

HWS15-150/A Series 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	
DO NOT MODIFY, DISASSEMBLE THE POWER SUPPLY.	
HOT SURFACE.	
READ INSTRUCTION MANUAL BEFORE CONNECTING TO MAINS.	
ELECTRIC SHOCK HAZARDOUS ON THE CONNECTOR SECTION.	

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 penetration of metal chips when processing mounting holes.
7. Avoid places where the products are subjected to penetration of liquid, foreign substance, or corrosive gas.
8. 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 possible sources of shock or vibration.
9. 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.

Precautions in using the product:

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.

1. Under the circumstances or environment which are not described in the instruction manual.
2. For nuclear power control, railway, aircraft, vehicle, incinerator, medical equipment, entertainment equipment, safety device etc...
3. For applications where death or serious property damage is possible and extensive safety precautions are required.
4. This power supply has possibility that hazardous voltage may occur in output terminal depending on failure mode. The output of these products must be earthed in the end use equipment to maintain SELV. If the outputs are not earthed, they must be considered hazardous and must not be made user accessible.

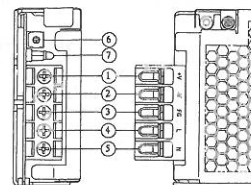
Note: CE MARKING

CE Marking, when applied to a product covered by this handbook indicates compliance with the low voltage directive (2006/95/EC) as modified by the CE Marking Directive (93/68/EEC) in that it is complies with EN60950.

1. Terminal Explanation

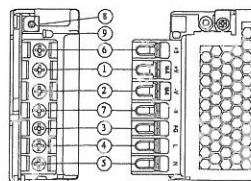
HWS15, HWS30, HWS50

- 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)



HWS80, HWS100, HWS150

- 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)

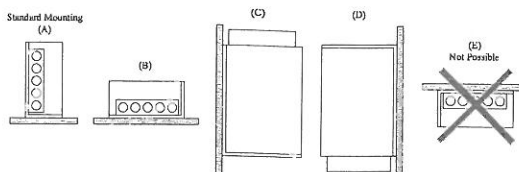


2. Mounting Directions

2-1. Output Derating according to the Mounting Directions

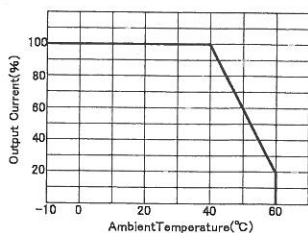
Recommend standard mounting is method (A). Method (B), (C) and (D) are also possible. Refer to the derating below. Please do not use installation method (E), where the PCB will be on the topside and heat will be trapped inside the unit. In the following derating curve, the maximum output current is considered to be 100%.

Standard Mounting (A)



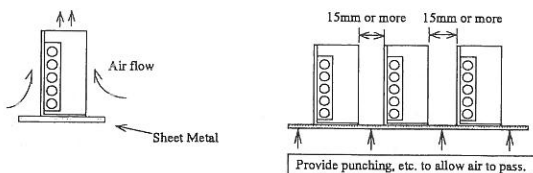
Output Derating

(A) Standard Mounting Direction



2-2 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
HWS15-150 (M3 screw) : 0.49 N·m(5.0 kgf·cm)

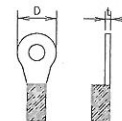


3. Wiring Method

- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- The sensing lines shall be twisted and separated from the output lines.
- Use all lines as thick and short as possible to make lower impedance.
- Noise can be eliminated by attaching a capacitor to the load terminals.
- In HWS15-50, the output current of each output terminal is limited to 10A.
- In HWS80, HWS100 and HWS150, the output current of each output terminal is limited to 30A.
- For safety and EMI considerations, connect the FG terminal of HWS15-150 to mounting set ground terminal.
- There recommended wire type

MODEL	Recomm- ended Wire	Recommended torque	Recommended crimp-type terminal		
			D (MAX)	t (MAX)	Mounting pieces (MAX)
HWS15-50	AWG14-22	M3.5 Screws 1.6N·m(15.6kgf·cm)	6.8mm	0.8mm	2 piece
HWS80 HWS100	AWG12-22	M4 Screws 1.6N·m(15.6kgf·cm)	8.1mm	1.0mm	1 piece
	AWG14-22	M3.5 Screws 1.6N·m(15.6kgf·cm)	6.8mm	0.8mm	2 piece
HWS150	AWG10-22	M4 Screws 1.6N·m(15.6kgf·cm)	8.1mm	1.0mm	1 piece
	AWG14-22	M3.5 Screws 1.6N·m(15.6kgf·cm)	6.8mm	0.8mm	2 piece

- *1 Use min. 60°C or 60/75°C wire.
- *2 Use copper conductors only or equivalent.



4. External Fuse Rating

Refer to the following fuse rating when selecting the external fuses that are to be used on input line. Surge current flows when line turns on. Use slow-blow fuse or time-lag fuse. Do not use fast-blow fuse. Fuse rating is specified by in-rush current value at line turn-on. Do not select the fuse according to input current (rms.) values under the actual load condition.

HWS15, HWS50 : 2A HWS30, HWS80, HWS100 : 3.15A
HWS150 : 5A

5. Use Environment

Pollution Degree 2
Indoor use only