

User Manual

TPUH-PSU12

Integrated Switching Power Supply



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Version: TPUH-PSU12_2018V1.4

Preface

Read this user manual carefully before using the product. Pictures are shown in this manual for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till March, 2018. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

Trademarks

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FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To insure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Product Introduction

The product is an integrated switching power supply designed for converting AC into DC power. It provide 2 input channels and 12 output channels, input voltage 100~240VAC, output 5/12/24VDC, the max power consumption of single channel is 15W.

Base on the sequential control technology, when power on, the 12 output channels will turned on orderly every 100ms. In addition, each output channel also can be switch on/off via front panel button, RS232 commands or GUI, and the output voltage on each output channel can be selected as 5/12/24V DC via the TACT Switch on rear panel, RS232 command, or GUI.

1.1 Feature

- Double input channel designed for ensuring the stable AC source.
- Total 12 output channels, and each channel has three kinds of output voltage (5/12/24VDC) can be selected.
- Output channels can be switch on/off by via the front panel buttons, RS232 commands or GUI.
- Output voltage (5/12/24VDC) can be selected via the TACT Switch on rear panel, RS232 commands, or GUI.
- Adopt sequential control technology.
- Supports online software upgrading.

1.2 Package List

- 1 x TPUH-PSU12
- 2 x Mounting Ears & 6 x Screws
- 4 x Plastic Cushions
- 2 x Power Cords
- 12 x DC Power Cables (2-pin Phoenix Connector to DC)
- 12 x 2-pin Phoenix Connectors
- 1 x 3-pin Phoenix Connector
- 1 x RS232 Cable (DB9 to 3-pin Phoenix Connector)
- 1 x User Manual

Note: Please contact your distributor immediately if any damage or defect in the components is found.

2. Specification

Input & Output	
Input Port	AC1 & AC2
Input Voltage	100~240VAC 50~60Hz
Output Port	Total 12 DC port (2-Pin phoenix connectors)
Output Voltage	5V, 12V or 24V can be selectable.
Output Voltage Range	5V: 4.75~5.25V
	12V: 11.4~12.6V
	24V: 22.8~25.2V
Maximum output power consumption of signal channel	5V:12W; 12V:15W; 24V:15W
Maximum output power consumption for single supply	180W
Maximum output power consumption for dual supply	180W
Control Part	
Buttons Control	Front Panel: 01~12, total 12 buttons.
	Rear Panel: Total 12 TACT Switches, named SELECT .
RS232 Control	RS232 port (3-Pin phoenix connector).
	Baud rate support 9600.
GUI Control	TCP/IP port (RJ45)
	Default IP: 192.168.0.178
	Port No.: 4001
General	
Temperature	0 ~ +50°C
Humidity	10% ~ 90%
Dimension (W*H*D)	437mm x 44mm x 357mm
Net Weight	4.2Kg

3. Panel Description

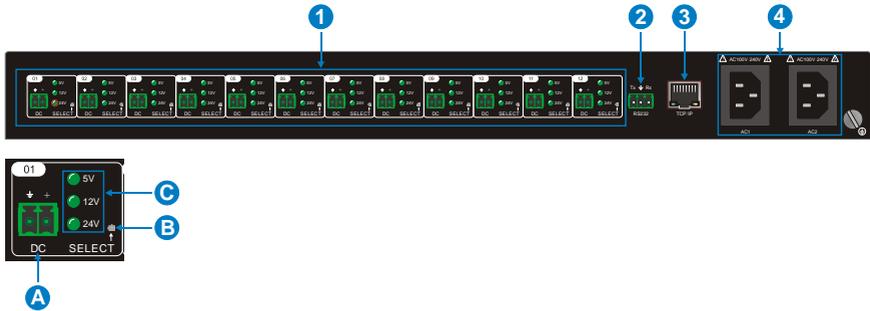
3.1 Front Panel



No.	Name	Description
①	FIRMWARE	USB port for updating system firmware.
②	AC1 & AC2	Input AC source indicators. <ul style="list-style-type: none"> • Green when the device is powered on and normal output. • Red when there is no power to the device. • Orange when the input voltage is too low or too high.
③	01~12	Output channel switching buttons and Activity LEDs, 12 in total. <ul style="list-style-type: none"> • Press the button to trun on/off the corresponding channel, and the corresponding LED will turn green and keep on. • Long-press the button for 3 seconds or more to lock/unlock the corresponding channel, and then the corresponding LED will flash 3 times.

