

**Multiple Power
Supply
PSD3304**

User Manual

scientific

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Multiple Power Supply PSD3304

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Multiple Power Supply

PSD3304

- DC: 0 to 30 V – 2 A , ± 15 V – 1 A, 5 V – 5 A
- Constant Voltage and Constant Current Operation
- Digital Display for Voltage and Current
- Adjustable Current Limiter
- Protection against overload and short circuit

The **PSD3304** is multiple power supply with 30 V – 2 A, ± 15 V – 1 A and single 5 V – 5 A designed as a constant current (CC) and constant voltage (CV) source for laboratories, industries and field testing applications, featuring Low Power Loss, compact and light weight. It provides isolated, adjustable, floated, DC output voltages ideally suitable for complex Analog and Digital Testing. These floated DC outputs allow operating in series or parallel.

Outputs are adjustable 0 to 30 V , 2A , 0 V to ± 15 V, 1 A and 4.5 V to 5.5 V , 5 A. Current limit is also adjustable. Any over loading for adjusted current limit is indicated by “CC” LED. When the maximum setting is crossed or the overheating has occurred, the LED will lit.

A 3 digit display for voltage and current switchable for the power supply A, B, or C and is used to read the instantaneous values. In addition to low residual ripple and noise as well as excellent line and load regulation, the **PSD3304** is provided with all protective circuits to ensure trouble free operation.

Technical Specifications

DC Output :
A: 0 to 30 V, 2 A
B: 0 to ± 15 V, 1 A
C: 4.5 V to 5.5 V, 5 A

Output A

DC Output : 0 – 30 V cont. variable by means of coarse and fine controls
Output Current : 2 A
Setting Resolution : Voltage : 10 mV
Current : 5 mA
Internal Resistance : $< 10 \text{ m}\Omega$
Stability : $< 2.5 \text{ mV}$ at 30 V, 2 A
Recovery Time : $< 50 \text{ }\mu\text{s}$
Load Regulation : $< \pm (0.05\% + 10 \text{ mV})$
Line Regulation : $< \pm (0.05\% + 10 \text{ mV})$
Temp. Coefficient : $< \pm (0.05\% + 10 \text{ mV}/^\circ\text{C})$
Ripple and Noise : $< 1 \text{ mVrms}$
Current Limit : Adjustable between 100 mA to 2 A

Output B

DC Output : Adjustable between 0 V to ± 15 V
Output Current : 1 A
Setting Resolution : Voltage : 10 mV
Current : 5 mA
Internal Resistance : $< 10 \text{ m}\Omega$
Stability : $< 2.5 \text{ mV}$ at 15 V, 1 A
Recovery Time : $< 50 \text{ }\mu\text{s}$
Load Regulation : $< \pm (0.05\% + 10 \text{ mV})$
Line Regulation : $< \pm (0.05\% + 10 \text{ mV})$
Temp. Coefficient : $< \pm (0.05\% + 10 \text{ mV}/^\circ\text{C})$
Ripple and Noise : $< 1 \text{ mVrms}$
Current Limit : Adjustable between 100 mA to 1 A

Output C

DC Output : Adjustable 4.5 V to 5.5 V
Output Current : 5 A

Display

Display : 3 digit for voltage and current , switchable for A, B, C DC
Outputs

Accuracy : V : $\pm (1\%+1 \text{ digit})$ I : $\pm (1\%+3 \text{ digit})$

Over Range Indication : By lighting A, B and C LED

General information

Built-in overheat, over voltage , overload protection.

