

MODEL 7318
REGULATED DC POWER SUPPLY

OPERATION MANUAL

KIKUSUI ELECTRONICS CORP.

7711997

1. Outline

Model 7318 is a series type regulated d-c power supply employing transistors and the voltage range of 0 ~ 18V is varied continuously by double knob potentiometer, resulting in utilization of max. output current of 4.5A.

It is a compact and light weight power supply provided with a voltmeter and an ammeter on the panel.

The output current limit circuit which is positive in action is operated against overload and output shortcircuit accident and the limit current can be set continuously in the range of 10% - 100% of the max. rating.

At the same time, it serves also as constant current power supply.

This unit can be operated in series or parallel.

C O N T E N T S

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2. Specifications

AC input	<u>100</u> V 50/60 Hz
Power consumption (full load output 100V, 0.3A)	Approx. 180VA
Ambient temperature	Max. 40°C
Dimensions	* 106W x 145H x 356Dmm
Largest part	111W x 172H x 400Dmm
Weight	Approx. 7.5 kg
Accessories	Short bar 1 Operation Manual 1 copy
Output	
Terminal	Color classification of red, white and black 19 mm interval, equilateral triangle arrangement
Polarity	Positive or negative po- larity
Off ground voltage	Max. ± 100V
Voltage	0 ~ 18V Variable con- tinuously
Current	4.5A
Ripple	3mVp-p
Regulation	10 mV against ±10% fluctu- ation of AC INPUT 10 mV against load fluctua- tion of 0 ~ 18V, 0 ~ 4.5A

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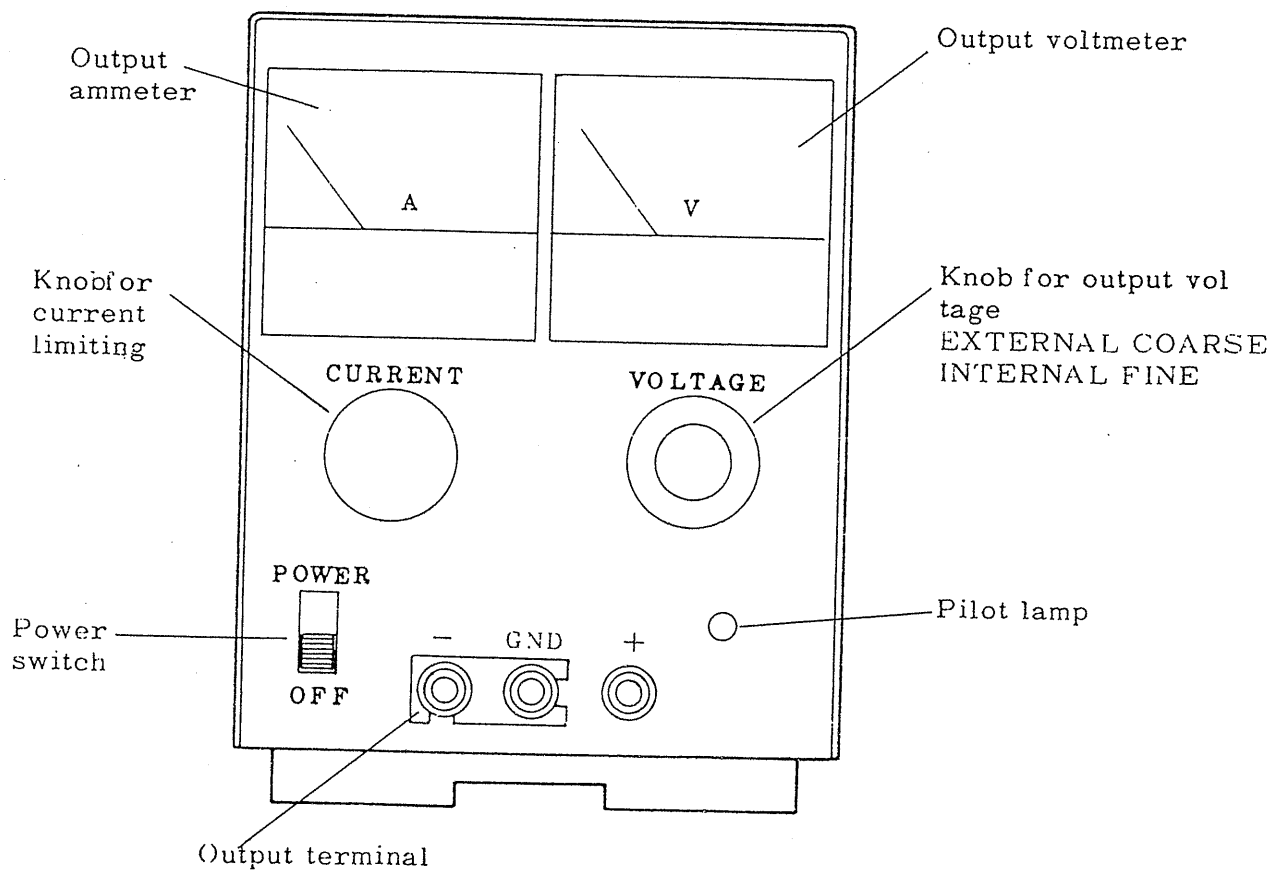
Current limiting	Constant current 0.45A ~ 4.5A (Continuously variable automatic crossover type)
Voltmeter	20V class 2.5 (JIS)
Ammeter	5 A class 2.5 (JIS)

