

# RHINO PSH-xx-240 Power Supplies

## Installation Instructions

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

### Safety Instructions and Warnings

- Do not open the device!
- Before any installation or maintenance, ensure that the main switch is switched off and prevented from being switched on again.
- The device must be installed and put into service by qualified personnel only.
- Never work on the device if power is applied.
- Risk of electric arcs and electrical shock, which can cause death, severe personal injury or substantial property damage.
- The unit must be connected to the mains supply in compliance with national regulations (e.g., VDE0100 and EN50178). All wire strands must be fastened in the terminal blocks. (Potential danger of contact with the case.)
- All input and output wires must be properly rated for the power supply and must be connected with the correct polarity (Fig. 3).
- The Power Supply wiring must be sufficiently fused.
- Sufficient cooling must be ensured (Fig. 2).
- Do not introduce any objects into the device.
- The output voltage adjustment potentiometer may only be actuated using an insulated screwdriver.
- Keep away from fire and water.
- The internal fuse is not accessible. If this internal fuse has blown, the power supply has an internal defect and, for safety reasons, must be replaced.
- This device is designed for use in a clean, dry environment.
- The device must be mounted in an enclosure in the end application and must not be accessible in operation.

### Installation Instructions







- The device can be mounted onto 35mm DIN rails, compliant with the specifications of DIN EN 50022. Observe the requirements for ventilation space above and below the device (Fig. 2).
- The standard mounting orientation is with input terminals at the bottom.
- Alternative side-mounting for flat panels: The case offers the potentially useful feature to fix the DIN-rail clip to the side wall to mount inside flat panels.

### Recycling

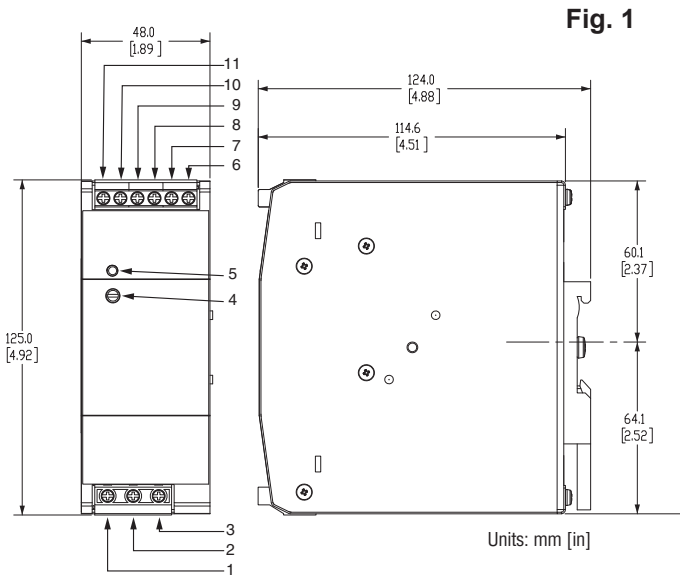
- The device contains elements that are suitable for recycling, and components that need special disposal. You are therefore requested to make sure that the device will be recycled at the end of its service life.

#### Notes for Technical Specifications Table:

1. Output voltage can be adjusted as indicated. However, output power has to be maintained at nominal value. This means the output nominal current has to be reduced in accordance with the increase of output voltage.
2. In case of an internal error, a second voltage regulation loop keeps the output voltage at a safe level, and the power supply turns off and restarts after 10 seconds.
3. When external voltage is supplied above set output voltage and below OVP threshold, the power supply will function normally without switch off or destruction, even if external voltage is applied continuously.
4. In case of overload or short circuit, the unit switches the output voltage off after 4 seconds and tries to restart every 10 seconds.

