MODEL 7329
REGULATED DC POWER SUPPLY
OPERATION MANUAL

印刷表紙使用のこと

KIKUSUI ELECTRONICS CORP.

69.10.27

Power Requirements of this Product

Power requirements of this product have been changed and the relevant sections of the Operation Manual should be revised accordingly.
(Revision should be applied to items indicated by a check mark ☑.)

☐ Input voltage

The input voltage of this product is _____ VAC,
and the voltage range is _____ to _____ VAC. Use the product within this range only.

☐ Input fuse

The rating of this product's input fuse is _____A, _____VAC, and _____.

WARNING

- To avoid electrical shock, always disconnect the AC power cable or turn off the switch on the switchboard before attempting to check or replace the fuse.
- Use a fuse element having a shape, rating, and characteristics suitable for this product. The use of a fuse with a different rating or one that short circuits the fuse holder may result in fire, electric shock, or irreparable damage.

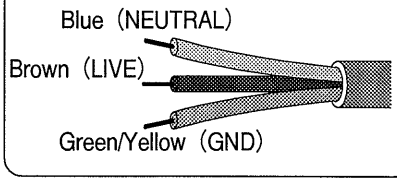
☐ AC power cable

The product is porvided with AC power cables described below. If the cable has no power plug, attach a power plug or crimp-style terminals to the cable in accordance with the wire colors specified in the drawing.

WARNING

- The attachment of a power plug or crimp-style terminals must be carried out by qualified personnel.

☐ Without a power plug



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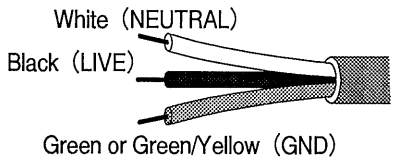
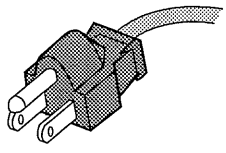
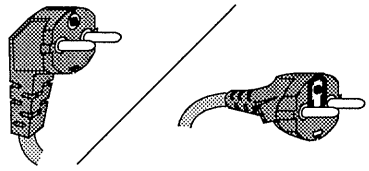


☐ Plugs for USA



☐ Plugs for Europe



☐ Provided by Kikusui agents

Kikusui agents can provide you with suitable AC power cable.
For further information, contact your Kikusui agent.

☐ Another Cable _____

 Kikusui Part No. Z9-000-027 IB001681

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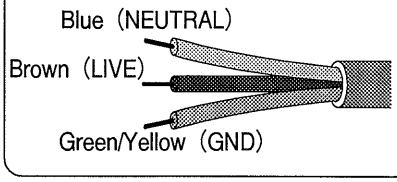

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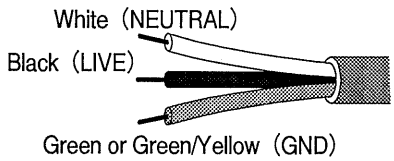

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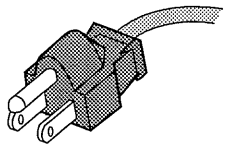

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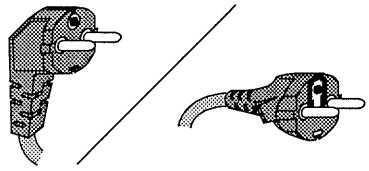

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KIKUSUI

1. GENERAL

Model 7329 is a transistorized, series DC regulator cooled with forced air. The regulated voltage supplied by Model 7329 is continuously variable over a range of 0 to 35 V, fine-adjustable between ± 1 V. A maximum output current of 20 A can be drawn out continuously. If the output terminals should be shorted or an overload should be applied, the automatic-reset output current limiting circuit operates surely, and the overload lamp lights simultaneously. If Model 7329 remains overloaded for a few seconds, the power supply is discontinued automatically, and the alarm lamp is lit. To have Model 7329 resume the normal operation while the alarm lamp is lit, the reset button will be pressed. Other protective devices include a built-in circuit which cuts off the power supply when the temperature inside the case increases abnormally.

