INSTRUCTION MANUAL

3030 SERIES

REGULATED DC POWER SUPPLY

SAFETY SUMMARY

SAFETY PRECAUTIONS

Please take a moment to review these safety precautions.

They are provided for your protection and to prevent damage to the power supply.

This safety information applies to all operator and service personnel.

*NOTE : If the equipment is used in a manner not specified by the manufacture, 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.

SYMBOLS

Caution (refer to accomp0anying documents)

PROTECTIVE CONDUCTOR TERMINAL

INSTRUCTIONS

1. To maintain the precision and the reliability of the product, use it in the standard settings

   Operating temperature : 5℃ ~ +40℃

   Operating humidity : 80% ~ 50%

   Storage temperature : 0℃ ~ 70℃

   Storage humidity : less than 85%

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

WARRANTY

Warranty service covers two years from the date of original purchase.

In case of technical failure within the first two years, repair service will be provided by our service center or sales outlet free of charge.

We charge for repairs after the two-year warranty period expires.

When the failure is a result of user's neglect, natural disaster or accident, we charge for repairs regardless of the warranty period.

For more information regarding professional reapair service, please contact our service center or sales outlet.

CONTENTS

1. GENERAL

3030 series Regulated DC Power supply comprises the following models:

3030 -Single 0~30V 0~3A
3050 -Single 0~30V 0~5A
5030 -Single 0~50V 0~3A
1210 -Single 0~120V 0~1A
3030D -Dual 0~30V 0~3A
3050D -Dual 0~30V 0~5A
3030T -Dual 0~30V 0~3A Fixed 5V3A

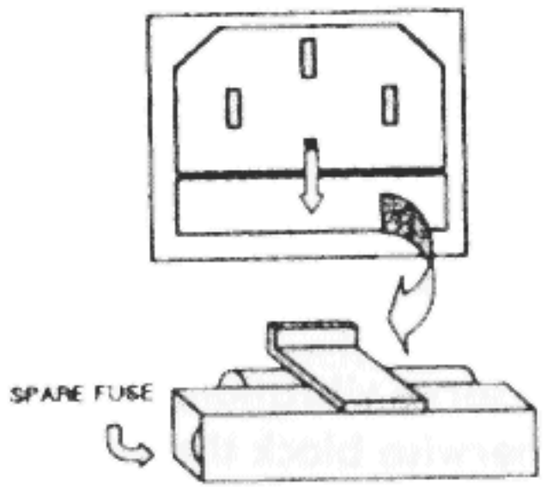
It features low ripple and high stability.
Main features for the above models are as follows:-

1) Utilizes SMT technology.
2) LCD display to show voltage and current.
3) LCD display to show regulated voltage and current.
4) Green/Amber LCD back-light selectable.
5) Auto interchangeable of regulated voltage and current.
6) Multi-turn variable device to provide high precision voltage setting.
7) Step-by-step current limit setting.
8) Auto-tracking on PARALLE and SERIAL working condition.
9) Extended output terminal connection.
10) Continuously working under full loaded condition.

2. PRECAUTIONS

2-1. EXCHANGE METHODE OF FUSE

If you wish to change FUSE F1, please use driver and pull it over as per drawing.



Line Voltage Selection and Fuse Ratings

Line Voltage	Mark Position	Location Fuse No.	Fuse Rating (250V)
AC 220V/110V	220V/110V	F1	T 3.15AL

2-2. INSTALLATION AND 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 or 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 bringing it in from the cold.
   Allow time for it to warm to room temperature. Similarly 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 environments.
4. Do not place liquid-filled containers (such as coffee cups) on top of this instrument.
   A spill could seriously damage the instrument.
5. Do not use this instrument where it is subject to serve vibration, or strong blows.
6. Do not place heavy objects on the case, or otherwise block the ventilation holes.
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 result.
11. Do not connect other power source to $\oplus$, $\ominus$ of the output terminal.

