

MODEL PSDR - 24 V POWER SUPPLY



- 30 W, 60 W OR 95 W MODELS
- ADJUSTABLE OUTPUT VOLTAGE
- PARALLEL OR SERIES USE CAPABILITY (30 & 60 ONLY)
- MOUNT ON 35 MM DIN RAILS

DESCRIPTION

The compact PSDR power supplies are industrial input voltage supplies with primary switched-mode regulator technology and low output ripple. The supplies all have adjustable output voltages from 24 to 28 VDC and the outputs are electronically protected against overloads and short circuits.

SPECIFICATIONS

1. POWER REQUIREMENTS

PSDR030W AND PSDR060W:

AC Input Voltage: 100 to 240 VAC (-15% / +10%), 50/60 Hz
 DC Input Voltage: 110 to 300 VDC (-20% / +25%)
 Current Consumption:
 PSDR030W: 0.54 @ 120 VAC, 60 Hz / 0.3 A @ 230 VAC, 50 Hz
 PSDR060W: 0.98 @ 120 VAC, 60 Hz / 0.58 A @ 230 VAC, 50 Hz
 Maximum Voltage L or N to Earth: 264 VAC, 375 VDC

PSDR095W:

AC Input Voltage: 100 - 120 VAC / 220 to 240 VAC (-15% / +10%), 50/60 Hz (auto select input)
 DC Input Voltage: 290 VDC (-25% / +30%)
 Current Consumption: 1.63 @ 120 VAC, 60 Hz / 0.95 A @ 230 VAC, 50 Hz
 Maximum Voltage L or N to Earth: 264 VAC / 375 VDC

2. **FUSE:** Internally fused for use in branch circuits supplying up to 20A. If less than 20A breaker is used, a minimum value of 10A B- or 6A C- (60 W and 95 W) or 6A B- or 3A C- (30 W) breaker should be used to avoid nuisance tripping.

3. **INPUT INRUSH CURRENT:** (Peak at 40 °C ambient and cold start)

PSDR030W: 18 A @ 120 VAC, 35 A @ 230 VAC
 PSDR060W: 16 A @ 120 VAC, 32 A @ 230 VAC
 PSDR095W: 22 A @ 120 VAC, 37 A @ 230 VAC

4. **OUTPUT VOLTAGE:** 24 to 28 VDC, adjustable via potentiometer

5. **OUTPUT POWER:**

PSDR030W: 30 W (1.3 A @ 24 VDC, 1.1 A @ 28 VDC)
 PSDR060W: 60 W (2.5 A @ 24 VDC, 2.1 A @ 28 VDC)
 PSDR095W: 95 W (3.9 A @ 24 VDC, 3.4 A @ 28 VDC)

6. **OUTPUT RIPPLE & NOISE:** 50 mVp-p (50 ohm measurement, 20 MHz bandwidth)

7. **OUTPUT OVERVOLTAGE PROTECTION:**

PSDR030W: 38 VDC
 PSDR060W: 32.5 VDC
 PSDR095W: 36 VDC

8. **EFFICIENCY:** (At 120 VAC, 60Hz / 230 VAC, 50Hz)

PSDR030W: 88.5% / 89.4%
 PSDR060W: 87.8% / 89.7%
 PSDR095W: 89% / 90.0%

9. **ENVIRONMENTAL CONDITIONS:**

Operating Temperature Range: -10 to 60 °C
 Storage Temperature: -40 to 85 °C
 Humidity: 5 to 95 % RH, non-condensing
 Vibration in acc. with IEC 60068-2-6: 2 g
 Shock in acc. with IEC 60068-2-27: 30 g 6 ms, 20 g 11 ms

Degree of pollution in acc. with EN 50178, IEC 62103: 2

Degree of protection in acc. with EN 60529: IP20

Class of protection in acc. with IEC 61140: 1, PE connection required (ground)

10. CERTIFICATIONS AND COMPLIANCES:

CE Marking

CE mark is in conformance with EMC directive 2004/108/EC, the low-voltage directive (LVD) 2006/95/EC and the RoHS directive 2011/65/EU.

EMC Immunity: EN 61000-6-1, EN 61000-6-2

EMC Emission: EN 61000-6-3, EN 61000-6-4, FC Part 15 Class B

Safety: EN 60950-1

UL Listed: File# E171375

11. **ISOLATION VOLTAGE:** Input/Output

PSDR030W and PSDR095W: 3 kVAC

PSDR060W: 4 kVAC

12. **INSTALLATION:** Use DIN-rails acc. to EN 60715 or EN 50022 with a height of 7.5 or 15mm.