CONTENTS

2. SPECIFICATIONS

AC Input	_____V, 50 or 60 Hz		
Power Consumption	Approx. 1.5 kVA		
Ambient Temperature	40°C maximum		
Dimensions:			
Case	482 (W) x 399 (H) x 460 (D) mm		
Including projections	506 (W) x 470 (H) x 526 (D) mm		
Weight	Approx. 68 kg		
Accessories	Short bar	Long	1
		Short	2
	Fuse		4
	Operation manual		1
	Test data		1
Output:			
Terminals	5 terminals aligned horizontally (sampling, -, ground, +, sampling); output obtainable from rear of case		
Polarity	Positive or negative		
Floating voltage	±100 V maximum		
Voltage	0 - 35 V continuously variable, ±1 V fine-adjustable		
Current	20 A maximum, continuously		
Ripple	3 mVrms		
Voltage regulation	10 mV against ±10% variation of line voltage 10 mV against load variation of no load to full load		

Protective circuits	Automatic-reset current limiting circuit
	Automatic power breaker circuit
	Overheat-protective automatic power breaker
Voltmeter	35 V; accuracy: 2.5% of full scale
Ammeter	20 A; accuracy: 2.5% of full scale

3. FRONT PANEL

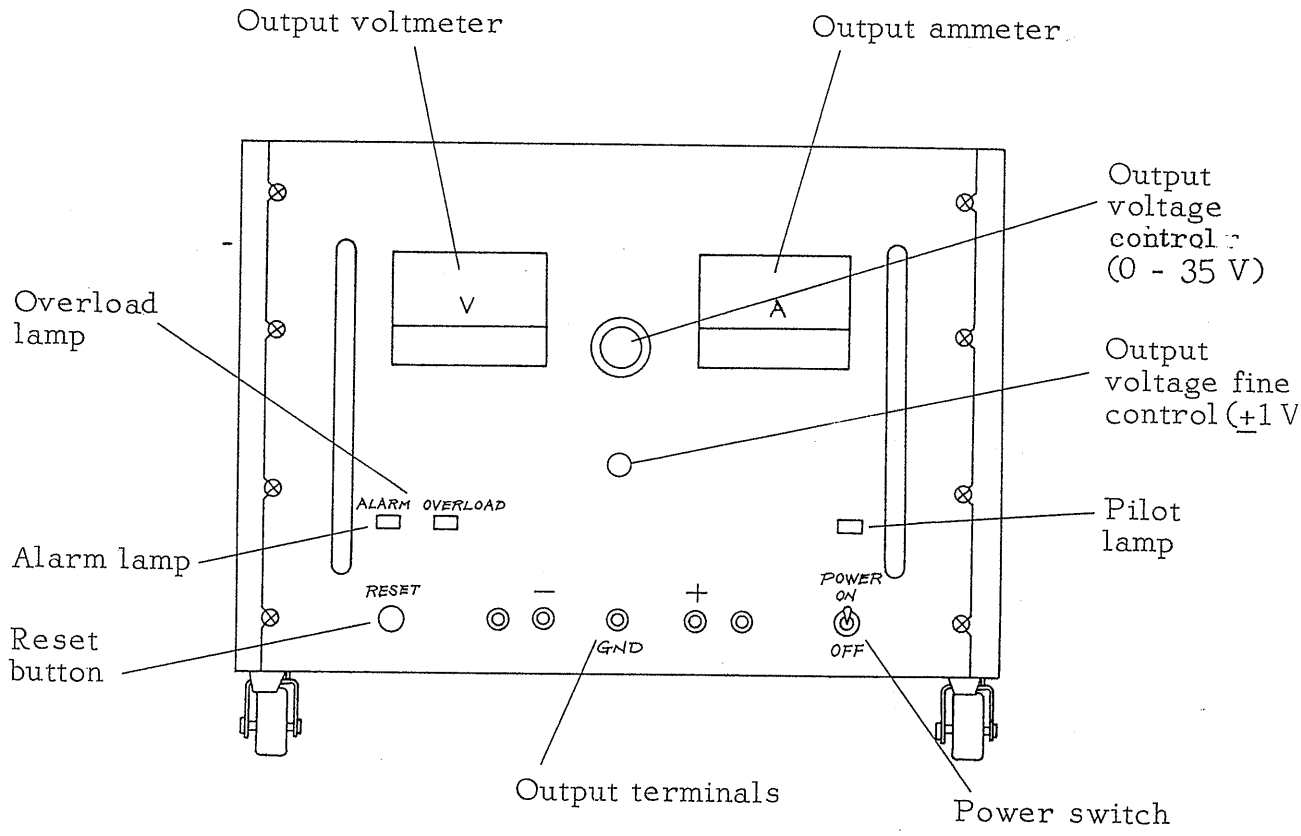


Fig. 1

Output Terminals

Normally Model 7329 is used with the positive or negative output terminal connected to terminal GND (which is electrically connected to the chassis and panels) by using the short bar supplied as an accessory. Model 7329 may also be operated with a DC bias of ±100 V maximum applied.

The output can be led out from the rear

of the case, if desired.

Power Switch — When the switch is pushed to the ON position, Model 7329 is energized, lighting the pilot lamp simultaneously. It starts supplying DC power immediately.

Overload lamp — When an overload or short circuit occurs, the overload protective circuit operates and this lamp lights simultaneously.

