

# RHINO PSE Series Encapsulated Power Supplies

The PSE series are AC/DC switch mode power supplies encapsulated in an ultra-compact, low-profile housing. They are ideal for space limited applications and are easily screw mounted to a panel or equipment chassis or can be DIN rail mounted using the optional DIN rail mounting kit. The PSE series features a universal input from 120/240 VAC and single or dual outputs from 15 Watts up to 60 Watts (above 30 Watt, single output only).



## Features

- Ultra compact, low profile plastic case
- Single or dual output models
- Screw terminal blocks
- Chassis mount or 35mm DIN rail mount with optional adapter
- Universal input 120/240 VAC, 47-440 Hz (60 Watt, 47-63 Hz)
- Double insulated - no external ground required
- UL508 listed, UL60950-1 recognized, CE marked
- Short circuit and overload protection
- DC on LED indicator
- 3-year warranty



### Single Output Models 15 to 60 Watt

| Part Number               | Price    | Drawing Link        | Weight [lbs] | Output Power Max. | Output             | Efficiency [Typ @ 115VAC] |
|---------------------------|----------|---------------------|--------------|-------------------|--------------------|---------------------------|
| <a href="#">PSE05-115</a> | \$62.00  | <a href="#">PDF</a> | 0.3          | 15W               | 5VDC / 3000mA      | 74%                       |
| <a href="#">PSE12-115</a> | \$62.00  | <a href="#">PDF</a> | 0.3          |                   | 12VDC / 1250mA     | 81%                       |
| <a href="#">PSE15-115</a> | \$62.00  | <a href="#">PDF</a> | 0.3          |                   | 15VDC / 1000mA     | 81%                       |
| <a href="#">PSE24-115</a> | \$62.00  | <a href="#">PDF</a> | 0.3          |                   | 24VDC / 625mA      | 83%                       |
| <a href="#">PSE05-130</a> | \$91.00  | <a href="#">PDF</a> | 0.5          | 30W               | 5VDC / 6000mA      | 76%                       |
| <a href="#">PSE12-130</a> | \$91.00  | <a href="#">PDF</a> | 0.5          |                   | 12VDC / 2500mA     | 80%                       |
| <a href="#">PSE15-130</a> | \$91.00  | <a href="#">PDF</a> | 0.5          |                   | 15VDC / 2000mA     | 81%                       |
| <a href="#">PSE24-130</a> | \$91.00  | <a href="#">PDF</a> | 0.5          |                   | 24VDC / 1250mA     | 81%                       |
| <a href="#">PSE05-150</a> | \$109.00 | <a href="#">PDF</a> | 0.8          | 51W               | 5.1 VDC / 10,000mA | 76%                       |
| <a href="#">PSE12-160</a> | \$109.00 | <a href="#">PDF</a> | 0.8          | 60W               | 12VDC / 5000mA     | 81%                       |
| <a href="#">PSE15-160</a> | \$109.00 | <a href="#">PDF</a> | 0.8          |                   | 15VDC / 4000mA     | 82%                       |
| <a href="#">PSE24-160</a> | \$109.00 | <a href="#">PDF</a> | 0.8          |                   | 24VDC / 2500mA     | 83%                       |

### Dual Output Models 15 to 30 Watt

| Part No.                  | Price   | Drawing Link        | Weight [lbs] | Output Power Max. | Output 1        | Output 2        | Efficiency [Typ @ 115VAC] |
|---------------------------|---------|---------------------|--------------|-------------------|-----------------|-----------------|---------------------------|
| <a href="#">PSE12-215</a> | \$64.00 | <a href="#">PDF</a> | 0.3          | 15W               | +12VDC / 650mA  | -12VDC / 650mA  | 82%                       |
| <a href="#">PSE15-215</a> | \$64.00 | <a href="#">PDF</a> | 0.3          |                   | +15VDC / 500mA  | -15VDC / 500mA  | 82%                       |
| <a href="#">PSE12-230</a> | \$94.00 | <a href="#">PDF</a> | 0.5          | 30W               | +12VDC / 1300mA | -12VDC / 1300mA | 81%                       |
| <a href="#">PSE15-230</a> | \$94.00 | <a href="#">PDF</a> | 0.5          |                   | +15VDC / 1000mA | -15VDC / 1000mA | 82%                       |

