

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 and CAUTION

- Do not modify.
- 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.
- 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 for 30 seconds or more which could result in damage or insulation failure. There is no possibility for fire or burning.
- Confirm connections to input/output terminals are correct as indicated in the instruction manual.

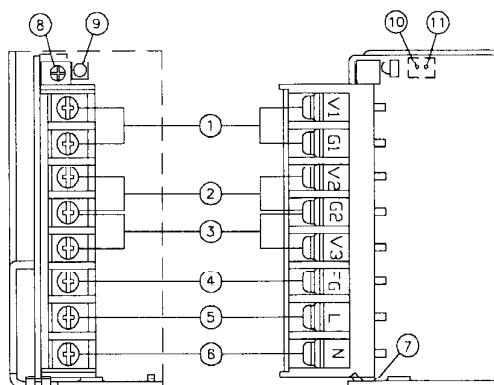
Note: CE MARKING

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 complies with EN60950

| DWG NO. : A178-04-01B | | |
|-----------------------|---------------|-------------|
| APPD | CHK | DWG |
| M. TANE MURA | Id. Tanaka | Matsumoto |
| 10. Jan. '01 | 10. Jan. '01 | 9. JAN. '01 |

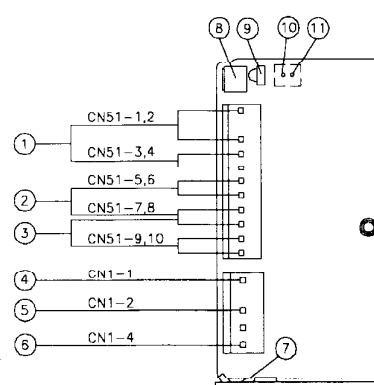
1. Terminal Explanation

JWT75, JWT100 (Block terminal type)



- (1) CH1
 - Block terminal type -
 V1 : CH1 + Output terminal
 G1 : CH1 - Output terminal
 - Connector type - (7A 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 - (7A 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 -
 FG
 - Connector type -
 CN1 - 1

JWT75 , JWT100 (Connector Type)



- (5) Input terminal Live line (Fuse in line)
 - Block terminal type -
 L
 - Connector type -
 CN1 - 2
- (6) Input terminal Neutral line
 - Block terminal type -
 N
 - Connector type -
 CN1 - 4
- (7) Safety earth : \perp
- (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 |

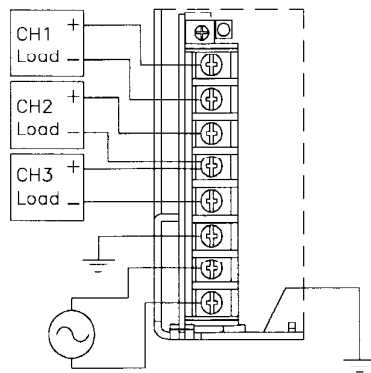
* Input & Output connector (MOLEX)

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


2. Terminal connecting method

- Input must be off when making connections.
- Connect FG terminal to ground terminal of the equipment.
- Output current of each connector pin must be less than 7A. (For connector type)
- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- Remote ON/OFF control lines shall 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. on the bottom of chassis.

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 voltage which is out of specification may cause unit damage.

3-2. Output Voltage Range

V.ADJ trimmer on the front panel side can adjust the output voltage of CH1 within the range. To turn the trimmer clockwise, the output voltage will be increase. Output voltage range is within 5 ~ 5.25V. Note over voltage protection (OVP) function may trigger if the output voltage is increased excessively.

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.

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

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 maximum output current.

3-6. Over Voltage Protection (OVP)

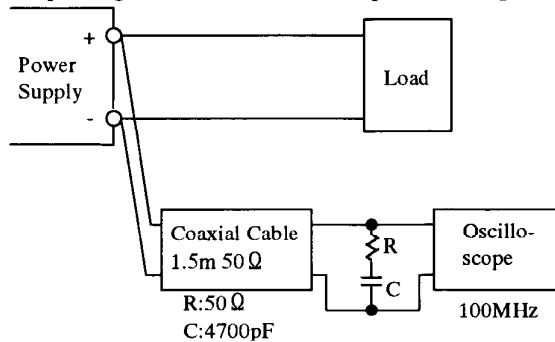
The OVP function (Inverter shut down method, manual reset type) built into CH1 output only. When OVP of CH1 channel triggers, the all outputs will be shut down. The input shall be removed for a few minutes, and then re-input for recovery of the output to recover. OVP setting shall be fixed and not to be adjusted externally.

