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ISO-9001:2000 CERTIFIED MANUFACTURER

Multi-Output DC Power Supply USERS MANUAL V9.1



MATRIX

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CONTENTS

SECTION	
PAGE	
1. Introduction	1
2. Specifications	2
2-1 General	2
2-2 Specifications	4
2-3 Insulation	7
3. Panel Controls and Instructions	8
3-1 Front Panel of MPS-3010L-2/6005L-2/3002L(K)-2CH/3003L(K)-2CH /3005L(K)-2CH	8
3-2 Rear Panel of MPS-3010L-2/6005L-2	9
3-3 Front Panel of MPS-3002L(K)-3/3003L(K)-3/3005L(K)-3	10
3-4 Rear Panel of MPS-3002L(K)-2CH/3003L(K)-2CH/3005L(K)-2CH/3002L(K)-3 /3003L(K)-3/3005L(K)-3	11
3-5 Front Panel of DPS-3202TK-3/3203TK-3/3205TK-3	12
3-6 Rear Panel of DPS-3202TK-3/3203TK-3/3205TK-3	13
3-7 Front and Rear Panel Instruction	14
4. Operation Instructions	17
4-1 Precaution	17
4-2 Setting Current Limit	17

CE Declaration of Conformity

We

MATRIX TECHNOLOGY INC.
 Building. B, No.5 East Wing, Shangxue Technology City,
 Bantian, LongGang, Shenzhen, China

Declare under sole responsibility that the below mentioned products MPS-3002L-3,MPS-3003L-3, MPS-3005L-3,MPS-3002LK-3,MPS-3005LK-3,DPS-3202TK-3,DPS-3203TK-3,DPS-3205TK-3, MPS-3010L-2,MPS-6005L-2,MPS-3002L-2CH,MPS-3003L-2CH,MPS-3005L-2CH, MPS-3002LK-2CH,MPS-3003LK-2CH,MPS-3005LK-2CH meet the intent of Directive 89/336/EEC, 98/68EEC for electromagnetic compatibility. Compliance was demonstrated to the following specifications as listed in the Industrial Technology Research Institute:

EN50082-2: Electromagnetic Compatibility-(1992) Generic immunity standard Part 1: Residential, commercial and light industry Electrostatic			EN50081-2: Electromagnetic Compatibility-(1992) Generic emission standard Part 1: Residential, commercial and light industry		
Discharge	IEC 1000-4-2	(1995)	Conducted Emission	EN 55022 class B	(1994)
Radiated Immunity	IEC 1000-4-3	(1995)	Radiated Emission	EN 55011 class B	(1991)
Electrical Fast Transients	IEC 1000-4-4	(1995)	Current Harmonics	EN 6100-3-2	(1995)
Surge Immunity	IEC 1000-4-4	(1995)	Voltage Fluctuations	EN 6100-3-3	(1995)
Voltage Dip/Interruption	EN6100-4-11	(1994)	Low Voltage Directive	EN 61010-1	(1993)

Model	Specification	Output voltage	Output current	Fixed output	Output standby	Voltage preset
MPS-3002L-3	0~30V X2	0~2A X2	5V/3A	NO	NO	NO
MPS-3003L-3	0~30V X2	0~3A X2	5V/3A	NO	NO	NO
MPS-3005L-3	0~30V X2	0~5A X2	5V/3A	NO	NO	NO
MPS-3002LK-3	0~30V X2	0~2A X2	5V/3A	YES	NO	NO
MPS-3003LK-3	0~30V X2	0~3A X2	5V/3A	YES	NO	NO
MPS-3005LK-3	0~30V X2	0~5A X2	5V/3A	YES	NO	NO
DPS-3202TK-3	0~30V X2	0~2A X2	2.5/3.3/5V, 3A	YES	YES	YES
DPS-3203TK-3	0~30V X2	0~3A X2	2.5/3.3/5V, 3A	YES	YES	YES
DPS-3205TK-3	0~30V X2	0~5A X2	2.5/3.3/5V, 3A	YES	YES	YES
MPS-3010L-2	0~30V X2	0~10A X2	NO	NO	NO	NO
MPS-6005L-2	0~60V X2	0~5A X2	NO	NO	NO	NO
MPS-3002L-2CH	0~30V X2	0~2A X2	NO	NO	NO	NO

Main Supply: 110/220V, 50/60Hz selectable
 Operation Temperature & Humidity: 0°C to 40°C, >90% RH
 Storage Temperature & Humidity: -20°C to 80°C, >80% RH
 Accessories
 Power cord.....1
 Operation Manual.....1

2.1 General
2. Specifications

1. Introduction

MPS-SERIES DC power supply are designed to be used in applications such as powering operational amplifier, push pull stages, logic circuit and definition systems where plus and minus voltages are required to track with an insignificant error, and in any application where three independent power supplies housed in a single package represent an operating convenience. The instruments consist of two identical, independently adjustable and one fixed 5V/3A DC power supplies. A front panel switch selects one of three modes of operation: independent, series and parallel. In the independent mode, the output voltage and current of each supply are controlled separately, and each supply is isolated up to 300V from output to chassis or output to output. In the tracking mode, both outputs are automatically connected in series or parallel, and the controls of the left supply adjust the magnitudes of both the positive and negative output voltages. Because the outputs are connected in a tracking configuration, any internal disturbance in the master supply (such as drift or ripple) will cause an equal percentage change in the outputs of both the supplies.

Each power supply is a completely transistorized, well-regulated, constant voltage/constant current supply that will furnish full rated output voltage at the maximum output current or can be continuously adjusted throughout the output range. The front panel current controls can be used to establish the output current limit (overload or short circuit) when the supply is used as a constant voltage source (independent or tracking modes) and the voltage controls can be used to establish the voltage limit (ceiling) when the supply is used as a constant current source (independent mode only). The supply will automatically cross over from constant voltage to constant current operation (current limited operation in the tracking mode) and vice versa if the output current or voltage exceeds these preset limits. Each supply had its own front panel meter that can measure output voltage and current. One power supply may be used as a master supply controlling, one slave supplies furnishing various voltages or current for a system. When operated with the front panel mode switch in the tracking position, the instrument is automatically internally connected in auto tracking configuration.

