



## **Instruction Manual**

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Keep this manual in a safe place for quick reference at all times.

This manual contains important safety and operation instructions for correct use of the power supply. Read through the manual and pay special attention to the markings and labels of this unit and equipment to be connected.

Pay special attention to these notices used in this manual:

**WARNING:**

***Failure to observe this warning may cause injury to persons and damage to power supply or connected equipment.***

**CAUTION:**

***Failure to observe this warning may result in damage to equipment and improper functioning of the power supply.***

**WARNING:**

1. Do not use this power supply near water.
2. Do not operate or touch this power supply with wet hands.
3. Do not open the casing of the power supply when it is connected to ac mains.
4. Refer all servicing to qualified service personnel only.
5. Before replacing the AC fuse at AC socket, find out and clear up the cause first.
6. Replace the AC fuse with the same type and rating as the original fuse.

**CAUTION:**

1. Use a grounded 3 pin AC source.
2. This unit is for indoor use only.
3. Do not operate or place this unit in a humid, dusty, in direct sunlight location or near any heat source.
4. Before plugging into local AC mains, check with the rating label at the back of the unit.
5. Do not block any ventilation openings of the unit.
6. This unit must be used within the specified rating; regular excessive continuous loading may cause damage to the power supply.
7. The gauge size of input power cable must be at least  $0.75\text{mm}^2$  and the total length of power cable must not exceed 3m.

**OPERATION ENVIRONMENTAL CONDITION**

- 10-80% R.H.
- Maximum relative humidity 80% for temperature up to  $31^{\circ}\text{C}$  decreasing linearly to 50% relative humidity at  $40^{\circ}\text{C}$ .
- Altitude up to 2000m
- Installation category : CAT 2
- Pollution degree: 2
- Mains supply voltage fluctuation up to  $\pm 10\%$  of the normal voltage

## **INTRODUCTIONS**

### **I. Using the 1550 switching mode power supply**

The unit is a Micro-controller based DC power supply with a total supply capability of 100W. By using a digital + / - keypad operation control, you can set the output voltage and current easily. It is a clean supply with quiet operation making it ideal for laboratory, work shop or educational applications where work bench space is limited.

The 1550 has a USB charger output, constant current operation, tracking OVP, floating ground design, small footprint, output on/off push button and a small form factor.

### **II. Using the USB power output**

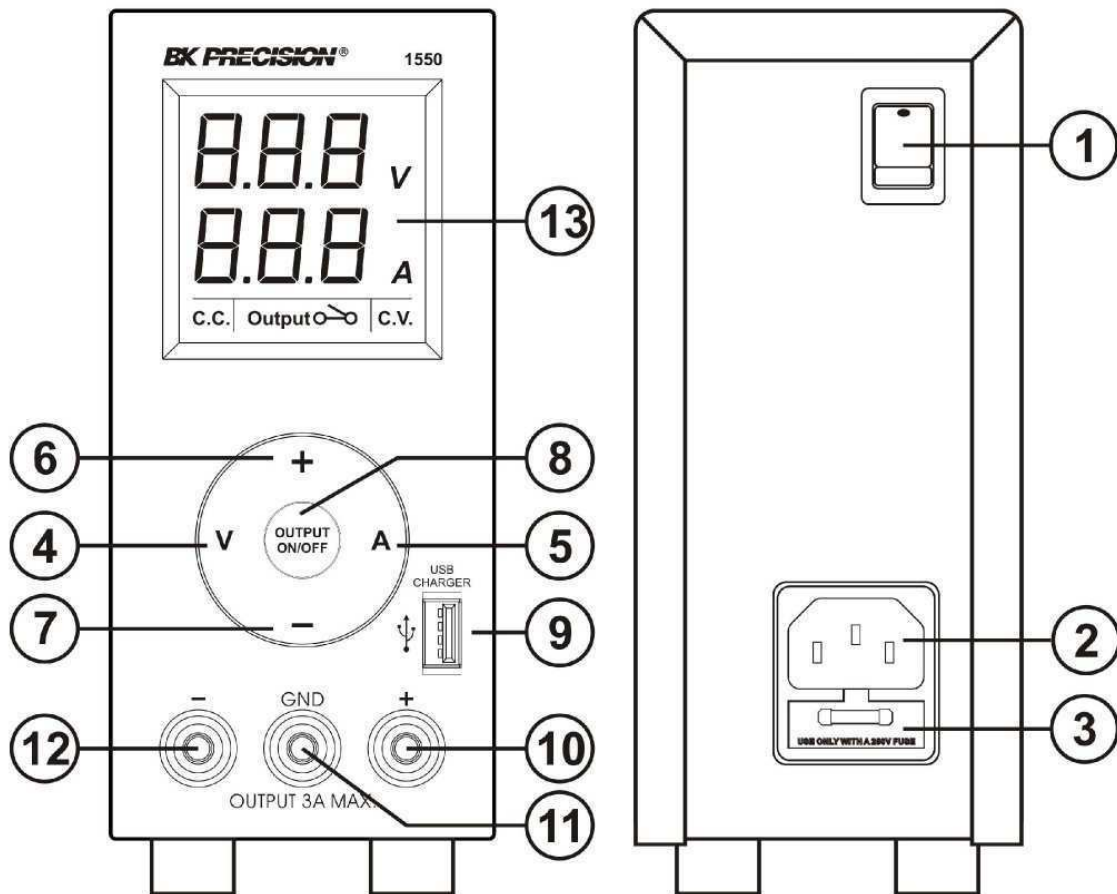
The USB output is made to the USB power standard of 5VDC and 0.4A .

