

RIGOL

Quick Guide

DP800 Series Programmable Linear DC Power Supply

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RIGOL Technologies, Inc.**

Guaranty and Declaration

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RIGOL guarantees this product conforms to the national and industrial standards in China as well as the ISO9001:2008 standard and the ISO14001:2004 standard. Other international standard conformance certification is in progress.

Contact Us

If you have any problem or requirement when using our products or this manual, please contact **RIGOL**.

E-mail: service@rigol.com

Website: www.rigol.com

Safety Requirement

General Safety Summary

Please review the following safety precautions carefully before putting the instrument into operation so as to avoid any personal injury or damage to the instrument and any product connected to it. To prevent potential hazards, please use the instrument only specified by this manual.

Use Proper Power Cord.

Only the power cord designed for the instrument and authorized for use within the local country could be used.

Ground the Instrument.

The instrument is grounded through the Protective Earth lead of the power cord. To avoid electric shock, it is essential to connect the earth terminal of the power cord to the Protective Earth terminal before connecting any inputs or outputs.

Connect the Probe Correctly.

If a probe is used, do not connect the ground lead to high voltage since it has isobaric electric potential as the ground.

Observe All Terminal Ratings.

To avoid fire or shock hazard, observe all ratings and markers on the instrument and check your manual for more information about ratings before connecting the instrument.

Use Proper Overvoltage Protection.

Make sure that no overvoltage (such as that caused by a thunderstorm) can reach the product, or else the operator might be exposed to the danger of electrical shock.

Do Not Operate Without Covers.

Do not operate the instrument with covers or panels removed.

Do Not Insert Anything Into the Holes of Fan.

Do not insert anything into the holes of the fan to avoid damaging the instrument.

Use Proper Fuse.

Please use the specified fuses.

Avoid Circuit or Wire Exposure.

Do not touch exposed junctions and components when the unit is powered.

Do Not Operate With Suspected Failures.

If you suspect damage occurs to the instrument, have it inspected by **RIGOL** authorized personnel before further operations. Any maintenance, adjustment or replacement especially to circuits or accessories must be performed by **RIGOL** authorized personnel.

Keep Well Ventilation.

Inadequate ventilation may cause an increase of instrument temperature which would cause damage to the instrument. So please keep the instrument well ventilated and inspect the intake and fan regularly.

Do Not Operate in Wet Conditions.

In order to avoid short circuiting to the interior of the device or electric shock, please do not operate the instrument in a humid environment.

Do Not Operate in an Explosive Atmosphere.

In order to avoid damage to the device or personal injuries, it is important to operate the device away from an explosive atmosphere.

Keep Product Surfaces Clean and Dry.

To avoid the influence of dust and/or moisture in the air, please keep the surface of the device clean and dry.

Electrostatic Prevention.

Operate the instrument in an electrostatic discharge protective environment to avoid damage induced by static discharges. Always ground both the internal and external conductors of cables to release static before making connections.

Proper Use of Battery.

If a battery is supplied, it must not be exposed to high temperature or in contact with fire. Keep it out of the reach of children. Improper change of battery (note: lithium battery) may cause explosion. Use **RIGOL** specified battery only.

Handling Safety.

Please handle with care during transportation to avoid damage to buttons, knob interfaces and other parts on the panels.

Do Not Provide Power for the Active Load.

In order to avoid the anti-irrigation current which leads to the power control loop out of control and damages the powered device, this power supply can only provide power for the pure load without the current output function.

Safety Terms and Symbols

Terms Used in this Manual. These terms may appear in this manual:



WARNING

Warning statements indicate conditions or practices that could result in injury or loss of life.



CAUTION

Caution statements indicate conditions or practices that could result in damage to this product or other property.

Terms Used on the Product. These terms may appear on the product:

DANGER It calls attention to an operation, if not correctly performed, could result in injury or hazard immediately.

WARNING It calls attention to an operation, if not correctly performed, could result in potential injury or hazard.

CAUTION It calls attention to an operation, if not correctly performed, could result in damage to the product or other devices connected to the product.

Symbols Used on the Product. These symbols may appear on the product:



Hazardous Voltage



Safety Warning



Protective Earth Terminal



Chassis Ground



Test Ground

Allgemeine Sicherheits Informationen

Überprüfen Sie die folgenden Sicherheitshinweise sorgfältig um Personenschäden oder Schäden am Gerät und an damit verbundenen weiteren Geräten zu vermeiden. Zur Vermeidung von Gefahren, nutzen Sie bitte das Gerät nur so, wie in diesem Handbuch angegeben.

Um Feuer oder Verletzungen zu vermeiden, verwenden Sie ein ordnungsgemäßes Netzkabel.

Verwenden Sie für dieses Gerät nur das für ihr Land zugelassene und genehmigte Netzkabel.

Erden des Gerätes.

Das Gerät ist durch den Schutzleiter im Netzkabel geerdet. Um Gefahren durch elektrischen Schlag zu vermeiden, ist es unerlässlich, die Erdung durchzuführen. Erst dann dürfen weitere Ein- oder Ausgänge verbunden werden.

Anschluss eines Tastkopfes.

Die Erdungsklemmen der Sonden sind auf dem gleichen Spannungspegel des Instruments geerdet. Schließen Sie die Erdungsklemmen an keine hohe Spannung an.

Beachten Sie alle Anschlüsse.