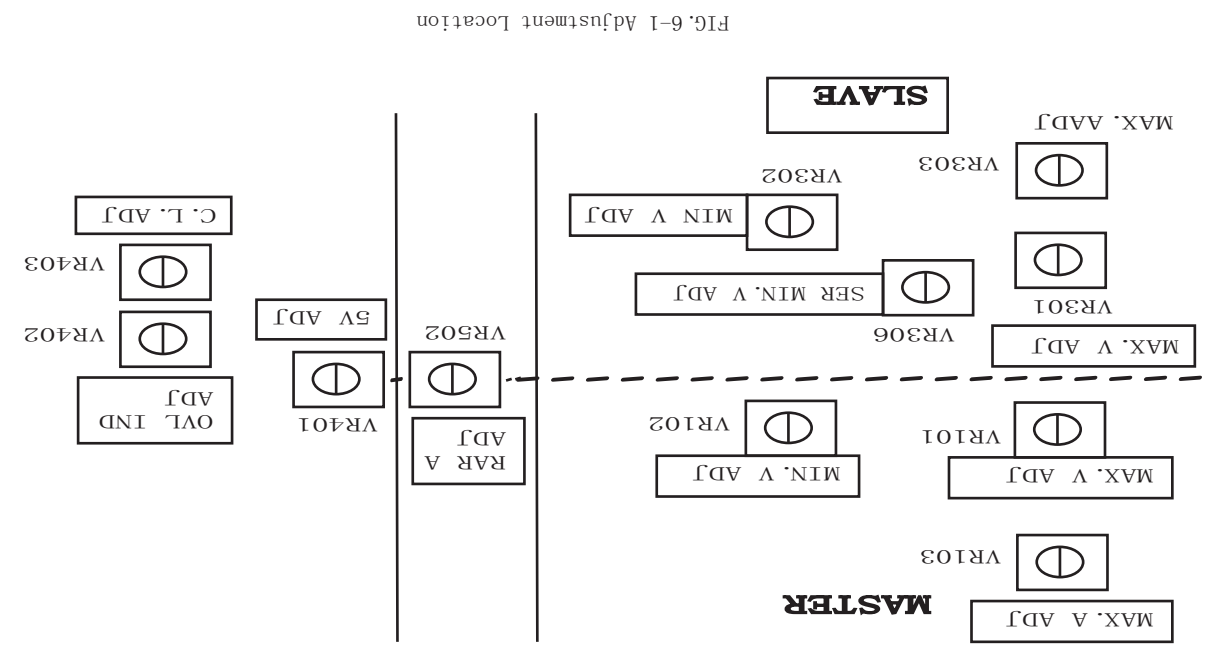


FIG. 6-1 Adjustment Location

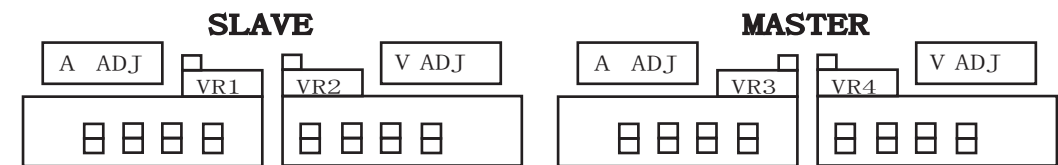


Fig. 6-2 Adjustment Location

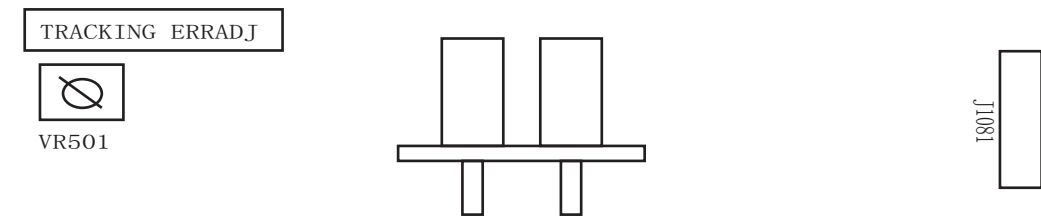


Fig. 6-3 Adjustment Location

Fuse	220V AC	110V AC	Model number
	TSD 6.3A/250V AC	TSD 4.0A/250V AC	30V/2A series
	TSD 6.3A/250V AC	TSD 6.3A/250V AC	30V/3A series
	TSD 6.3A/250V AC	TSD 6.3A/250V AC	30V/5A series
	TSD 10A/250V AC	TSD 10A/250V AC	MPS-3010L-2
	TSD 10A/250V AC	TSD 10A/250V AC	MPS-6005L-2

6. Maintenance

WARNING

The following instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.

6-1 Fuse Replacement

If the fuse blows, the CV or CC indicators will not light and the power supply will not operate. The fuse should not normally open unless a problem has developed in the unit. Try to determine and correct the cause of the blown fuse, then replace only with a fuse of the correct rating and type. The fuse is located on the rear panel (see Fig.3-2).

The fuse is located on the rear panel (see Fig.3-2).

When line voltage are changed, replace the required fuse shown below

- E. Set the SLAVE CURRENT control to midrange and set the MASTER SUPPLY VOLTAGE controls to maximum (fully clockwise).
 - F. Measure the voltage of MASTER SUPPLY and then SLAVE SUPPLY use the multi-meter.
 - G. Adjust VR501 until the voltage read from the multi-meter is the same as it was across the MASTER output terminals. Return the multi-meter to the MASTER output terminals and verify that the output voltage is identical. If not, repeat this step.
- 7-3 Parallel Tracking Adjustment**
- A. Disengage both TRACKING mode switches (both switches out) so that the power supply is in the INDEPENDENT operating mode.
 - B. Set the MASTER SUPPLY Voltage and Current controls to minimum (fully counterclockwise).
 - C. Connect the multi-meter across the MASTER SUPPLY output terminals and measure the output current.
 - D. Set the MASTER SUPPLY voltage control to midrange and Adjust the Current control to obtain an output current of rating amperes (read on the multi-meter). Do not change the Current control setting after this step.
 - E. Engaged both TRACKING mode switches (both switches in) so that the power supply is in the PARALLEL operating mode.
 - F. Set the SLAVE SUPPLY CURRENT control to maximum (fully clockwise) and set the Voltage control to midrange.
 - G. Adjust trimmer potentiometer VR502 on the circuit board to obtain an output current of double rating amperes on the multi-meter.

2-3 Insulation

Between chassis and outputterminal: $\geq 20M\Omega$ (DC500V)

Between chassis and AC cord: $\geq 30M\Omega$ (DC500V)

2-2. Specifications

Model NO.	DPS-3202TK-3	DPS-3203TK-3	DPS-3205TK-3	MPS-6005L-2
Output voltage	0~30V*2 variable	0~30V*2 variable	0~30V*2 variable	0~60V*2 variable
Output current	0~2A*2 variable	0~3A*2 variable	0~5A*2 variable	0~5A*2 variable
Constant voltage operation				
Line regulation	CV \leq 0.01%+5mV			CV \leq 0.03%+5mV
Load regulation	CV \leq 0.01%+5mV			CV \leq 0.03%+5mV
Ripple and noise	CV \leq 5mV(rms)			CV \leq 7mV(rms)
Temperature coefficient	150ppm/°C			
Constant current operation				
Line regulation	CC \leq 0.2%+5mA			
Load regulation	CC \leq 0.2%+5mA			
Ripple and noise	CC \leq 3mA(rms)			
Temperature coefficient	500ppm/°C			
Display accuracy	3and1/2 digit Voltage \leq \pm 0.5%+2d Current (A) \leq \pm 1%+2d (mA) 0-100mA \pm 1mA,100-900mA \pm 2mA			Voltage \leq \pm 0.5%+2d Current \leq \pm 1%+2d
Recovery time	\leq 100 μ S			
Fixed output				
Line regulation	\leq 5mV			
Load regulation	\leq 15mV			
Ripple and noise	\leq 2mV(rms)			
Voltage accuracy	\pm 0.1V			
N.W. (KG)	6.5	7.4	8	12.8
Measurement	300X220X150			420X250X150

