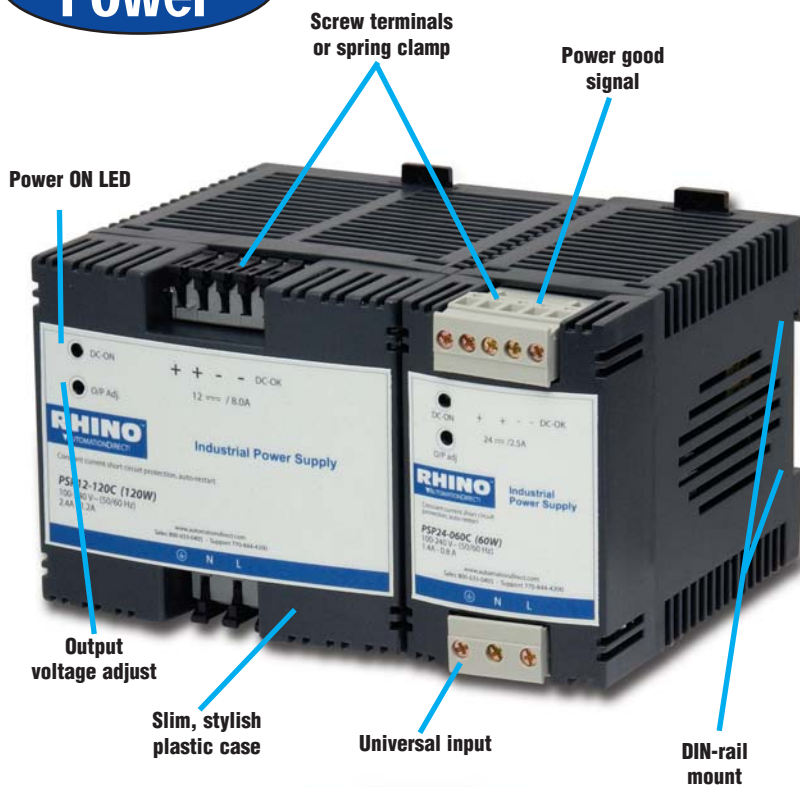


# RHINO PSP Series 5,12 & 24 VDC Power Supplies

**Low-Cost Power**



## Slimline Power Supplies

RHINO PSP series power supplies are plastic housed ultracompact switching supplies available in 5V, 12V and 24V adjustable models. There are 13 models available with power ratings of 20W to 240W and up to 10A output current. They are DIN rail or panel-mountable and feature universal 85-264 VAC/DC inputs, adjustable DC voltage outputs, power good signal and feature low output ripple along with short circuit, overvoltage and overload protection.

The RHINO PSP series of switching power supplies offer an excellent price/performance ratio. They provide tightly regulated output voltage for sensitive loads in industrial environments. The slim plastic case is lightweight and compact, and comes in both screw and spring clamp terminal versions. The constant-current, short-circuit protection limits the output current as the voltage is reduced, to safely protect the control components from direct shorts and device failures. Once a fault is corrected, the power supply automatically resumes supplying full-voltage power. (PSPxx-024x models have foldback current protection with auto-recovery.)

The RHINO PSP power supplies have a **Power ON** LED for easy visual indication of operation as well as a **Power Good** signal for feedback to your system controller.

With a UL 508C rating, the RHINO PSP series is the right choice for space limited applications.

## Features

- Regulated switch mode type
- Ultra-compact plastic case
- Finger-safe terminals
- Reliable snap-on mounting on DIN-rails
- Wall mounting bracket included
- Universal input 85-264 VAC, 50/60 Hz or 85-375 VDC (no DC input on PSP24-240S)
- Models with 5, 12 or 24 VDC output
- Output voltage adjustable
- Parallel operation up to five units (not PSP24-240S)
- Power good signal (some models)
- Low ripple and noise
- Overload and short-circuit protection
- UL/cUL 508 listed, UL/cUL 60950 recognized\*
- Worldwide safety approvals
- 3-year product warranty

\* Note: PSP24-240S is not cUL listed. PSP05-020S, PSP12-024S, and PSP24-240S are not UL 60950 recognized.



# RHINO PSP Series Power Supplies Specifications



PSP05-020S  
PSP12-024S  
PSP24-024S



PSP24-024C



PSP12-060S  
PSP24-060S



PSP12-060C  
PSP24-060C



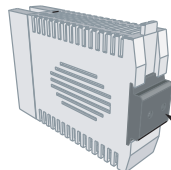
PSP12-120C  
PSP24-120C



PSP24-120S  
PSP12-120S



PSP24-240S



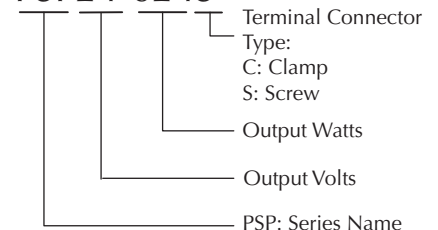
The unit can be mounted on a chassis or wall using the included mounting bracket.

