JWT 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

- Do not touch the internal components, they may have high voltage or high temperature. You may get electrical shock or burned.
- When the unit is operating, keep your hands and face away from it, you may get injured by an accident.

CAUTION

- This power supply is primarily designed and manufactured to be used and enclosed in other equipment. Stick the WARNING label for users on the system equipment and describe the notice in the instruction manual.
- Never operate the unit under over current or shorted conditions over 30 seconds which could result in damage or insulation failure of unit.

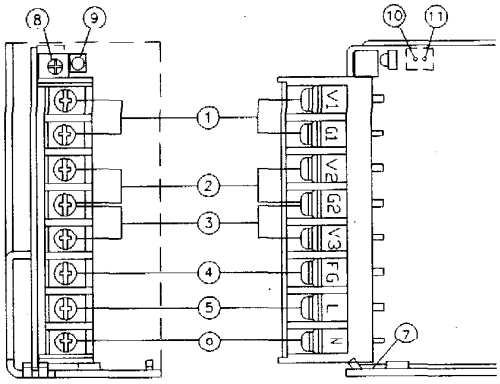
Note: CE MARKING

CE Marking, when applied to a product covered by this handbook indicates compliance with the low voltage directive (73/23/EEC) as modified by the CE Marking Directive (93/68/EEC) in that it is complies with EN60950.

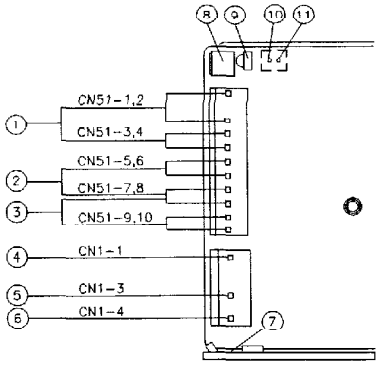
DWG NO. : A178-04-01		
APPD	CHK	DWG
9/Mar/'99	5/Mar./'99	3/MAR/'99

1. Terminal Explanation

JWT75, JWT100 (Block terminal type)



JWT75 , JWT100 (Connector Type)



① CH1
- Block terminal type -
V1 : CH1 + Output terminal
G1 : CH1 − Output terminal
- Connector type - (7 A max. / pin)
CN51-1,2 : CH1 + Output pin
CN51-3,4 : CH1 − Output pin

② CH2
- Block terminal type -
V2 : CH2 + Output terminal
G2 : CH2,CH3 Common Ground
- Connector type - (7 A max. / pin)
CN51-5,6 : CH2 + Output pin
CN51-7,8 : CH2,CH3 Common Ground

③ CH3
- Block terminal type -
G2 : CH2,CH3 Common Ground
V3 : CH3 − Output terminal
- Connector type -
CN51-7,8 : CH2,CH3 Common Ground
CN51-9,10 : CH3 − Output pin

④ Frame Ground
- Block terminal type -
F G
- Connector type -
CN1-1

⑤ Input terminal Live line (Fuse in line)
- Block terminal type -
L
- Connector type -
CN1-3

⑥ Input terminal Neutral line
- Block terminal type -
N
- Connector type -
CN1-4

⑦ Safety earth : ⏚

⑧ Output voltage of CH1 adjustment trimmer

⑨ Output monitoring indicator (Green LED)

⑩ Remote ON/OFF control (Option) : + R

⑪ Remote ON/OFF control (Option) : − R

＊Connector (JST) for Remote ON/OFF control

Connector	Housing	Terminal Pin
B2B-XH-AM	XHP-2	BXH-001T-P0.6 or SXH-001T-P0.6

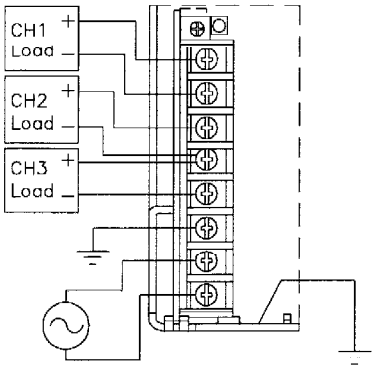
＊ Input & Output connector (MOLEX)

	JWT75/JWT100		
	Connector	Housing	Terminal Pin
Input	5289-4A	5199-04	5194
Output	5277-10A	5196-10	5194

2. Terminal connecting method

- Connection should be made while the input is shut down.
- Connect FG terminal to Ground terminal of the equipment.
- Output current of each connector pin must be less than 7A.(For connector type)
- By keeping the output load lines separate from the input lines, and twisting all line pairs separately the susceptibility to noise can be greatly improved.
- Remote ON/OFF control lines must be twisted or use shielded wire.
- Use the output connector specified in outline drawing. Also, use recommended crimping tool.

JWT75, JWT100



Safety Earth :

For safety, Connect ⏚ mounting holes on bottom of chassis to ground terminal of the equipment. Screw must be used M4.

3. Explanation of Functions and Precautions

3-1 Input Voltage Range

Input voltage range is single phase 85~265VAC (47~63Hz) or 120~330VDC. Input application out of specification may cause the unit damage.

3-2 Output Voltage Range

The output voltage of CH1 can be adjusted within the range below by using the V.ADJ trimmer on the front panel side. Turning the trimmer clockwise will increase the output voltage. Output voltage range is within 5~5.25V. Please note that if the output voltage is increased excessively, the over voltage protection (OVP) function may trigger.

3-3 Inrush Current

This series has used Power Thermistor to protect the circuit from Inrush Current. Please carefully select input switch and fuse in cases of the high temperature and re-input the power.

3-4 WATTBOX

This series designed as a WATTBOX. You are flexibly adjust output power of each channel within the limit of the maximum total output power in specification.

$W_{TOTAL} \geqq W_{CH1} + W_{CH2} + W_{CH3}$

W_{CH1} : Less than maximum CH1 output power.
W_{CH2} : Less than maximum CH2 output power.
W_{CH3} : Less than maximum CH3 output power.

3-5 Minimum output Current

The output voltage of all channel is stabilized when minimum output current of CH1 is more than 10% of average output current .

3-6 Over Voltage Protection (OVP)

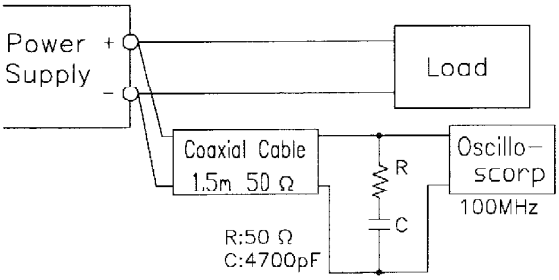
The OVP function (Inverter shutdown method, manual reset type) built into CH1 output only. When the OVP of CH1 channel triggers, the all outputs will be shutdown. The input must be removed for a few minutes, and then re-inputted for the output to recover.

3-7 Over Current Protection (OCP)

Constant current limiting, automatic recovery. OCP function operates when the output current exceeds 105% of average output current at specification. The output will automatically recover if the overload condition is canceled. Never operate the unit under over current or shorted conditions over 30 seconds which could result in damage or instruction failure.

3-8 Output Ripple & Noise

The standard specification for maximum ripple is value measured by the measurement circuit (EIAJ-RC9131). In the case that the load lines are long, ripple will become larger and an electrolytic capacitor, film capacitor, etc. placed across the load terminal may be necessary. Further, when measuring output ripple, if the oscilloscope probe's ground lead is long and accurate measurement cannot be made.



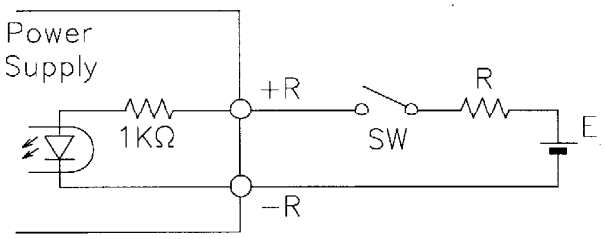
3-9 Remote ON/OFF Control

(Optional Spec.)

The Remote on/off control function is available as optional model name followed by /R. Using this function allows the user to turn the all outputs on and off without having to turn the AC input on and off. It is controlled by the voltage applied to +R and -R.

This circuit is in the Secondary(output) side of the power supply unit. Do not connect in the Primary(input) side.

And this circuit is isolated from the output by a photo coupler and can be controlled regardless of the output potential (+ or −).



The control mode is shown below.

