

**SHENZHEN ATTEN TECHNOLOGY CO., LTD.**

- Soldering Iron ● Soldering Station ● Hot Air Rework Station
- Multi-function Rework System ● BGA Rework System
- Regulated DC Power Supply ● Switching DC Power Supply
- Programmable Power Supply

**ATTEN**

**TPR32-5A/TPR75-2A**

**High Precision Single DC Power Supply**

**User Manual**

**SHENZHEN ATTEN TECHNOLOGY CO.,LTD.**

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INSTRUMENTS BRAND IN CHINA  
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### 13. Communicating function (RS232 interface)

The build-in RS232 interface of this product is non-isolated. Be careful when using a common ground connection with the output cathode. Please log in our company's official website to download the relevant DEMO software and communication protocol documents.

#### Product warranty

- Since the date of purchase of the product, we provide the purchaser with two years' quality warranty, and will provide free maintenance services for any failure of the product occurred during normal use of the product within the warranty period due to product defects.
- For products not covered by the quality warranty, we will provide maintenance services for the entire life span of the product.
- If the product user privately modifies any part of the product or improperly uses the product, which results in damage of the product, we will only offer limited maintenance service.
- In case of product failure, please send the product to designated maintenance offices for repair and maintenance. We strictly prohibit non-authorized maintenance companies and persons from maintaining and repairing the product.

#### After-sale contact

Contact number of our after-sale service department: (+86) 0755-8602 1266  
For more contact information, please visit our official website [www.attenuation.com.cn](http://www.attenuation.com.cn)

Thank you for choosing our product. Please read this manual carefully before using this product.

#### Copyright Information

The design of this product (including internal software) and the accessories are protected by relevant national laws. Any violation of the relevant rights of our company will be subject to legal sanction. Please abide by relevant national laws when you use this product. Please abide by relevant national laws when you use this product.

#### Description of Common Symbols

Thank you for using our products. Before using this product, please read this manual carefully and pay attention to the warnings and precautions mentioned herein.

	Warning Failure to follow instructions may result in death or serious injury to the user.
	Note Failure to follow instructions may result in injury to the user or substantial damage to the object.

#### Essentials for Users

User should have basic knowledge of life and basic electrical operation before using the product. Underage user can only use this product under the guidance of a professional or guardian.

[Notes]: In order to avoid damage to the machine and keep the operating environment safe. Please read this manual carefully before using this product, and keep it properly for future reference.

#### Safety precautions

You must observe the following basic items while using this machine to avoid electric shock, bodily injury, fire or other hazards.

In order to ensure personal safety, only the parts and accessories accepted or recommended by the original manufacturer can be used, otherwise it will lead to serious consequences!

#### Warning

- Don't use this product near combustible materials.
- To prevent electric shock, be sure that the power line is grounded reliably before using.
- Without instructions of professional personnel, don't use this product when lack of experience or adequate knowledge.
- Don't use this product in a humid environment or operate this product with wet hands to prevent electric shock.
- Don't modify this product or its accessories without the permission of our company.
- When the spare parts need to be replaced, please use the original spare parts produced by ATTEN.
- When this product is not needed for a short time or stopped, please be sure to shut off the power switch.
- When the voltage in the machine is high, don't dismantle the equipment before confirmed by the professional service people.

#### Note

- Don't use this power supplier when the ambient temperature is above 40°C. Enough space shall be left for vent behind the panel for heat dissipation.
- Please confirm if the specifications of the current, voltage and power line satisfy the requirements.
- Please shut off the power switch before connecting the equipment to power supply.
- Don't modify this product or its accessories. Otherwise, you will lose the right to ask the manufacturer for warranty. Besides, it might cause the damage of your product.
- Don't put any heavy objects on the equipment.
- Don't knock hard this product and its accessories, otherwise, they might be damaged.

#### Disclaimer

The company assumes no liability for personal injury or property loss arising from failure to follow relevant instructions, natural disasters and other force majeure or personal failures or other failures other than product nonconformity.

This Manual is collated, compiled and issued by ATTEN according to the latest product features. The product and this Manual may be subject to subsequent updating without prior notice.

