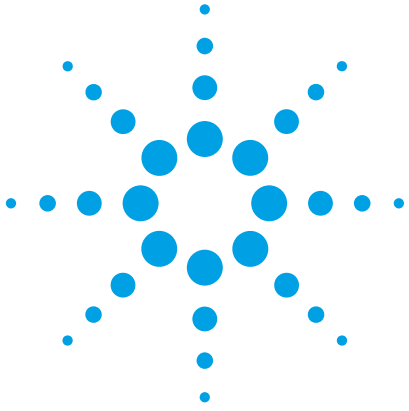




# Agilent N5700 Series System DC Power Supplies

Models: N5741A-49A, N5750A-52A, N5761A-69A, N5770A-72A

## Data Sheet

- 24 models: 750 W and 1500 W output power
- Up to 600 V and up to 180 A
- Small high density 1 U package
- Built-in voltage and current measurement
- Full protection from over-voltage and over-current
- 85-265 Vac universal AC input
- Command compatibility for Sorensen DLM and Xantrex XFR DC supplies
- LAN, USB, and GPIB interfaces standard
- Fully compliant to LXI Class C specification **LXI**<sup>®</sup>

### Family of Affordable Basic System DC Power Supplies

The Agilent N5700 Series system DC power supplies give you just the right performance — at just the right price — in a compact (1 U) package. This family of affordable 750 W and 1500 W single-output programmable DC power supplies consists of 24 models for simple DC power applications. They provide stable output power, built-in voltage and current measurement, and output voltage and current from 6 V to 600 V and 1.3 A to 180 A.



These economical supplies offer many system-ready features like multiple standard I/O interfaces to simplify and accelerate test-system development for R&D, design validation, and manufacturing engineers in the aerospace/defense, automotive, component and communications industries.

### Small, high-density package saves you rack space

The N5700 provides up to 1500 W in a small space-saving 1 U-high, 19-inch-wide package. Its air vents are in the front, side and rear (not on the top or bottom), so you can stack other instruments directly above or below it to save valuable rack space.



## Easy front-panel operation

You can quickly and easily operate the power supply with its rotary knobs and buttons. Using the front-panel controls, you can make coarse or fine adjustments of output voltage and current, protection settings, and set power-on states (last setting memory or factory default setting). The output voltage and current are displayed simultaneously, and LED indicators show power supply status and operating modes. You can lock the front panel controls to protect against accidental power-supply parameter changes.

## Extensive device protection

To safeguard your device from damage, the N5700 Series power supplies provide over-temperature, over-current and over-voltage protection (OVP) to shut down the power supply output when a fault condition occurs. They also offer an under-voltage limit (UVL) that prevents adjustment of the output voltage below a certain limit. The combination of UVL and OVP capabilities lets you create a protection window for sensitive load circuitry.

## Simplify system connections

The N5700 Series power supplies come standard with GPIB, Ethernet/LAN, and USB 2.0 interfaces giving you the flexibility to use your I/O interface of choice today and in the future. The N5700 is fully compliant with the LXI Class C specification.



Figure 1. Front-panel control knobs and buttons make it easy to use N5700 power supplies.



Figure 2. Built-in Ethernet, USB 2.0, and GPIB interfaces enable easy system connections.

## Remote access and control

The built-in Web server provides remote access and control of the instrument via a standard browser such as Microsoft® Internet Explorer. Using the Web browser, you can set up, monitor and operate the N5700 remotely.

## Easy system integration and configuration

To simplify system development, the N5700 comes standard with IVI-COM drivers. The N5700 supports the easy-to-use SCPI (Standard Commands for Programmable Instruments).

## Command compatibility

The N5700 includes a compatibility command set for the Xantrex XFR series power supplies, the Sorensen DLM series power supplies, and the Agilent 603x series power supplies. This simplifies system integration when converting to the N5700. For a comparison of these products, see application notes:

- *Side-by-side comparison: Agilent N5700 Series System DC Source and Sorensen DLM DC Power Supply, AN 1502-1, 5989-1628EN*
- *Side-by-side comparison: Agilent N5700 Series System DC Source and Xantrex XFR AN 1502-2, 5989-1630EN*

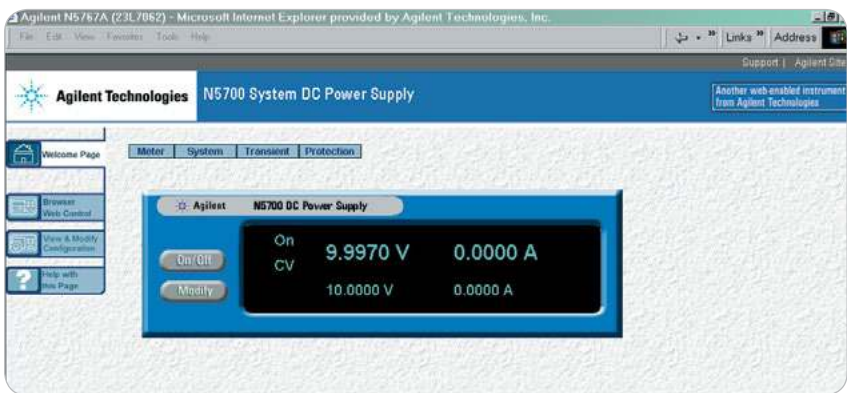


Figure 3. N5700 series web graphical user interface for remote access and control of the power supply.

## Flexible configuration: connect multiple units in parallel and series

Should you need greater output power, the N5700 series power supplies give you the flexibility to connect in parallel up to four similarly rated units for greater output current and connect two similarly rated units in series for greater output voltage (see output terminal isolation information).

