



DP800 Series Programmable Linear DC Power Supply

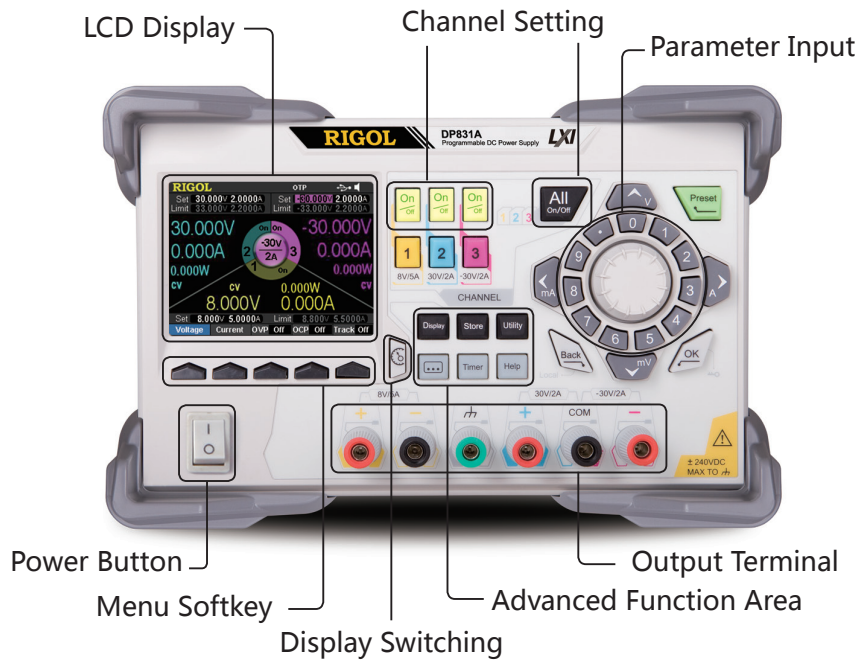
- DP832A/DP832: 3 outputs, 30V/3A || 30V/3A, 5V/3A, total power up to 195W
- DP831A/DP831: 3 outputs, 8V/5A || 30V/2A, -30V/2A, total power up to 160W
- DP821A/DP821: 2 outputs, 60V/1A || 8V/10A, with remote Sense, total power up to 140W
- DP811A/DP811: 1 output, 20V/10A (Low Range), 40V/5A (High Range), with remote Sense, total power up to 200W
- Low ripple and noise: <math><350\mu\text{Vrms}/2\text{mVpp}</math>
- Excellent linear regulation rate and load regulation rate
- Fast transient response time: <math><50\mu\text{s}</math>
- Some channels are isolated
- Standard OVP/OCV/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)



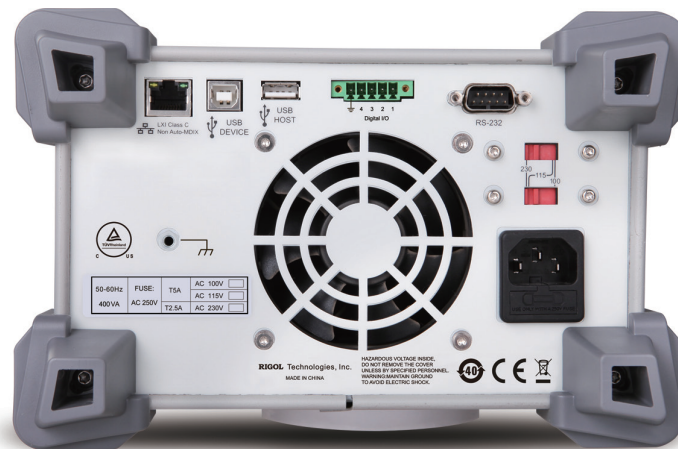
Design Features

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

Observable Clean Stable Reliable Affordable



► Complete Connectivity

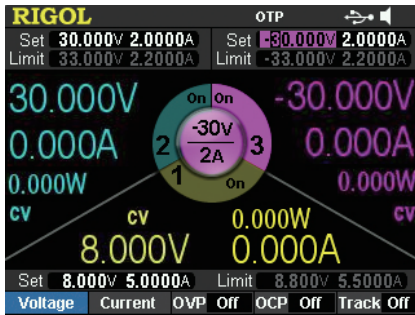


Product Dimensions: Width × Height × Depth = 239mm x 157mm x 418mm
Weight: 9.75kg (DP831A)

