RIGOL

DP800 Series

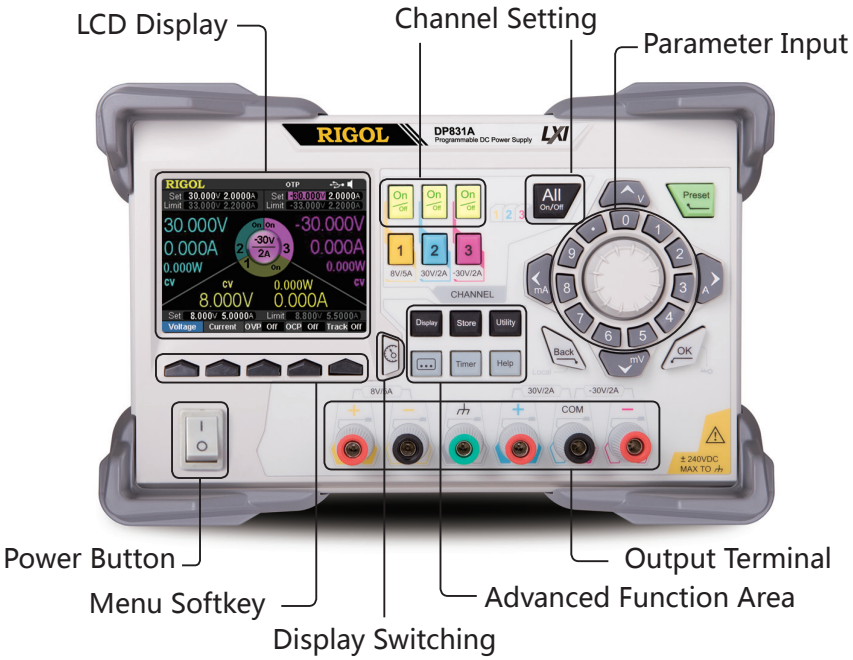
Programmable Linear DC Power Supply

- DP832A/DP832: 3 outputs, 30V/3A || 30V/3A, 5V/3A, total power up to 195W
- DP831A/DP831: 3 outputs, 8V/5A || 30V/2A, -30V/2A, total power up to 160W
- DP821A/DP821: 2 outputs, 60V/1A || 8V/10A, with remote Sense, total power up to 140W
- DP811A/DP811: 1 output, 20V/10A (Low Range), 40V/5A (High Range), with remote Sense, total power up to 200W
- Low ripple and noise: <350μVrms/2mVpp
- Excellent linear regulation rate and load regulation rate
- Fast transient response time: <50μs
- Some channels are isolated
- Standard OVP/OCP/OTP protection functions
- Standard timing output
- Built-in V,A,W measurements and waveform display
- Independent control for each channel
- Support more advanced functions: timer and delay output(standard), recorder/analyzer/monitor/trigger(standard in models with "A" and optional in other models)
- 3.5 inch TFT display
- Various interfaces: USB Host&Device(standard), USB-GPIB (optional), LAN/RS232/Digital IO(standard in models with "A" and optional in other models)

Design Features

► Wide-screen Display, User-friendly Interface, Easy Operation

Observable Clean Stable Reliable Affordable



► Complete Connectivity

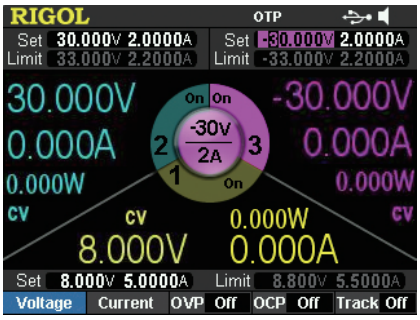
Product Dimensions: Width × Height × Depth = 239mm x 157mm x 418mm

Weight: 9.75kg (DP831A)

