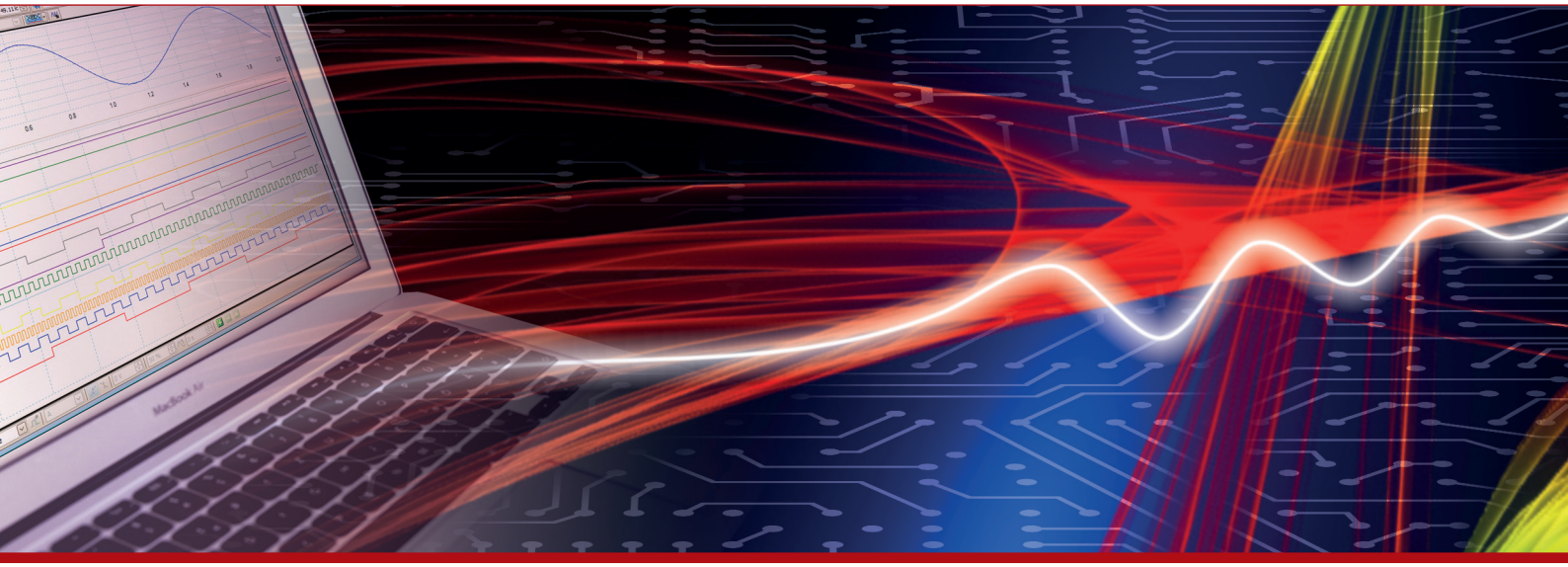
Product Datasheet - Technical Specifications