Model NO.	MPS-3002L(K)-2CH	MPS-3003L(K)-2CH	MPS-3005L(K)-2CH
Output voltage	0~30V*2 variable	0~30V*2 variable	0~30V*2 variable
Output current	0~2A*2 variable	0~3A*2 variable	0~5A*2 variable
Constant voltage operation			
Line regulation	CV≤0.01%+3mV		CV≤0.03%+5mV
Load regulation	CV≤0.01%+3mV		CV≤0.03%+5mV
Ripple and noise	CV≤2mV(rms)		CV≤7mV(rms)
Temperature coefficient	150ppm/°C		
Constant current operation			
Line regulation	CC≤0.2%+3mA		
Load regulation	CC≤0.2%+3mA		
Ripple and noise	CC≤3mA(rms)		
Temperature coefficient	500ppm/°C		
Display accuracy	3 and 1/2 digit Voltage±0.5%+2d Currents±1%+2d		
Recovery time	≤ 100 μ S		
Fixed output			
Line regulation	≤ 5mV		
Load regulation	≤ 15mV		
Ripple and noise	≤ 2mV(rms)		
Voltage accuracy	± 0.1V		
N.W. (KG)	7.6	9	9.8
Measurement	365x250x155		420X250X150

2-2. Specifications (continued)

2-2. Specifications (continued)

Model NO.	MPS-3002L(K)-3	MPS-3003L(K)-3	MPS-3005L(K)-3	MPS-3010L-2
Output voltage	0~30V*2 variable	0~30V*2 variable	0~30V*2 variable	0~30V*2 variable
Output current	0~2A*2 variable	0~3A*2 variable	0~5A*2 variable	0~10A*2 variable
Constant voltage operation				
Line regulation	CV≤0.01%+3mV		CV≤0.03%+5mV	
Load regulation	CV≤0.01%+3mV		CV≤0.03%+5mV	
Ripple and noise	CV≤2mV(rms)		CV≤7mV(rms)	
Temperature coefficient	150ppm/°C			
Constant current operation				
Line regulation	CC≤0.2%+3mA			
Load regulation	CC≤0.2%+3mA			
Ripple and noise	CC≤3mA(rms)			
Temperature coefficient	500ppm/°C			
Display accuracy	3 and 1/2 digit Voltage±0.5%+2d Currents±1%+2d			
Recovery time	≤ 100 μ S			
Fixed output				
Line regulation	≤ 5mV			
Load regulation	≤ 15mV			
Ripple and noise	≤ 2mV(rms)			
Voltage accuracy	± 0.1V			
N.W. (KG)	7.6	9	9.8	14.2
Measurement	365x250x155		420X250X150	

- A. Disengage both Tracking mode switches (both switches out) so that the power supply is in the Independent operating mode.
- B. Connect an accurate (±0.1%) external 4-1/2 digit multi-meter to measure the DC voltage at the output terminals of the MASTER (SLAVE) supply.
- C. Set the MASTER (SLAVE) Voltage controls to minimum (fully counterclockwise).

7-1 Independent Adjustment

This unit was accurately adjusted at factory before shipment. Readjustment is recommended only if repairs have been made in a circuit affecting accuracy or if you have reason to believe the unit is out of adjustment. However, adjustment should be attempted only if a multi-meter with an accuracy of ±0.1% dcv or better is available. If readjustments is required, use the following procedure Locations of the adjustments are shown in fig.6-1 to fig 6-3.

7. Adjustment

- (1) Make sure the power cord is unplugged.
 - (2) Change the AC selector to the desired line voltage position.
 - (3) A change in line voltage may also require a corresponding change of fuse value, install the correct fuse value as listed on rear panel.
- The rear panel identifies the line voltage to which the unit was factory set. To convert to a different line voltage, perform the following procedure:

shown in fig. 3-2

The power transformer is designed to permit operation in 110 or 220 VAC, 50/60HZ line voltage. To convert from one line voltage to another is done by change AC selector as

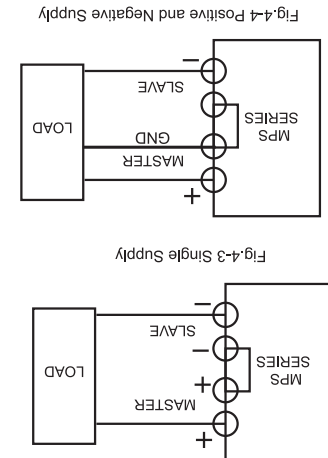
6-2 Line Voltage Selector

- D. Adjust trimmer potentiometer VR102 (MASTER) VR302 (SLAVE) for a reading of -15mV~0mV.
- E. Set the MASTER (SLAVE) Voltage control to maximum (fully clockwise).
- F. Adjust trimmer potentiometer VR101 (MASTER) VR301 (SLAVE) for a reading as close to rating voltageX1.05 (on the multi-meter) as possible.
- G. Adjust trimmer potentiometer VR2, VR4 on the master (slave) voltage indicator circuit board for a reading of rate voltageX1.05 on the MASTER(SLAVE) meter.
- H. Connect the external multi-meter across the MASTER(SLAVE) SUPPLY output terminals to read output current (so that the meter causes a short circuit across the terminals) and adjust the MASTER(SLAVE) CURRENT control so that rating amperes is read on the multi-meter.
- I. Adjust VR1, VR3 so that the MASTER (SLAVE) meter also reads rating amperes.
- J. Rotate the MASTER (SLAVE) current control fully clockwise (maximum).
- K. Adjust VR103, VR303 on the master (slave) supply circuit board to obtain an output current of rating amperesX1.05(read on the meter or LED display).

7-2 Series Tracking Adjustment

- A. Set the supply to the TRACKING SERIES mode by engaging the left TRACKING switch and releasing the right TRACKING switch.
- B. Set the SLAVE CURRENT control to midrange and set the MASTER SUPPLY VOLTAGE controls to minimum (fully counterclockwise).
- C. Connect the multi-meter to the MASTER SUPPLY outputs and measure the voltage.
- D. Adjust trimmer potentiometer VR306 on the circuit board to obtain the exact same reading for the SLAVE SUPPLY output as was present at the MASTER SUPPLY output (e.g. if the minimum MASTER SUPPLY output voltage is -10.00mV adjust VR202 to obtain an output voltage as close to -10.00mV at the SLAVE SUPPLY as possible).

