RHINO PSB Series DIN Rail Power Supplies

Single-Phase Input Overview

AutomationDirect's RHINO PSB series of DIN rail power supplies is perfect for applications that require a basic DC voltage power supply. These low-cost power supplies offer high performance and reliability without all the additional features of higher-cost full-featured power supplies. The following models in the RHINO PSB series are available with universal single-phase input and with output voltages of 24VDC or 48VDC from 60 to 480 Watts. They feature removable terminal blocks, high efficiencies, conformal coated circuit boards, and approval for Class 1, Division 2 hazardous locations. The rugged plastic and aluminum housings easily install with integral 35mm DIN rail mounting adapters. These high-quality power supplies include overload, overvoltage and thermal protection, and are UL 508 listed, UL 60950 recognized, CSA certified, CE marked and RoHS compliant.

Features

- Universal input voltage, single-phase 120/240 VAC or 120–375 VDC
- 24VDC or 48VDC outputs, 60 to 480 Watts
- Adjustable output voltage
- Rugged plastic or aluminum housings with integral 35mm DIN rail mounting adapters
- Output voltage status LED
- NEC Class2 (Model PSB24-100-N & PSB24-060S-P only)
- Removable terminal blocks (except PSB24-060S-P, PSB24-100-N, and PSB24-480S ,with IP20 protection
- Conformal coated circuit board for protection against demanding environments
- Overload, overvoltage and thermal protection
- UL 508 listed, UL 60950 recognized, CSA certified, approved for Class I (except PSB24-100-N) , Division 2 hazardous locations CE marked and RoHS compliant
- 3-year warranty

Input Specifications

Part Number	Price	Weight kb [lb]	Housing	Input Voltage	Input Frequency Range	Max. Input Current	Inrush Current Limitation I2t @ 77°F (+25°C) typ.	Leakage Current	Recommended Circuit Breaker	Hold-Up Time at Nominal Load (Typ.) (Mains Buffering) (100% load, 25°C)	Turn-on Time
PSB24-060S-P	Retired	0.33 [0.73]	Plastic	85–264 VAC [DC input range 120–375 VDC] UL Approved for 100-240 VAC only	47–63 Hz [0 Hz @ DC Input]	<1.5A @ 100 VAC	<40A @ 115 VAC, <80A @ 230 VAC	<0.5 mA @ 240 VAC	16A "B" Curve	>20 ms @ 115 VAC >125 ms @ 230 VAC	<3 sec.
PSB24-060S	Retired	0.37 [0.82]	Aluminum			<1.4A @ 115 VAC, <0.8A @ 230 VAC	<20A @ 115 VAC, <35A @ 230 VAC	<1 mA @ 240 VAC	8A "B" Curve		<2 sec.
PSB24-100-N	Retired	0.60 [1.32]				<1.00A @ 115 VAC, <0.53A @ 230 VAC	<30A @ 115 VAC <60A @ 230 VAC	<0.5 mA @ 24 VAC	13A "B" Curve	>20 ms @ 115 VAC >30 ms @ 230 VAC	
PSB24-480S	$303.00	1.37 [3.02]				<5A @ 115 VAC, <3A @ 230 VAC	<35A @ 115 VAC, <35A @ 230 VAC	<3 mA @ 240 VAC	6A "B" Curve	>20 ms @ 115 VAC & 230 VAC	<1 sec.
PSB48-120S	$118.00	0.72 [1.59]				<2.2A @ 115 VAC, <1.1A @ 230 VAC	<35A @ 115 VAC, <35A @ 230 VAC	<1 mA @ 240 VAC	8A "B" Curve	>20 ms @ 115 VAC >50 ms @ 230 VAC	<1 sec.
PSB48-240S	$196.00	0.97 [2.14]				<2.5A @ 115 VAC, <1.3A @ 230 VAC	<35A @ 115 VAC, <35A @ 230 VAC		8A "B" Curve	>20 ms @ 115 VAC & 230 VAC	<1 sec.

RHINO PSB Series DIN Rail Power Supplies

Output Specifications

Part Number	Output Voltage (Vnom) / Adjustment Range	Output Power	Output Current	Ripple and Noise [20 MHz]	Startup with Capacitive Loads Max	Derating	Max. Power Dissipation Idling/Nominal Load Approx.	Efficiency [Typ @ 115VAC]	MTBF
PSB24-060S-P	24 VDC ±2%/22–28 VDC [maximum power ≤60W]	60W	2.5A	<240 mVpp @ 25 °C	8,000 µF	>50 °C de-rate power by 2.5%/ °C >70 °C de-rate power by 4%/ °C	8W	88%	>800,000h
PSB24-060S	24 VDC ±2%/24–28 VDC [maximum power ≤60W]			<150 mVpp @ 25 °C		>50 °C de-rate power by 2.5%/ °C	7.4W	90%	>1,000,000h
PSB24-100-N	24 VDC ±2%/22–24 VDC [maximum power ≤91.2W]	91.2W	3.80A		8,000 µF	>50 °C de-rate power by 2.5%/ °C > 70 °C de-rate power by 4%/ °C	12.4W	88%	>800,000h
PSB24-480S	24 VDC ±2%/24–28 VDC [maximum power ≤480W]	480W	20A	<150 mVpp @ 25 °C	10,000 µF	>50° C de-rate power by 2.5%/ °C >70 °C de-rate power by 5%/ °C	47W	91%	>500,000h
PSB48-120S	48 VDC ±1%/48–56 VDC [maximum power ≤120W]	120W	2.5A	<200 mVpp @ 25 °C	6,500 µF	>50 °C de-rate power by 2.5%/ °C	14.8W	90%	>800,000h
PSB48-240S	48 VDC ±1%/48–56 VDC [maximum power ≤240W]	240W	5A	<200 mVpp @ 85 VAC to 265 VAC	10,000 µF		25W	90%	>500,000h