3-7. Over Current Protection (OCP)

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

3-8. Output Ripple & Noise

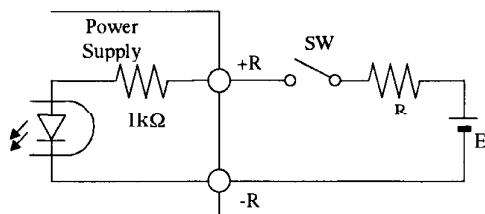
The standard specification for maximum ripple value is measured according to measurement circuit specified by ELAJ-RC9131. When load lines are longer, ripple will become larger. In this case, electrolytic capacitor, film capacitor, etc. might be necessary to use across the load terminal. The output ripple cannot be measure accurately if the probe ground lead of oscilloscope is too long.



3-9. Remote ON/OFF Control

(Optional Spec.)

Remote ON/OFF control function is available as option with 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 photocoupler.



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 |

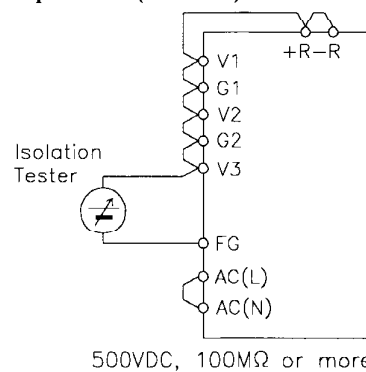
| External voltage level : E | External resistance : R |
|----------------------------|-------------------------|
| 4.5~12.5VDC | No required |
| 12.5~24.5VDC | 1.5kΩ |

4. Isolation Test / Withstand Voltage

4-1 Isolation Test

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

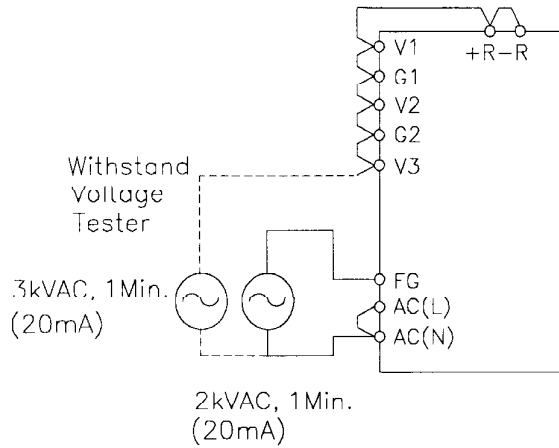
Output ~ FG (chassis)



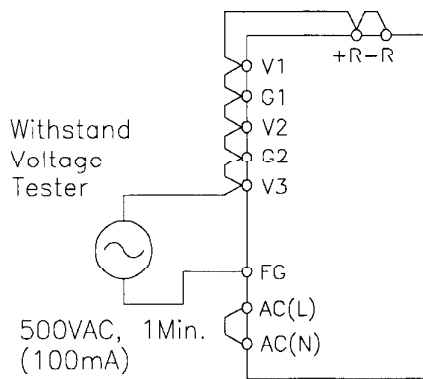
4-2. Withstand Voltage

This series is designed to withstand 3.0kVAC between input and output, 2.0kVAC between input and FG (chassis) and 500VAC between output and the FG (chassis) each for 1 minute. When testing withstand voltage, set current limit of the withstand voltage test equipment to 20mA (Output - FG (chassis) : 100mA). The applied voltage must be gradually increased from zero to the testing value and then gradually decreased for shut down. When timer is used, the power supply may be damaged by high impulse voltage at timer switch on and off. Connect input and output as follows.

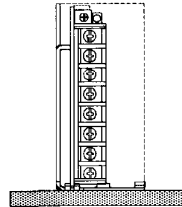
Input ~ FG (chassis) : solid line
 Input ~ Output : dotted line



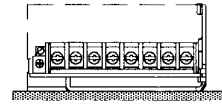
Output ~ FG (chassis)



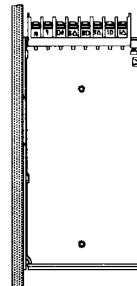
(A)
 Standard Mounting



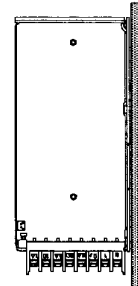
(B)



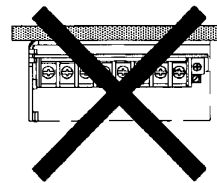
(C)