## Analog programming and monitoring

The output voltage and current can be programmed from zero to full scale by either an analog voltage 0 to 5 V or 0 to 10 V or by resistances of 0 to 5 k $\Omega$  or 0 to 10 k $\Omega$ .

## Universal AC input

All N5700 models have universal AC input so they can be automatically operated from any AC mains input voltage worldwide. They can be operated from line voltages of 85 – 265 Vac, 47 to 63 Hz, with no switch to set or fuses to change when you switch from one voltage standard to another. They also provide power factor correction.

## Rack mounting

The rack mount ears and handles are provided standard with every unit. In addition the N5740A rack mount slide kit makes it easy to integrate an N5700 into a test rack by providing all the necessary hardware to rack mount an N5700 series power supply in only 1 U of rack space.

## Performance specifications

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0 to 40°C.

|                                                                                                   |                     | N5741A                                                                                                                                 | N5742A   | N5743A  | N5744A  | N5745A | N5746A |
|---------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------|--------|--------|
| DC output ratings <sup>1</sup>                                                                    | Voltage             | 6 V                                                                                                                                    | 8 V      | 12.5 V  | 20 V    | 30 V   | 40 V   |
|                                                                                                   | Current             | 100 A                                                                                                                                  | 90 A     | 60 A    | 38 A    | 25 A   | 19 A   |
|                                                                                                   | Power               | 600 W                                                                                                                                  | 720 W    | 750 W   | 760 W   | 750 W  | 760 W  |
| Output ripple and noise                                                                           | CV p-p <sup>2</sup> | 60 mV                                                                                                                                  | 60 mV    | 60 mV   | 60 mV   | 60 mV  | 60 mV  |
|                                                                                                   | CV rms <sup>3</sup> | 8 mV                                                                                                                                   | 8 mV     | 8 mV    | 8 mV    | 8 mV   | 8 mV   |
| Load effect<br>(change from 10% to 90%)                                                           | Voltage             | 2.6 mV                                                                                                                                 | 2.8 mV   | 3.25 mV | 4 mV    | 5 mV   | 6 mV   |
|                                                                                                   | Current             | 25 mA                                                                                                                                  | 23 mA    | 17 mA   | 12.6 mA | 10 mA  | 8.8 mA |
| Source effect<br>(change from 85-132 VAC input<br>or 170-265 VAC input)                           | Voltage             | 2.6 mV                                                                                                                                 | 2.8 mV   | 3.25 mV | 4 mV    | 5 mV   | 6 mV   |
|                                                                                                   | Current             | 12 mA                                                                                                                                  | 11 mA    | 8 mA    | 5.8 mA  | 4.5 mA | 3.9 mA |
| Programming accuracy <sup>1</sup>                                                                 | Voltage             | 0.05%+ 3 mV                                                                                                                            | 4 mV     | 6.25 mV | 10 mV   | 15 mV  | 20 mV  |
|                                                                                                   | Current             | 0.1%+ 100 mA                                                                                                                           | 90 mA    | 60 mA   | 38 mA   | 25 mA  | 19 mA  |
| Measurement accuracy                                                                              | Voltage             | 0.1%+ 6 mV                                                                                                                             | 8 mV     | 12.5 mV | 20 mV   | 30 mV  | 40 mV  |
|                                                                                                   | Current             | 0.1%+ 300 mA                                                                                                                           | 270 mA   | 180 mA  | 114 mA  | 75 mA  | 57 mA  |
| Load transient recovery time <sup>4</sup>                                                         | Time                | ≤1.5 ms                                                                                                                                | ≤1.5 ms  | ≤1.5 ms | ≤1 ms   | ≤1 ms  | ≤1 ms  |
| Supplemental Characteristics                                                                      |                     | Supplemental characteristics are not warranted but are descriptions of typical performance determined either by design or type testing |          |         |         |        |        |
| Output response time<br>(settle to within ±1.0% of the<br>rated output, with a resistive<br>load) | Up, full load       | 0.08 s                                                                                                                                 | 0.08 s   | 0.08 s  | 0.08 s  | 0.08 s | 0.08 s |
|                                                                                                   | Down, full load     | 0.05 s                                                                                                                                 | 0.05 s   | 0.05 s  | 0.05 s  | 0.08 s | 0.08 s |
|                                                                                                   | Down, no load       | 0.5 s                                                                                                                                  | 0.6 s    | 0.7 s   | 0.8 s   | 0.9 s  | 1.0 s  |
| Command response time <sup>5</sup>                                                                |                     | 55 ms                                                                                                                                  |          |         |         |        |        |
| Data readback transfer time <sup>6</sup>                                                          |                     | 3 ms                                                                                                                                   |          |         |         |        |        |
| Remote sense compensation                                                                         | Volts/load lead     | 1 V                                                                                                                                    | 1 V      | 1 V     | 1 V     | 1.5 V  | 2 V    |
| Over-voltage protection                                                                           | Range               | 0.5–7.5 V                                                                                                                              | 0.5–10 V | 1–15 V  | 1–24 V  | 2–36 V | 2–44 V |
|                                                                                                   | Accuracy            | 0.06 V                                                                                                                                 | 0.08 V   | 0.125 V | 0.20 V  | 0.30 V | 0.40 V |
| Output ripple and noise <sup>7</sup>                                                              | CC rms              | 200 mA                                                                                                                                 | 180 mA   | 120 mA  | 76 mA   | 63 mA  | 48 mA  |
| Programming resolution<br>measurement resolution                                                  | Voltage             | 0.72 mV                                                                                                                                | 0.96 mV  | 1.5 mV  | 2.4 mV  | 3.6 mV | 4.8 mV |
|                                                                                                   | Current             | 12 mA                                                                                                                                  | 10.8 mA  | 7.2 mA  | 4.56 mA | 3 mA   | 2.3 mA |
| Front panel display accuracy<br>(4 digits; ±1 count)                                              | Voltage             | 0.03 V                                                                                                                                 | 0.04 V   | 0.06 V  | 0.10 V  | 0.15 V | 0.20 V |
|                                                                                                   | Current             | 0.50 A                                                                                                                                 | 0.45 A   | 0.30 A  | 0.19 A  | 0.13 A | 0.10 A |