You can power up or charge your portables such as an I-Pod, MP3 Player or Cell Phone\* which have USB power connectors for getting dc power from a PC (Personal Computer).

#### **\* - REMARKS:**

NOT ALL THE CELL PHONE CAN BE CHARGED BY THE USB.  
SOME NEW MODELS REQUIRE HIGHER VOLTAGE THAN THE 5V USB. PLEASE  
REFERENCE THE MANUFACTURES DOCUMENTATION OF THE DEVICE TO BE  
CONNECTED FOR COMPATABILITY ISSUES.

## CONTROLS AND INDICATORS



1. Power Switch :  
Turns the power supply on-off, when it is on the front display lights up
2. AC Input Socket with Fuse
3. Concealed Fuse box ( please open the cover to get to the fuse)
4. V: Output Voltage Setting keypad
5. A: Output Current Setting keypad
6. "+" ascend Setting keypad.  
Press to ascend the numerical values
7. "-" descend Setting keypad.  
Press to descend the numerical values
8. Output On/Off push button.
9. USB Output Socket  
Standard USB DC power 5V, 400mA  
To charge or to power portables and cell phones
10. Output Terminal Positive (+) Red color
11. GND Terminal (:): Green color  
Chassis ground terminal, normally this is to be short to (+) or (-) as required by user
12. Output Terminal Negative (-) Black color
13. LCD Display panel showing:  
3 digit voltage, current meter, (CV) constant voltage mode, (CC) constant current mode, Output Terminal on/off state

## **OPERATIONS**

### **Ground Connection**

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

Negative ground – black (-) negative terminal is shorted with green GND terminal.

Positive ground – red (+) positive terminal is shorted with green GND terminal.

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**

This power supply 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:

**Voltage value setting:** at first, you must press the (4) keypad, then you can adjust the voltage value to your desired value by (6) and (7) keypad.

**Current value setting:** at first, you must press the (5) keypad, then you can adjust the current value to your desired value by (6) and (7) keypad.

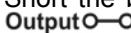
**Constant Voltage (CV), Automatic crossover & Constant Current (CC)**

The power supply 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.

### **Presetting Current Limiting Value (CC)**

Switch on the power supply, adjust the output voltage to about 3V, turn off the output terminal with push button (8), icon becomes .

Short the black and red output terminals and turn on the output terminal by (8), icon becomes , adjust the current limiting value to your desired value say x Amp by (6) and (7) keypad. Turn off the output terminal and take out the shorting connection.

The current limiting of power supply has been preset to x Amp for the whole range of output voltage.

### **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.
3. The (CV) icon should be shown on the display.
4. Set the current value to maximum by press (6) keypad 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 (8).
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.