Possible to operate in series and parallel.

* Possible to install 4 units in a row on the 19" and 500 mm standard rack.

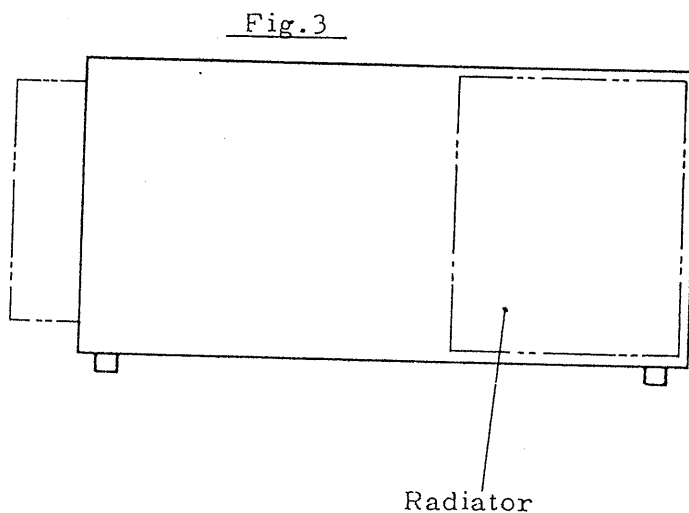
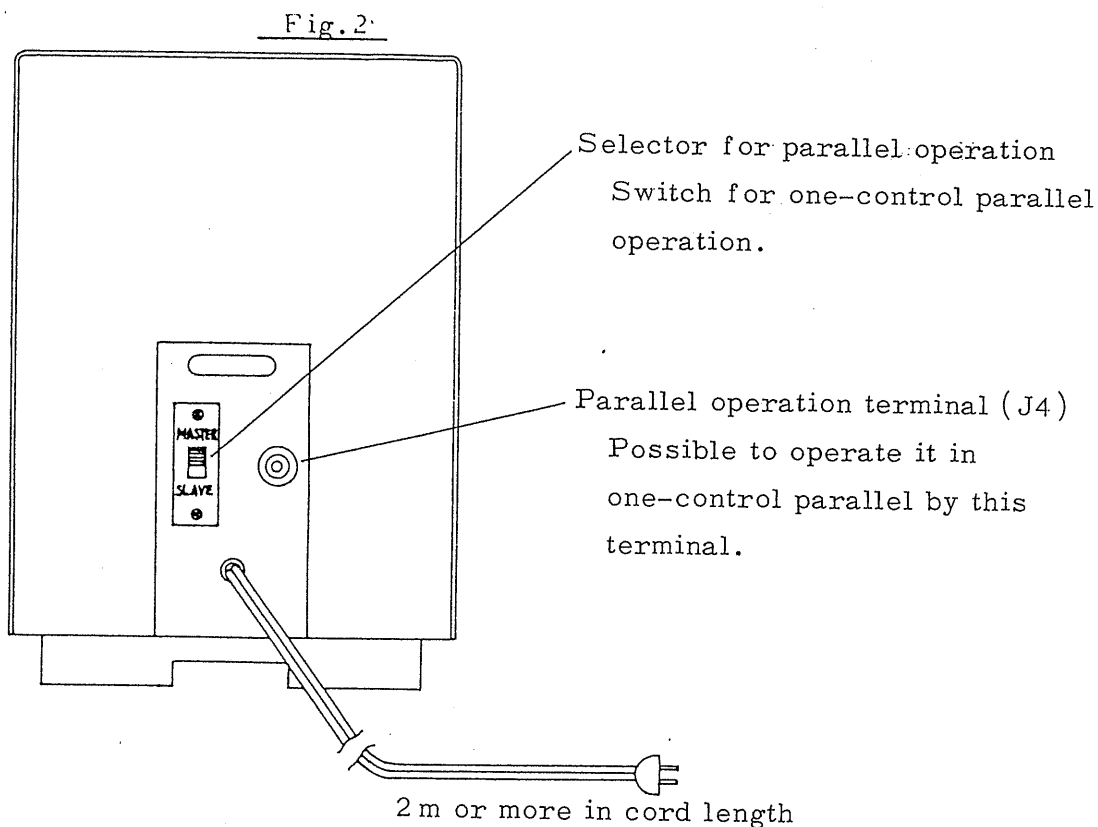
** The voltage drop of the ammeter is compensated in circuit.