Technical Specifications		
	PSH-24-240	PSH-48-240
<b>Input (AC)</b>		
Nominal Input Voltage	100–240 VAC	
Nominal Input Current	2.89–1.27 A	
Operational Input Voltage Range	85–264 VAC	
Input Voltage Frequency Range	45–65 Hz	
Inrush Current (115/230 VAC)	15/30 A	
Standby Power Consumption	2.3/2.3 W (115/230 VAC)	
Active Power Factor Correction (PFC)	0.98/0.92 (115/230 VAC)	
Harmonic limits – acc. EN 61000-3-2	Class A, D	
Circuit Breaker Rating / Characteristic	6-16 A /B, C (IEC); 20 A /B, C (USA)	
<b>Output (DC)</b>		
Max. Output Power	240W	
Output Voltage	24V	48V
Max. Output Current / Max. Output Current 4s ("Boost power" which facilitates the activation of stepper motors, solenoids or actuators)	10A	5A
Output Voltage Adjustment Range	23.5–28 V	47.5–56 V
Typical Efficiency (230 VAC)	95%	
Regulation	Input Variation 0.1 % max. Load Variation (10–90 %) 0.5 % max.	
Output Power Derating - Temperature	2%/K above 60°C, refer to Fig. 5	
Output Power Derating - Input Voltage	3%/V below 90 VAC, refer to Fig. 4	
Hold-up time	20 ms min.	
Start-up time	2s max.	
Ripple and Noise (20MHz bandwidth) (Note 1)	100 mVp-p max.	200 mVp-p max.
Output Overvoltage Protection (OVP) (Note 2)	32–35V	56–60V
Power Back Immunity (Note 3)	< OVP level	
Operation	Nominal Operation 100% of I <sub>out</sub> nominal Peak Power Operation 105–150% of I <sub>out</sub> nominal Constant Current (CC) 155% of I <sub>out</sub> nominal	
Duty Cycle (for peak and cc mode) (Note 4)	Threshold > 105 % CC or Peak Operation Timer 4s max. (switch off) Normal Operation / Off Period < 10s typ. (automatic restart after switch off or peak and cc operation timer reset)	
Short Circuit Protection	Switch off after 4s delay, automatic restart (Note 4)	
DC OK Signal	Threshold for Vout	ON: > 22.5 V typ. OFF: < 21.5 V typ.
	DC ON	Relay contact closed, max. 1A, < 100mOhm, also indicated by green LED
	DC OFF	Relay contact open, max 30V
<b>General Data</b>		
Weight	643g [22.68 oz]	
Leakage Current (max.)	1.2 mA	
Network Configuration	TN-S, TN-C, TT, IT	
Enclosure Material (Chassis/Cover)	Aluminum / Stainless Steel	
Cooling	Convection cooling, no internal fan	
Over Temperature Protection	Switch off at over temperature	
Isolation Voltage	Input/Output 4250VDC Input/Chassis 1500VDC Output/Chassis 750VDC	
Creepage Clearance	Input/Output 8mm Input/Chassis 4mm Output/Chassis 1.5 mm	
<b>Safety / Environmental</b>		
Surrounding Ambient Temperature Range	-40°C to +70°C [-40°F to +158°F]	
Temperature Coefficient	0.02 %/K	
Humidity	5–95%, non-condensing	
Storage Temperature	-40°C to +85°C [-40°F to +185°F]	
Maximum Altitude	2000m	
Safety Standards	Information technology equipment IEC/EN 60950-1, UL 60950-1 CSA 22.2 No 60950-1-03, File E198298 Safety low voltage switchgear and control gear UL 508, File E197592 Process Control Equipment Haz Loc, File E502478 ATEX Ⓜ II 3 G Ex ec nC IIC T4 Gcw	
MTBF (acc. to IEC 61709 at 25°C)	> 1,300,000 hrs	
Protection Class	Class I	
Degree of Protection	IP20	
Electromagnetic compatibility (EMC)		
Emissions	EN 61000-6-3, EN 61204-3	
Conducted RI Suppression On Input	EN 55032, EN 55011 class B,	
Radiated RI Suppression	EN 55032, EN 55011 class B,	
Immunity	EN 61000-6-2, EN 61204-3	
Railway Applications Signaling Apparatus	EN 50121-4	
Railway Applications Rolling Stock Apparatus	EN 50121-3-2	
Electrostatic Discharge (ESD)	IEC/EN 61000-4-2 4 kV/8 kV, criteria A	
Radiated RF Field Immunity	IEC/EN 61000-4-3 10 V/m, criteria A	
Electrical Fast Transient / Burst Immunity	IEC/EN 61000-4-4 2 kV, criteria B	
Surge Immunity	IEC/EN 61000-4-5 1 kV/2 kV, criteria B	
Immunity To Conducted RF Disturbances	IEC/EN 61000-4-6 10 V, criteria A	
Power Frequency Field Immunity	IEC/EN 61000-4-8 30 A/m, criteria A	
Mains Voltage Dips And Interruptions	IEC/EN 61000-4-11 criteria B/C	
Voltage Sag Immunity	SEMI F47 230VAC, criteria B/C	
Environment		
Railway Applications Shock and Vibration	According EN 61373	
Vibration Acc. IEC 60068-2-6-3	3 axis, 2 g sine sweep, 10–55 Hz, 11 oct/min	
Shock Acc. IEC 60068-2-27	3 axis, 25 g half sine, 11ms	
Approvals	     	