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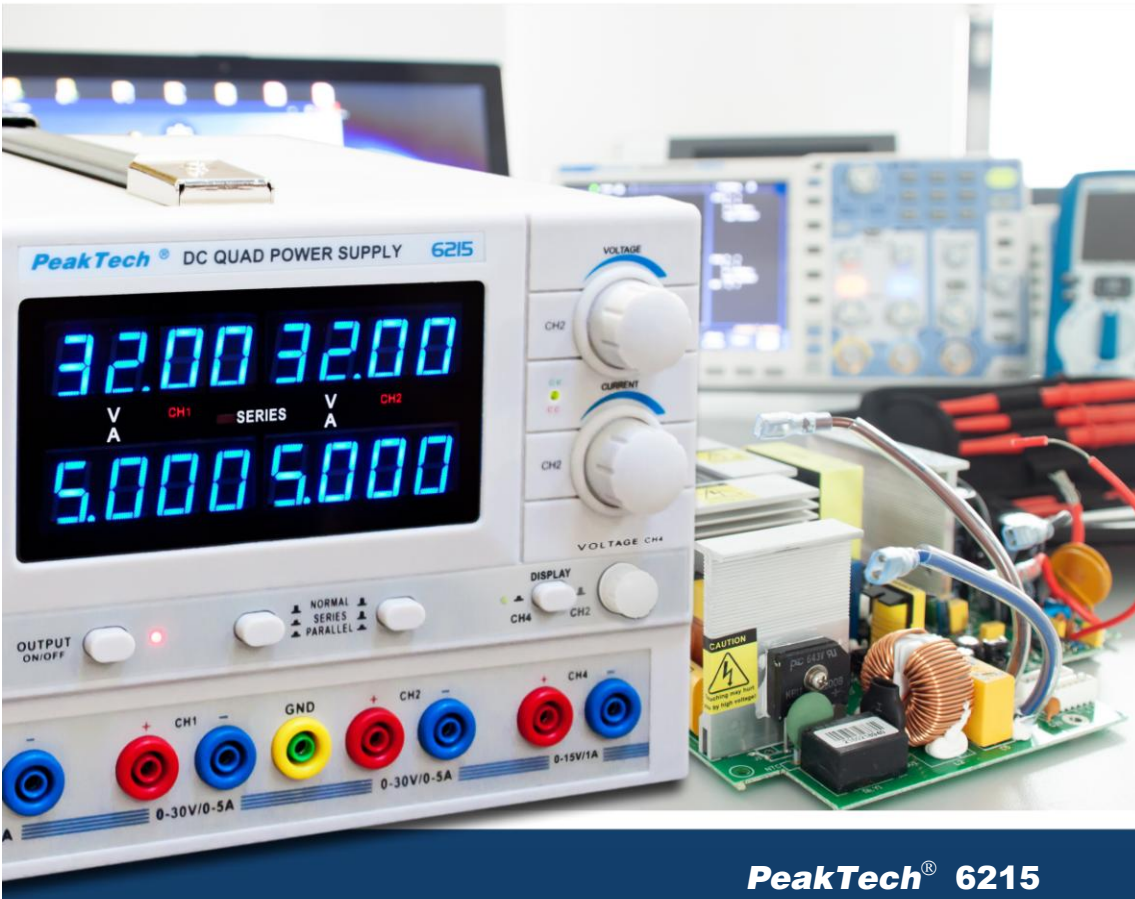


***PeakTech®* 6215**

Bedienungsanleitung / Operation manual

Stabilisiertes 4-Kanal-Labornetzgerät / Regulated 4 Channel Laboratory Power Supply

1. Safety Precautions

This product complies with the requirements of the following European Community Directives: 2014/30/EU (Electromagnetic Compatibility) and 2014/35/EU (Low Voltage) as amended by 2014/32/EU (CE-Marking).

To ensure 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 whatever.

* Do not use this instrument for high-energy industrial installation measurement.
* Prior to 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 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 knockover 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 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 to be to 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 measurement (important for exact measurements).
* Periodically wipe the cabinet with a damp cloth and mid 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 work bench to prevent damaging the controls at the front.
* Do not modify the equipment in any way
* -**Measuring instruments don't belong to children 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.

