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User Manual

UDP3303C-U Linear DC Power Supply

REV 1.1

October 2024

Preface

Thank you for purchasing the new linear DC power supply. In order to use this product safely and correctly, please read this manual thoroughly, especially the *Safety Information* part.

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 3 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.

Safety Information

Important safety instructions must be followed for operating and storing the UDP3303C-U series. To ensure your personal safety, read the following instructions carefully before operation to ensure that the UDP3303C-U series is in the best working environment.

Safety Symbol



Warning or Caution



Caution, possibility of electric shock



Earth (ground) TERMINAL

Safety Guidelines

General Introduction

- Do not block and isolate the air inlet and vent
- Avoid physical impact or using the instrument improperly
- Do not discharge static electricity onto the instrument
- Only professionals should open the instrument

AC Input

- AC input voltage: 110V/120V/220V/230V, 50/60Hz
- Connect the protective ground wire to the earth to avoid shock hazard.

Fuse

Model	110V/120V	220V/230V
UDP3303C-U	T6.3AL/250V (20X5mm)	T3.15AL/250V (20X5mm)

- Make sure to use the correct fuse type before starting up
- To prevent fires, only replace with fuses that meet the model and rating value
- Do not connect the power before replacing the fuse to avoid electric shock
- Confirm the cause of the blown fuse before replacing it

Power Supply

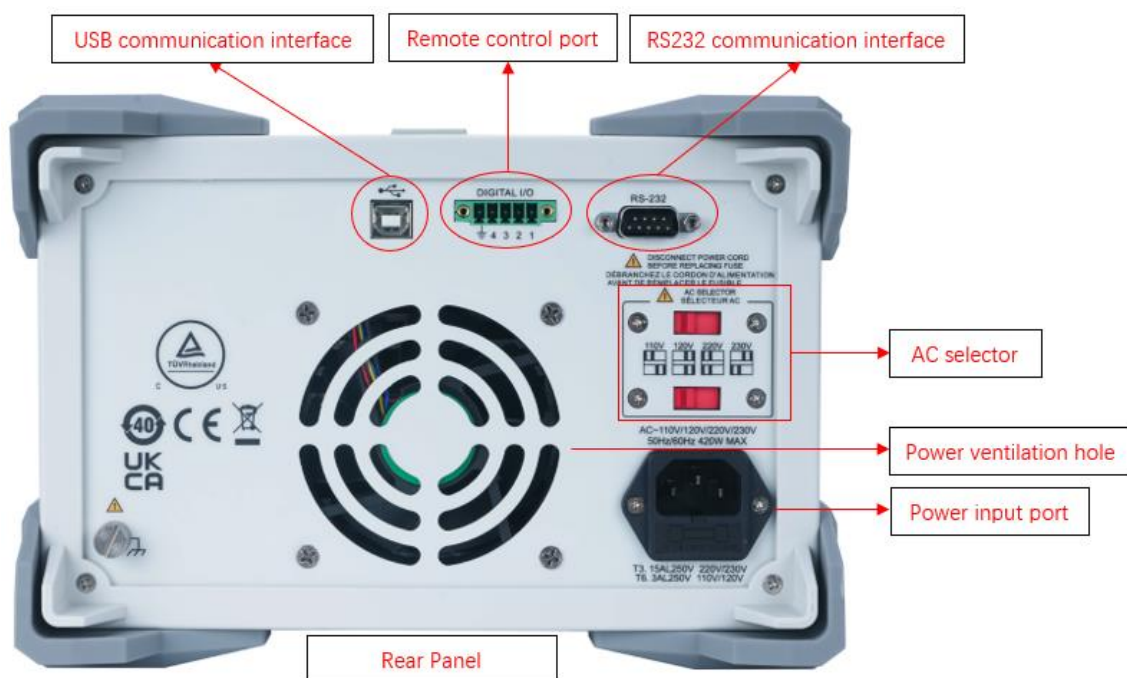
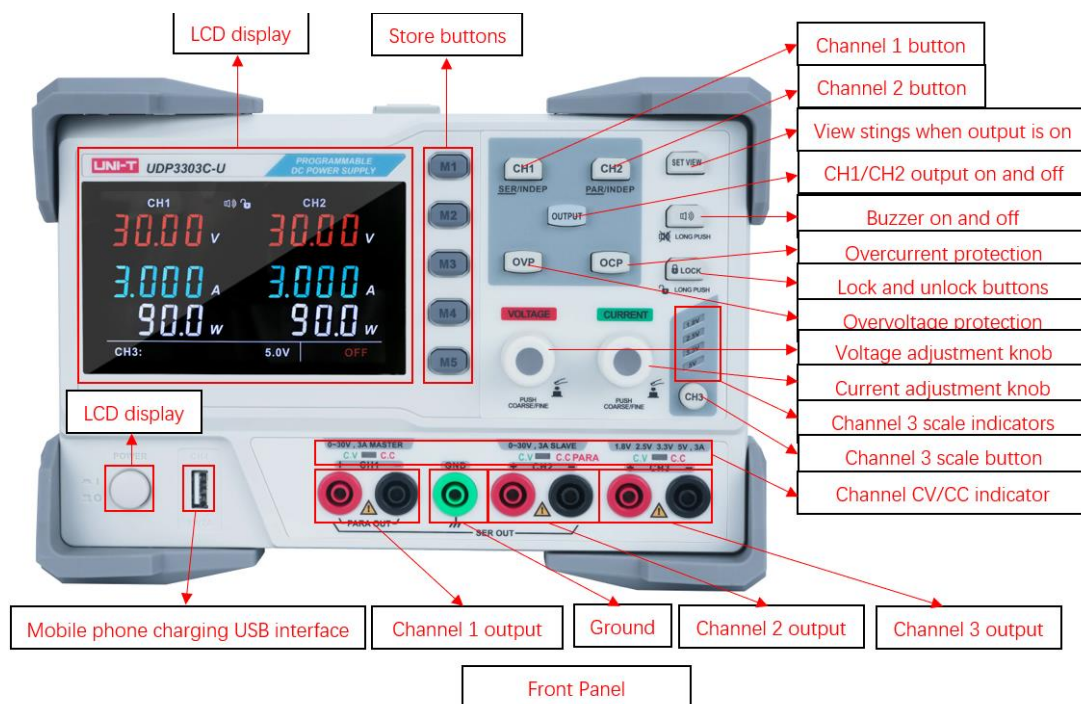
AC input voltage includes 100V/120V/220V/230V $\pm 10\%$, 50/60Hz. You can select different input voltages through the "AC SELECTOR" on the rear panel as need, please disconnect the power before switching the input voltage.

