



PSR Series Power Supplies

Overview

AutomationDirect's RHINO PSR Series DIN rail industrial power supply features high power density and high efficiency. The series offers overcurrent protection in constant current mode, making it suitable for charging applications. Conformal coating is applied on the printed circuit board assembly (PCBA) to protect against dust and pollutants often found in harsh industrial environments. The series electromagnetic radiated and conducted emissions are compliant with heavy industrial Class B Emission standard and Immunity standard, and complies with environmental protection standards RoHS Directive.

Features

- Universal AC input voltage range
- Built-in constant current circuit for charging applications
- Ultra-slim design
- 35mm DIN-rail mount
- IP20
- Long life electrolytic capacitor
- Built-in DC OK relay and LED indicator
- Conformal coating on PCBAs to protect against common dust and pollutants



PSR-24-120



PSR-24-240-3



PSR Series Input Specifications

Part Number	Price	Input Voltage Range	Input Frequency Range	Nominal Input Current	Inrush Current Limitation (+25°C cold start)	Leakage Current	Efficiency (@100% load)	Recommended Circuit Breaker
Single Phase Input								
<u>PSR-24-120</u>	\$69.00	90-264 VAC	47–63 Hz	1.2 A typ. @ 115VAC 0.6 A typ. @ 230VAC	40A @ 230VAC	< 0.5 mA @ 240 VAC	90.5% typ. @ 115VAC 93.5% typ. @ 230VAC	20A B Curve
<u>PSR-24-240</u>	\$92.00			2.5 A typ. @ 115VAC 1.3 A typ. @ 230VAC			92.5% typ. @ 115VAC 94.5% typ. @ 230VAC	
<u>PSR-24-480</u>	\$149.00			4.7 A typ. @ 115VAC 2.4 A typ. @ 230VAC		< 1.5 mA @ 240 VAC 91.5% typ. @ 115VAC 95% typ. @ 230VAC		
Three Phase Input								
<u>PSR-24-120-3</u>	\$91.00	320-575 VAC	47–63 Hz	< 0.50 A @ (3 x 400VAC) < 0.40 A @ (3 x 500VAC)	20A @ (3 x 400VAC), 25A @ (3 x 500VAC)	< 3.5 mA @ (3 x 500 VAC)	87.5% @ (3 x 400 & 500VAC)	4A B Curve
<u>PSR-24-240-3</u>	\$137.00			< 0.75 A @ (3 x 400VAC) < 0.65 A @ (3 x 500VAC)			89.5% @ (3 x 400 & 500VAC)	
<u>PSR-24-480-3</u>	\$237.00			< 0.85 A @ (3 x 400VAC) < 0.73 A @ (3 x 500VAC)	35A @ (3 x 400VAC), 35A @ (3 x 500VAC)		94% @ (3 x 400 & 500VAC)	10A B Curve or 4A C Curve
<u>PSR-24-960-3</u>	\$356.00			< 1.65 A @ (3 x 400VAC) < 1.35 A @ (3 x 500 VAC)			94.5% @ (3 x 400 & 500VAC)	

PSR Series Output Specifications

Part Number	Output Voltage / Adjustment Range	Output Power (Watts)	Output Current (Amps)	Ripple and Noise (20MHz)	Startup with Capacitive Loads (μF)	Start-Up Time	Hold-Up Time (@100% load)	Rise Time	MTBF (as per Telcordia SR-332. Ta: 25°C)
PSR-24-120	24-28 VDC	120	5	< 100 mVpp @ 0°C to +70°C < 300 mVpp @ -30°C to 0°C	10,000 Max.	300ms typ. @ 115 and 230VAC	35 ms typ. @ 115VAC & 230VAC	30 ms typ. @ 115 & 230VAC	> 700,000h
PSR-24-240		240	10			300ms typ. @ 115 and 230VAC	30 ms typ. @ 115VAC & 230VAC		
PSR-24-480		480	20			25 ms typ. @ 115VAC & 230VAC	25 ms typ. @ 115VAC & 230VAC		
PSR-24-120-3		120	5	< 100 mVpp	20,000 Max.	500ms typ. @ nominal input (100% load)	20ms typ. @ (3 x 400VAC) 40ms typ. @ (3 x 500VAC)	50 ms typ. @ nominal input (100% load)	> 600,000h
PSR-24-240-3		240	10			1000ms typ. @ nominal input (100% load)	20ms typ. @ (3 x 400 & 500VAC)	100 ms typ. @ nominal input (100% load)	
PSR-24-480-3		480	20	< 150 mVpp		2000ms typ. @ nominal input (100% load)		85 ms typ. @ nominal input (100% load)	
PSR-24-960-3		960	40	< 200 mVpp					> 500,000h