2. Introduction

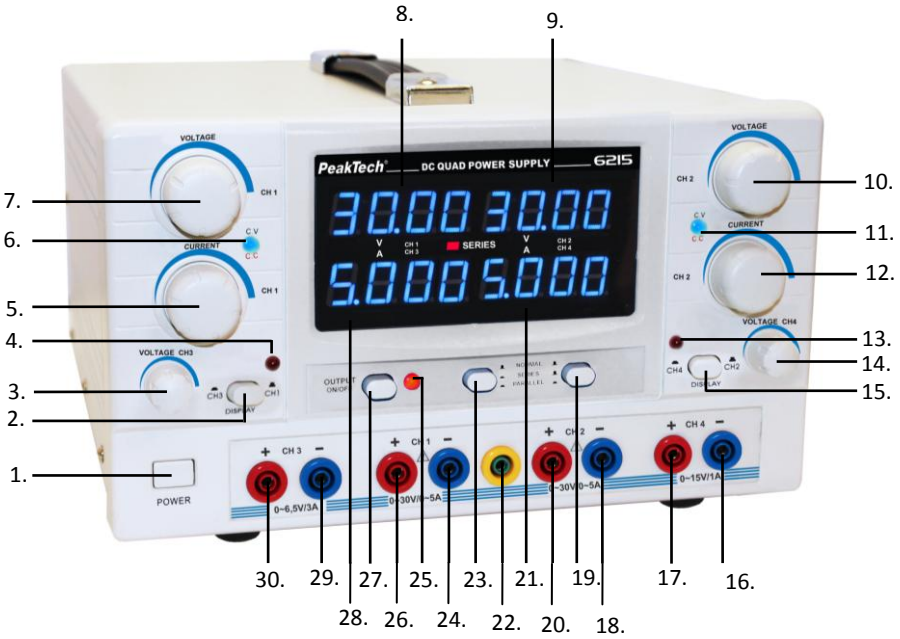
The ***PeakTech*** ® 6215 is a precision-controlled laboratory power supply with high efficiency. The ***PeakTech*** ® 6215 features four outputs: two variable outputs 0 V - 30 V with current limiting function and two outputs with 0 V - 6.5 V/3 A; 0 V - 15 V/1 A. Additionally, the power supply provides a constant voltage mode, constant current operation mode, 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, the operation in series mode has the maximum output voltage of 60 V, in parallel-operation, the maximum output current is 10 A.
The high stability of this power supply is suitable for use in schools, training, laboratory, university, and service.

1.1 Main Features

- 4 adjustable Channels
- 0-30 V Linear Voltage and Current Output Display
- 4 x 4 digit LED displays for Voltage and Current Output Display
- Low Ripple and Noise
- Voltage and Current Pre-set Feature
- Overload 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 Continuous Operation with Full Loading
- Rugged Metal Cabinet