Insulation : Between chassis and output > 10 M Ω at 100 V DC
Between chassis and AC plug > 50 M Ω at 500 V DC

Power Supply : 230 V \pm 10 % , 50 Hz

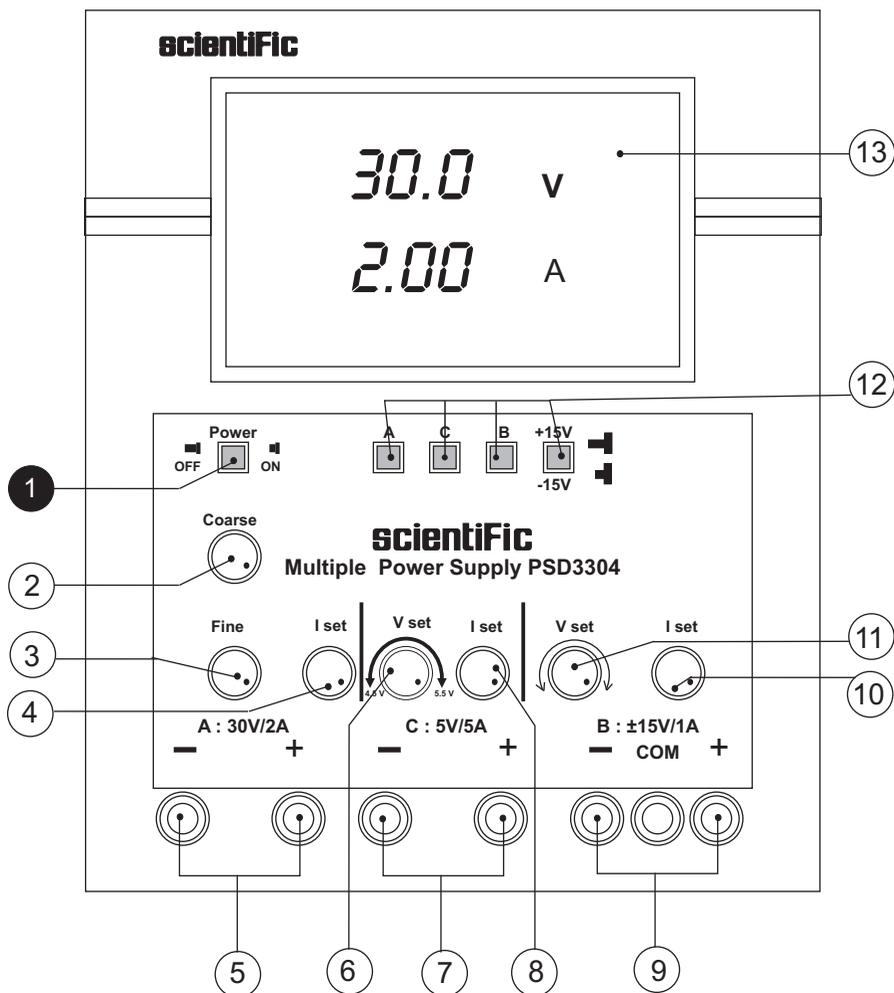
Operating Conditions : 0 °C to +50 °C., RH 95 % (Max.)

Dimensions : W: 165, H: 215, D: 360 (mm)

Weight : 7.7 kgs. Approx.

(Subject to Change)