Input Specifications							
Part Number	Input Voltage Range		Input Freq. Range	Input Current (Typical) at full load		Efficiency (Typ.)	C-Curve Circuit Breaker or Slow-blow Fuse
				115 VAC	230 VAC		
PSP05-020S	85-264 VAC 85-375 VDC	30% output derating below 93 VAC/ 130 VDC	47-63 Hz	0.35 A	0.2A	88%	5.0 A
PSP12-024S							
PSP24-024S							
PSP24-024C							
PSP12-060S							
PSP12-060C							
PSP24-060S		15% output derating below 93 VAC/ 130 VDC		1.2 A	0.6 A	88%	
PSP24-060C							
PSP12-120S							
PSP12-120C							
PSP24-120S							
PSP24-120C							
PSP24-240S	85-132/ 187-264 VAC	20% output derating below 93 VAC		3.3 A	1.7 A		

Output Specifications							
Part Number	Output Voltage	Output Volt. Adjust. Range	Output Current (Max.)	Output Power (Max.)	Hold-Up Time		MTBF (IEC 1709 @ 25°C)
					115 VAC	230 VAC	
PSP05-020S	5.1 VDC	5-5.25 VDC	4.0 A	20 W	15 ms	125 ms	2,681,000 hours
PSP12-024S	12 VDC	12-16 VDC	2.0 A	24 W			
PSP24-024S	24 VDC	24-28 VDC	1.0 A	24 W			
PSP24-024C							
PSP12-060S	12 VDC	12-15 VDC	4.0 A	60 W			2,947,000 hours
PSP12-060C							
PSP24-060S	24 VDC	24-28 VDC	2.5 A	120 W			
PSP24-060C							
PSP12-120S	12 VDC	12-15 VDC	8.0 A	120 W			1,620,000 hours
PSP12-120C							
PSP24-120S	24 VDC	24-28 VDC	5.0 A				240 W
PSP24-120C							
PSP24-240S			10.0 A		1,912,000 hours		

