PeakTech 6095 Switching Mode Power Supply Instruction Manual

Contents

PeakTech

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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), 2011/65/EU (RoHS). To ensure safe operation of the equipment and eliminate the danger of serious injury due to shortcircuits (arcing), the following safety precautions must be observed. Damages resulting from failure to observe the safety precautions are exempt from any legal claims whatever.

- Prior to connection of the equipment to the main outlet, check that the available mains voltage corresponds to the voltage setting of the equipment.
- Connect the main plugs of the equipment only to a mains outlet with earth connection.
- To avoid electrical shock, do not operate this product in wet or damp conditions.
- Do not cover the ventilation slots of the cabinet to ensure that the 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 know-over 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.
- Replace a defective fuse only with a fuse of the original rating. Never short-circuit fuse or fuse holding.
- Check the test leads and probes for faulty insulation or bare wires before connection to the equipment.
- Please use only 4mm-safety test leads to ensure immaculate function.
- Conduct measuring works only in dry clothing and rubber shoes, i. e. on isolating mats.
- Comply with warning labels and other info on the equipment.
- The measurement instrument is not to be 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 stabilise 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 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 modify the equipment in any way.
- The cable cross-section of the connecting cables used must output side at least 2.5 mm^2, the cable length should not exceed 3m.
- 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.

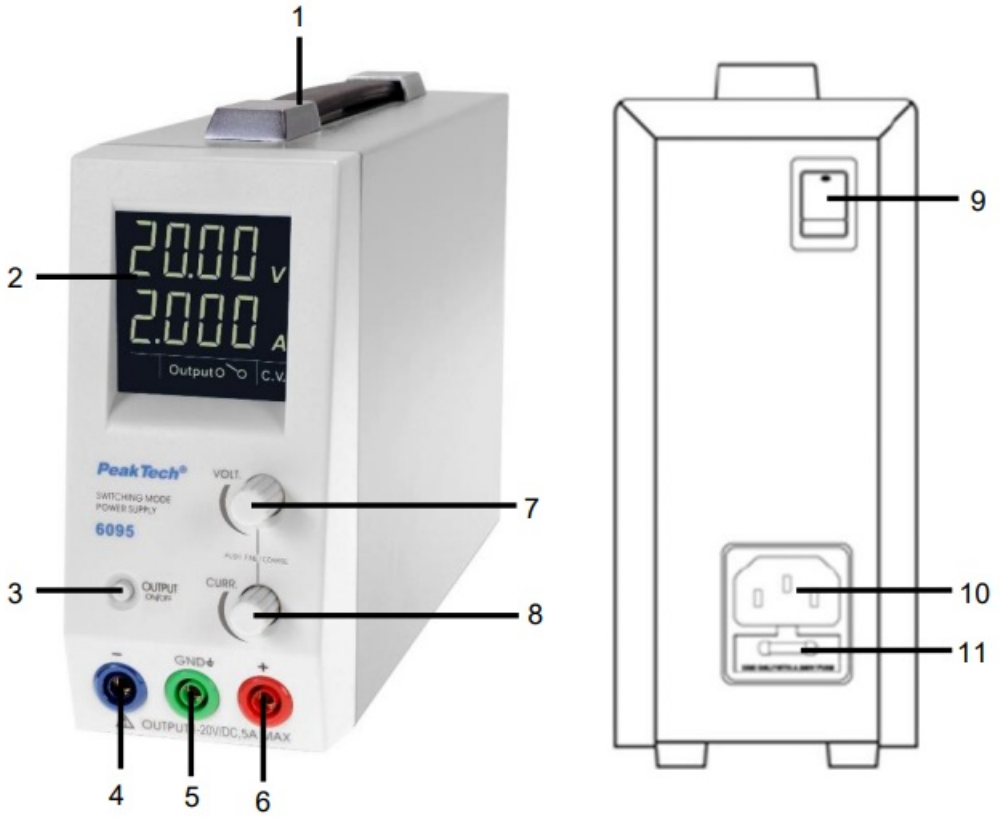
Operation environmental condition

- 10-80% R.H
- Maximum relative humidity 80% for temperature up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Altitude up to 2000 m
- Installation category: CAT II
- Pollution degree: 2
- Mains supply voltage fluctuation up to ±10% of the normal voltage

Introductions

This of 100W Switching Mode Power Supply with Current Limiting Control is designed with the objectives of high accuracy, compactness and easy portability. Wire wound potentiometers are used for voltage and current control. 4-digit display LCD of voltage and current for high precision, so you can even make settings in the milliampere range. These devices have a fanless design and are appropriate for daily use at work. Through the handy design and the high performance, these power supplies are best suited for the use in education, service and industrial sector.

