MEAN WELL MDR-60-24

MEAN WELL MDR-60-24 DIN Rail Power Supply User Manual

1. Introduction

This manual provides essential information for the safe and efficient operation of the MEAN WELL MDR-60-24 DIN Rail Power Supply. The MDR-60-24 is an industrial-grade switching power supply designed for reliable 24V DC power delivery in various applications.

Key Features:

- 60W output power (24V at 2.5A continuous current).
- High efficiency (87% typical).
- Universal 85-264VAC / 120-370VDC input voltage compatibility.
- Adjustable output voltage range (24V to 30V).
- Built-in over-voltage, over-load, short-circuit, and over-temperature protection.
- Compact metal housing with IP20 protection.
- DIN rail mountable for easy installation.
- Safety-certified with CE, RoHS, and UL60950-1 compliance.

2. Safety Information

Read all instructions carefully before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Electrical Hazard:** Ensure power is disconnected before installation or maintenance. Only qualified personnel should perform electrical connections.
- **Ventilation:** Ensure adequate airflow around the unit to prevent overheating. Do not block ventilation openings.
- **Environment:** Install in a dry, well-ventilated area, free from excessive dust, moisture, and corrosive substances. Operate within specified temperature and humidity ranges.

- **Grounding:** Proper grounding is essential for safety. Connect the protective earth (PE) terminal to a reliable ground.
- **Output Overload:** Do not exceed the rated output power. Overloading can damage the unit and pose a fire risk.
- **Voltage Adjustment:** Adjust the output voltage only when the unit is powered on and under no load, using a suitable insulated tool.

3. Setup and Installation

The MDR-60-24 is designed for DIN rail mounting (TS-35/7.5 or TS-35/15). Follow these steps for installation:

3.1 Mounting

1. Ensure the DIN rail is securely installed in a suitable enclosure.
2. Hook the top edge of the power supply onto the DIN rail.
3. Push the bottom of the power supply firmly until it clicks into place on the DIN rail.
4. Verify the unit is securely attached and cannot be easily dislodged.

Image: Top-angled view of the MDR-60-24 power supply, highlighting the integrated DIN rail mounting clip at the bottom for secure installation on a standard DIN rail.

3.2 Wiring Connections

All connections are made via screw terminals. Refer to the labels on the unit for correct terminal identification.

Image: Front view of the MDR-60-24 power supply, clearly showing the input (L, N, PE) and output (+V, -V) screw terminals, along with the DC OK indicator and voltage adjustment potentiometer.

1. **Input (AC/DC):** Connect the AC input (Line, Neutral) or DC input to the "L" and "N" terminals. Connect the protective earth to the "PE" terminal. Ensure correct polarity for DC input.
2. **Output (DC):** Connect the positive load wire to the "+V" terminal and the negative load wire to the "-V" terminal.
3. **Tighten Terminals:** Ensure all screw terminals are tightened securely to prevent loose connections and potential hazards.

Note: Use appropriate wire gauges for the current rating to avoid overheating.

4. Operating Instructions

4.1 Power On/Off

- Once all connections are secure, apply input power to the unit.
- The "DC OK" indicator LED will illuminate when the output voltage is within the specified range.

- To power off, disconnect the input power.

4.2 Output Voltage Adjustment

The output voltage can be adjusted from 24V to 30V using the potentiometer located on the front panel.

- With the unit powered on and under no load, use a small, insulated screwdriver to carefully turn the "V ADJ" potentiometer.
- Turn clockwise to increase the voltage, counter-clockwise to decrease.
- Monitor the output voltage with a multimeter to ensure it is set to the desired level.

5. Maintenance

The MDR-60-24 power supply is designed for long-term, reliable operation with minimal maintenance. However, periodic checks are recommended:

- **Cleaning:** Keep the unit clean and free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquid cleaners.
- **Ventilation:** Ensure ventilation openings are not obstructed.
- **Connections:** Periodically check screw terminals for tightness, especially in environments with vibration.
- **Environmental Conditions:** Verify that the operating environment remains within the specified temperature and humidity ranges.

Image: Side view of the MDR-60-24 power supply, illustrating the heat dissipation fins designed to maintain optimal operating temperature through passive air cooling.

6. Troubleshooting

If the power supply is not functioning as expected, refer to the following troubleshooting guide:

Problem	Possible Cause	Solution
No output voltage / DC OK LED off	No input power Input fuse blown Overload protection activated Short-circuit protection activated	Check input power source and connections. Replace fuse (if accessible and cause identified). Reduce load. Disconnect and reconnect power. Check for short circuits in the load. Disconnect and reconnect power.
Output voltage too low/high	Voltage adjustment potentiometer incorrectly set Overload condition	Adjust "V ADJ" potentiometer to desired voltage. Reduce load.
Unit shuts down intermittently	Over-temperature protection activated Intermittent overload	Ensure adequate ventilation and ambient temperature. Reduce load. Check load for intermittent spikes or faults.

If the problem persists after following these steps, contact technical support.

7. Specifications

Detailed technical specifications for the MEAN WELL MDR-60-24 power supply:

- **Model:** MDR-60-24
- **Output Voltage:** 24V DC
- **Output Current:** 2.5A
- **Output Power:** 60W
- **Input Voltage Range:** 85-264VAC / 120-370VDC
- **Efficiency:** 87% (typical)
- **Ripple & Noise:** <150mVp-p
- **Line Regulation:** ±1.0%
- **Load Regulation:** ±1.0%
- **Voltage Adjustment Range:** 24V - 30V
- **Protection:** Over-voltage, Over-load, Short-circuit, Over-temperature
- **Operating Temperature:** -30°C to +70°C
- **Humidity:** 20-90% RH non-condensing
- **Dimensions (Length x Width x Height):** 129mm x 38mm x 97mm (5.08 in x 1.50 in x 3.82 in)
- **Safety Standards:** UL60950-1, TUV EN60950-1, CE, RoHS
- **EMC Standards:** EN55032, EN61000-3-2, EN61000-3-3, EN61000-4-2,3,4,5,6,8,11

8. Warranty and Support

MEAN WELL products are manufactured to high-quality standards. For warranty information, please refer to the official MEAN WELL website or contact your authorized distributor.

For technical assistance or support, please contact your product supplier or visit the MEAN WELL official website for resources and contact information.