Front Panel Control PSD3304



Front Panel Controls PSD3304

- ① **Power** : Push button for switching ON/OFF mains supply to the instrument.
- ② **Coarse (Variable Potentiometer)** : Variable potentiometer for the coarse setting of the output voltage from the output terminals. Adjustment range is 0 to 30 V.
- ③ **Fine (Variable Potentiometer)** : Variable potentiometer for the fine setting of the output voltage at terminals. Adjustment range is 2.1 V.
- ④ **I set (Variable Potentiometer)** : Variable potentiometer for the current limit setting of the current source. Adjustment range is 0.1 A to 2.00 A.
- ⑤ **Output Terminal A** : Output terminals for DC power supply “A”, 4 mm-banana plugs or cable connections. The output is short circuit protected.
- ⑥ **5V Adjustment** : DC output setting for 5 V from 4.5 V to 5.5 V.
- ⑦ **Output terminal C** : Output terminals for DC power supply “C”, 4 mm-banana plugs or cable connections. The output is short circuit protected.
- ⑧ **I set Adjustment** : Variable potentiometer for the current limit setting of the 5 V source.
- ⑨ **Output terminal B** : Output terminals for DC power supply “B”, 4 mm-banana plugs or cable connections. The output is short circuit protected.
- ⑩ **I set (Variable Potentiometer)** : Variable potentiometer for current limit setting of “B” source . Adjustment range is 0.1 A to 1.00 A.
- ⑪ **V set** : (Variable Potentiometer) : Variable potentiometer for the setting of the output voltage for “B” supply. Adjustment range is 0 V to 15 V.
- ⑫ **Push Buttons** : 'A', 'B', 'C' Pushbuttons are for switching the display from DC Power Supply A , B or C . Voltage and current reading are simultaneously displayed for A, B or C depending upon the switch selected. $\pm 15V$ Push Button is for selecting display of positive output voltage and current or negative voltage and current. The current is displayed with as resolution of 10 mA and voltage is displayed with a resolution of 0.1V.
- ⑬ **Display Window** : Display for voltage and current, displays the values in

accordance to the switch selected. When supply “A” is set in constant current mode the “A” LED lights, which shows that the supply is in constant current mode. Similarly LED “B” & “C” will light in constant current mode.

Note : The instrument is provided with over voltage protection from mains variation. The over voltage setting is at 253 V approx. Whenever the mains increases beyond the set voltage, it trips and LED “HV” is lit. After the mains is normalized, switch OFF once the instrument and then switch ON again, if the mains is below 253 V, the instrument gets switched ON, otherwise it trips again.

Operating Instructions

General Information

The logical front panel layout of **PSD3304** ensures rapid familiarization with the various functions. However, even experienced operators should not neglect to carefully read the following instructions, to avoid any operational errors and to be fully acquainted with the instrument when later in use.

After unpacking the instrument, check for any mechanical damage or loose parts inside. Should there be any transportation damage, inform the supplier immediately and do not put the instrument into operation.

Safety

The case chassis and all measuring parts are connected to the protective earth contact of the inlet. The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. The protective action must not be negated by the use of an extension cord without a protective conductor.

Warning!

Any interruption of the protective conductor inside or outside the instrument or disconnection of the protective earth terminal is likely to make the instrument dangerous. Intentional interruption is prohibited. The mains/ line plug should be inserted before connections are made to measuring circuits.

When removing the metal case or replacing, the instrument must be completely disconnected from the mains supply. If any measurement or calibration procedures are unavoidable on the opened-up instrument, these must only be carried out by qualified personnel acquainted with the danger involved.

Operating Conditions

The ambient temperature range during operation should be between + 0° to +50°C and should not exceed -40°C or + 70°C during transport or storage. The operational position is optional, however, the ventilation holes on the **PSD3304** must not be obstructed. Prior to calibration a preheat run of approx. 30 minutes is required

First Time Operation

After unpacking the instrument check for any mechanical damages. The instrument should be plugged in mains-plug of proper mains supply $230\text{ V} \pm 10\%$. On switch ON no undue observation should be noticed. Once the instrument is switched ON, the power ON is indicated by lighting of displays.

Operation

The power supply has an electrically floating output . This permits easy series or parallel connection with other power supply units, to increase supply voltage or current respectively.

Triple Output Voltage Operation :