(3) Parallel Tracking Operation
 In the parallel tracking mode of operation, both supplies are strapped together (in parallel). This allows for a rating voltage supply with a double rating current capability. Only the MASTER output terminals are used for parallel tracking operation. In the parallel tracking mode, the SLAVE supply output voltage and current are tracking the MASTER supply output voltage and current.
 A. Set the power supplies to the TRACKING PARALLEL mode by engaging both TRACKING switches.
 B. Because both voltage and current of the SLAVE supply track the MASTER supply, the maximum current and voltage are set using the MASTER controls. Using the MASTER supply output jacks, follow the instructions for "Setting Current Limit" (4-2 Section). Remember that the actual current



C. Adjust the output voltage the desired level using the MASTER VOLTAGE controls.
 D. Turn off the power supply and the equipment to be powered during hook-up.
 E. If "single supply" operation is desired, this allows the power supply to be used as twice the voltage and rating current simply by using the negative (black) terminal of the SLAVE supply and the positive (red) terminal of the MASTER supply, the configuration as shown in Fig.4-3.
 If the chassis or common of the equipment being powered is separate from both positive and negative polarity power inputs. The output of the SLAVE (negative) supply is tracking the output of the MASTER(positive) supply. The configuration is shown in Fig.4-4.

- independently. When current of SLAVE supply set at a Current Limit point, and also the load current reaches to the current limit value, in this case, the output voltage of SLAVE supply will not change same as voltage of MASTER supply when rotate VOLTAGE control of MASTER supply.
- In Series Mode, if the load which connected with unit is very large, and with high power output, in this case, temporarily short the (+) output terminal of SLAVE and (-) output terminal of MASTER together with a test lead. Which can avoid damage to unit.
- 5.3 Parallel Tracking Operation**
- Press Tracking Mode Switches, and turn on OUTPUT standby button, the output of MASTER and SLAVE supply are both in a Parallel operation. The output voltage of SLAVE supply is changing same as MASTER supply by rotating VOLTAGE control of MASTER. In the meanwhile, the C.C. indicator lights.
 - The CURRENT control of SLAVE supply don't play effect in Parallel Tracking Mode, current of MASTER and SLAVE supply is only controlled by CURRENT control of MASTER supply, the actual output current at the MASTER supply is doubled the reading on the SLAVE indicator meter.
 - In Parallel Tracking Mode, if the load which connected with unit is large, and with high power output, in this case, temporarily short "+" output terminal of MASTER and SLAVE with a test lead, and also short "-" output terminal of MASTER and SLAVE with a test lead, which can avoid any damage to unit.
- 5.4 (CH1)mA Switch operation**
- The Decimal Point move one digit toward to left when press mA Switch, so the accuracy of current by mA displayed.
 - In mA operation Mode, the Decimal Point move one digit to right automatically when the value of current output is over 900mA.
 - (CH1)mA Switch doesn't work when unit is under Parallel Tracking Mode.

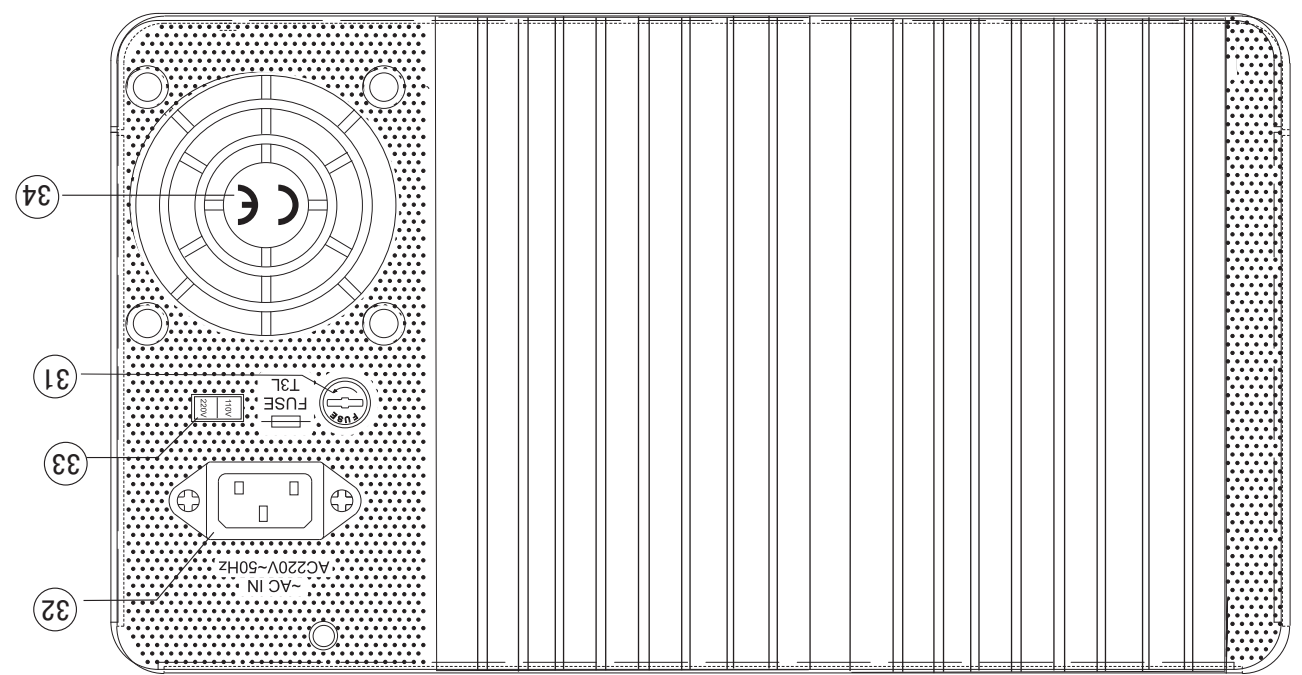
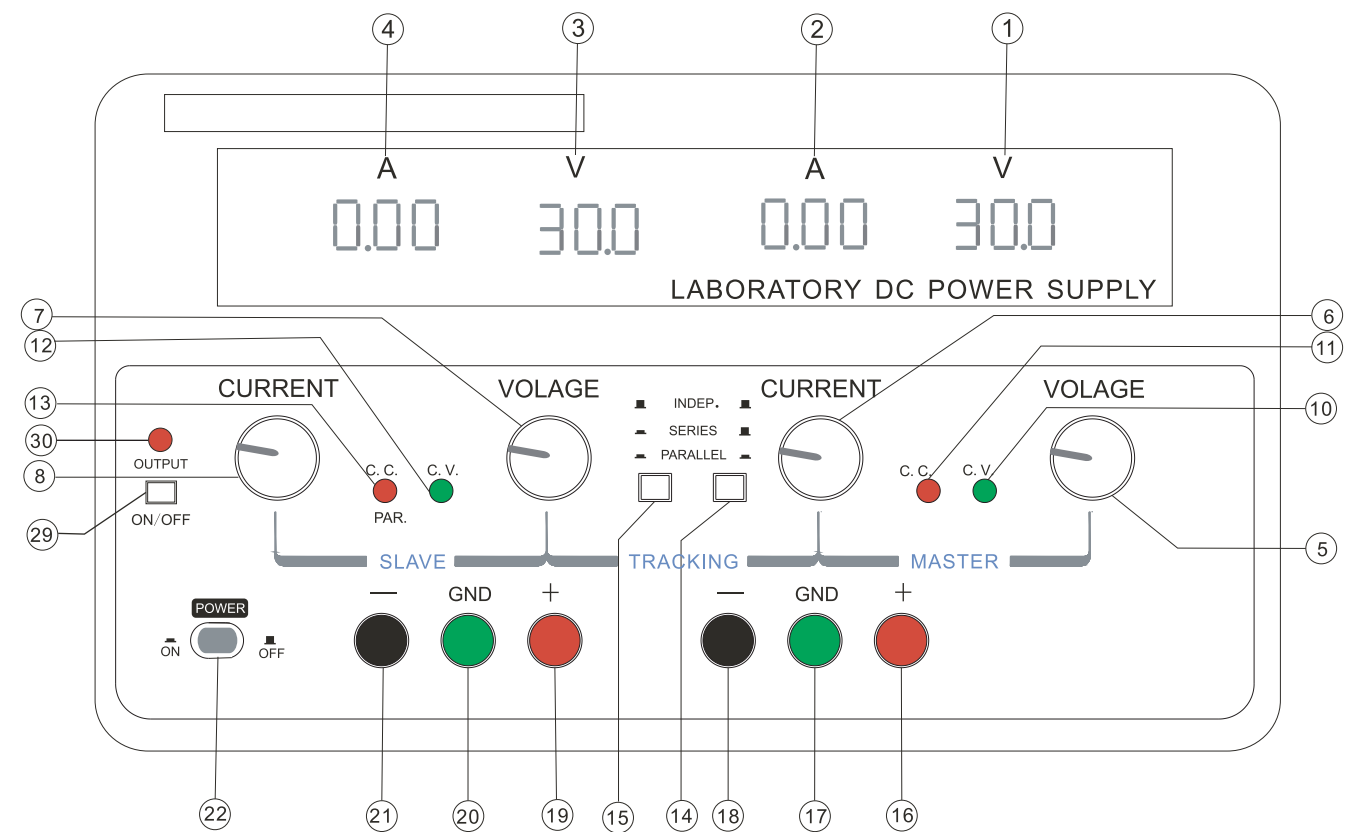


