



PeakTech P6210 Regulated Double Laboratory Power Supply Instruction Manual

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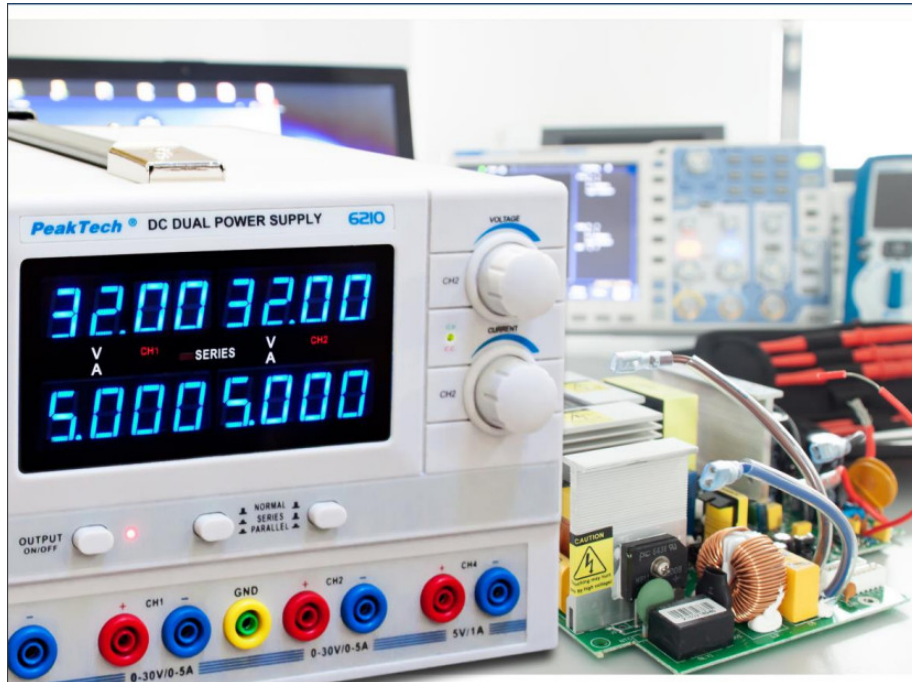
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PeakTech®

P6210

Regulated Double Laboratory Power Supply Instruction Manual



Safety Precautions

This product complies with the requirements of the following directives of the European Union for CE conformity: 2014/30/EU (electromagnetic compatibility), 2014/35/EU (low voltage), and 2011/65/EU (RoHS).

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

Damages resulting from failure to observe these safety precautions are exempt from any legal claims.

- Do not use this instrument for high-energy industrial installation measurement.
- Prior to the connection of the equipment to the mains, 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 connection.
- Do not place the equipment on damp or wet surfaces.
- Check test leads and probes for faulty insulation or bare wires before connection to the equipment.
- Replace a defective fuse only with a fuse of the original rating. Never short-circuit fuse or fuse holding.
- Do not cover the ventilation slots of the cabinet to ensure that air is able to circulate freely inside.
- Do not insert metal objects into the equipment by way of the ventilation slots.
- Do not place water-filled containers on the equipment (danger of short-circuit in case of knock over of the container)
- Do not operate the equipment near strong magnetic fields (motors, transformers, etc.).
- Do not operate the meter before the cabinet has been closed and screwed safely as the terminal can carry voltage.
- Please use only 4mm safety test leads to ensure immaculate function.
- To avoid electric shock, do not operate this product in wet or damp conditions. Conduct measuring works only

in dry clothing and rubber shoes, i. e. on isolating mats.