2-3. CLEANING

1. To clean stained casing, lightly rub the stained area with a soft cloth dipping a neutral detergent.

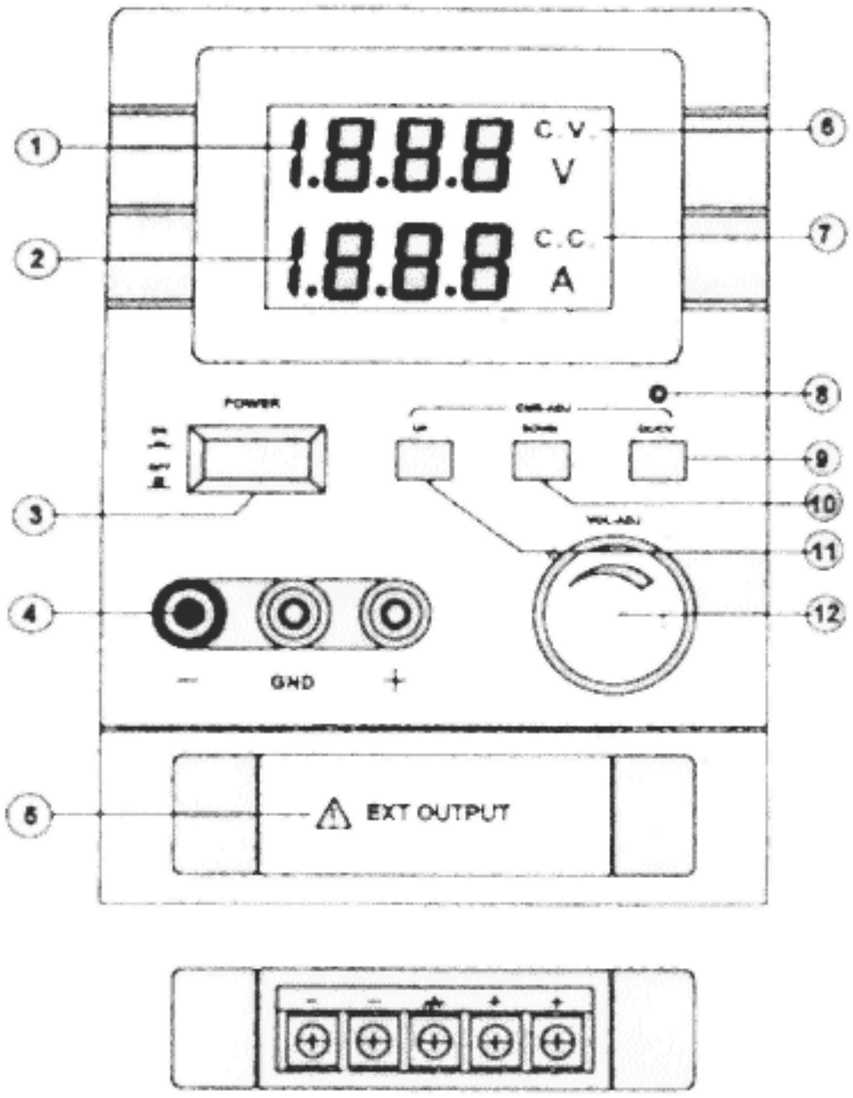
2. If the surface of the panel is dirty, use the same method to clean.
   If the panel is heavily stained, rub the affected area lightly with a soft cloth soaked in light neutral detergent or alcohol.

3. Never use highly volatile material such as benzene or paint thinner.

3. SPECIFICATIONS

Models	3030	3050	5030	1210	3030D	3050D	3030T
INPUT VOLTAGE	220V/110V ± 10% 50 ~60Hz						
OUTPUT VOLTAGE	0 ~ 30V		0 ~ 50V	0 ~ 120V	0 ~ 30V X 2	0 ~ 30V X2	0 ~ 30V X2, 5V
CURRENT STEPWISE	30mA±3mA	50mA±5mA	30mA±3mA	10mA± 1mA	30mA±3mA	30mA±3mA	30mA±3mA
OUTPUT CURRENT	0~3A	0~5A	0~3A	0~ 1A	0~3A X2	0~5A X2	0~3A X2, 3A
LINE REGULATION	CV≤ 5 X 10^{-4}mV CC≤ 5 X 10^{-4}mV						
LOAD REGULATION	CV≤ 5 X 10^{-4}mV CC≤ 5 X 10^{-4}mV						
RIPPLE & NOISE	CV≤ 0.5 mV CV≤ 2mV						
OPERATATING TEMPERATURE	0~40℃						
RELATIVE HUMIDITY	≤ 90%						

4. PANEL DETAILS – SINGLE TYPE



5. DESCRIPTION OF PANEL FUNCTION – SINGLE TYPE

1. Output Voltage LCD Display.
2. Output Current LCD Display.
3. On/Off Power Switch.
4. Output Terminals.
5. Extended Output Terminals.
6. Constant Voltage Display.
7. Constant Current Display.
8. Current Limit Adjustment Indicator.
9. C.V. / C.C. Selection Switch.
10. Current Limit Down Setting.
11. Current Limit Up Setting.
12. Output Voltage Setting.