Zur Vermeidung von Feuer oder Stromschlag, beachten Sie alle Bemerkungen und Markierungen auf dem Instrument. Befolgen Sie die Bedienungsanleitung für weitere Informationen, bevor Sie weitere Anschlüsse an das Instrument legen.

Verwenden Sie einen geeigneten Überspannungsschutz.

Stellen Sie sicher, daß keinerlei Überspannung (wie z.B. durch Gewitter verursacht) das Gerät erreichen kann. Andernfalls besteht für den Anwender die Gefahr eines Stromschlages.

Nicht ohne Abdeckung einschalten.

Betreiben Sie das Gerät nicht mit entfernten Gehäuse-Abdeckungen.

Betreiben Sie das Gerät nicht geöffnet.

Der Betrieb mit offenen oder entfernten Gehäuseteilen ist nicht zulässig. Nichts in entsprechende Öffnungen stecken (Lüfter z.B.)

Passende Sicherung verwenden.

Setzen Sie nur die spezifikationsgemäßen Sicherungen ein.

Vermeiden Sie ungeschützte Verbindungen.

Berühren Sie keine unisolierten Verbindungen oder Baugruppen, während das Gerät in Betrieb ist.

Betreiben Sie das Gerät nicht im Fehlerfall.

Wenn Sie am Gerät einen Defekt vermuten, sorgen Sie dafür, bevor Sie das Gerät wieder betreiben, dass eine Untersuchung durch **RIGOL** autorisiertem Personal durchgeführt wird. Jedwede Wartung, Einstellarbeiten oder Austausch von Teilen am Gerät, sowie am Zubehör dürfen nur von **RIGOL** autorisiertem Personal durchgeführt werden.

Belüftung sicherstellen.

Unzureichende Belüftung kann zu Temperaturanstiegen und somit zu thermischen Schäden am Gerät führen. Stellen Sie deswegen die Belüftung sicher und kontrollieren regelmäßig Lüfter und Belüftungsöffnungen.

Nicht in feuchter Umgebung betreiben.

Zur Vermeidung von Kurzschluß im Geräteinneren und Stromschlag betreiben Sie das Gerät bitte niemals in feuchter Umgebung.

Nicht in explosiver Atmosphäre betreiben.

Zur Vermeidung von Personen- und Sachschäden ist es unumgänglich, das Gerät ausschließlich fernab jedweder explosiven Atmosphäre zu betreiben.

Geräteoberflächen sauber und trocken halten.

Um den Einfluß von Staub und Feuchtigkeit aus der Luft auszuschließen, halten Sie bitte die Geräteoberflächen sauber und trocken.

Schutz gegen elektrostatische Entladung (ESD).

Sorgen Sie für eine elektrostatisch geschützte Umgebung, um somit Schäden und Funktionsstörungen durch ESD zu vermeiden. Erden Sie vor dem Anschluß immer Innen- und Außenleiter der Verbindungsleitung, um statische Aufladung zu entladen.

Die richtige Verwendung des Akku.

Wenn eine Batterie verwendet wird, vermeiden Sie hohe Temperaturen bzw. Feuer ausgesetzt werden. Bewahren Sie es außerhalb der Reichweite von Kindern auf. Unsachgemäße Änderung der Batterie (Anmerkung: Lithium-Batterie) kann zu einer Explosion führen. Verwenden Sie nur von **RIGOL** angegebene Akkus.

Sicherer Transport.

Transportieren Sie das Gerät sorgfältig (Verpackung!), um Schäden an Bedienelementen, Anschlüssen und anderen Teilen zu vermeiden.

Vermeiden Sie das Einprägen von Strom und Spannung an den Testklemmen.

Das DP800 Power Supply kann hierdurch zerstört werden, keine aktive Last. Das DP800 kann nur Strom und Spannungen liefern.

Sicherheits Begriffe und Symbole

Begriffe in diesem Guide. Diese Begriffe können in diesem Handbuch auftauchen:



WARNING

Die Kennzeichnung WARNING beschreibt Gefahrenquellen die leibliche Schäden oder den Tod von Personen zur Folge haben können.



CAUTION

Die Kennzeichnung Caution (Vorsicht) beschreibt Gefahrenquellen die Schäden am Gerät hervorrufen können.

Begriffe auf dem Produkt. Diese Bedingungen können auf dem Produkt erscheinen:

- DANGER** weist auf eine Verletzung oder Gefährdung hin, die sofort geschehen kann.
- WARNING** weist auf eine Verletzung oder Gefährdung hin, die möglicherweise nicht sofort geschehen.
- CAUTION** weist auf eine Verletzung oder Gefährdung hin und bedeutet, dass eine mögliche Beschädigung des Instruments oder anderer Gegenstände auftreten kann.

Symbole auf dem Produkt. Diese Symbole können auf dem Produkt erscheinen:



**Gefährliche
Spannung**



**Sicherheits-
Hinweis**



Schutz-erde



Gehäusemasse



Erde

General Care and Cleaning

General Care

Do not store or leave the instrument where it may be exposed to direct sunlight for long periods of time.

Cleaning

Clean the instrument regularly according to its operating conditions. To clean the exterior surface, perform the following steps:

1. Disconnect the instrument from all power sources.
2. Clean the loose dust on the outside of the instrument with a lint-free cloth (with a mild detergent or water). When cleaning the LCD, take care to avoid scarifying it.