- Never touch the tips of the test leads or probe.
- Comply with the warning labels and other info on the equipment.
- The measurement instrument is not designed or operated unattended.
- Do not subject the equipment to direct sunlight or extreme temperatures, humidity, or dampness.
- Do not subject the equipment to shocks or strong vibrations.
- Keep hot soldering irons or guns away from the equipment.
- Allow the equipment to stabilize at room temperature before taking up measurements (important for exact measurements).
- Periodically wipe the cabinet with a damp cloth and mild-detergent. Do not use abrasives or solvents.
- The meter is suitable for indoor use only
- Do not store the meter in a place of explosive, inflammable substances.
- Opening the equipment and service – and repair work must only be performed by qualified service personnel
- Do not place the equipment face-down on any table or workbench to prevent damaging the controls at the front.
- Do not modify the equipment in any way
- **-Measuring instruments don't belong to children's hands.-**

Cleaning the cabinet

Prior to cleaning the cabinet, withdraw the mains plug from the power outlet.

Clean only with a damp, soft cloth and a commercially available mild household cleanser. Ensure that no water gets inside the equipment to prevent possible shorts and damage to the equipment.

Introduction

The PeakTech® 6210 is a precision-controlled laboratory power supply with high efficiency. The PeakTech® 6210 has 4 outputs: two variable and two fixed voltage outputs each 5 V/1 A and constant voltage mode, constant current operation, overvoltage protection, and overload protection function.

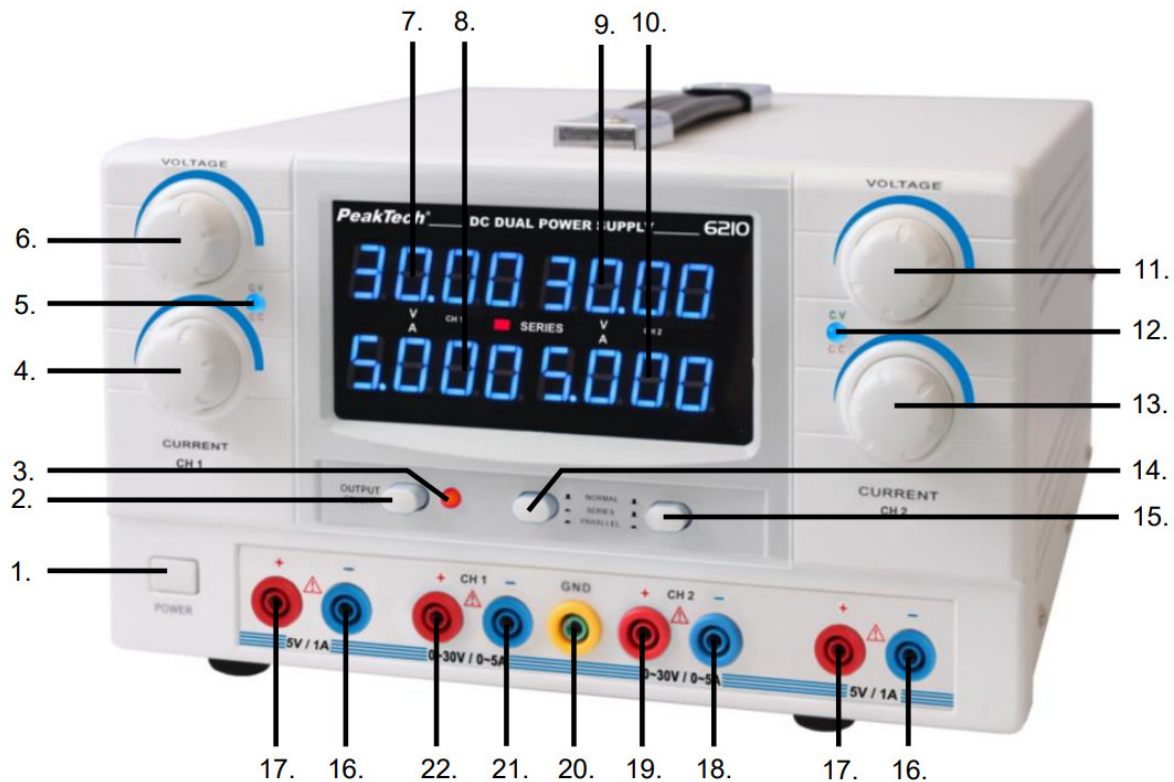
The voltage and current values for the variable outputs are adjusted linearly and can be switched with the aid of the internal circuit automatically in parallel or in series. Thus, in the operation in-series operation the maximum output voltage is 60 V, in parallel operation, the maximum output current is 10 A. This high stability of this power supply for use in schools, training, laboratory, university, and service is suitable.