## Product profile

TPR miniwatt series DC regulated digital power supply is designed specifically for the needs of labs, schools, service technicians and production lines. The product is stable with low ripple and easy to operate. With complete protection functions, it will provide efficient and reliable power for you.

This product provides convenient connections, including series connection, parallel connection and external remote connection. When the voltage and the current in use are higher than rated output voltage and current, series or parallel connection is recommended.

## Product specification

Power input: Refer to the voltage mark at the rear side of this product (other input voltage can be customized).

Rated value/dimension/weight:

Model	Voltage adjustable scope	Current adjustment range	Input power	Weight
TPR32-5A	0-32V	0-5A	280W	5.14Kg
TPR75-2A	0-75V	0-2A	280W	5Kg
Size : (L) 260mm *(W) 125mm *(H)170mm				



Voltage over 60VDC might cause electric shock to the user. When the power supply is connected in series, the voltage between the connection end and the grounding end will reach or above 60VDC, so the user has to be very careful.

Operating mode: Independent operating mode or tracking mode (Series or parallel).

Protection function: Over-voltage protection, Over-current protection and over-heat protection.

Service environment: 0°C~40°C, <80% (for indoor use).

Storage temperature and humidity: -10°C~70°C, <70%.

Packing List: Mainframe\*1 unit, power line \*1pc, user manual \*1pc.

## Technical parameters

### Constant voltage model (CV)::

Output voltage range: Adjustable from 0 to rated voltage.

Power change rate:  $\leq 0.01\% + 3mV$ .

Load change rate:  $\leq 0.01\% + 3mV$  ( Rated current  $\leq 3A$ ),

Load change rate:  $\leq 0.01\% + 5mV$  ( Rated current  $>3A$ ),

Recovery time:  $\leq 100\mu s$  (50% load change, minimum load: 0.5A).

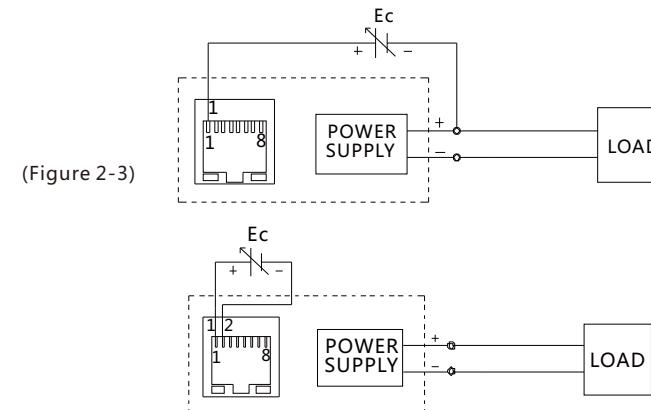
Ripple and noise:  $\leq 0.5mVRms$  (5Hz~1MHz)

Temperature coefficient:  $\leq 300ppm/^{\circ}C$

## 12. Remote control mode

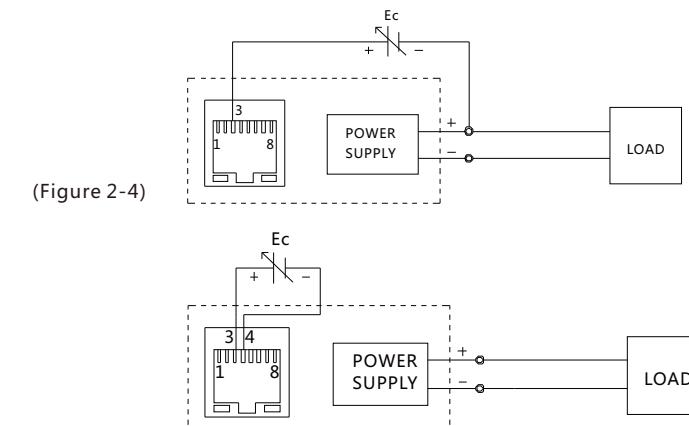
**Voltage remote control:** The output voltage of this power can be remotely controlled by an external voltage. Connecting way as shown in Figure 2-3

- ①. Press V SET of power for 3 seconds to enter voltage external control mode. Storage display window displays "S".
- ②. Calculate output voltage  $Eo$  with the following formula :  $Eo = (Er \times Ec)/10$   
 $Er$  : The output voltage of the power.  $Ec$  : The rated voltage of the power.  
 $Ec$  : Remote control voltage  $0 \leq Ec \leq$  About 10V .
- ③. Use a stable, low noise voltage source as  $Ec$  remote control voltage.