Alarm Lamp — When an overload or short circuit exists for a few seconds, the power supply is cut off automatically and this lamp lights simultaneously.

Also, when the temperature inside the case becomes abnormally high (approx. 60°C or higher), the power supply is cut off automatically and this lamp lights simultaneously

Reset Button — Press this button when having Model 7329 resume the normal operation after the alarm lamp is lit and the power supply is cut off.

4. PRECAUTIONS

Place of installation:

Avoid using Model 7329 where the ambient temperature exceeds 40° C. As the series elements are cooled with forced air, do not block the air inlet and outlet for the fan inside the case.

Input voltage range:

Model 7329 operates normally within an input power voltage range of 90 - 110% of rated.

Overload protective circuit:

Model 7329 is provided with three protective circuits to safeguard the equipment and external circuit.

1) When the output terminals are shorted accidentally or the equipment is overloaded, the output current limiting circuit surely operates to protect the series elements (transistors), output ammeter, etc., from instantaneous damage. The circuit immediately detects an overload and functions to decrease the current flowing through the series elements. The output current is decreased to the minimum when the output is shorted. (See Fig. 2.)

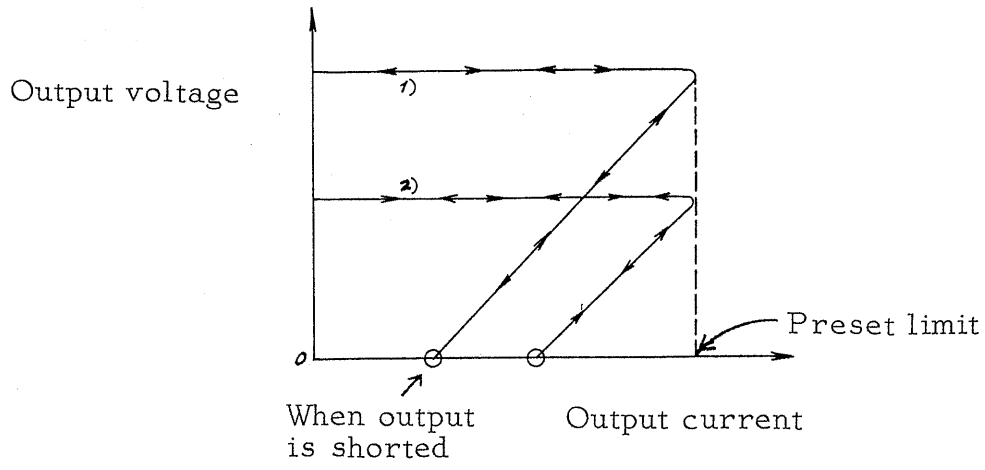


Fig. 2

The current limiting circuit automatically cross over. Immediately after the overload is eliminated, the equipment resumes the normal performance.

The overload lamp lights when the current limiting circuit is operated by an overload.

