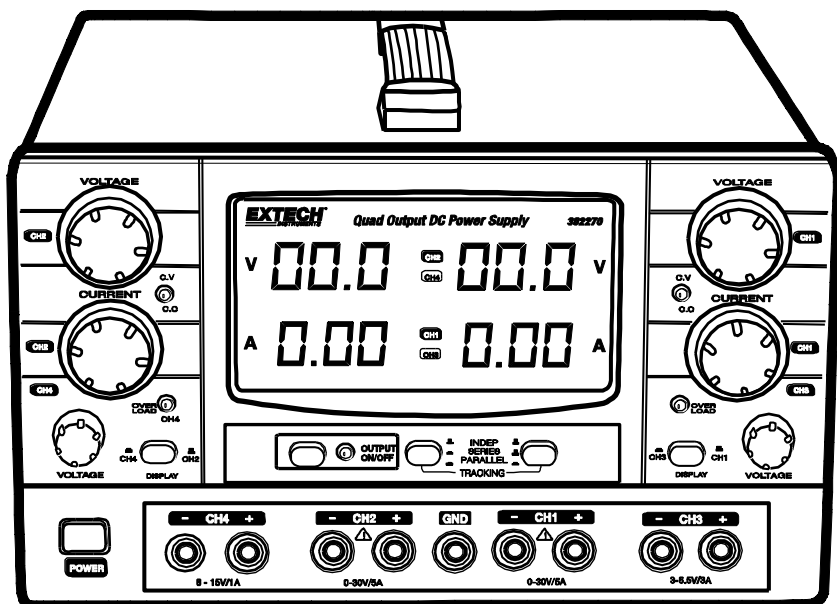


# EXTECH<sup>®</sup>

User Manual

## High Precision Quad Output DC Power Supply

Model 382270



## Introduction

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Thank you for selecting the Extech Model 382270. This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit the Extech Instruments website ([www.extech.com](http://www.extech.com)) to check for the latest version of this User Guide.

## Safety Information

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### International Safety Symbols



This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.



This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present



Double insulation

### Safety Precautions

To ensure safe operation of the equipment and eliminate the danger of serious injury due to short-circuit (arcing), the following safety precautions must be observed.

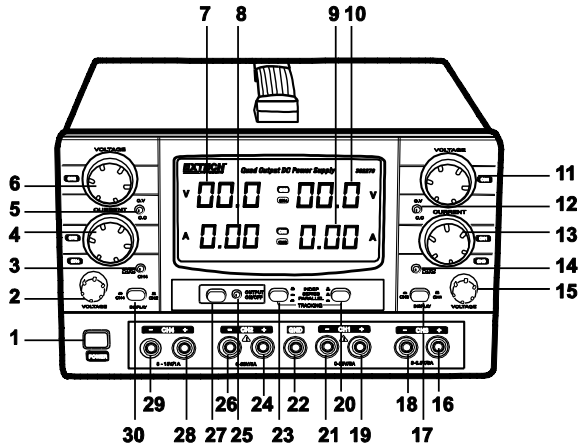
- Prior to connection of the equipment to the mains outlet, check that the available mains voltage corresponds to the voltage setting of the equipment.
- Connect the mains plug of the equipment only to a mains outlet with an earth ground connection.
- Do not place the equipment on damp or wet surfaces.
- Do not subject the equipment to direct sunlight or extreme temperatures.
- Do not subject the equipment to extreme humidity or dampness
- Replace a defective fuse only with a fuse of the original rating. Never short circuit the fuse or the fuse housing
- Do not exceed the maximum permissible input rating.
- Comply with the warning labels and other info on the equipment.
- Do not insert metal objects into the equipment by way of the ventilation slots
- Do not place water-filled containers on the equipment
- Do not operate the equipment near strong magnetic fields (motors, transformer etc.)
- Do not subject the equipment to shocks or strong vibrations
- Keep hot soldering irons away from the equipment
- Allow the equipment to stabilize at room temperature before use
- Do not modify the equipment in any way
- All service and repair must be performed by qualified service personal.

### Cleaning the meter housing

Prior to cleaning the meter housing, disconnect the mains plug from the power outlet. Clean only with a damp, soft cloth and a commercially available mild household cleaner. Ensure that no water gets inside the equipment to prevent possible shorts and damage to the equipment.

## Power Supply Description

1. POWER button
2. Channel 4 Voltage adjustment
3. Channel 4 overload status LED
4. Channel 2 Current adjust knob
5. Constant Current / Voltage status LED for CH 4
6. Channel 2 Voltage adjust knob
7. Voltage output display (CH 2/4)
8. Current output display (CH 2/4)
9. Current output display (CH 1/3)
10. Voltage output display (CH 1/3)
11. Channel 1 voltage output adjust knob
12. Constant Voltage / Current status LED for Channel 1



13. Current output adjust knob for Channel 1
14. Channel 4 overload status LED
15. Voltage output adjust knob for Channel 3
16. Positive terminal CH 3
17. CH1 / CH 3 display select button
18. Negative terminal CH 3
19. Positive terminal CH 1
20. SERIES / PARALLEL / INDEPENDENT tracking select button
21. Negative terminal CH 1
22. GND terminal
23. SERIES / PARALLEL / INDEPENDENT tracking select button
24. Positive terminal CH 2
25. Output ON-OFF status LED
26. Negative terminal CH 2
27. Output ON-OFF button
28. Positive terminal CH 4
29. Negative terminal CH 4
30. CH2 / CH 4 display select button

## **Operation**

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### **Independent Connections (Channels 1 and 2, adjustable outputs)**

Set the tracking switches (20) and (23) to the spring OUT position (INDEP). Set the Output On/Off switch (27) to the ON position.