## Part numbering system

PSP24-024S

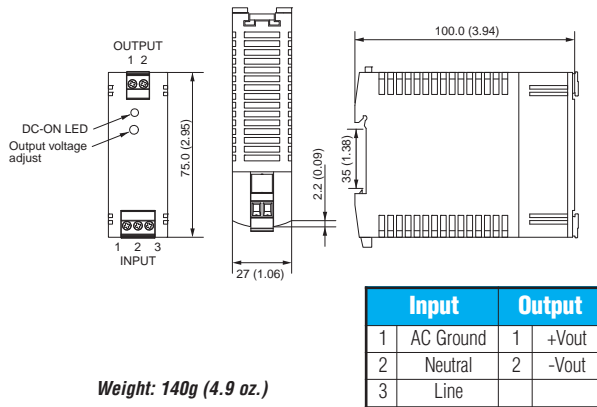


# RHINO PSP Series Power Supplies Dimensions

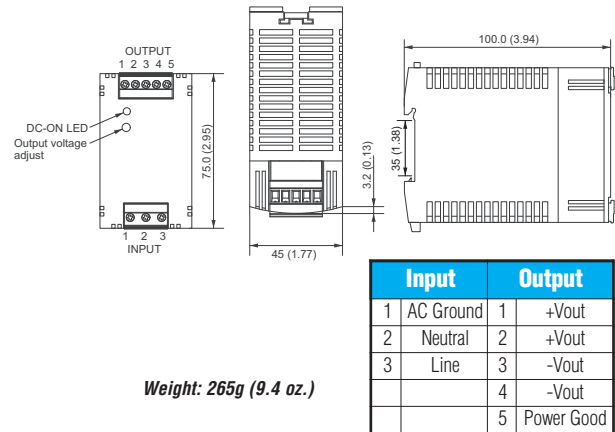
General Specifications							
<b>Temperature</b>	<b>Operating:</b> -10°C to +70°C (14°F to 158°F), Derating at 93-132 VAC or 130-187 VDC: -1.10%/C above 40°C, Derating at 187-264 VAC or 265-375 VDC: -1.67%/C above 50°C, Derating at 85-93 VAC or 85-130 VDC: -1.30%/C above 30°C, Temperature Coefficient: 0.02%/C <b>Storage:</b> -25°C to +85°C (-13°F to 185°F)						
<b>Humidity</b>	95% (non-condensing) relative humidity max.						
<b>Output Regulation</b>	2.5% (1% for PSP12-060x), 10 to 90% load variation						
<b>Switching Frequency</b>	55 - 180 kHz depending on load						
<b>Safety Standards</b>	IEC/EN 60950 (output SELV), UL 60950, UL 508, EN 50178, EN 60204, EN 61558-2-8						
<b>Output Voltage Ripple</b>	<50 mV peak-to-peak						
<b>Output Protection</b>	Current Limit at 120% typ., constant current, auto recovery (PSPxx-024x foldback, auto-recovery), Voltage Limit <40 VDC						
<b>Power Good Signal*</b>	<table border="1"> <tr> <td><b>Trigger Point</b></td> <td><b>Output Signal</b> (reference to -Vout)</td> </tr> <tr> <td>12 VDC Models: &gt;11 V</td> <td>11.0 V+/- 1.0 V @ 60 mA max.</td> </tr> <tr> <td>24 VDC Models: &gt;22 V</td> <td>22.0 V+/- 2.0 V @ 30 mA max.</td> </tr> </table>	<b>Trigger Point</b>	<b>Output Signal</b> (reference to -Vout)	12 VDC Models: >11 V	11.0 V+/- 1.0 V @ 60 mA max.	24 VDC Models: >22 V	22.0 V+/- 2.0 V @ 30 mA max.
<b>Trigger Point</b>	<b>Output Signal</b> (reference to -Vout)						
12 VDC Models: >11 V	11.0 V+/- 1.0 V @ 60 mA max.						
24 VDC Models: >22 V	22.0 V+/- 2.0 V @ 30 mA max.						
<b>Electromagnetic Compatibility (EMC)</b>	EN 61000-3-2, EN 61000-6-2, EN 61000-6-3						
<b>Enclosure Rating</b>	IP 20						
<b>Enclosure Material</b>	Plastic FR2010-110C (UL 94 V-O rated)						
<b>Mounting</b>	35 mm DIN rails, snap on with self-locking spring or wall mount adapter included						
<b>Connection</b>	S models: Plug-in Screw Terminals, C Models: Clamp Terminals. For 28-12 AWG wire						
<b>Agency Approvals</b>	UL/cUL 508 listed File E197592(PSP24-240S not cUL), UL 60950 recognized, file E198298 (except PSP05-020S, PSP12-024S and PSP24-240S).						

\*Note: PSP05-020S, PSP12-024S and PSP24-024x models do not have Power Good output.  
Note: All specifications are valid at nominal input voltage, full load and +25°C after warmup time, unless otherwise stated.

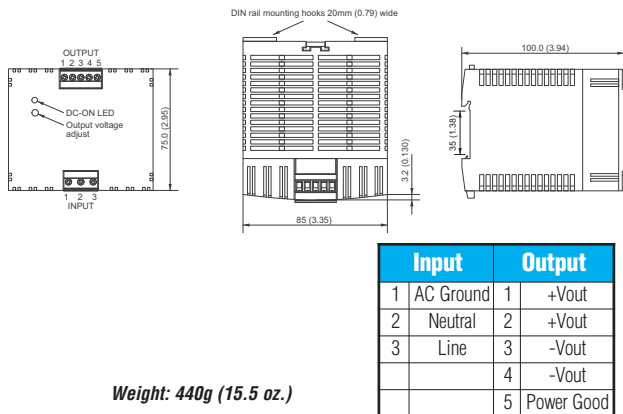
## PSP05-020S, PSP12-024S, PSP24-024x



## PSPxx-060x

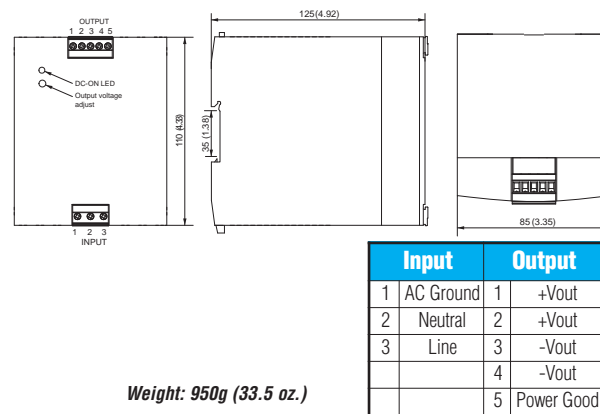


## PSPxx-120x



Note: All dimensions are in millimeters (inches).