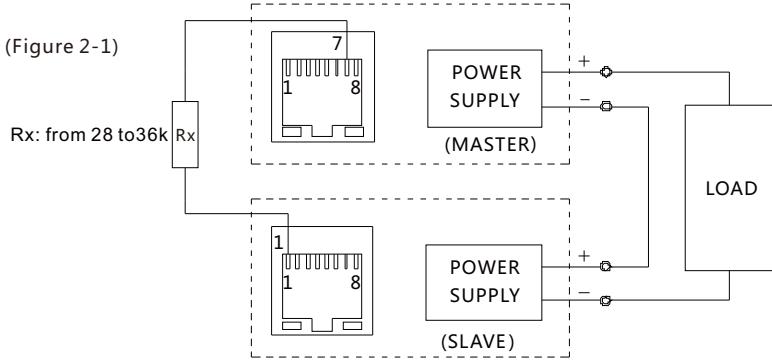


**Current remote control:** The output current of this power can be remotely controlled by an external voltage. Connecting way as shown in Figure 2-4

- ①. Press I SET of power for 3 seconds to enter the current external control mode. Storage display window displays "S".
- ②. Calculate output current  $Io$  with the following formula :  $Io = (Ir \times Ec)/10$   
 $Ir$  : The output current of the power.  $Ec$  : The rated voltage of the power.  
 $Ec$  : Remote control voltage  $0 \leq Ec \leq$  About 10V .
- ③. Use a stable, low noise voltage source as  $Ec$  remote control voltage.



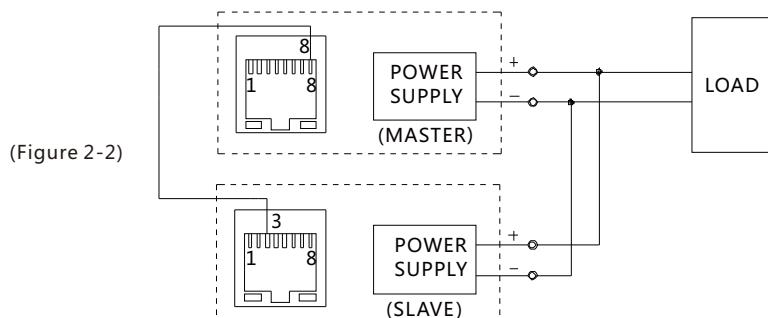
- ③ Press the V SET button on the SLAVE power for 3 seconds to allow the SLAVE power to enter Cascade Mode.
- ④ Storage display window display "s" when SLAVE power in Cascade Mode.
- ⑤ When series connection, MASTER power control to perform voltage from 0 to rated value range. The reading of two voltmeters is added to determine the total output voltage.
- ⑥ The load current can also be monitored by the power. The read value will be the same due to series connection. Due to series connection, only set the current limit of main power.
- ⑦ Press V SET of SLAVE power for 3 seconds to exit Cascade Mode.



## 11. Overlap Mode

Connect two powers in overlap mode to provide higher voltage and an output current capacity. Refer to 2-2 Wiring Diagram.

- ① Find MASTER and SLAVE, connect these two powers according to Figure 2-2.
- ② Turn on switch, set voltage of MASTER 0.2-0.5V lower than SLAVE.
- ③ Press the I SET button on the SLAVE power for 3 seconds to allow the SLAVE power to enter Overlap Mode.
- ④ Storage display window display "P" when SLAVE power in Overlap Mode.
- ⑤ When parallel connection, MASTER power control to perform current from 0 to rated value range. The reading of two voltmeters is added to determine the total output current.
- ⑥ The output voltage can be monitored by the power. Due to parallel connection, the voltage meter reading will be the same. Due to parallel connection, only set the voltage limit of main power.
- ⑦ Press I SET of SLAVE power for 3 seconds to exit Overlap Mode.



## Constant current model (CC):

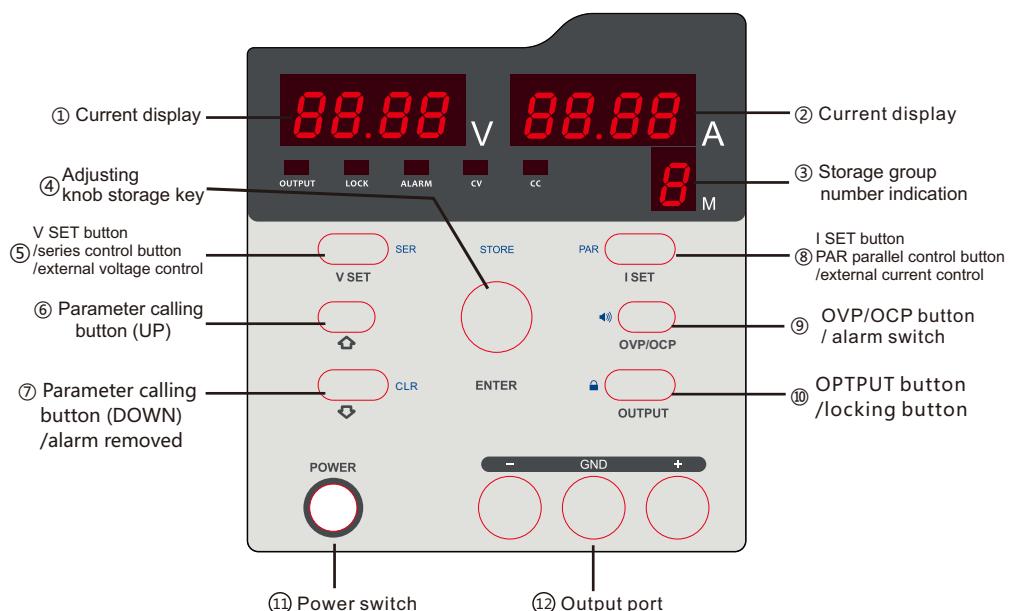
Output current range: Adjustable from 0 to rated current.  
 Power change rate:  $\leq 0.2\% + 3\text{mA}$ .  
 Load change rate:  $\leq 0.2\% + 3\text{mA}$ .  
 Ripple current and noise:  $\leq 1\text{mA rms}$ .

## Readback display:

Display: Dual 4 bits 0.4" red Led display (voltage or current display)  
 Precision:  $\pm(0.5\% \text{ reading} + 2 \text{ bits})$   
 Voltage resolution 10 mV  
 Current resolution 1mA

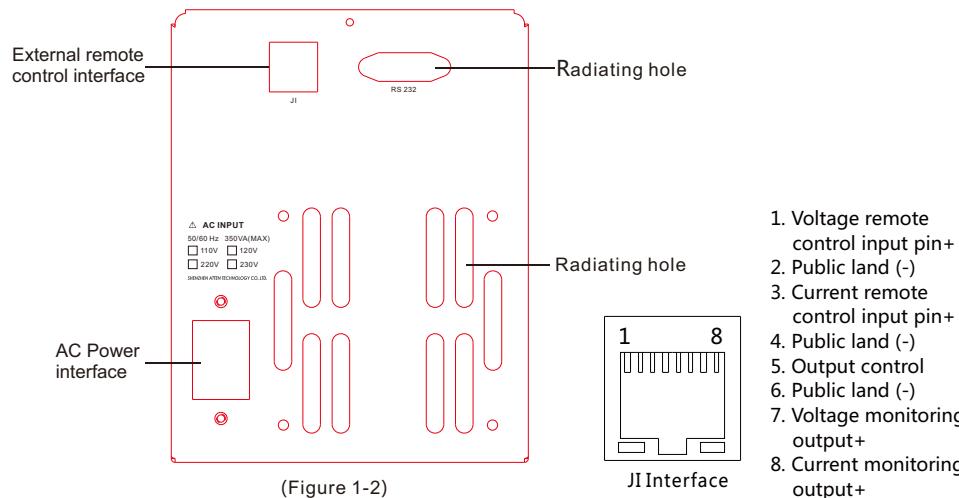
## Panel figure of this product

### Front Panel Figure



(Figure 1-1)

