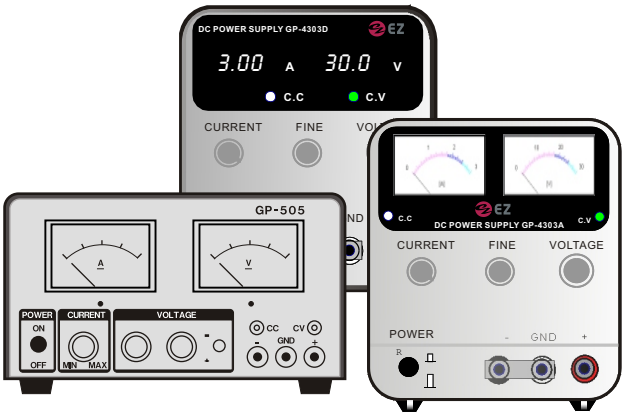
DC Power Supply

GP-4303DU/TP

Operation manual



EZ Digital Co.,Ltd.

SAFETY PRECAUTIONS

Please take a moment to review these safety precautions.
They are provided for your protection and prevent damage to the power supply.
This safety information applied to all operator and service personnel.

If the equipment is used in a manner not specified by the manufacturer,
the protection provided by the equipment may be impaired.

CAUTION AND WARNING STATEMENTS

CAUTION : Is used to indicate correct operating or maintenance procedures in order to prevent damage to or destruction of the equipment or other property.

WARNING : Calls attention to a potential danger that requires correct procedures or practices in order to prevent personal injury.

SYMBOL :  Caution, risk of electric shocks.
Easily-touched higher temperature parts.

 Caution(refer to accompanying documents)

 PROTECTIVE CONDUCTOR TERMINAL

INSTRUCTIONS

1. To maintain the precision and the reliability of the product , use it in the standard setting.
   Operating temperature : 5°C ~ 40°C
   Operating humidity : 50% ~ 80%
   Storage temperature : 0°C ~ 70°C
   Storage Humidity : less than 85%

2. For quality improvement , the exterior design and specifications of the product can be changed without notice.

3. Should any further information be required , please contact the EZ Digital Electronics company or sales outlet.

WARRANTY

Warranty service covers one year the date of original purchase.
In case of technical failure a year,repair service will be provided by EZ Digital Electronics company.

We charge for repairs after the one year warranty period expires.
When the failure is a result of user's neglect , natural disaster or accident , we charge for repaires regardless of the warranty period.
For more professional repair service , be sure to contact us or sales outlet.

CONTENTS

1. INTRODUCTION

Dual DC Power supply Model GP-4303DU is 2 channel linear power supply.
Triple DC Power supply Model GP-4303TP is 2 ch and 1ch.fixed output power supply.

It features low ripple and high stability.
A wide range of DC output power can be obtained via function selection.
The following modes of function can be selected.

① INDEPENDENT : Two continuously variable DC output (0~30V , 0~3A)
②SERIAL : Double voltage DC output for continuously variable output range. range. (0~60V , 0~3A)
③ DUAL : Continuously variable positive (0~ +30V) , negative (0~ -30V) voltage at 0~3A.

The functions constant current and constant voltage offer stabilized , regulated voltage and current for 2 continuously variable channel of 30V,3A.
Current limiting , Overload protection functions are built in to protect the load under any circumstances.

[NOTE]

This power supply features 2 Digital voltmeters and 2 Digital amperemeters , enabling the user to monitor the power supply's operation at a glance.
LEDs for Constant Current (C.C) and Constant Voltage (C.V) enables monitoring of operation status.
Main input voltage 115V/230V and 50/60Hz are supported.

2. PRECAUTIONS

2-1. Line voltage selection

This instrument must be operated with the correct line voltage selector switch setting and the correct line fuse for the line voltage selected to prevent damage.
The instrument operates from either a 90V to 132V or 198V to 250V line source.
Before line voltage is applied to the instrument , make sure the line voltage selector switch is set correctly.
In the case of the line voltage selector switch selected , must be operated to the correct line fuse.

To change the line voltage selection

1. Make sure the instrument is disconnected from the power source.

2. Pull out the line voltage selector switch on the bottom panel.
   Select the arrow mark position of the switch from Table 2-1.
   Select the arrow mark to the desired position and plug it in.

3. Pull out the line fuse holder containing the fuse for overload protection.
   Replace the fuse in the holder with the correct fuse from table2-1 & plug it in.