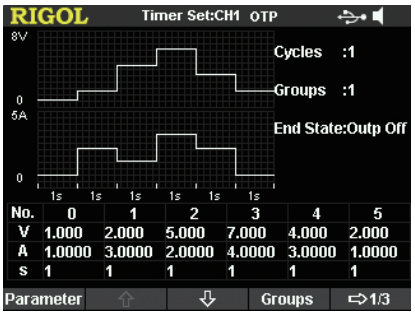
► Typical Applications

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

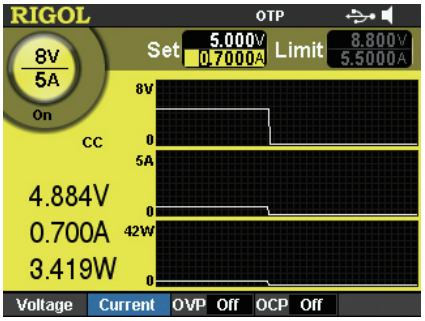
► Intuitive User Interface



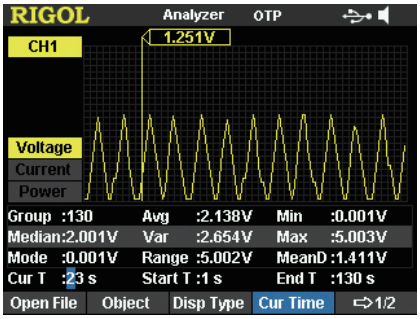
DP831A GUI



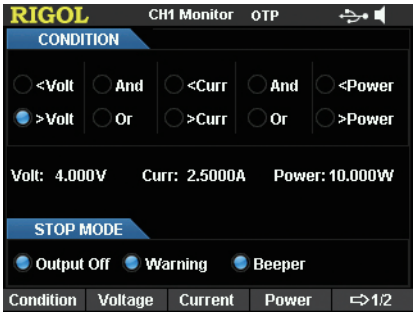
Timing Output Setting



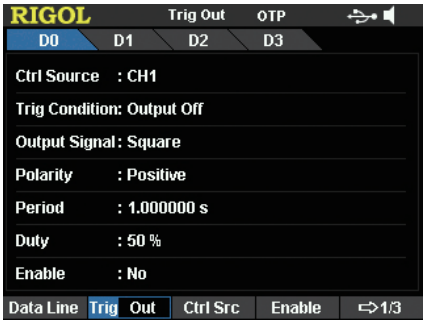
V/A/W Waveform Display



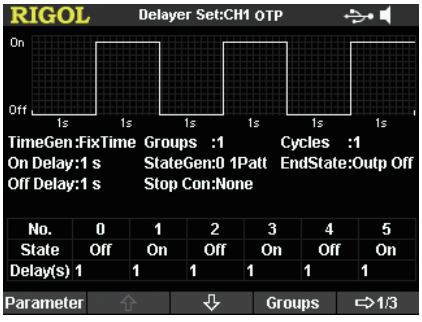
Output Analysis



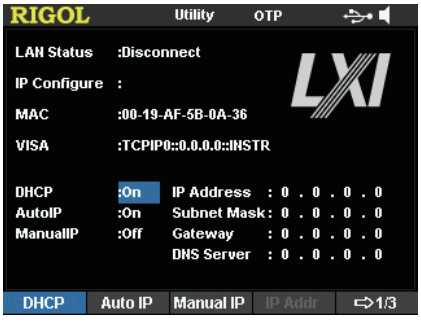
Output Monitor Setting



Trigger In/Out



Output On/Off Delay



LAN Setting

► Specifications

All the specifications are guaranteed when the instrument has been working for more than 30 minutes under the specified operation temperature. Unless otherwise noted, the specifications are applicable to all the channels of the specified model.

DP832A/DP831A/DP821A/DP811A Specifications

Model	Number of Channels
DP832A	3
DP831A	3
DP821A	2
DP811A	1 (two output ranges)

DC Output (0℃ to 40℃)			
Channel (Range)		Voltage/Current	OVP/OCP
DP832A	CH1 CH2 CH3	0 to 30V/0 to 3A 0 to 30V/0 to 3A 0 to 5V/0 to 3A	1mV to 33V/1mA to 3.3A 1mV to 33V/1mA to 3.3A 1mV to 5.5V/1mA to 3.3A
DP831A	CH1 CH2 CH3	0 to 8V/0 to 5A 0 to 30V/0 to 2A 0 to -30V/0 to 2A	1mV to 8.8V/0.1mA to 5.5A 1mV to 33V/0.1mA to 2.2A -1mV to -33V/0.1mA to 2.2A
DP821A	CH1 CH2	0 to 60V/0 to 1A 0 to 8V/0 to 10A	1mV to 66V/0.1mA to 1.1A 1mV to 8.8V/1mA to 11A
DP811A	Range1 Range2	0 to 20V/0 to 10A 0 to 40V/0 to 5A	1mV to 22V/0.1mA to 11A 1mV to 44V/0.1mA to 5.5A

Load Regulation Rate ± (Output Percentage + Offset)	
Voltage	<0.01% + 2mV
Current	<0.01% + 250μA

Linear Regulation Rate ± (Output Percentage + Offset)	
Voltage	<0.01% + 2mV
Current	<0.01% + 250μA

Ripples and Noise (20Hz to 20MHz)	
Normal Mode Voltage	<350μVrms/2mVpp
Normal Mode Current	<2mArms

