

RHINO PSE Series DC to DC Converters

The Rhino PSE Series DC-DC converters offers a compact, reliable power source for industrial process controls, factory automation, and equipment in harsh environments. Ultra-wide input voltage ranges of 9.5-36 VDC and 18-75 VDC allow these models to operate from all popular DC supply voltage systems. With tightly regulated and highly accurate output voltage these DC-DC converters provide a reliable power source for sensitive loads where AC power is not accessible. Remote on/off control, input polarity protection, and overload protection make them extremely rugged and versatile. They offer easy installation with chassis or DIN rail mounting options.

Features

- Fully encapsulated low profile plastic case
- Ultra-wide input voltage range
- Reverse polarity, overload and short circuit protection
- I/O-isolation 2500VDC
- Operating temperature range: -40°C to 85°C (-40°F to 185°F)
- Chassis mount or 35mm DIN rail mount with optional adapter
- No minimum load required
- Remote On/Off
- DC on LED indicator
- 3-year warranty



PSE Series DC-DC Converters								
Part No.	Input Voltage Range	Input Current Typ. @ Vin (No Load)	Output Voltage	Output Current Max	Output Power Max	Efficiency	Price	Weight (lbs)
PSE05-DC12-40	9.5 - 36.0 VDC	90mA @ 24VDC	5.1 VDC	8A	40W	90%	\$69.00	0.48
PSE12-DC12-40			12VDC	3.33 A		90%	\$69.00	
PSE24-DC12-40			24VDC	1.67 A		90%	\$69.00	
PSE05-DC24-40	18.0 - 75.0 VDC	55mA @ 48VDC	5.1 VDC	8A		89%	\$73.00	
PSE12-DC24-40			12VDC	3.33 A		91%	\$73.00	
PSE24-DC24-40			24VDC	1.67 A		92%	\$73.00	
PSE05-DC12-60	9.5 - 36.0 VDC	100mA @ 24VDC	5.1 VDC	12A	60W	90%	\$80.00	0.66
PSE12-DC12-60			12VDC	5A		91%	\$80.00	
PSE24-DC12-60			24VDC	2.5 A		91%	\$80.00	
PSE48-DC12-60	60mA @ 24VDC	48VDC	1.25 A	91%		\$80.00		
PSE05-DC24-60	18.0 - 75.0 VDC	40mA @ 48VDC	5.1 VDC	12A		91%	\$85.00	
PSE12-DC24-60			12VDC	5A		92%	\$85.00	
PSE24-DC24-60			24VDC	2.5 A		91%	\$85.00	
PSE48-DC24-60			60mA @ 48VDC	48VDC		1.25 A	91%	

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

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Input Specifications		
Series	40 Watt	60 Watt
Surge Voltage (100 msec. max.)	PSExx-DC12 Models: 50V max. PSExx-DC24 Models: 100V max.	
Start-Up Time	30ms max.	50ms max.
Conducted Noise (Input)	EN 55022 class A, FCC part 15 class A (without external components)	
Start-Up Voltage / Under Voltage Shut Down	PSExx-DC12 Models: 9VDC max. / 7.5 VDC typical PSExx-DC24 Models: 18VDC max. / 16VDC typical	
ESD (Electrostatic Discharge)	EN 61000-4-2, air ± 8 kV, contact ± 4 kV, perf. criteria A	
Radiated Immunity	EN 61000-4-3, 10 V/m, perf. criteria A	
Fast Transient / Surge (With External Input Capacitor)	EN61000-4-4, ± 2 kV, perf. criteria A EN61000-4-5, ± 2 kV, perf. criteria A	
Conducted Immunity	EN61000-4-6, 10Vrms, perf. criteria A	

Output Specifications		
Series	40 Watt	60 Watt
Voltage Set Accuracy	$\pm 2.0\%$ max.	
Regulation	Input variation (Vin min. to Vin max.): 0.5% max. Load Variation 0 - 100%: 1.0% max.	Input variation (Vin min. to Vin max.): 1.5% max. Load Variation 0 - 100%: 1.0% max.
Minimum Load	Not required	
Temperature Coefficient	$\pm 0.02\%$ /K	
Ripple and Noise (20MHz bandwidth)	5.1 VDC models: 100 mVpk-pk. typical 12 & 24VDC models: 150 mVpk-pk. typical 48VDC models: 200 mVpk-pk. typical	
Transient Response	250 μ s typical (Alignment to 1% at load step change 75% to 100%)	
Over Voltage Protection	120% of Vout (Zener diode clamp)	
Output Current Limitation	At 150% of Iout max.	
Short Circuit Protection	Hiccup mode, automatic recovery	
Capacitive Load	5.1 VDC models: 13,600 μ F max. 12VDC models: 2,400 μ F max. 24VDC models: 600 μ F max. 48VDC models: 150 μ F max.	5.1 VDC models: 20,000 μ F max. 12VDC models: 3,540 μ F max. 24VDC models: 890 μ F max. 48VDC models: 220 μ F max.

