RHINO PSX Series Power Supplies

Ruggedized Power Supplies

AutomationDirect's RHINO PSX series of ruggedized power supplies are Class I, Div. 2 hazardous location rated. There are 2 models available, with 12 and 24VDC output voltages. They feature universal 120/240 VAC input voltage, adjustable DC output, DC-OK LED indication, and output current limitation.

The rugged aluminum housings offer IP67 and NEMA 4X ratings for harsh outdoor environments. These high-quality power supplies are UL 508 listed, UL 60950 recognized, CE marked and RoHS compliant.

Features

- Ruggedized for harsh outdoor environments
- IP67 and NEMA 4X rated (dust, water, ice and oil resistant enclosure)
- Connection via waterproof I/O plug connectors
- Shock & vibration per IEC 60068
- Operating temperature range: -40°C to +85°C
- Universal input 85 to 264 VAC
- Output voltage adjustable
- DC-OK indicator
- Worldwide safety approvals
- Hazardous location Class I, Div 2
- Three year warranty

CE IP67 cULus
UL 508

PSX Series Specifications				
Part Number	*Price*	*Output Voltage*	*Maximum Output Power*	*Efficiency (Typ @ 115VAC)*
PSX-12-100	$269.00	12V	96W	82
PSX-24-120	$249.00	24V	120W	82

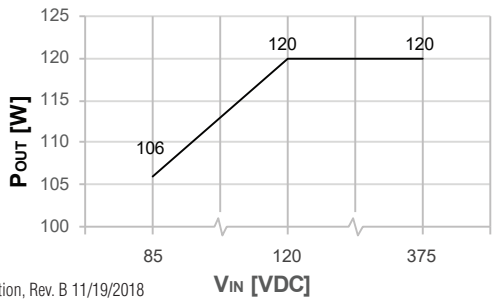
RHINO PSX Series Power Supplies
Installation Instructions

READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

Safety Instructions and Warnings

- Before installation, read these instructions carefully and completely. This installation instruction cannot account for every possible condition of installation, operation or maintenance.
- The mains supply voltage connection must be in accordance to IEC 62103, EN 50178 and IEC 60364, VDE 100.
- Before any installation, maintenance or modification work, ensure that the main switch is switched off and prevented from being switched on again. Normally, live components cannot be touched, but while adjusting the output voltage live components may be inadvertently touched. Non-observance, touching of any live components or improper handling of this power supply can result in death, severe personal injury or substantial property damage. Proper and safe operation is dependent on proper storage, handling, installation and operation.
- Compliance with the relevant national regulations (in the USA, Europe and other countries) must be ensured. Before operation is started the following conditions must be ensured:
  - Connection to mains supply in compliance with national regulations (VDE0100 and EN50178).
  - When stranded wires are used, all strands must be fastened in the terminal blocks. (Potential danger of contact with the case.)
  - Power supply and mains wires must be sufficiently fused.
  - Degree of protection I to IEC536.The non-fused protective earth connection must be connected to the FG terminal (Protection Class I).
  - All output wires must be rated for the power supply output current and must be connected with the correct polarity.
  - Sufficient cooling must be ensured.
- Never work on the power supply if power is supplied! Risk of electric arcs and electrical shock, which can cause death, severe personal injury or substantial property damage.
- Warning: Hazardous voltages and components storing a very substantial amount of energy are present in this power supply during normal operating conditions. However, these are inaccessible. Improper handling may result in electric shock or serious burns! Do not open the power supply until at least 5 minutes after it has been disconnected from the mains on all poles.
  - Class I Equipment (Chassis earthed)
  - Do not operate voltage adjustment when an explosive atmosphere may be present
  - Do not disconnect while circuit is live, unless area is known to be non-hazardous.
- Recycling: The unit contains elements that are suitable for recycling, and components that need special disposal. You are therefore requested to ensure that the power supply will be recycled at the end of its service life.
- These power supplies are constructed in accordance with the safety requirements of EN60079-0:2009 & EN60079-15:2010, Ex nA IIC T4 Gc.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- The power input and output cables must NOT touch the enclosure during operation of the equipment.
- Only trained personnel may open the power supply. Once the cover is opened, the warranty is void!
- Do not introduce any objects into the power supply. The output voltage adjustment potentiometer may only be actuated using an insulated screwdriver.
- Keep away from fire.
- WARNING: – POTENTIAL ELECTROSTATIC CHARGING HAZARD – Prevent unintentional contact with a dry cloth. Do NOT clean surfaces with a dry cloth! Clean ONLY with a damp cloth.

