Daitron

HFS150 Series instruction manual

Prior to Use

Before using this switching power supply unit, please read the instruction manual carefully.
Be sure to use the power supply unit as directed in these precautions.
Misuse may cause electric shock, fire, or failure.

WARNING

- Detach neither remodeling nor the cover of the product. The high voltage and a hot part are in internal parts. Please do not touch. If it touches, there is fear of an electric shock or a burn.
- Keep your face and hands away from the activated power supply unit.
  Unexpected trouble may occur, causing injury.

CAUTION

- This power supply unit is intended to be used with general or commonly used electronic equipment. It will be the buyer's sole responsibility to do the safety design for applications beyond the manufacturers intended use. Such cases as this power supply unit are used in an application that calls for a more robust or reliable device or in any application where failure of this device would endanger persons or property.
- When using it as medical electrical equipment standard (IEC60601-1), you have to supply a fuse or over current releaser to each supply leads of your product.
- Avoid operation in the over-current state for 10 seconds or more.
  There is a possibility of causing damage and the insulation failure.
- Avoid actions causing shock such as dropping to this product.

1. Terminal Explanation

- Before connecting the input and the output , make sure that the input is shut off.
- Connect the protective earth terminal to the terminal on the equipment or device.
- Separate and wire for the input line and the output line. The noise-proof improves.

● TERMINAL BLOCK (TB101)

① L : Input Terminal Live Line
② N : Input Terminal Neutral Line
③ ⏚ : Protective Earth Terminal
④ -V : -Output terminal
⑤ +V : +Output terminal

● SWITCH (SW501)

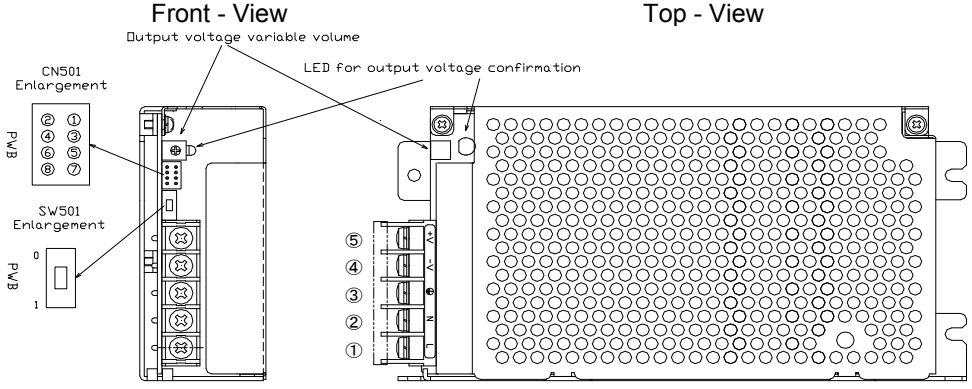
0 When you don't use the remote sensing.
1 When you use the remote sensing.

● Connector : CN501

① +S : +Remote Sensing
② +V : +Output Voltage Check
(The load current can't be supplied.)
③ -S : -Remote Sensing
④ -V : -Output Voltage Check
(The load current can't be supplied.)
⑤ N.C.
⑥ N.C.
⑦ +R : +Remote ON/OFF
⑧ -R : -Remote ON/OFF

Connector : S8B-PHDSS (JST)	(Terminal) : SPHD-001T-P0.5
Housing : PHDR-08VS	Crimping tool : AP-K2N

Front - View



Top - View

2. Function explanation

2-1 Input voltage

- Input voltage range is single phase alternating current. 85～264Vac(47～63Hz).
- We recommend that you do not use this power supply unit outside of it's normal intended use in order to avoid any damage or malfunctions.

2-2 Output voltage setting

- You can adjust +Vout by using Output Voltage Adjustment Potentiometer that is next to the connector (CN501).
- You can increase output voltage by turning clockwise. If you need decrease, you can turn it the other way.
- Please use it within the following range when you adjust the output voltage.
  - Within +/- 10% lated output voltage.
  - Do not use maximum output power.
  - Do not exceed rated output current.

2-3 Inrush Current

- The inrush current limiting circuit is built-in.
- The inrush current limiting circuit might released it when the input re-turning on time is short, because SCR is used for the inrush current limiting. So turn it on again enough after time.
- The first inrush current and the second inrush current flow because it adopts SCR method for the inrush current limiting circuit.

