

Chapter 5 Specifications

All the specifications are guaranteed when the instrument has been working for more than 30 minutes under the specified operation temperature.

Note: Unless otherwise noted, the specifications are applicable to all the channels of the specified model.

| DC Output (0°C to 40°C) | | | |
|-------------------------|--------|-------------------------------|----------------------------|
| Channel (Range) | | Voltage/Current (Rated value) | OVP/OCP (Maximum Range) |
| 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 |
| 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 |
| 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 \pm (Output Percentage+Offset) | |
|---|--------------------------|
| Voltage | $<0.01\%+2\text{mV}$ |
| Current | $<0.01\%+250\mu\text{A}$ |

| Linear Regulation Rate \pm (Output Percentage+Offset) | |
|---|--------------------------|
| Voltage | $<0.01\%+2\text{mV}$ |
| Current | $<0.01\%+250\mu\text{A}$ |

| Ripples and Noise (20Hz to 20MHz) | |
|-----------------------------------|-----------------------------------|
| Normal Mode Voltage | $<350\mu\text{Vrms}/2\text{mVpp}$ |
| Normal Mode Current | $<2\text{mArms}$ |

| Annual Accuracy ^[1] (25°C±5°C)±(Output Percentage+Offset) | | | | | |
|--|-----|-------------|-----------|------------|------------|
| Channel | | Programming | | Readback | |
| | | Voltage | Current | Voltage | Current |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| DP821A | CH1 | 10mV | 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/OC

| | |
|--------------------------------------|---------------------|
| 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 |
| DP831A | CH1 | <18ms | <17ms | <20ms | <200ms |
| | CH2 | <33ms | <36ms | <44ms | <400ms |
| | CH3 | <35ms | <42ms | <45ms | <400ms |
| DP832A | CH1 | <50ms | <33ms | <46ms | <400ms |
| | CH2 | <50ms | <38ms | <46ms | <400ms |
| | CH3 | <15ms | <14ms | <24ms | <100ms |
| DP821A | CH1 | <92ms | <30ms | <90ms | <486ms |
| | CH2 | <11ms | <15ms | <17ms | <154ms |
| DP811A | CH1 | <45ms | <42ms | <51ms | <1089ms |

| Temperature Coefficient per °C (Output Percentage+Offset) | | | |
|---|-----|-----------|-----------|
| Channel | | Voltage | Current |
| DP831A | CH1 | 0.01%+2mV | 0.02%+3mA |
| | CH2 | 0.01%+2mV | 0.02%+3mA |
| | CH3 | 0.01%+2mV | 0.02%+3mA |
| DP832A | CH1 | 0.01%+5mV | 0.01%+2mA |
| | CH2 | 0.01%+5mV | 0.01%+2mA |
| | CH3 | 0.01%+2mV | 0.01%+2mA |
| 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 |
| DP831A | CH1 | 0.03%+1mV | 0.1%+3mA |
| | CH2 | 0.02%+2mV | 0.05%+1mA |
| | CH3 | 0.02%+2mV | 0.05%+1mA |
| DP832A | CH1 | 0.02%+2mV | 0.05%+2mA |
| | CH2 | 0.02%+2mV | 0.05%+2mA |
| | CH3 | 0.01%+1mV | 0.05%+2mA |
| 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 | DP831A: 9.75kg DP832A: 10.5kg DP821A: 10.0kg DP811A: 10.3kg |

| Power | |
|----------------------|---|
| AC Input (50Hz-60Hz) | 100Vac \pm 10%, 115Vac \pm 10%, 230Vac \pm 10% (maximum 250Vac) |
| Maximum Input Power | DP831A: 416VA DP832A: 521VA 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.