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

3.2 Rear Panel



No.	Name	Description
①	01~12	<p>12 output channels.</p> <p>A. DC: 2-Pin phoenix connector, connect with the device needed to be powered.</p> <p>B. SELECT: Press the TACT Switch to select the output voltage among 5V, 12V, and 24VDC. In addition, simultaneously long-press this buttons on channel 01 and channel 02 for 3 seconds or more, the device will be restored to factory setting.</p> <p>C. 5/12/24V indicators:</p> <ul style="list-style-type: none"> Green when the current selected output voltage is work normally. Blinking slowly when the current channel is closed. Blinking fastly when the current channel is short circuit or over voltage.
②	RS232	Serial port, 3-Pin phoenix connector, connect with a control device (such as PC) to control the product via RS232 commands.
③	TCP/IP	Ethernet port, connect with PC to control the product via GUI.
④	AC1& AC2	2 AC input channels. Input voltage is AC100~240V.

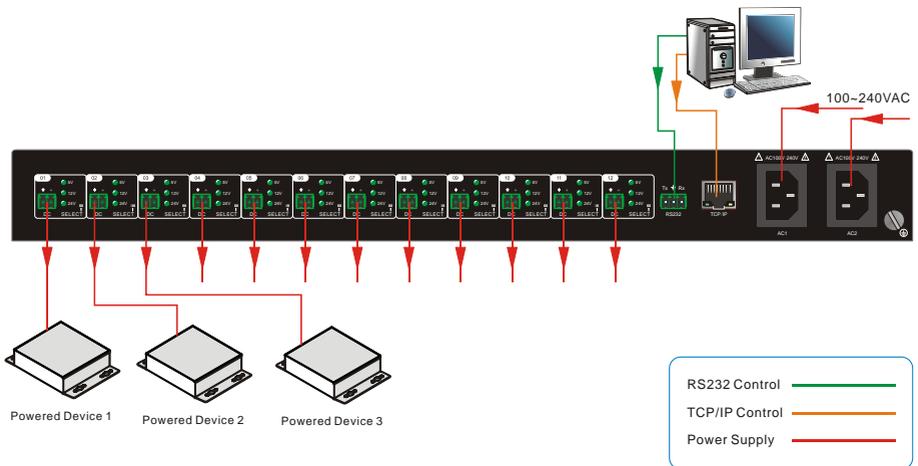
Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

4. System Connection

4.1 Usage Precaution

- Verify all components and accessories included before installation.
- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

4.2 System Diagram



5. System Operation

5.1 Button Control

- **Switch on/off output channel:**

Press the button **01~12** on front panel to switch on/off the corresponding output channel.

- **Lock/unlock output channel:**

Long-press the button **01~12** for 3 seconds or more on front panel to lock/unlock the corresponding channel, and then the corresponding LED will flash 3 times.

***Note:** The locked channel can't be controlled via front panel button , RS232 commands and GUI.*

- **Select the output voltage:**

Press **SELECT** on corresponding output channel to select the output voltage as 5V, 12V or 24V.

***Note:** After switching the output voltage, the output channel will be turned off based on overvoltage protection control, and it need to be turned on again via the corresponding output channel switching button on front panel.*

- **Restore Factory Defaults:**

On rear panel, simultaneously long-press **SELECT** on channel 01 and channel 02 for 3 seconds or more, the device will be restored to factory setting.