13. **MOUNTING:**

Clearance Left/Right: 0 mm, or 15 mm if adjacent device is a heat source.

Clearance Top: 40 mm

Clearance Bottom: 20 mm

14. **CONNECTIONS:**

Use appropriate copper cable, designated for a minimum operating temperature of:

60 °C for ambient temperatures up to 45 °C

75 °C for ambient temperatures up to 60 °C

PSDR030W AND PSDR060W:

Terminals: Screw clamp. All unused terminals must be closed.

Wire: 20 to 10 AWG 0.5-6 mm² solid wire, 0.5-4 mm² stranded wire.

Max wire diameter at terminal: 0.11" (2.8 mm), Ferrules are acceptable

Wire stripping length 0.28 inch (7 mm).

Terminal Torque: 9 lb.inch (1 Nm)

PSDR095W:

Terminals: Spring clamp. All unused terminals must be closed.

Wire: 28 to 12 AWG 0.3-2.5 mm² solid wire, 0.3-2.5 mm² stranded wire.

Max wire diameter at terminal: 0.088" (2.25 mm), Ferrules are acceptable

Wire stripping length 0.25 inch (6 mm).

15. **CONSTRUCTION:** Case body is black, high impact plastic. IP20 touch safe. Protection Class I, PE connection required (ground).

16. **WEIGHT:**

PSDR030W: 4.9 oz. (140 g)

PSDR060W: 8.8 oz. (250 g)

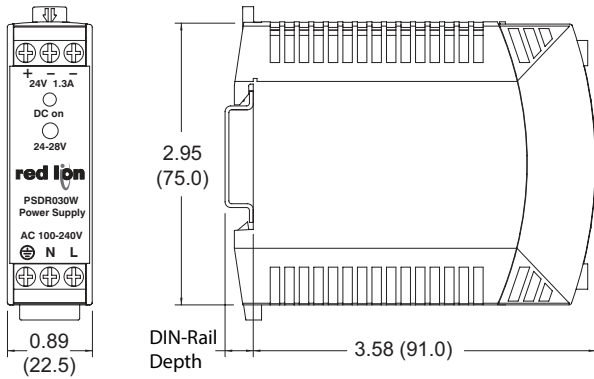
PSDR095W: 12.3 oz. (360 g)

ORDERING INFORMATION

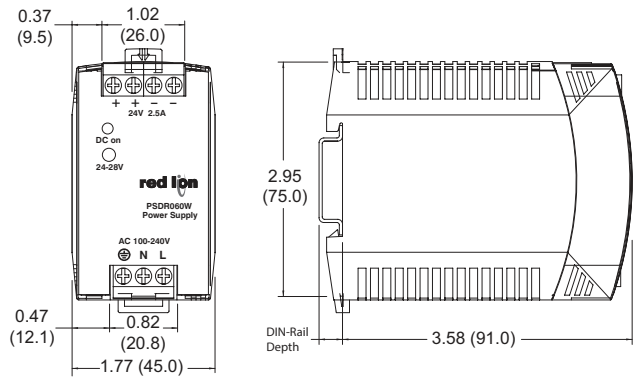
MODEL NO.	DESCRIPTION	PART NUMBER
PSDR	24 VDC 30 W @ 1.25 A Power Supply	PSDR030W
	24 VDC 60 W @ 2.5 A Power Supply	PSDR060W
	24 VDC 95 W @ 3.9 A Power Supply	PSDR095W

DIMENSIONS In inches (mm)