1.1 Main Features

- 2 adjustable Outputs 0 – 30V
- 2 fixed outputs each 5V / 1A
- Linear Voltage and Current Output Display
- 4 x 4-digit LED displays for Voltage and Current Display
- Low Ripple and Noise
- Current Output Protection
- CV/CC Mode Automatic Changer
- Auto Tracking Output
- Auto Parallel or Series connection
- Doubling Voltage with Series-operation
- Doubling Current with Parallel-operation
- 8 Hours of Continuous Operation with Full Loading
- Rugged Metal Cabinet

To extend the operational life span of the power supply, we recommend you limit the working time under full load to eight hours.

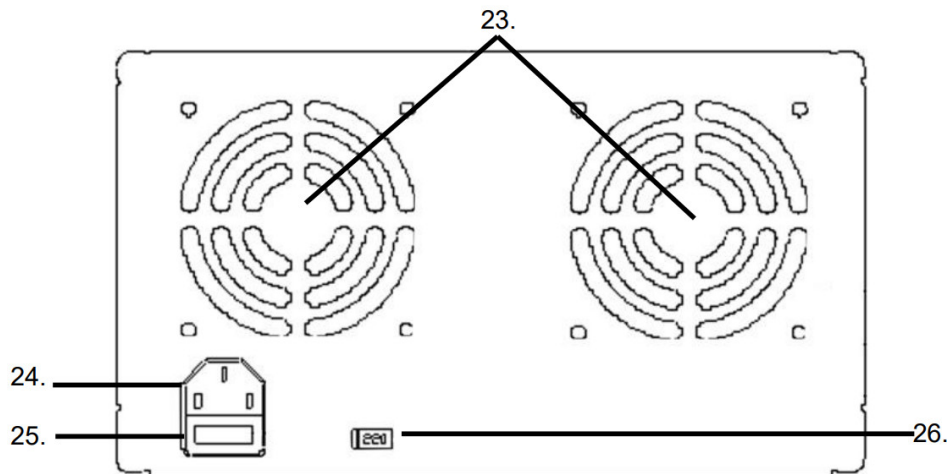
Controls and description



1. **Power-Switch**
2. **AUTO CURRENT CUT-OFF PROTECTION KEY:** After switching on the device, the output is still switched off and the red output LED is off. Turn on the output with this button to apply an output voltage to the jacks. For safety reasons, the output switches off automatically when changing the channel modes. Note: When the output is switched off, the ACTUAL VALUE is displayed, i.e. 0V voltage and 0A current.
3. **OUTPUT INDICATOR:** see[2]
4. **CH1 CURRENT tune knob:** Turn clockwise for increasing the current value; turn anticlockwise for decreasing the current value. When in the SERIES/PARALLEL TRACKING MODE, use this knob to adjust the CH1 current.
5. **CH1 CV/CC (CONSTANT VOLTAGE/CURRENT MODE) INDICATOR:** When CH1 is at the constant voltage mode, this LED light will be a green color. When CH1 is at the current mode and in Parallel Tracking Mode, this LED light will be on as red color.
6. **CH1 VOLTAGE tune knob:** Turn clockwise for increasing the voltage value; turn anticlockwise for decreasing the voltage value. When in the SERIES/PARALLEL TRACKING MODE, use this knob to adjust the CH1 voltage.
7. **CH1 VOLTAGE DISPLAY PANEL:** This display will indicate the CH1 voltage value that will be applied to the circuit.
8. **CH1 CURRENT DISPLAY PANEL:** This display will indicate CH1 current value that will be applied to the circuit.
9. **CH2 VOLTAGE DISPLAY PANEL:** This display will indicate the CH2 voltage value that will be applied to the circuit.
10. **CH2 CURRENT DISPLAY PANEL:** This display will indicate CH2 current value that will be applied to the

circuit.