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| Input Specifications                                            |                                           |                                        |
|-----------------------------------------------------------------|-------------------------------------------|----------------------------------------|
| <b>Input Voltage</b>                                            | Nominal                                   | 120/240 VAC                            |
|                                                                 | AC range [universal input]                | 85 - 264 VAC                           |
|                                                                 | DC range                                  | 120 - 370 VDC [not for 60 Watt models] |
| <b>Input Frequency</b>                                          | 47 - 440Hz [47 - 63Hz for 60 Watt models] |                                        |
| <b>Input Current at Full Load (115VAC / 230VAC)</b>             | 15 Watt models                            | 300mA / 190mA typ.                     |
|                                                                 | 30 Watt models                            | 550mA / 330mA typ.                     |
|                                                                 | 51/60 Watt models [typical for all]       | 1050mA / 670mA typ.                    |
| <b>Input Current at No Load</b>                                 | 15mA @ 115VAC & 20mA @ 230VAC typ.        |                                        |
| <b>Inrush Current (&lt; 2ms, cold start at 115VAC / 230VAC)</b> | 15 Watt models                            | 15A / 30A                              |
|                                                                 | 30 Watt models                            | 20A / 40A                              |
|                                                                 | 60 Watt models                            | 30A / 50A                              |
| <b>External Input Fuse Required (recommended value)</b>         | 15 and 30 Watt models                     | 1.5 A slow blow                        |
|                                                                 | 51/60 Watt models                         | 3.0 A slow blow                        |

| Output Specifications                   |                                                                                                                                    |                                                                                                                                                             |       |       |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| Voltage Set Accuracy                    | w2%                                                                                                                                |                                                                                                                                                             |       |       |
| Regulation                              | Input variation                                                                                                                    | 1% max.                                                                                                                                                     |       |       |
|                                         | Load variation                                                                                                                     | Single output models [10-100%]: 1% max.<br>Dual output models balanced load [10-100%]: 2.5% max.<br>Dual output models unbalanced load [20/100%]: 5.0% max. |       |       |
| Minimum Load                            | Single and dual output models                                                                                                      | 10% of rated max. current                                                                                                                                   |       |       |
| Ripple and Noise<br>(20MHz bandwidth)   | 5.0 VDC outputs                                                                                                                    | 1.8% of Vout [mVpk-pk]                                                                                                                                      |       |       |
|                                         | All other outputs                                                                                                                  | 1.3% of Vout [mVpk-pk]                                                                                                                                      |       |       |
| Overload Protection by<br>Current Limit | 105% min. of nominal current, fold back, automatic recovery<br>[long term overload condition may cause damage to the power supply] |                                                                                                                                                             |       |       |
| Max. Capacitive Load [μF]               | Output                                                                                                                             | Model Series                                                                                                                                                |       |       |
|                                         |                                                                                                                                    | PSE15                                                                                                                                                       | PSE30 | PSE60 |
| Single Output Models                    | 5.0 VDC; 5.1 VDC                                                                                                                   | 3900                                                                                                                                                        | 8000  | 8000  |
|                                         | 12 / 15 VDC                                                                                                                        | 2200                                                                                                                                                        | 3900  | 3900  |
|                                         | 24VDC                                                                                                                              | 1000                                                                                                                                                        | 1500  | 1500  |
| Dual Output Models                      | +/-12V; +/-15V                                                                                                                     | 1500                                                                                                                                                        | 1500  | NA    |