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Identification of Features (Fig. 1)	
1	Input Terminal <b>L</b>
2	Input Terminal <b>N</b>
3	Input Terminal <b>GND</b>
4	Output Voltage adjustment potentiometer
5	DC ON LED
6/7	DC OK Contact
8	Output Connection Terminal <b>+</b>
9	Output Connection Terminal <b>+</b>
10	Output Connection Terminal <b>-</b>
11	Output Connection Terminal <b>-</b>

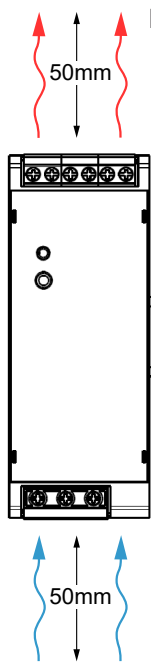


Fig. 2

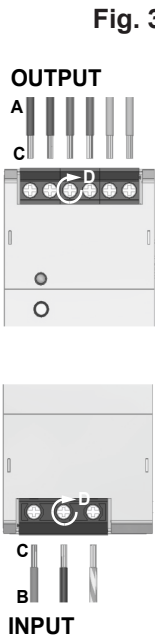
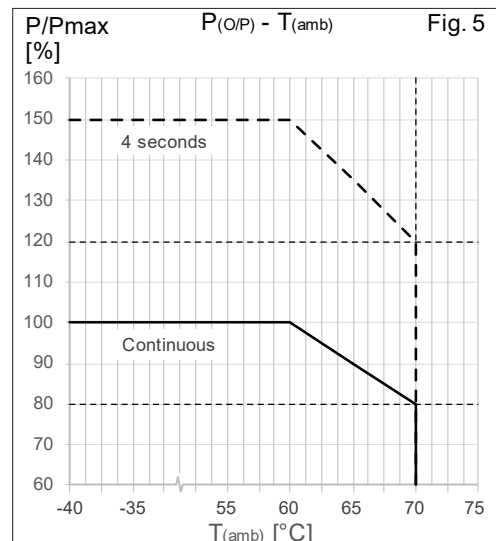
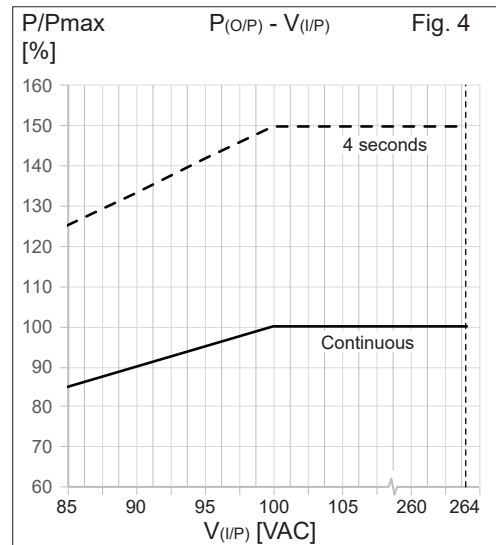


Fig. 3

Wiring Specifications (see Fig. 3)		
A	Wire Size, Output	16–10 AWG
B	Wire Size, Input	18–10 AWG
C	Strip Length	10mm [0.39 in]
D	Tightening Torque	0.7 N·m [6.2 lb·in]



FOR TECHNICAL ASSISTANCE CALL 770-844-4200