PSX-24-120 Output Power Derating (with DC Input Voltage)



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Technical Specifications			
		PSX-12-100	***PSX-24-120***
Input (AC/DC)			
Nominal Input Voltage		100–240 VAC	
Nominal Input Current (115/230VAC)		2.0 A / 1.0 A	2.4 A / 1.2 A
Power Consumption (115/230VAC)		114W/112W typ.	140W/136W typ.
Operational Input Voltage Range		85–264 VAC, 85*–375 VDC (*see derating chart for PSX-24-100)	
Input Voltage Frequency Range		47–63 Hz	
Circuit Breaker Rating / Characteristic		5.0 A /C	
Output (DC)			
Max. Output Power		96W	120W
Output Voltage		12V	24V
Max. Output Current		8.0 A	5.0 A
Output Voltage Adjustment Range		12.0–15.0 V	24.0–28.0 V
Output Regulation		(10–90 % load variation) 2.5 % max.	
Output Power Derating - Temperature		2%/K above 60°C [140°F]	
Hold-up time		20 ms min.	
Ripple and Noise (20MHz bandwidth)		<50 mVp-p max.	
Output Overvoltage Protection (OVP)		<40V	
Short Circuit Protection		Current limitation at 110% typ., automatic restart	
Parallel Operation		Only parallel redundancy is possible, with external decoupling diode. (See diagram on next page.)	
Indicator LED		DC-OK	
General Data			
Weight		1000g [35.3 oz]	
Network Configuration		TN-S, TT, IT	
Enclosure Material (Chassis/Cover)		Die-cast Aluminum	
Cooling		Convection cooling, no internal fan	
Power Connectors	Input Connector:	ADC p/n PSX-CON1, Binder Circular Connector Series 693: 99-4222-14-04	
	Output Connector:	ADC p/n PSX-CON2, Binder Circular Connector Series 693: 99-4217-160-07	
Wiring		Input: 3 x 18–14AWG (1 x Live, 1 x Neutral, 1 x Protective Earth Ground) Output: 7 x 18–16AWG (3 x +Vout, 3 x -Vout, 1 x Protective Earth Ground)	
Safety / Environmental			
Surrounding Ambient Temperature Range (Natural Air Convection Cooling)		-40°C to +85°C [-40°F to +185°F] (Observe derating) ATEX: -40°C to +70°C [-40°F to +158°F] (Observe derating)	
Humidity		Up to 100%, with condensation	
Storage Temperature		-40°C to +85°C [-40°F to +185°F]	
Maximum Altitude		3000m	
MTBF (acc. to IEC 61709 at 40°C)		> 900,000 hrs	
Protection Class		Class I	
Degree of Protection		IP67 (IEC 60529), NEMA 6P, UL50 4X Test to: Water intrusion, Dust, Icing, Oil exclusion, Salt spray, Gasket aging, Hosedown.	
Safety Standards		-Information technology equipment IEC/EN 60950-1 -Control equipment for hazardous location UL File E197886 (Class I, Division 2, group A, B, C & D, T4) -Electrical equip. for potentially explosive atmospheres IEC/EN 60079-15 (Class I, Zone 2, EEx nA IIC T4) -Industrial control equipment UL 508, File E197592 -CSA (Tested to 61010), File 229285 -Electrical equip. for measurement, control, laboratory IEC/EN 61010-1, C22.2 61010-1-12, UL 61010-1 3rd -Electrical equipment for machines EN 60204-3 -Electronic equipment for power installation EN 50178 -Safety transformers EN 61558-2-8	
Environmental Compliance		Reach, RoHS directive 2011/65/EU	
Electromagnetic compatibility (EMC)			
Emissions		EN 61000-6-3	
Conducted RI Suppression On Input		EN 55032 class B	
Radiated RI Suppression		EN 55032 class B	
Harmonic Limits		EN 61000-3-2, class A	
Immunity		EN 61000-6-2	
Electrostatic Discharge (ESD)		IEC/EN 61000-4-2 8 kV/ 15 kV, perf criteria A	
Radiated RF Field Immunity		IEC/EN 61000-4-3 10 V/m, perf criteria A	
Electrical Fast Transient / Burst Immunity		Input: IEC/EN 61000-4-4 4 kV, perf criteria A Output: IEC/EN 61000-4-4 2 kV, perf criteria A	
Surge Immunity		Line–Neutral: IEC/EN 61000-4-5 4 kV, perf criteria A Line–Ground: IEC/EN 61000-4-5 2 kV, perf criteria A Neutral–Ground: IEC/EN 61000-4-5 4 kV, perf criteria A Output: IEC/EN 61000-4-5 0.5 kV, perf criteria A	
Immunity To Conducted RF Disturbances		IEC/EN 61000-4-6 10 V, perf criteria A	
Mains Voltage Dips And Interruptions		IEC/EN 61000-4-11 30%/10mS, criteria B; 60%/100mS, criteria C	
Environment			
Vibration Acc. IEC 60068-2-6-3		3 axis, 1 g sine sweep, 10–55 Hz, 1 oct/min	
Shock Acc. IEC 60068-2-27		3 axis, 15 g half sine, 11ms	
Safety Approvals and Certifications		CE CB Scheme IP67 cULus UL 508 SA 229285	