11. **CH2 Voltage tune knob:** Turn clockwise for increasing the voltage value; turn anti-clockwise for decreasing the voltage value.
12. **CH2 CV/CC (CONSTANT VOLTAGE/CURRENT MODE) INDICATOR:** When CH2 is at the constant voltage mode, this LED light will be a green color. When CH2 is at the current mode and in Parallel Tracking Mode, this LED light will be on as red color.
13. **CH2 Current tune knob:** Turn clockwise for increasing the current value; turn anti-clockwise for decreasing the current value
14. **TRACKING MODE SELECTION KEY:** select NORMAL MODE, SERIES TRACKING MODE, and PARALLEL TRACKING MODE for CH1 and CH2 output. a) To select NORMAL MODE: Release the two keys [14] and [15]; CH1 and CH2 will operate separately.
b) To select SERIES TRACKING MODE: press Key [14] and release key [15], CH2 output voltage will be followed by CH1, connect the circuit to CH1 "+" terminal and CH2 "-" terminal to get double-rated voltage output.
c) To select PARALLEL TRACKING MODE: Press Key [14] and key [15], CH2 output voltage and current will be followed by CH1.
15. **TRACKING MODE SELECTION KEY:** see[14]
16. **"-" output terminal:** Negative terminal of the 5 V fixed voltage outputs
17. **"+" output terminal:** Positive terminal of the 5 V fixed voltage outputs
18. **CH2 "-" TERMINAL:** Negative terminal of 0-30 V adjustable output.
19. **CH2 "+" TERMINAL:** Positive terminal of 0-30 V adjustable output.
20. **GND TERMINAL:** This terminal is connecting to the casing and the Earth.
21. **CH1 "-" TERMINAL:** Negative terminal of 0-30 V adjustable output.
22. **CH1 "+" TERMINAL:** Positive terminal of 0-30 V adjustable output.



23. **VENTILATION FAN:** This fan is used to exhaust heat air from the internal heat sink.
24. **POWER INPUT SOCKET:** Input AC230 V/AC115 V $\pm 10\%$ 50/60 Hz
25. **FUSE SOCKET:** Use a suitable fuse which is stated in Section 3.
26. **INPUT VOLTAGE SELECTOR:** For 115 V AC power systems, please switch the INPUT VOLTAGE SELECTOR switch to the top for 115 V AC power system election. For 230 V AC power systems, please switch the INPUT VOLTAGE SELECTOR switch to the top for 230 V AC power system selection.

Technical Specifications

Input Voltage	115/230 V; 50/60 Hz (switchable); +/-10%
Fuse	115 V: T8 A / 250 V 230 V: T5 A / 250 V
Output Voltage	2 x 0 – 30 V
Output Current	2 x 0 – 5 A
Output Power	300 W max.
Display	LED-Display Voltage display: +/-2,0% + 2 digit Current display: +/-1,0% + 2 digit
Operating Temperature	0°C ... 40°C; < 80% RH
Storage Temperature	-10°C ... + 70°C; < 80% RH
Dimensions (WxHxD)	255 x 150 x 310 mm
Weight	approx. 9 kg
Accessories	Power cord, operation manual

This power supply needs to warm up for 30 minutes to meet the specifications.