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

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General Specifications			
Series Specification		40 Watt	60 Watt
Temperature Range	Operating Ambient with Natural Convection (20LFM)	-40°C to +85°C (-40°F to +185°F) (with derating)	
	IEC/EN/UL60950-1 Approved Ambient	+65°C max. (+149°F max.) (without derating)	+60°C max. (+140°F max.) (without derating)
	Case Temperature	+95°C max. (+203°F max.)	
	Storage	-50°C to +125°C (-58°F to +257°F)	
Load Derating (with Natural Convection 20LFM)		4.5 %/K above +70°C (+158°F)	3.3 %/K above +70°C (+158°F)
Thermal Impedance (with Natural Convection 20LFM)		4.75 °C/W	3.5 °C/W
Humidity (non condensing)		95% relative humidity max.	
Reliability, Calculated MTBF (MIL-HDBK-217F, @ +25° C, ground benign)		>644,290 hours	>242,029 hours
Isolation Voltage (60 sec.) Input/Output		2500VDC	
Isolation Capacitance Input/Output		2400pF max. (100kHz, 1V)	3000pF (100kHz, 1V)
Isolation Resistance Input/Output		>1000MΩ (500VDC)	
Switching Frequency		285kHz typical	210kHz typical
Remote On/Off	On	3.5 to 12VDC on terminal 1 reference to -Vin or open circuit	
	Off	0 to +1.2 VDC on terminal 1 reference to -Vin	
	Off Idle Current	3mA typical	
Environmental Air		No corrosive gasses permitted	
Casing Material		Plastic resin (UL 94V-0 rated)	
Connections		Screw type connector (standard), Recommended tightening torque 0.5-0.6Nm (4.5-5.35 in-lb), wire stripping length 7-8mm	
Wiring		16-26AWG (1.5-0.14 mm ²)	
Soldering Temperature		Max. 260°C (500°F) / 10 seconds (1.5 mm from casing)	
Safety Standards		UL/cUL 60950-1 2nd edition, CSA C22.2 No. 60950-1-07, 2nd edition	
Agency Approvals		UR/cUR, File E198298; CE; Reach; RoHS	

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

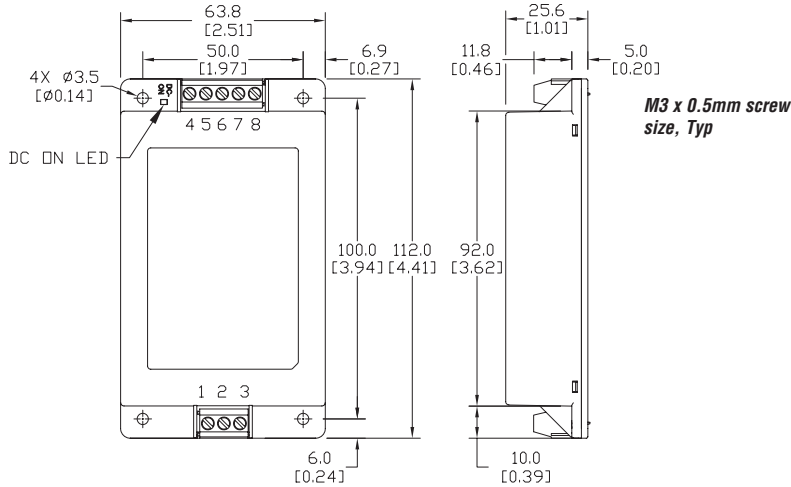
RHINO PSE Series DC to DC Converters

Dimensions

mm [inches]

Part Numbers:

**PSE05-DC12-40, PSE12-DC12-40, PSE24-DC12-40,
PSE05-DC24-40, PSE12-DC24-40, PSE24-DC24-40**

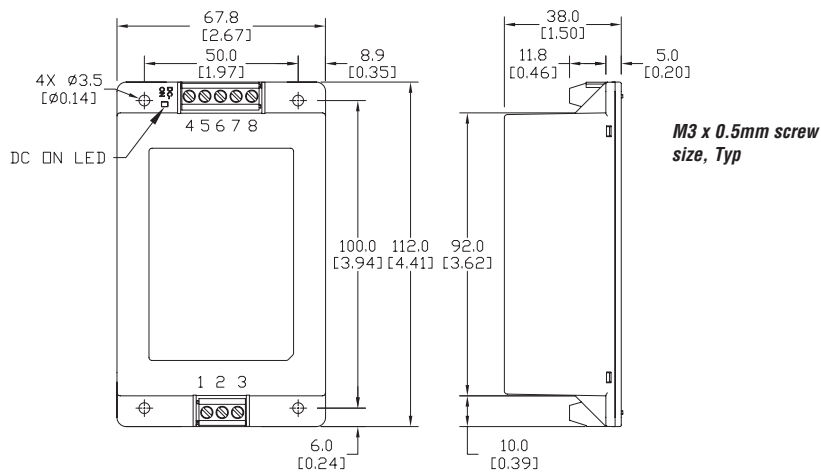


Connection	
Pin	Signal
1	Remote On/Off*
2	-Vin (GND)
3	+Vin (Vcc)
4	+Vout
5	NC
6	-Vout
7	NC
8	NC

* Refer to specifications for voltage requirements

Part Numbers:

**PSE05-DC12-60, PSE12-DC12-60, PSE24-DC12-60,
PSE48-DC12-60, PSE05-DC24-60, PSE12-DC24-60,
PSE24-DC24-60, PSE48-DC24-60**



Connection	
Pin	Signal
1	Remote On/Off*
2	-Vin (GND)
3	+Vin (Vcc)
4	NC
5	+Vout
6	NC
7	-Vout
8	NC

* Refer to specifications for voltage requirements

See our website www.AutomationDirect.com for complete Engineering drawings

RHINO PSE Series DC to DC Converters

Accessory for chassis mount

35mm DIN Rail Mounting Bracket			
Part No.	Price	Weight (lbs)	Description
PSE-BRKT-2	\$10.00	0.2	DIN rail mounting bracket for 30W-60W PSE models

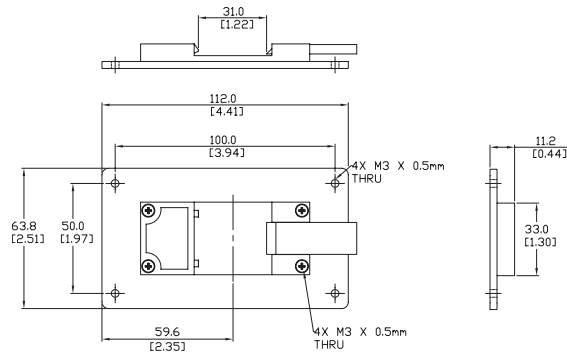
Note: Kit contains interface plate, DIN rail clip and necessary screws.

Dimensions

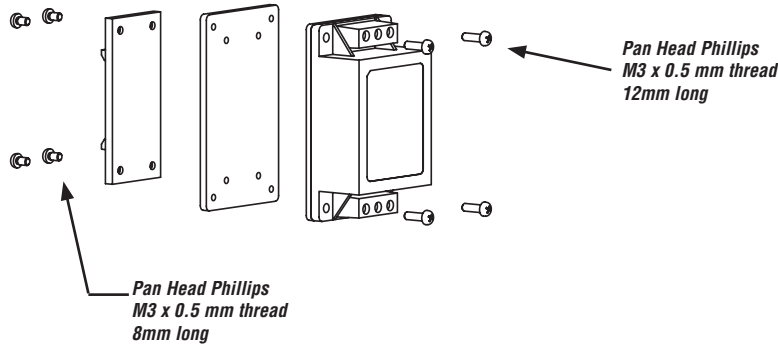
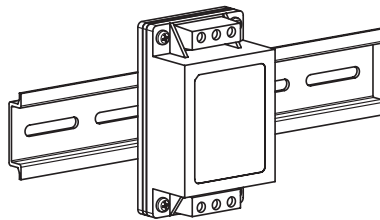
mm [inches]



PSE-BRKT-2



Installation Example



See our website www.AutomationDirect.com for complete Engineering drawings