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1 Function

1.1 Input voltage range

■ Input voltage range of the power supplies is from AC180V to AC528V or DC (please see SPECIFICATIONS for details).

In cases that conform with safety standard, input voltage range is AC200 to AC480V (50/60Hz).

■ If input value doesn't fall within above range, a unit may not operate in accordance with specifications and/or start output voltage hunting or fail.

If you need to apply a square waveform input voltage, which is commonly used in UPS and inverters, please contact us.

■ When the input voltage changes suddenly, the output voltage accuracy might exceed the specification. Please contact us.

If the restart time of the short interruption power failure is less than 3 seconds, perform a thorough evaluation.

■ A unit can operate under the input voltage dip with derating.

Table 1.1 shows the load factors that can be output.

Table 1.1 Load factor

Input Voltage	Dip time [ms]	FDA50F	FDA75F	FDA150F	FDA200F
200VAC to 100VAC	200	15%	5%	25%	20%
200VAC to 140VAC	500	100%	85%	100%	100%
200VAC to 160VAC	1000	100%	100%	100%	100%
400VAC to 200VAC	200	100%	100%	100%	100%
400VAC to 280VAC	500	100%	100%	100%	100%
400VAC to 320VAC	1000	100%	100%	100%	100%

● FDA50F, FDA75F

■ A power factor improvement circuit (active filter) is not built-in. If you use multiple units for a single system, standards for input harmonic current may not be satisfied. Please contact us for details.

1.2 Inrush current limiting

■ An inrush current limiting circuit is built-in.

■ If you need to use a switch on the input side, please select one that can withstand an input inrush current.

■ Thermistor is used in the inrush current limiting circuit. When you turn the power ON/OFF repeatedly within a short period of time, please have enough intervals so that a power supply cools down before being turned on.

1.3 Overcurrent protection

■ An overcurrent protection circuit is built-in and activated over 105% of the rated current. A unit automatically recovers when a fault condition is removed.

Please do not use a unit in short circuit and/or under an overcurrent condition.

■ Hiccup Operation Mode

When the output voltage drops at overcurrent, the average output current is reduced by hiccup operation of power supply. Please contact us for details.

1.4 Overvoltage protection

■ An overvoltage protection circuit is built-in. If the overvoltage protection circuit is activated, shut down the input voltage, wait more than 3 minutes and turn on the AC input again to recover the output voltage. Recovery time varies depending on such factors as input voltage value at the time of the operation.

Remarks :

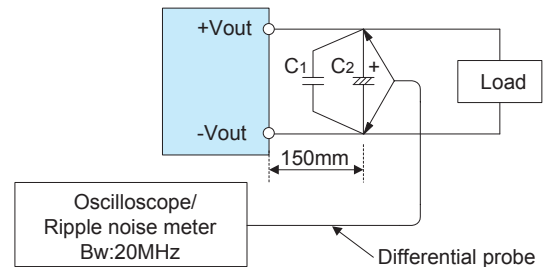
Please avoid applying a voltage exceeding the rated voltage to an output terminal. Doing so may cause a power supply to malfunction or fail. If you cannot avoid doing so, for example, if you need to operate a motor, etc., please install an external diode on the output terminal to protect the unit.

1.5 Output voltage adjustment

■ To increase an output voltage, turn a built-in potentiometer clockwise. To decrease the output voltage, turn it counterclockwise.

1.6 Output ripple and ripple noise

■ Output ripple noise may be influenced by measurement environment, measuring method fig.1.1 is recommended.



C1 : Film capacitor 0.1 μ F

C2 : Aluminum electrolytic capacitor 22 μ F

Fig.1.1 Measuring method of Ripple and Ripple Noise

Remarks :

When GND cable of probe with flux of magnetic force from power supply are crossing, ripple and ripple noise might not measure correctly.

Please note the measuring environment.

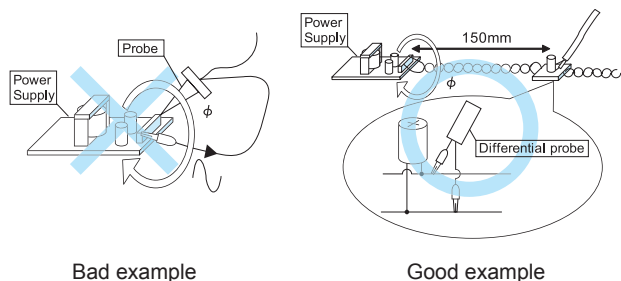


Fig.1.2. Example of measuring output ripple and ripple noise

1.7 Isolation

■ For a receiving inspection, such as Hi-Pot test, gradually increase (decrease) the voltage for the start (shut down). Avoid using Hi-Pot tester with the timer because it may generate voltage a few times higher than the applied voltage, at ON/OFF of a timer.

1.8 Reducing standby power

■ Burst operation at light loading, the internal switch element is intermittent operated, and the switching loss is decreased.

2 Series Operation and Parallel Operation

2.1 Series Operation

■ You can use a power supply in series operation. The output current in series operation should be lower than the rated current of a power supply with the lowest rated current among power supplies that are serially connected. Please make sure that no current exceeding the rated current flows into a power supply.

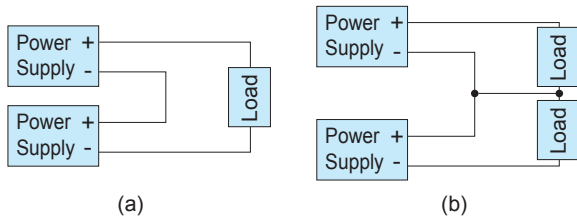


Fig.2.1 Examples of connecting in series operation

■ The combined output voltage of series operation is 200V.

2.2 Parallel Operation

■ Parallel operation is not possible.
 ■ Redundancy operation is available by wiring as shown below.

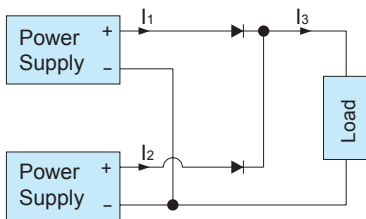


Fig.2.2 Example of redundancy operation

■ Even a slight difference in output voltage can affect the balance between the values of I_1 and I_2 . Please make sure that the value of I_3 does not exceed the rated current of a power supply.

$$I_3 \leq \text{the rated current value}$$

3 Warranty

■ Warranty

Table 3.1 Warranty (FDA50F/75F150F)

Cooling Method	Average ambient temperature (year)	Warranty	
		$I_o \leq 75\%$	$75\% < I_o \leq 100\%$
Convection	Ta=40°C or less	5years	5years
	Ta=50°C	5years	3years

Table 3.2 Warranty (FDA200F)

Cooling Method	Average ambient temperature (year)	Warranty	
		$I_o \leq 75\%$	$75\% < I_o \leq 100\%$
Convection	Ta=30°C or less	5years	5years
	Ta=40°C	5years	3years

4 Ground

■ When installing the power supply, make sure the FG terminal and the chassis are connected to the safety earth ground.

5 Options and Others

5.1 Outline of Options

- -C
 - With the -C option, the internal PCB has a conformal coating for anti-humidity.
- -L
 - This version includes an added LED for operation indicators.
- -N1
 - Option -N1 models come with a dedicated DIN rail attachment.
 - Please contact us for details about appearance.