### Notes:

- 1 Minimum voltage is guaranteed to a maximum of 0.2% of the rated output voltage.  
Minimum current is guaranteed to a maximum of 0.4% of the rated output current.
- 2 Up to 20 MHz
- 3 From 5 Hz – 1 MHz
- 4 Time for output voltage to recover within 0.5% of its rated output for a load change from 10 to 90% of its rated output current.  
Voltage set point from 10% to 100% of rated output
- 5 Add this to the output response time to obtain the total programming time
- 6 Time to provide data back to the controller using LAN interface (does not include A/D conversion time)
- 7 From 5 Hz – 1 MHz, at 10% to 100% of output voltage at full load (for 6 V units from 33% to 100% of output voltage)

## Performance specifications

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0 to 40°C.

|                                                                                                   |                     | N5747A                                                                                                                                 | N5748A   | N5749A   | N5750A   | N5751A  | N5752A   |
|---------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|---------|----------|
| DC output ratings <sup>1</sup>                                                                    | Voltage             | 60 V                                                                                                                                   | 80 V     | 100 V    | 150 V    | 300 V   | 600 V    |
|                                                                                                   | Current             | 12.5 A                                                                                                                                 | 9.5 A    | 7.5 A    | 5 A      | 2.5 A   | 1.3 A    |
|                                                                                                   | Power               | 750 W                                                                                                                                  | 760 W    | 750 W    | 750 W    | 750 W   | 780 W    |
| Output ripple and noise                                                                           | CV p-p <sup>2</sup> | 60 mV                                                                                                                                  | 80 mV    | 80 mV    | 100 mV   | 150 mV  | 300 mV   |
|                                                                                                   | CV rms <sup>3</sup> | 8 mV                                                                                                                                   | 8 mV     | 8 mV     | 12 mV    | 20 mV   | 60 mV    |
| Load effect<br>(change from 10% to 90%)                                                           | Voltage             | 8 mV                                                                                                                                   | 10 mV    | 12 mV    | 17 mV    | 32 mV   | 62 mV    |
|                                                                                                   | Current             | 7.5 mA                                                                                                                                 | 6.9 mA   | 6.5 mA   | 6 mA     | 5.5 mA  | 5.26 mA  |
| Source effect<br>(change from 85-132 VAC input<br>or 170-265 VAC input)                           | Voltage             | 8 mV                                                                                                                                   | 10 mV    | 12 mV    | 17 mV    | 32 mV   | 62 mV    |
|                                                                                                   | Current             | 3.25 mA                                                                                                                                | 2.95 mA  | 2.75 mA  | 2.5 mA   | 2.25 mA | 2.13 mA  |
| Programming accuracy <sup>1</sup>                                                                 | Voltage             | 0.05%+ 30 mV                                                                                                                           | 40 mV    | 50 mV    | 75 mV    | 150 mV  | 300 mV   |
|                                                                                                   | Current             | 0.1%+ 12.5 mA                                                                                                                          | 9.5 mA   | 7.5 mA   | 5 mA     | 2.5 mA  | 1.3 mA   |
| Measurement accuracy                                                                              | Voltage             | 0.1%+ 60 mV                                                                                                                            | 80 mV    | 100 mV   | 150 mV   | 300 mV  | 600 mV   |
|                                                                                                   | Current             | 0.1%+ 37.5 mA                                                                                                                          | 28.5 mA  | 22.5 mA  | 15 mA    | 7.5 mA  | 3.9 mA   |
| Load transient recovery time <sup>4</sup>                                                         | Time                | ≤1 ms                                                                                                                                  | ≤1 ms    | ≤1 ms    | ≤2 ms    | ≤2 ms   | ≤2 ms    |
| Supplemental Characteristics                                                                      |                     | Supplemental characteristics are not warranted but are descriptions of typical performance determined either by design or type testing |          |          |          |         |          |
| Output response time<br>(settle to within ±1.0% of the<br>rated output, with a resistive<br>load) | Up, full load       | 0.08 s                                                                                                                                 | 0.15 s   | 0.15 s   | 0.15 s   | 0.15 s  | 0.25 s   |
|                                                                                                   | Down, full load     | 0.08 s                                                                                                                                 | 0.15 s   | 0.15 s   | 0.15 s   | 0.15 s  | 0.30 s   |
|                                                                                                   | Down, no load       | 1.1 s                                                                                                                                  | 1.2 s    | 1.5 s    | 2.0 s    | 3.0 s   | 4.0 s    |
| Command response time <sup>5</sup>                                                                |                     | 55 ms                                                                                                                                  |          |          |          |         |          |
| Data readback transfer time <sup>6</sup>                                                          |                     | 3 ms                                                                                                                                   |          |          |          |         |          |
| Remote sense compensation                                                                         | Volts/load lead     | 3 V                                                                                                                                    | 4 V      | 5 V      | 5 V      | 5 V     | 5 V      |
| Over-voltage protection                                                                           | Range               | 5–66 V                                                                                                                                 | 5–88 V   | 5–110 V  | 5–165 V  | 5–330 V | 5–660 V  |
|                                                                                                   | Accuracy            | 0.60 V                                                                                                                                 | 0.80 V   | 1 V      | 1.5 V    | 3 V     | 6 V      |
| Output ripple and noise <sup>7</sup>                                                              | CC rms              | 38 mA                                                                                                                                  | 29 mA    | 23 mA    | 18 mA    | 13 mA   | 8 m      |
| Programming resolution<br>measurement resolution                                                  | Voltage             | 7.2 mV                                                                                                                                 | 9.6 mV   | 12 mV    | 18 mV    | 36 mV   | 72 mV    |
|                                                                                                   | Current             | 1.5 mA                                                                                                                                 | 1.14 mA  | 0.9 mA   | 0.6 mA   | 0.3 mA  | 0.156 mA |
| Front panel display accuracy<br>(4 digits; ±1 count)                                              | Voltage             | 0.3 V                                                                                                                                  | 0.4 V    | 0.5 V    | 0.75 V   | 1.5 V   | 3 V      |
|                                                                                                   | Current             | 0.0625 A                                                                                                                               | 0.0475 A | 0.0375 A | 0.0250 A | 0.0125A | 0.0065 A |

