





HWS 15A-150A/A Series

UL508 Instruction Manual

BEFORE USING THE POWER SUPPLY UNIT

Pay attention to all warnings and cautions before using the unit. Incorrect usage could lead to an electrical shock, damage to the unit or a fire hazard.

- **Warning Symbols**

CAUTION	
<ul style="list-style-type: none"> • Minor electric shock, fire, or Product failure may occasionally occur. Do not disassemble, modify, or repair the Product or touch the interior of the Product. 	
<ul style="list-style-type: none"> • Minor burns may occasionally occur. Do not touch the Product while power is being supplied or immediately after power is turned OFF. 	
<ul style="list-style-type: none"> • Minor electric shock, fire, or Product failure may occasionally occur. Do not allow any pieces of metal or conductors or any clippings or cuttings resulting from installation work to enter the Product. 	
<ul style="list-style-type: none"> • Minor injury due to electric shock may occasionally occur. Do not touch the terminals while power is being supplied. Always close the terminal cover after wiring. 	

NOTICE:

Installing/Storage Environment

1. Store the product with ambient temperature -30 to $+85$ °C, and relative humidity 10 to 95% (No Dewdrop).
2. Never operate the unit under over current or shorted conditions for 30 seconds or more and out of Input Voltage Range in specification which could result in damage or insulation failure or smoking or burning.
3. Confirm connections to input/output terminals are correct as indicated in the instruction manual.
4. Use the product where the relative humidity is 30 to 90% (No Dewdrop).
5. Avoid places where the product is subjected to direct sunlight..
6. Avoid places where the products are subjected to penetration of liquid, foreign substance, or corrosive gas.
7. Avoid places subject to shock or vibration. A device such as a contact breaker may be a vibration source.
Set the Power Supply as far as possible from sources of shock or vibration.
8. If the Power Supply is used in an area with excessive electronic noise, be sure to separate the Power Supply as far as possible from the noise sources.
9. When the product is used under the circumstance or environment below, ensure adherence to limitations of the ratings and functions. Also take countermeasures for safety precautions such as fail-safe installations.
 - a). Under the circumstances or environment which are not described in the instruction manual.
 - b). For nuclear power control, railway, aircraft, vehicle, incinerator, medical equipment, entertainment equipment, safety device etc...
10. For applications where death or serious property damage is possible and extensive safety precautions are required.
11. This power supply has possibility that hazardous voltage may occur in output terminal depending on failure mode.
The output of these products must be protected in the end use equipment to maintain SELV.

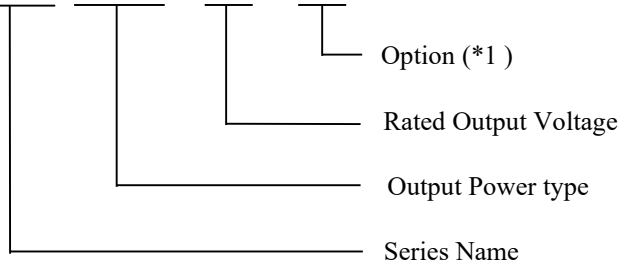
Note

: Use Environment

For use in pollution Degree 2 environment.

1. Model name identification method

HWS 15A – 5 / □



(*1)

- /A : With cover type
- /RA : Remote ON/OFF control with cover
- /ADIN : DIN rail mountable
(Only cover type of 5-48V)
- /HDA: High resistance against dustenvironment
with cover type.
(Refer to the specifications for details.)