UDP3303C-U Linear DC Power Supply Introduction

The UDP3303C-U DC power supply has three independent outputs: two of them are adjustable outputs of 30V/3A, the other one is a fixed selectable output of 1.8V/2.5V/3.3V/5V/3A (fine adjustable). The device also has the constant voltage (CV) and constant current (CC) modes, short circuit and overvoltage protection features.

UDP3303C-U Main Features

- 4-digit voltage and current high precision display
- Overvoltage and overcurrent protection
- Output voltage/current settings viewable
- Remote control(output ON/OFF)
- USB-Device communication interface (can be used in software upgrade and upper computer control power output)
- RS232 interface
- 5 sets of setup storage: M1-M5
- Shutdown memory
- Buttons lock
- Intelligent temperature-controlled fan
- USB phone charging interface



Main Index Parameters

Test conditions: Turn on the device for 30 minutes at temperature +20°C~+30°C.

CH1/CH2	
Output Voltage	0-30V
Output Current	0-3A
Line Regulation	
Constant Voltage	$\leq 0.01\%+3\text{mV}$
Constant Current	$\leq 0.2\%+3\text{mA}$
Load Regulation	
Constant Voltage	$\leq 0.01\%+3\text{mV}$ (rated current $\leq 3\text{A}$)
	$\leq 0.02\%+5\text{mV}$ (rated current $> 3\text{A}$)
Constant Current	$\leq 0.2\%+3\text{mA}$
Resolution	
Voltage	10mV
Current	1mA
Programming Accuracy (25°C \pm 5°C)	
Voltage	$\leq 0.1\%+30\text{mV}$
Current	$\leq 0.5\%+2\text{mA}$
Read Back Accuracy (25°C \pm 5°C)	
Voltage	$\leq 0.1\%+30\text{mV}$
Current	$\leq 0.5\%+2\text{mA}$
Ripple and Noise (5Hz-1MHz)	
Voltage	$\leq 1\text{mVrms}$
Current	$\leq 3\text{mA rms}$
Temperature Coefficient	
Voltage	$\leq 300\text{ppm}$
Current	$\leq 300\text{ppm}$
Parallel Mode	
Line Regulation	$\leq 0.01\%+3\text{mV}$
Load Regulation	$\leq 0.01\%+3\text{mV}$ (rated current $\leq 3\text{A}$)
	$\leq 0.02\%+5\text{mV}$ (rated current $> 3\text{A}$)
Series Mode	
Line Regulation	$\leq 0.01\%+5\text{mV}$

Load Regulation	$\leq 300\text{mV}$
Error	$\leq 0.5\% \pm 10\text{mV}$ (10~30V no-load) (access load $\leq 300\text{mV}$)
	$\leq 0.5\% \pm 30\text{mV}$ (0~9.99V no-load) (access load $\leq 300\text{mV}$)
CH3	
Output Voltage	1.8V/2.5V/3.3V/5.0V $\pm 3\%$ (fine adjustable)
Output Current	3.2A
Line Regulation (25 $\pm 5^\circ\text{C}$)	$\leq 5\text{mV}$
Load Regulation (25 $\pm 5^\circ\text{C}$)	$\leq 15\text{mV}$
Ripple and Noise (5Hz-1MHz)	$\leq 2\text{mVrms}$
USB (CH4)	
Output Voltage	5V $\pm 0.25\text{V}$
Output Current	2A

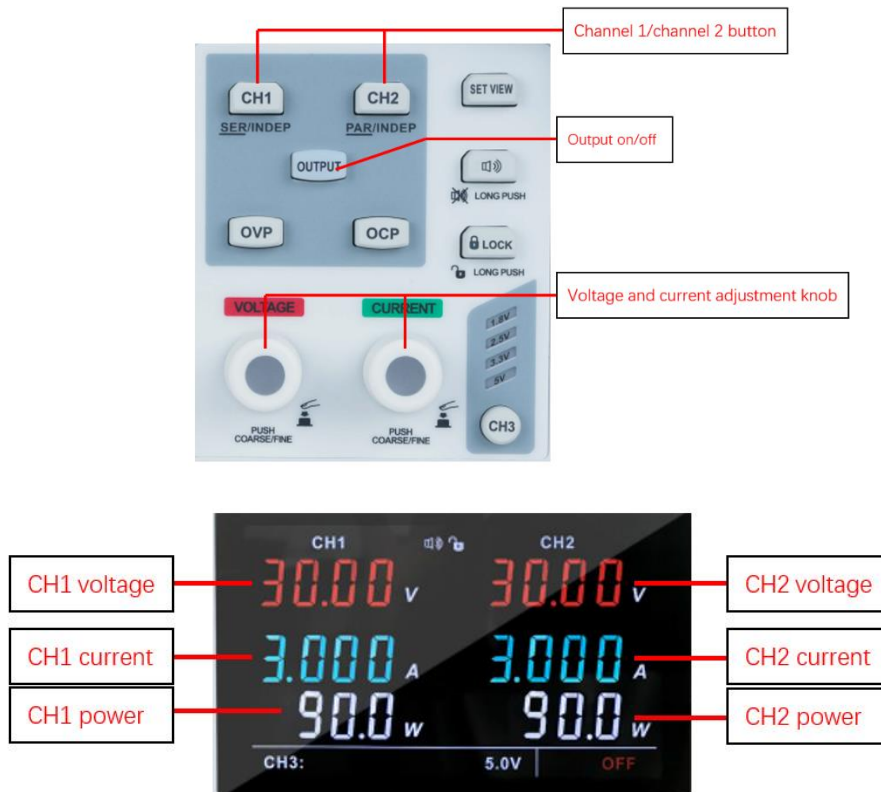
Note: Limited by the output terminal structure, the voltage load adjustment rate is not guaranteed.