## PSP24-240S



- PLC Overview
- DL05/06 PLC
- DL105 PLC
- DL205 PLC
- DL305 PLC
- DL405 PLC
- Field I/O
- Software
- C-more HMIs
- Other HMI
- AC Drives
- Motors
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
- TB's & Wiring
- Power
- Circuit Protection
- Enclosures
- Appendix
- Part Index

# RHINO PSP24-REM240S Redundancy Module

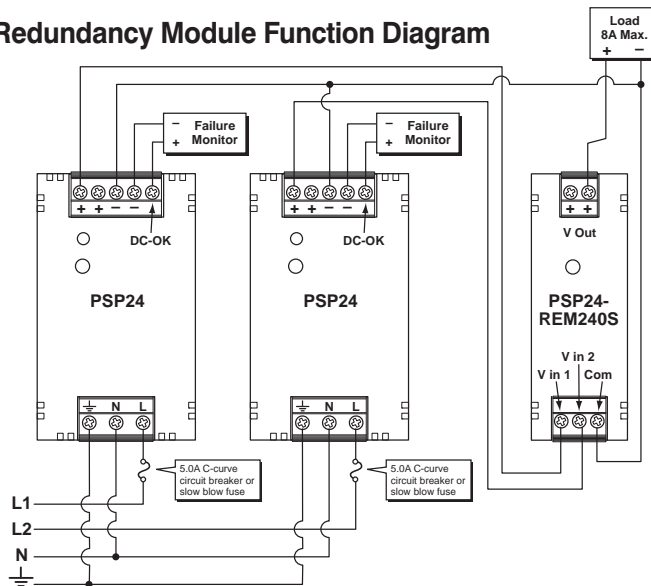
The PSP24-REM240S redundancy module used with two Rhino PSP Series power supplies creates redundancy to help prevent costly downtime due to power supply failure. The PSP24-REM240S decouples the outputs of the two connected power supplies so that in case of failure, one power supply cannot overload the other.



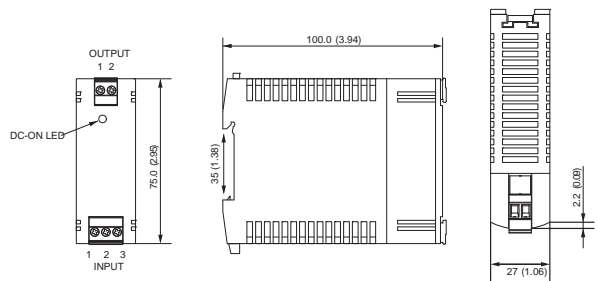
PSP Redundancy Module						
Part Number		Input Voltage Range	Max Power per Input	Output Voltage	Output Current Max.	Connection
PSP24-REM240S		2 x 5 – 60 VDC	144 W	V in - 0.9 VDC	8 A	Detachable screw terminal block

PSP24-REM240S General Specifications	
<b>Temperature</b>	<b>Operating:</b> -10°C to +70°C max (14°F to +158°F max), <b>Storage:</b> -25°C to +85°C max, (-13°F to +185°F max), <b>Cooling:</b> Natural air convection
<b>Parallel Operation</b>	(2) Rhino PSP power supplies (except PSP24-240S) per module
<b>Electromagnetic Compatibility</b>	In correspondence with connected power supplies
<b>Enclosure Material</b>	Gray plastic, FR2010-110C (UL94 V-0 rated)
<b>Mounting</b>	Built-in snap-on connection for 35mm DIN rail or surface mount adapter included
<b>Indication</b>	Green LED for Output ON
<b>Connections</b>	Plug-in screw terminals, 0.5 to 0.7Nm (4.5 to 6.2lb-in) recommended tightening torque
<b>Wire Size range</b>	24 to 12 AWG (0.21 to 3.16 mm <sup>2</sup> )
<b>Dimensions</b>	HxWxD 2.95" x 1.06" x 3.94" (75 x 27 x 100mm)
<b>Agency Approvals</b>	UL/cUL 508 listed, File E197592, CE

## Redundancy Module Function Diagram



## Redundancy Module Connector Positions



Input	Output
1 +Vin1	1 +Vout
2 +Vin2	2 +Vout
3 Common	

### Recommendations for redundant PSP Series power supply applications:

- With no load connected, adjust the output voltage of both power supplies to the same value.
- Use separate input over-current protection for each power supply.
- When possible, connect the input power to each power supply to different phases or circuits.
- Use the DC-OK output and/or DC-ON LED on each power supply to monitor for failure. (PSP05-020S, PSP12-024S and PSP24-024x do not have DC-OK output).
- Connect all output leads together at a single distribution node using leads having the same length and cross section.