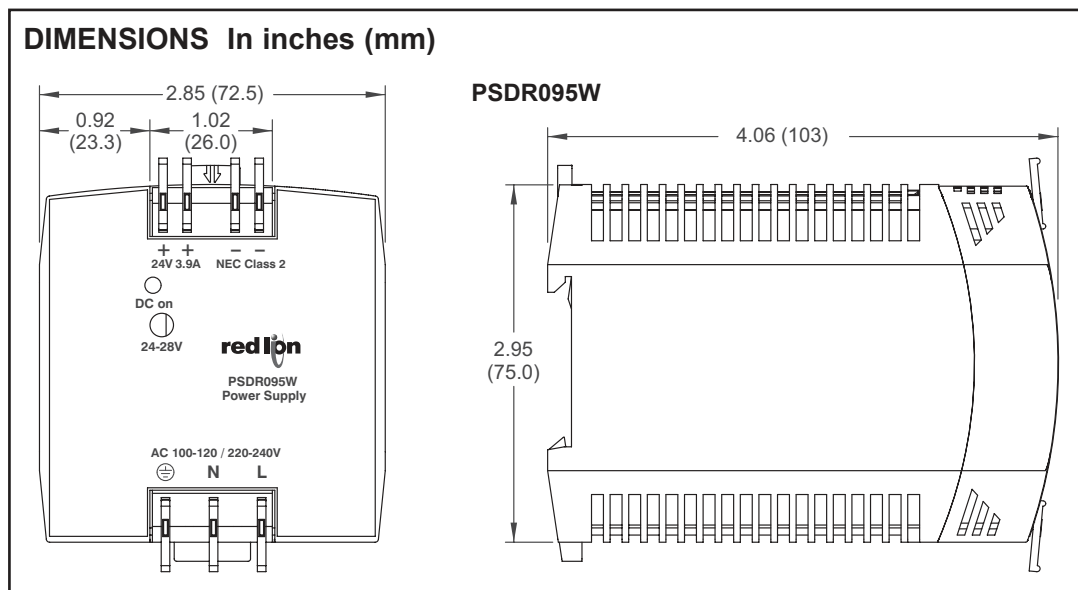
PSDR030W



PSDR060W



DIMENSIONS In inches (mm)



CONNECTION AND OPERATION INSTRUCTIONS

Before operating this unit please read this manual thoroughly and retain this manual for future reference! This device may only be installed and put into operation by qualified personnel. If damage or malfunction should occur during operation, immediately turn power off and send unit to the factory for inspection. The unit does not contain serviceable parts. The tripping of an internal fuse (if included) is caused by an internal defect. The information presented in this document is believed to be accurate and reliable and may change without notice.

Intended Use: This device is designed for installation in an enclosure and is intended for general use such as in industrial control, office, communication, and instrumentation equipment. Do not use this device in equipment, where malfunction may cause severe personal injury or threaten human life.

INSTALLATION

Mounting orientation must be output terminals on top and input terminals on the bottom. Do not obstruct air flow as the unit is convection cooled. Ventilation grid must be kept free of any obstructions. Maintain specified installation clearances when power supplies are permanently fully loaded:

TERMINALS AND WIRING

Use the appropriate copper cables as listed in the specifications and follow national installation codes and regulations! Ensure that all strands of a stranded wire enter the terminal connection! Ferrules are allowed. Unused terminal must be closed.



WARNING

Risk of electrical shock, fire, personal injury or death.

- Do not use the power supply without proper grounding (Protective Earth).
- Turn power off before working on the device. Protect against inadvertent re-powering.
- Make sure that the wiring is correct by following all local and national codes.
- Do not modify or repair the unit.
- Do not open the unit as high voltages are present inside.
- Use caution to prevent any foreign objects from entering the housing.
- Do not use in wet locations or in areas where moisture or condensation can be expected.
- Do not touch during power-on, and immediately after power-off. Hot surfaces may cause burns.

INPUT FUSES

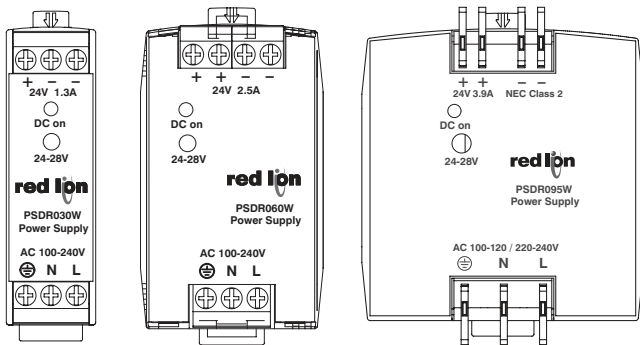
The internal input fuse (included) is not user accessible. The unit is tested and approved for branch circuits up to 20 A. An external protection is only required if the supplying branch has an ampacity greater than 20 A, however, in some countries local regulations might apply. Check local codes and requirements. If an external fuse is necessary or utilized, minimum requirements need to be considered to avoid nuisance tripping of the circuit breaker. See unit specifications for the minimum value Characteristic breaker that should be used:

INPUT

The input connection is made by the connections “L” and “N” (torque 0.5 Nm) on the terminal block connection.



If the internal fuse is triggered, there is most probably a malfunction in the device. In this case, the device must be returned to the factory for inspection!