CAUTION

To avoid damage to the instrument, do not expose it to caustic liquids.



WARNING

To avoid short-circuit and personal injury resulting from moisture, make sure the instrument is completely dry before reconnecting it to power supply.

Environmental Considerations

The following symbol indicates that this product complies with the requirements in WEEE Directive 2002/96/EC.



Product End-of-Life Handling

The equipment may contain substances that could be harmful to the environment or human health. In order to avoid release of such substances into the environment and harm to human health, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately. Please contact your local authorities for disposal or recycling information.

Document Overview

This manual is used to guide users to quickly understand the front panel, rear panel, user interface and basic operating methods of DP800 series programmable linear DC power supply. You can download the newest version of this manual from **RIGOL** official website (www.rigol.com).

Format Conventions in this Manual

1. Button

The function key at the front panel is denoted by the format of "Button Name (Bold) + Text Box" in the manual, for example, **Utility** denotes the "Utility" key.

2. Menu

(1) The menu item can be denoted by the format of "Menu Word (Bold) + Character Shading", for example, **SysInfo** denotes the "SysInfo" menu item under **Utility**.

(2) The menu item can be denote by the screenshot of the menu, for example,



3. Operation Step

The next step of the operation is denoted by an arrow "→" in the manual. For example, **Utility** → **System** denotes pressing **Utility** at the front panel and then pressing **System**.

Content Conventions in this Manual

DP800 series programmable linear DC power supply includes the following models. Unless otherwise noted, this manual illustrates DP800 series and its basic operations by taking DP832 as an example.

Model	Number of Channels	Channel Output Voltage/Current
DP832	3	30V/3A, 30V/3A, 5V/3A
DP831	3	8V/5A, 30V/2A, -30V/2A
DP821	2	60V/1A, 8V/10A
DP811	1	Range1: 20V/10A; Range2: 40V/5A

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Quick Start

General Inspection

1. **Inspect the shipping container for damage**

Keep the damaged shipping container or cushioning material until the contents of the shipment have been checked for completeness and the instrument has passed both electrical and mechanical tests.

The consigner or carrier shall be liable for the damage to instrument resulting from shipment. **RIGOL** would not be responsible for free maintenance/rework or replacement of the unit.

2. **Inspect the instrument**

In case of any damage, or defect, or failure, notify your **RIGOL** sales representative.

3. **Check the accessories**

Please check the accessories according to the packing lists. If the accessories are incomplete or damaged, please contact your **RIGOL** sales representative.

Appearance and Dimensions

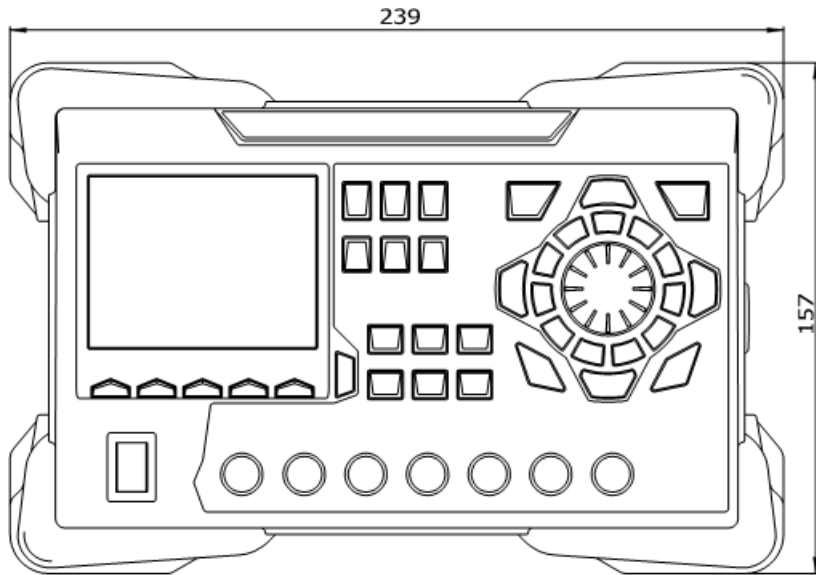


Figure 1 Front View

Unit: mm

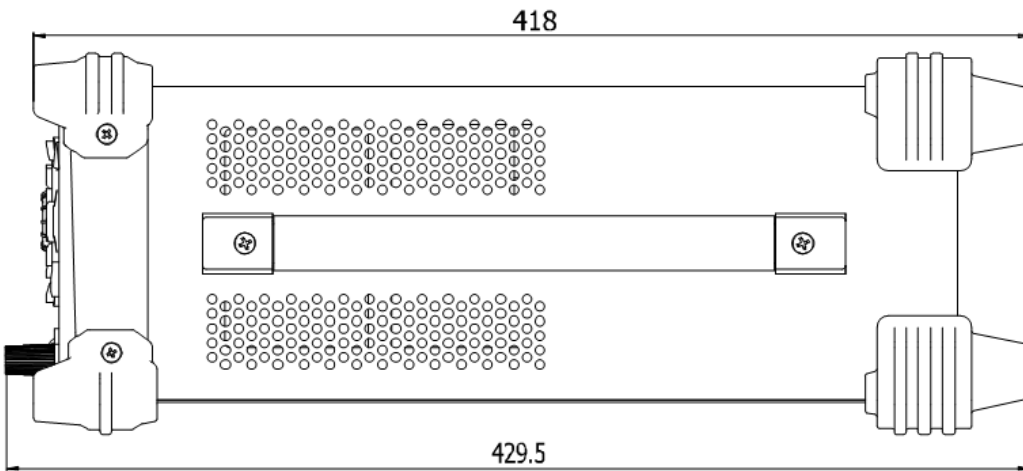


Figure 2 Side View

Unit: mm

Front Panel

This section introduces the front panel of DP800 series by taking DP832 (as shown in the figure below) as an example. The differences of different models are introduced separately.