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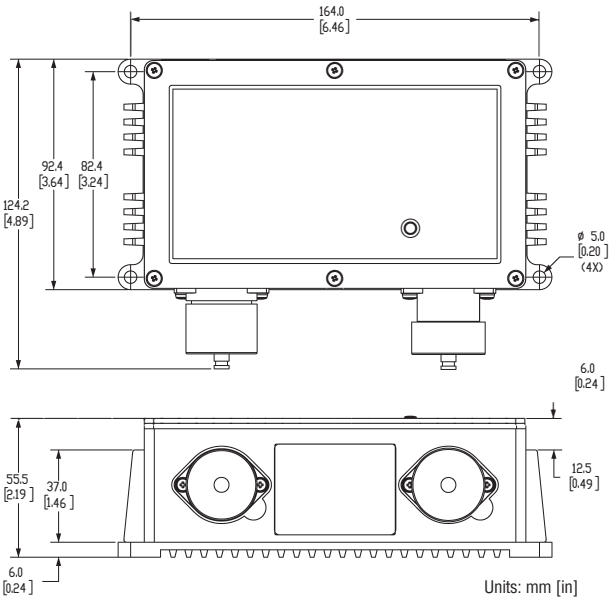
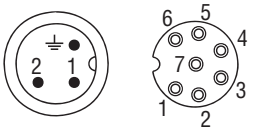


Connector Pinouts	
Input	
1	Input Terminal **L**
2	Input Terminal **N**
3	Input Terminal **PE (GND)**
Output	
1	Output Connection Terminal **–**
2	Output Connection Terminal **–**
3	Output Connection Terminal **–**
4	Output Connection Terminal **+**
5	Output Connection Terminal **+**
6	Output Connection Terminal **+**
7	Case Ground

