

# RHINO Installation Instructions for PSB24-100-N Power Supply



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

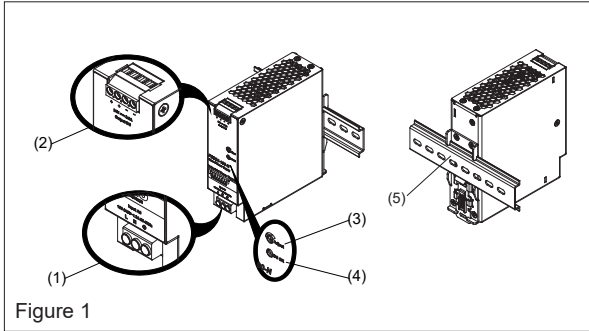


Figure 1

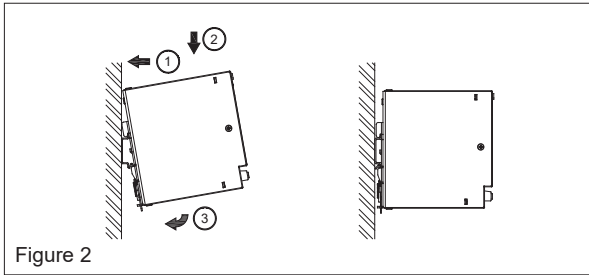


Figure 2

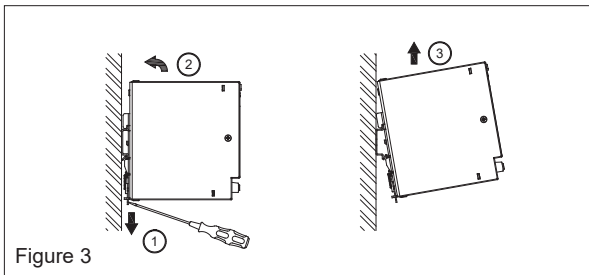


Figure 3

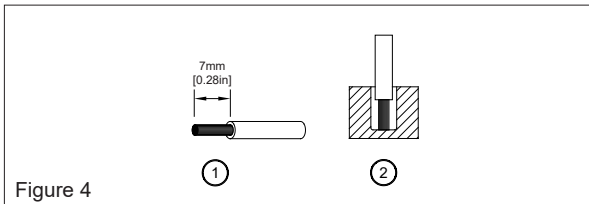


Figure 4

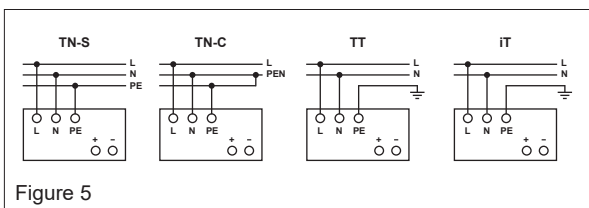


Figure 5

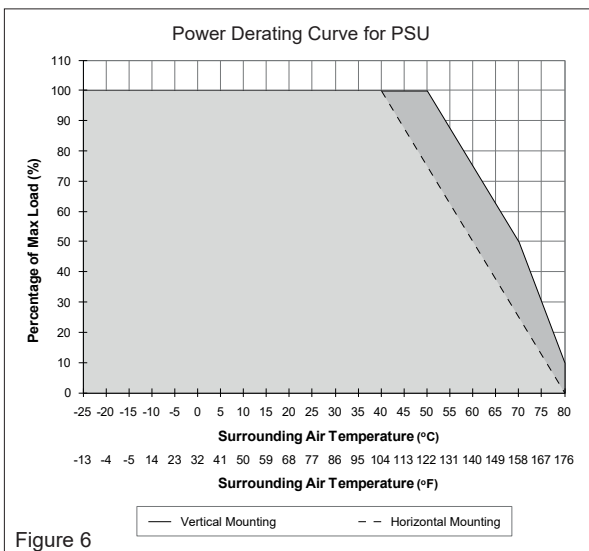


Figure 6

## 1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion!
- To guarantee sufficient convection cooling, keep a distance of 50 mm [1.97 in] above and below the device as well as a lateral distance of 5 mm [0.20 in] to other units.
- Note that the enclosure of the device can become very hot depending on the ambient temperature and load of the power supply. Risk of burns!
- The main power must be turned off before connecting or disconnecting wires to the terminals!
- Do not introduce any objects into the unit!
- Dangerous voltage present for at least 5 minutes after disconnecting all sources of power.
- The power supplies are built in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.
- **CAUTION:** "For use in a controlled environment".

## 2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK control LED (green)
- (5) 35mm DIN rail mounting (DIN rail sold separately)

## 3. Mounting (Fig. 2)

The power supply unit can be mounted on 35 mm DIN rails in accordance with EN60715. For Vertical Mounting, the device should be installed with input terminal block on the bottom. For Horizontal Mounting, the device should be installed with input terminal block on the left side.

Each device is delivered ready to install. Snap on the DIN rail as shown in Fig. 2:

1. Tilt the unit slightly upwards and put it onto the DIN rail.
2. Push downwards until stopped.
3. Press against the bottom front side for locking.
4. Shake the unit slightly to ensure that it is secured.

## 4. Dismounting (Fig. 3)

To uninstall, pull or slide down the latch as shown in Fig. 3. Then, slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

## 5. Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with the following cross sections:

Table 1 Refer to Fig. 1:	Standard / Solid		Torque	
	(mm <sup>2</sup> )	(AWG)	(Nm)	(lb in)
(1)	0.82-3.3	18-12	0.91	8.1
(2)	0.82-3.3	18-12	0.61	5.4

To secure reliable and shock proof connections, the stripping length should be 7 mm [0.28 in] (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2).