Fig.3-4 Rear Panel of MPS-3002L(K)-2CH/3003L(K)-2CH/3005L(K)-3 /3002L(K)-3/3003L(K)-3/3005L(K)-3

3. Panel Controls and Instructions

Fig.3-1 Front Panel of MPS-3010L-2/6005L-2/3002L(K)-2CH/3003L(K)-2CH/3005L(K)-2CH



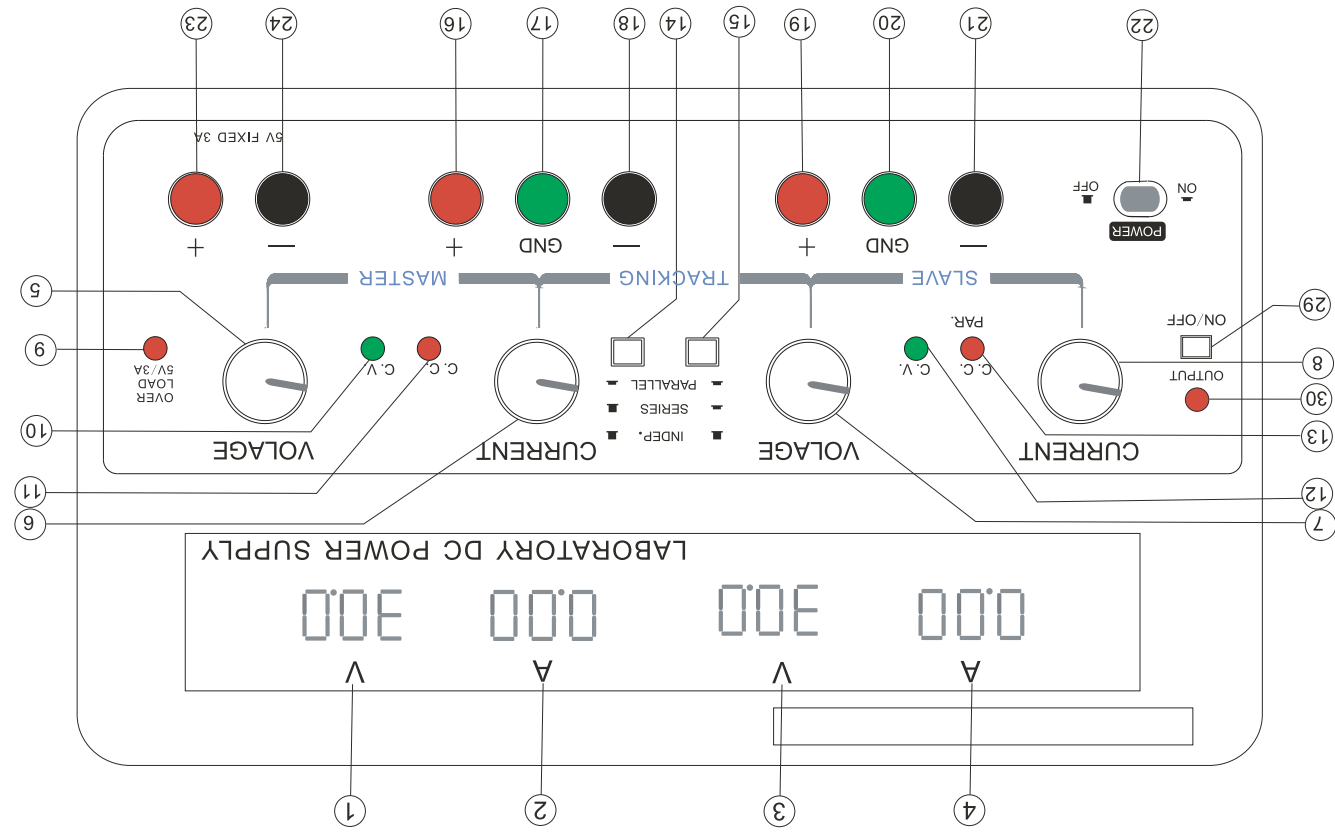
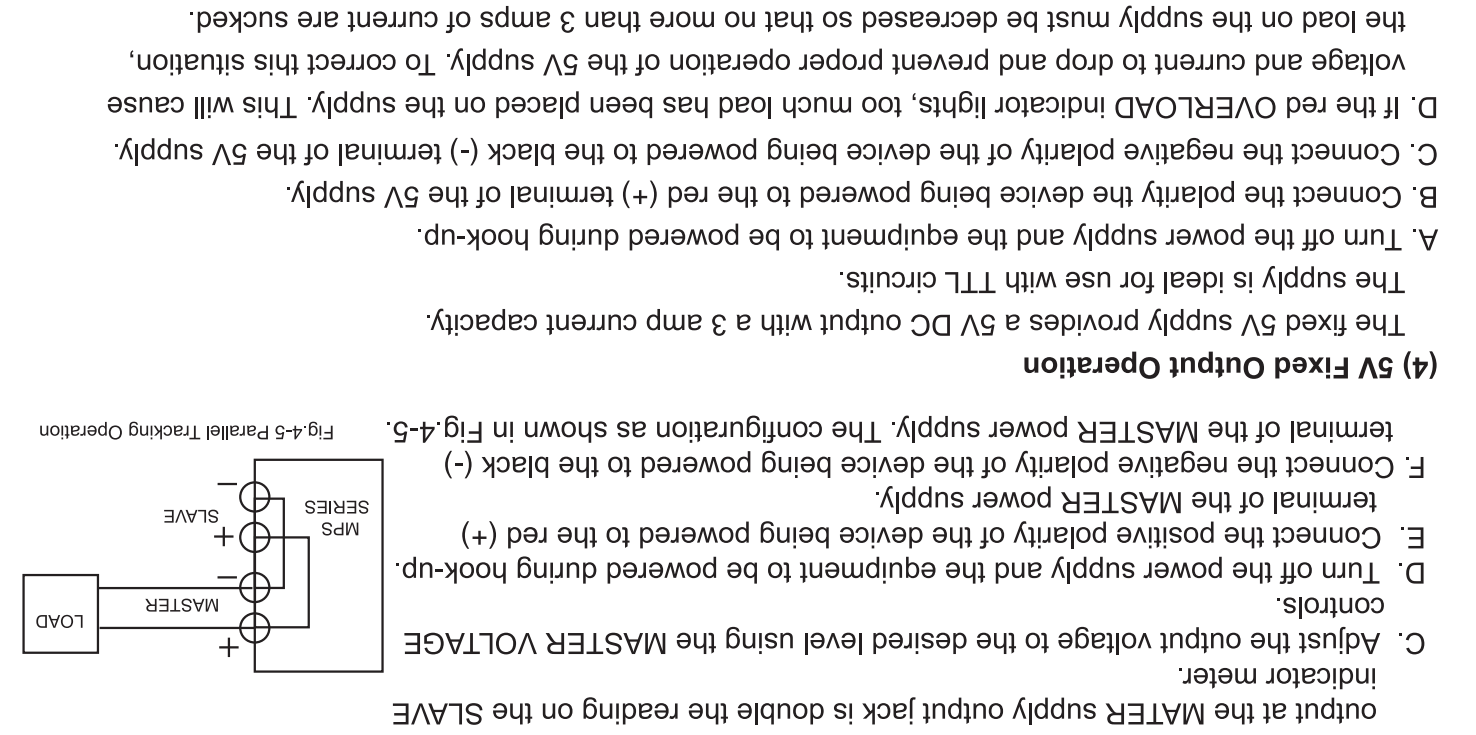
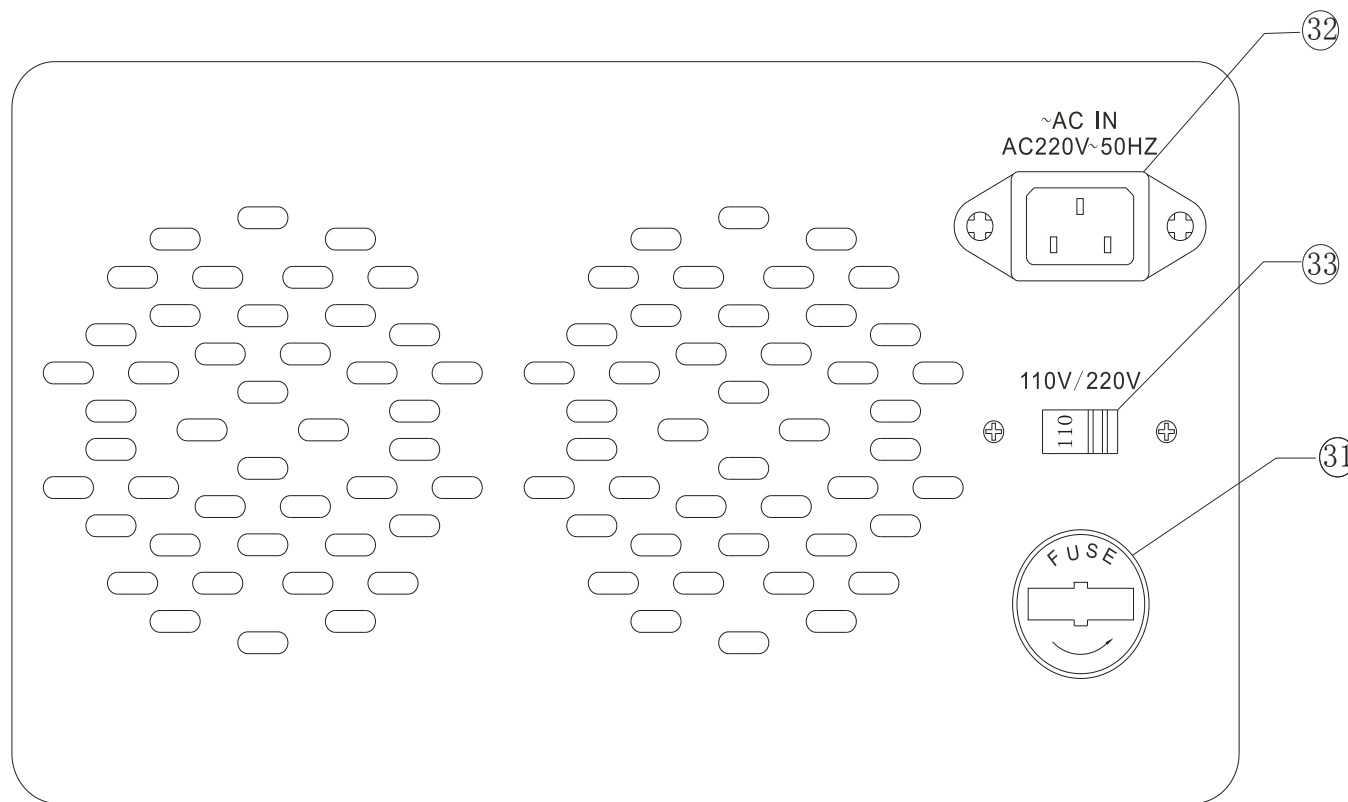