Controls and Indicators



1. Handle grip
2. LCD Display panel showing 4 digit voltage, current meter,(CV) constant voltage mode, (CC)the constant current mode, Output Terminal on/off state
3. Output On/Off push button 

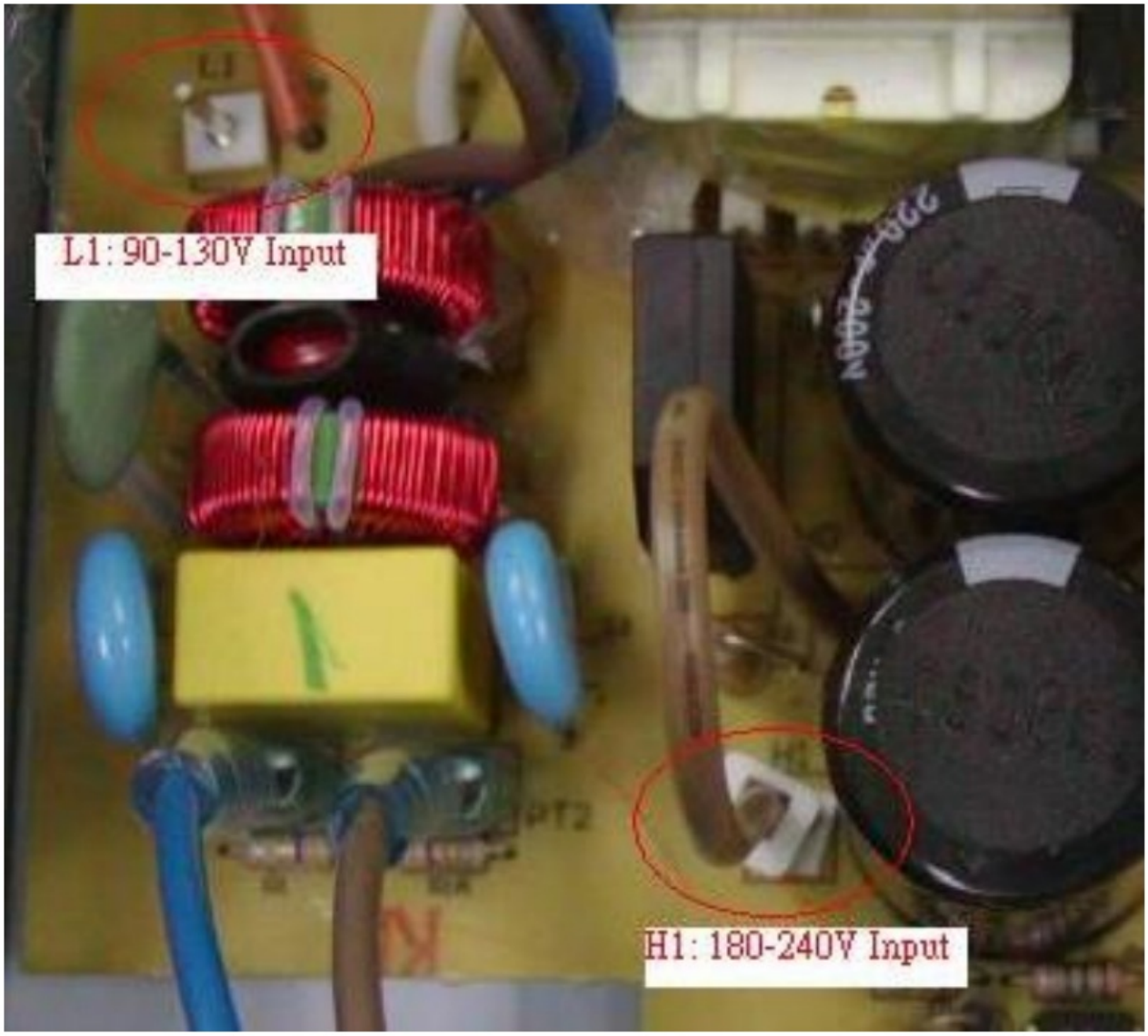
4. Output Terminal Negative (-) Black color
5. GND Terminal () Green colour Chassis ground terminal, normally this is to be short to (+) or (-) as required by the user.
6. Output Terminal Positive (+) Red color
7. Output Voltage Tuning knob (By pressing the knob, toggle between coarse – and fine adjustment.)
8. Output Current Tuning knob. (By pressing the knob, toggle between coarse – and fine adjustment.)
9. Power Switch: Turns the power supply on-off, when it is on the front display lights up
10. AC Input Socket
11. The concealed Fuse box (please open the cover to get to the fuse).

Connection and Operation

Setting the mains supply voltage

Setting of the mains input voltage to supply the lab power supply can be adjusted internally. By default, the mains input voltage is 180 – 240 V set.

1. Loosen the screws and removing the housing cover
2. Adjust the mains input voltage (see figure)



Select the appropriate voltage setting:

- PIN L1 = mains input voltage 90 – 130V
- PIN H1 = Mains input voltage 180 – 240V

3. Replace the housing cover and secure it with the screws

ATTENTION!
The laboratory power supply unit does not operate when it is not completely closed.