In accordance with EN60950 / UL60950 and EN62368 / UL62368, flexible cables require ferrules.

Use appropriate copper wire that is designed to sustain operating temperature of :

1. At least 60°C / 75°C (140°F / 167°F) for USA.
2. At least 75°C (167°F) for ambient not exceeding 60°C (140°F), and 90°C (194°F) for ambient exceeding 60°C (140°F) for Canada.

### 5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and PE connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240 VAC connection.

The unit is protected with internal fuse (not replaceable) at L pin and it has been tested and approved on 20A (UL) and 16A (IEC) branch circuits without additional protection device. An external protection device is only required if the supplying branch has an ampacity greater than above. Thus, if an external protective device is necessary, or, utilized, a minimum value of 13A B- or 6A C- characteristic breaker should be used.



The internal fuse must not be replaced by the user.

### 5.2. Output Connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24 VDC connection. The output provides 24 VDC. The output voltage can be adjusted from 22 to 24 VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an over voltage protection limited to 35 VDC.

### 5.3. Output characteristic curve





The device functions normal under operating line and load conditions. In the event of a short circuit or over load the output voltage and current collapses (3.8A < I<sub>O</sub> < 8A). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

### 5.4. Thermal behavior (Fig. 6)

If the output capacity is beyond what is recommended in Fig. 7, the device will run into thermal protection by switching off i.e. device will go in bouncing mode and will recover when ambient temperature is lowered or load is reduced as far as necessary to keep device in working condition.

**FOR TECHNICAL ASSISTANCE CALL 770-844-4200**

# Technical Data For PSB24-100-N

<b>Input (AC)</b>	
Nominal input voltage / frequency	100-240 VAC / 50-60Hz
Voltage range	85-264 VAC
Frequency	47-63Hz
Nominal current	< 1.00 A @ 115 VAC, < 0.53 A @ 230 VAC
Inrush current limitation (+25°C, cold start)	< 30 A @ 115 VAC, < 60 A @ 230 VAC
Mains buffering at nominal load (typ.)	> 20 ms @ 115 VAC, > 30 ms @ 230 VAC
Turn-on time	< 3 sec.
Internal fuse	T 3.15 AH / 250V
Leakage current	< 0.5 mA @ 240 VAC
<b>Output (DC)</b>	
Nominal output voltage $U_{N1}$ / tolerance	24 VDC $\pm$ 2%
Adjustment range of the voltage	22-24 VDC (maximum power $\leq$ 100W)
Nominal current	3.8 A
Derating	> 50°C [122°F] (2.5% / °C), > 70°C [158°F] (4% / °C) in Vertical > 40°C [104°F] (2.5% / °C) in Horizontal
Startup with capacitive loads	Max. 8,000 $\mu$ F typ.
Max. power dissipation idling / nominal load approx.	14W
Efficiency	> 88.0% @ 115 VAC, > 89.0% @ 230 VAC
PARD (20MHz) at 100% load	< 50 mVpp / < 150mVpp
Parallel operation	PSB60-REM20S / PSB60-REM40S
<b>General Data</b>	
Type of housing	Aluminum
Signals	Green LED DC OK
MTBF	> 800,000 hrs.
Dimensions (L x W x H)	124 mm x 40 mm x 124 mm [4.88 in x 1.57 in x 4.88 in]
Weight	0.60 kg [1.32 lb]
Connection method	Screw connection
Wire size / torque	See Table 1
Stripping length	7 mm [0.28 in]
Operating temperature (surrounding air temperature)	-25°C to +80°C [-13°F to 176°F] (Refer to Fig. 7)
Storage temperature	-25°C to +85°C [-13°F to 185°F]
Humidity at +25°C, no condensation	< 95% RH
Vibration (non-operating)	10 to 500Hz @ 30m/S <sup>2</sup> (3G peak); displacement of 0.35mm; 60 min. per axis for all X, Y, Z directions in acc. with IEC60068-2-6
Shock (non-operating, in all directions)	30G (300m/S <sup>2</sup> ) for a duration of 18ms, 3 shocks for each directions according to IEC60068-2-27
Pollution degree	2
Altitude (operating)	2500m
<b>Certification and Standards</b>	
Electrical equipment of machines	IEC60204-1 (over voltage category III)
Electronic equipment for use in electrical power installations	IEC/EN 62477-1 / IEC62103
Safety entry low voltage	PELV (EN 60204-1), SELV (EN 60950-1)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298), UL/C-UL recognized to UL62368-1 and CSA C22.2 No. 62368-1 (File No. E508040), CB scheme to IEC 60950-1, IEC 62368-1
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No. 107.1-01 (File No. E197592), CSA to CSA C22.2 No. 107.1-01 (File No. 249074)
Class 2 Power Supply	UL/C-UL recognized to UL1310 and CSA C22.2 No. 223 (File No. E198298)
CE	In conformance with EMC directive 2014/30/EU and low voltage directive 2014/35/EU
Component power supply for general use	EN61204-3
Immunity	EN 55024, EN 61000-6-2 (EN61000-4-2, 3, 4, 5, 6, 8, 11, 12)
Emission	EN55032, EN55011, EN61000-3-2 Class A, EN61000-3-3
   	
RoHS Compliant	Yes
<b>Safety and Protection</b>	
Transient surge voltage protection	VARISTOR
Current limitation at short-circuits approx.	< 8A, Auto Recovery
Surge voltage protection against internal surge voltages	Yes
Isolation voltage:	
Input / Output	4.00 kVAC
Input / PE	1.50 kVAC
Output / PE	1.50 kVAC
Protection degree	IP20
Safety class	Class I with GND connection