

## SURRYN MDP-P906

# SURRYN MDP-P906 300W Digital Power Module User Manual

Model: MDP-P906

## 1. INTRODUCTION

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The SURRYN MDP-P906 is a compact and versatile 300W digital power module designed for various applications including R&D laboratories, teaching experiments, digital product maintenance, and general power supply testing. This module offers high efficiency and precise control over voltage and current outputs.

Key features include:

- Custom input current limiting and undervoltage protections.
- Voltage drop compensation and strong mode functionality.
- Multiple protection functions: input overvoltage, undervoltage, reverse connection, overcurrent, backflow, and overtemperature.
- Support for USB firmware upgrades.
- 2.4G wireless communication for connection with an intelligent display and control module (optional).
- Built-in silent, intelligent temperature-controlled cooling fan for stable and efficient output.
- Wide voltage input (DC 4.2V-30V) and PD2.0 quick recharging protocol support.
- 95% high-efficiency programmable linear output, up to 300W.
- High-performance MCU chip supporting multi-machine series or parallel operation.

# Mini Digital Power Supply

The second digital power supply of MDP series

## MDP-P906



Higher  
Power

Better  
Performance

Stay  
Stackable

Figure 1: Front view of the SURRYN MDP-P906 Digital Power Module, showing the display and control buttons.

## 2. SETUP INSTRUCTIONS

### 2.1 Unpacking and Inspection

Carefully unpack the MDP-P906 module. Verify that all components listed in the packing list are present and undamaged. The standard package includes:

- 1 x Power Supply Module (MDP-P906)
- 2 x Output Cables

If you have purchased the optional intelligent display and control module, ensure it is also present.

### 2.2 Power Connection

The MDP-P906 supports two types of power input:

1. **Direct Current (DC) Input:** Connect a DC power source within the range of 4.2V to 30V (maximum 14A) to the DC 5.5/2.5 interface.

2. **PD2.0 Quick Recharging Protocol:** Use a compatible PD2.0 power adapter providing 20V (maximum 5A) for input.

Ensure the input power source meets the specified voltage and current requirements to prevent damage to the module.

## 2.3 Output Connection

Connect the provided output cables to the output terminals of the MDP-P906 module. Connect the other end of the cables to your load device. Observe correct polarity (positive to positive, negative to negative).

## 2.4 Connecting the Optional Display and Control Module

If you have the intelligent display and control module, it can be connected to the MDP-P906 via 2.4G wireless communication. Refer to the display module's specific instructions for pairing and connection procedures. This allows for enhanced monitoring and control capabilities.



Figure 2: The MDP-P906 module connected to an optional intelligent display and control module, showing advanced monitoring.

## 3. OPERATING INSTRUCTIONS

### 3.1 Basic Operation

Once powered on, the MDP-P906 will display its current status. Use the 'SET', 'MENU', and 'RUN/LOCK' buttons on the module to navigate through settings and control output parameters.

- **SET Button:** Used to enter parameter setting mode and confirm selections.
- **MENU Button:** Used to navigate through different menu options and settings.
- **RUN/LOCK Button:** Used to enable/disable output and to lock/unlock the controls to prevent accidental changes.

## 3.2 Setting Output Voltage and Current

To set the desired output voltage and current:

1. Press the 'SET' button to enter voltage/current adjustment mode.
2. Use the navigation buttons (often combined with 'MENU' or rotary encoders on the display module) to adjust the voltage and current values.
3. Press 'SET' again to confirm the values.
4. Press 'RUN' to enable the output with the newly set parameters.

The module offers a high setting resolution of 10mV and 2mA (or up to 1mV and 1mA with the display control module).

## 3.3 Advanced Functions

The MDP-P906 supports advanced configurations for complex power requirements:

- **Positive & Negative Output:** Configure for bipolar output.
- **Series Boost:** Connect multiple modules in series to achieve higher output voltages.
- **Parallel Current Sharing:** Connect multiple modules in parallel to increase total output current capacity.

