RIGOL

Selection Guide

DP800 Series Programmable Linear DC Power Supply

This manual is used to help users to quickly get familiar with the main features and key specifications of each model of DP800 series so as to select the desired model and options according to the actual need.

For the detailed specifications, please refer to *DP800 Data Sheet*; for an overview of the products, please refer to *DP800A Quick Guide* and *DP800 Quick Guide*.

RIGOL TECHNOLOGIES, INC.

DP800 Series Overview

DP800 series is high-performance programmable linear DC power supply. It is designed with clear user interface, superb performance specifications, various analysis functions and various communication interfaces. DP800 series can fulfill versatile test requirements.

Main Features

- Three-channel/dual-channel/single-channel models available, up to 200W total output power
- Low ripples and noise: <350μVrms/2mVpp
- Excellent load regulation rate and linear regulation rate
- Fast transient response time: <50μs
- Some channels are isolated
- Provide overvoltage/overcurrent/overtemperature protection function
- Independent control for each channel
- Support serial and parallel output functions
- Some channels support the track function to track the channel voltage setting value and output on/off status
- Provide the Sense function to automatically compensate for the voltage drop caused by the load lead in high current output
- Provide timing output and delay output functions
- Provide built-in recorder to sample and record the channel output according to the specified record period
- Provide analyzer to analyze the recorded files and provide the analysis results of the channel voltage, current and power
- Support monitor to monitor the output status of the instrument and the instrument will execute the corresponding operation according to the current setting when the specified monitor condition is met
- Provide trigger and support trigger input and trigger output
- Built-in V,A,W measurements and waveform display
- 3.5 inch TFT display
- Various interfaces: USB Host&Device, LAN, RS232, USB-GPIB (option), digital IO, rear panel output interface (for DP811A/DP811)

Applications

- R&D lab general purpose test
- Quality control and assessment
- Provide pure power for RF/MW circuits or components
- Provide power for automobile electronic circuit test
- Production automation test
- Device or circuit characteristic verification and troubleshooting
- Educational experiment

Selecting Procedures

You can select the desired model of power supply and options according to the actual need. The procedures are as follows.

1. Select the proper model

Three-channel models

Model/Order NO.		DP832A	DP832	DP831A	DP831
Channel Output		CH1: 0 to 30V/0 to 3A CH2: 0 to 30V/0 to 3A CH3: 0 to 5V/0 to 3A		CH1: 0 to 8V/0 to 5A CH2: 0 to 30V/0 to 2A CH3: 0 to -30V/0 to 2A	
Isolation between Channels		CH1||CH2,CH3		CH1||CH2,CH3	
Max. Total Power		195W		160W	
Ripples and Noise (20Hz to 20MHz)	Normal Mode Voltage	<350μVrms/2mVpp			
	Normal Mode Current	<2mArms			
Load Regulation Rate	Voltage	<0.01%+2mV			
	Current	<0.01%+250μA			
Linear Regulation Rate	Voltage	<0.01%+2mV			
	Current	<0.01%+250μA			
Programming Annual Accuracy (25℃±5℃)	Voltage[1]	0.05%+20mV/0.05%+20mV/0.1%+5mV		0.1%+5mV/0.05%+20mV/0.05%+20mV	
	Current[1]	0.2%+5mA/0.2%+5mA/0.2%+5mA		0.2%+10mA/0.2%+5mA/0.2%+5mA	
Readback Annual Accuracy (25℃±5℃)	Voltage[1]	0.05%+10mV/0.05%+10mV/0.1%+5mV		0.1%+5mV/0.05%+10mV/0.05%+10mV	
	Current[1]	0.15%+5mA/0.15%+5mA/0.15%+5mA		0.2%+10mA/0.1%+5mA/0.1%+5mA	
Programming Resolution	Voltage[1]	1mV/1mV/1mV	10mV/10mV/10mV	1mV/1mV/1mV	1mV/10mV/10mV
	Current[1]	1mA/1mA/1mA	1mA/1mA/1mA	0.3mA/0.1mA/0.1mA	1mA/1mA/1mA
Transient Response Time		Less than 50μs for output voltage to recover to within 15mV following a change in output current from full load to half load or vice versa.			