5.2 RS232 Control

Connect a PC to the RS232 port on the rear panel, and then install the RS232 control software on the PC, the product can be controlled by sending RS232 commands via the RS232 control software.

5.2.1 RS232 Control Software

- **Installation** Copy the control software file to the computer connected with the product.
- **Uninstallation** Delete all the control software files in corresponding file path.

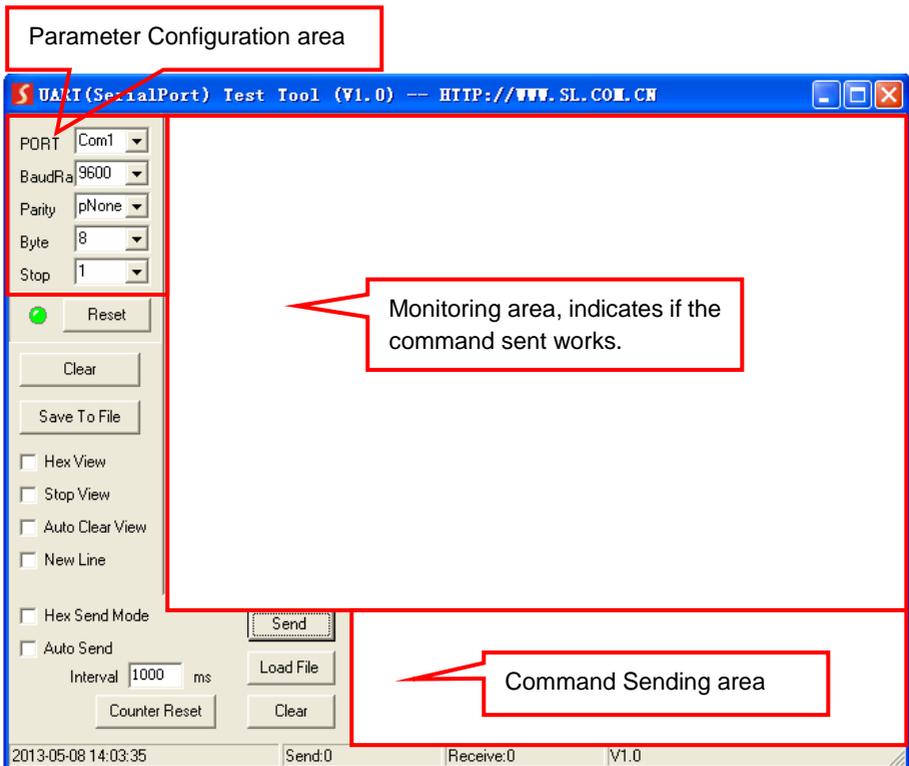
5.2.2 Basic Setting

Double-click the software icon to run this software.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:



The interface of the control software is showed as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in Command Sending Area.

5.2.3 RS232 Communication Command

Communication protocol: RS232 Communication Protocol

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Command	Function	Feedback Example
All@.	Switch on all output channels.	All Open.
All\$.	Switch off all output channels.	All Closed.
[x]@.	Switch on the output channel [x], x =1~12.	[x] Open.
[x]\$.	Switch off the output channel [x], x =1~12.	[x] Closed.
Output[x]V/[y].	When y = NULL, Set the output voltage as x for all output channels. x =5/12/24.	All Output [x]V.
	When y =1~12, Set the output voltage as X for the output channel y. x =5/12/24.	[y] Output [x]V.
Status[x].	When x = NULL, query the on-off status of all output channels.	01 Open. 02 Closed. 03 Closed. ...
	When x = 1~12, query the on-off status of the output channel x.	[x] Open. [x] Closed.
Save[x].	Save the current on-off status to Group x. x =1~5.	Save To F[x].
Recall[x].	Invoke the on-off status of Group x. x =1~5.	If Group x has no data, the feedback information: F[x] no data.