Channel 1 and 2

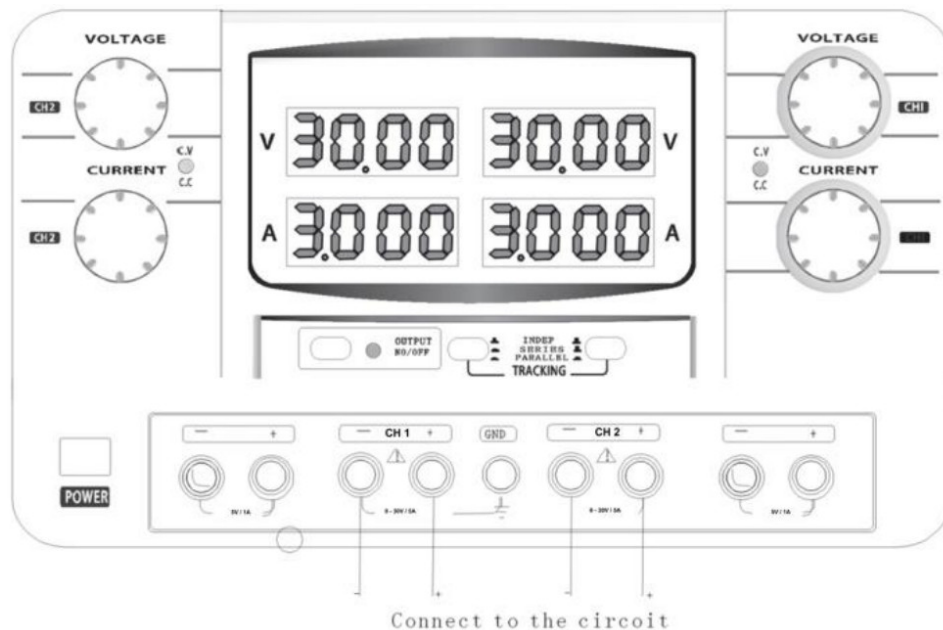
Stability Series-Operation Parallel-Operation	Adjustable outputs (V): $1 \times 10^{-4} + 3 \text{ mV}$ (+/-10% of nominal voltage) Adjustable outputs (A): $2 \times 10^{-3} + 3 \text{ mA}$ < $1 \times 10^{-4} + 3 \text{ mV}$ < $1 \times 10^{-4} + 5 \text{ mV}$
Loading Effect Series-Operation Parallel-Operation Temperature coefficient	Adjustable voltage output: < $2 \times 10^{-4} + 5 \text{ mV}$ (I<3 A) < $2 \times 10^{-4} + 10 \text{ mA}$ (I >3 A) adjustable current output: < $2 \times 10^{-4} + 5 \text{ mA}$ (I<3 A) < $2 \times 10^{-4} + 10 \text{ mA}$ (I >3 A) < $2 \times 10^{-4} + 5 \text{ mV}$ (I<3 A) < $2 \times 10^{-4} + 10 \text{ mA}$ (I>3 A) < 300 mV 300 ppm/°C
Ripple and Noise	<1 mVrms / < 3 mArms
Overload protection	Current limitation circuit

Ficed Voltage Outputs

Voltage Range	5,0 V (+/-8%)
Current Range	1 A fixed
Stability	< 5 mV
Loading Effect	< 15 mV
Ripple and Noise	< 15 mVrms

Operation

4.1. Setting the Output Voltage of CH1 and CH2



1. Connect the power supply to the power source.
2. Press the POWER SWITCH [1] to turn on the power supply.
3. Press AUTO CURRENT CUT OFF PROTECTION KEY [2] to activate output and the OUTPUT INDICATOR [3] will on.
4. To set CH1, use the CH1 VOLTAGE TUNE KNOB [6] to adjust the CH1 voltage to give the desired output voltage.
5. Connect the circuit to the TERMINALS [21,22]
6. When the CH1 CV/CC INDICATOR [5] is in red color, adjust the CH1 CURRENT TUNE KNOB [4] to give a suitable current.
7. To set CH2 voltage, repeat the above steps using CH2 VOLTAGE TUNE KNOB [11], short MAIN TERMINAL [18,19], and CH2 CV/CC INDICATOR [12] instead.

