

RHINO Installation Instructions for PSL-24-090 Power Supply



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

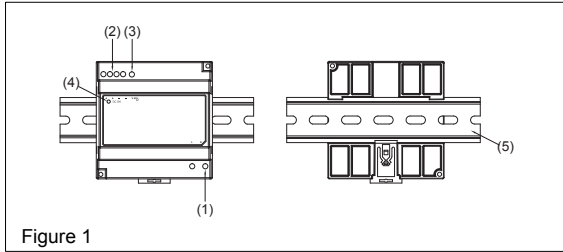


Figure 1

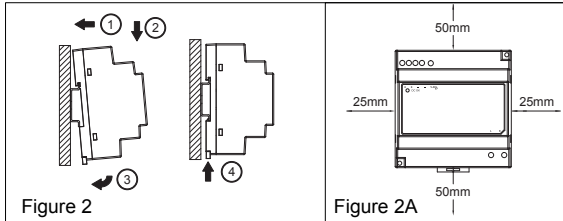


Figure 2

Figure 2A

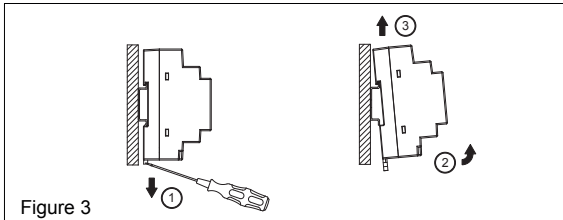


Figure 3

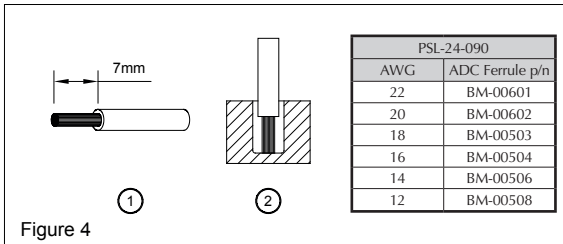


Figure 4

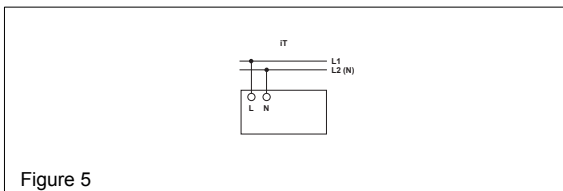


Figure 5

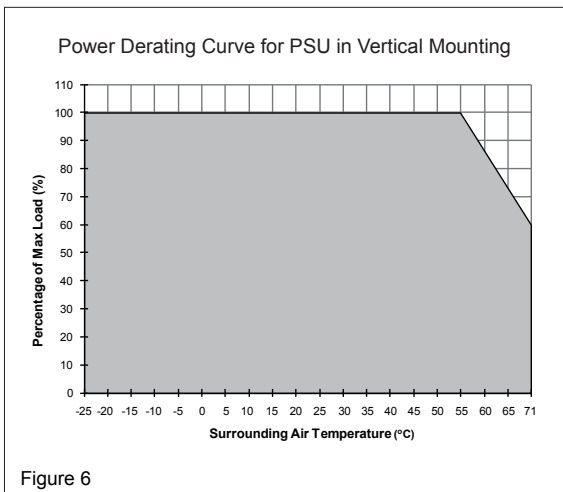


Figure 6

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 50mm [1.97 in] above and below the device as well as a lateral distance of 25mm [0.98 in] to other units. See Fig. 2A.
- 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.
- The power supplies must be installed in an IP54 or better (NEMA 3 or better) enclosure or cabinet in the final installation.
- **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) Universal mounting rail system

3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rail in accordance with EN60715.

The device must be installed with input terminal block at the bottom.

Each device is delivered ready to install.

Snap onto 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. Tug on 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 power supply unit (PSU) up, release the latch and pull out the PSU from the rail.

5. Connection

The terminal block connectors allow easy and fast wiring.

Table 1:

Voltage	Stranded / Solid		Torque	
	AWG	No of Wires	N-m	lb-in
24V	22-12	1-piece	0.45	4.0
	24	2-pieces	0.45	4.0

To secure reliable and shock proof connections, the stripping length should be 7mm [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 to EN 60950 / UL 60950, flexible wires require ferrules.

Use appropriate copper wire that is designed to sustain voltage of 300V and operating temperature of at least 105°C (221°F) or more to fulfill UL requirements.

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

Use L and N 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 16A B- or 8A 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 24VDC connection. The output provides 24VDC.