Figure below shows connection of **PSD3304** for Triple Output Voltage Operation

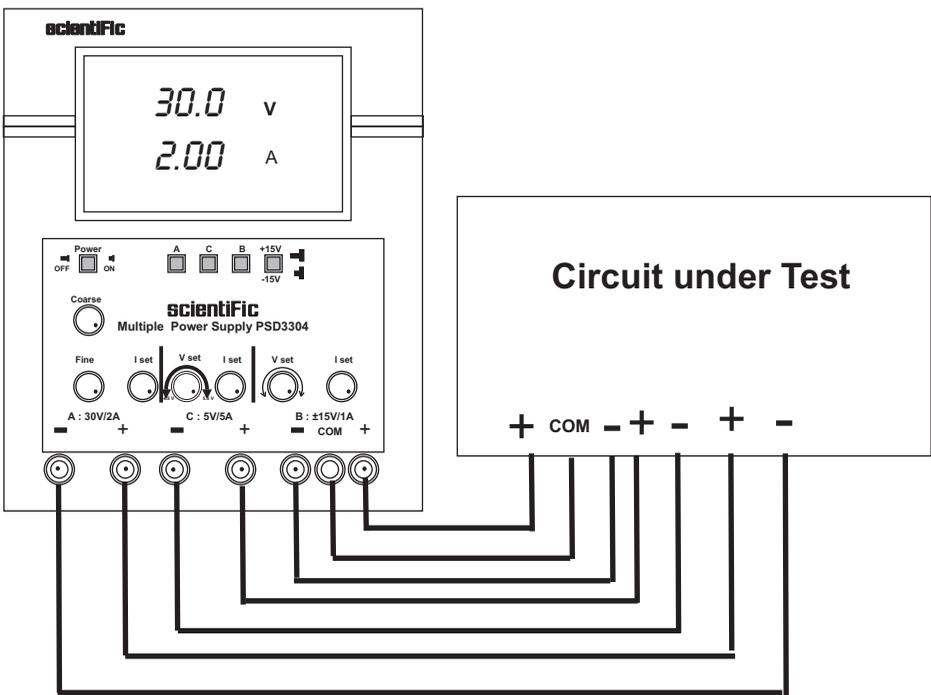


Fig.1 Connection of PSD3304 for Triple Output Voltage Operation

Setting For +V and -V DC Outputs:

Figure below shows connection of **PSD3304** for +V and -V DC Output setting

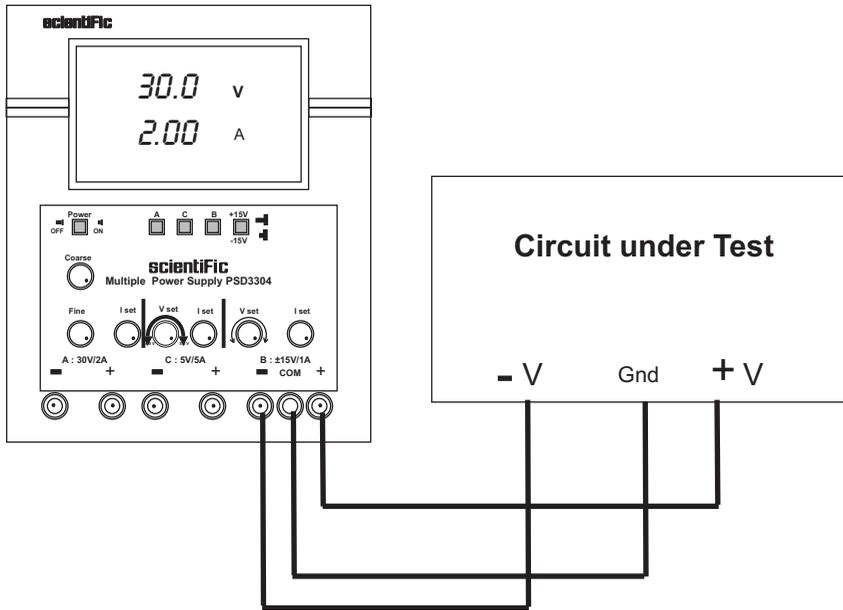


Fig.2 Connection of PSD3304 for +V and -V DC Output setting

Serial Operation for 65 V, 1 A

Figure below shows connection of **PSD3304** for series connection of supply A, B, C to obtain output as 65 V, 1 A