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

3. Controls and description



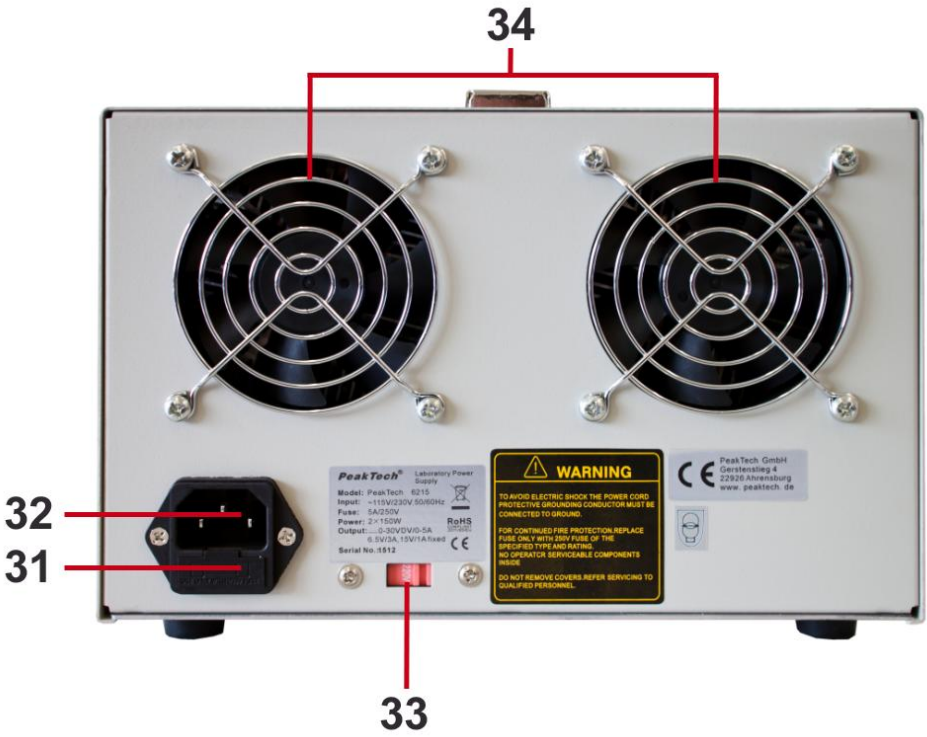
1. **POWER SWITCH:** Press it to power on/off the power supply.
2. **CH1/CH3 DISPLAY SWITCH:** Press it to select display CH3 voltage/current values or release to select display CH1 voltage/current values.
3. **CH3 VOLTAGE TUNE KNOB:** Turn clockwise for increasing the voltage value; turn anti-clockwise for decreasing the voltage value.
4. **CH3 OVERLOAD INDICATOR:** When CH3 is at the constant current mode, this LED light will be on.
5. **CH1 CURRENT TUNE KNOB:** Turn clockwise for increasing the current value; turn anti-clockwise for decreasing the current value.
6. **CH1 CV/CC (CONSTANT VOLTAGE/CURRENT MODE) INDICATOR:** When CH1 is at the constant voltage mode, this LED light will be on as green color. When CH1 is at the current mode and in Parallel Tracking Mode, this LED light will be on as red color.
7. **CH1 VOLTAGE TUNE KNOB:** Turn clockwise for increasing the voltage value; turn anti-clockwise for decreasing the voltage value. When in SERIES/PARALLEL TRACKING MODE, use this knob to adjust CH2 voltage.
8. **CH1/CH3 VOLTAGE DISPLAY PANEL:** This display will indicate CH1 or CH3 current value that will be applied to the circuit.
9. **CH2/CH4 VOLTAGE DISPLAY PANEL:** This display will indicate CH2 or CH4 voltage value that will be applied to the circuit.
10. **CH2 VOLTAGE TUNE KNOB:** Turn clockwise for increasing the voltage value; turn anti-clockwise for decreasing the voltage value.
11. **CH2 CV/CC (CONSTANT VOLTAGE/CURRENT MODE) INDICATOR:** When CH2 is at the constant voltage mode, this LED light will be on as green color. When CH2 is at the current mode and in Parallel Tracking Mode, this LED light will be on as red color.
12. **CH2 CURRENT TUNE KNOB:** Turn clockwise for increasing the current value; turn anti-clockwise for decreasing the current value.

13. **CH4 OVERLOAD INDICATOR:** When CH4 is at the constant current mode, this LED light will be on.
14. **CH4 VOLTAGE TUNE KNOB:** Turn clockwise for increasing the voltage value; turn anti-clockwise for decreasing the voltage value.
15. **CH2/CH4 DISPLAY SWITCH:** PRESS it to select display CH4 Voltage/current value or release to select display CH2 voltage/current value.
16. **CH4 "-"TERMINAL:** Negative terminal of 0-15V adjustable output.
17. **CH4 "+"TERMINAL:** Positive terminal of 0-15V adjustable output.
18. **CH2 "-"TERMINAL:** Negative terminal of 0-30V adjustable output.
19. **TRACKING MODE SELECTION KEY**: see[23]
20. **CH2 "+"TERMINAL:** Positive terminal of 0-30V adjustable output.
21. **CH2/CH4 CURRENT DISPLAY PANEL:** This display will indicate CH2 or CH4 current value that will be applied to the circuit
22. **GND GROUNDING TERMINAL:** This terminal is connecting to the casing and the Earth.
23. **TRACKING MODE SELECTION KEY:** this key is operated with key [19] to select INDEPENDENT MODE, SERIES TRACKING MODE and PARALLEL TRACKING MODE for CH1 and CH2 output.

    a) To select **INDEPENDENT MODE**: Release these two keys; CH1 and CH2 will operate separately.

