagram