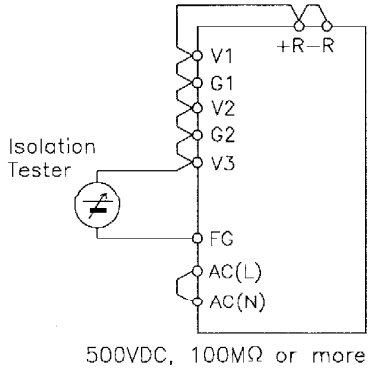
+R & -R terminal condition	Output Condition
SW ON (Higher than 4.5V)	ON
SW OFF (Lower than 0.8V)	OFF

External voltage level: E	External resistance : R
4.5~12.5VDC	No required
12.5~24.5VDC	1.5 k Ω

4. Isolation Test

The isolation resistance is more than 100MΩ at 500VDC when tested with a DC isolation tester between the output and the FG terminal (chassis). For safety, voltage setting of DC isolation tester must be done before the test. Ensure that the it is fully discharged after the test .

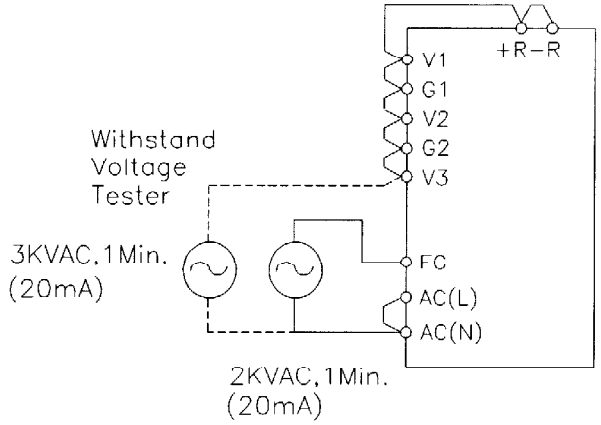
Output to FG (chassis)



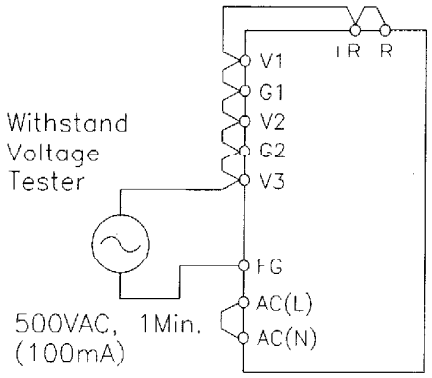
5. Withstand Voltage

This series is designed to withstand 3.0kVAC between the input and output, and 2.0kVAC between the input and the FG terminal (chassis) and 500VAC between output and the FG terminal each for 1 minute. In the case that the withstand voltage is tested, please set the limit of the withstand voltage test equipment to 20mA (Output-FG:100mA). The applied voltage must be increased gradually from zero to the testing value, and then decreased gradually at shut down. Especially stay away from use of a timer, where a pulse of several times the applied voltage can be generated. This could cause damage to the model.

Input to FG(chassis): solid line
Input to Output :dotted line



Output to FG(chassis)

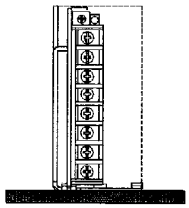


6. Mounting Directions

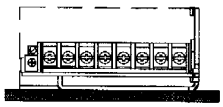
6-1. Output Derating according to the Mounting Directions

When mounting the power supply inside an apparatus, we recommend method (A) below. However, method (B) and (C) are also possible. Please also refer to the derating below. Please do not use installation method (E), where the PCB will be on the top side and heat will be trapped inside the unit. Method (D) is possible for JWT75, but prohibit for JWT100. In the following derating curve, the Maximum DC output current is considered to be 100%.

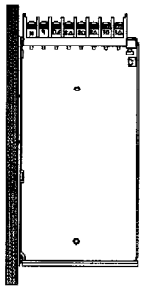
(A)
Standard Mounting



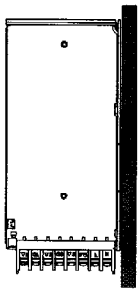
(B)



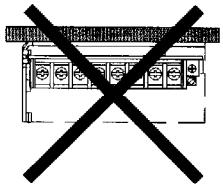
(C)



(D)
Prohibit for JWT100

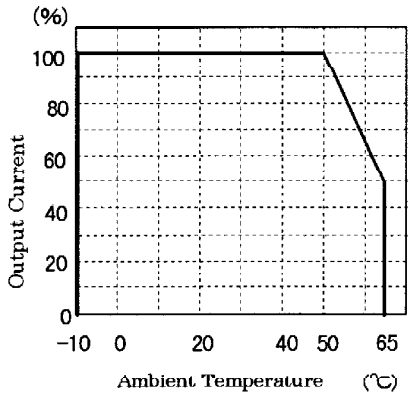


(E)
Prohibit



Output Derating

Standard Mounting (A) Direction (Open frame)