6. OPERATIONS PROCEDURES– SINGLE TYPE

6-1 PRE-OPERATIONAL CHECKING

6-1-1 Visual inspection

First, the functional elements should be visually inspected for damages. For example, the chassis, VR knobs, output terminals, function buttons, fuse holders, voltmeters, current meters, switches etc. should be checked for visible damage. If damage is detected, the supply should not be operated.

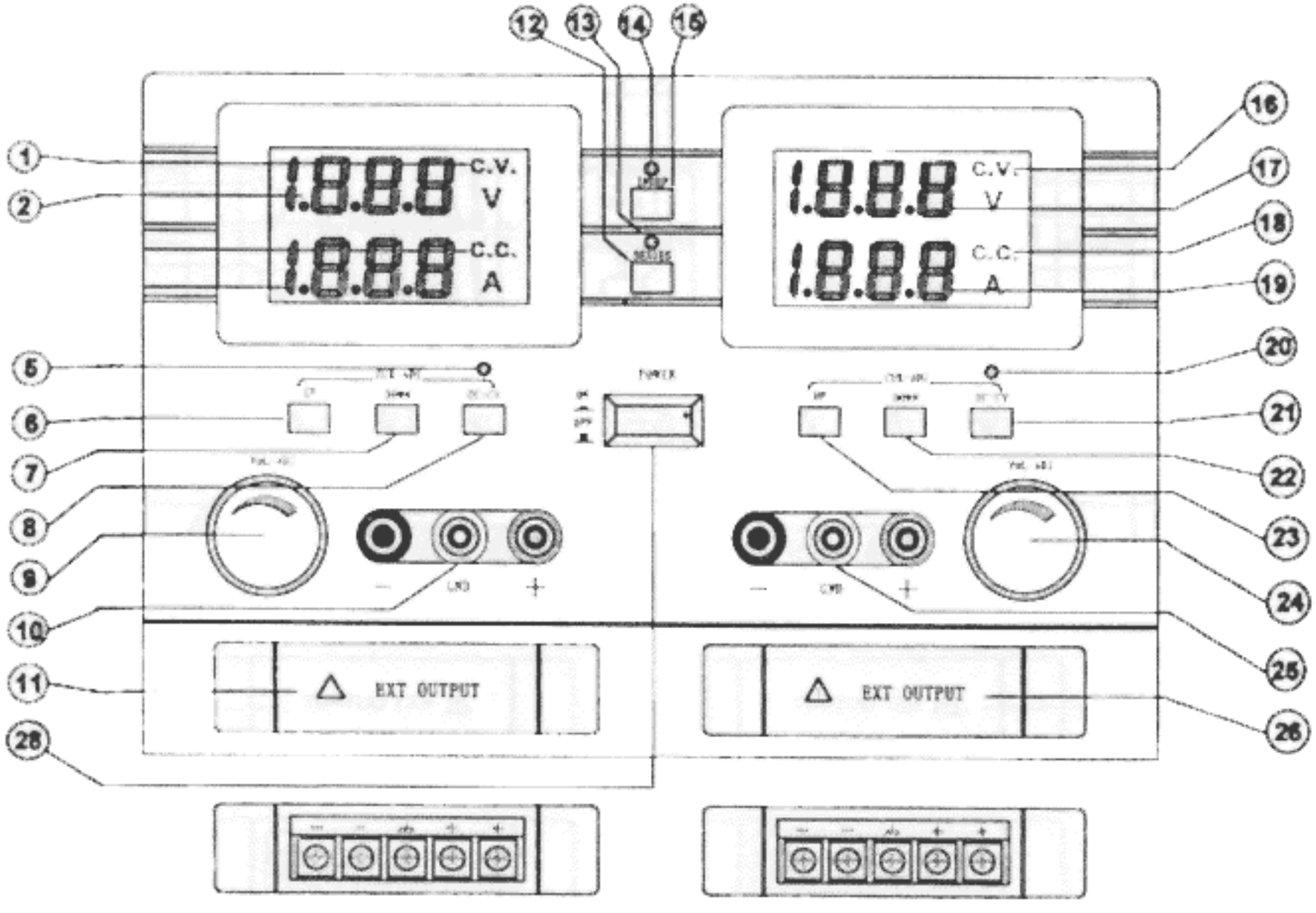
6-1-2 Basic electrical check

1) Check that the power switch is set to OFF.
2) Turn the voltage knob to maximum CCW, that is, minimum output voltage.
3) If no problem is found for 1) ~ 2), connect the supply's power cord to the AC outlet and turn the power switch ON.
4) Adjust the voltage setting knob to the desired voltage which can be shown in the LCD display.
5) Connect the load, make sure the load current not exceeding the maximum output current.