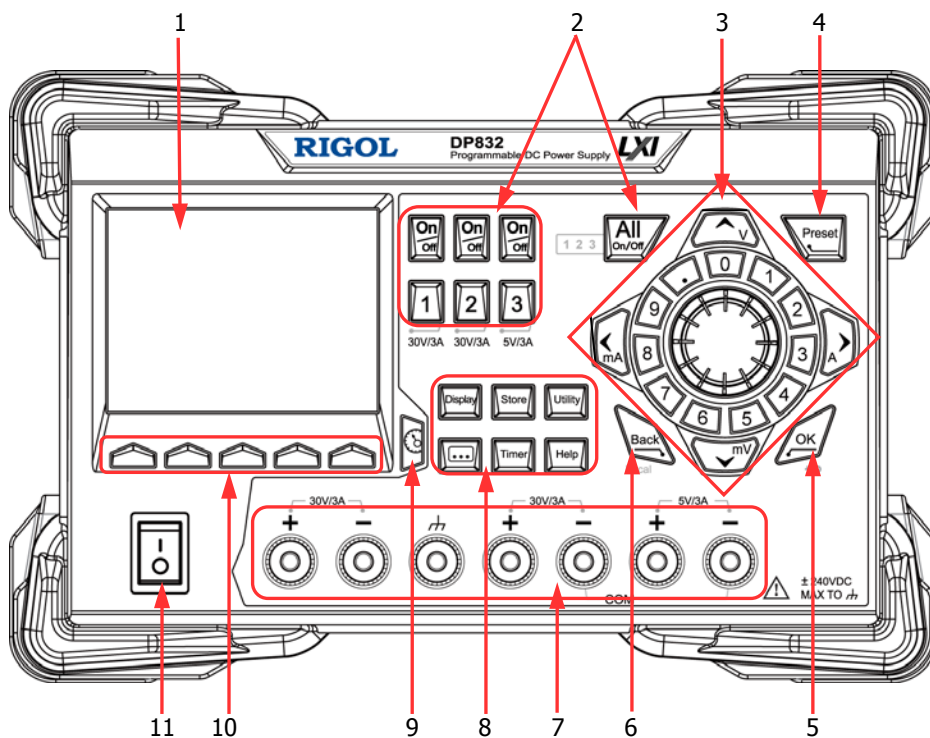


Figure 3 DP832 Front Panel

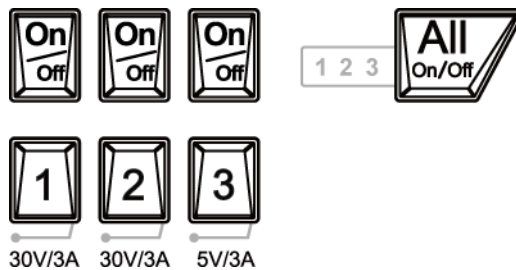
1. LCD

3.5 inches TFT display. It is used to display system parameter settings, system output state, menu options, prompt messages, etc.

2. Channel (Range) Selection and Output Switch

For the multi-channel model, the function of this part is channel selection and output switch. For the single-channel model, the function of this part is range selection and output switch.

Multi-channel models (take DP832 as an example):



Press this key to select CH1 as the current channel and you can set the parameters of this channel, such as voltage, current and overvoltage/overcurrent protection.



Press this key to select CH2 as the current channel and you can set the parameters of this channel, such as voltage, current and overvoltage/overcurrent protection.



Press this key to select CH3 as the current channel and you can set the parameters of this channel, such as voltage, current and overvoltage/overcurrent protection.

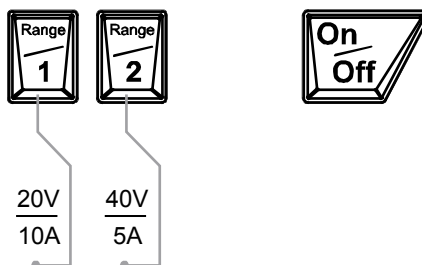


Press this key to enable or disable the output of the corresponding channel.



Press this key and the prompt message asking whether to enable the outputs of all the channels will be displayed. Press **OK** to enable the outputs of all the channels. Pressing this key again will disable the outputs of all the channels.

Single-channel model (DP811):



Press this key to select 20V/10A range as the current range and you can set the parameters of the channel, such as voltage, current and overvoltage/overcurrent protection.