Table 2-1. Line voltage Selection & Fuse Ratings

Line Voltage	Select SW Mark	Fuse Ratings (250V)	Fuse No	Check☑
AC 90 ~ 110	115V	T 6.3AL	F1	☐
AC 108~ 132				
AC 198~ 242	230V	T 3.15AL		☐
AC 207~ 250				


For continued protection against fire,replace the line fuse only with a fuse of the specified type and rating.

2-2. INSTALLATION & HANDLING PRECAUTIONS

When placing the power supply in service at your workplace,observe the following precautions for best instrument performance and longest service life.

1. Avoid placing this instrument in an extremely hot and cold place.
   Specifically, don't leave this instrument in a close car,exposed to sunlight in midsummer or next to a space heater.
2. Don't use this instrument immediately after bring it in from the cold.
   Allow time for it to warm to room temperature. Similary don't move it from a warm place to a very cold place,as condensation might impair its operation.
3. Do not expose the instrument to wet or dusty enviroments.

2-2. INSTALLATION & HANDLING PRECAUTIONS

4. Do not place liquid-filled containers on top of this instrument.
   A spill could seriously damage the instrument.
5. Do not use this instrument where it is subject to serve viration,or strong blows.
6. Do not place heavery objects on the case,or otherwise block the ventilation holes.
5. Do not place liquid-filled containers on top of this instrument.
7. Do not use this power supply in strong magnetic fields,such as near motors.
8. Do not insert wires , tools , etc. through the ventilation holes.
9. Do not leave a hot soldering iron near the instrument.
10. Do not place this instrument face down on the ground, or damage to the knobs may resuit.
11. Do not connect other power source to + ,- of the output terminal.
12. Ground terminal of power code must connect to the ground.
13. According to output porarity, it solved problem ESD and Floating voltage using the connect ground port to terminal of output .
14. To connect the ground, be careful at ground porarity of load.
15. Input voltage of instrument must be equal to AC power voltage.
16. It use to thick and short wire of output terminal in possible.

2-3. CLEARING

1. To clean stained casing, lightly rub the stained area with a soft cloth dipped in a neutral detergent.
2. If the surface of the panel is dirty, use the same method to clean.
   If the panel is heavily stained, rub the affected area lighty with a soft cloth soaked in light neutral detergent or alcohol.
3. Never use highly volatile material such as benzene or paint thinner.

3. SPECIFICATIONS

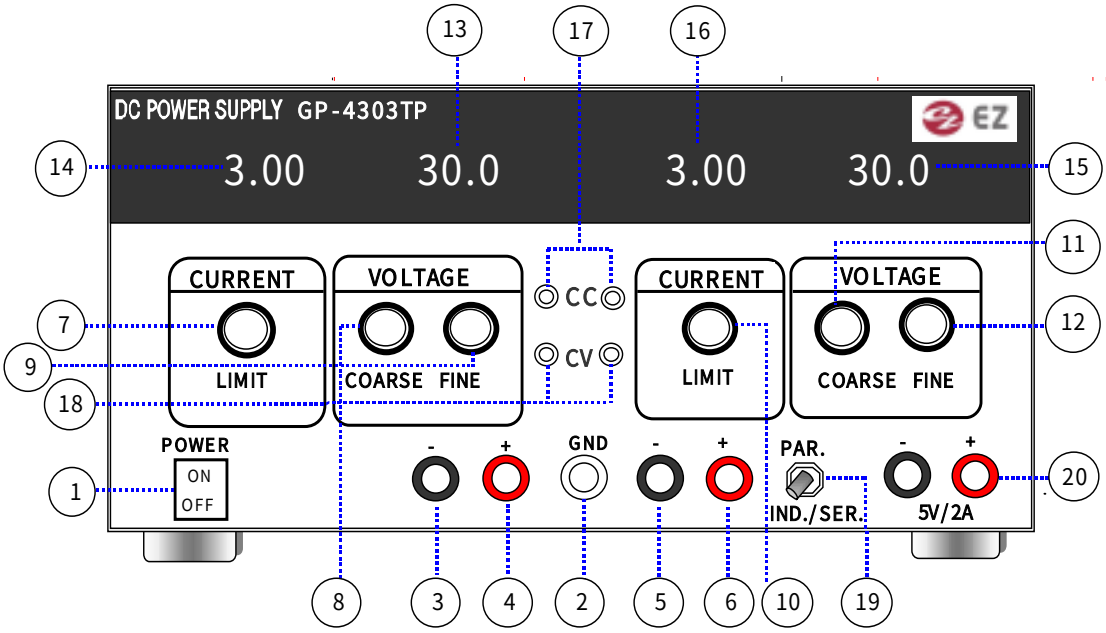
3-1. Output Voltage & Current

Function	Channel	Voltage	Current
INDEPENDENT	2 CH.	0 ~ 30V 0 ~ 30V	0 ~3A 0 ~3A
SERIAL	1 & 2 CH.	0 ~ 60V	0 ~6A
DUAL	1CH.	0 ~ -30V	0 ~3A
	2CH.	0 ~ +30V	