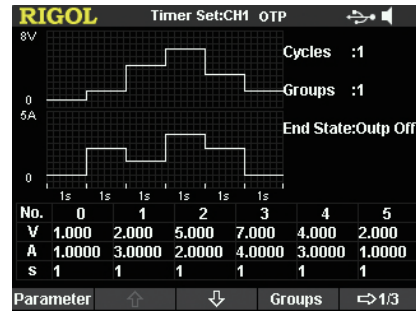
► Typical Applications

- 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

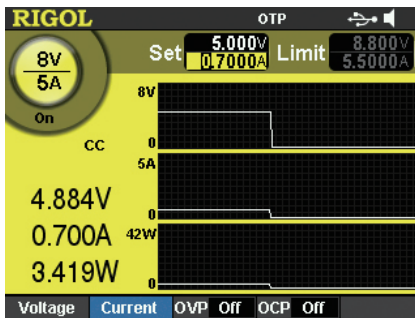
► Intuitive User Interface



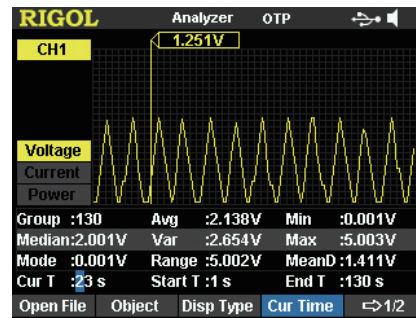
DP831A GUI



Timing Output Setting



V/A/W Waveform Display



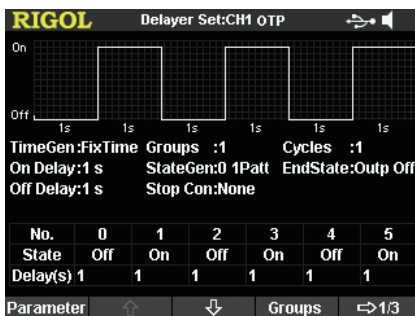
Output Analysis



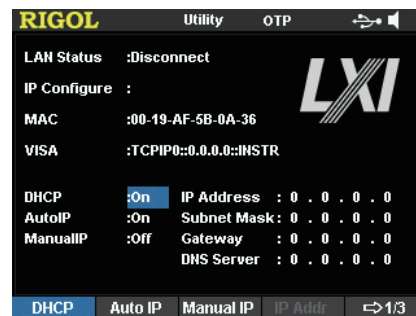
Output Monitor Setting



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°C to 40°C) | | | |
|--------------------------|--------|-------------------|----------------------------|
| Channel (Range) | | Voltage/Current | OVP/OCV |
| DP832A | CH1 | 0 to 30V/0 to 3A | 1mV to 33V/1mA to 3.3A |
| | CH2 | 0 to 30V/0 to 3A | 1mV to 33V/1mA to 3.3A |
| | CH3 | 0 to 5V/0 to 3A | 1mV to 5.5V/1mA to 3.3A |
| DP831A | CH1 | 0 to 8V/0 to 5A | 1mV to 8.8V/0.1mA to 5.5A |
| | CH2 | 0 to 30V/0 to 2A | 1mV to 33V/0.1mA to 2.2A |
| | CH3 | 0 to -30V/0 to 2A | -1mV to -33V/0.1mA to 2.2A |
| DP821A | CH1 | 0 to 60V/0 to 1A | 1mV to 66V/0.1mA to 1.1A |
| | CH2 | 0 to 8V/0 to 10A | 1mV to 8.8V/1mA to 11A |
| DP811A | Range1 | 0 to 20V/0 to 10A | 1mV to 22V/0.1mA to 11A |
| | Range2 | 0 to 40V/0 to 5A | 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°C ± 5°C) ± (Output Percentage + Offset) | | | | | |
|---|-----|--------------|-------------|--------------|--------------|
| Channel | | Programming | | Readback | |
| | | Voltage | Current | Voltage | Current |
| DP832A | CH1 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.15% + 5mA |
| | CH2 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.15% + 5mA |
| | CH3 | 0.1% + 5mV | 0.2% + 5mA | 0.1% + 5mV | 0.15% + 5mA |
| DP831A | CH1 | 0.1% + 5mV | 0.2% + 10mA | 0.1% + 5mV | 0.2% + 10mA |
| | CH2 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.1% + 5mA |
| | CH3 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.1% + 5mA |
| DP821A | CH1 | 0.1% + 25mV | 0.2% + 10mA | 0.1% + 25mV | 0.15% + 10mA |
| | CH2 | 0.05% + 10mV | 0.2% + 10mA | 0.05% + 5mV | 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 | 1mV | 1mA | 0.1mV | 0.1mA | 1mV | 1mA |
| | CH2 | 1mV | 1mA | 0.1mV | 0.1mA | 1mV | 1mA |
| | CH3 | 1mV | 1mA | 0.1mV | 0.1mA | 1mV | 1mA |
| DP831A | CH1 | 1mV | 0.3mA | 0.1mV | 0.1mA | 1mV | 1mA |
| | CH2 | 1mV | 0.1mA | 0.1mV | 0.1mA | 1mV | 1mA |
| | CH3 | 1mV | 0.1mA | 0.1mV | 0.1mA | 1mV | 1mA |
| DP821A | CH1 | 1mV | 0.1mA | 1mV | 0.1mA | 1mV | 0.1mA |
| | CH2 | 1mV | 1mA | 1mV | 1mA | 1mV | 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 | <50ms | <33ms | <46ms | <400ms |
| | CH2 | <50ms | <38ms | <46ms | <400ms |
| | CH3 | <15ms | <14ms | <24ms | <100ms |
| DP831A | CH1 | <18ms | <17ms | <20ms | <200ms |
| | CH2 | <33ms | <36ms | <44ms | <400ms |
| | CH3 | <35ms | <42ms | <45ms | <400ms |
| DP821A | CH1 | <110ms | <30ms | <110ms | <800ms |
| | CH2 | <15ms | <15ms | <20ms | <400ms |
| DP811A | CH1 | <45ms | <42ms | <51ms | <1089ms |