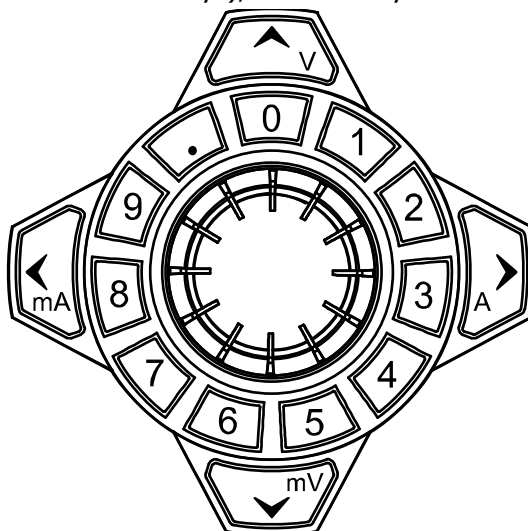
Press this key to select 40V/5A range as the current range and you can set the parameters of the channel, such as voltage, current and overvoltage/overcurrent protection.



Press this key to enable or disable the output of the channel.

3. Parameter Input Area

The parameter input area is as shown in the figure below. This area includes the direction keys (unit selection keys), numeric keyboard and knob.



- (1) Direction keys and unit selection keys
 Direction keys: used to move the cursor. When setting parameters, use the up/down direction key to increase or reduce the value at the cursor.

Unit selection keys: when using the numeric keyboard to input parameters, the keys are used to enter the voltage units (V and mV) or the current units (A and mA).

(2) Numeric Keyboard

Ring-type numeric keyboard: include numbers 0-9 and the decimal point. Press the corresponding key to input the number or decimal point.

(3) Knob

When setting parameters, rotate the knob to increase or reduce the value at the cursor.

When browsing the setting objects (timing parameters, delay parameters, filename input, etc), rotate the knob to quickly move the cursor.

4. **Preset**




Restore all the settings of the instrument to default values or recall the user-defined channel voltage/current configurations.


5. **OK**



Confirm the parameter setting.

Press and hold this key to lock the front panel keys; at this point,

the front panel keys (except the output on/off key  of each

channel and the power switch key ) are not available. When the keyboard lock password is disabled, press and hold this key again to unlock the front panel keys. When the keyboard lock password is enabled, you need to input the correct password (2012) to unlock the front panel keys.

6. **Back**



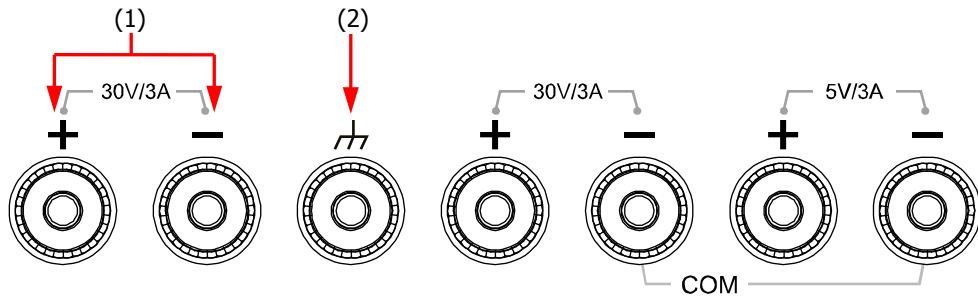
Delete the character currently before the cursor.

When the instrument is in remote mode, press this key to return to local mode.

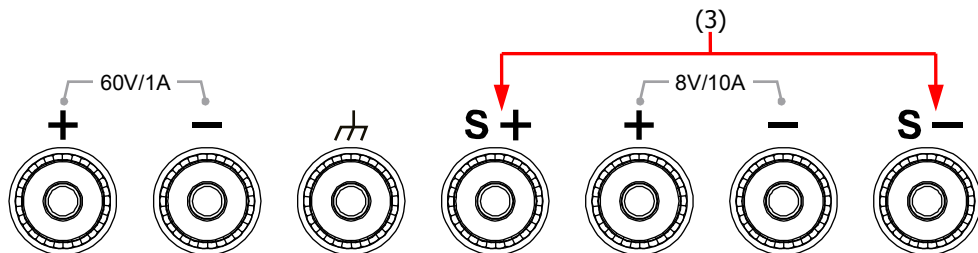
7. Output Terminals

The output terminals of different models of DP800 series are different.

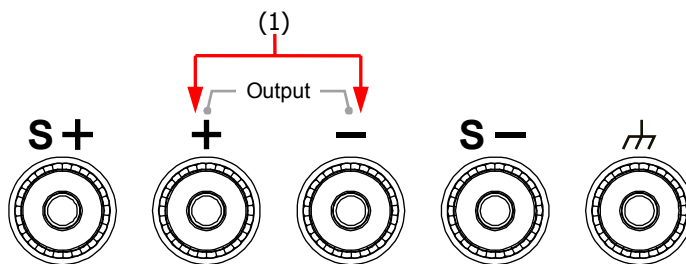
DP832:



DP821:

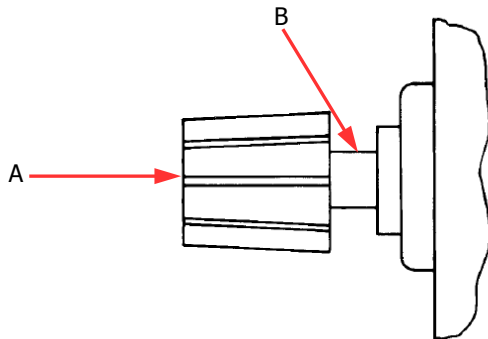


DP811:



- (1) Channel output terminals: used to output the voltage and current of the channel.
- (2) Ground terminal: this terminal is connected to the instrument chassis and ground wire (the ground terminal of the power cord) and is in grounded state.
- (3) Sense terminals: used to detect the actual voltage at the load terminal so as to compensate for the voltage drop caused by the load lead.