Command	Function	Feedback Example
		If Group x has data, the feedback information: Recall From F[x]. Out 01 02 03 04 05 06 07 08 09 10 11 12 State S S S S S S S S S S S S Vm 12 12 12 12 12 12 12 12 12 12 12 12 Over N N N N N N N N N N N N Lock N N N N N N N N N N N N
Clear[x].	When x =NULL, clear the data of all Group.	Clear All.
	When x =1~5, clear the data of the Group x.	Clear F[x].
QueryGroup[x].	When x = NULL, query all groups.	Out 01 02 03 04 05 06 07 08 09 10 11 12 Vm1 12 12 12 12 12 12 12 12 12 12 12 Vm2 XX XX XX XX XX XX XX XX XX XX XX XX
	When x = 1~5, query the group x.	Out 01 02 03 04 05 06 07 08 09 10 11 12 Vm[x] 12 12 12 12 12 12 12 12 12 12 12
%0911.	Restore Factory Defaults.	Factory Default
%9964.	Query the IP address.	IP XXX.XXX.X.XXX
ChangelP XXX.XXX.X.XXX	Change IP address/Subnet Mask/Gateway, For example: ChangelP	

Command	Function	Feedback Example
	192.168.0.178/255.255.255.0/0.0.0.0;	
%9975.	Query the all status for all channels.	Out 01 02 03 04 05 06 07 08 09 10 11 12 State S S S S S S S S S S S S Vm 12 12 12 12 12 12 12 12 12 12 12 12 Over N N N N N N N N N N N N N Lock N N N N N N N N N N N N N
/^Version;	Query the software version.	V x. x. x
Lock[x].	When x = NULL, lock all channels.	Locking all channel.
	When x = 1~12, lock the channel x.	Locking [x] channel.
Unlock[x].	When x = NULL, unlock all channels.	Locking all channel.
	When x = 1~12, unlock the channel x.	Locking [x] channel.
LockKeyboard[x].	When x=0, unlock the front panel.	Unlocking keyboard.
	When x=1, lock the front panel.	Locking keyboard.
FA XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX FE	Modify product name. The command has 18 bytes in total, and 16 bytes are effective. The digit 0 is used for padding. For example: FA 50 54 4E 00 00 00 00 00 00 00 00 00 00 00 00 00 FE(PTN)	
FB XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX XX FE	Modify product model. The command has 18 bytes in total, and 16 bytes are effective. The digit 0 is used for padding. For example: FB 54 50 55 48 2D 50 53 55 31 32 00 00 00 20 00 00 FE(TPUH-PSU12)	
Rebootx.	When x=NULL, reboot all output ports; When x=1~12, reboot the output port x.	Rebootx.

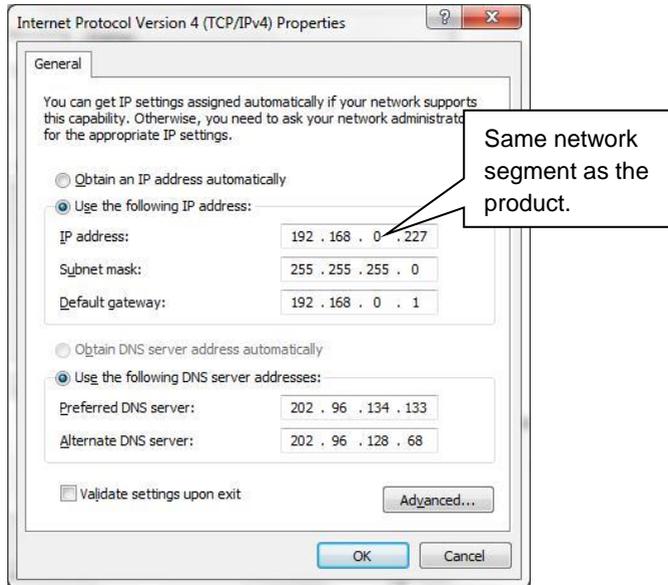
Note:

- After sending the “**Output[x]V/[y].**” to change the output voltage, the corresponding output channel will be switch off, the command “**[x]@.**” should be sent to switch on this output channel again.
- After sending the “**LockKeyboard[x].**” to lock the front panel, the device can be controlled via RS232 commands and GUI.