Connection and Operation Procedure

1. After checking with the rating label plug in to AC mains.
2. Switch on the power supply and the LCD display should be on at the same time. The (CV) icon should be shown on the display.
3. Turn to current volume knob 5 to maximum clockwise
4. If you do not require lower Current limiting value, otherwise do the preset the (CC) limiting procedure.
5. Set your desired output voltage and then turn off the output terminal by push button 6.
6. Connect to your load positive to positive and negative to negative.
7. Turn on the output terminal again and check if display shows (CV)
8. If display shows (CC), either your preset current limiting value is too low or your load requires more voltage and current. You need to re-access the voltage and current requirement of your load and increase the voltage or

current accordingly until (CV) appears.

Operations

Ground Connection

Depending on the application, the power supply output terminals can be grounded in any one of the following grounding conditions:

1. Negative ground – black (-) negative terminal is shorted with green GND terminal.
2. Positive ground – red (+) positive terminal is shorted with green GND terminal.
3. Floating ground – green terminal is not shorted with any of the output terminals.

Remarks:

When operating this power supply as a floating ground, high impedance leakage can exist between the power supply circuitry and the chassis ground.

Basic Mode of Operation

The PeakTech 6095 / 6135 is designed to operate as a constant voltage source or as a constant current source. Automatic crossover to either mode of operation occurs when the load condition changes as following:

Constant Voltage (CV), Automatic crossover & Constant Current (CC)

The PeakTech 6095/6135 functions as a constant voltage source (CV) as long as the load current is less than the preset current limiting value. When the load current is equal to or greater than the preset current limiting value, the power supply will automatically cross over to the constant current mode, voltage will drop, (CC) will show on the LCD display panel and it will operate as a constant current source. When the load current drops below the preset current limiting value, the supply returns to constant voltage (CV) mode.

Adjusting the output voltage and display the preset current limiting value

1.) Set to the desired values by turning the voltage or current regulator.
2.) By briefly pressing the buttons will move the decimal place for rough adjustment.
3.) Turn the knob when the desired decimal flashes, otherwise you have to dial again by a short press.
4.) A short press on the current controller and the display will show the current preset current limit.

Setting the output current (CC)

1. Turn on the instrument
2. Adjust the output voltage to approximately 3V
3. With the output on/off button the output jacks with switch (3)
4. In the LCD display appears 

5. Short circuit the black (-) and the red (+) output socket.
6. Turn ON the output again with the on / off switch (3).
7. The LCD display shows
8. Now set the desired current limit value with the Current knob (8). (By pressing the knb you can choose between coarse and fine adjustment).
9. Turn off the output and remove the short circuit at the output jacks.
10. The current limit has now been set to the value you set.

Overvoltage protection of the output

Output Over Voltage Protection (OVP): This is to protect the connected load in the event that the output voltage control circuit malfunctions, the maximum output voltage will not exceed 30% of the adjusted voltage value at the time of the operation.

Over Temperature Protection

When the temperature inside the power supply becomes higher than a predetermined value, the output voltage and current of the power supply will automatically decrease to zero to prevent damage to power supply. When the temperature inside the power supply returns to about 65°C then the power supply will automatically return to operation again.

Specifications

Input Voltage (Jumper Selection)	90 – 130 / 180 – 264 V AC: 50/60 Hz
Full Load Input Current at 230V AC	0.83 A
Output Voltage Adjustable Range	1.0 – 20 V DC (P 6095); 1.0 – 36 V DC (P 6135)
Output Current Adjustable Range	0 – 5 A (P 6095); 0 – 3 A (P 6135)
Voltage Regulation	
Load from 10% to 100% Variation	120 mV (P 6095) / 50 mV (P 6135)
Line from 180 to 264V AC Variation	20 mV
Ripple & Noise in r.m.s.	5 mV
Ripple & Noise (peak to peak)	30 mV
Current Regulation	
Load from 10% to 100% Variation	20 mA
Line from 180 to 264V AC Variation	20 mA
Ripple & Noise (peak to peak)	20 mA
Switching Operation Frequency	80 kHz to 120 kHz
Power Factor	0.65
Efficiency at Maximum Power	84%
Volt and Amp Potentiometer Type	Wire Wound
Voltmeter and Ammeter Display	4 Digit
Voltmeter Accuracy	±0,5% +5 counts for range V <5 V ±0,5% +3 counts for range V >5 V
Ammeter Accuracy	±0,5% +5 counts for range I<2 A ±0,5% +3 counts for range I>2 A
LCD Indication	CC, CV, Amp, Volt, Output ON-OFF

Protection	Short Circuit, Overload, Over Temperature, Tracking OV P
CE Approvals	LVD : EN 61010, EMC : EN 55011
Cooling System	Natural Convection
Dimensions in mm (WxHxD)	70 x 150 x 250 mm
Weight	2 kg
Remarks	All the data are based on 230 V 50 Hz

PeakTech08/2021 Po/Ehr

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Documents / Resources

	PeakTech 6095 Switching Mode Power Supply [pdf] Instruction Manual 6095 Switching Mode Power Supply, 6095, Switching Mode Power Supply, Mode Power Supply, Power Supply, Supply

References

- Home