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***	***Ouput Power Max***	***Efficiency***	***Price***	***Weight (lbs)***
PSE05-DC12-40	9.5 - 36.0 VDC	90mA @ 24VDC	5.1 VDC	8A	40W	90%		0.48
PSE12-DC12-40			12VDC	3.33 A		90%		
PSE24-DC12-40			24VDC	1.67 A		90%		
PSE05-DC24-40	18.0 - 75.0 VDC	55mA @ 48VDC	5.1 VDC	8A		89%		
PSE12-DC24-40			12VDC	3.33 A		91%		
PSE24-DC24-40			24VDC	1.67 A		92%		
PSE05-DC12-60	9.5 - 36.0 VDC	100mA @ 24VDC	5.1 VDC	12A	60W	90%		0.66
PSE12-DC12-60		100mA @ 24VDC	12VDC	5A		91%		
PSE24-DC12-60		110mA @ 24VDC	24VDC	2.5 A		91%		
PSE48-DC12-60		60mA @ 24VDC	48VDC	1.25 A		91%		
PSE05-DC24-60	18.0 - 75.0 VDC	40mA @ 48VDC	5.1 VDC	12A		91%		
PSE12-DC24-60		60mA @ 48VDC	12VDC	5A		92%		
PSE24-DC24-60		60mA @ 48VDC	24VDC	2.5 A		91%		
PSE48-DC24-60		50mA @ 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.

RHINO PSE Series DC to DC Converters

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 ±8kV, contact ±4KV, 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, ±2kV, perf. criteria A EN61000-4-5, ±2kV, perf. criteria A	
Conducted Immunity	EN61000-4-6, 10Vrms, perf. criteria A	

Output Specifications		
Series	***40 Watt***	***60 Watt***
Voltage Set Accuracy	±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	±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	250µs 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: 13,600µF max. 12VDC models: 2,400µF max. 24VDC models: 600µF max. 48VDC models: 150µF max.	5.1 VDC models: 20,000µF max. 12VDC models: 3,540µF max. 24VDC models: 890µF max. 48VDC models: 220µF max.

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

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 mm²)	
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	

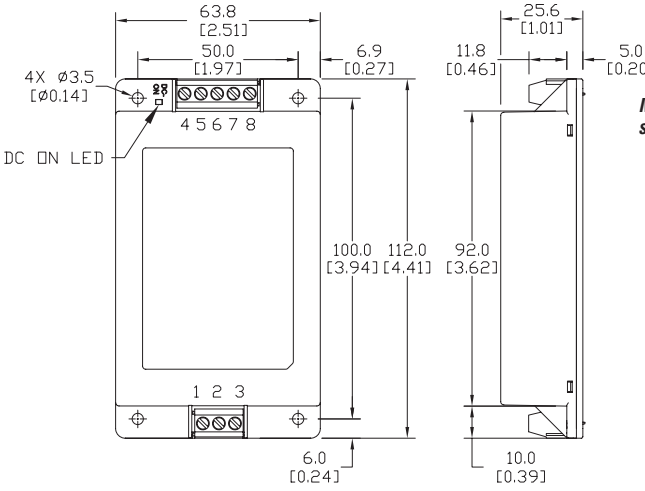
Note: All specifications valid at nominal input voltage, full load and +25° C after warm-up time unless otherwise stated.

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

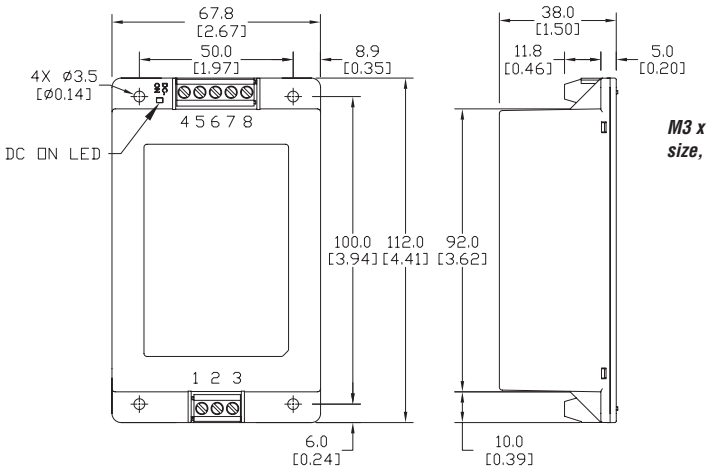


M3 x 0.5mm screw size, Typ

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



M3 x 0.5mm screw size, Typ

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 websfite for complete Engfineerfing drawfings

RHINO PSE Series DC to DC Converters

Accessory for chassis mount

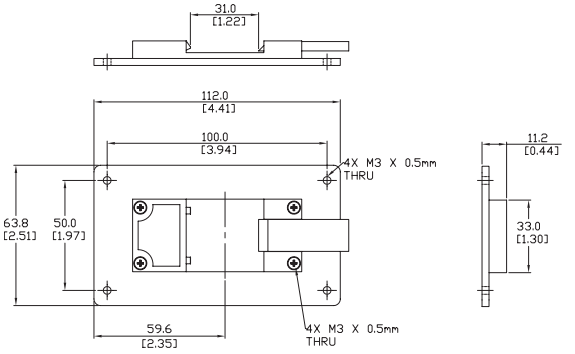
35mm DIN Rail Mounting Bracket			
Part No.	***Price***	***Weight (lbs)***	***Description***
PSE-BRKT-2		0.2	DIN Rail mounting bracket for 30W-60W PSE models

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

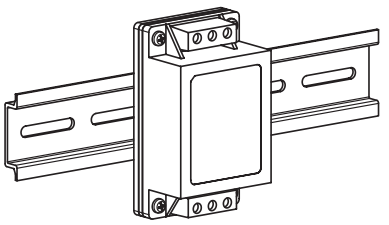
Dimensions

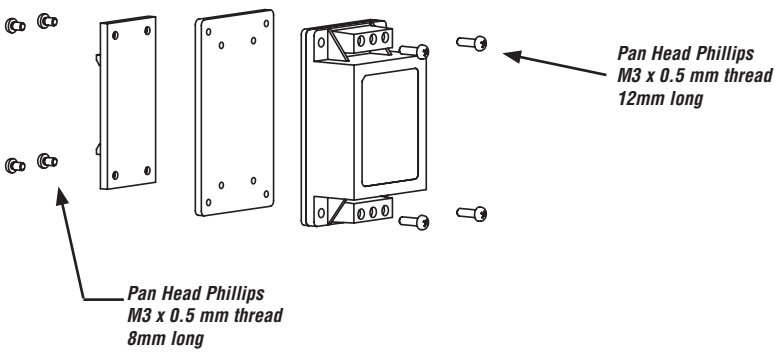
mm [inches]

PSE-BRKT-2



Installation Example





See our websfite for complete Engfineerfing drawfings