### Notes:

- 1 Minimum voltage is guaranteed to a maximum of 0.2% of the rated output voltage.  
Minimum current is guaranteed to a maximum of 0.4% of the rated output current.
- 2 Up to 20 MHz
- 3 From 5 Hz – 1 MHz
- 4 Time for output voltage to recover within 0.5% of its rated output for a load change from 10 to 90% of its rated output current.  
Voltage set point from 10% to 100% of rated output
- 5 Add this to the output response time to obtain the total programming time
- 6 Time to provide data back to the controller using LAN interface (does not include A/D conversion time)
- 7 From 5 Hz – 1 MHz, at 10% to 100% of output voltage at full load (for 6 V units from 33% to 100% of output voltage)

## Performance specifications

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0 to 40°C.

|                                                                                                   |                     | N5761A                                                                                                                                  | N5762A   | N5763A   | N5764A  | N5765A | N5766A  |
|---------------------------------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------|----------|---------|--------|---------|
| DC output ratings <sup>1</sup>                                                                    | Voltage             | 6 V                                                                                                                                     | 8 V      | 12.5 V   | 20 V    | 30 V   | 40 V    |
|                                                                                                   | Current             | 180 A                                                                                                                                   | 165 A    | 120 A    | 76 A    | 50 A   | 38 A    |
|                                                                                                   | Power               | 1080 W                                                                                                                                  | 1320 W   | 1500 W   | 1520 W  | 1500 W | 1520 W  |
| Output ripple and noise                                                                           | CV p-p <sup>2</sup> | 60 mV                                                                                                                                   | 60 mV    | 60 mV    | 60 mV   | 60 mV  | 60 mV   |
|                                                                                                   | CV rms <sup>3</sup> | 8 mV                                                                                                                                    | 8 mV     | 8 mV     | 8 mV    | 8 mV   | 8 mV    |
| Load effect<br>(change from 10% to 90%)                                                           | Voltage             | 2.6 mV                                                                                                                                  | 2.8 mV   | 3.25 mV  | 4 mV    | 5 mV   | 6 mV    |
|                                                                                                   | Current             | 41 mA                                                                                                                                   | 38 mA    | 29 mA    | 20.2 mA | 15 mA  | 12.6 mA |
| Source effect<br>(change from 85-132 VAC input<br>or 170-265 VAC input)                           | Voltage             | 2.6 mV                                                                                                                                  | 2.8 mV   | 3.25 mV  | 4 mV    | 5 mV   | 6 mV    |
|                                                                                                   | Current             | 20 mA                                                                                                                                   | 18.5 mA  | 14 mA    | 9.6 mA  | 7 mA   | 5.8 mA  |
| Programming accuracy <sup>1</sup>                                                                 | Voltage             | 0.05%+ 3 mV                                                                                                                             | 4 mV     | 6.25 mV  | 10 mV   | 15 mV  | 20 mV   |
|                                                                                                   | Current             | 0.1%+ 180 mA                                                                                                                            | 165 mA   | 120 mA   | 76 mA   | 50 mA  | 38 mA   |
| Measurement accuracy                                                                              | Voltage             | 0.1%+ 6 mV                                                                                                                              | 8 mV     | 12.5 mV  | 20 mV   | 30 mV  | 40 mV   |
|                                                                                                   | Current             | 0.1%+ 540 mA                                                                                                                            | 495 mA   | 360 mA   | 228 mA  | 150 mA | 114 mA  |
| Load transient recovery time <sup>4</sup>                                                         | Time                | ≤1.5 ms                                                                                                                                 | ≤1.5 ms  | ≤1.5 ms  | ≤1 ms   | ≤1 ms  | ≤1 ms   |
| Supplemental characteristics                                                                      |                     | Supplemental characteristics are not warranted but are descriptions of typical performance determined either by design or type testing. |          |          |         |        |         |
| Output response time<br>(settle to within ±1.0% of the<br>rated output, with a resistive<br>load) | Up, full load       | 0.08 s                                                                                                                                  | 0.08 s   | 0.08 s   | 0.08 s  | 0.08 s | 0.08 s  |
|                                                                                                   | Down, full load     | 0.05 s                                                                                                                                  | 0.05 s   | 0.05 s   | 0.05 s  | 0.08 s | 0.08 s  |
|                                                                                                   | Down, no load       | 0.5 s                                                                                                                                   | 0.6 s    | 0.7 s    | 0.8 s   | 0.9 s  | 1.0 s   |
| Command response time <sup>5</sup>                                                                |                     | 55 ms                                                                                                                                   |          |          |         |        |         |
| Data readback transfer time <sup>6</sup>                                                          |                     | 3 ms                                                                                                                                    |          |          |         |        |         |
| Remote sense compensation                                                                         | Volts/load lead     | 1 V                                                                                                                                     | 1 V      | 1 V      | 1 V     | 1.5 V  | 2 V     |
| Over-voltage protection                                                                           | Range               | 0.5–7.5 V                                                                                                                               | 0.5–10 V | 1–15 V   | 1–24 V  | 2–36 V | 2–44 V  |
|                                                                                                   | Accuracy            | 0.06 V                                                                                                                                  | 0.08 V   | 0.125 V  | 0.20 V  | 0.30 V | 0.40 V  |
| Output ripple and noise <sup>7</sup>                                                              | CC rms              | 360 mA                                                                                                                                  | 330 mA   | 240 mA   | 152 mA  | 125 mA | 95 mA   |
| Programming resolution<br>measurement resolution                                                  | Voltage             | 0.72 mV                                                                                                                                 | 0.96 mV  | 1.5 mV   | 2.4 mV  | 3.6 mV | 4.8 mV  |
|                                                                                                   | Current             | 21.6 mA                                                                                                                                 | 19.8 mA  | 14.4 mA  | 9.12 mA | 6 mA   | 4.6 mA  |
| Front panel display accuracy<br>(4 digits; ±1 count)                                              | Voltage             | 0.03 V                                                                                                                                  | 0.04 V   | 0.0625 V | 0.1 V   | 0.15 V | 0.2 V   |
|                                                                                                   | Current             | 0.90 A                                                                                                                                  | 0.825 A  | 0.60 A   | 0.38 A  | 0.25 A | 0.19 A  |

### Notes:

- 1 Minimum voltage is guaranteed to a maximum of 0.2% of the rated output voltage.  
Minimum current is guaranteed to a maximum of 0.4% of the rated output current.
- 2 Up to 20 MHz
- 3 From 5 Hz – 1 MHz
- 4 Time for output voltage to recover within 0.5% of its rated output for a load change from 10 to 90% of its rated output current.  
Voltage set point from 10% to 100% of rated output
- 5 Add this to the output response time to obtain the total programming time
- 6 Time to provide data back to the controller using LAN interface (does not include A/D conversion time)
- 7 From 5 Hz – 1 MHz, at 10% to 100% of output voltage at full load (for 6 V units from 33% to 100% of output voltage)

## Performance specifications

Unless otherwise noted, specifications are warranted over the ambient temperature range of 0 to 40°C.

|                                                                                                   |                     | N5767A                                                                                                                                 | N5768A  | N5769A  | N5770A  | N5771A  | N5772A   |
|---------------------------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|----------|
| DC output ratings <sup>1</sup>                                                                    | Voltage             | 60 V                                                                                                                                   | 80 V    | 100 V   | 150 V   | 300 V   | 600 V    |
|                                                                                                   | Current             | 25 A                                                                                                                                   | 19 A    | 15 A    | 10 A    | 5 A     | 2.6 A    |
|                                                                                                   | Power               | 1500 W                                                                                                                                 | 1520 W  | 1500 W  | 1500 W  | 1500 W  | 1560 W   |
| Output ripple and noise                                                                           | CV p-p <sup>2</sup> | 60 mV                                                                                                                                  | 80 mV   | 80 mV   | 100 mV  | 150 mV  | 300 mV   |
|                                                                                                   | CV rms <sup>3</sup> | 8 mV                                                                                                                                   | 8 mV    | 8 mV    | 12 mV   | 20 mV   | 60 mV    |
| Load effect<br>(change from 10% to 90%)                                                           | Voltage             | 8 mV                                                                                                                                   | 10 mV   | 12 mV   | 17 mV   | 32 mV   | 62 mV    |
|                                                                                                   | Current             | 10 mA                                                                                                                                  | 8.8 mA  | 8 mA    | 7 mA    | 6 mA    | 5.5 mA   |
| Source effect<br>(change from 85-132 VAC input<br>or 170-265 VAC input)                           | Voltage             | 8 mV                                                                                                                                   | 10 mV   | 12 mV   | 17 mV   | 32 mV   | 62 mV    |
|                                                                                                   | Current             | 4.5 mA                                                                                                                                 | 3.9 mA  | 3.5 mA  | 3 mA    | 2.5 mA  | 2.26 mA  |
| Programming accuracy <sup>1</sup>                                                                 | Voltage 0.05%+      | 30 mV                                                                                                                                  | 40 mV   | 50 mV   | 75 mV   | 150 mV  | 300 mV   |
|                                                                                                   | Current 0.1%+       | 25 mA                                                                                                                                  | 19 mA   | 15 mA   | 10 mA   | 5 mA    | 2.6 mA   |
| Measurement accuracy                                                                              | Voltage 0.1%+       | 60 mV                                                                                                                                  | 80 mV   | 100 mV  | 150 mV  | 300 mV  | 600 mV   |
|                                                                                                   | Current 0.1%+       | 75 mA                                                                                                                                  | 57 mA   | 45 mA   | 30 mA   | 15 mA   | 7.8 mA   |
| Load transient recovery time <sup>4</sup>                                                         | Time                | ≤1 ms                                                                                                                                  | ≤1 ms   | ≤1 ms   | ≤2 ms   | ≤2 ms   | ≤2 ms    |
| Supplemental Characteristics                                                                      |                     | Supplemental characteristics are not warranted but are descriptions of typical performance determined either by design or type testing |         |         |         |         |          |
| Output response time<br>(settle to within ±1.0% of the<br>rated output, with a resistive<br>load) | Up, full load       | 0.08 s                                                                                                                                 | 0.15 s  | 0.15 s  | 0.15 s  | 0.15 s  | 0.25 s   |
|                                                                                                   | Down, full load     | 0.08 s                                                                                                                                 | 0.15 s  | 0.15 s  | 0.15 s  | 0.15 s  | 0.30 s   |
|                                                                                                   | Down, no load       | 1.1 s                                                                                                                                  | 1.2 s   | 1.5 s   | 2.0 s   | 3.0 s   | 4.0 s    |
| Command response time <sup>5</sup>                                                                |                     | 55 ms                                                                                                                                  |         |         |         |         |          |
| Data readback transfer time <sup>6</sup>                                                          |                     | 3 ms                                                                                                                                   |         |         |         |         |          |
| Remote sense compensation                                                                         | Volts/load lead     | 3 V                                                                                                                                    | 4 V     | 5 V     | 5 V     | 5 V     | 5 V      |
| Over-voltage protection                                                                           | Range               | 5–66 V                                                                                                                                 | 5–88 V  | 5–110 V | 5–165 V | 5–330 V | 5–660 V  |
|                                                                                                   | Accuracy            | 0.60 V                                                                                                                                 | 0.80 V  | 1 V     | 1.5 V   | 3 V     | 6 V      |
| Output ripple and noise <sup>7</sup>                                                              | CC rms              | 75 mA                                                                                                                                  | 57 mA   | 45 mA   | 35 mA   | 25 mA   | 12 m     |
| Programming resolution<br>measurement resolution                                                  | Voltage             | 7.2 mV                                                                                                                                 | 9.6 mV  | 12 mV   | 18 mV   | 36 mV   | 72 mV    |
|                                                                                                   | Current             | 3 mA                                                                                                                                   | 2.28 mA | 1.8 mA  | 1.2 mA  | 0.6 mA  | 0.312 mA |
| Front panel display accuracy<br>(4 digits; ±1 count)                                              | Voltage             | 0.3 V                                                                                                                                  | 0.4 V   | 0.5 V   | 0.75 V  | 1.5 V   | 3 V      |
|                                                                                                   | Current             | 0.125 A                                                                                                                                | 0.095 A | 0.075 A | 0.050 A | 0.025 A | 0.013 A  |