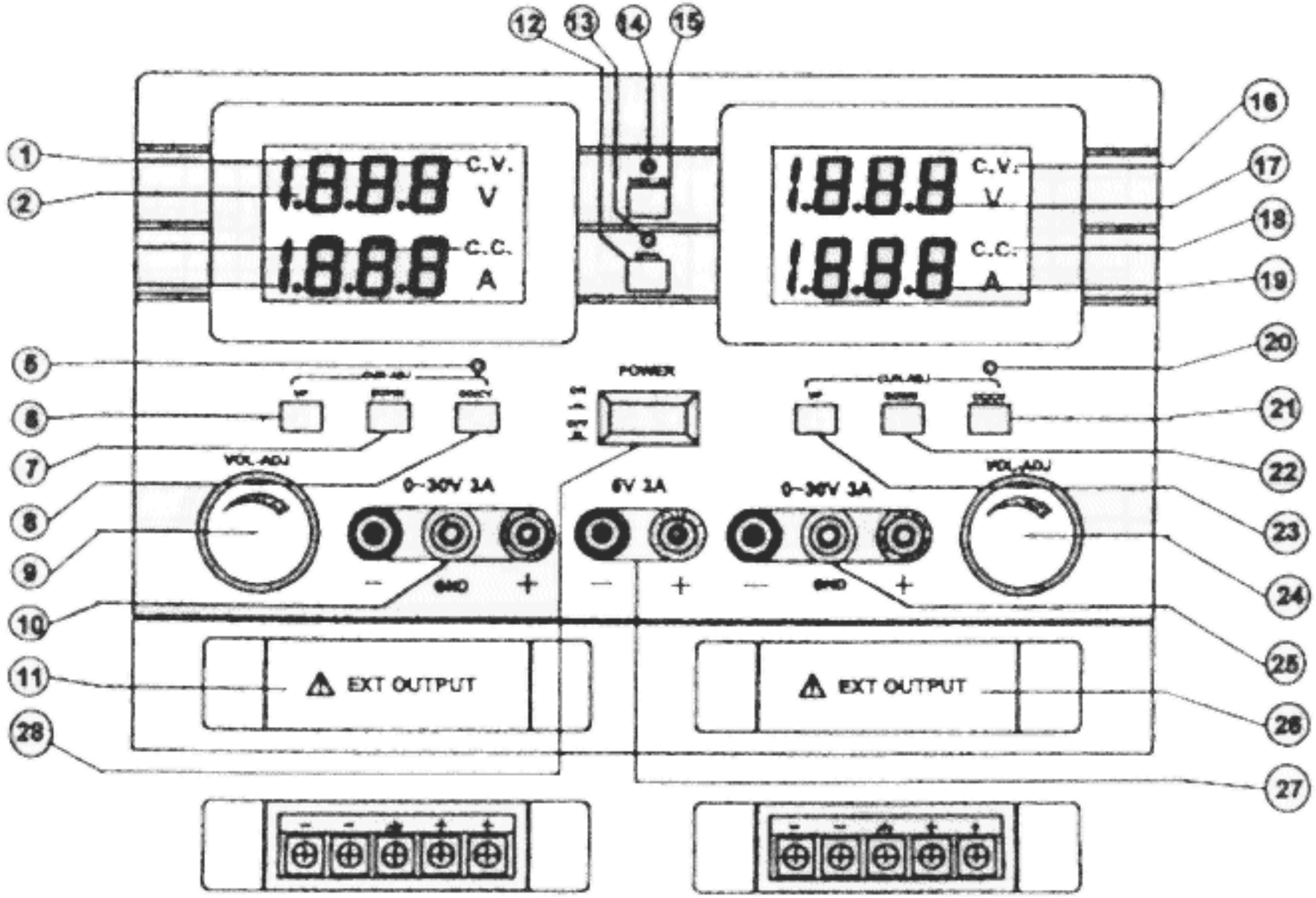
6-2 Constant Current Adjustment Method

1. Adjust by turning the voltage setting knob to desired voltage.
2. Press the CV/CC setting button down to light up the CC/CV setting indicator.
3. Use a wire to shorten the (+) and (-) terminal at the output terminal.
4. Push the UP or DOWN button to obtain the desired current value.
5. When pushing and hold the UP or DOWN button over 0.8sec, the value will go up or go down continuously.
6. Release the shorten wire, connect the load to begin operation.
7. The setting of current value will be stored in the EEPROM after power off.
8. The current value will be resumed by pushing the CV/CV button when next power on.

7. PANEL DETAILS – DUAL TYPE



7.1 PANEL DETAILS – TRIPLE TYPE



8. DESCRIPTION OF PANEL FUNCTION- DUAL TYPE

1. Constant Voltage Display – Ch.1
2. Output Voltage Display – Ch.1
3. Constant Current Display – Ch.1
4. Output Current Display – Ch.1
5. Current Limit Adjustment Indicator – Ch.1
6. Current Limit Up Setting – Ch.1
7. Current Limit Down Setting – Ch.1
8. C.V. / C.C. Selection Switch – Ch.1
9. Output Voltage Setting – Ch.1
10. Output Terminal – Ch.1
11. Extended Output Terminals – Ch.1
12. Serial Function Select Switch
13. Serial Function Indicator

DESCRIPTION OF PANEL FUNCTION – DUAL TYPE (cont')

14. PARRALLEL Function Indicator
15. PARRALLEL Function Select Switch
