

**Multi Output Power Supply
PSD4032B / PSD4032C**

User Manual

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Ver 1.01 / 0816

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Multiple Power Supply PSD4032B / PSD4032C

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Multiple Power Supply PSD4032B / PSD4032C

- Floating DC supply voltages
- Constant voltage and constant current mode operation
- Individual display for voltage and current
- Adjustable current limiter
- Overload and short circuit protection
- Output ON/OFF control
- Auto Range input 190-270 V AC

The PSD4032B & PSD4032C are 32 V, 3 A Dual & Tripple Power supply respectively. These are 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 two (PSD4032B) / three (PSD4032C) isolated and floated, DC output voltages and is ideally suitable for complex Analog and Digital testing.

The DC output can be continuously adjusted from 0 to 32 V with coarse and fine controls. Current limit is also adjustable from 0-3 A. Any over loading for adjusted current limit is indicated by "CC" LED. When the maximum setting is crossed, the LED will lit.

Separate displays for each channel are provided to show voltage and current readings. Voltage and current, both displays are 3-digit display. In addition to low residual ripple and noise as well as excellent line and load regulation, the PSD4032B / PSD4032C is provided with all protective circuits to ensure trouble free operation.

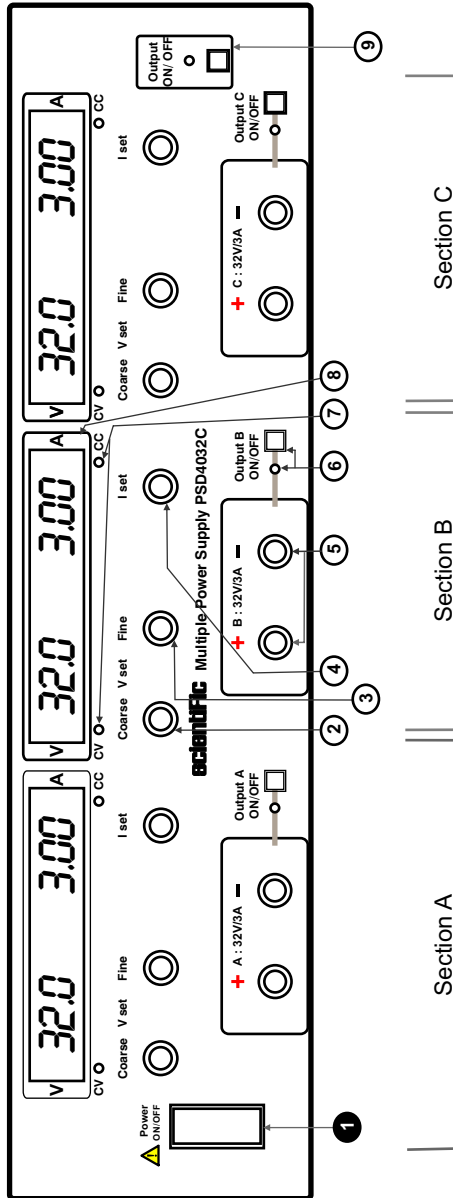
Technical Specifications

DC Output	:	2 X 0-32 V / 0-3 A (PSD4032B) 3 X 0-32 V / 0-3A (PSD4032C) Continuously variable by means of coarse and fine controls
Output Current	:	0 - 3 A (Max.)
Setting Resolution	:	Voltage : 10 mV Current : 5 mA
Constant Voltage Mode		
Load Regulation	:	$\leq \pm (0.01\% + 10 \text{ mV})^*$
Line Regulation	:	$\leq \pm (0.01\% + 10 \text{ mV})^*$
Ripple and Noise	:	$\leq 0.5 \text{ mVrms}$
Transient Response half load & vice	:	$\leq 50 \mu\text{s}$ output within 50 mV from full load to versa
Drift	:	$\leq \pm (0.2\% + 5 \text{ mV})$ within 8 hrs. Warm up at constant line, load & ambient temperature condition
Constant Current Mode		
Load Regulation	:	$\leq \pm (0.2\% + 3 \text{ mA})$
Line Regulation	:	$\leq \pm (0.2\% + 3 \text{ mA})$
Ripple & Noise	:	$\leq 3 \text{ mArms}$
Drift	:	$\leq \pm (0.5\% + 5 \text{ mA})$ within 8 hrs. Warm up at constant line, load & ambient temperature condition
Temperature Coefficient	:	$\leq \pm (0.05\% + 10 \text{ mV}/^\circ\text{C})$
Current Limit Adjustment	:	100 mA to max approx