2-4 Over-current Protection(OCP)

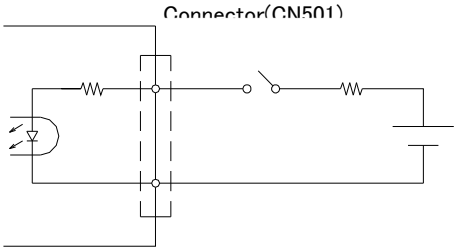
- The over-current protection works and the output is intercepted when becoming 110% or more of the output current ratings.
- Remove the factor of the overload, and turn on the input again after a few minutes of cutting when resetting it.
- Please avoid operation in the over-current state for 10 seconds or more.
  It will cause damage or isolation failure.

2-5 Over-Voltage Protection(OVP)

- It is detected when the output voltage rises by some causes, and the output is intercepted at once.
- When it works once, the over-voltage protection continues the output interception while the input is supplied.
- Turn it on again after a few minutes after intercepting the input when resetting it.
- Note that the output voltage might be abnormal when you turn it on again. (In this case, the over voltage protection works again.)

2-6 Remote On/Off circuit

- The remote control function is built-in.
- You can control the output in On/Off by applying the voltage.
- You can control it by applying the external voltage to the RC Connector, which is secondary circuit of power supply. It can't be used in primary side circuit.



	Voltage level -Pin #7 & #8.	Output
SW OFF	Less than 0.8V, or Open	ON
SW ON	4.5V～12.5V	OFF

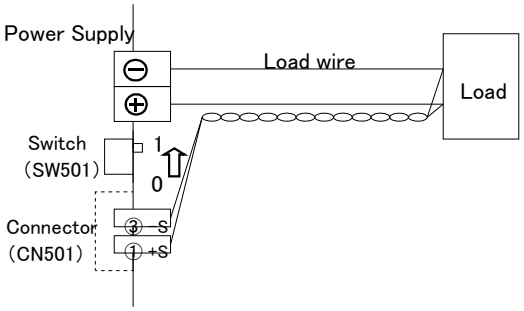
Please connect external resistor R when using 6.5V or more in an impressed voltage.

External Voltage level:E	External Resistor:R
4.5～12.5VDC	No Required
12.5V～24.5VDC	* Refer to the following

$$R[\Omega] = \frac{E-(1.1+1000\times0.005)}{0.005}$$

2-7 Remote Sensing

- The remote sensing function is built-in.
- Line drop between the top (the load device side) and power supply terminal of the sensing line use it by 0.3V or less. Please note that power supply terminal voltage does not become out of a rating range.
- The sensing wire is done in the twist. And it uses it along the load wire.

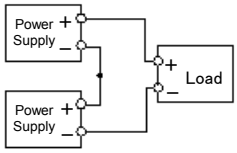


- Please confirm that the switch is "0", in the case that it does not use remote sensing.
  When the factory is shipped, the switch is "0", and the power supply can be used as it is when the remote sensing is not used.

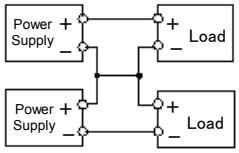
2. Function explanation

2-8 Series Operation

- The following (1) and (2) of Series operation can be used. However, Use the output current below the max output current in small one either of power supplies with which the series is connected.



(1)



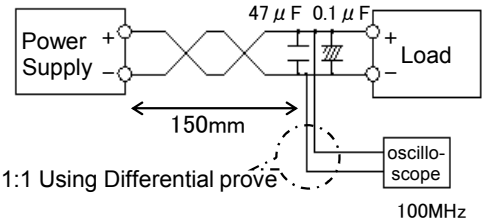
(2)

2-9 Parallel Operation

- Parallel operation can not be used for the purpose to increase output current.

2-10 Ripple

- The value of max ripple voltage is a value unde the JEITA measuring method in the shielding room. (Refer to the below)
  If neither the electrolytic capacitor nor the film capacitor, etc. are connected with the load edge, the ripple on the load edge might become large when the load line becomes long.
  Also, you can not measure correctly when the ground lead of the oscilloscope is long .



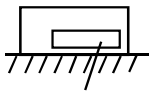
Ripple measurement method

（Conditions : Ta = 25℃ Vin = 100Vac
It is a TYP value at the time of a rated output.)