## Interface on the back



(Figure 1-2)

## Operating instructions

### 1. Precautions before use

**AC Power input:** AC power input shall be within 50/60HZ, ±10% of the rated voltage

**⚠ Warning:** To prevent electric shock, the protective conductor of the power line must be grounded..

**Installation of instrument:** Don't use this power supplier when the ambient temperature is above 40°C. Enough space shall be left for vent behind the panel for heat dissipation.

**⚠ Note:** To prevent equipment damage, don't operate when the ambient temperature is above 40°C.

### 2. Output voltage regulation

- ① Press the V SET button, the voltage interface will display the setting value voltage and the set bit will flash.
- ② Press the button again, the selected bit of setting value can be changed.
- ③ When the setting bit is blinking, the corresponding setting value can be adjusted by rotating the button.
- ④ After adjustment, press the knob ENTER, the power supply will exit the voltage setting status.

### 3. Output current regulation

- ① Press the I SET button, the current will display the setting value current and the set bit will flash.
- ② Press the button again, the selected bit of setting value can be changed.
- ③ When the setting bit is blinking, the corresponding setting value can be adjusted by rotating the button.
- ④ After adjustment, press the knob ENTER, the power supply will exit the current setting status.

### 4. OVP/OCP Adjustment

Press the OVP/OCP button, the ALARM light will flash, and the interface will display the setting value of OVP and OCP.

#### OVP Adjustment:

- ① Press the V SET button when the ALARM light is flashing to enter the OVP setting state.
- ② Turn the knob to adjust the corresponding setting value. Press the V SET button to change the selected bit of setting value.
- ③ After adjustment, press the knob ENTER, the power supply will exit the OVP setting status.

#### OCP Adjustment:

- ① Press the I SET button when the ALARM light is flashing to enter the OCP setting state.
- ② Turn the knob to adjust the corresponding setting value. Press the I SET button to change the selected bit of setting value.
- ③ After adjustment, press the knob ENTER, the power supply will exit the OCP setting status.

### 5. Quick parameter operation

#### Parameter storage:

- ① Set the value of voltage, current, OVP and OCP as per above steps.
- ② Press the ENTER knob for three seconds to enter the parameter storage state. The storage memory display interface will flash.
- ③ Press the UP and DOWN button to adjust the target address need to be saved (address range: 0-9).
- ④ After adjustment, press the button ENTER to confirm storage and exit the parameter storage state.

#### Parameter calling:

- ① Press the UP or DOWN button to enter the parameter calling state. The storage display interface will flash.
- ② Press the UP or DOWN button again to adjust the value on the storage display interface. The voltage and current display interface will show the parameters stored in the corresponding addresses.
- ③ Press the ENTER knob to call the data of this group and exit the parameter calling state automatically.

### 6. OVP/OCP alarm state clearance

- ① When the OVP or OCP protection appears, the corresponding indicator light of OVROCP will light up, the power supply will enter protection lock state and the output function can't be activated.
- ② Press the CLR or DOWN button for three seconds to remove output protection.

### 7. Parameter unlock operation

- ① Press the OUTPUT button for three seconds to lock related parameters. Now the output can be only start or closed and the LOCK light will light up.
- ② Press the OUTPUT for three seconds again, the lock state will be removed and the LOCK light will go out.

### 8. Alarm on and off

Press the OVP/OCP for three seconds to start or close alarm.

### 9. Output on or off

1. Press OUTPUT button to start or close output voltage.

### 10. Cascade Mode

Connect two powers in series system to provide higher voltage and a rated output current. Refer to 2-1 Wiring Diagram.

- ① Find MASTER and SLAVE, connect these two powers according to Figure2-1.
- ② Turn on the power switch and set the SLAVE current to maximum.