3-2. Electrical Characteristic & Dimension

Power Source	:	AC 115V / 230V , 50/60HZ
Power Consumption	:	GP-4303DU : 270VA GP-4303TP : 285VA
Ripple Voltage	:	Less than 0.5mVrms
Line Regulation	:	Less than 0.01% +2mVrms for power source voltage change of ±10%
Load Regulation	:	Less than 0.01% +3mVrms for load variation of 0 to 100%
Voltmeter Monitor	:	±(1% of Reading + 1Digit)
Ampermeter Monitor	:	±(1% of Reading + 1Digit)
Insulation between	:	More than 10MΩ at DC 500V chassis and output terminal More than 50MΩ at DC 500V chassis and AC plug.
Ambient temperature	:	5°C ~ 40°C
Operating Humidity	:	50% ~ 80%
Storage temperature	:	0°C ~ 70°C
Dimension	:	235(W) x 145(H) x 370(D)
Weight	:	Approx. 11.5Kg
Supplied Accessories	:	Instruction Manual Spare Fuse Short Bar

4. FRONT PANEL DECRIPTION



GP-4303DU don't included the 5V/2A Output Terminal

1) Power Switch : This switch turns on and off the power.

2) GND : Chassis ground terminal
3) - Output Terminal : Channel 1 (-) Output terminal
4) + Output Terminal : Channel 1 (+) Output terminal
5) - Output Terminal : Channel 2 (-) Output terminal
6) + Output Terminal : Channel 2 (+) Output terminal
7) Current Limit knob : CH1. Current limit control volume
8) Voltage Coarse knob : CH1. Voltage main control volume
9) Voltage Fine knob : CH1. Voltage fine control volume
10) Current Limit knob : CH2. Current limit control volume
11) Voltage Coarse knob : CH2. Voltage main control volume
12) Voltage Fine knob : CH2. Voltage fine control volume
13) Voltage Meter : CH1. Analoge Voltage Meter
14) Current Meter : CH1. Analoge Current Meter
15) Voltage Meter : CH2. Analoge Voltage Meter
16) Current Meter : CH2. Analoge Current Meter
17) C.C LED : Display LED for limiting current operating of each channel.
18) C.V LED : Display LED for limiting voltage operating of each channel.
19) Function Conversion Switch : Switch for selecting INDEPENDENT, SERIAL/DUAL
① INDEPENDENT : CH.1 & CH.2 operate independently.
② SERIAL : CH.1 & CH.2 operate in serial
③ DUAL : It is possible to connect positive (+30V) & negative (-30V).
20) Output Terminal : 5V/2A Fixed Output Terminal (Not installed in GP-4303DU)

5. OPERATION PRECEDURE

5-1. Independent Function

With this function, you can use the 0~30V, 0~3A range of each channel independently (Both channels are operated the same methode.)

1) Turn OFF the power switch.

2) Set the 115V/230V AC line voltage selector switch (chassis bottom) to outlet's AC line.

3) Set the selection switch to INDEPENDENT function.

4) Turn the voltage knob to max. CCW, that is to minimum.

5) Turn the current knob to max. CW, that is to maximum.

6) Connect the AC power cord to the AC outlet.

7) Turn ON the power switch.

8) Turn the voltage knob to get the desired output voltage. (built-in voltmeter)

9) Connect the probes to the output terminal and load, with the right polarity.
set the output to 5V and short the output terminals.
Then set current knob to the desired value while checking the value indicated on the built in current meter.

Be sure to release the short when in use.

[NOTE] Each channel are fully independent function and electronically isolated when INDEPENDENT is selected.

5-2. Serial Function

With this function, you can connect channel 1,2 of outputs in series to double output voltage to 60V.
Processed as follow:

1) Perform (1),(2) of 5-1-1.
2) Set selection switch to INDEPENDENT/SERIAL mode.
3) Perform (4)~(7) of 5-2-1.
4) Connect channel 1 (+) output terminal ④ to channel 2 (-) output terminal ⑤.
5) Perform steps 4) ~ 7) of 5-1-1.
6) Turn the voltage control knob of both channels until the sum of the indicated output voltages of the two channels equals the desired output voltage.
7) Connect channel 1 (-) output terminal ③ and channel 2 (+) output terminal ⑥ to the load using the probe. Check for correct polarity.
8) To limit the current for series output, set channel 1's output voltage to about 5V, short channel 1's output terminals and set channel 1 current LIMIT knob to desired value while checking the current meter.

