

# UTP3300-II

## DC Power Supply User Manual

### Preface

Thank you for purchasing this brand new product. In order to use this product safely and correctly, please read this manual thoroughly, especially the safety notes.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

### Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within three years from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

## 1. Safety Information

### 1) Safety Precaution

Please read the following instructions carefully before operation to ensure your personal safety and prevent the instrument from damage. The safety instructions apply to all the operators and staff.

### 2) Safety Terms and Symbols

**WARNING:** Used to indicate the correct operation or maintenance procedures, avoiding damages or destruction of the instrument and other properties.

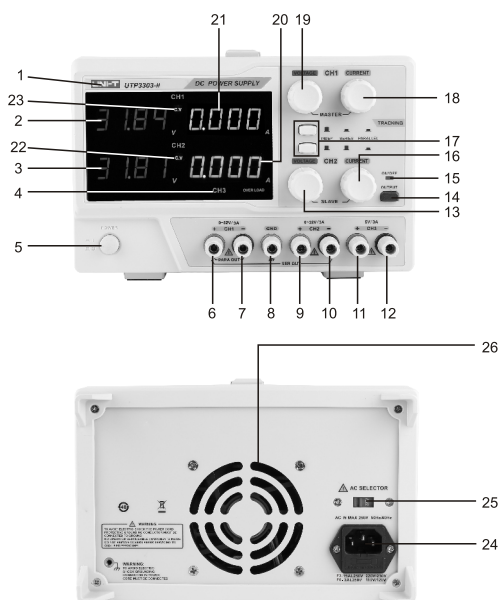
**CAUTION:** Identify the potential hazards that requires correct procedures and practices to avoid personnel injuries.

#### Safety Symbols



Caution! Refer to Manual Protective Ground Terminal

## 2. Front and Rear Panel



- 1) Models: UTP3303-II/3305-II
- 2) Voltage display of CH1
- 3) Voltage display of CH2
- 4) Indicator of CH3, will turn red if the load current exceeds the rating value
- 5) Power switch: press to power the instrument on or off

- 6) CH1 voltage positive output terminal (red)
- 7) CH1 voltage negative output terminal (black)
- 8) Ground terminal (GND green)
- 9) CH2 voltage positive output terminal (red)
- 10) CH2 voltage negative output terminal (black)
- 11) CH3 voltage positive output terminal (red)
- 12) CH3 voltage negative output terminal (black)
- 13) CH2 voltage adjustment knob, which is to adjust the output voltage
- 14) OUTPUT button, press it to enable output mode
- 15) OUTPUT indicator, green indicates the output mode
- 16) CH2 current adjustment knob, which is to adjust the output current
- 17) Series/parallel mode buttons
- 18) CH1 current adjustment knob, which is to adjust the output current
- 19) CH1 voltage adjustment knob, which is to adjust the output voltage
- 20) Current display of CH2
- 21) Current display of CH1
- 22) CC/CV indicator of CH2
- 23) CC/CV indicator of CH1
- 24) Power supply input interface
- 25) Input voltage switcher
- 26) Cooling fan outlet

## 3. Operation

### ⚠ WARNING

- a) Before connecting with AC power source, please select corresponding voltage scale by AC SELECTOR on rear panel, and then check if the fuse specification matches the requirement of scale.
- b) Connect the protective ground terminal to the ground.

### 3.1 Boot Inspection

- a) Adjust the current knob clockwise to the maximum.
- b) Turn on the AC power source switch, the screen and CV indicator will be lightened.
- c) Adjust the voltage knob counter clockwise to the minimum 0V, and then turn clockwise to adjust the output voltage to the maximum.
- d) Press the OUTPUT button to enable the output of power supply, adjust the current knob counter clockwise to the minimum, and then adjust the knob clockwise to the maximum. This is to ensure the current value can be adjusted to maximum rated value from 0.

### 3.2 Operation of Constant Voltage

Operate constant voltage mode (CV mode) as steps below:

- a) Power the instrument on, adjust the voltage knob to output voltage (open circuit), then the CV indicator should be lit up.
- b) Adjust maximum output of current (current limit). In actual operation, if the current exceeds the limit due to load change, the instrument will automatically switch to the constant current mode, and the ratio of output voltage will drop.

### 3.3 Operation of Constant Current

Operate constant current mode (CC mode) as steps below:

- a) Adjust the current knob counter clockwise to the minimum, ensure the output current is 0A, and power the instrument on.
- b) In no-load connection, adjust the maximum output of voltage (voltage limit) as certain load condition. In actual operation, if the voltage exceeds the limit due to load change, the instrument will automatically switch to the constant voltage mode, and the preset voltage limit and the ratio of output current will drop.
- c) Press the OUTPUT button to output DC voltage.

### 3.4 Independent/tracking mode

- 27) Independent mode, series tracking mode and parallel tracking mode can be switched by 2 buttons (series/parallel mode buttons) as steps below:



- a) In independent mode, if both the buttons are released (OFF INDEP), CH1 and CH2 are independent from each other.
- b) If the upper button is pressed (ON SERIES), and the lower button is released, the instrument enters series tracking mode.  
Voltage outputs from CH1 positive output terminal (red) and CH2 voltage negative output terminal (black), and the settings of parallel voltage and current can only be adjusted by CH1. Total voltage is the CH1 voltage plus the CH2 voltage, and the current is equal to CH1 current.
- c) If both the buttons are pressed (ON PARALLEL), the instrument enters parallel tracking mode.  
At this time, CH+ is the positive output terminal of parallel, and CH- is the negative output terminal of parallel. CH1 is main channel and CH2 is slave. Parallel voltage and current can only be adjusted by CH1. Total parallel voltage is equal to the voltage of CH1, total parallel current is the CH1 current plus the CH2 current. In the no-load condition, it is normal when non-return to zero (NTR) appears.
- d) When the temperature of transformer reaches set value, the internal temperature switch will be disconnected. The instrument will be operational if the temperature drops and the switch connects again.

4. Technical Parameters

1) Rated Operating Conditions

Voltage of power supply: AC 110V/120V/220V/230V 50Hz/60Hz  
Operating conditions: temperature 0-40°C, relative humidity ≤85%RH  
Storage conditions: temperature -10-60°C, relative humidity ≤80%RH

2) Specifications

|                                       |                                                       |  |                                  |  |
|---------------------------------------|-------------------------------------------------------|--|----------------------------------|--|
| Models                                | UTP3303-II                                            |  | UTP3305-II                       |  |
| Rated voltage (CH1/CH2)               | 0~32V                                                 |  | 0~32V                            |  |
| Rated current (CH1/CH2)               | 0~3A                                                  |  | 0~5A                             |  |
| Output power                          | 207W                                                  |  | 335W                             |  |
| Load regulation                       | Voltage: <0.01%+3mV                                   |  |                                  |  |
|                                       | Current: ≤0.2%+3mA                                    |  |                                  |  |
| Power supply regulation (0-30V)       | Voltage: <0.01%+3mV                                   |  |                                  |  |
|                                       | Current: ≤0.1%+3mA                                    |  | Current: <0.1%+5mA               |  |
| Setting resolution                    | Voltage: 10mV                                         |  |                                  |  |
|                                       | Current: 1mA                                          |  |                                  |  |
| Read-back resolution                  | Voltage: 10mV                                         |  |                                  |  |
|                                       | Current: 1mA                                          |  |                                  |  |
| Setting/read-back accuracy (25°C±5°C) | Voltage: ±(0.1% of reading+30mV)                      |  |                                  |  |
|                                       | Current: ±(0.3% of reading+5mA)                       |  | Current: ±(0.3% of reading+10mA) |  |
| Ripple and noise (20Hz~20MHz)         | Voltage: ≤1mVrms                                      |  |                                  |  |
|                                       | Current: ≤3mA <sub>rms</sub>                          |  |                                  |  |
| Temperature coefficient               | Voltage: ≤300ppm/°C                                   |  |                                  |  |
|                                       | Current: ≤300ppm/°C                                   |  |                                  |  |
| Recovery time                         | <100μs<br>(load fluctuation: 50%, minimum load: 0.5A) |  |                                  |  |
| Parallel load regulation              | ≤0.01%+10mV                                           |  | ≤0.01%+20mV                      |  |
| Parallel power regulation             | ≤0.01%+3mV                                            |  |                                  |  |
| Series load regulation                | <300mV                                                |  |                                  |  |
| Series power regulation               | ≤0.01%+5mV                                            |  |                                  |  |
| CH3 output features                   | Voltage: 5.0V                                         |  |                                  |  |
|                                       | Current: 3A                                           |  |                                  |  |
|                                       | Load regulation: 3%+5mV                               |  |                                  |  |
|                                       | Power regulation: 5mV                                 |  |                                  |  |
|                                       | Ripple: <2mV                                          |  |                                  |  |
| Power consumption                     | 450W                                                  |  | 700W                             |  |

|                         |                                                                           |        |
|-------------------------|---------------------------------------------------------------------------|--------|
| Safety                  | Voltage withstand: 1mA 10S<br>(power input ~ GND AC1800V)                 |        |
|                         | Insulation resistance:<br>300MΩ@ 500V: AC input to the shell              |        |
|                         | Insulation resistance: 300MΩ@<br>500V: AC input to the DC output terminal |        |
| Display type            | 4-digit LED display                                                       |        |
| Voltage of power supply | AC 110V/120V/220V/230V                                                    |        |
| Frequency               | 50Hz/60Hz                                                                 |        |
| Product size            | 319mm*146mm*226mm                                                         |        |
| Product net weight      | 9.2kg                                                                     | 10.5kg |
| Certification           | CE                                                                        |        |

3) Main Features

- High-precision 4-digit voltage and current display 10mV/1mA
- Multi-turn potentiometer set voltage and current value
- Temperature-controlled fan
- Protections of OVP, OTP and reverse polarity
- Voltage preset value function

5. General Maintenance

⚠ WARNING

The maintenance instruction is only for the qualified maintenance personnel. To avoid electric shock, no maintenance outside the instruction is allowed.

5.1 Fuse Replacement

If the fuse is blown, CV indicator can't be lit up and the power supply fails to run. Confirm the cause of the blown fuse before replacing the fuse, correct the problem, then replace the fuse by a same one as specifications. Factory-prepared spare fuse is in the input socket of rear panel.

⚠ WARNING

To prevent fires, only replace with fuses that meet the model and rating value. Do not connect the AC power source before replacing the fuse to avoid electric shock.

5.2 Voltage of Power Source

The product allows voltage of AC110V/120V/220V/230V 50/60Hz, but the voltage scale should consist with output voltage.  
a) Make sure the power source cable is disconnected.  
b) Adjust the voltage switch to the required scale to meet various requirements.

| Model      | AC input voltage | Voltage selector | Fuse type    |
|------------|------------------|------------------|--------------|
| UTP3303-II | 110Vac/120Vac    | 110Vac           | F6. 3AL250V  |
|            | 220Vac/230Vac    | 220Vac           | F3. 15AL250V |
| UTP3305-II | 110Vac/120Vac    | 110Vac           | F10AL250V    |
|            | 220Vac/230Vac    | 220Vac           | F5AL250V     |

5.3 Cleaning

Please clean the instrument with a damp soft cloth and mild detergent, but never spray the detergent directly to the instrument to prevent damage. Do not use abrasives or solvents like hydrocarbon and chlorine!