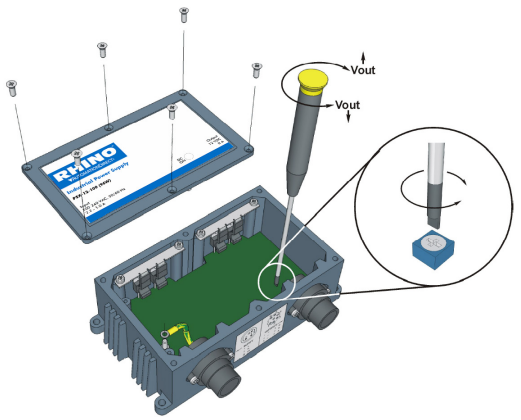


INPUT

1 L
2 N
⏚ PE

OUTPUT

1 – 4 +
2 – 5 +
3 – 6 +
7 case



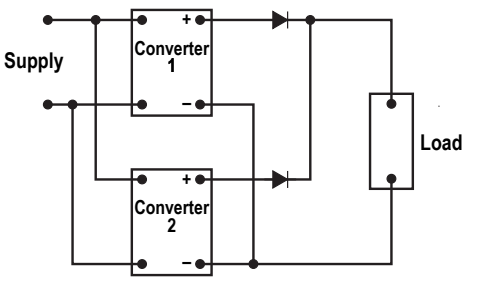
Note: The integrity of the seal cannot be guaranteed and warranty is void once the cover has been removed in the field!

To adjust the output voltage, the case cover must be removed. Carefully loosen and remove all six screws, then remove the cover. The output voltage of the unit can be adjusted by turning the potentiometer screw, using an insulated screwdriver. By turning the screw clockwise (cw) the output voltage will increase; by turning the screw counter-clockwise (ccw), the output voltage will decrease. The output voltage level should only be adjusted with the output connected to a load, (similar to the load used in the application). After adjusting the output voltage to the required value, the case must be carefully reassembled. Place the cover over the case and ensure that the rubber-sealing gasket is undamaged and is correctly positioned. Secure the lid with the six screws. Tighten the screws gradually, moving diagonally from one to another. The recommended tightening torque is 0.6 N·m [5.310 lb·in].

Installation Instructions

- Use connectors specified in Accessories table.
- Copper conductors rated min. 60/75°C only are to be used.
- Use only 18-14 AWG wire.
- These devices are intended for installation on industrial machines in accordance with the "Electrical Standard for Industrial Machinery" (NFPA79). Due to the nature of these devices, they may not be suitable for installation in accordance with the "National Electrical Code" (NFPA70).
- The suitability of the use of flexible cord per CEC, PART I, Rule 4-010, is to be determined by the local inspection authority having jurisdiction.
- For Hazard Locations, this device must be installed within a suitable enclosure.
- This power supply is designed for professional outdoor systems as well as indoor systems. It may be installed and put into service by qualified personnel only.
- Do not operate without PE (GND) connection! To comply with EMC and safety standards (CE mark, approvals) the power supply must be operated only if PE (GND) terminal is connected to the non-fused earth conductor.
- The power supply should be mounted with the connectors facing downward to minimize the possibility of water intrusion through field-installed wiring connections.
- Leave a free space of minimum 50mm [2in] above and below the power supply.
- The internal fuse is not accessible, as the user may not replace it. If this internal fuse has blown, the power supply has an internal defect and, for safety reasons, must be replaced.
- When no connector is attached to the unit, the connectors shall be sealed with the cover caps to maintain the degree of protection.
- Parallel redundancy is possible, with external decoupling diode. (See diagram below.)

Parallel Redundancy Wiring



Note:

1. The total current draw should not exceed the rated current of the power supply.
2. ORing diode current and voltage rating should be selected accordingly.

Accessories	
PSX-CON1	AC Input connector: Binder 3-pin female circular plug 99-4222-14-04
PSX-CON2	DC Output connector: Binder 7-pin male circular plug 99-4225-160-07

FOR TECHNICAL ASSISTANCE CALL 770-844-4200

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