16. Constant Voltage LCD Display – Ch.2
17. Output Voltage LCD Display – Ch.2
18. Constant Current Display – Ch.2
19. Output Current Display – Ch.2
20. Current Limit Adjustment Indicator – Ch.2
21. C.V. / C.C. Selection Switch – Ch.2
22. Current Limit Down Setting – Ch.2
23. Current Limit Up Setting – Ch.2
24. Output Voltage Setting – Ch.2
25. Output Terminals – Ch.2
26. Extended Output Terminals – Ch.2
27. Output Terminals for 5V3A
28. Power Switch

9. OPERATION PROCEDURES – DUAL TYPE

9.1Constant Voltage Setting Method

1) Turn on power on switch.
2) Adjust voltage setting knob to the desired voltage which can be shown in the LCD display.
3) Connect the load, make sure the load current not exceeding the maximum output current.

9.2 Constant Current Adjustment Method

1. Adjust by turning the voltage setting knob to desired voltage.
2. Press the CV/CC setting button down to light úp the CC/CV setting indicator.
3. Use a wire to shorten the (+) and (-) terminal at the output terminal.
4. Push the UP or DOWN button to obtain the desired current value.
5. When pushing and hold the UP or DOWN button over 0.8sec, the value will go up or go down continuously.
6. Release the shorten wire, connect the load to begin operation.
7. The setting of current value will be stored in the EEPROM after power off.
8. The current value will be resumed by pushing the CV/CV button when next power on.