Connection methods of the output terminal:

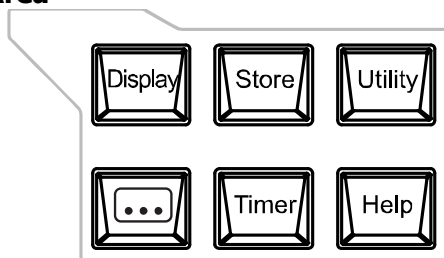



Method 1:
Connect the test lead to A of the output terminal.


Method 2:
Rotate the outer nut of the output terminal counterclockwise and connect the test lead to B of the output terminal; then, rotate the outer nut of the output terminal clockwise. This connection method can eliminate the error caused by the resistance of the output terminal.

Note: Connect the positive terminal of the test lead with the (+) terminal of the channel output and connect the negative terminal of the test lead with the (-) terminal of the channel output.

8. Function Menu Area



 Press this key to enter the display parameter setting interface. Users can set the brightness, contrast, RGB luminance, display mode and display theme. Besides, you can also define the start-up interface.

 Press this key to enter the file store and recall interface. You can save, read, delete, copy and paste files. The file types available for storage include state file, record file, timer file, delay file and bitmap file. The instrument supports internal and external storage and recall.



Press this key to enter the system utility function setting interface. Users can set the remote interface parameters, system parameters and print parameters. Besides, users can also calibrate the instrument, view system information, define the recall configuration of **Preset** and install options.



Press this key to enter the advanced function setting interface. Users can set the recorder, analyzer (option), monitor (option) and trigger (option) parameters.



Press this key to enter the timer and delayer interface. Users can set the timer and delayer parameters as well as enable and disable the timer and delayer functions.



Press this key to open the built-in help system and press the desired key to get the corresponding help information. For detailed introductions, refer to **"To Use the Built-in Help System"**.

9. Display Mode Switch Key



Switch between the current display mode and dial display mode.

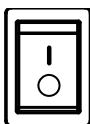
Besides, when the instrument is in a function interface (any interface under **Timer**, **...**, **Display**, **Store** and **Utility**), press this key to exit the function interface and return to the main interface.

10. Menu Keys



The menu keys correspond to the menus above them. Press any menu key to select the corresponding menu.

11. Power Switch Key



Turn on or off the instrument.

Rear Panel

This section introduces the rear panel of DP800 series by taking DP832 and DP811 (as shown in the figures below) as examples. The introduction of each part is as shown in Table 1.