Function Introduction

1. Voltage / Current Setting and Output

- Voltage setting: Press CH1 button, the cursor will flash on the CH1 voltage position, press the voltage knob to move the cursor and rotate the knob to adjust the voltage value;
- Current setting: Press CH1 again, the cursor will flash on the CH1 current position, press the current knob to move the cursor and rotate the knob to adjust the current value.
- Press CH2 to set the CH2 voltage and current values with the same method above.
- Press the OUTPUT button to enable CH1, CH2 and CH3 outputs after voltage and current setting.
- With the shutdown memory function, the last set value can be automatically restored when the device is started next time.

The operation and display interfaces are as follows:



2. Series and Parallel Settings

2.1 Series Settings:

- Press CH1 button for 3 seconds to enter series mode, the "SER" symbol will be on. CH1+ is the main positive output of series and CH2- is the slave negative output. The series voltage and current settings can only be adjusted in CH1, and the CH2 settings will follow that of CH1.
- The series voltage total set value is twice of CH1, and the current total value equals to CH1.
- To exit the series mode, long press the CH1 button for 3s, the "SER" symbol will disappear.
- With the shutdown memory function, the last voltage/current settings and the series mode will be restored when the device is restarted.

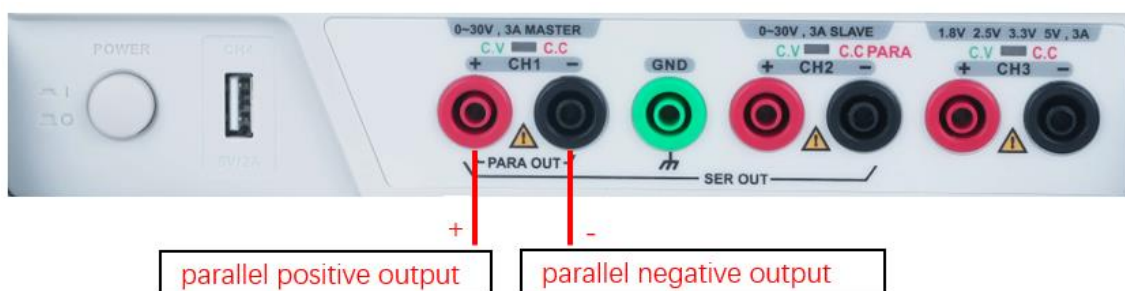
The series output connection is as follows:



2.2 Parallel Settings:

- Press CH2 button for 3s to enter parallel mode, the "PARA" symbol will be on. CH1+ is the main positive output of parallel and CH1- is the slave negative output. The parallel voltage and current settings can only be adjusted in CH1, and the CH2 settings will follow that of CH1.
- The parallel voltage total value equals to the CH1 voltage, and the current total value is twice of CH1.
- To exit the parallel mode, long press CH2 button for 3s, the "PARA" symbol will disappear.
- With the shutdown memory function, the last voltage/current settings and the parallel mode will be restored when the device is restarted.

The parallel output connection is as follows:

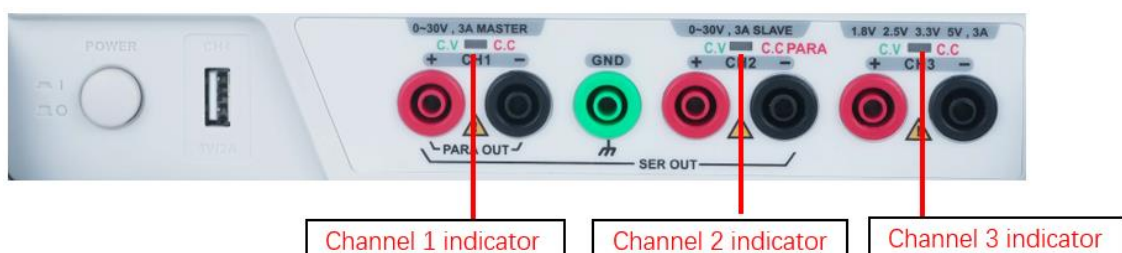


3. Constant Voltage / Constant Current

In constant voltage mode, the output current is lower than set value, the channel indicator will be green (CV), and the voltage keeps as set value. If the output current reaches the set value, the device will switch to the constant current mode.

In constant current mode, the channel indicator will be red (CC). The output current is equal to set value and the voltage is lower than set value. If the output current is lower than the set value, device will switch to the constant voltage mode.

The channel indicators are shown below:



4. OVP (overvoltage protection), OCP (overcurrent protection) Setting and Enabling

- Long press OVP button (>3s) to enter OVP threshold setting, press CH1 or CH2 to select the channel, then rotate the voltage knob to set the OVP limit, long press OVP button again to exit the OVP setting.

Short press OVP button (backlight on) to enable the overvoltage protection, if the output voltage exceeds the OVP set limit, the output will be shut off, and the OVP symbol will disappear later. Short press OVP button again (backlight off) to disable overvoltage protection.

- Long press OCP button (>3s) to enter OCP threshold setting, press CH1 or CH2 to select the channel, then rotate the current knob to set the OCP limit, long press OCP button again to exit the OCP setting.

Short press OCP button (backlight on) to enable the overcurrent protection, if the output current exceeds the OCP set upper limit, the output will be shut off, and the OCP symbol will disappear later.

Short press OCP button again (backlight off) to disable overcurrent protection.

5. Remote Control DIGITAL I/O Interface

To remotely control the output and shutoff of CH1/CH2, you can short-circuit or disconnect the pin 1 and 2 of the DIGITAL I/O terminal by a short-circuit wire or an external relay. The specific operations are as follows:

When the pin 1 and 2 of the DIGITAL I/O terminal are short-circuited, the OUTPUT button on the front panel is disabled, the power output is forcibly turned on, and the ON symbol appears on the LCD.

When the short circuit is released, the OUTPUT button function is restored, and the power output is turned off, the OFF symbol appears on the LCD.

The DIGITAL I/O port is shown in the following figure:

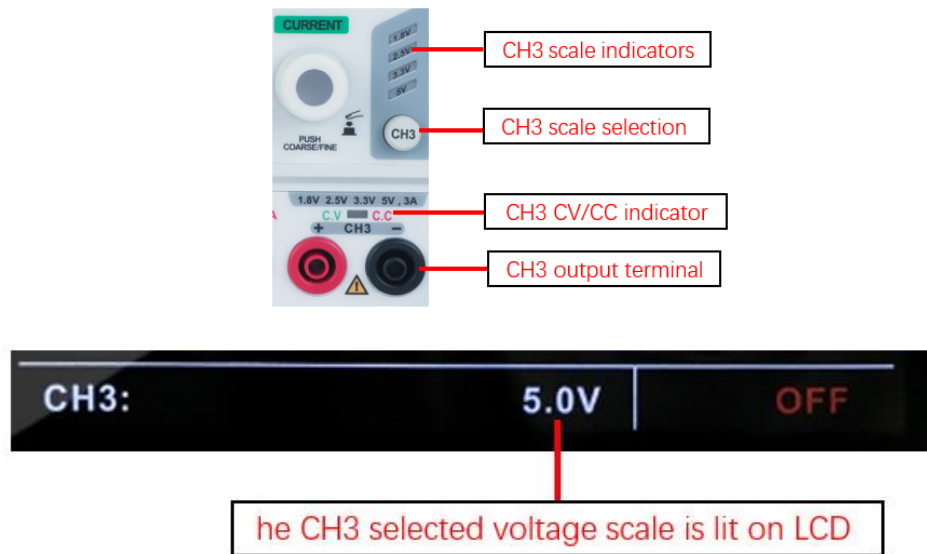


6. CH3 Output

The CH3 has 4 sets of fixed outputs which are 1.8V/2.5V/3.3V/5.0V/3A, which can be fine adjusted by OUTPUT button. By pressing the CH3 button, the output voltage can be switched between 1.8V/2.5V/3.3V/5.0V and the corresponding indicator will be on. Double press the CH3 button, the cursor will flash on CH3 voltage and can be fine adjusted.

The shutdown has a memory function. The last set value will be restored when the device is started up next time.