9.3 Serial Function operating method

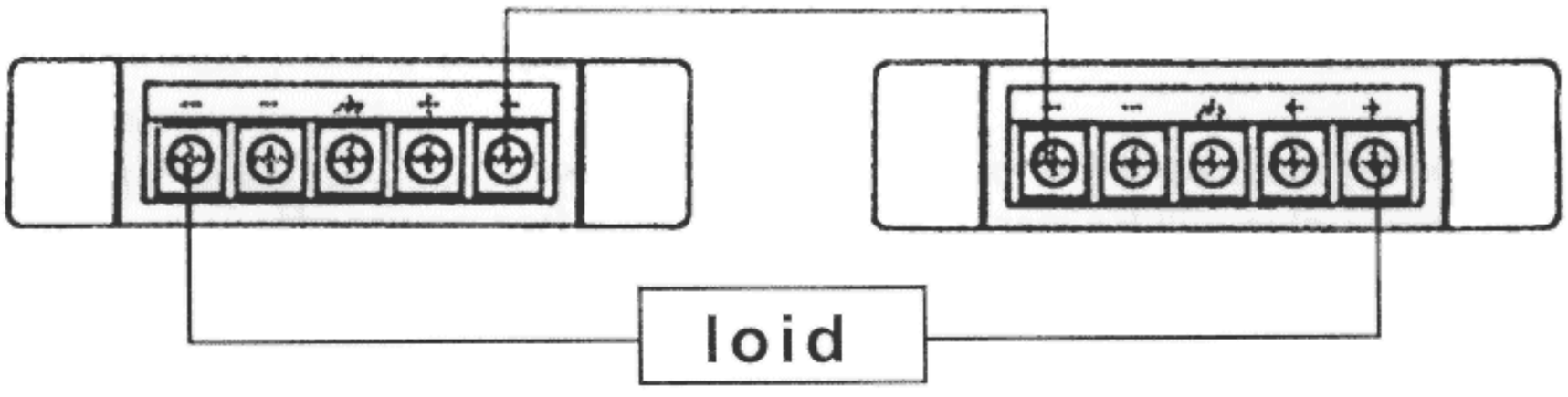
9.3.1 Turn on the power by pressing the POWER switch.

9.3.2 Push the SERIAL button down to light up the indicator, the dual power supply is now working under serial condition, the maximum voltage output is from 0~60V

9.3.3 When adjusting both the voltage setting knobs independently, the total output voltage is the sum of 2 voltage readings from the LCD display.

9.3.4 Push the SERIAL button down again, the indicator will off, and this dual power supply will work independently.

Notice: When operating at constant current condition, the constant current value should be set at the same value.



9.4 PARRALLEL function operating method

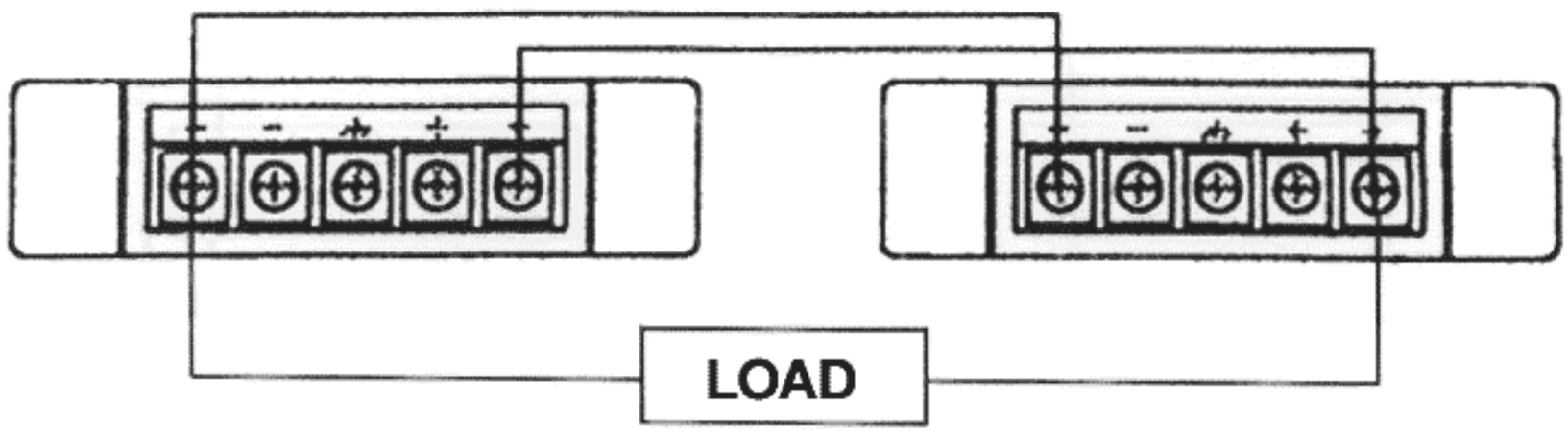
9.4.1 Turn on the power by pressing the POWER switch.