Annual Accuracy [1] (25℃ ± 5℃) ± (Output Percentage + Offset)					
Channel		Programming		Readback	
		Voltage	Current	Voltage	Current
DP832A	CH1 CH2 CH3	0.05% + 20mV 0.05% + 20mV 0.1% + 5mV	0.2% + 5mA 0.2% + 5mA 0.2% + 5mA	0.05% + 10mV 0.05% + 10mV 0.1% + 5mV	0.15% + 5mA 0.15% + 5mA 0.15% + 5mA
DP831A	CH1 CH2 CH3	0.1% + 5mV 0.05% + 20mV 0.05% + 20mV	0.2% + 10mA 0.2% + 5mA 0.2% + 5mA	0.1% + 5mV 0.05% + 10mV 0.05% + 10mV	0.2% + 10mA 0.1% + 5mA 0.1% + 5mA
DP821A	CH1 CH2	0.1% + 25mV 0.05% + 10mV	0.2% + 10mA 0.2% + 10mA	0.1% + 25mV 0.05% + 5mV	0.15% + 10mA 0.15% + 10mA
DP811A	CH1	0.05% + 10mV	0.1% + 10mA	0.05% + 10mV	0.1% + 10mA

Resolution							
Channel		Programming		Readback		Display	
		Voltage	Current	Voltage	Current	Voltage	Current
DP832A	CH1 CH2 CH3	1mV 1mV 1mV	1mA 1mA 1mA	0.1mV 0.1mV 0.1mV	0.1mA 0.1mA 0.1mA	1mV 1mV 1mV	1mA 1mA 1mA
DP831A	CH1 CH2 CH3	1mV 1mV 1mV	0.3mA 0.1mA 0.1mA	0.1mV 0.1mV 0.1mV	0.1mA 0.1mA 0.1mA	1mV 1mV 1mV	1mA 1mA 1mA
DP821A	CH1 CH2	1mV 1mV	0.1mA 1mA	1mV 1mV	0.1mA 1mA	1mV 1mV	0.1mA 1mA
DP811A	CH1	1mV	0.5mA	0.1mV	0.1mA	1mV	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.

Command Processing Time [2]
<118ms

OVP/OCP	
Accuracy ± (Output Percentage + Offset)	0.5% + 0.5V/0.5% + 0.5A

Voltage Programming Control Speed (1% within the total variation range)					
Channel		Rise		Fall	
		Full Load	No Load	Full Load	No Load
DP832A	CH1 CH2 CH3	<50ms <50ms <15ms	<33ms <38ms <14ms	<46ms <46ms <24ms	<400ms <400ms <100ms
DP831A	CH1 CH2 CH3	<18ms <33ms <35ms	<17ms <36ms <42ms	<20ms <44ms <45ms	<200ms <400ms <400ms
DP821A	CH1 CH2	<110ms <15ms	<30ms <15ms	<110ms <20ms	<800ms <400ms
DP811A	CH1	<45ms	<42ms	<51ms	<1089ms

Temperature Coefficient per ℃ (Output Percentage + Offset)			
Channel		Voltage	Current
DP832A	CH1 CH2 CH3	0.01% + 5mV 0.01% + 5mV 0.01% + 2mV	0.01% + 2mA 0.01% + 2mA 0.01% + 2mA
DP831A	CH1 CH2 CH3	0.01% + 2mV 0.01% + 2mV 0.01% + 2mV	0.02% + 3mA 0.02% + 3mA 0.02% + 3mA
DP821A	CH1 CH2	0.01% + 3mV 0.01% + 3mV	0.02% + 3mA 0.02% + 3mA
DP811A	CH1	0.01% + 3mV	0.02% + 3mA

Stability [3] ± (Output Percentage + Offset)			
Channel		Voltage	Current
DP832A	CH1 CH2 CH3	0.02% + 2mV 0.02% + 2mV 0.01% + 1mV	0.05% + 2mA 0.05% + 2mA 0.05% + 2mA
DP831A	CH1 CH2 CH3	0.03% + 1mV 0.02% + 2mV 0.02% + 2mV	0.1% + 3mA 0.05% + 1mA 0.05% + 1mA
DP821A	CH1 CH2	0.02% + 1mV 0.02% + 1mV	0.1% + 1mA 0.1% + 1mA
DP811A	CH1	0.02% + 1mV	0.1% + 1mA