### ***Tracking Output Over Voltage Protection (OVP)***

This is to protect the connected load in the event that the output voltage control circuit mal-functions, the maximum output voltage will not exceed 40% 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 pre-determined 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***

|                                   |                                                         |
|-----------------------------------|---------------------------------------------------------|
| AC Input                          | 100 – 120Vac, 60Hz*                                     |
| Full Load Input Current at 120Vac | 1.8A ( $\pm 10\%$ )                                     |
| MAIN OUTPUT:                      |                                                         |
| Output Voltage Adjustable Range   | 1.0 – 36VDC                                             |
| Output Current Adjustable Range   | 0 – 3A                                                  |
| Voltage Regulation                |                                                         |
| Load from 10% to 100%             | $\pm 50\text{mV}$                                       |
| Line from min to max              | $\pm 20\text{mV}$                                       |
| Ripple (rms)                      | $\pm 5\text{mV}$                                        |
| Noise (Peak to Peak)              | $\pm 50\text{mV}$                                       |
| Current Regulation                |                                                         |
| Load from 10% to 100%             | $\pm 20\text{mA}$                                       |
| Line from min to max              | $\pm 20\text{mA}$                                       |
| Switching Operation Frequency     | 80KHz to 120KHz                                         |
| Efficiency at Max Power           | 83% ( $\pm 10\%$ )                                      |
| Voltmeter and Ammeter Display     | 3 Digit                                                 |
| Voltmeter Accuracy                | $\pm 1\% + 5\text{rdg.}$                                |
| Ammeter Accuracy                  | $\pm 1\% + 5\text{rdg.}$                                |
| USB OUTPUT:                       |                                                         |
| Output Voltage                    | 5V ( $\pm 10\%$ )                                       |
| Output Current                    | 400mA ( $\pm 10\%$ )                                    |
| Load Voltage Regulation           | 80mV ( $\pm 10\%$ )                                     |
| Ripple & Noise (no load rms)      | 8mV ( $\pm 10\%$ )                                      |
| LCD Indication                    | CC, CV, Amp, Volt, Output ON-OFF                        |
| Protection                        | Short Circuit, Overload, Over Temperature, Tracking OVP |
| Cooling System                    | Natural Convection                                      |
| Dimensions (WxHxD)                | 2.8 x 6.0 x 9.8 (70 x 150 x 250mm)                      |
| Weight                            | 4.4lbs. (2Kgs)                                          |

Note: \*For 220V input, order model number 1550-220V

## Limited One-Year Warranty

B&K Precision warrants to the original purchaser that its products and the component parts thereof, will be free from defects in workmanship and materials for a period of one year from date of purchase from an authorized B&K Precision distributor.

B&K Precision will, without charge, repair or replace, at its option, defective product or component parts. Returned product must be accompanied by proof of the purchase date in the form of a sales receipt.

To obtain warranty coverage in the U.S.A., this product must be registered by completing the warranty registration form on [www.bkprecision.com](http://www.bkprecision.com) within fifteen (15) days of purchase.

**Exclusions: This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. The warranty is void if the serial number is altered, defaced or removed.**

B&K Precision shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitations of incidental or consequential damages. So the above limitation or exclusion may not apply to you.

This warranty gives you specific rights and you may have other rights, which vary from state-to-state.

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## SERVICE INFORMATION

**Warranty Service:** Please go to our website, [www.bkpreicsion.com](http://www.bkpreicsion.com) & click on the service/repair button to obtain an RMA #. Return the product in the original packaging with proof of purchase to the address below. Clearly state in writing the performance problem and return any leads, probes, connectors and accessories that you are using with the device.

**Non-Warranty Service:** Please go to our website, [www.bkpreicsion.com](http://www.bkpreicsion.com) & click on the service/repair button to obtain an RMA #. Return the product in the original packaging to the address below. Clearly state in writing the performance problem and return any leads, probes, connectors and accessories that you are using with the device. Customers not on open account must include payment in the form of a money order or credit card. For the most current repair charges please visit [www.bkprecision.com](http://www.bkprecision.com) and click on "service/repair".

Return all merchandise to B&K Precision Corp. with pre-paid shipping. The flat-rate repair charge for Non-Warranty Service does not include return shipping. Return shipping to locations in North American is included for Warranty Service. For overnight shipments and non-North American shipping fees please contact B&K Precision Corp.

B&K Precision Corp.  
22820 Savi Ranch Parkway  
Yorba Linda, CA 92887  
[www.bkprecision.com](http://www.bkprecision.com)  
714-921-9095

**Include with the returned instrument your complete return shipping address, contact name, phone number and description of problem.**