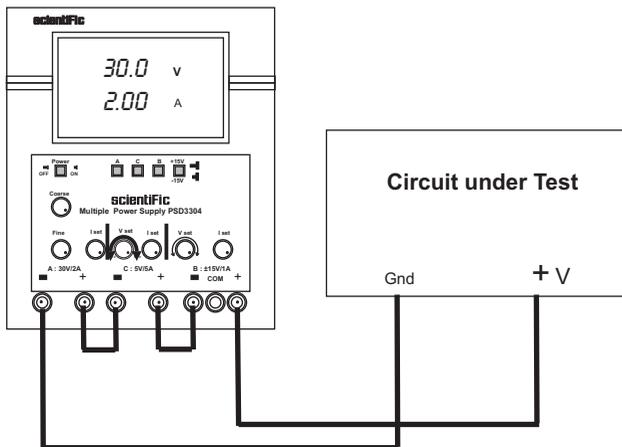


Fig.3 Connection of PSD3304 for Series Operation

Maintenance

There are no user serviceable part inside **PSD3304**. Your **PSD3304 Multiple Power Supply** is thoughtfully engineered for ease of use, accuracy and reliability. The instrument is carefully tested and calibrated using standards traceable to National Laboratories.

Take care of your instrument by cleaning the exterior of the instrument regularly with a dusting brush. Dirt which is difficult to remove on the casing & plastic parts, can be removed with a moist cloth (99% water, 1% mild detergent) spirit or washing benzene(petroleum ether) can be used to remove greasy dirt. The display may be cleaned with water or washing benzene (but not with spirit-alcohol solvents), it must then be wiped with a dry clean lint-free cloth. Under no circumstances the cleaning fluid should get into the instrument. The use of cleaning agents can attack the plastic & paint surfaces.

Power Line Fuse Replacement

The power line fuse is located on rear panel on lower right side. In case, the instrument does not show any sign of working, no LED is lit or there is no display immediately switch OFF the mains power switch of the instrument and unplug the mains cord from the mains socket. With the help of small flat blade screwdriver remove the fuse cap of the fuse holder, located just below the socket. There is one spare fuse kept in the fuse cap, replace it for the defective one. Press the cap so that it locks in place . The rating of the fuse is 4 A , 250 V , slow blow , 5x20 mm glass fuse. Do not use a fuse with a higher value other wise it may damage the instrument in case, the mains voltage goes much higher than the rating of the mains fluctuation of $\pm 10\%$.

Despatch Procedure for Service

No user serviceable parts are inside the instrument, should it become necessary to send back the instrument to factory for service, please observe the following procedure.

1. Before despatching the instrument please write to us giving full details of the fault noticed.
2. After receipt of your letter our service department will advise you whether it is necessary to send the instrument back to us for repairs or the adjustment is possible in your premises.
3. Despatch the instrument (only on the receipt of our advise) to us at our factory address, securely packed in original packing duly insured and freight paid along with accessories and a copy of the fault details noticed at our Service Center listed on last page of manual nearest to you.

Warranty Conditions

1. Scientific warrants all its Instruments to be free from defects in material and workmanship when used under normal operating conditions in accordance with the instructions given in the manual for a period of 12 (Twelve) months from date of purchase from Scientific or its authorised dealers. The service during the warranty period will be rendered on return to factory /service centre basis.
2. Its obligation under this warranty is limited to repairing or replacing at its own discretion. This warranty shall not apply to any defect, failure or damage caused by accident, negligence, mis-application, alteration or attempt to repair, service or modify in any way.
3. This warranty does not include LED, fuses, batteries or accessories. This warranty is only valid with the original purchaser who must have properly registered the product within 15 days from date of purchase. No other warranty is expressed or implied.
4. When it becomes necessary to return the instrument to our Factory facility, kindly pack it carefully in the original carton or equivalent and ship it duly insured, transportation charges prepaid.
5. Your Scientific instrument is a complex electronic device and deserves the best service available by technicians thoroughly familiar with its service and calibration procedures.

Major Service Centers

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1. Scientific Mes-Technik Pvt. Ltd.,
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