3. Explanation for Panel



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3-2. Description for panel back



Pay your attention to the ventilating condition
at the radiator when the unit is used in the vicinity
of the maximum current value with low voltage.

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4. Operation

4-1. Single, series and parallel operations

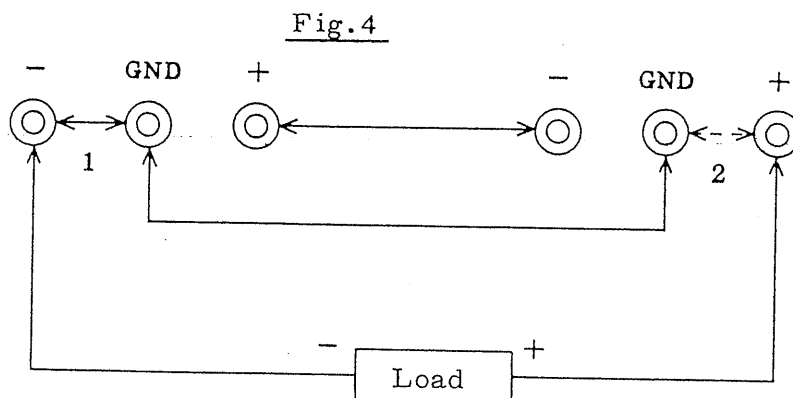
4-1-1. Single operation

Use the unit as it is for single operation.

4-1-2. Series operation

When more than 2 units are connected in series, higher voltage than that for 1 unit operation will be available. In this case, the voltage of any terminal must not exceed the rated earthing voltage against the panel chassis.

In series operation of 2 units, you may utilize the voltage 2 times as big as the rated one and the rated current for 1 unit operation.



Wiring must be executed as mentioned hereunder for connection of GND TERMINAL.

- 1) Connect as shown with the line in Fig. 4 in the case of minus earthing.
- 2) Connect as shown with the dotted line in Fig. 4 in the case of plus earthing.

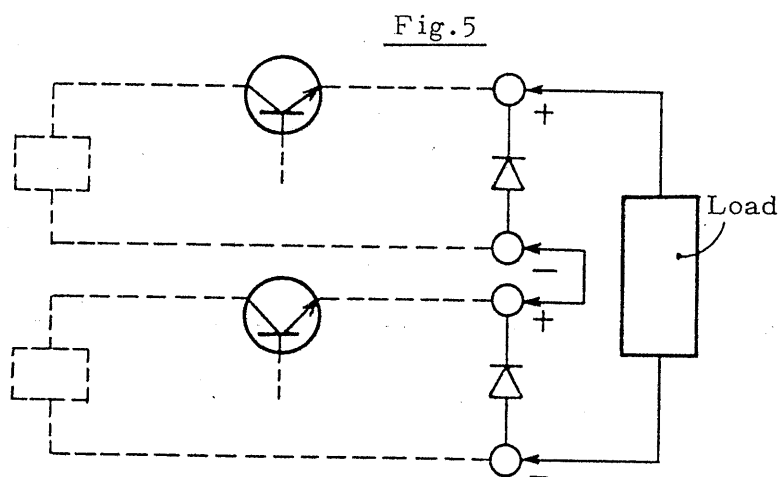
Be sure to avoid earthing the GND terminal in a different polarity.

