

MODEL PAF20-0.7
REGULATED DC POWER SUPPLY
OPERATION MANUAL

KIKUSUI ELECTRONICS CORP.

802548

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

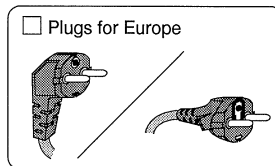
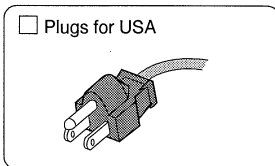
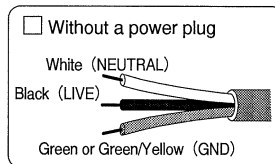
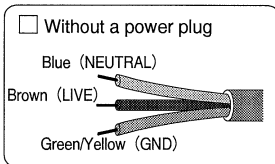
- To avoid electrical shock, always disconnect the AC power cable or turn off the switch on the switchboard before attempting to check or replace the fuse.
- Use a fuse element having a shape, rating, and characteristics suitable for this product. The use of a fuse with a different rating or one that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

AC power cable

The product is provided 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.



Provided by Kikusui agents

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

Another Cable _____

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1. GENERAL

The Model PAF20-0.7 is an all-transistorized regulated DC power supply of series regulated type. Its output voltage is continuously variable from 1 V to 20 V in two ranges (1 V - 10 V / 10 V - 20 V), and its maximum output current is 0.7 A.

The Model PAF20-0.7 is a compact and light-weight DC power supply which is employed a voltmeter and an ammeter on the front panel.

When overload condition occurs or the output terminals are accidentally shorted, the reliable and trouble-free output current limiting circuit operates. Model PAF20-0.7 resumes its normal operation automatically and continuously at the removal of such overload or short-circuit condition.

It is possible to perform series operation of Model PAF20-0.7.

2. SPECIFICATIONS

Model	PAF 20-0.7	
Power Required	100 V \pm 10% AC, 50 or 60 Hz Approx. 37 VA (at full load of 20 V, 0.7 A)	
Ambient Temperature	0°C - 40°C (32°F - 104°F)	
Demensions	84W x 140H x 149D mm (3.31W x 5.51H x 5.87D in.)	
(Max.)	89W x 148H x 190D mm (3.51W x 5.83H x 7.48D in.)	
Weight	Approx. 2.2 kg (4.85 lb.)	
Accessories	Short bar	1
	Operation Manual	1
OUTPUT		
Terminals	Horizontal layout Classified by colors in red and white.	
Polarity	Positive or negative	
Floating voltage	Max. \pm 100 V	
Output voltage	Continuously variable in two ranges 1 - 10 V / 10 - 20 V	
Output current	Max. 0.7 A	
Ripple	1 mV rms	
Regulation	Line regulation (against +10% fluctuation of input voltage)	10 mV
	Load regulation (against 0 - 100% fluctuation of load)	10 mV
Overload Protection	Automatic crossover current limiting circuit: Fold-back type	
Voltmeter	22 V / 12 V (Class 2.5 JIS)	
Ammeter	0.8 A (Class 2.5 JIS)	
Operation	Series operation is possible.	

* Five units of Model PAF20-0.7 can be mounted on a 19" or 500 mm standard rack. (Option: RMF-4, RMF-4M)

3. EXPLANATION OF FRONT PANEL

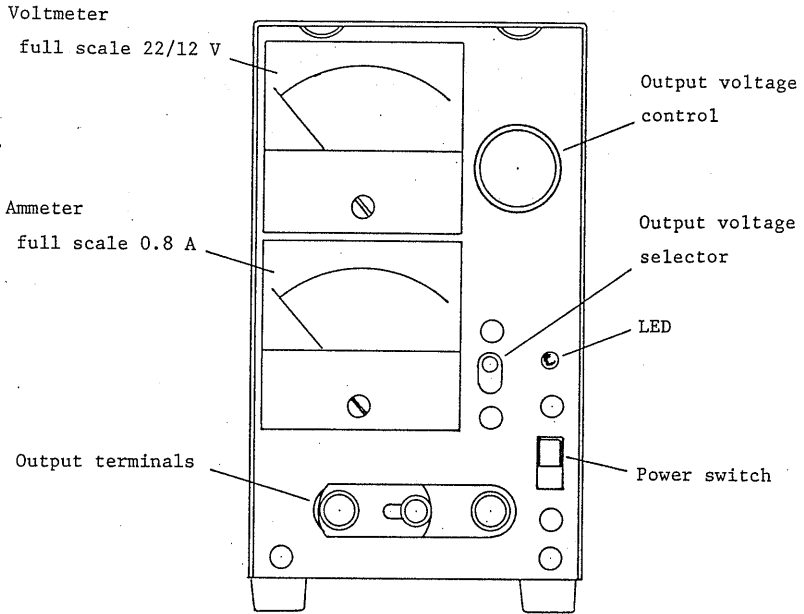


Fig. 1 Front panel

Output terminals

Normally Model PAF20-0.7 is used with negative terminal connected with GND terminal by means of accessory short bar.

Output voltage range selector

Switches output voltage to 1 - 10 V or 10 - 20 V.
Voltmeter range is also changed with switching it.