Note[1]: CH1/CH2/CH3.

Dual-channel models

Model/Order NO.		DP821A	DP821
Channel Output		CH1: 0 to 60V/0 to 1A CH2: 0 to 8V/0 to 10A	
Isolation between Channels		CH1||CH2	
Max. Total Power		140W	
Ripples and Noise (20Hz to 20MHz)	Normal Mode Voltage	<350μVrms/2mVpp	
	Normal Mode Current	<2mArms	
Load Regulation Rate	Voltage	<0.01%+2mV	
	Current	<0.01%+250μA	
Linear Regulation Rate	Voltage	<0.01%+2mV	
	Current	<0.01%+250μA	
Programming Annual Accuracy (25℃±5℃)	Voltage[2]	0.1%+25mV/0.05%+10mV	
	Current[2]	0.2%+10mA/0.2%+10mA	

Readback Annual Accuracy (25℃±5℃)	Voltage[2]	0.1%+25mV/0.05%+5mV	
	Current[2]	0.15%+10mA/0.15%+10mA	
Programming Resolution	Voltage[2]	1mV/1mV	10mV/10mV
	Current[2]	0.1mA/1mA	1mA/10mA
Transient Response Time		Less than 50μs for output voltage to recover to within 15mV following a change in output current from full load to half load or vice versa.	

Note[2]: CH1/CH2.

Single-channel models

Model/Order NO.		DP811A	DP811
Channel Output		Range1: 0 to 20V/0 to 10A Range2: 0 to 40V/0 to 5A	
Max. Total Power		200W	
Ripples and Noise (20Hz to 20MHz)	Normal Mode Voltage	<350μVrms/2mVpp	
	Normal Mode Current	<2mArms	
Load Regulation Rate	Voltage	<0.01%+2mV	
	Current	<0.01%+250μA	
Linear Regulation Rate	Voltage	<0.01%+2mV	
	Current	<0.01%+250μA	
Programming Annual Accuracy (25℃±5℃)	Voltage	0.05%+10mV	
	Current	0.1%+10mA	
Readback Annual Accuracy (25℃±5℃)	Voltage	0.05%+10mV	
	Current	0.1%+10mA	
Programming Resolution	Voltage	1mV	10mV
	Current	0.5mA	10mA
Transient Response Time		Less than 50μs for output voltage to recover to within 15mV following a change in output current from full load to half load or vice versa.	

2. Select and order the options

DP832A/DP831A/DP821A/DP811A

For these models, the high-resolution setting, trigger, monitor, analyzer as well as the RS232 and LAN communication functions are all standard functions. You can select and order the following option according to your need.

Option	Function Description	Order NO.
USB to GPIB Interface Converter	You can extend a GPIB interface via the USB HOST interface at the rear panel of the instrument using this module. Then, connect the instrument to the PC using a GPIB cable to realize the communication between the instrument and PC via the GPIB interface.	USB-GPIB

DP832/DP831/DP821/DP811

For these models, the high-resolution setting, trigger, monitor, analyzer as well as the RS232 and LAN communication functions are all optional functions. You can select and order the following options according to your need.

Note: To install the high-resolution option, digital I/O option, on-line monitor and analysis option as well as the RS232 and LAN communication interfaces option, you need to get the corresponding option license. For the acquisition method of the option license and the installation procedures of the options, refer to the corresponding specific manual (you can download the manual from **RIGOL** official website (www.rigol.com)).