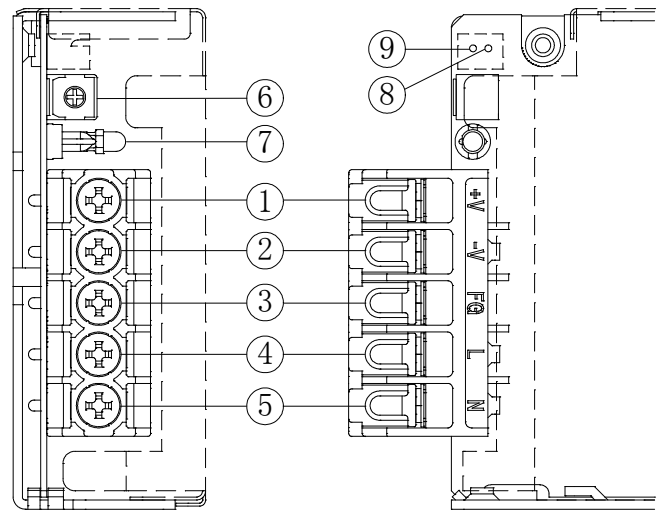
2. Terminal Explanation

HWS15A, HWS30A, HWS50A

- ① +V : + Output terminal
- ② -V : - Output terminal
- ③ FG : Frame Ground
- ④ L : Input terminal Live line (Fuse in line)
- ⑤ N : Input terminal Neutral line
- ⑥ Output voltage adjustment trimmer
- ⑦ Output monitoring indicator (Green LED)

HWS50A/RA

- ⑧ -R : Remote ON/OFF control
- ⑨ +R : Remote ON/OFF control

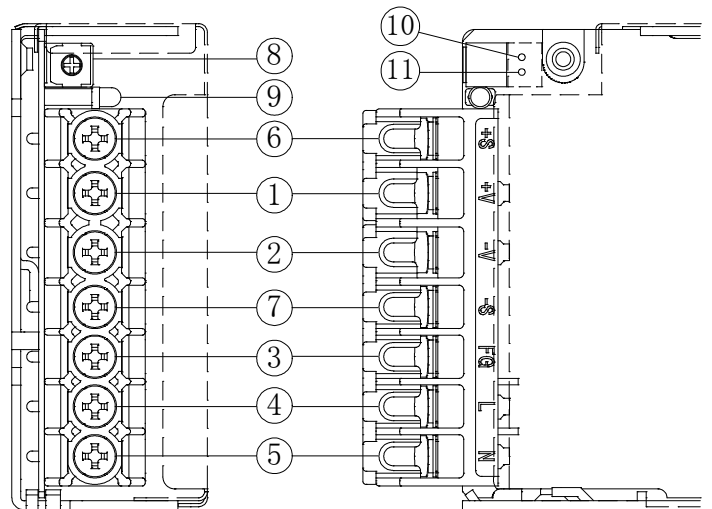


HWS80A, HWS100A, HWS150A

- ① +V : + Output terminal
- ② -V : - Output terminal
- ③ FG : Frame Ground
- ④ L : Input terminal Live line(Fuse in line)
- ⑤ N : Input terminal Neutral line
- ⑥ +S : + Remote sensing terminal
- ⑦ -S : - Remote sensing terminal
- ⑧ Output voltage adjustment trimmer
- ⑨ Output monitoring indicator (Green LED)

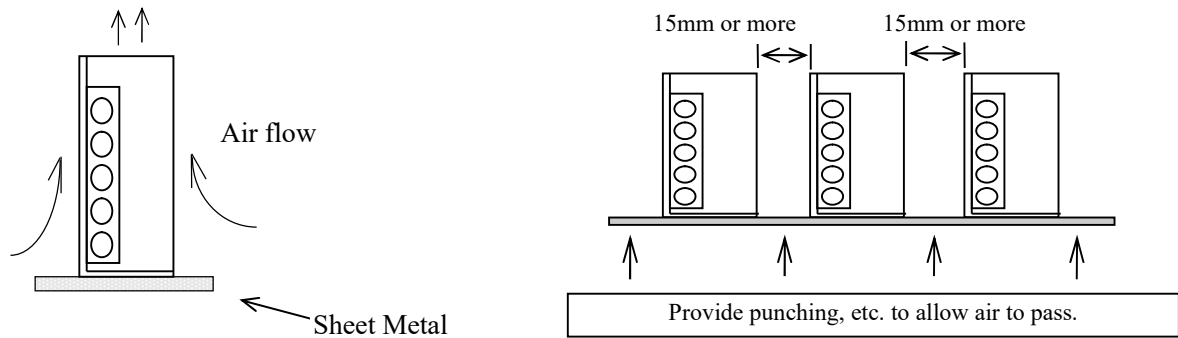
HWS80A/RA, HWS100A/RA, HWS150A/RA

- ⑩ -R : Remote ON/OFF control
- ⑪ +R : Remote ON/OFF control



3. Mounting Method

- 1) This is convection cooling type power supply. In the consideration for the heat radiation and safety. Please take a distance more than 15mm between the power supply and the peripheral parts. When lining up multiple units, please make sure to place them 15mm or more apart from each other.
- 2) The maximum allowable penetration of mounting screws is 6mm.
- 3) Recommended torque for mounting screw
 HWS15A-150A (M3 screw) : 0.49 N·m(5.0 kgf·cm)