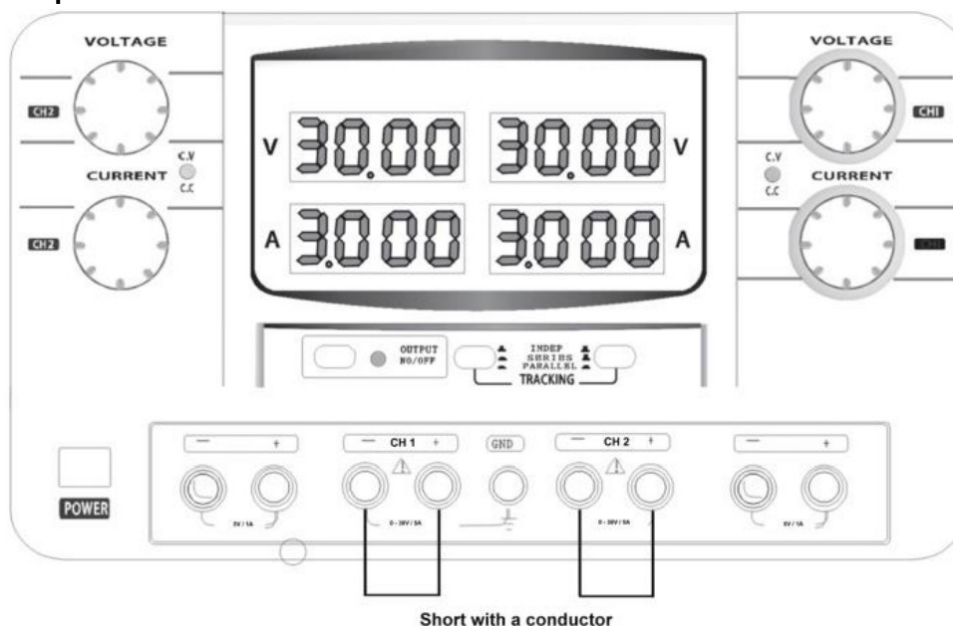
Remarks:

- If CH2 cannot be adjusted, check the TRACKING MODE SELECTION KEY [14, 15] is not pressed.
- If want to preset a desired current output before connecting to the circuit, read Section 4.2 first.

Caution:

- Make sure the INPUT VOLTAGE SELECTOR [26] is set to the correct position Otherwise; it will damage the power supply.
- Do not short the MAIN TERMINALS over 1 minute; it will damage the power supply.

4.2. Setting the Output Current of CH1 and CH2



1. Turn the power supply on
2. Refer to Section 4.1 step 1-4 to give the voltage around 2-5V
3. For CH1, turn the CH1 CURRENT TUNE KNOB [4] anticlockwise to reach the minimum current value.
4. Short the + and the – MAIN TERMINAL [21,22] with a conductor which is cross section area not less than 0.5mm
5. Ensure the output indicator is on. Otherwise, press the AUTO CURRENT CUT OFF PROTECTION KEY [2].
Then the CH1 CV/CC INDICATOR [5] will turn to red color.
6. Adjust the CH1 CURRENT KNOB [4] to give the desired output current.
7. Repress the AUTO CURRENT CUT OFF PROTECTION KEY [2] to Cut off the output.
8. Then the CH1 CV/CC INDICATOR [5] will turn a green color.
9. Remove the conductor from the MAIN TERMINAL [21,22]
10. Set the desired voltage.
11. Connect the circuit to the MAIN TERMINAL [21,22]
12. To setting CH2 current, repeat the above steps, use CH2 CURRENT TUNE KNOB [13], short MAIN TERMINAL [18,19], and CH2 CV/CC INDICATOR [12] instead.

Remarks:

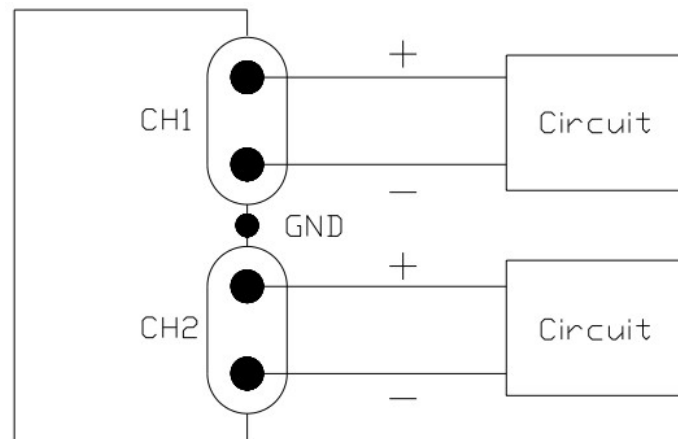
The conductor is not provided

Caution:

- Ensure the current is set to zero before shorting the MAIN TERMINALS. Otherwise, it will damage the power supply.
- Do not short the MAIN TERMINALS over 1 minute; it will damage the power supply.