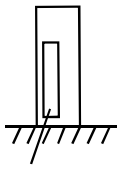
3. Mounting Method

3-1 Mounting direction

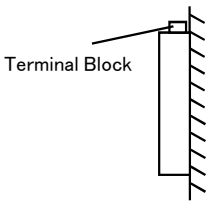
(a)



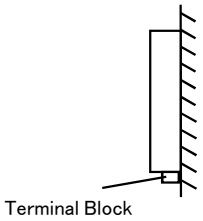
(b)



(c)



(d)

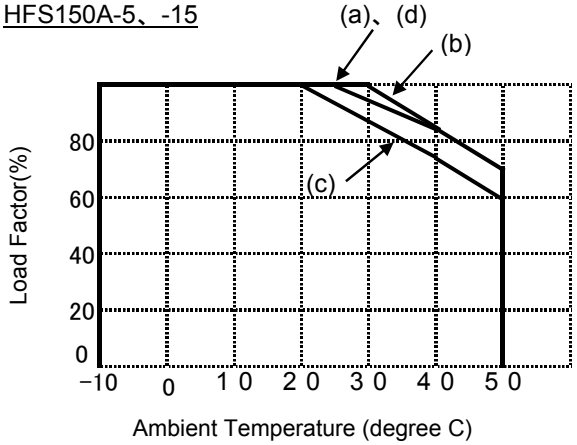


Mounting directions

3-2 Output derating

- Mounting directions ; (a)、(b)、(c) 、(d)
- You can use it by doing derating of output current under the wide temp range.
  Please refer to the following derating table.

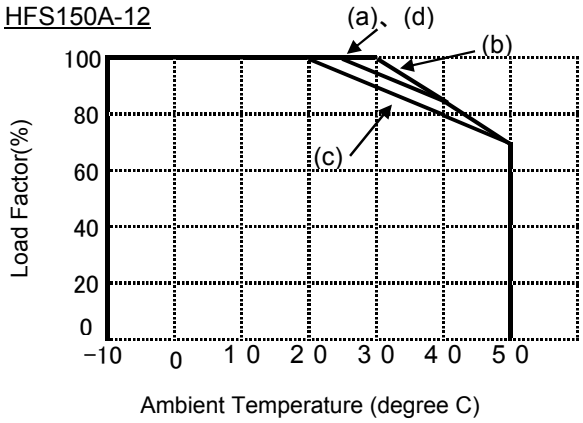
HFS150A-5、-15



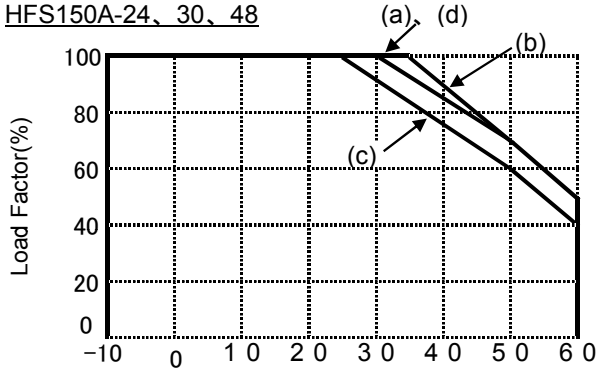
3. Mounting Method

3-2 Output derating

HFS150A-12



HFS150A-24、30、48



3-3 Notes of mounting

- This power supply is the natural convection cooling.
- Please secure ventilation by leaving space between power supplies when you use two or more, so as not to exceed the temperature span that the ambient temperature shows in the derating table[3-2].

4. Connections

- Please be away among Output load wire, remote control wire, remote sensing wire and input wire in order to minimize noise interference. If you twist the each wire, it will improve.
- You can add lower value of electrolytic capacitor to the load edge for noise removal.
- Do not wire for the output load wire lengthening it more than the necessity.
- Please connect the terminal ⏚ with the frame ground terminal of the equipment and the device equipped with the power supply shortest in the thick wires for safety and the noise removal. There is fear of the electric shock.
- Recommended tightening torque of I/O terminal screw (M4) : 1.4N・m
- Wrong wiring or wrong connections are become the cause of damage when you use the remote sensing function. Connect it very carefully with the input intercepted.

5. Trouble shooting before contact us

- Please make sure your input voltage.
- Please make sure your input/output connections.
- Please make sure your wire specification.
- Check the output adjustment potentiometer.
  Sometimes OVP function turns off the output power when you turn the potentiometer too much.
- Check the capacitance at the load side is not too much.
- Check the remote control on/off.
- Check the switch is "1" when the remote sensing is not used.