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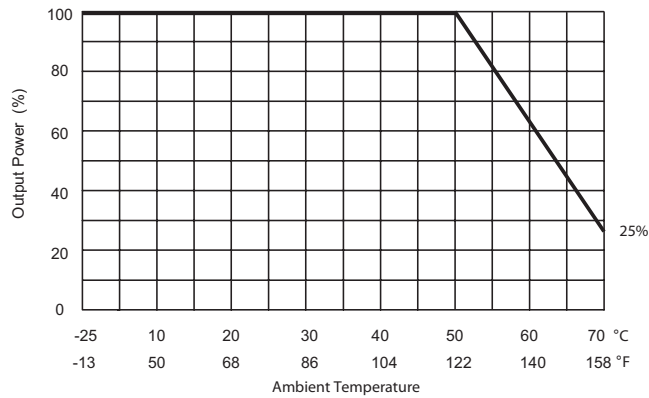
| General Specifications                                                      |                                                                                                            |                              |                                                                                          |                           |                           |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------|---------------------------|---------------------------|
|                                                                             | Standard/<br>Approval                                                                                      | Model Series                 |                                                                                          |                           |                           |
|                                                                             |                                                                                                            | PSExx-x15                    | PSExx-x30                                                                                | PSExx-150                 | PSExx-160                 |
| Operating Temperature                                                       | IEC/EN60950-1                                                                                              | -25 to 71°C [-13 to 159.8°F] |                                                                                          | -10 to 40°C [14 to 104°F] | -10 to 50°C [14 to 122°F] |
|                                                                             | UL508                                                                                                      | -25 to 50°C [-13 to 122°F]   |                                                                                          | -10 to 40°C [14 to 104°F] |                           |
| Storage Temperature                                                         | -40 to 185°F [-40 to 85°C]                                                                                 |                              |                                                                                          |                           |                           |
| Power Derating                                                              | 3.75% per °C above +122°F [50°C]<br>2.5% per °C above +104°F [40°C] for <a href="#">PSE05-150</a>          |                              |                                                                                          |                           |                           |
| Temperature Coefficient                                                     | 0.02 %/°C                                                                                                  |                              |                                                                                          |                           |                           |
| Humidity<br>(non-condensing)                                                | 95% rel. H max.                                                                                            |                              |                                                                                          |                           |                           |
| Efficiency                                                                  | 78% typ.                                                                                                   |                              |                                                                                          |                           |                           |
| Switching Frequency                                                         | 100kHz typ. [fixed]                                                                                        |                              |                                                                                          |                           |                           |
| Isolation Voltage (60 sec.)                                                 | Input/Output                                                                                               |                              | 3,000VAC                                                                                 |                           |                           |
| Isolation Resistance                                                        | Input/Output                                                                                               |                              | 100MΩ [@ 500VDC]                                                                         |                           |                           |
| Electromagnetic<br>Compatibility (EMC),<br>Emissions                        | EN 61000-6-3: 2007<br>EN61204-3: 2000, class A<br>EN 55032, level B, FCC Part 15 level B                   |                              |                                                                                          |                           |                           |
| Electromagnetic<br>Compatibility (EMC),<br>Immunity                         | EN61000-6-2: 2005<br>EN61204-3: 2000, class A                                                              |                              |                                                                                          |                           |                           |
|                                                                             | Electrostatic discharge ESD                                                                                |                              | EN61000-4-2 - 8kV / 4 kV, criteria B                                                     |                           |                           |
|                                                                             | RF field susceptibility                                                                                    |                              | EN61000-4-3 - 10 V/m, criteria A                                                         |                           |                           |
|                                                                             | Electrical fast transient / burst immunity input                                                           |                              | EN61000-4-4 - w2 kV, criteria B                                                          |                           |                           |
|                                                                             | Electrical fast transient / burst immunity output                                                          |                              | EN61000-4-4 - w2 kV, criteria B                                                          |                           |                           |
|                                                                             | Surge immunity line - neutral                                                                              |                              | EN61000-4-5 - w1 kV, criteria B                                                          |                           |                           |
|                                                                             | Surge immunity output                                                                                      |                              | EN61000-4-5 - w0.5 kV, criteria B                                                        |                           |                           |
|                                                                             | Immunity to conducted RF disturbances                                                                      |                              | EN61000-4-6 - 10 V, criteria B                                                           |                           |                           |
|                                                                             | Mains voltage dips and interruptions                                                                       |                              | EN61000-4-11 - 30% 10ms, criteria B,<br>60% 100ms, criteria C,<br>95% 5000ms, criteria C |                           |                           |
| Protection Class II                                                         | to IEC/EN 60536                                                                                            |                              |                                                                                          |                           |                           |
| Safety Standards                                                            | Information technology equipment                                                                           |                              | IEC/EN 60950-1, UL 60950-1                                                               |                           |                           |
| Agency Approvals                                                            | UL and cUL for UL 508, Listed File No. E197592; UL and cUL for UL 60950-1, Recognized File No. E198298; CE |                              |                                                                                          |                           |                           |
| RoHS Compliant                                                              | Yes                                                                                                        |                              |                                                                                          |                           |                           |
| Vibration                                                                   | None                                                                                                       |                              |                                                                                          |                           |                           |
| Shock                                                                       | None                                                                                                       |                              |                                                                                          |                           |                           |
| Reliability / Calculated<br>MTBF (MIL-HDBK-217F, @<br>+25°C, ground benign) | 15 Watt Models                                                                                             |                              | >280,000 hours                                                                           |                           |                           |
|                                                                             | 30 Watt Models                                                                                             |                              | >250,000 hours                                                                           |                           |                           |
|                                                                             | 60 Watt Models                                                                                             |                              | >125,000 hours                                                                           |                           |                           |
| Casing Material                                                             | Plastic resin + fiberglass [UL 94V-0 rated]                                                                |                              |                                                                                          |                           |                           |
| Mounting Screw<br>Torque Specifications                                     | 4~5 in-lb [0.45~0.56 Nm]                                                                                   |                              |                                                                                          |                           |                           |