#### **Constant Voltage (CV) Mode**

1. Rotate the CC knob (4) for CH 2 or (13) for CH 1 to maximum and then turn on the power supply.
2. Adjust CV knob (6) or (11) for the desired output.
3. The color of the CV/CC status LED (5) or (12) will turn green.
4. Current Limiting Note: For CV outputs in general, the CC adjustment should be set to maximum, but, for this unit, the current limiting protection point can also be set arbitrarily. To do so:
  - a) Turn on power
  - b) Rotate CC adjustment counter-clockwise to minimum
  - c) Short the positive and negative terminals
  - d) Rotate the CC adjustment clockwise to the desired current-limiting protection point.

#### **Constant Current (CC) Mode**

1. Turn on the power supply.
2. Rotate the CV knob (6) or (11) to maximum.
3. Rotate the CC adjustment (4) or (13) to minimum
4. Connect the required load.
5. Rotate CC adjust knob clockwise to reach the desired current value.
6. The color of the CV/CC status LED (5) or (12) will turn red.

## Series Connection (Channels 1 and 2, adjustable outputs)

1. Set the tracking switch (20) to the spring OUT position. Press in tracking switch (23).
2. In Series mode, the slave output will strictly track the master output voltage when the user turns the master voltage adjust knob (11). The output voltage in Series mode can be set up to double the maximum voltage available in Independent mode (voltage between terminals 19 & 26).
3. Ensure that both channels' negative terminals are NOT connected to case ground. If they are, a short circuit will occur.
4. When the two outputs are configured in Series, the voltage is controlled by the master output knob (11), but the current adjustment for the two outputs is still independent. Therefore, ensure that the CC adjust knobs (4 and 13) are rotated fully clockwise to maximum for the Series circuit to work correctly.
5. The user must physically short the negative terminal of the Master output (CH1-) with the positive terminal of the Slaved output (CH2+).

## Parallel Connection (Channels 1 and 2 adjustable outputs)

1. Press in both tracking switch (20) and tracking switch (23).
2. In Parallel mode, the two outputs will always be the same for any setting of the master voltage knob (11). The slave CC indicator (5) will switch on.
3. In Parallel mode the CC adjustment (4) for the slave is not active. The user must adjust the CC for the master (CH1) output (13). The current available in parallel mode is up to twice the amount available in other modes.
4. The user must short the two positive terminals. (CH1+ to CH2+)
5. The user must also short the two negative terminals. (CH1- to CH2-)
6. Use CH1 voltage control knob (11) to control the voltage level.
7. Use CH1 CC knob (13) to control current.

## Input Voltage - Switch and Fuse

The input voltage switch is set to 115V from the factory and comes with the F8AL/250V fuse installed. If operating the Power supply with 230V input the fuse must be changed to the F4AL/250V fuse (supplied).

1. Set the Voltage input switch to the desired setting.
2. Insert the correct fuse into the fuse holder based on the input voltage.

115V F8AL/250V 5x20mm

230V F4AL/250V 5x20mm

Remove the fuse from the SPARE fuse holder in the AC input receptacle, as needed.

# Specifications

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## Range Specifications

| Output1<br>(CH1) | Output2<br>(CH2) | Output3<br>(CH3) | Output4<br>(CH4) |
|------------------|------------------|------------------|------------------|
| 0~30V/0~5A       | 0~30V/0~5A       | 3~6.5V/3A        | 8~15V/1A         |

## Electrical Specifications

**Input voltage:** 110~127VAC $\pm$ 10%; 220~240VAC $\pm$ 10% (switchable)

**Output voltage and current:** See table above

### Line regulation:

For Two adjustable outputs:

CV:  $\leq 1 \times 10^{-4} + 3\text{mV}$

CC  $\leq 2 \times 10^{-3} + 3\text{mA}$

Two semi-adjustable outputs:  $\leq 5\text{mV}$

### Load regulation:

Two adjustable outputs:

CV  $\leq 5 \times 10^{-4} + 5\text{mV}$

CC  $\leq 2 \times 10^{-3} + 5\text{mA}$

CH3  $\leq 30\text{mV}$

CH4  $\leq 15\text{mV}$

### Ripple and noise:

Two adjustable outputs:

CV  $\leq 1\text{mV rms}$

CC  $\leq 3\text{mA rms}$

Fixed output:  $\leq 2\text{mV rms}$

### Protection: current-limit

### Display accuracy:

Volt-indication: LED  $\pm (0.5\%\text{rdg} + 2 \text{ digits})$

Amp-indication: LED  $\pm (0.5\%\text{rdg} + 2 \text{ digits})$

## General Specifications

**Display:** Four 3-digit color-coded LED displays and four status LED lights

**Dimensions:** 260 x 160 x 370mm (10.2 x 6.3 x 14.6") (W x H x D)

**Weight:** 12 kg (26.4lbs)

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