4.3. Setting Normal Mode

1. Release both TRACKING MODE SELECTION KEY [14, 15].
2. In independent mode, CH1 and CH2 are two independent power supply units, voltage or current can be adjusted separately.
3. Adjust CH1 or CH2 VOLTAGE/CURRENT KNOB [4, 6 / 11, 13] to set the desired value.
4. Connect the circuit to the CH1 or CH2 terminals.

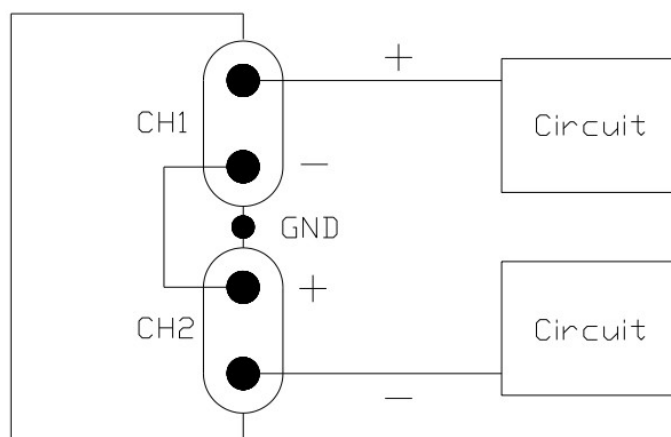


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Illustration of independent mode

4.4 Setting Series Tracking Mode

1. Press the TRACKING MODE SELECTION KEY [14] and release the TRACKING MODE SELECTION KEY [15] to enable series tracking mode. In series tracking mode, CH2 output voltage and current value follow the CH1 setting. The output voltage is double the CH1 display value.



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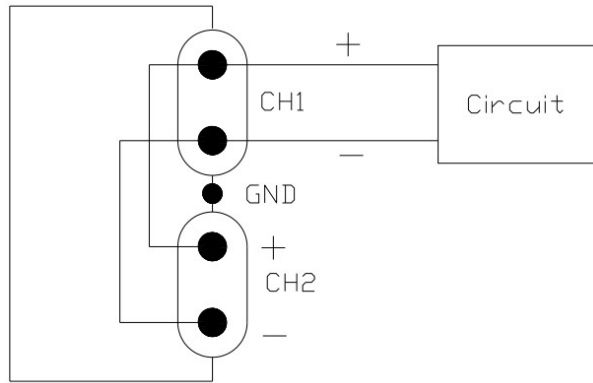
Illustration of series tracking mode

2. Turn CH2 CURRENT KNOB [13] clockwise to maximum current output, and then use CH1 CURRENT KNOB [4] to adjust the desired current output value. (Reference to Section 4.2)
3. Use CH1 VOLTAGE KNOB [6] to adjust the desired voltage output value.
4. Connect the circuit to the CH1 "+" TERMINAL [22] and CH2 "-" TERMINAL [18] to get double voltage output.

4.5. Setting Parallel Tracking Mode

1. Press both TRACKING MODE SELECTION KEY [14,15] to enable parallel tracking mode. In parallel tracking

mode, CH2 output voltage and current value follow the CH1 setting. The output current is double the CH1 display value.