5.3 GUI Control

In addition to control the product via front panel button and RS232 communication software. This product can be controlled via GUI. It allows users to interact with the product through graphical icons and visual indicators.

- 1) Connect a PC to the TCP/IP port on the rear panel, and set its network segment to the same as the default IP of the product (192.168.0.178, port No.: 4001).



2) Type **192.168.0.178** in your browser, it will enter the log-in interface shown as below:



5.3.1 Control Menu

Type user name: user and password: user (default setting) on the log-in interface, and then click **Login** to enter Control menu shown as below:



- Select the **ON/OFF** to switch on/off the output channel.
- Click the **All On** to switch on all output channels.
- Click the **All Off** to switch off all output channels.

5.3.2 Voltage Setting Menu

Click **Voltage Setting** on the top of page to enter voltage setting menu shown as below:



- Lock/Unlock the output channel. When the port is locked, its voltage cannot be switched.
- Select **5V**, **12V**, or **24V** output voltage for each output channel.

5.3.3 Network Menu

Click **Network** on the top of page to enter network setting menu shown as below:

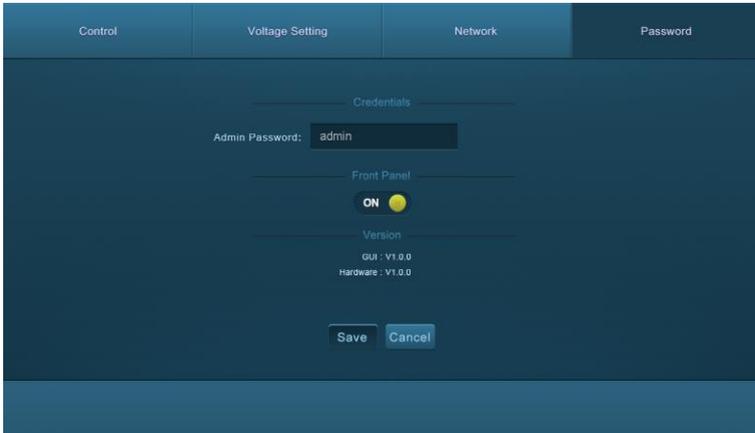


- Dynamic or static IP mode can be selected. Under static IP mode, IP address and

subnet mask, gateway can be set and make sure the IP addresses are different to avoid IP conflict.

5.3.4 Password Menu

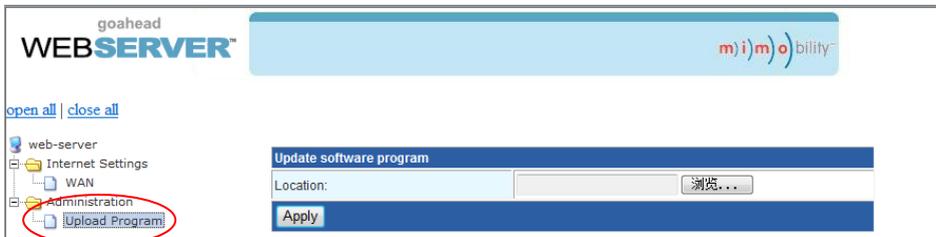
Click **Password** on the top of page to enter password menu shown as below:



- Modify the password as you need.
- Lock/Unlock front panel buttons.