    b) To select **SERIES TRACKING MODE** : press Key[19] and release key[23], 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 [19] and key [23], CH2 output voltage and current will be followed by CH1, connecting the circuit to CH1 will get 0-30V and double rated current output.
24. **CH1 "-"TERMINAL:** Negative terminal of 0-30V adjustable output.
25. **OUTPUT INDICATOR**
26. **CH1 "+"TERMINAL:** Positive terminal of 0-30V adjustable output.
27. **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.
28. **CH2/CH4 CURRENT DISPLAY PANEL**: This display will indicate CH2 or CH4 current value that will be applied to the circuit.
29. **CH3 "-" TERMINAL:** Negative terminal of 0-6.5V adjustable output
30. **CH3 "+" TERMINAL:** Positive terminal of 0-6.5V adjustable output



31. FUSE SOCKET: Use suitable fuse which is stated in section “Technical Specifications”
32. POWER INPUT SOCKET: Input AC230 V/AC115 V ±10% 50/60 Hz
33. 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 selection. For 230 V AC power systems, please switch the INPUT VOLTAGE SELECTOR switch to the top for 230 V AC power system selection.
34. VENTILATION FAN: This fan is used to exhaust heat air from internal heat sink.

4. Technical Specifications

Input Voltage	115/230 V; 50/60 Hz (switchable); +/-10%
Fuse	115 V: T6 A / 250 V 230 V: T4 A / 250 V
Output Voltage	0 – 30 V
Output Current	0 – 5 A
Output Power	300 W max.
Digital Display	LED-Display Voltage Display: +/-2,0% + 2 digits Current Display: +/-1,0% + 2 digits
Operation Temperature	0°C … 40°C; < 80% RH
Storage temperature	-10°C … + 70°C; < 80% RH
Dimensions(WxHxD)	255 x 150 x 310 mm
Weight	ca. 9 kg
Accessories	Power cord, Operation manual

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

Channel 1 and 2

Stability	CV-Mode CH1 and CH2: $< 1 \times 10^{-4}$ + 3mV (+/-10% of Nom. Voltage) CC-Mode CH1 and CH2: $< 2 \times 10^{-3}$ + 3mA
Series-Operation	$< 1 \times 10^{-4}$ + 3mV
Parallel-Operation	$< 1 \times 10^{-4}$ + 5mV
Loading Effect	CV-Mode CH1 und CH2: $< 2 \times 10^{-4}$ + 5 mV (I<3 A) $< 2 \times 10^{-4}$ + 10mV (I>3 A) CC-Mode CH1 und CH2: $< 2 \times 10^{-3}$ + 5 mA
Temperature coefficient	300 ppm/°C
Series-Operation	$< 2 \times 10^{-4}$ + 5 mV (I<3 A) $< 2 \times 10^{-4}$ + 10 mV (I>3 A)
Parallel-Operation	< 300 mV
Ripple and Noise	$< 1\ mV_{rms}$ / $< 3\ mA_{rms}$
Overload protection	Current limitation circuit

Chanel 3

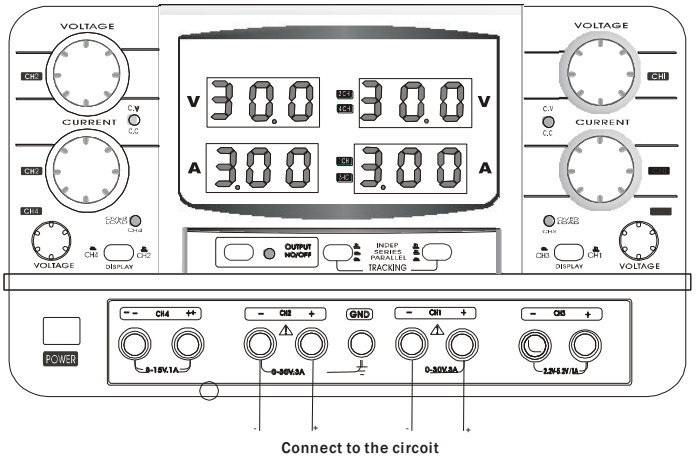
Voltage Range	0 V … 6,5 V (+/-8%)
Current Range	0 – 3 A
Stability	< 5 mV
Loading Effect	< 15 mV
Ripple and Noise	$< 2\ mV_{rms}$