Note: All specifications valid at nominal input voltage, full load and +25°C [+77°F] after warm-up time unless otherwise stated.

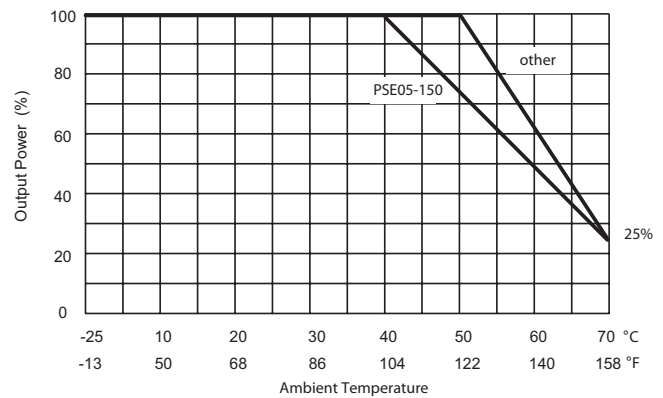
# RHINO PSE Series Encapsulated Power Supplies

## Derating Curves

**PSE 15 & 30W Models**



**PSE 51 & 60W Models**



**PSE 15W models**

| Wiring Connection |                    |                 |
|-------------------|--------------------|-----------------|
| Pin               | Single             | Dual (12V, 15V) |
| 1                 | AC[N] - AC Neutral |                 |
| 2                 | AC[L] - AC Line    |                 |
| 3                 | NC                 |                 |
| 4                 | -Vout              |                 |
| 5                 | NC                 | Common          |
| 6                 | +Vout              |                 |
| 7                 | NC                 |                 |

M3 x 0.5 mm screw size, Typ

**PSE 30W models**

| Wiring Connection |                    |                 |
|-------------------|--------------------|-----------------|
| Pin               | Single             | Dual (12V, 15V) |
| 1                 | AC[N] - AC Neutral |                 |
| 2                 | AC[L] - AC Line    |                 |
| 3                 | +Vout              |                 |
| 4                 | NC                 |                 |
| 5                 | -Vout              | Common          |
| 6                 | NC                 |                 |
| 7                 | NC                 | -Vout           |

M3 x 0.5 mm screw size, Typ

**PSE 60W models**

| Wiring Connection |                    |
|-------------------|--------------------|
| Pin               | Function           |
| 1                 | AC[N] - AC Neutral |
| 2                 | AC[L] - AC Line    |
| 3                 | NC                 |
| 4                 | +Vout              |
| 5                 | NC                 |
| 6                 | -Vout              |
| 7                 | NC                 |

#4 screw size, Typ

## Mounting Brackets

| 35mm DIN Rail Mounting Bracket |         |                     |              |                                                  |
|--------------------------------|---------|---------------------|--------------|--------------------------------------------------|
| Part Number                    | Price   | Drawing Link        | Weight (lbs) | Description                                      |
| <a href="#">PSE-BRKT-1</a>     | \$11.50 | <a href="#">PDF</a> | 0.2          | DIN rail mounting bracket for 15W PSE models     |
| <a href="#">PSE-BRKT-2</a>     | \$13.00 | <a href="#">PDF</a> | 0.2          | DIN rail mounting bracket for 30W-60W PSE models |

Note: Kit contains interface plate, DIN rail clip and necessary screws.



**PSE-BRKT-1**



**PSE-BRKT-2**