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General Specifications		
Model	Single Phase	Three Phase
Operating Temperature (-40°C [40°F] Cold Start)	Vertical: -30 to +70°C [-22 to 158°F]	PSR-24-120-3 and PSR-24-240-3 Vertical mounting: -25 to 70°C [13 to 158°F] Horizontal mounting: -25 to 60°C [13 to 140°F] PSR-24-480-3 and PSR-24-960-3 Vertical mounting: -25°C to 70°C [13 to 158°F] Horizontal mounting: -25°C to 55°C [13 to 131°F]
Storage Temperature	-40 to 85°C [-40 to 185°F]	
Humidity	5 to 95% RH @ 25°C, no condensation	
Line Regulation	± 0.5% @ 115 & 230VAC	< 40mV (@ 3 x 320-575 VAC Input (100% load))
Load Regulation	± 0.5%	@ 3 x 320-575 VAC Input (100% load) PSR-24-120-3 <100mv, PSR-24-240-3 < 150mv PSR-24-480-3 < 200mv, PSR-24-960-3 < 250mv
Short Circuit Protection	Hiccup Mode, Non-Latching (Auto-Recovery when the fault is removed)	
Overvoltage Protection	< 34V, SELV Output, Latch Mode	< 35V, Hiccup Mode, Non-latching (Auto Recovery)
Overload/Overcurrent	105 - 150% of rated load current, Auto-recovery Continuous current limit Mode* ¹ (Vo > 80%)	PSR-24-120-3 and PSR-24-240-3 105 - 150% of rated load current, Auto-recovery Continuous current limit Mode* ¹ (Vo > 80%) PSR-24-480-3 and PSR-24-960-3 110 - 150% of rated load current, Auto-recovery Continuous current limit Mode* ¹ (Vo > 80%)
Status Indicators	Green LED (DC OK)	
Cooling System	Convection	
Vibration (operating)	IEC 60068-2-6, Sine Wave: 10-500 Hz; 4G peak; 60 min per axis for all X, Y, Z directions	IEC 60068-2-6, Sine Wave: 10-500 Hz; 3G peak; 60 min per axis for all X, Y, Z directions
Shock (non-operating)	IEC 60068-2-27, Half Sine Wave: 50G for duration of 11ms; 3 times per direction	
Protection Rating	IP20	
Pollution Degree	2	
Mounting	35mm DIN rail (Vertical input terminal block on bottom)	35mm DIN rail (Vertical: input terminal block on bottom) (Horizontal: input terminal block on left side)
Connection	Input & output terminal block connector: Screw connection DC OK relay contact: Push-in connection	
Housing Material	Metal	Aluminum
Approvals	CE, cULus File E197592, cURus: File E508040, UKCA	

*¹ Constant current limit protection for inductive and capacitive load applications

Additional Data							
Part Number	Wire Size / Torque			ADC Ferrule Part Number	Terminal Block Type (Screw Terminals)	Weight	Drawing Link
	Input	Output	DC OK				
<u>PSR-24-120</u>	0.82-3.3 mm ² [AWG 18-12] 0.51 N•m [4.5 in•lb]	0.82-3.3 mm ² [AWG 18-12] 0.51 N•m [4.5 in•lb]	0.32-1.3 mm ² [AWG 22-16]	20AWG <u>V30AE000038</u> 18AWG <u>V30AE000041</u> 16AWG <u>V30AE000048</u> 14AWG <u>V30AE000052</u> 12AWG <u>V30AE000055</u>	Input: 3-pins (600V/30A) Output: 3-pins (600V/30A) DC OK: 2-pins (300V/6A)	0.50 kg [1.10 lb]	<u>PDF</u>
<u>PSR-24-240</u>	0.82-3.3 mm ² [AWG 18-12] 0.51 N•m [4.5 in•lb]	0.82-3.3 mm ² [AWG 18-12] 0.51 N•m [4.5 in•lb]		Input: 3-pins (600V/30A) Output: 4-pins (600V/30A) DC OK: 2-pins (300V/6A)	0.64 kg [1.41 lb]	<u>PDF</u>	
<u>PSR-24-480</u>	2.1 -3.3 mm ² [AWG 14-12] 0.51 N•m [4.5 in•lb]	2.1 -3.3 mm ² [AWG 14-12] 0.51 N•m [4.5 in•lb]		Input: 3-pins (600V/30A) Output: 4-pins (600V/30A) DC OK: 2-pins (300V/6A)	0.88 kg [1.94 lb]	<u>PDF</u>	
<u>PSR-24-120-3</u>	0.82-5.3 mm ² [AWG 18-10] 0.54 N•m [4.7 in•lb]	0.82-5.3 mm ² [AWG 18-10] 0.54 N•m [4.7 in•lb]	0.52-1.3 mm ² [AWG 20-16]	20AWG <u>V30AE000038</u> 18AWG <u>V30AE000041</u> 16AWG <u>V30AE000048</u> 14AWG <u>V30AE000052</u> 12AWG <u>V30AE000055</u> 10AWG <u>V30AE000058</u>	Input: 4-pins (600V/30A) Output: 4-pins (600V/30A) Signal: 2-pins (300V/12A)	0.54 kg [1.19 lb]	<u>PDF</u>
<u>PSR-24-240-3</u>	0.82-5.3 mm ² [AWG 18-10] 0.54 N•m [4.7 in•lb]	1.3-5.3 mm ² [AWG 16-10] 0.54 N•m [4.7 in•lb]		Input: 4-pins (600V/30A) Output: 4-pins (600V/30A) Signal: 2-pins (300V/12A)	0.84 kg [1.85 lb]	<u>PDF</u>	
<u>PSR-24-480-3</u>	0.82-5.3 mm ² [AWG 18-10] 0.54 N•m [4.7 in•lb]	3.3-5.3 mm ² [AWG 12-10] 0.54 N•m [4.7 in•lb]		Input: 4-pins (600V/30A) Output: 4-pins (300V/65A) Signal: 2-pins (300V/12A)	1.20 kg [2.65 lb]	<u>PDF</u>	
<u>PSR-24-960-3</u>	0.82-5.3 mm ² [AWG 18-10] 0.54 N•m [4.7 in•lb]	3.3-5.3 mm ² [AWG 12-6]* 1.93 N•m [17.1 in•lb]		20AWG <u>V30AE000038</u> 18AWG <u>V30AE000041</u> 16AWG <u>V30AE000048</u> 14AWG <u>V30AE000052</u> 12AWG <u>V30AE000055</u> 10AWG <u>V30AE000058</u> 8AWG <u>V30AE000060</u> 6AWG <u>V30AE000062</u>			

*For AWG 12-10, ensure that all output terminals are connected.