

**ATTEN**<sup>®</sup>  
INSTRUMENTS

**TPR** | HIGH-PRECISION  
REGULATED DC  
POWER SUPPLY  
— Users manual

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**TPR300XT-3C series**

SHENZHEN ATTEN ELECTRONICS CO., LTD.  
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Thanks for using our products, please read this manual thoroughly before operation.

## Overview

MODEL: TPR3003T-3C/TPR3005T-3C regulated DC power supply is a high reliability, including both stable voltage and stable current function, Restricted current lower voltage, short circuit protection, thermal protection etc. The power supply is suitable for the laboratory, electronics, communications equipment maintenance, Product line, scientific research and teaching units. If power working long hours running state, overheating will shut off the output, when machine temperature returned to normal, output power restore default state. The machine has perfect protection function, can protect user equipment are not consumed.

### 1. Specification

Rated working conditions and external dimension:

- Input AC voltage : AC 220V  $\pm$  5% Frequency 50Hz  
(If according to the requirement can be designed in 110V  $\pm$  5% 60Hz)
- The working conditions:  
Temperature rang : 0°C -40°C  
Relative humidity less than 80%
- Storage conditions:  
Temperature rang : -20°C -80°C  
Relative humidity less than 80%
- Shape dimension: (L) 370  $\times$  (W) 250  $\times$  (H) 160 mm  
Accessories: users manual, 1pc  
power cable, 1pc

### 2. Technical specification

(1) I, II road independent pattern

- Output voltage from 0 to 30V between nominal continuous adjustable
- Output current from 0 to nominal value between continuous adjustable
- Power regulation: CV less than 0.01%+1mV  
CC less than 0.2%+1mA
- Load regulation:  
CV less than 0.01%+5mV ( $I_{load} \leq 3A$ ) CC less than 0.2%+5mA ( $I_{load} \leq 3A$ )  
CV less than 0.01%+7mV ( $I_{load} > 3A$ ) CC less than 0.2%+10mA ( $I_{load} > 3A$ )
- Ripple and noise: CV  $\leq 0.5mV_{RMS}$  ( $I_{load} \leq 3A$ ) CC  $\leq 3mA_{RMS}$  ( $I_{load} \leq 3A$ )  
(5Hz-1MHz) CV  $\leq 1mV_{RMS}$  ( $I_{load} > 3A$ ) CC  $\leq 5mA_{RMS}$  ( $I_{load} > 3A$ )
- Voltage accuracy:  $\pm 0.5\%$ rdg+2byte
- Current accuracy:  $\pm 0.5\%$ rdg+2byte
- Display resolution:  $\pm 0.5\%$ rdg+2byte
- (2) Specification of III road output
- Rated output: 2.5V/3.3V/5V  $\pm$  0.1 3A

- Power regulation: less than 1mV
- Load regulation: less than 10mV
- Ripple and noise: (5Hz-1MHz)  $\leq 1mV_{RMS}$

### 3. Tracking characteristics

(1) Series specifications

- Power regulation: less than 1mV
- Load regulation: less than 30mV
- Ripple and noise: (5Hz-1MHz)  $\leq 1mV_{RMS}$ .

(2) Parallel characteristics

- Power regulation: less than 1mV
- Load regulation: less than 20mV
- Ripple and noise: (5Hz-1MHz) CV less than 0.5mV  $V_{RMS}$ . ( $I \leq 6A$ )  
CV less than 1mV  $V_{RMS}$ . ( $I > 6A$ )

### 4. Safety requirements

- High voltage test: Leakage current  $I \leq 1$  mA (Test conditions: 1700VAC/2s From the input power to the ground, Input high AC voltage : 1700V, Time: 2 seconds)
- Insulation resistance: Insulation resistance more than 100M  $\Omega$  (Test conditions: 500Vdc/5s From the input power to the ground, Input high DC voltage : 500Vdc, Time: 5 seconds)

## Instructions

### 1. Note:

(1) AC input

AC input should be 220V  $\pm$  5%. 50Hz (If you are in the box 110V  $\pm$  5% 60Hz behind can indicate)

(2) Scattered heat

Do not exceed 40 degrees Celsius temperature environment in the local use, fan in the posterior instrumentation, should have enough space, so scattered heat.

(3) Output voltage overshoot

When switching power supply device, the output voltage is not more than preset value.

(4) Overheating protection

This series of power is the perfect overheating protection function, can work under state protection power will not lead to internal components overheating and burned power and user equipment. If power transformer, internal temperature overheating will automatically cut off the input voltage, When the internal temperature of power to the normal range, power will restore default working state.

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(5) Intelligent fan control

When the machine is the main power devices to 45 °C, temperature automatic operation, when the machine fan in the main power components below 45 °C, temperature automatic fan to a halt.

**2. limiting Current Settings:**

limiting Current set operation method are as follows

- The decision to power instrument maximum safety.
- Rotating voltage control knob, output voltage regulating 3V to 5V, Using a wire temporarily voltage output terminals(+)and(-)terminal circuit connection.
- Rotating voltage control knob, until the CC designator light.
- Adjust current knob to the current needs.
- Current (overload protection) Settings, do not change after the current knob.
- Take off a short line, can enter working condition.

**3. Constant voltage/current characteristics:**

This series of the power supply characteristics of constant is called the voltage/current, it can automatic conversion model with constant voltage change of load in with constant current condition of constant voltage between successive changes, with constant current intersection between normal moveout called. For example, if the power load working in constant pressure mode, stable output voltage. As the load decreases, output voltage will remain stable, until it reaches pre-set limit flow value. To be worth, maintain stable output current, voltage output as load increases proportional to further reduce, constant voltage and current of the conversion from the front panel LED indicator.

Similar to the constant current constant voltage from the automatic conversion is reduced with the load. Constant voltage, current CV indicator when CC indicator.

**4. Operating methods:**

- Will the power switch in "OFF" position.
- Ensure input voltage correct.
- When the power is connected.
- Will the power switch ON the "ON" position.
- Set the output voltage values to work and Set the output required load current value, Please adjust " VOLTAGE " and "CURRENT" knob.
- Connects the load to Positive "+" terminals and Negative "-" terminals.
- When used in ripple and noise higher requirements, output "+" and "-" terminals must have a reliable connection with GND terminals, this can reduce output ripple and noise.
- Independent operation mode.  
Please switch to choose "IND" block position, the machine to work in the independent operation model. Now the corresponding LED will light. In independent operation mode, output voltage and current respectively by each of the voltage and current adjust knob control regulation.

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• Series tracking mode

Please switch to choose "SER" block position, the machine to work in the Series tracking mode, Now the corresponding LED will light. This power output terminals "+" positive for the positive output terminal II road "+" and "-" negative terminals output for I road output negative terminals "-". In a series of modes, output voltage regulation by the voltage adjustment knob of II road and Output current regulation by the current adjustment Knob of II road. In order to achieve power series tracking performance, Suggestions in this series power working modes will I road output terminals positive "+" and II road output negative terminals "-" connected with AWG 20 UL1015 wires.

• Parallel tracking mode

Please switch to choose "PAR" block position, the machine to work in the Parallel tracking mode. Now the corresponding LED will light. This power output terminals "+" positive for the positive output terminal II road "+" and "-" negative terminals output for II road output negative terminals "-". In a Parallel tracking mode, output voltage regulation by the voltage adjustment knob of II road and Output current regulation by the current adjustment knob of II road. In order to achieve power Parallel tracking mode performance, Suggestions in this Parallel tracking mode will be I road output terminals positive "+" and II road terminals positive "+" connected with AWG 20 UL1015 wires , also will be I road output negative terminals "-" and II road negative terminals "-" connected with AWG 20 UL1015 wires.

**5. Fuse replaced**

If the fuse burning, voltage or current indicator goes out, the power to stop working, besides problems generally fuse box, do not open to identify and correct fuse burned, and then use the same value of the fuse.

**Installation and use and maintenance instructions**

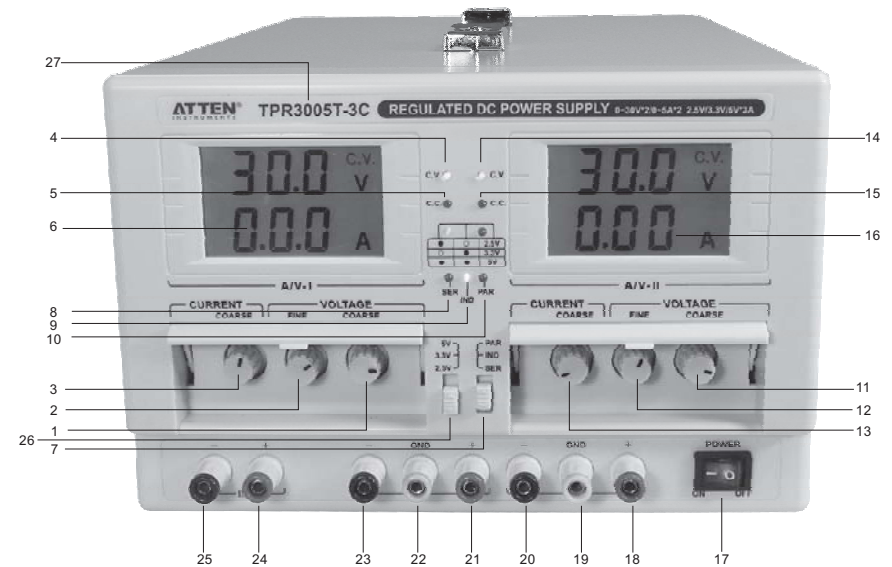
This company produces the power used for the contemporary world advanced technical achievement, after careful thermal design and structure optimization and become a unique multiterminal function device. Due to the function of the device, series and varieties, its function is maths and physical properties and each different, so in the installation and use of many specialized in the note, the explanation:

- 1、 After open packing machine, please check carefully whether specifications and test report or carry with specifications conform with the order, the contract if required. If not, please contact with our sales department, the way to properly handle.
- 2、 As the first step before use, must be the metal shell reliable power grounding to ensure the safe, but do not mistake will meet in neutral. Shell

- 3、 In the installation, please complete electricity run again before each examination and proofreading terminals, confirm the input and output, AC and DC, positive and negative, voltage and current, no doubt, eliminate such right after the fault phenomena.
- 4、 Power does not allow for a long time in full load status, please send full load rate of regulated dc power supply control in 60%, within the switch power supply load rate control in 80% within, otherwise will likely cause of the failure of early human. According to the actual working order should be set aside by current surplus.
- 5、 To achieve full scattered heat effect , Power should be installed on the air convection condition good position. General power work should have a good ventilation. In addition, in the upper crust power does not allow other objects placed.。
- 6、 This power is applicable to resistance of load, if need to let in Capacitive load. inductive load, should give priority to the load in advance in order to illustrate the contract, if by oversight will load property shall be timely and correctly, contact the company sales, to seek the offset schemes Properly.
- 7、 For high voltage power supply, it is necessary to safety. Use process and the blackout after 10 minutes, do not touch pressure apparatus
- 8、 If power failure, should take the most efficient way to taste deliery to the fault, the company will depending on the situation is different, or repair or replacement. Users must not without disassembly of power, otherwise will force to our company for analysis of failure caused difficulties and make judgment work both suffered a new loss.

## Product pictures and instructions:

TPR3003T-3C/TPR3005T-3C regulated DC power supply Pictures and stated below:



- |  |  |
|--|--|
| 1. Voltage coarse knob of I load                   | 14. Constant-voltage state (CV) indicator of II road |
| 2. Voltage fine knob of I load                     | 15. Constant-current state (CC) indicator of II road |
| 3. Current adjust knob of I load                   | 16. Voltage and current display of II load           |
| 4. Constant-voltage state (CV) indicator of I road | 17. power switch                                     |
| 5. Constant-current state (CC) indicator of I road | 18. Positive terminal (+) of II load                 |
| 6. Voltage and current display of I load           | 19. GROUND   |
| 7. Tracking mode choice switch                     | 20. Negative terminals (-) of II load                |
| 8. Series mode (SER) indicator                     | 21. Positive terminal (+) of I load                  |
| 9. Independent mode (IND) indicator                | 22. GROUND   |
| 10. Parallel mode (PAR) indicator                  | 23. Negative terminals (-) of I load                 |
| 11. Voltage coarse knob of II load                 | 24. Positive terminal (+) of III load                |
| 12. Voltage fine knob of II load                   | 25. Negative terminals (-) of III load               |
| 13. Current adjust knob of II load                 | 26. Output selector switch of III load               |
|  | 27. Product model                                    |