Option	Function Description	Order NO.
High-resolution Option	Provide high-resolution setting. When DP832, DP831, DP821 and DP811 are installed with this option, their resolution specifications are the same with those of DP832A, DP831A, DP821A and DP811A respectively.	HIRES-DP800
Digital I/O Option	When this option is installed, you can use the trigger and the instrument supports trigger input and trigger output. Insert the Digital I/O interface connecting terminal into the Digital I/O interface at the rear panel of the instrument; at this point, the instrument provides 4 trigger input and output channels. Trigger input: the data cable of the Digital I/O interface can receive external trigger signals; the source under control (namely the output channel) will turn on/off the output or invert the output status when the preset trigger condition is met. Trigger output: the data cable of the Digital I/O interface outputs level or square signal when the output of the control source (namely the output channel) meets the preset trigger condition.	DIGITALIO-DP800
On-line Monitor and Analysis Option	After this option is installed, you can use the monitor and analyzer. Monitor: monitor the output status of the instrument. The instrument will execute the corresponding operation according to the current setting when the user-defined monitor condition is met. Analyzer: analyze the files recorded and provide the analysis results of the channel voltage, current and power (include various statistic parameters, such as the average, VAR and range).	AFK-DP800
RS232 and LAN Communication Interfaces Option	After this option is installed, you can use the RS232 or LAN interface to control the instrument remotely. RS232: connect the instrument to the PC using a RS232 cable via the RS232 interface at the rear panel of the instrument (namely the instrument can communicate with the PC via the RS232 interface). LAN: connect the instrument to the PC or the local network of the PC using a network cable via the LAN interface at the rear panel of the instrument (namely the instrument can communicate with the PC via the LAN interface).	INTERFACE-DP800
USB to GPIB Interface Converter	You can extend a GPIB interface via the USB HOST interface at the rear panel of the instrument using this module. Then, connect the instrument to the PC using a GPIB cable to realize the communication between the instrument and PC via the GPIB interface.	USB-GPIB

3. Select and order the rack mount kit

Option	Function Description	Order NO.
DP800 Series Rack Mount Kit (Single Instrument)	Install a single instrument into a standard 19 inch machine cabinet.	RM-1-DP800
DP800 Series Rack Mount Kit (Two Instruments)	Install two instruments into a standard 19 inch machine cabinet side by side.	RM-2-DP800

4. Select and order the safety plug

Option	Function Description	Order NO.
DP800 Series Red Safety Plug	Provide better insulation protection for users.	SPR-DP800
DP800 Series Black Safety Plug		SPB-DP800
DP800 Series Green Safety Plug		SPG-DP800

Note: For the detailed information of the optional accessories, please refer to the corresponding specific manual (you can download the manual from **RIGOL** official website (www.rigol.com)).

Ordering Information

	Description	Order NO.
Models	Programmable Linear DC Power Supply (Three-channel)	DP832A
	Programmable Linear DC Power Supply (Three-channel)	DP832
	Programmable Linear DC Power Supply (Three-channel)	DP831A
	Programmable Linear DC Power Supply (Three-channel)	DP831
	Programmable Linear DC Power Supply (Dual-channel)	DP821A
	Programmable Linear DC Power Supply (Dual-channel)	DP821
	Programmable Linear DC Power Supply (Single-channel)	DP811A
	Programmable Linear DC Power Supply (Single-channel)	DP811
Standard Accessories	Power Cord	--
	USB Cable	CB-USBA-USBB-FF-150
	Fuse 50T-032H 250V 3.15A (DP832A/DP832/DP811A/DP811) Fuse 50T-025H 250V 2.5A (DP831A/DP831/DP821A/DP821)	--
	Short-circuit Equipment (DP821A/DP821/DP811A/DP811)	--
	Quick Guide (Hard Copy)	--
	Digital I/O Interface Connecting Terminal	Terminal-Digital I/O-DP800
Optional Accessories	Provide high-resolution setting (for DP832/DP831/DP821/DP811; for the other models, this is a standard accessory)	HIRES-DP800
	Provide 4 trigger input and output channels (for DP832/DP831/DP821/DP811; for the other models, this is a standard accessory)	DIGITALIO-DP800
	Provide on-line monitor and analysis functions (for DP832/DP831/DP821/DP811; for the other models, this is a standard accessory)	AFK-DP800
	Provide RS232 and LAN communication interfaces (for DP832/DP831/DP821/DP811; for the other models, this is a standard accessory)	INTERFACE-DP800
	USB to GPIB Interface Converter	USB-GPIB
	DP800 Series Rack Mount Kit (Single Instrument)	RM-1-DP800
	DP800 Series Rack Mount Kit (Two Instruments)	RM-2-DP800
	DP800 Series Red Safety Plug	SPR-DP800
	DP800 Series Black Safety Plug	SPB-DP800
	DP800 Series Green Safety Plug	SPG-DP800