Channel 4

Voltage Range	0 V … 15 V (+/-8%)
Current Range	0 – 1 A
Stability	< 5 mV
Loading Effect	< 15 mV
Ripple and Noise	$< 2\ mV_{rms}$

5. Operation

5.1. 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** [27] to activate output. The **OUTPUT INDICATOR** [25] will light up.
4. For setting CH1, use the **CH1 VOLTAGE TUNE KNOB** [7] to adjust CH1 voltage and get the desired output voltage.
5. Connect the circuit to the **TERMINALS** [24,26]
6. When the **CH1 CV/CC INDICATOR** [6] is in red color, adjust the **CH1 CURRENT TUNE KNOB** [19] to give a suitable current.
7. For setting CH2 voltage, repeat the above steps using **CH2 VOLTAGE TUNE KNOB** [10], short **MAIN TERMINAL** [18, 20] and look at the **CH2 CV/CC INDICATOR** [11] instead.

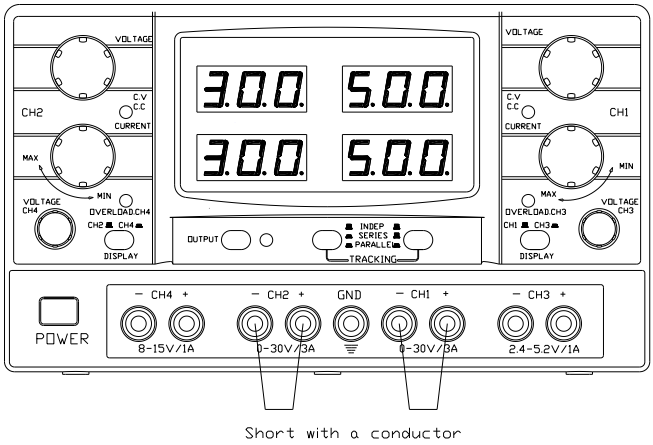
Remarks:

- If CH2 cannot be adjusted, check the **TRACKING MODE SELECTION KEY** [19, 23] is not pressed.
- If you want to preset a desired current output before connecting to the circuit, read Section 5.2 first.

Caution:

- Make sure the **INPUT VOLTAGE SELECTOR** [33] set to a correct position Otherwise; it will damage the power supply.
- Do not short the MAIN TERMINALS over 1 minute; it will damage the power supply.

5.2. Setting the Output Current of CH1 and CH2



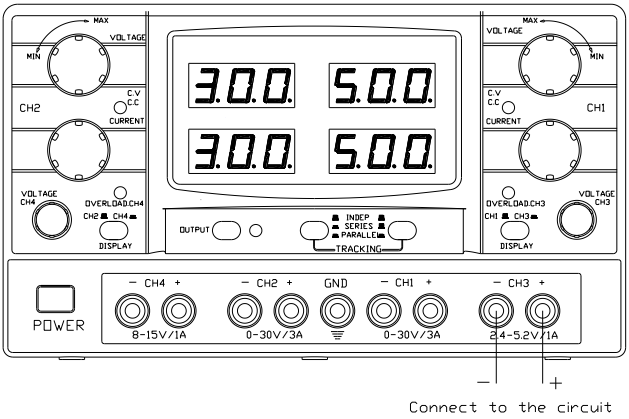
1. Turn to the power supply
2. Refer to Section 5.1 step 1-4 to give the voltage around 2-5 V
3. For CH1, turn the **CH1 CURRENT TUNE KNOB** [5] anticlockwise reach the minimum current value.
4. Short the + and the - **MAIN TERMINAL** [26, 24] with a conductor which is cross section area not less than 0.5mm^2.
5. Ensure the output indicator is on. Otherwise, press the **AUTO CURRENT CUT OFF PROTECTION KEY** [27].Then the **CH1 CV/CC INDICATOR** [6] will turn to red color.
6. Adjust the **CH1 CURRENT KNOB** [5] to give a desired output current.
7. Repress the **AUTO CURRENT CUT OFF PROTECTION KEY** [27] to Cut off the output.
8. Then the **CH1 CV/CC INDICATOR** [6] will turn to green color.
9. Remove the conductor the **MAIN TERMINA**L [26,24]
10. Set the desired voltage.
11. Connect the circuit to the **MAIN TERMINA**L [26,24]
12. To setting CH2 current, repeat the above steps, use **CH2 CURRENT TUNE KNOB** [12], short **MAIN TERMINAL** [20, 18] and look at the **CH2 CV/CC INDICATOR** [11] 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.