Fig.3-3 Front Panel of MPS-3002L(K)-3/3003L(K)-3/3005L(K)-3

Fig.3-2 Rear Panel of MPS-3010L-2/6005L-2



(4) 5V Fixed Output Operation

5. Operation Instruction (TK series)
 - 5.1. Independent Operation
 1. In independent mode, The light of (14)(15) are in off condition. Then turn on OUTPUT STANDBY button(27).
 2. C.V. mode: Rotate CURRENT control of MASTER and SLAVE supply to adjust the current to maximum value, after turned on unit, adjust voltage of MASTER and SLAVE supply by rotating VOLTAGE control until the output voltage of MASTER and SLAVE supply to desired value.
 3. C.C. mode: Rotating VOLTAGE control of MASTER and SLAVE supply to adjust the voltage to maximum value after unit turned on. In the meanwhile, adjust the current to Minimum value. After connected with load, by rotating CURRENT control of MASTER and SLAVE supply to adjust the current to a constant and desired value.
 4. Setting Current Limit

Before connected with load, press I. Set button (26). Adjust current to desired value by rotating CURRENT control of MASTER and SLAVE supply, so the Current Limit is setted, but unit will recover to non-setting condition automatically after 3 seconds.

Or Long press the I. Set button for 3 seconds to set Current Limit, but unit can't recover to be non-setting automatically, should long re-press I. Set button to make unit be a non-setting condition from the Current limit point.
 - 5.2. Series Tracking Operation
 1. Press TRACKING MODE SWITCH(14), turn on OUTPUT. And adjust the current to maximum value by using CURRENT control of MASTER and SLAVE supply, in the meanwhile, adjust voltage of MASTER supply, and the voltage of SLAVE supply change same as voltage of MASTER supply under Series Tracking Operation. In this case, the output voltage is double the displayed value.
 2. Under Series tracking mode, the current of MASTER and SLAVE supply can be adjusted

- 26. Voltage preset button: Press this button, turn the voltage adjustment knob to get the wanted voltage value. Then the voltage is preset.
- 27. Output standby (TK series) : After power on, there is no voltage cross the terminals. Press this button, the unit has power out.
- 28. Fixed output select switch: Select different voltage between 2.5V, 3.3V, 5V by using this switch. standby mode.
- 29. Output standby: After power on, there is no voltage cross the terminals. Turn on this button, output LED on, the unit has power out.
- Turn off this button, output LED off, the output voltage cross the terminals is Zero, and the unit is on standby mode.
- 30. Output standby indicator: see above 29).
- 31. Fuse Holder
- 32. Power Cord
- 33. AC Select Switch: The power transformer is designed to allow operation under 110V or 220V AC, 50/60HZ. Conversion from one line voltage to another is done changing AC selector.
- 34. Cooling Fan.

(2) Series Tracking Operation

When the series tracking mode of operation is selected, the positive (red) terminal of the SLAVE supply output is internally connected to the negative (black) terminal of the MASTER supply.

In the series tracking mode, the maximum output voltage of both MASTER and SLAVE supplies can be simultaneously varied with one control. The maximum SLAVE supply voltage is automatically set to the same value as the MASTER supply by using the MASTER VOLTAGE controls.

A. Set the power supplies to the TRACKING SERIES mode by engaging the left TRACKING switch and release the right TRACKING switch. In this case, the output voltage (across the two supplies) is actually double the displayed value. For example, if the MASTER display is set for voltage metering and the SLAVE display for current metering, the output voltage across the MASTER positive(red) terminal and the SLAVE negative (black) terminal would be double the reading on the MASTER LED Display(since both supplies are putting out the same voltage). The actual output current would be the value read from the SLAVE LED Display (since the two supplies are wired in series, current flowing through each supply must be equal).

B. Set the SLAVE CURRENT control to the fully clockwise position. The maximum current is set using the MASTER CURRENT control. Follow the instructions for "Setting Current Limit" (INDEPENDENT USE OF "MASTER" OR"SLAVE" SUPPLY section of this manual) using the MASTER CURRENT control.

NOTE:

Because the supplies are being used in series, either CURRENT control can be used to set maximum current. If desired, the MASTER CURRENT control can be rotated fully clockwise and the SLAVE CURRENT control can be used to adjust the maximum current value. Because current through the two supplies must be equal when they are being used in series, the lowest CURRENT control setting will set the maximum output current.

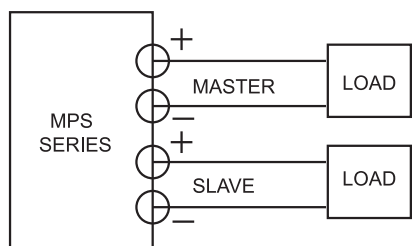
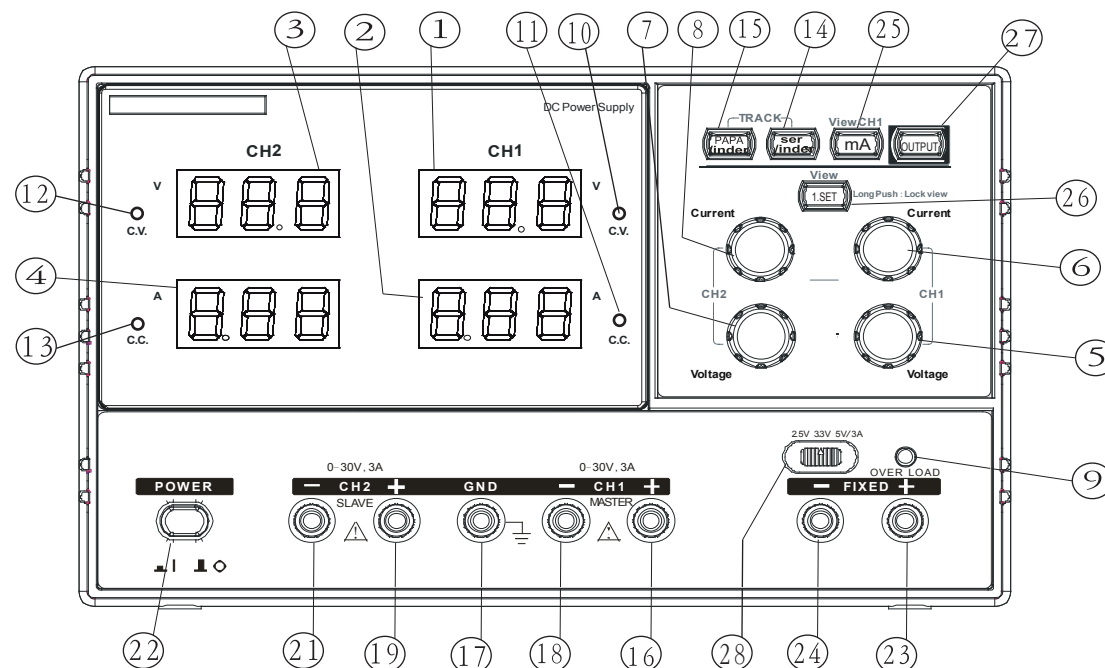