Temperature Coefficient per °C (Output Percentage + Offset)

| Channel | | Voltage | Current |
|---------|-----|-------------|-------------|
| DP832A | CH1 | 0.01% + 5mV | 0.01% + 2mA |
| | CH2 | 0.01% + 5mV | 0.01% + 2mA |
| | CH3 | 0.01% + 2mV | 0.01% + 2mA |
| DP831A | CH1 | 0.01% + 2mV | 0.02% + 3mA |
| | CH2 | 0.01% + 2mV | 0.02% + 3mA |
| | CH3 | 0.01% + 2mV | 0.02% + 3mA |
| DP821A | CH1 | 0.01% + 3mV | 0.02% + 3mA |
| | CH2 | 0.01% + 3mV | 0.02% + 3mA |
| DP811A | CH1 | 0.01% + 3mV | 0.02% + 3mA |

| Stability ^[3] ± (Output Percentage + Offset) | | | |
|---|-----|-------------|-------------|
| Channel | | Voltage | Current |
| DP832A | CH1 | 0.02% + 2mV | 0.05% + 2mA |
| | CH2 | 0.02% + 2mV | 0.05% + 2mA |
| | CH3 | 0.01% + 1mV | 0.05% + 2mA |
| DP831A | CH1 | 0.03% + 1mV | 0.1% + 3mA |
| | CH2 | 0.02% + 2mV | 0.05% + 1mA |
| | CH3 | 0.02% + 2mV | 0.05% + 1mA |
| DP821A | CH1 | 0.02% + 1mV | 0.1% + 1mA |
| | CH2 | 0.02% + 1mV | 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°C to 40°C |
| Storage Temperature | -40°C to 70°C |
| Humidity | 5% to 80% relative humidity |
| Altitude | Below 1500m |