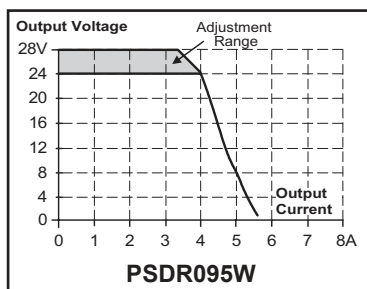
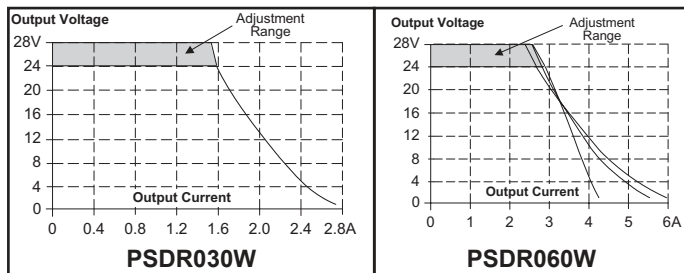
OUTPUT

The 24 VDC connection is made by the connections labeled “+” and “-” on the terminal block connection. At the time of delivery, the output voltage is 24.5 VDC. The output voltage can be set from 24 to 28 VDC using the potentiometer.

The device is electronically protected against short circuits and idling. In the event of an error, the output voltage is limited to the max VDC listed in the specifications. The unit includes an LED indicator “DC on”. This indicator will illuminate when DC out is >17 VDC for 30W and 60W, >20 VDC for 95W.

Output and Overload Characteristic

The units are overload, no-load, short-circuit proof. Above the rated output current, the output voltage will decrease as a result of the output current limitation. The current flows continuously. No hiccup or shut-down behavior.



DIELECTRIC STRENGTH

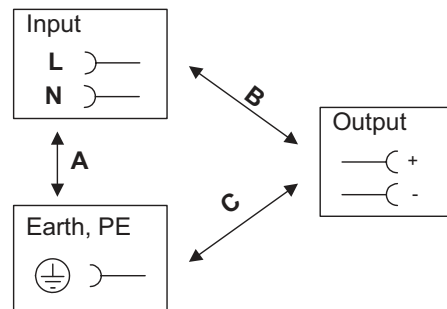
The output voltage is floating and separated from the input according to SELV (IEC/EN 60950-1) and PELV (EN 60204-1, EN 50178; IEC 62103, IEC 60364-4-41) requirements. Type and factory tests are conducted by the manufacturer. Field tests may be conducted in the field using the appropriate test equipment which applies the voltage with a slow ramp (2 sec up and 2 sec down).

Connect all phase-terminals together as well as all output poles before the test is conducted. When testing, set the cut-off current settings to the value in the table below.

PSDR030W	A	B	C
Type Test (60 sec)	2500 VAC	3000 VAC	500 VAC
Factory Test (5 sec)	2500 VAC	2500 VAC	500 VAC
Field Test (5 sec)	2000 VAC	2000 VAC	500 VAC
Cut-off current setting	>6 mA	>6 mA	>1 mA

PSDR060W	A	B	C
Type Test (60 sec)	2500 VAC	4000 VAC	2000 VAC
Factory Test (5 sec)	2500 VAC	2500 VAC	500 VAC
Field Test (5 sec)	2000 VAC	2000 VAC	500 VAC
Cut-off current setting	>4 mA	>4 mA	>1 mA

PSDR095W	A	B	C
Type Test (60 sec)	2500 VAC	3000 VAC	500 VAC
Factory Test (5 sec)	2500 VAC	2500 VAC	500 VAC
Field Test (5 sec)	2000 VAC	2000 VAC	500 VAC
Cut-off current setting	>6 mA	>6 mA	>20 mA



LIMITED WARRANTY

The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to two years from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company's liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company's option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products.

The customer agrees to hold Red Lion Controls harmless from, defend, and indemnify RLC against damages, claims, and expenses arising out of subsequent sales of RLC products or products containing components manufactured by RLC and based upon personal injuries, deaths, property damage, lost profits, and other matters which Buyer, its employees, or sub-contractors are or may be to any extent liable, including without limitation penalties imposed by the Consumer Product Safety Act (P.L. 92-573) and liability imposed upon any person pursuant to the Magnuson-Moss Warranty Act (P.L. 93-637), as now in effect or as amended hereafter.

No warranties expressed or implied are created with respect to The Company's products except those expressly contained herein. The Customer acknowledges the disclaimers and limitations contained herein and relies on no other warranties or affirmations.

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