General Specifications

Output Line Regulation	<0.5% @ 85–264 VAC input, 100% load
Output Load Regulation	<1% @ 85–264 VAC input, 0-100% load
	PSB24-100-N: < 1% at -25 °C to +25 °C < 2% at +25 °C to +50 °C <1% typ. @ 85–264 VAC input, 0-100% load
Parallel Operation	PSB60-REM20S / PSB60-REM40S or with ORing Diode
Case Cover	Aluminium or Plastic [Polycarbonate] for P Series
Signals	Green LED DC OK
Humidity at 25°C [77°F], no condensation	<95% RH [non-condensing]
Shock (Non-Operating)	IEC 60068-2-27, 30G [300m/S²] for a duration of 18ms, 1 time per direction, 2 times in total
Vibration (Non-Operating)	IEC60068-2-6, 10Hz to 500Hz @ 30m / S2 [3G peak]; 60 min per axis for all X, Y, Z direction
Environmental Air	No corrosive gases permitted (PSB24-100-N) Conformal coating on PCBA to protect against chemical and dust pollutants
Pollution Degree	2
Climatic Class	3K3 according to EN 60721

Series Certification and Standards

Electrical Equipment of Machines	IEC60204-1 [over voltage category III]
Electronic equipment for use in electrical power installations	EN62477-1 / IEC62103
Safety Entry Low Voltage	PELV [EN60204], SELV [EN60950]
Industrial Control Equipment	UL/cUL listed to UL508 and CSA C22.2 No. 107.1-01 File no. E197592 CSA to CSA C22.2 No. 107.1-01
Hazardous Location	cCSAus to CSA C22.2 No. 213-M1987, ANSI / ISA 12.12.01:2007 Class I, Division 2, Group A,B,C,D T4, Ta = 25 to +80 °C (PSB24-060S-P, PSB24-060S, 25 to +75°C (PSB24-480S, Vertical: > +50 °C derating, File no. 249074
Class 2 Power Supply	UR/cUR Class 2 power supply recognized to UL1310 and CSA C22.2 No. 223 File no. E198298 (PSB24-060S-P and PSB24-100-N only)
CE	CE

To obtain the most current agency approval information, see the Agency Approval Compliance & Certifications Checklist section on the specific part number's web page.

RHINO PSB Series DIN Rail Power Supplies

Safety and Protection		
Transient surge voltage protection	Varistor	
Overvoltage	PSB24-060S-P, PSB24-060S, PSB24-100-N, PSB24-480S: <32V, SELV Output, hiccup mode, non-latching [auto-recovery]	PSB48-120S, PSB48-240S, <57V, SELV Output, hiccup mode, non-latching [auto-recovery]
Overload / Overcurrent	PSB24-060S-P, PSB24-060S, PSB24-100-N, PSB24-480S: >150% of rated load current, hiccup mode, non-latching [auto-recovery].	
	PSB24-060S-P: 110-150% of rated load current, hiccup mode, non-latching [auto-recovery].	
Isolation Voltage: ***Input/output (type test/routine test)*** ***Input/GND (type test/routine test)*** ***Output/GND (type test/routine test)***	4 kVAC / 3 kVAC 1.5 kVAC / 1.5 kVAC 1.5 kVAC / 500 VAC	
Protection Degree	IP20	
Safety Class	Class I with GND connection	

Additional Data

Part Number	***Wire Size / Torque****		***Terminal Block Type***	***Ambient Operating Temperature*** **	***Storage Temperature***	***Drawing Link***
	Input	***Output***				
PSB24-060S-P	0.52–5.3 mm² [AWG 20–10] / 0.45 Nm [3.96 lb-in]		Fixed screw terminals	-25 to +80 °C [-13 to +176 °F]	-25 to +80 °C [-13 to +176 °F]	PDF
PSB24-060S	0.52–3.3 mm² [AWG 20–12] / 0.46 Nm [4.05 lb-in]		Removable screw terminals	-25 to +80 °C [-13 to +176 °F] Cold start at -40°C [-40 °F]	-40 to +85 °C [-40 to +185 °F]	PDF
PSB24-100-N	0.82–3.3 mm² [AWG 18–12] / 0.91 Nm [8.1 lb-in]	0.82–3.3 mm² [AWG 18–12] / 0.61 Nm [5.4 lb in]	Fixed screw terminals			PDF
PSB24-480S	0.82–5.3 mm² [AWG 18–10] / 0.45 Nm [3.96 lb-in]	3.3–5.3 mm² [AWG 12–10] / 0.45 Nm [3.96 lb-in]	Fixed screw terminals	-25 to +75 °C [-13 to +176 °F]		PDF
PSB48-120S	0.52–3.3 mm² [AWG 20–12] / 0.46 Nm [4.05 lb in]		Removable screw terminals	-25 to +80 °C [-13 to +176 °F]		PDF
PSB48-240S						PDF

***Stripping length 7mm [0.28in]**
**** See output specifications for temperature derating**