2) If the above-mentioned overload is removed in less than a few seconds, the current limiting circuit automatically cross over. If the equipment remains overloaded for more than a few seconds, the power supply is cut off automatically to protect the external circuit as well as the internal circuits. Simultaneously the overload and alarm lamps light. In this case, the current limiting circuit will not automatically cross over and it should be reset manually.

For the convenience of connecting a buzzer or other alarm device, a set of meter terminals is provided on the terminal strip at the rear of the case.

3) When the cooling air circulation is hampered and the temperature inside the case reaches about 60°C, a circuit incorporated cuts off the power supply automatically to protect internal circuits.

Voltage drop due to output ammeter:

The voltage drop caused by the output ammeter is compensated for by a special circuit.

Use of sampling terminals:

When the load current is large and the voltage drop deriving from the leads between the output and load terminals matters, this voltage

drop can be compensated for by using terminals SAMPLING on the front panel.

Remove the short bars connected between sampling and output terminals, and connect the sampling terminals to the load terminals by using separate leads (whose current capacity need not be high as their resistance scarcely matters). Then the voltage between these connections will be controlled for regulation. In this case, use main leads (connected between the output and load terminals) having a high current capacity since the voltage drop in the main leads changes the preset point of the current limiting circuit (making the circuit operate with a smaller current).

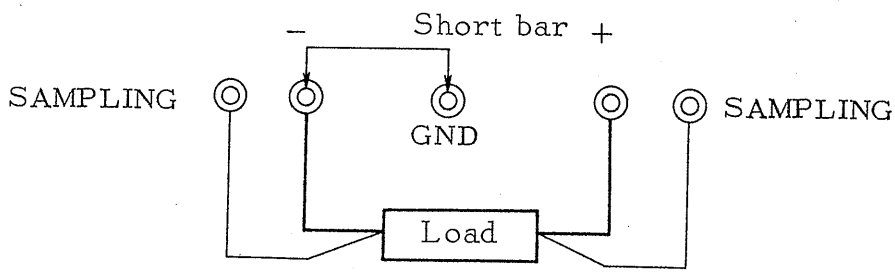
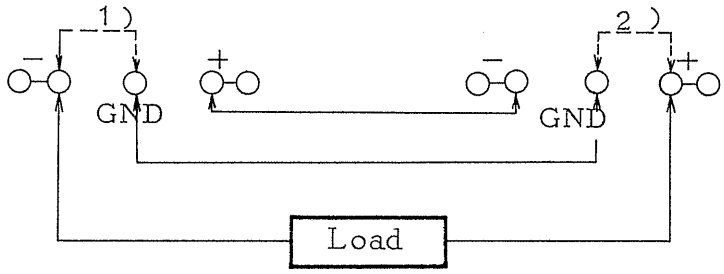


Fig. 3

Series operation, and protection against overload during series operation:

An output voltage higher than 35 V can be obtained by using two or more Model 7329's connected in series. In this case, the voltage between output terminal and ground terminal (electrically connected to chassis and pannels) of each Model 7329 must not exceed ±100 V. (Fig. 4)



NOTE: 1) Solid line: Negative grounding

2) Dotted line: Positive grounding

Fig. 4

A diode is connected between the output terminals of each Model 7329 as shown in Fig. 5. This diode protects the series transistors in case that an overload is applied to the two or more Model 7329's operated in series. When the two or more series-operated Model 7329's are overloaded, a reverse voltage is applied to the Model 7329 whose overload protective circuit operates first, adversely affecting its series transistors.