Mechanical	
Dimensions	239mm(W) x 157mm(H) x 418mm(D)
Weight	DP832A: 10.5kg DP831A: 9.75kg DP821A: 10.0kg DP811A: 10.3kg
Power	
AC Input (50Hz to 60Hz)	100Vac ± 10%, 115Vac ± 10%, 230Vac ± 10% (maximum 250Vac）
Maximum Input Power	DP832A: 521VA DP831A: 416VA DP821A: 450VA DP811A: 503VA

I/O	
USB DEVICE	1
USB HOST	1
LAN	1
RS232	1
Digital IO	1
USB-GPIB	1 (Option, extend a GPIB interface using the USB-GPIB interface converter)
Rear Output Interface	1 for DP811A

Environment	
Cooling Method	Fan Cooling
Working Temperature	0℃ to 40℃
Storage Temperature	-40℃ to 70℃
Humidity	5% to 80% relative humidity
Altitude	Below 1500m

Note[1]: The accuracy parameters are acquired via calibration under 25℃ after 1-hour warm-up.
Note[2]: The maximum time required for the output to change accordingly after receiving the APPLy and SOURce commands.
Note[3]: The variation of the output within 8 hours after 30-minute warm-up when the load circuit and environment temperature are constant.

DP832/DP831/DP821/DP811 Specifications

Model	Number of Channels
DP832	3
DP831	3
DP821	2
DP811	1 (two output ranges)

DC Output (0℃ to 40℃)			
Channel (Range)		Voltage/Current	OVP/OCP
DP832	CH1 CH2 CH3	0 to 30V/0 to 3A 0 to 30V/0 to 3A 0 to 5V/0 to 3A	10mV to 33V/1mA to 3.3A 10mV to 33V/1mA to 3.3A 10mV to 5.5V/1mA to 3.3A
DP831	CH1 CH2 CH3	0 to 8V/0 to 5A 0 to 30V/0 to 2A 0 to -30V/0 to 2A	10mV to 8.8V/1mA to 5.5A 10mV to 33V/1mA to 2.2A -10mV to -33V/1mA to 2.2A
DP821	CH1 CH2	0 to 60V/0 to 1A 0 to 8V/0 to 10A	10mV to 66V/10mA to 1.1A 10mV to 8.8V/10mA to 11A
DP811	Range1 Range2	0 to 20V/0 to 10A 0 to 40V/0 to 5A	10mV to 22V/10mA to 11A 10mV to 44V/10mA to 5.5A

Load Regulation Rate ± (Output Percentage + Offset)	
Voltage	<0.01% + 2mV
Current	<0.01% + 250μA

Linear Regulation Rate ± (Output Percentage + Offset)	
Voltage	<0.01% + 2mV
Current	<0.01% + 250μA

Ripples and Noise (20Hz to 20MHz)	
Normal Mode Voltage	<350μVrms/2mVpp
Normal Mode Current	<2mArms

Annual Accuracy [1] (25℃ ± 5℃) ± (Output Percentage + Offset)					
Channel		Programming		Readback	
		Voltage	Current	Voltage	Current
DP832	CH1 CH2 CH3	0.05% + 20mV 0.05% + 20mV 0.1% + 5mV	0.2% + 5mA 0.2% + 5mA 0.2% + 5mA	0.05% + 10mV 0.05% + 10mV 0.1% + 5mV	0.15% + 5mA 0.15% + 5mA 0.15% + 5mA
DP831	CH1 CH2 CH3	0.1% + 5mV 0.05% + 20mV 0.05% + 20mV	0.2% + 10mA 0.2% + 5mA 0.2% + 5mA	0.1% + 5mV 0.05% + 10mV 0.05% + 10mV	0.2% + 10mA 0.1% + 5mA 0.1% + 5mA
DP821	CH1 CH2	0.1% + 25mV 0.05% + 10mV	0.2% + 10mA 0.2% + 10mA	0.1% + 25mV 0.05% + 5mV	0.15% + 10mA 0.15% + 10mA
DP811	CH1	0.05% + 10mV	0.1% + 10mA	0.05% + 10mV	0.1% + 10mA