9.4.2 Under normal condition, to adjust both voltage knob to obtain same or similar voltage value.

9.4.3 Push the PARRALLEL button down to light the indicator, the unit is now working under parallel condition, the maximum current can be obtained is 6A (**3030D**), 10A (**3050D**)

9.4.4 To obtain desired voltage by fine tunning any of the voltage setting knob.

9.4.5 Push the PARRALLEL button down again, the light will off, this dual power supply will operate independently.



9.5 DUAL FUNCTION

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

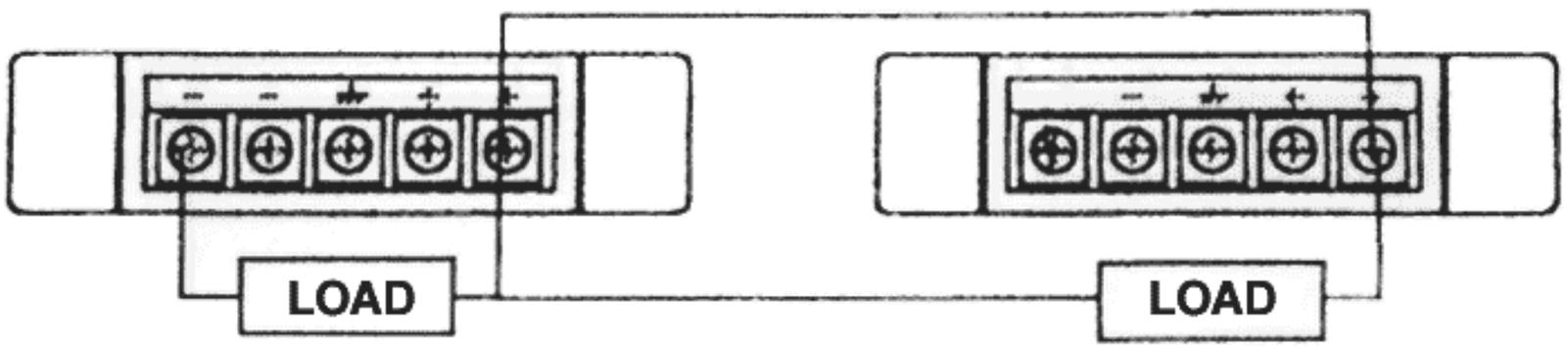
9.5.1 First do not turn on power.

9.5.2 Short the output (+) terminal of channel 1 and channel 2 with a short wire.

9.5.3 Turn on the power switch, push "SERIAL" button down to light up the indicator, and you can get negative output voltage of 0 ~ 30V from channel 1 and positive output voltage of 0 ~ 30V from channel 2. as shown in the diagram.

9.5.4 In order to limit the current for +/- supply, you can perform the setting of CV/CC procedures to get the desired current output.

9.5.5 Do not forget to remove short wire of output terminals when operating in other mode. .



10. NOTES ON ENVIRONMENTAL CONDITION

10.1 Avoid using the unit in such a place where the ambient temperature exceeds 40℃ or under the direct sun shines. Limit the maximum output current when the unit is used in such a place where ventilation is interrupted or a radiation exists from other equipments.

10.2 Use the instrument within 10% tolerance of the specified voltage from the power source.

10.3 Environmental conditions

1) Indoor use.

2) Altitude : up to 2,000m

3) Relative humidity : 80% ~ 50%

4) Installation Category (Overvoltage category) II

5) Pollution : Degree 2

11. NOTICES

11.1 When the operation is in PARALLEL mode, when activating the SERIAL button, the operation will be changed from PARALLEL mode to SERIAL mode.

10.2 When the operation is in SERIAL mode, when activating the PARALLEL button, the operation will be changed from SERIAL mode to PARALLEL mode.

10.3 When the unit is used in inductance load, (like DC electric buzzer), install a 50V/4700 μ F~2200 μ F electrode capacitor across the extension terminal, connection please refer to Fig. 5

10.4 When the unit is used with the high frequency instruments (like ultrasonic soldering tool), the electric power supply should be grounded.