4-1-3. Protection against overload in series operation

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If an overload phenomenon should develop when more than 2 stabilization power units are operated in series, output voltage of one of the units will be given in the reverse direction to the other unit of which protection circuit has worked earlier, resulting in damage of its series control element.

In order to prevent it from being damaged, the diode has been connected between the output terminals of the respective stabilization power units.



4-1-4. Parallel operation

Operate as mentioned hereafter for utilizing the current 2 times as big as the rated one by operating 2 units of the machine in parallel.

Be sure to turn off the power switch and execute the wiring for this purpose.

In parallel operation, one of the 2 units serves as "master" unit and the other, as "slave" unit. Output voltage and output current are set at the "master" unit.

- 1) Turn the slide switch on the rear side of SLAVE unit from "MASTER" to "SLAVE".

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2) Connect the J4 of the "slave" unit with the parallel operation terminal J4 located at the rear of the "master" unit.

3) Turn fully the knob for CURRENT of the "slave" unit to the position "Maximum Current". In other words, turn it fully in the clockwise direction.

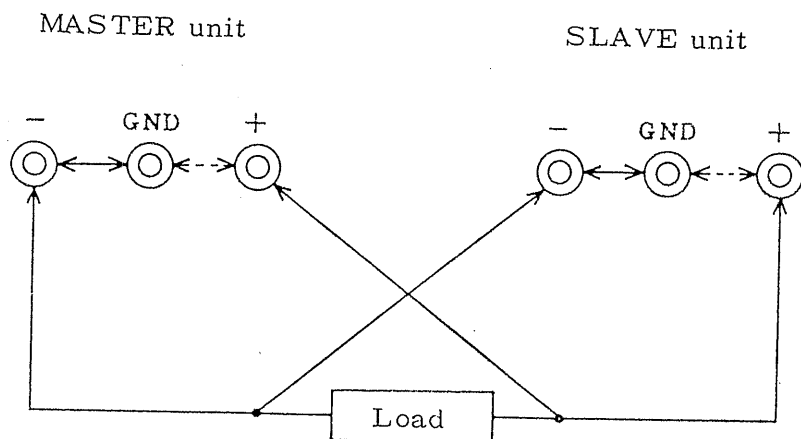
At the same time, place the knob for VOLTAGE at the position MAXIMUM.

4) Turn on the power switch. Voltage and current may be varied optionally by the "master" unit.

The output current limit may be selected optionally in a range of 10% ~ 100% of the value 2 times as big as the maximum rated one.

In case of parallel operation, output current of both unit is surely up to 5% of rated current. If output current is between 0 ~ 5%, the potentiometer will be damaged.

Minus or plus grounding must be provided both for the "master" and "slave" units in use of short bar. The same polarity must be grounded both in "master" and "slave" units. (Refer to Fig. 6 for the details.)



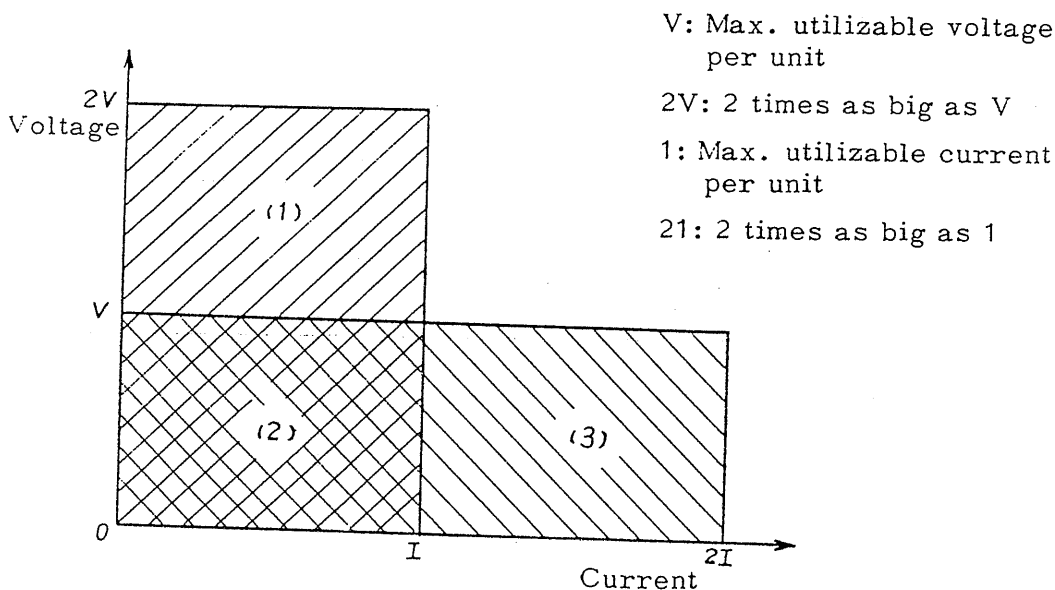
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The maximum number of parallel operation units of this type of machine is only 2. This type of machine can not be operated, in principle in parallel with other types of machines.