Fig.4-2 Independent Operation

Fig.3-5 Front Panel of DPS-3202TK-3/3203TK-3/3205TK-3



- a. When both switches are disengaged (out), the unit is in the INDEPENDENT mode and the MASTER and SLAVE power supplies are completely independent from one another.
- b. When the left switch is engaged (in) and the right switch is disengaged (out), the unit is in the TRACKING SERIES mode. In this mode, maximum voltage of both supplies is set using the MASTER VOLTAGE controls (voltage at output terminals of the SLAVE supply tracks the voltage at the output terminals of MASTER supply). Also, in this mode of operation the positive terminal (red) of the SLAVE supply is connected to the negative terminal (black) of the MASTER supply. This allows the two supplies to be used as one 0 to double rating voltage supply.
- c. When both switches are engaged (in), the unit is in the TRACKING PARALLEL mode. In this mode the MASTER and SLAVE supplies are wired together in parallel and both the maximum current and voltage are set using the MASTER controls. The MASTER and SLAVE outputs can be used as two individual (but tracking) power supplies or just the MASTER output can be used as a 0 to rating voltage supply with a 0 to double rating current capability.
- 16. "+ " output terminal: Positive polarity output terminal for the MASTER supply.
- 17. 20. "GND" terminal: Earth and chassis ground.
- 18. "- " output terminal: Negative polarity output terminal for the MASTER supply
- 19. "+ " output terminal: Positive polarity output terminal for the SLAVE supply
- 21. "- " output terminal: Negative polarity output terminal for the SLAVE supply
- 22. Power switch: ON/OFF the power input.
- 23. "+ " output terminal: Positive polarity output terminal for Fixed 2.5V/3.3V/5V supply.
- 24. "- " output terminal: Negative polarity output terminal for Fixed 2.5V/3.3V/5V supply
- 25. mA Switch: display current in mA at MASTER output when choose this Switch.(in

4. Operation Instructions

4-1 Precautions

- (1) AC input
- (2) Installation

AC input should be within the range of line voltage $\pm 10\%$ 50/60Hz

- (1) Avoid using the supply in a place where the ambient temperature exceeds 40°C. The heat sink located at the rear of the supply must have sufficient air space for radiation.
- (3) Output voltage overshoot

Maybe voltage between output terminals exceeds the present value when the power is turned on or off.

4-2 Setting Current Limit

- (1) Determine the maximum safe current for the device to be powered.
- (2) Temporarily short the (+) and (-) terminals of the power supply together with a test lead.
- (3) Rotate the VOLTAGE control away from zero sufficiently for the C.C. indicator to light.
- (4) Adjust the CURRENT control for the desired current limit. Read the current value on the A meter.
- (5) The current limit (overload protection) has now been preset. Do not change the CURRENT control setting after this step.
- (6) Remove the short between (+) and (-) terminals and hook up for constant voltage operation.

The working characteristic of this series Power Supplies is called a constant voltage/constant current automatic crossover type. This permits continuous transition from constant current to constant voltage modes in response to the load change. The intersection of constant voltage and constant current modes is called the crossover point. Fig.4-1 shows the relationship between this crossover point and the load. For example, if the load is such that the power supply is operating in the constant voltage mode, a regulated output voltage is provided. The output voltage remains constant as the load increases up until the point where the preset current limit is reached. At that point, the output current becomes constant and the output voltage drops in proportion to further increases in load. The point is indicated by the front panel LED indicators.

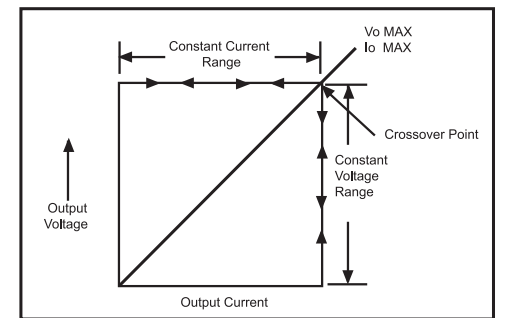


Fig.4-1 Constant Voltage/Constant Current Characteristic.

Similarly, crossover from the constant current to the constant voltage mode automatically occurs from a decrease in load. A good example of this would be seen when charging a 12-volt battery. Initially, the open circuit voltage of the power supply may be preset for 13.8 volts. A low battery will place a heavy load on the supply and it will operate in the constant current mode, which may be adjusted for a 1 amp charging rate. As the battery becomes charged, and its voltage approaches 13.8 volts, its load decreases to the point where it no longer demands the full 1 amp charging rate. This is the crossover point where the power supply goes into the constant voltage mode.

4-4 Operation Mode
(1) Independent Operation

The "MASTER" and "SLAVE" supplies each provide a 0 to rating volts output at up to rating amps. This procedure covers the use of the MASTER and SLAVE supplies only when they are used independently from one another. When used in the INDEPENDENT operating mode, the operating controls of the two power supplies are completely independent and either supply can be used individually or both can be used simultaneously.

- Disengage both TRACKING mode switches (both switches out) so that the power supply is in the INDEPENDENT operating mode.
- Adjust "Voltage" control and "Current" control to the desired output voltage and current.
- Turn off the power supply and the equipment to be powered during hook-up.
- Connect the positive polarity of the device being powered to the red (+) terminal of the power supply.
- Connect the negative polarity of the device being powered to the black (-) terminal of the power supply.
- Fig.4-2 illustrates the connection procedure.

3-7 Front and Rear Panel Instruction

- 1 V LED display: indicate the MASTER output voltage.
- 2 A LED display: indicate the MASTER output current.
- 3 V LED display: indicate the SLAVE output voltage.
- 4 A LED display: indicate the SLAVE output current.

5. Voltage Control: for adjust of the output voltage of the MASTER supply. Also functions as adjustment control for the maximum output voltage of the SLAVE supply when either parallel or series tracking operation.

6. Current Control: for adjustment of the output current of the MASTER supply. Also functions as adjustment control for the maximum output voltage of the SLAVE supply when either parallel or series tracking operation.

7. Voltage Control: for adjustment of the output voltage of SLAVE supply.

8. Current Control: for adjustment of output current of the SLAVE supply.

9. Over load indicator: lights when load over than 2.5V/3.3V/5V.

10. C.V. indicator: lights when the MASTER supply in the constant voltage operation, in either the Series or Parallel Tracking mode, both the MASTER AND SLAVE supplies are in the constant voltage operation.

11. C.C. indicator: lights when the MASTER supply in the constant current operation.

12. C.V. indicator: lights when the SLAVE supply in the constant voltage operation.

13. C.C. indicator: lights when the SLAVE supply in the constant current operation.

14. 15. TRACKING Mode Switches:

Two push-button switches that select Independent mode, Series tracking mode, or Parallel tracking mode as follows:

Fig.3-6 Rear Panel of DPS-3202TK-3/3203TK-3/3205TK-3