The output voltage can be adjusted from 22 to 24VDC 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 < 34.8 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 ($I_{O/L}$ or $I_{S/C}$ is $> I_{surge}$ (150%)). The secondary voltage is reduced and cycles on and off until short circuit or overload on the secondary side has been removed.

5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures above 55°C [131°F], the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature. If the output capacity is not reduced when $T_{Amb} > 55°C$ [131°F] device will switch into thermal protection by switching off i.e. the output voltage will go into latch-off mode until the component temperature cools down and the AC power is recycled.

FOR TECHNICAL ASSISTANCE CALL 770-844-4200

Technical Data For PSL-24-090

Input (AC)	
Nominal input voltage and frequency	100-240 VAC / 50-60 Hz
Voltage range	90-264 VAC
Frequency	47-63 Hz
Nominal DC Input Voltage ¹	125-250 VDC
DC Input Voltage Range ¹	125-375 VDC
Nominal current	< 2.2 A @ 115 VAC, < 1.0 A @ 230VAC
Inrush current limitation. I _{2t} (+25 °C) typ.	< 30A @ 115VAC, < 60A @ 230VAC
Mains buffering at nominal load (typ.)	> 10ms @ 115VAC, > 30ms @ 230VAC
Turn-on time	< 1.5 sec. @ 115Vac, < 1 sec. @ 230Vac
Internal fuse	T 3.15 A / 250 VAC (non-replaceable)
Recommended backup protection	16A B- or 8A C- characteristic circuit breaker
Leakage current	< 0.25 mA @ 240 VAC

Output (DC)	
Nominal output voltage U _N / tolerance	24VDC ± 2 %
Adjustment range of the voltage	22-24 VDC
Nominal current	3.8 A
Derating	> 55°C [131°F] (2.5 % / °C) in Vertical
Startup with capacitive loads	Max. 3,000 µF
Max. power dissipation idling / nominal load approx.	12W
Efficiency	> 85.0% @ 115 VAC, 87.0% @ 230 VAC
Residual ripple/ peak switching (20 MHz) (at nominal values)	< 50 mVpp / < 150 mVpp

General Data	
Type of housing	Plastic (PC), closed
Signals	Green LED DC OK
MTBF	> 500,000 hrs. as per Telcordia
Dimensions (L x W x H)	91mm x 89.9 mm x 55.6 mm [3.58 in x 3.54 in x 2.19 in]
Weight	0.35 kg [0.77 lb]
Connection method	Screw connection
Wire size / torque	See Table 1
Stripping length	7mm [0.28 in]
Ambient operating temperature	-25°C to 71°C [-13°F to 160°F] (Refer to Fig. 6)
Storage temperature	-25°C to 85°C [-13°F to 185°F]
Humidity at +25°C, no condensation	<95 % RH
Shock (operating)	IEC60068-2-27, Half Sine Wave: 4G for a duration of 22ms, 3 shocks for each 3 directions, 9 times in total
Vibration (operating)	IEC60068-2-6, Sine Wave: 10-500Hz @ 19.6m/S ² (2G peak); 10 min per cycle, 60 min for all X, Y, Z directions
Pollution degree	2
Altitude (operating)	2000 Meters

Certification and Standards	
Safety entry low voltage	SELV (EN 60950)
Electrical safety (of information technology equipment)	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1, CB scheme to IEC60950-1, Limited Power Source (LPS)
Industrial control equipment	UL/C-UL listed to UL508 and CSA C22.2 No. 107.1-01 (File No. E197592)
Class 2 power supply	UL/C-UL recognized to UL60950-1 and CSA C22.2 No. 60950-1 (File No. E198298)
CE	In conformance with EMC directive 2014/30/EC and low voltage directive 2014/35/EC
ITE	EN55032 Class A ² , EN61000-3-2, EN61000-3-3, EN55024
Limitation of mains harmonic currents	EN61000-3-2
RoHS	Yes



Safety and Protection	
Current limitation at short-circuits approx.	I _{surge} = 150 % of P _{o,max} typically
Surge voltage protection against internal surge voltages	Yes
Isolation voltage: Input/output	3.0 kVAC
Protection degree	IP20
Safety class	Class II without PE connection

(1) Safety approval according to IEC/EN/UL 60950-1

(2) Warning: This is a Class A product. In a residential, commercial or light industrial environment it may cause radio interference. This product is not intended to be installed in a residential environment; in a commercial and light industrial environment with connection to the public mains supply, the user may be required to take adequate measures to reduce interference.