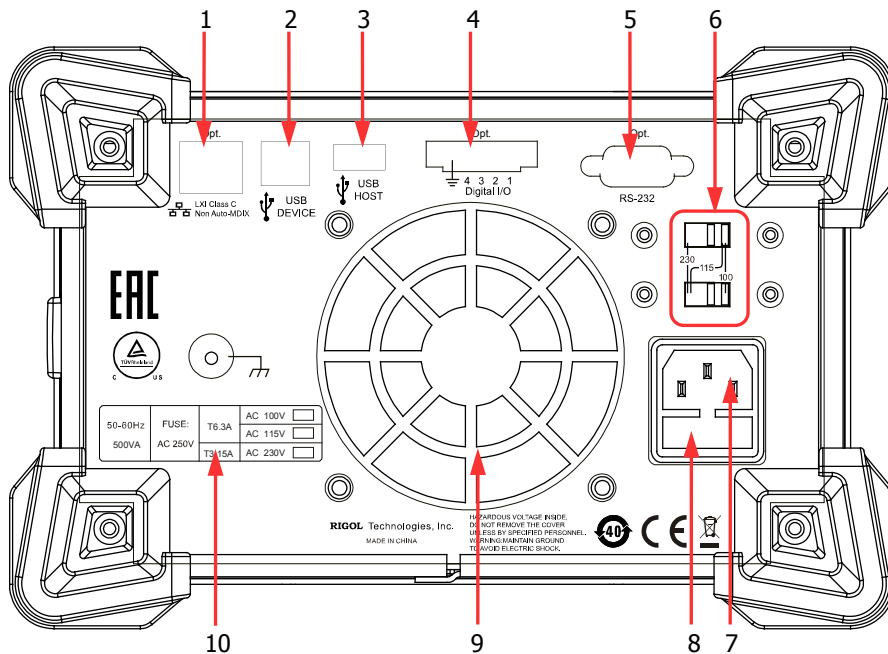


Figure 4 DP832 Rear Panel

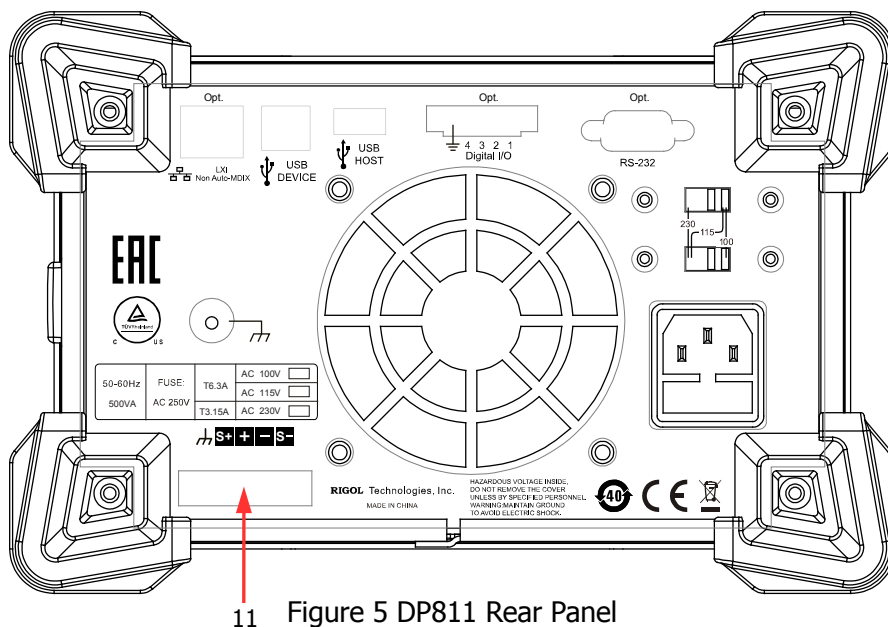


Figure 5 DP811 Rear Panel

Table 1 DP800 Rear Panel Explanation

No.	Name	Explanation
1	LAN Interface (option)	Connect to the local network via the RJ45 interface
2	USB DEVICE	Connect the instrument (as "slave device") to external USB device (such as, PC)
3	USB HOST	Connect the instrument (as "host device") to external USB device (such as, USB storage device); extend a GPIB interface for the power supply using USB-GPIB interface converter (option)
4	Digital I/O (option)	Digital I/O interface
5	RS232 Interface (option)	Serial communication interface
6	Voltage Selector	Select the specification of the input voltage (100, 115 or 230; please refer to Table 2)
7	Power Socket	AC power input interface
8	Fuse	The specification of the fuse is related to the instrument model and actual input voltage (please refer to the "Input Power Requirements" at the rear panel of the instrument or refer to Table 3).
9	Fan	
10	Input Power Requirement	Corresponding relations of the AC input power frequency, voltage and the specification of the fuse.
11	Output Interface	Only DP811 provides this interface. The function of this interface is the same as that of the " Output Terminals " at the front panel.

Note: The "Output Terminals" at the front panel and "Output Interface" at the rear panel cannot be used for output at the same time. You can only select one of them for output at each time (wherein, the output terminals at the front panel provide higher output accuracy).

To Connect to Power

DP800 series power supply supports various AC power supply inputs. The voltage selector setting at the rear panel differs when the input power connected is different, as shown in the table below.

Table 2 AC Input Power Specifications (including voltage selector settings)

AC Input Power	Voltage Selector Setting
100Vac±10%, 50Hz to 60Hz	100
115Vac±10%, 50Hz to 60Hz	115
230Vac±10% (250Vac maximum), 50Hz to 60Hz	230

Please connect the power following the steps below.

1. Check the input power

Make sure that the AC power to be connected to the instrument fulfills the requirements in Table 2.

2. Check the voltage selector at the rear panel

Make sure that the voltage selector setting (110, 115 or 230) at the rear panel of the instrument matches the actual input voltage (for the matching relations, refer to Table 2).

3. Check the fuse

When the instrument leaves factory, the specified fuse is installed. Please check whether the fuse matches the actual input voltage according to the "Input Power Requirements" at the rear panel of the instrument or Table 3.

4. Connect the AC power

Connect the instrument to AC power supply using the power cord provided in the accessories.



WARNING

To avoid electric shock, make sure that the instrument is correctly grounded.

Power-on Inspection

Press the power switch at the front panel and the instrument executes self-test. If the instrument passes the self-test, the welcome interface will be displayed; otherwise, the corresponding self-test failure information (including TopBoard, BottomBoard, Fan and Temperature) will be displayed.

Tip

When turn the instrument on again after turn it off, please make sure the time between the two operations are larger than 5s.

To Replace the Fuse

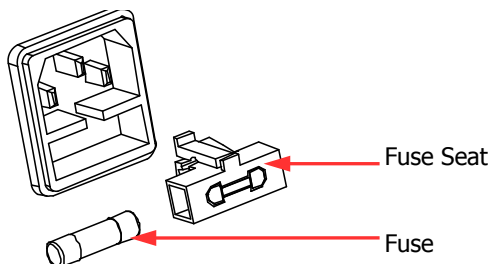
The fuse specification is related to the instrument model and actual input voltage, as shown in the table below. You can also refer to the "Input Power Requirements" at the rear panel of the instrument.

Table 3 Fuse Specifications

Input Voltage	Fuse Specification
DP832/DP811	
100Vac/115Vac	T6.3A
230Vac	T3.15A
DP831/DP821	
100Vac/115Vac	T5A
230Vac	T2.5A

To replace the fuse, follow the steps below.

1. Turn off the instrument and remove the power cord.
2. Insert a small straight screwdriver into the slot at the power socket and prize out the fuse seat gently.



3. If needed, adjust the power voltage selector manually to select the voltage scale

(please refer to Table 2) that matches the actual input voltage.