4. OPERATION

4.1 Single Operation

Refer to "3. EXPLANATION OF FRONT PANEL", when using a single Model PAF20-0.7.

4.2 Series Operation

It is possible to supply a higher output voltage than 20 V by connecting more two units of Model PAF20-0.7 in series.

In this case, floating voltage at any terminal must not exceed +100 V against the panel and chassis. (See Fig. 2)

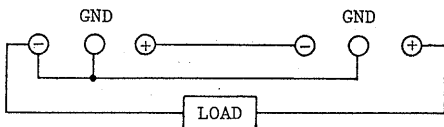


Fig. 2-a
Case of negative grounding

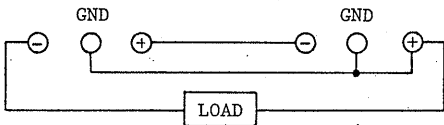


Fig. 2-b
Case of positive grounding

When overload condition occurs in the operation of more than two units of Model PAF20-0.7 connected in series, inverse voltage is applied to the unit of which overload protection circuit operation first. In order to prevent this, diodes are connected between the respective output terminals as shown in Fig. 3.

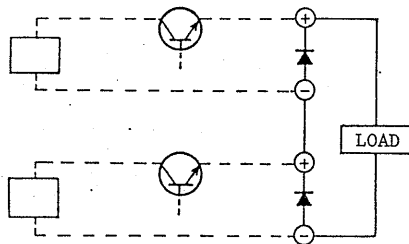


Fig. 3 Protection circuit for series connection

4.3 Parallel Operation

It is possible to obtain greater output current than 0.7 A by connecting the output terminals of more than two units of Model PAF20-0.7 in parallel. However, the applicable range is limited due to its characteristics as shown in Fig. 4.

In case of Fig. 4 there appears a step of ΔV in the output voltage. Therefore the output voltage of both equipment must be adjusted to become as close to each other as possible.

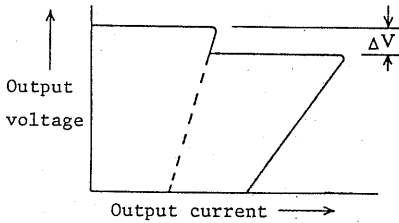


Fig. 4
Two units parallel connection
characteristic

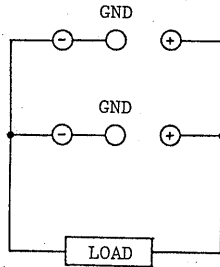


Fig. 5-a
Parallel connection
(negative ground)

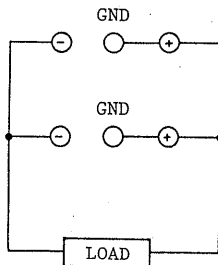


Fig. 5-b
Parallel connection
(positive ground)

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4.4 Caution for Installation

Avoid using Model PAF20-0.7 in a place where ambient temperature exceeds 40°C (104°F). The maximum output current must be properly limited when the equipment is exposed to direct rays of the sun or radiation from any heat source.

The safety range of input line voltage for Model PAF20-0.7 is from 90 to 110% of the rated voltage.

4.5 Overshoot of Output Voltage

In Model PAF20-0.7 its output voltage is prevented from increasing any further than the preset value when line power is turned on or off.

4.6 Output Current Limiting Circuit

Model PAF20-0.7 is provided with an electronic trouble-free current limiting circuit of fold-back type in order to protect series transistors and output ammeter as well as other component parts from damage when the output terminals are accidentally shorted. When the load resumes the normal condition, the equipment restarts its voltage regulating operation automatically.

5. MAINTENANCE

When any defective component part is replaced and output voltage indication needs calibration, make adjustment in the following procedure.

(1) Adjustment of voltmeter

Connect a voltmeter to output terminals, and set the output voltage to 20 V. Adjust the semi-fixed resistor VM in Fig. 6 so that an output voltmeter of the Model PAF20-0.7 indicates 20 V.

(2) Adjustment of max. output voltage

Set the voltage range selector to the 10 V - 20 V range, and turn the output voltage control knob counterclockwise to its extreme position. Then adjust the output voltage to 20.5 V by turning the semi-fixed resistor EO in Fig. 6.

(3) Adjustment of ammeter

Connect an ammeter and approximately 20-ohm to output, set the output current 0.7 A (Adjust the output voltage approx. 14 V.). Adjust the semi-fixed resistor AM in the Fig. 6 so that the ammeter of the Model PAF20-0.7 indicates 0.7 A.

(4) Adjustment of output current limiting circuit

Connect a load to output terminals, and decrease the value of the load resistance. Adjust the semi-fixed resistor IO in the Fig. 6 so that the indication of ammeter increases up to approximately 0.8 A with decrease of the value of the load resistance, and then it decreases.

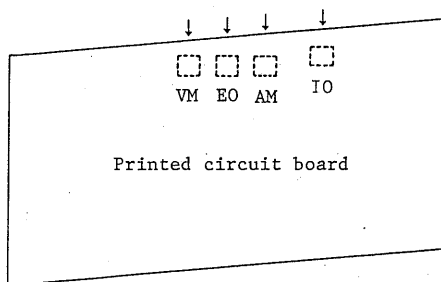


Fig. 6 Location of semi-fixed resistors

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