5.3. Setting CH3 Voltage Output



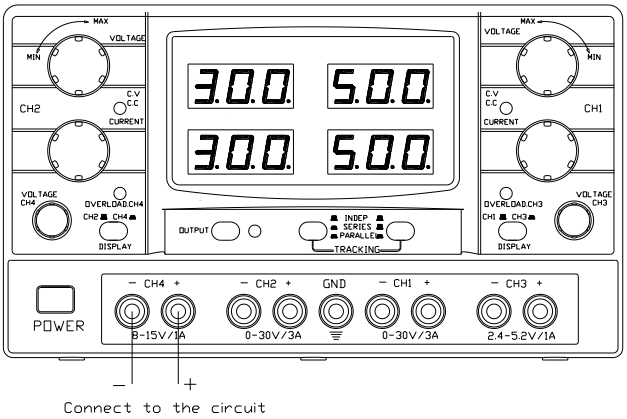
1. Connect the power supply to the power source.
2. Press the **POWER SWITCH** [1] to turn on the power supply
3. Press **CH1/CH3 DISPLAY SWITCH** [2] to select display CH3 voltage and current value. When display CH3 value, the "CH3" icon will on.
4. Press **AUTO CURRENT CUT OFF PROTECTION KEY** [27] to activate output and the **OUTPUT INDICATOR** [25] will on.
5. Use the **CH3 VOLTAGE KNOB** [3] to adjust CH3 voltage to give a desired output voltage.
6. Connect the circuit to the **CH3 TERMINAL** [30, 29].
7. When the **CH3 OVERLOAD INDICATOR** [4] is on, remove some loading on the terminal to reduce current consumption.

Remarks:
Current output is fixed to 3 A, not adjustable.

Caution:

- Make sure the **INPUT VOLTAGE SELECTOR** [33] set to a correct position Otherwise; it will damage the power supply.
- Do not short the MAIN TERMINALS over 1 minute; it will damage the power supply.

5.4. Setting CH4 Voltage Output



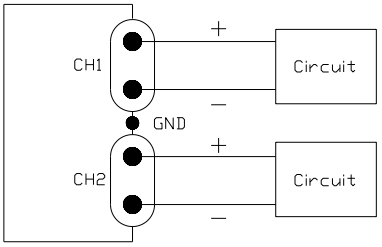
1. Connect the power supply to the power source.
2. Press the **POWER SWITCH** [1] to turn on the power supply
3. Press **CH2/CH4 DISPLAY SWITCH** [15] to select display CH4 voltage and current value. When display CH4 value, the “CH4” icon will on .
4. Press AUTO CURRENT CUT OFF **PROTECTION KEY** [27] to activate output and the **OUTPUT INDICATOR** [25] will on.
5. Use the **CH4 VOLTAGE KNOB** [14] to adjust CH4 voltage to give a desired output voltage.
6. Connect the circuit to the **CH4 TERMINAL** [17, 16].
7. When the **CH4 OVERLOAD INDICATOR** [13] is on, remove some loading on the terminal to reduce current consumption.

Remarks:
Current output is fixed to 1A, not adjustable.

Caution:
- Make sure the **INPUT VOLTAGE SELECTOR [33]** set to a correct position , otherwise; it will damage the power supply.
- Do not short the MAIN TERMINALS over 1 minute; it will damage the power supply.