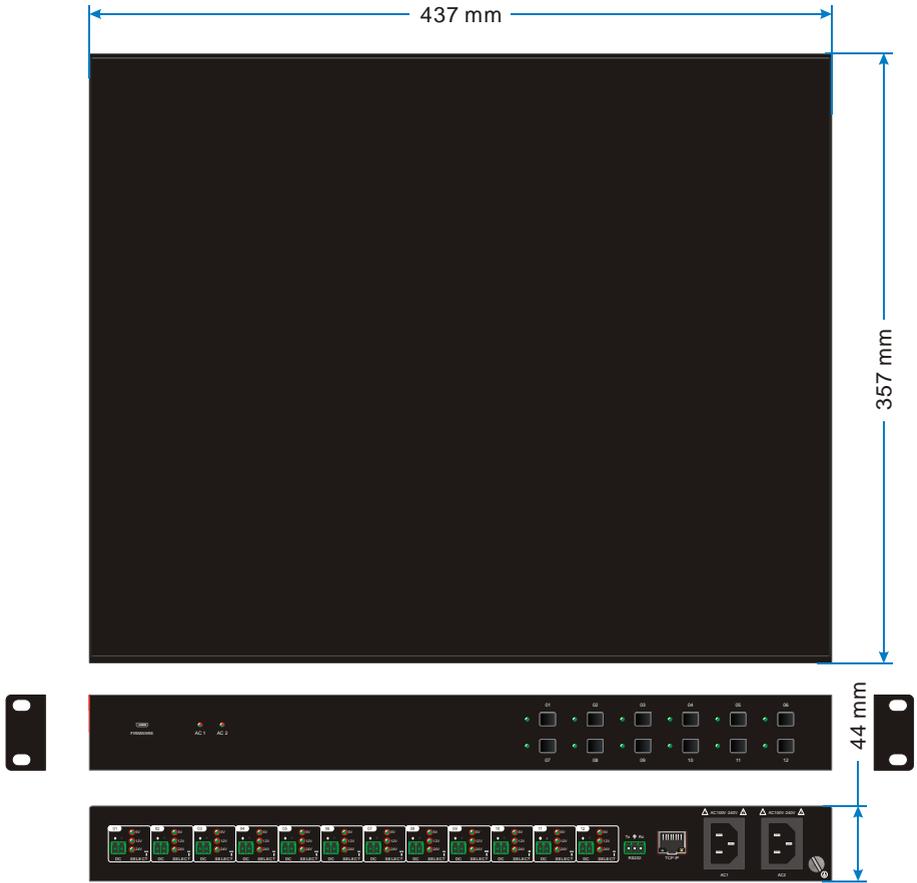
5.3.5 GUI Update

GUI for the Scaler Switcher supports online update in <http://192.168.0.178:100>. Type the username and password (the same as the GUI log-in settings, modified password will be available only after rebooting) to log in the configuration interface. After that, click **Administration** at the source menu to get to **Upload Program** as shown below:



Select the desired update file and press Apply, it will start upgrading then.

6. Panel Drawing



7. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
No output voltage	Power supply protect function will start when over loaded.	Please reduce loads.
	After selecting output voltage, the output channel will switch off automatically.	Switch on the output channel via front panel button.
	Fail or loose connection	Make sure the connection is good.
AC1 or AC2 indicator doesn't work or no respond to any operation	Fail connection of power cord.	Make sure the power cord connection is good.
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Type in correct RS232 communication parameters.
	Fail or loose connection	Make sure the connection is good.
	Broken RS232 port	Send it to authorized dealer for checking.
Cannot control the device by front panel buttons while can control it through RS232 port	The front panel buttons are broken	Send it to authorized dealer for repairing.
Cannot control the device via GUI	The IP address of control PC and TCP/IP port are not on the same network segment	Modify control PC's network segment to the same with the TCP/IP port.
	The port No. are wrong.	The correct port No. is 4001.
	Fail or loose connection	Make sure the connection is good.
	Broken TCP/IP port	Send it to authorized dealer for checking.

Note: If your problem still remaining after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance.

8. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is fixed three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusions:

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
 - ✓ Normal wear and tear.
 - ✓ Use of supplies or parts not meeting our specifications.
 - ✓ No certificate or invoice as the proof of warranty.
 - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
 - ✓ Damage caused by force majeure.
 - ✓ Servicing not authorized by distributor.
 - ✓ Any other causes which does not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation:

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributor.



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