4. Take out the fuse and replace it with a specified one (please refer to the "Input Power Requirement" at the rear panel of the instrument or Table 3).
5. Re-insert the fuse seat into the power socket (pay attention to the direction).



WARNING

To avoid personal injuries, cut off the power supply before replacing the fuse; to avoid electric shock or fire, select the power supply specification that matches the actual input voltage and replace a fuse corresponding to this specification before connecting to power.

User Interface

DP800 series power supply provides three kinds of display modes (normal, waveform and dial). The default is normal. You can press **Display** → **Disp Mode** to select different display mode. This section introduces the user interface layout under the normal display mode (as shown in the figure below and Table 4 on the next page).

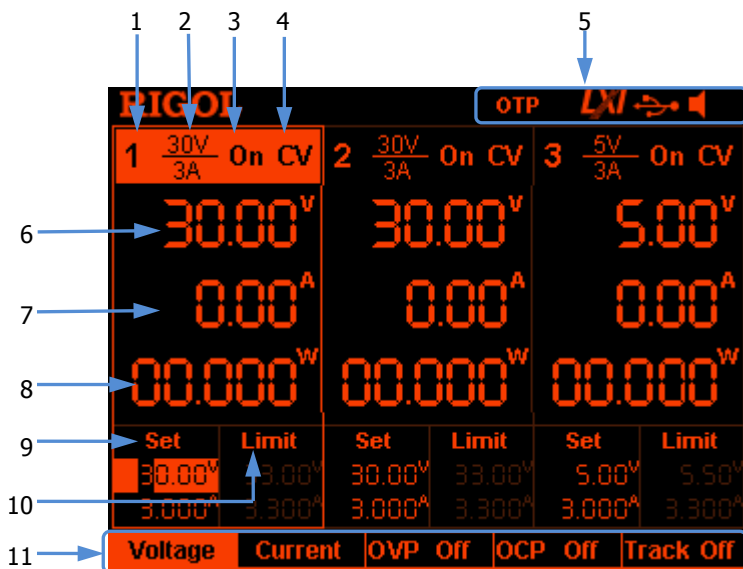










Figure 6 User Interface

Table 4 User Interface Explanation

No.	Explanation
1	Channel Number
2	Channel Output Voltage/Current
3	Channel Output State
4	Channel Output Mode
5	Status Bar, display the system status labels.  : over-temperature protection is enabled.  : the front panel is locked.  : the network is connected.  : the USB device is recognized.  : the beeper is enabled.  : the beeper is disabled.  : the instrument is working in remote mode.
6	Actual Output Voltage
7	Actual Output Current
8	Actual Output Power
9	Voltage and Current Setting Values
10	Overvoltage Protection and Overcurrent Protection Setting Values
11	Menu Bar


Tip

When the current display mode is "Normal" or "Waveform", press  at the front panel to quickly switch between the current display mode and dial display mode.

To Use the Built-in Help System

The built-in help system provides help information for any front panel key (except the parameter input area) and menu keys for users to quickly obtain the function prompts of the function keys or menus.

Obtain the help information of any key

Press **Help** to illuminate it and press the desired key or menu key to get the corresponding help information; at the same time, the backlight of **Help** goes off. You can press  to exit the help system.

Built-in help interface

Press **Help** to illuminate it and press **Help** again to open the built-in help interface. Use the up/down direction key or knob to select the desired help topic and press **View** to view the corresponding help information.

The help topics include:

1. View the last displayed message.
2. View error queue of the remote commands.
3. Get the help information of a key.
4. Storage management.
5. Abbreviations list.
6. Series-parallel Help.
7. Get technical support from **RIGOL**.

Troubleshooting

The commonly encountered failures and their solutions are listed below. When you encounter those problems, please solve them following the corresponding steps. If the problem remains still, please contact **RIGOL** and provide your device information (**Utility** → **SysInfo**).

1. The instrument does not start.

- (5) Check the power cord connection.
- (6) Check whether the power switch at the front panel is turned on.
- (7) Remove the power cord and check whether the voltage selector is at the proper scale and whether the fuse specification is correct and the fuse is in good condition. To replace the fuse, refer to “**To Replace the Fuse**”.
- (8) If the problem remains, please contact **RIGOL**.

2. The constant voltage output is abnormal.

- (1) Check whether the maximum output power of the scale selected fulfills the load requirement. If yes, turn to the next step.
- (2) Check whether the cable connecting the load and power supply is short-circuited and whether it is in good contact.
- (3) Check whether the load works normally.
- (4) Check whether the current setting value of this scale is proper; if it is too low, increase the current setting value properly.
- (5) If the problem remains, please contact **RIGOL**.

3. The constant current output is abnormal.

- (1) Check whether the maximum output power of the scale selected meets the requirement of the load. If yes, turn to the next step.
- (2) Check whether the cable connecting the load and power supply is short-circuited and whether it is in good contact.
- (3) Check whether the load works normally.
- (4) Check whether the voltage setting value of this scale is proper; if it is too low, increase the voltage setting value properly.
- (5) If the problem remains, please contact **RIGOL**.

4. The USB storage device cannot be recognized.

- (1) Check whether the USB storage device can work normally.
- (2) Make sure the USB storage device used is Flash storage type, as this instrument does not support hardware storage type USB storage device.
- (3) Restart the instrument and insert the USB storage device to check it.
- (4) If the USB storage device still cannot work normally, please contact **RIGOL**.