Display	:	Individual 3 digit seven segment LED for voltage & current of all channels
Resolution	:	Volatge : 100 mV, Current : 10 mA
Accuracy	:	V : $\pm (1\%+1D)$, I : $\pm (1\%+3D)$
General Information	:	Built-in overheat, over voltage protections. Cooling natural convection
Insulation	:	Between chassis and output terminal > 10 M Ω at 100 V DC Between chassis and AC plug > 50 M Ω at 500V DC
Supply	:	190 VAC to 270 VAC/ 50 Hz
Operating Conditions	:	0 - 50° C , RH 95 %
Dimension	:	W : 285, H : 75, D : 365 (mm)
Weight	:	5 kg (approx.)
Accessories	:	User Manual, Spare Fuse, Connecting Cables

Note : * For line variation 230 \pm 10%

Front Panel Layout



Front Panel

1. **Power** : Switch for switching On/Off mains supply to the instrument.

PSD4000 Series Power Supply has three identical sections-A, B, C. Model **PSD4032C** has all three sections-A, B, C where as **PSD4032B** has section B & C.

Power Supply B

2. **Coarse (Power Supply “B”)** : Potentiometer to adjust the output voltage with coarse resolution for Power Supply “B”.
3. **Fine (Power Supply “B”)** : Potentiometer to adjust the output voltage with fine resolution for Power Supply “B”. Adjustment range limit upto 2.0 V
4. **Iset (Power Supply “B”)** : Potentiometer for current limit setting for Power Supply “B”. Adjustment range 0.1 A to 3.00 A.
5. **Output Terminals (Power Supply “B”)** : 4mm - banana sockets for positive and ground terminals.
6. **Output A ON/OFF LED & Push Button** : The push button is used to enable or disable the output of Power Supply “B”. When the “Output B” is On, the “Output B” LED lits.
7. **CV & CC LED** : When supply “B” is used in constant voltage mode the “CV” LED lits and “CC” LED gets off. Similarly when supply “B” is used in constant current mode the “CC” LED lits and “CV” LED gets off.
8. **Display Window** : Digital Display to show voltage and current for Power Supply “B”

9. **Output ON/OFF LED & Push Button** : There is master push button to enable / disable the output of all channels.

To enable the output of each individual channel using its corresponding output On/Off push button, the master push button should be “On”, indicating the LED On.

Operating Instructions

General Information

The logical front panel layout of PSD4032B / PSD4032C 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.

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, qualified personnel acquainted with the danger involved must only carry these out.

Operating Conditions

The ambient temperature range during operation should be between + 0 to +40°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 PSD4032B / PSD4032C must not be obstructed.

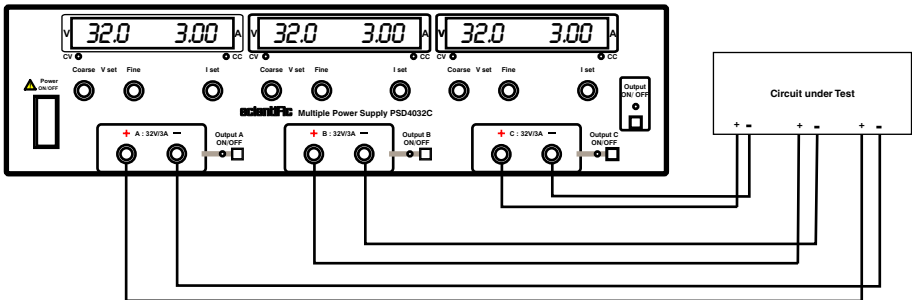
First Time Operation

After unpacking the instrument check for any mechanical damages. The instrument should be plugged in mains-plug of proper mains supply 230V + 10%. On switch ON no undue observation should be noticed. Once the instrument is switched ON the power ON is indicated by lighting of display.