Refer to the detailed instructions provided with the optional display module for specific steps on configuring these advanced modes.

Smart Linear compensation,  
Constant voltage and constant current

**NO.1** Positive & Negative Output

**NO.2** Series Boost

**NO.3** Parallel Current Sharing



Figure 3: Multiple MDP-P906 units can be configured for series boost or parallel current sharing to meet diverse power needs.

## 4. MAINTENANCE

### 4.1 General Care

To ensure the longevity and optimal performance of your MDP-P906 module:

- Keep the module in a clean, dry environment, away from excessive dust, moisture, and direct sunlight.
- Avoid exposing the module to extreme temperatures or sudden temperature changes.
- Do not block the ventilation openings. The built-in cooling fan requires clear airflow to dissipate heat effectively.
- Clean the exterior of the module with a soft, dry cloth. Do not use liquid cleaners or solvents.

### 4.2 Firmware Updates

The MDP-P906 supports USB firmware upgrades. Periodically check the manufacturer's website for available firmware updates to ensure your device has the latest features and performance enhancements. Follow the instructions provided with the firmware update package carefully.

# Built-In Silent Cooling Fan

## Instant cooling, Ensure a stable and efficient output!



Figure 4: The MDP-P906 features a built-in silent cooling fan for efficient heat dissipation, ensuring stable operation.

## 5. TROUBLESHOOTING

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If you encounter issues with your MDP-P906 module, refer to the following common troubleshooting steps:

- **No Power/Display:**

- Ensure the input power source is correctly connected and providing the specified voltage (DC 4.2V-30V or PD2.0 20V).
- Check all cable connections for looseness or damage.
- Verify the power source itself is functioning correctly.

- **No Output:**

- Ensure the output is enabled by pressing the 'RUN' button.
- Check if the controls are locked (indicated by 'LOCK' on the display); press 'RUN/LOCK' to unlock.
- Verify that the output cables are correctly connected to the load and the module.
- Check for any active protection functions (e.g., overcurrent, overtemperature) that might have shut down the

output. Address the cause of the protection trigger.

- **Incorrect Output Readings:**

- Ensure the module is properly calibrated. If issues persist, consider a factory reset (refer to advanced settings in the menu).
- Verify the accuracy of your measurement tools.

- **Overheating:**

- Ensure adequate ventilation around the module. Do not block air inlets or outlets.
- Reduce the load if operating continuously at maximum power in a high ambient temperature.

If these steps do not resolve the issue, please contact customer support for further assistance.

## 6. SPECIFICATIONS

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Parameter	Value
Model	MDP-P906
Material	Aluminum Alloy
Input Voltage (DC)	4.2V - 30V (Max. 14A)
Input Voltage (PD2.0)	20V (Max. 5A)
Output Voltage	0V - 30V
Output Current	0A - 10A
Output Power	Max. 300W
Conversion Efficiency	Average 95%
Output Resolution	10mV, 2mA (1mV, 1mA with display module)
Output Accuracy	0.03%+5mV, 0.05%+2mA
Adjust Rate (Load)	<±0.01%
Adjust Rate (Line)	<±0.01%
Ripple Noise	<250uVrms, 3mVpp, 2mArms
Transient Response Speed	<4uS
Item Weight	10.6 ounces (approx. 300g)
Package Dimensions	1.18 x 0.79 x 0.39 inches (approx. 30 x 20 x 10 mm)
Manufacturer	SURRYN

## 7. WARRANTY INFORMATION

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Warranty terms and conditions for the SURRYN MDP-P906 Digital Power Module are provided by the manufacturer or the authorized seller at the time of purchase. Please refer to your purchase documentation or contact the seller directly for specific details regarding warranty coverage, duration, and claims procedures.

## 8. CUSTOMER SUPPORT

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For technical assistance, troubleshooting beyond the scope of this manual, or inquiries regarding your SURRYN MDP-P906 Digital Power Module, please contact your point of purchase or the manufacturer's customer support channels. Have your product model number (MDP-P906) and purchase details ready when contacting support.