Resolution

Channel			Programming		Readback		Display	
			Voltage	Current	Voltage	Current	Voltage	Current
DP832	Standard	CH1 CH2 CH3	10mV 10mV 10mV	1mA 1mA 1mA	10mV 10mV 10mV	1mA 1mA 1mA	10mV 10mV 10mV	10mA 10mA 10mA
	With the high-resolution option	CH1 CH2 CH3	1mV 1mV 1mV	1mA 1mA 1mA	0.1mV 0.1mV 0.1mV	0.1mA 0.1mA 0.1mA	1mV 1mV 1mV	1mA 1mA 1mA
DP831	Standard	CH1 CH2 CH3	1mV 10mV 10mV	1mA 1mA 1mA	1mV 1mV 1mV	1mA 1mA 1mA	10mV 10mV 10mV	10mA 10mA 10mA
	With the high-resolution option	CH1 CH2 CH3	1mV 1mV 1mV	0.3mA 0.1mA 0.1mA	0.1mV 0.1mV 0.1mV	0.1mA 0.1mA 0.1mA	1mV 1mV 1mV	1mA 1mA 1mA
DP821	Standard	CH1 CH2	10mV 10mV	1mA 10mA	10mV 10mV	1mA 10mA	10mV 10mV	1mA 10mA
	With the high-resolution option	CH1 CH2	1mV 1mV	0.1mA 1mA	1mV 1mV	0.1mA 1mA	1mV 1mV	0.1mA 1mA
DP811	Standard	CH1	10mV	10mA	1mV	1mA	10mV	10mA
	With the high-resolution option	CH1	1mV	0.5mA	0.1mV	0.1mA	1mV	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.

Command Processing Time [2]

<118ms

OVP/OCP

Accuracy ± (Output Percentage + Offset)	0.5% + 0.5V/0.5% + 0.5A

Voltage Programming Control Speed (1% within the total variation range)

Channel		Rise		Fall	
		Full Load	No Load	Full Load	No Load
DP832	CH1 CH2 CH3	<50ms <50ms <15ms	<33ms <38ms <14ms	<46ms <46ms <24ms	<400ms <400ms <100ms
DP831	CH1 CH2 CH3	<18ms <33ms <35ms	<17ms <36ms <42ms	<20ms <44ms <45ms	<200ms <400ms <400ms
DP821	CH1 CH2	<110ms <15ms	<30ms <15ms	<110ms <20ms	<800ms <400ms
DP811	CH1	<45ms	<42ms	<51ms	<1089ms

Temperature Coefficient per ℃ (Output Percentage + Offset)

Channel		Voltage	Current
DP832	CH1 CH2 CH3	0.01% + 5mV 0.01% + 5mV 0.01% + 2mV	0.01% + 2mA 0.01% + 2mA 0.01% + 2mA
DP831	CH1 CH2 CH3	0.01% + 2mV 0.01% + 2mV 0.01% + 2mV	0.02% + 3mA 0.02% + 3mA 0.02% + 3mA
DP821	CH1 CH2	0.01% + 3mV 0.01% + 3mV	0.02% + 3mA 0.02% + 3mA
DP811	CH1	0.01% + 3mV	0.02% + 3mA

Stability [3] ± (Output Percentage + Offset)			
Channel		Voltage	Current
DP832	CH1 CH2 CH3	0.02% + 2mV 0.02% + 2mV 0.01% + 1mV	0.05% + 2mA 0.05% + 2mA 0.05% + 2mA
DP831	CH1 CH2 CH3	0.03% + 1mV 0.02% + 2mV 0.02% + 2mV	0.1% + 3mA 0.05% + 1mA 0.05% + 1mA
DP821	CH1 CH2	0.02% + 1mV 0.02% + 1mV	0.1% + 1mA 0.1% + 1mA
DP811	CH1	0.02% + 1mV	0.1% + 1mA

Mechanical	
Dimensions	239mm(W) x 157mm(H) x 418mm(D)
Weight	DP832: 10.5kg DP831: 9.75kg DP821: 10.0kg DP811: 10.3kg

Power	
AC Input (50Hz-60Hz)	100Vac ± 10%, 115Vac ± 10%, 230Vac ± 10% (maximum 250Vac)
Maximum Power	DP832: 521VA DP831: 416VA DP821: 450VA DP811: 503VA

I/O	
USB DEVICE	1
USB HOST	1
LAN	1 (Option)
RS232	1 (Option)
Digital IO	1 (Option)
USB-GPIB	1 (Option, extend a GPIB interface using the USB-GPIB interface converter)
Rear Output Interface	1 for DP811

Environment	
Cooling Method	Fan Cooling
Working Temperature	0℃ to 40℃
Storage Temperature	-40℃ to 70℃
Humidity	5% to 80% relative humidity
Altitude	Below 1500m

Note[1]: The accuracy parameters are acquired via calibration under 25℃ after 1-hour warm-up.
Note[2]: The maximum time required for the output to change accordingly after receiving the APPLy and SOURce commands.
Note[3]: The variation of the output within 8 hours after 30-minute warm-up when the load circuit and environment temperature are constant.

► 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
	Resource CD (including the User's Guide, etc.)	--
	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

Warranty

Three–year warranty, excluding accessories.

RIGOL

HEADQUARTER

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