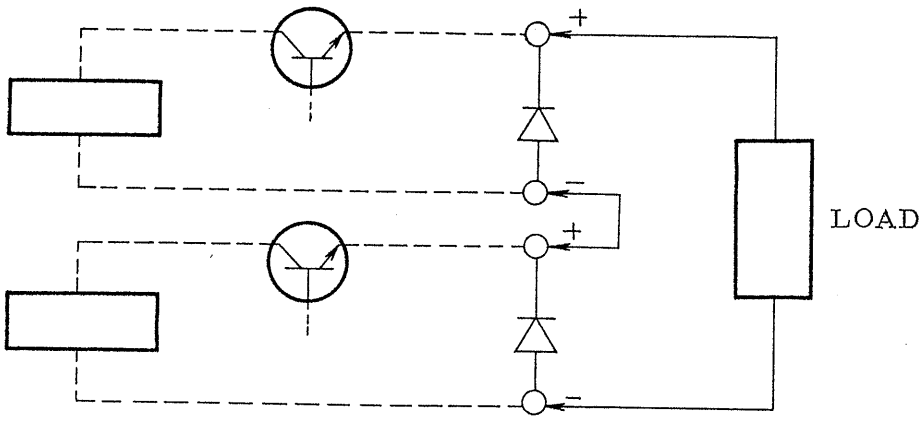


Fig. 5

Parallel operation:

A larger output current can be obtained by connecting the output terminals of two or more Model 7329's in parallel. In this case, however, the output voltages of the Model 7329's must be made as close to one another as possible because the output characteristic curve will be stepped, as shown in Fig. 6, by the voltage difference ΔV between output voltages.

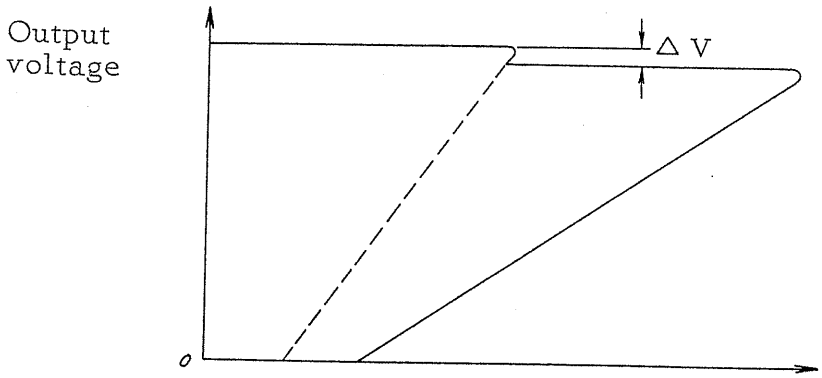


Fig. 6

0V, 35V ADJ

Calibration of output voltage:

When a part is replaced or the output voltage is deviated, adjust the output voltage as follows:

Set the output voltage fine control to the middle, turn the output voltage selector full counterclockwise, and then adjust semi-fixed resistor R_{20} (① in Fig. 7) located on the printed board so that the output voltage is approximately 0 V.

Next turn the output voltage selector full clockwise, and adjust

semi-fixed resistor R_{19} (② in Fig. 7) located on the printed board so that the output voltage is 35 V.

Conduct the above adjustments a few times repeatedly.

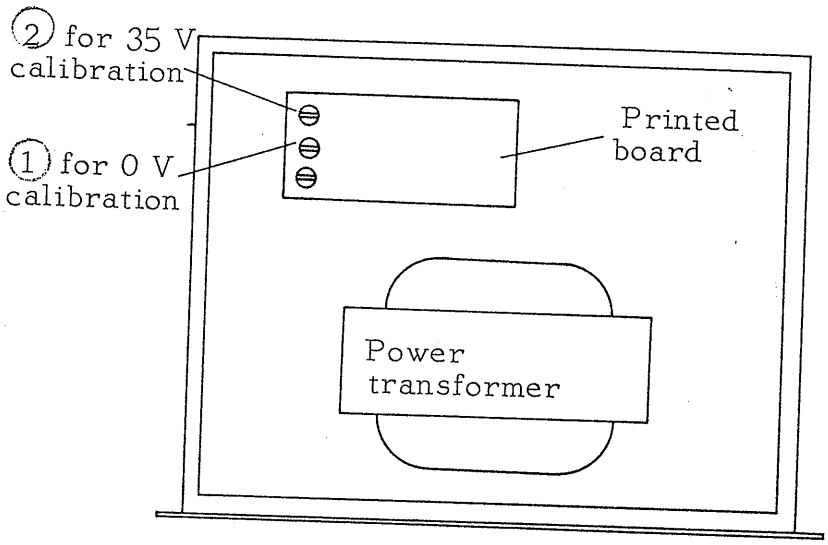


Fig. 7