### Notes:

- 1 Minimum voltage is guaranteed to a maximum of 0.2% of the rated output voltage.  
Minimum current is guaranteed to a maximum of 0.4% of the rated output current.
- 2 Up to 20 MHz
- 3 From 5 Hz – 1 MHz
- 4 Time for output voltage to recover within 0.5% of its rated output for a load change from 10 to 90% of its rated output current.  
Voltage set point from 10% to 100% of rated output
- 5 Add this to the output response time to obtain the total programming time
- 6 Time to provide data back to the controller using LAN interface (does not include A/D conversion time)
- 7 From 5 Hz – 1 MHz, at 10% to 100% of output voltage at full load (for 6 V units from 33% to 100% of output voltage)

## **WARNING Shock Hazard**

- For models up to 60 VDC rated output, no point on the output shall be more than  $\pm 60$  VDC above or below chassis ground.
- For models greater than 60 VDC rated output, no point on the Positive output shall be more than  $\pm 600$  VDC above or below chassis ground.
- For models greater than 60 VDC rated output, no point on the Negative output shall be more than  $\pm 400$  VDC above or below chassis ground.

## **Supplemental Characteristics for All Model Numbers**

### **Series and parallel capability**

#### **Parallel operation**

Up to 4 units can be connected in master/slave mode

#### **Series operation**

Up to 2 units can be connected in series

### **Output terminal isolation**

#### **6 V to 60 V units**

No output terminal may be more than  $\pm 60$  VDC from any other terminal or chassis ground

#### **80 V to 600 V units**

No output terminal may be more than  $\pm 600$  VDC from any other terminal or chassis ground

### **Store-recall states**

Volatile memory locations: 16

### **Analog programming**

(of output voltage and current)

#### **Input signal**

Selectable;

0 to 5 V / 0 to 10 V full scale

#### **Input impedance**

Selectable;

0 to 5 k $\Omega$  / 0 to 10 k $\Omega$  full scale

### **Interface capabilities**

#### **GPIO**

SCPI – 1993, IEEE 488.2 compliant interface

#### **USB 2.0**

Requires Agilent I/O library version L.01.01

#### **10/100 LAN**

Requires Agilent I/O library version L.01.01

### **Web server**

Built-in Web server requires Internet Explorer 5+ or Netscape 6.2+

### **Environmental conditions**

#### **Environment**

Indoor use, installation category II (AC input), pollution degree 2

#### **Operating temperature**

0°C to 40°C @ 100% load

#### **Storage temperature**

–20°C to 70°C

#### **Operating humidity**

30% to 90% relative humidity (no condensation)

#### **Storage humidity**

10% to 95% relative humidity (no condensation)

#### **Altitude**

- Up to 3000 meters.  
Derate the output current by 2%/100 m above 2000 m.
- Derate the maximum ambient temperature by 1°C/100 m above 2000 m.

### **Regulatory compliance**

#### **EMC**

- European EMC directive 89/336/EEC for Class A products
- Australian C- Tick mark
- This ISM device complies with Canadian ICES-001.
- Cet appareil ISM est conforme à la norme NMB-001 du Canada.