Open Frame (Without Cover)

Model	JWT75				JWT100			
Amb. Temp.	A	B	C	D	A	B	C	D
−10~+35℃	100	100	100	100	100	100	100	—
40℃	100	100	100	83	100	100	100	—
45℃	100	100	83	67	100	100	83	—
50℃	100	83	67	50	100	83	67	—
55℃	83	67	50	—	83	67	50	—
60℃	67	50	—	—	67	50	—	—
65℃	50	—	—	—	50	—	—	—

With Cover

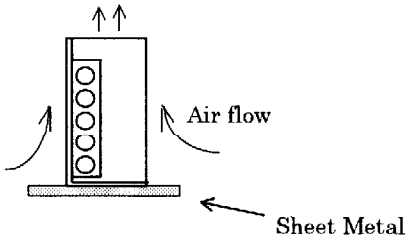
Model	JWT75				JWT100			
Amb. Temp	A	B	C	D	A	B	C	D
−10~+30℃	100	100	100	100	100	100	100	—
35℃	100	100	80	80	100	80	80	—
40℃	100	80	60	60	100	60	60	—
45℃	100	60	—	—	80	—	—	—
50℃	80	—	—	—	60	—	—	—
55℃	60	—	—	—	—	—	—	—

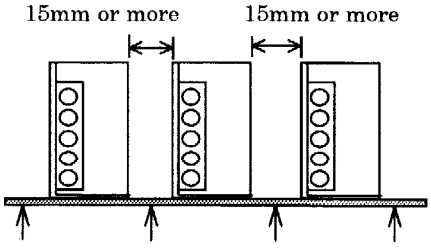
6-2 Mounting Method

1) This is a 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) Please make the mounting screws not to protrude into the power supply by more than 6mm.

3) Recommended torque for mounting screw. (M4 screw : 13.5kg·cm)

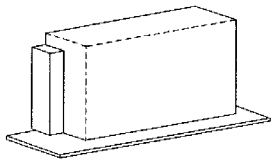




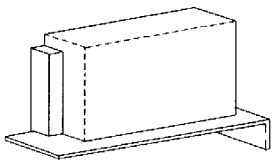
Provide punching, etc. to allow air to pass.

6-3 Optional sheet metal parts for mounting

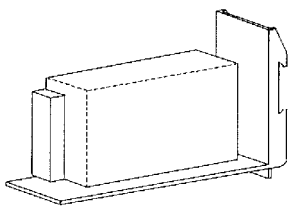
Optional sheet metal mounting parts are available to meet following mounting methods. Contact to NL sales representatives.



Flat Type



L Type



DIN Rail Type

7. Wiring Method

(1) By keeping the output load lines separate from the input lines, and twisting all line pairs separately the susceptibility to noise can be greatly improved.

(2) Make all lines as thick and short as possible to lower the impedance. And twisted or shielded wire is used to noise can be greatly improved.

(3) Noise can be eliminated by attaching a small capacitor to the load terminals.

(4) For safety and EMI considerations, please connect the FG terminal of JWT series to mounting the FG of system.

(5) The recommended torque for the terminal piece.

JWT75, JWT100 (M3 Screws) : 5.0 kg•cm

8. External Fuse Rating

In the case that an external fuse is going to be used, please refer to the chart below in selecting the fuse. Please stay away from fast blow fuse, use slow blow or time lug type. Fuse rating is specified in consideration of the In-rush current at turn-on. It cannot be selected by the input current (rms) under actual load condition.

JWT75, JWT100 : 3.15A

9. Before concluding that the unit is at fault...

Before concluding that the unit is at fault, make the following checks.

- Check if the rated input voltage is connected.
- Check if the wiring of input and output is correct.
- Check if the wire material is not too thin.
- Check if the output voltage control(V.ADJ) is properly adjusted.
- If you use function of the Remote ON/OFF control, Check if the Remote ON/OFF control connector is not opened.
- Check if the Output Current and Output Wattage dose not over Specification.
- Check if the output current of CH1 is more than 10% of average output current.

10. Notes

- Over voltage Category II.