Note^[1]: The accuracy parameters are acquired via calibration under 25°C 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°C to 40°C) | | | |
|-------------------------|--------|-------------------|---------------------------|
| Channel (Range) | | Voltage/Current | OVP/OCP |
| DP832 | CH1 | 0 to 30V/0 to 3A | 10mV to 33V/1mA to 3.3A |
| | CH2 | 0 to 30V/0 to 3A | 10mV to 33V/1mA to 3.3A |
| | CH3 | 0 to 5V/0 to 3A | 10mV to 5.5V/0 to 3.3A |
| DP831 | CH1 | 0 to 8V/0 to 5A | 10mV to 8.8V/1mA to 5.5A |
| | CH2 | 0 to 30V/0 to 2A | 10mV to 33V/1mA to 2.2A |
| | CH3 | 0 to -30V/0 to 2A | -10mV to -33V/1mA to 2.2A |
| DP821 | CH1 | 0 to 60V/0 to 1A | 10mV to 66V/10mA to 1.1A |
| | CH2 | 0 to 8V/0 to 10A | 10mV to 8.8V/10mA to 11A |
| DP811 | Range1 | 0 to 20V/0 to 10A | 10mV to 22V/10mA to 11A |
| | Range2 | 0 to 40V/0 to 5A | 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°C ± 5°C) ± (Output Percentage + Offset) | | | | | |
|--|-----|--------------|-------------|--------------|--------------|
| Channel | | Programming | | Readback | |
| | | Voltage | Current | Voltage | Current |
| DP832 | CH1 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.15% + 5mA |
| | CH2 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.15% + 5mA |
| | CH3 | 0.1% + 5mV | 0.2% + 5mA | 0.1% + 5mV | 0.15% + 5mA |
| DP831 | CH1 | 0.1% + 5mV | 0.2% + 10mA | 0.1% + 5mV | 0.2% + 10mA |
| | CH2 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.1% + 5mA |
| | CH3 | 0.05% + 20mV | 0.2% + 5mA | 0.05% + 10mV | 0.1% + 5mA |
| DP821 | CH1 | 0.1% + 25mV | 0.2% + 10mA | 0.1% + 25mV | 0.15% + 10mA |
| | CH2 | 0.05% + 10mV | 0.2% + 10mA | 0.05% + 5mV | 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 | 10mV | 1mA | 10mV | 1mA | 10mV | 10mA |
| | | CH2 | 10mV | 1mA | 10mV | 1mA | 10mV | 10mA |
| CH3 | | 10mV | 1mA | 10mV | 1mA | 10mV | 10mA | |
| With the high-resolution option | CH1 | 1mV | 1mA | 0.1mV | 0.1mA | 1mV | 1mA | |
| | CH2 | 1mV | 1mA | 0.1mV | 0.1mA | 1mV | 1mA | |
| | CH3 | 1mV | 1mA | 0.1mV | 0.1mA | 1mV | 1mA | |
| DP831 | Standard | CH1 | 1mV | 1mA | 1mV | 1mA | 10mV | 10mA |
| | | CH2 | 10mV | 1mA | 1mV | 1mA | 10mV | 10mA |
| CH3 | | 10mV | 1mA | 1mV | 1mA | 10mV | 10mA | |
| With the high-resolution option | CH1 | 1mV | 0.3mA | 0.1mV | 0.1mA | 1mV | 1mA | |
| | CH2 | 1mV | 0.1mA | 0.1mV | 0.1mA | 1mV | 1mA | |
| | CH3 | 1mV | 0.1mA | 0.1mV | 0.1mA | 1mV | 1mA | |
| DP821 | Standard | CH1 | 10mV | 1mA | 10mV | 1mA | 10mV | 1mA |
| | | CH2 | 10mV | 10mA | 10mV | 10mA | 10mV | 10mA |
| With the high-resolution option | CH1 | 1mV | 0.1mA | 1mV | 0.1mA | 1mV | 0.1mA | |
| | CH2 | 1mV | 1mA | 1mV | 1mA | 1mV | 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 | <50ms | <33ms | <46ms | <400ms |
| | CH2 | <50ms | <38ms | <46ms | <400ms |
| | CH3 | <15ms | <14ms | <24ms | <100ms |
| DP831 | CH1 | <18ms | <17ms | <20ms | <200ms |
| | CH2 | <33ms | <36ms | <44ms | <400ms |
| | CH3 | <35ms | <42ms | <45ms | <400ms |
| DP821 | CH1 | <110ms | <30ms | <110ms | <800ms |
| | CH2 | <15ms | <15ms | <20ms | <400ms |
| DP811 | CH1 | <45ms | <42ms | <51ms | <1089ms |

Temperature Coefficient per °C (Output Percentage + Offset)

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

| Stability ^[3] ± (Output Percentage + Offset) | | | |
|---|-----|-------------|-------------|
| Channel | | Voltage | Current |
| DP832 | CH1 | 0.02% + 2mV | 0.05% + 2mA |
| | CH2 | 0.02% + 2mV | 0.05% + 2mA |
| | CH3 | 0.01% + 1mV | 0.05% + 2mA |
| DP831 | CH1 | 0.03% + 1mV | 0.1% + 3mA |
| | CH2 | 0.02% + 2mV | 0.05% + 1mA |
| | CH3 | 0.02% + 2mV | 0.05% + 1mA |
| DP821 | CH1 | 0.02% + 1mV | 0.1% + 1mA |
| | CH2 | 0.02% + 1mV | 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°C to 40°C |
| Storage Temperature | -40°C to 70°C |
| Humidity | 5% to 80% relative humidity |
| Altitude | Below 1500m |

Note^[1]: The accuracy parameters are acquired via calibration under 25°C 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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