4. Wiring Method

- 1) Input line shall be separated and twisted to improve noise sensitivity.
- 2) The sensing lines shall be twisted and separated from the output lines.
- 3) Use all lines as thick and short as possible to make lower impedance.
- 4) Noise can be eliminated by attaching a capacitor to the load terminals.
- 5) For safety and EMI considerations, connect the FG terminal of HWS15A-150A to mounting set ground terminal.
- 6) The recommended wire type :

MODEL	Recommended Wire	Recommended torque	Recommended crimp-type terminal		
			D (MAX)	t (MAX)	Mounting pieces (MAX)
HWS15A-50A	AWG14-22	All terminal M3.5 Screws 1.6N·m (16.3kgf·cm, 14.2lb·in)	6.8mm	0.8mm	2 piece
HWS80A,100A	AWG12-22	Output terminal M3.5 Screws 1.6N·m (16.3kgf·cm, 14.2lb·in)	8.1mm	1.0mm	1 piece
	AWG14-22	Other terminal M3.5 Screws 1.6N·m (16.3kgf·cm, 14.2lb·in)	6.8mm	0.8mm	2 piece
HWS150A	AWG10-22	Output terminal M3.5 Screws 1.6N·m (16.3kgf·cm, 14.2lb·in)	8.1mm	1.0mm	1 piece
	AWG14-22	Other terminal M3.5 Screws 1.6N·m (16.3kgf·cm, 14.2lb·in)	6.8mm	0.8mm	2 piece

Note 1 : When using separate loads, use of two pcs. of 0.8mm thick crimp-type terminal is recommended.

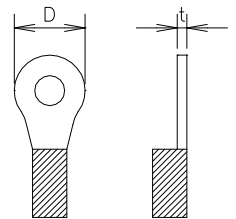
Note 2 : Select the wire diameter in consideration of the rated current and the current during OCP operation.

For recommended diameter, refer to wire maker recommended allowable current and voltage drop.

Especially, for 3V or 5V models, output current is large. Thick diameter wire is recommended.

Note 3 : Use wires rating at least 90°C(CSA) / 75°C(UL) and copper conductor only.

Note 4 : Use crimp-type terminal for connection to terminal.



5. External Over Current Protection

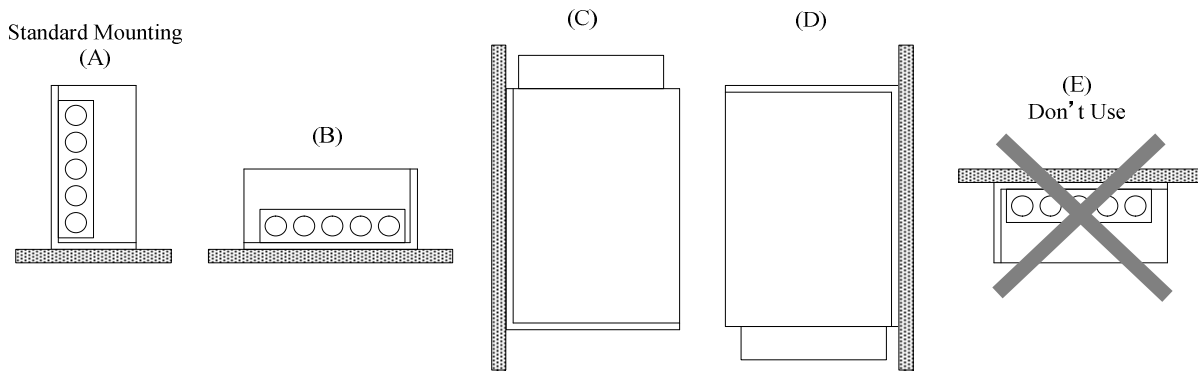
The following types of fuses that 1.5 times or less the rated current should be connected to the output of the power supply. And also select to wire diameter according to Note 2 of "4. Wiring Method".

cUL Listed or UL Listed with CSA Certificated fuse Class : C, CA, CB, CC, G, H, J, K, L, R, T, CF

6. Output Derating according to the Mounting Directions

Recommend standard mounting is method (A). Method (B), (C) and (D) are also possible. Refer to the derating below. Please do not use installation method (E), where the PCB will be on the topside and heat will be trapped inside the unit. Load(%) such as below derating curve indicates output power.