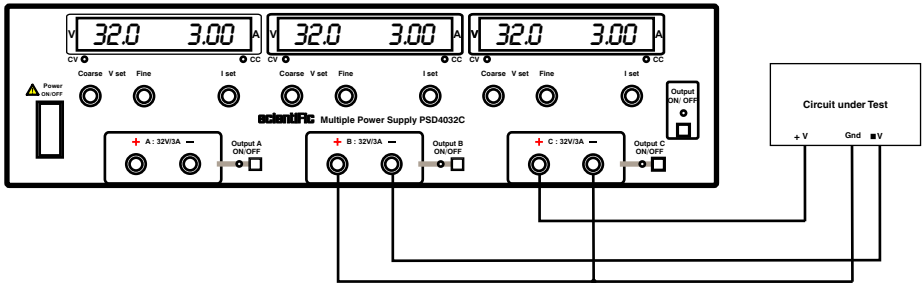
Operation

The power supply PSD4032B / PSD4032C has electrically floating outputs. This permits easy series or parallel connection with other power supply units, to increase supply voltage or current respectively.

PSD4032C Independent Output voltage operation :

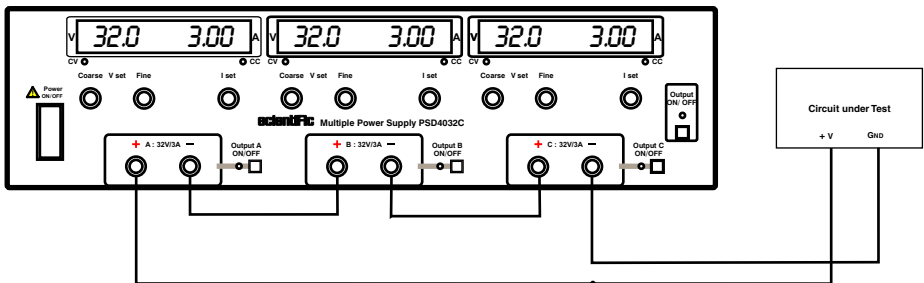


Settings for +V and -V DC outputs :



Note : The Value +V & -V will be as per set output voltage & current on power supply A & B individually.

Series Operation : For series operation, connect output terminals as shown below :-

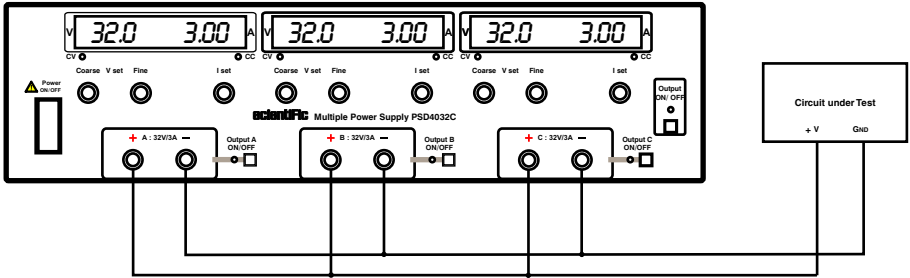


Here, $+V = V_1 + V_2 + V_3$; and $GND = \text{Common } (-)$

$I = \text{max current set to individual channels}$

E.g. - For 96 V; $V_1 = 32 \text{ V}, V_2 = 32 \text{ V}, V_3 = 32 \text{ V}$ (PSD4032C)

Parallel Operation : For Parallel operation, connect output terminals as shown below :-



Here,

$$\text{Parallel Current } I = I_1 + I_2 + I_3$$

And $+V = V_{\text{max}}$ set on channels

E.g. - For 9 A ; $I_1 = 3\text{A}$, $I_2 = 3\text{A}$, $I_3 = 3\text{A}$ (PSD4032C)

Constant Voltage Mode Operation :

The output voltage is unchanged / constant for load current applied upto the set current value. Constant voltage mode is indicated by CV (LED) On.

Constant Current Mode Operation :

When the load current is increased more than the set current limit then output voltage starts decreasing with respect to increase in load current. Constant current mode is indicated by CC (LED) On.

Maintenance

There are no user serviceable part inside PSD4032B / PSD4032C. Your PSD4032B (Dual) / PSD4032C (Tripple) 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. Turn the cap so that it locks in place . The rating of the fuse is 4 A , 250V , sloblo , 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 + 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.

Before dispatching the instrument please write to us giving full details of the fault noticed.

1. After receipt of your communication, 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.
2. Dispatch the instrument (only on the receipt of our advise) securely packed in original packing duly insured and freight paid along with accessories and a copy of the faults details noticed at our Service Center listed on last page of this 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 center 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. Scientific warrants all its Instruments to be free from defects in material and workmanship when used under normal conditions.