#### **Safety**

- European Low Voltage Directive 73/23/EEC
- US and Canadian safety standards
- Any LEDs used in this product are Class 1 as per IEC 825-1

### **Acoustic noise declaration**

Emission directive:

- Sound pressure  $L_p < 70$  dB(A),  
At operator position,  
\*Normal operation,  
\*According to EN 27779 (Type Test).
- Schalldruckpegel  $L_p < 70$  dB(A)  
\*Am Arbeitsplatz, \*Normaler Betrieb, \*Nach EN 27779 (Typprüfung).

### **AC input**

#### **Nominal input**

100 – 240 VAC; 50/60 Hz

#### **Input current 750 W**

10.5 A @ 100 VAC nominal;

5 A @ 200 VAC nominal

#### **Input current 1500 W**

21 A @ 100 VAC nominal;

11 A @ 200 VAC nominal

#### **Input range**

85 – 265 VAC; 47 – 63 Hz.

#### **Power factor**

0.99 at nominal input and rated output power

#### **Efficiency**

76% – 87% for 750 W units;

77% – 88% for 1500 W units

#### **Inrush current**

<25 A for 750 W units;

<50 A for 1500 W units

### **Dimensions**

(excluding connectors, and handles)

Height 43.6 mm (1.72 in)

Width 422.8 mm (16.65 in)

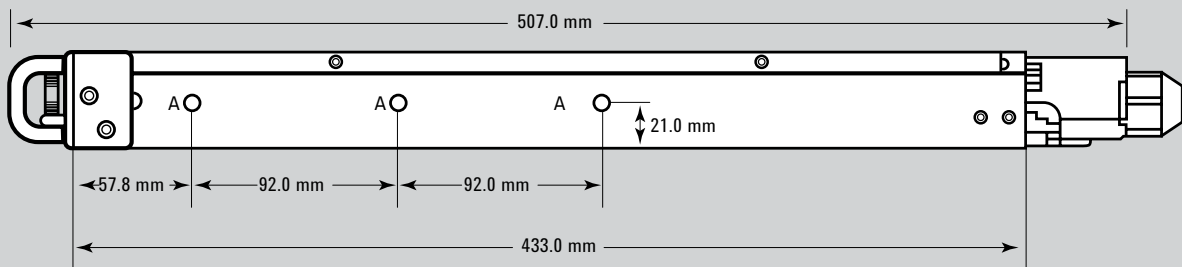
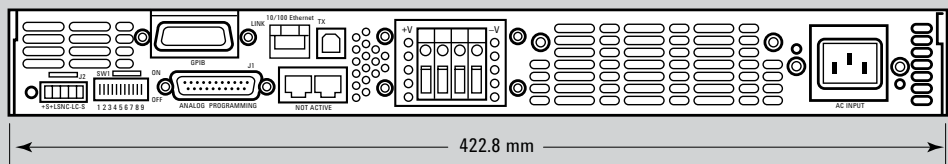
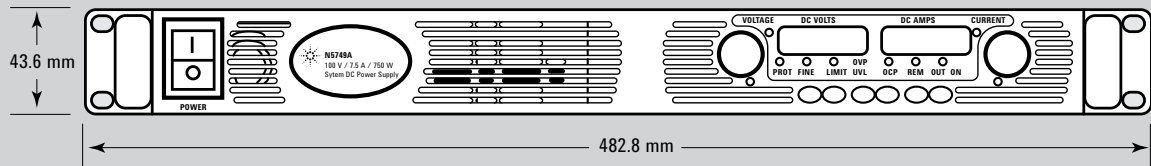
Depth 432.8 mm (17.04 in)

### **Weight**

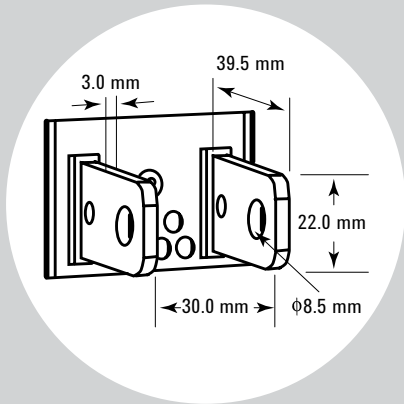
750 W 7 Kg (15.4 lbs.)