5.5. Setting Normal Mode

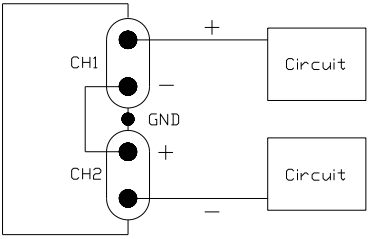
1. Release both **TRACKING MODE SLECTION KEY [23, 19]**.
2. In independent mode, CH1 and CH2 are two independent power supply units, voltage or current can be adjusted separately.
3. Adjust **CH1 or CH2 VOLTAGE/CURRENT KNOB [7, 5/10, 12]** to set the desired value.
4. Connect the circuit to the CH1 or CH2 terminals.



Regulated
DC Power Supply
Illustration of independent mode

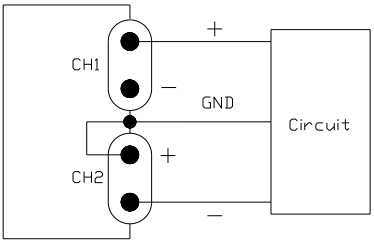
5.6. Setting Series Tracking Mode

1. Press **TRACKING MODE SLECTION KEY** [23] and release **TRACKING MODE SLECTION KEY** [19] to enable series tracking mode. In series tracking mode, CH2 output voltage and current value follows CH1 setting. The output voltage is double to the CH1 display value.



Regulated
DC Power Supply
Illustration of series tracking mode

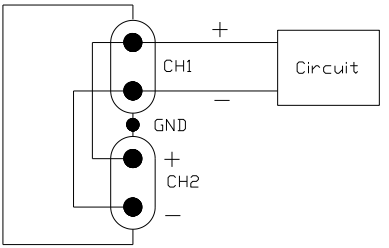
2. Turn **CH2 CURRENT KNOB [12]** clockwise to maximum current output, and then use **CH1 CURRENT KNOB** [5] adjust the desired current output value.(Reference to Section 5.2)
3. Use **CH1 VOLTAGE KNOB [7]** to adjust the desired voltage output value.
4. Connect the circuit to the **CH1 "+"TERMINAL [26]** and **CH2"-"TERMINAL [24]** to get double voltage output.
5. For the bi-polar DC power supply with common ground, connect **CH2 "+" TERMINAL [20]** to **"GND" GROUNDING TERMINAL [22]**. **CH1 "+"TERMINAL [26]** is the positive output and **CH2 "-"TERMINAL [18]** is the negative output.



Regulated
DC Power Supply
Illustration of Bi-Polar Tracking Mode

5.7. Setting Parallel Tracking Mode

1. Press both **TRACKING MODE SLECTION KEY [23, 19]** to enable parallel tracking mode .In parallel tracking mode, CH2 output voltage and current value follows CH1 setting. The output current is double to the CH1 display value.
2. Use **CH1 VOLTAGE KNOB [7]** to adjust the desired voltage output value.
3. **CH1 CURRENT KNOB [12]** adjust the desired current output value.(Reference to Section 4.2)
4. Connect the circuit to the **CH1 TERMINAL [26, 24**] to get double current output.



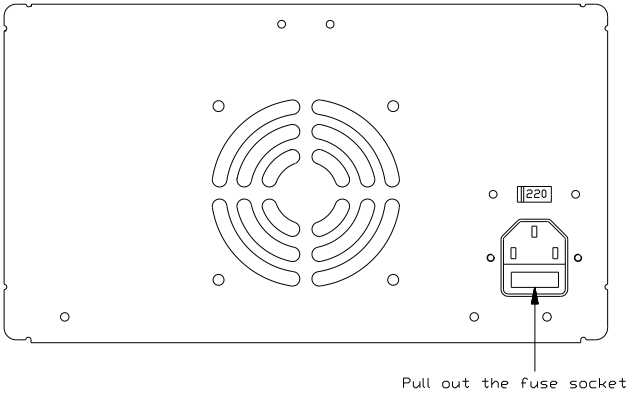
Regulated
DC Power Supply

Illustration of Parallel Tracking Mode

6. Fuse Replacement

Caution:

- Ensure no power is connected to the power supply; otherwise, electrical shock may occur.
- Do not over push the fuse socket, or the fuse socket may be damaged.



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

This manual is according the latest technical knowing. 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 to calibrate the unit again, after 1 year.