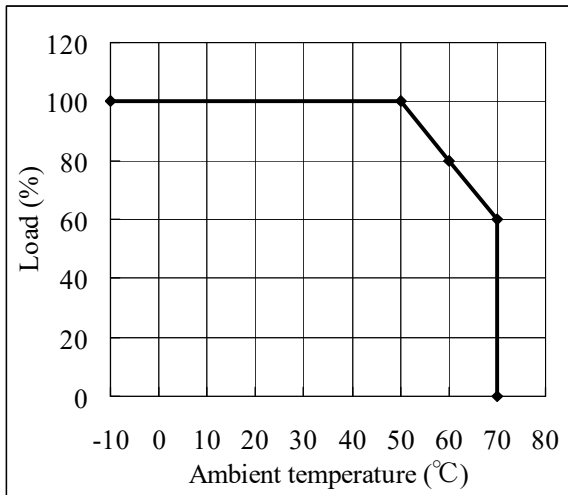
■ Mounting Directions



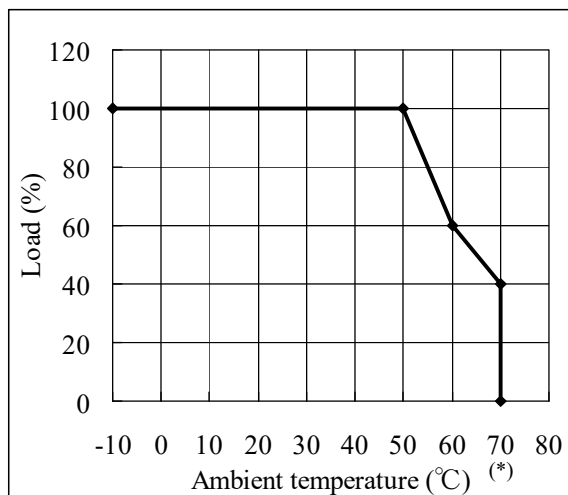
■ Output Derating

Standard Mounting (A) (Cover type)

HWS15A , 80A

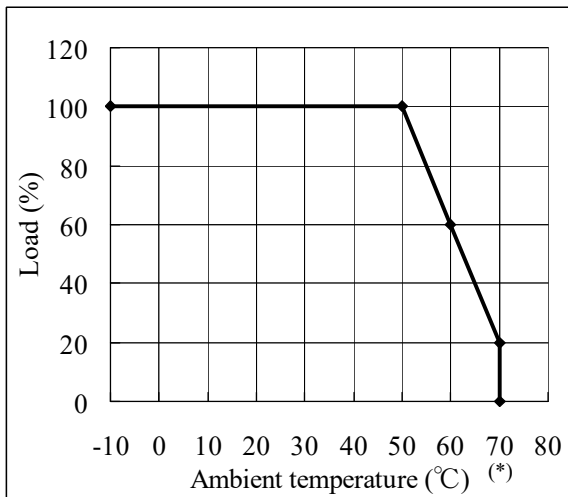


HWS30A



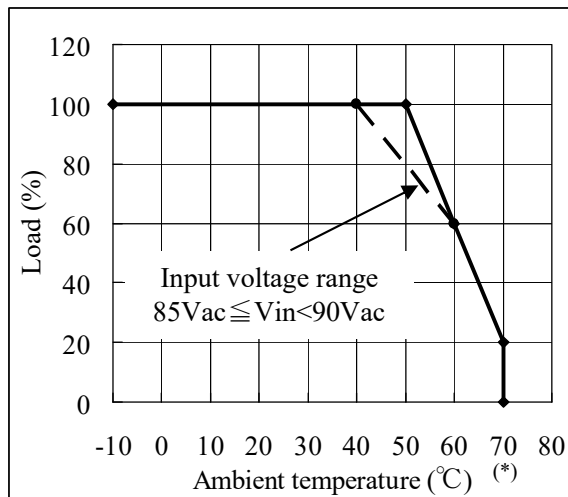
(*)/HDA : 71°C

HWS50A



(*)/HDA : 71°C

HWS100A , 150A



(*)/HDA : 71°C