5-3. Dual Function

With this function, you can simultaneously ground channel 1 and channel 2 to get + 30V and - 30V output ; proceed as follows ;

1) First, perform steps 1) and 2) of 5-1-1.

2) Set selection switch 19) to INDEPENDENT/SERIAL mode.

3) Short the output GND terminal, channel 1 (+) output terminal ④ and channel 2 (-)output terminal ⑤ together with a short bar ; then you can get negative output voltage of 0 ~ 30V
from channel 1 and positive output voltage of 0 ~ 30V from channel 2.

4) In order to limit the current for + / - supply, set channel 1 output voltage to about 5v short channel 1 output terminals and turn the channel 1 current LIMIT knob to desired current limit value.(as indicated on the current meter)

Proceed the same way for channel 2.

Do not forget to remove short of output terminals during actual use.

5-4. Setting of Constant Current

CONSTANT CURRENT function is needed for variable impedance loads where the voltage might change but the current has to remain constant : setting should beperformed in the way as for CURRENT LIMIT function.

Therefore,perform steps (1)~(7) of 5-1-1.

[NOTE]

In CONSTANT CURRENT mode, the C.C indicator (red LED) should be lighting.
However if the same LED lights while in CONSTANT VOLTAGE mode, there is problem with the load.
In this case ,check the load.

6. NOTE ON ENVIRONMENTAL CONDITION

(1) Avoid using the unit in such a place where the ambient temperature exceeds 40°C or under the direct sun shines.
Limit the maxinum output current when the unit is used in such a place where ventilation is interrupted or a radiation exists from other equipments.

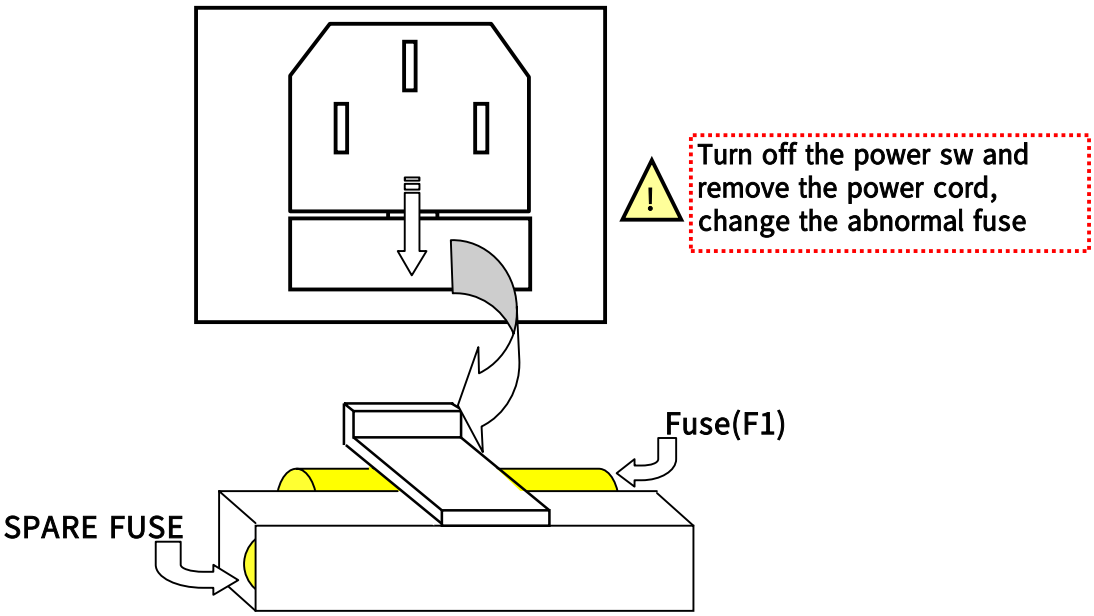
(2) Use the instriment within 10% tolerance of the specified voltage from the power source.

(3) Environmental Conditions

- Indoor use
- Altitude : Up to 2,000m
- Relative humidity : 50% ~ 80%
- Insullation : Category II (Over Voltage Category)
- Pollution : Degree 2

7. TO REPLACE THE FUSE

Pull out F1 below with screw driver and get rid of F1, take out spare Fuse in the holder
Put it in the position of F1.



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The specifications are subjected to change without notice.