(D)
 Prohibit for JW1100



(E)
 Prohibit



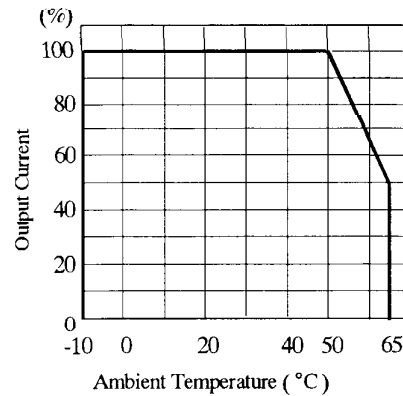
5. Mounting Directions

5-1. Output Derating according to the Mounting Directions

Recommend standard mounting is method (A). Method (B) and (C) are also possible. 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 output current is considered to be 100%.

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°C | 100 | 100 | 100 | 100 | 100 | 100 | 100 | - |
| 40°C | 100 | 100 | 100 | 83 | 100 | 100 | 100 | - |
| 45°C | 100 | 100 | 83 | 67 | 100 | 100 | 83 | - |
| 50°C | 100 | 83 | 67 | 50 | 100 | 83 | 67 | - |
| 55°C | 83 | 67 | 50 | - | 83 | 67 | 50 | - |
| 60°C | 67 | 50 | - | - | 67 | 50 | - | - |
| 65°C | 50 | - | - | - | 50 | - | - | - |

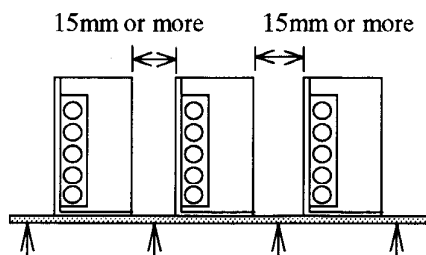
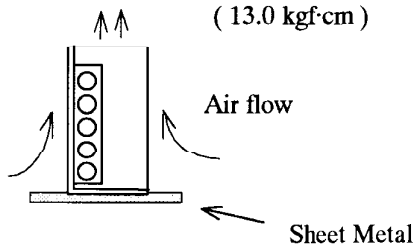
With Cover

| Model | JWT75 | | | | JWT100 | | | |
|-------------|-------|-----|-----|-----|--------|-----|-----|---|
| Amb. Temp | A | B | C | D | A | B | C | D |
| - 10~ +35°C | 100 | 100 | 100 | 100 | 100 | 100 | 100 | - |
| 35°C | 100 | 100 | 80 | 80 | 100 | 80 | 80 | - |
| 40°C | 100 | 80 | 60 | 60 | 100 | 60 | 60 | - |
| 45°C | 100 | 60 | - | - | 80 | - | - | - |
| 50°C | 80 | - | - | - | 60 | - | - | - |
| 55°C | 60 | - | - | - | - | - | - | - |

5-2. 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) The maximum allowable penetration of mounting screws is 6mm.
- (3) Recommended torque for mounting screw.

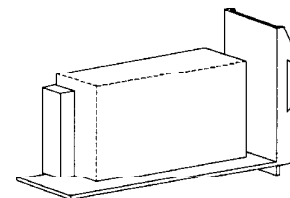
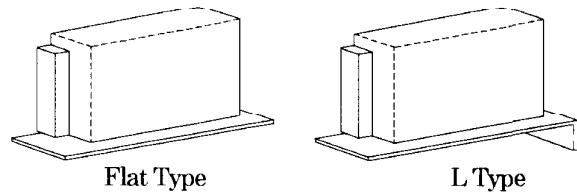
M4 screw : 1.27 N·m
 (13.0 kgf·cm)



Provide punching, etc. to allow air to pass.

5-3. Optional sheet metal parts for mounting

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



DIN Rail Type

6. Wiring Method

- The output load line and input line shall be separated and twisted to improve noise sensitivity.
- 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.
- For safety and EMI considerations, connect FG terminal of JWT series to mounting set ground terminal.
- The recommended torque for the terminal piece:
 JWT75, JWT100 (M3 Screws) : 0.49 N·m
 (5.0 kgf·cm)

7. 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 type 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.

JWT75, JWT100 : 3.15A

8. 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 maximum output current.
- Audible noise can be heard during Dynamic-Load operation.
- Audible noise can be heard when input voltage waveform is not sinusoidal wave.

9. Notes

- 1) Over voltage Category II.
- 2) Radio Interference Suppression Test is not performed.