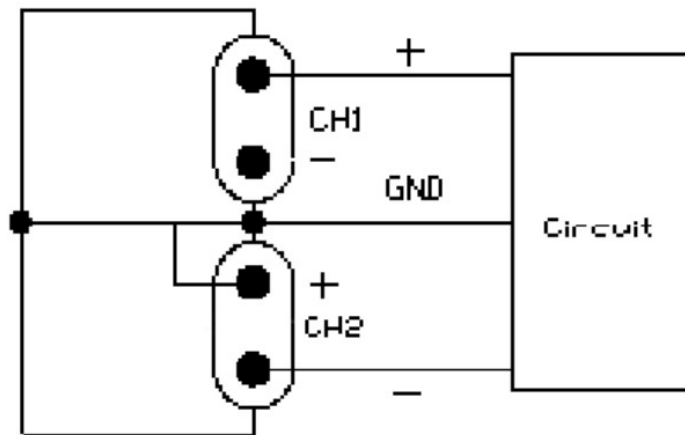
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Illustration of Parallel Tracking Mode

2. Use CH1 VOLTAGE KNOB [6] to adjust the desired voltage output value.
3. CH1 CURRENT KNOB [13] adjusts the desired current output value. (Section 4.2)
4. Connect the circuit to the CH1 TERMINAL [21,22] to get double the current output.

4.5.1 Operating as a Bipolar DC Power Supply

5. For the bi-polar DC power supply with common ground, connect CH2 + TERMINAL [19] to "GND" GROUNDING TERMINAL [20]. CH1 "+" TERMINAL [22] now is the negative output. CH2 "+" TERMINAL [19] is in common with the GROUNDING TERMINAL GND the positive output. CH2 "-" [18] is still the negative output.



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Illustration of Bi-Polar Tracking Mode

4.6. Caution!

5 V output has reliable protection for current-limit and short. The two adjustable outputs have current limit protection. As there is a controlling circuit for regulating the transistor's power loss in the circuit, when short-circuit occurs, the power loss on large power transistors is not very high, it can't cause any damage to the unit. But there is still power loss when short-circuit, in order to reduce aging and energy consumption, so this situation should be found as soon as possible and turn off the power, then exclude the faults.

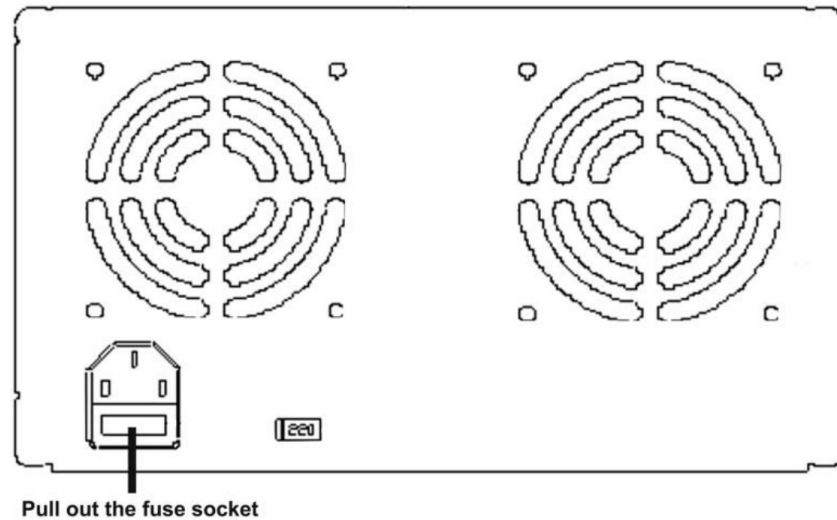
When operating is finished, put it in a dry place of good ventilation, and keep it clean. If it is not in use for a long period, pull off the power supply plug for storage.

For maintenance, the input voltage must be cut off.

Fuse Replacement

Caution:

- Ensure that no power is connected to the power supply; otherwise, electrical shock may occur.
- Do not apply excessive force on the fuse socket, or it may be damaged.



1. Disconnect all power connections.
2. Locate the fuse socket at the rear panel power socket.
3. Replace the fuse with an identical rating.
Fuse: 115 V = 6 A/250 V 5 x 20 mm; 230 V = 4 A/250 V 5 x 20 mm
4. Reinstall the fuse socket. (Re-push the fuse socket to the power socket.)

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This manual is according to the latest technical knowledge. Technical alterations reserved.

We herewith confirm that the units are calibrated by the factory according to the specifications as per the technical specifications.

We recommend calibrating the unit again, after 1 year.

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Documents / Resources



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Manuals+.