1500 W 8.5 Kg (18.7 lbs.)

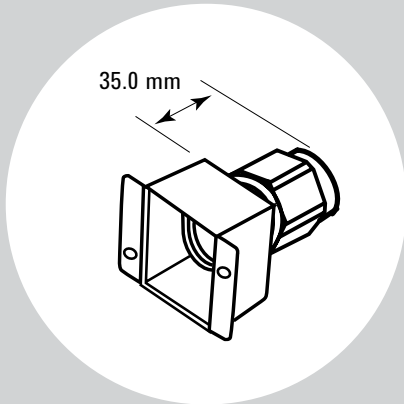
Outline Diagram



**DC output**  
Bus-bar detail  
6 V to 60 V  
models

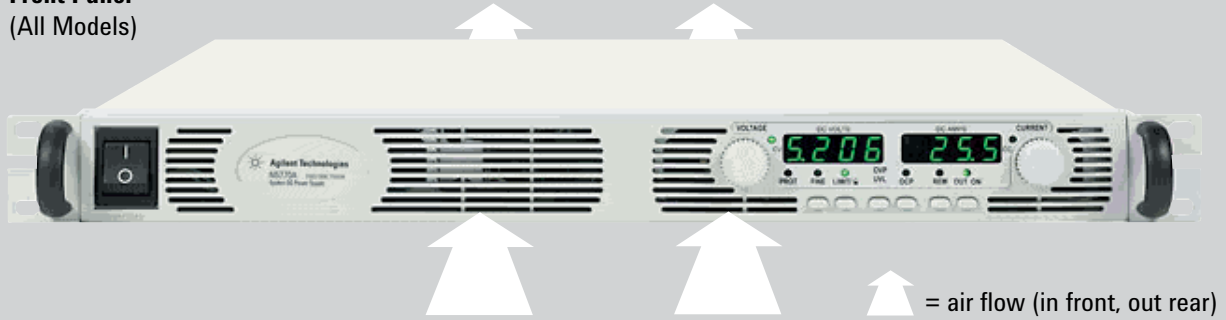


**AC input**  
Strain-relief detail  
1500 W models



## Front and Rear Panel Detail

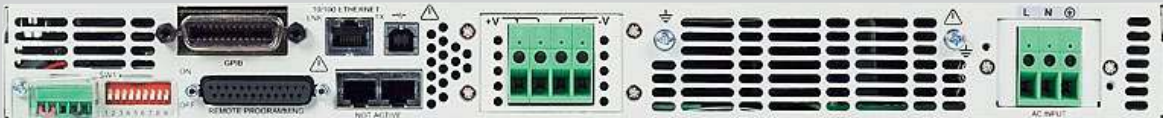
**Front Panel**  
(All Models)



**Rear Panel\***  
(6 V to 60 V, 1500 W Models)



(80 V to 600 V, 1500 W Models)



(6 V to 60 V, 750 W Models)



(80 V to 600 V, 750 W Models)



## Ordering Information

### Available models

| 750 W Models  |                        |                       |
|---------------|------------------------|-----------------------|
| N5741A        | System DC Power Supply | 6 V, 100 A, 600 W     |
| N5742A        | System DC Power Supply | 8 V, 90 A, 720 W      |
| N5743A        | System DC Power Supply | 12.5 V, 60 A, 750 W   |
| N5744A        | System DC Power Supply | 20 V, 38 A, 760 W     |
| N5745A        | System DC Power Supply | 30 V, 25 A, 750 W     |
| N5746A        | System DC Power Supply | 40 V, 19 A, 760 W     |
| N5747A        | System DC Power Supply | 60 V, 12.5 A, 750 W   |
| N5748A        | System DC Power Supply | 80 V, 9.5 A, 760 W    |
| N5749A        | System DC Power Supply | 100 V, 7.5 A, 750 W   |
| N5750A        | System DC Power Supply | 150 V, 5 A, 750 W     |
| N5751A        | System DC Power Supply | 300 V, 2.5 A, 750 W   |
| N5752A        | System DC Power Supply | 600 V, 1.3 A, 780 W   |
| 1500 W Models |                        |                       |
| N5761A        | System DC Power Supply | 6 V, 180 A, 1080 W    |
| N5762A        | System DC Power Supply | 8 V, 165 A, 1320 W    |
| N5763A        | System DC Power Supply | 12.5 V, 120 A, 1500 W |
| N5764A        | System DC Power Supply | 20 V, 76 A, 1520 W    |
| N5765A        | System DC Power Supply | 30 V, 50 A, 1500 W    |
| N5766A        | System DC Power Supply | 40 V, 38 A, 1520 W    |
| N5767A        | System DC Power Supply | 60 V, 25 A, 1500 W    |
| N5768A        | System DC Power Supply | 80 V, 19 A, 1520 W    |
| N5769A        | System DC Power Supply | 100 V, 15 A, 1500 W   |
| N5770A        | System DC Power Supply | 150 V, 10 A, 1500 W   |
| N5771A        | System DC Power Supply | 300 V, 5 A, 1500 W    |
| N5772A        | System DC Power Supply | 600 V, 2.6 A, 1560 W  |

### Related Literature

These application notes will help you compare Agilent system DC sources with power supplies from other manufacturers:

- *Side-by-Side Comparison: Agilent N5700 Series System DC Source and Sorensen DLM DC Power Supply, AN 1502-1*, 5989-1628EN  
<http://cp.literature.agilent.com/litweb/pdf/5989-1628EN.pdf>
- *Side-by-Side Comparison: Agilent N5700 Series System DC Source and Xantrex XFR System Power Supplies, AN 1502-2*, 5989-1630EN  
<http://cp.literature.agilent.com/litweb/pdf/5989-1630EN.pdf>
- *How to Convert from a Sorensen DLM to an Agilent N5700, AN 1503-1*, 5989-1629EN  
<http://cp.literature.agilent.com/litweb/pdf/5989-1629EN.pdf>
- *How to Convert from a Xantrex XFR to an Agilent N5700, AN 1503-2*, 5989-1631EN  
<http://cp.literature.agilent.com/litweb/pdf/5989-1631EN.pdf>
- *Trends in Medium Power (~1 kW) DC Power Supplies*, 5989-1331EN  
<http://cp.literature.agilent.com/litweb/pdf/5989-1331EN.pdf>

### Options

#### 750 W Models

- Opt 900** Power Cord, United Kingdom
- Opt 902** Power Cord, Europe
- Opt 903** Power Cord, USA, Canada
- Opt 918** Power Cord, Japan
- Opt 922** Power Cord, China

#### 1500 W Models

- Opt 861** Underterminated Power Cord, USA, Canada, Japan, China, Other
- Opt 862** Harmonized Underterminated Power Cord, Europe

### Accessories

- N5740A** Rack Mount Slide Kit (required for rack mounting; standard system 11 rack-mounting hardware will not work)

Agilent's IO Libraries Suite ships with the N5700 to help you quickly establish an error-free connection between your PC and instruments - regardless of the vendor. It provides robust instrument control and works with the software development environment you choose.

For additional description of Agilent's IO Libraries Suite features and installation requirements, please go to [www.agilent.com/find/iosuite-datasheet](http://www.agilent.com/find/iosuite-datasheet)

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