Pay your attention to the point that when the power switch is turned on with the slide switch positioned at SLAVE.

Fig. 6 shows the usable limit of series and parallel operation of 2 units of the equipment.

Fig.7



- Single operation..... Within the limit of (2)
 - Series operation..... Within the limit of (1) + (2)
 - Parallel operation..... Within the limit of (2) + (3)
- The single, series and parallel operations can be carried out as described hereabove.

4-2. Cautions for installing place

Be sure to avoid using the unit in a place where the ambient temperature exceeds 40°C so far as practicable.

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When ventilation is hindered or the unit is exposed to the direct rays of the sun or radiation heat emitted from other heat sources, limit appropriately the continuous maximum output current.

90% - 110% of the rated voltage is the range of power voltage where the unit works positively and safely.

Overshort of output voltage

No voltage bigger than the set value is induced between output terminals when the power switch is turned on or off.

Drop in voltage of ammeter

The drop in voltage of the output ammeter is compensated through circuits.

Current limit circuit

In order to prevent the series control element and output ammeter from being damaged instantaneously when the output terminal should be shortcircuited, the unit has been provided with a current control circuit which works electronically and positively for preventing bigger current than the rated value from being given.

The output limit current can be varied continuously in a range of 10% - 100% of the maximum rated value at option.

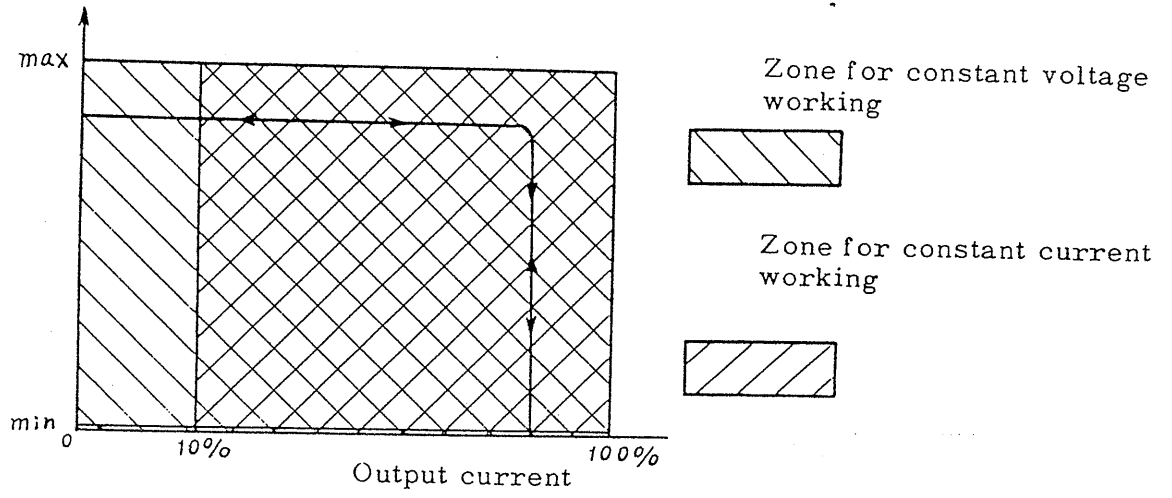
When the output current reaches the set value, the unit will serve as a constant current power unit.

When the output current drops lower than the set value, the unit will serve as a constant voltage power unit automatically and continuously again.

(Refer to Fig.8 for the details.)

Fig.8

Output voltage



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