The CH3 operation and display interfaces are as follows:



7. M1-M5 Store/Recall Functions Introduction

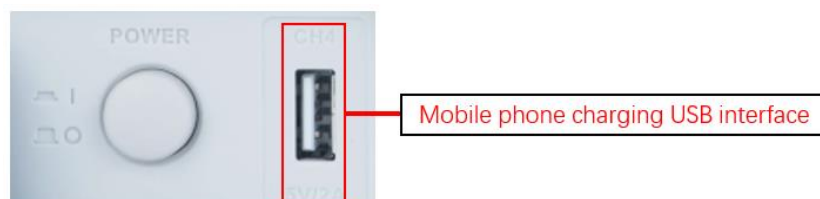
After output parameters are set, long press one of the M1-M5 buttons (>3s) to save the setting.

Short press one of the M1-M5 buttons to recall the stored data with the button's backlight on.

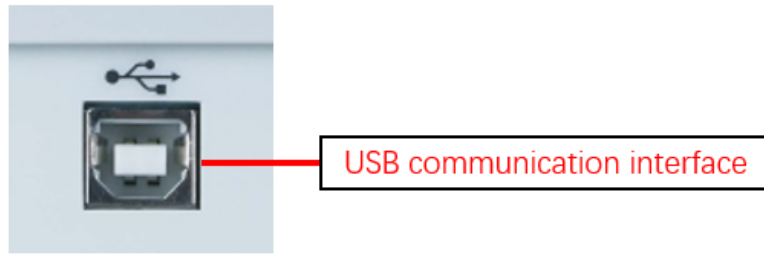


8. USB Interfaces

The USB_Host interface on the front panel is not for communication but for an independent CH4 channel, which comes with fixed output of 5V/2A, can be used to charge the mobile phone and so on.

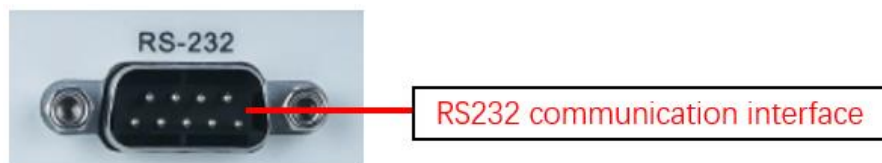


The USB_Device interface on the rear panel comes with communication function for software programming and upgrade, and output control of power supply by upper computer.



9. RS232 Interface

The RS232 interface on the rear panel comes with communication function for software programing and upgrade, and output control of power supply by upper computer.



10. OTP (over-temperature protection) Overview

Inside the power supply, there are two thermistors placed on the heat sink which has the maximum heat.

Once the power supply fails and the temperature of the heat sink reaches about 100°C, the over-temperature protection is triggered, and the output will be turned off with the "OTP" symbol flashing on the LCD screen and periodical beeps.

The "OTP" symbol disappears when any key is pressed.

11. SET VIEW Introduction

When the power output is on, the voltage and current displayed on the LCD are the real-time sampling output values.

Press SET VIEW button (backlight on) to view the voltage and current set values.

Press SET VIEW button again (backlight off), the LCD redisplay the real-time sampling output voltage and current.

12. Buzzer On and Off

Press the BEEP button (backlight on), the buzzer will be on; long press the BEEP button for 3s, the buzzer will be off.

With the shutdown memory function, the last saved settings can be restored when the device is started up next time.

When the buzzer is enabled, it beeps for example:

- Power on/off
- CH1/CH2 setting switching
- Independent - series - parallel switching
- Output on/off
- OVP/OCP setup and on/off
- Pressing the voltage/current knob
- SET VIEW (setting/output) display switching
- LOCK/UNLOCK operation
- Panel lock/unlock
- CH3 output selection

13. Buttons Lock

Short press the LOCK button, the button backlight is on and the buttons on panel are locked.

Long press the LOCK button (>3s), the button light is off and the buttons on panel are unlocked.

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说明书菲林做货要求:

序号	项目	内容		
1	尺寸	285*210mm		
2	材质	60g书纸		
3	颜色	单色印刷		
4	外观要求	完整清晰、版面整洁，无斑墨、残损、毛边、刀线错位等缺陷。		
5	装订方式	钉装		
6	表面处理	无		
7	其它	无		
版本		0		
修改页码				
DWH 设计	宣浩	MODEL 机型：UDP3303C-U	Part NO. 物料编号：110401113457X	
CHK 审核				
APPRO. 批准				
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