# Agilent N8700 Series System DC Power Supplies

Models: N8731A-42A (3.3 kW), N8754A-62A (5 kW)

Data Sheet

- 21 Models: 3300 W and 5000 W output power
- Up to 600 V and up to 400 A
- Small, high density 2 U package
- Built-in voltage and current measurement
- Full protection from over-voltage and over-current
- Flexible AC input voltage options
- LAN, USB, and GPIB interfaces standard
- Fully compliant to LXI Class C specification



## Family of Affordable Basic System DC Power Supplies

The Agilent Technologies N8700 series system DC power supplies give you just the right performance — at just the right price — in a compact (2 U) package. This family of affordable 3300 W and 5000 W single-output programmable DC power supplies consists of 21 models for simple DC power applications.

They provide stable output power, built-in voltage and current measurement, and output voltage and current from 8 V to 600 V and 5.5 A to 400 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 N8700 provides up to 5200 W in a small space-saving 2 U-high, 19-inch-wide package. Its air vents are in the front and rear (not on the top or bottom), so you can stack other instruments directly above or below it to save valuable rack space.

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## 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 N8700 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.

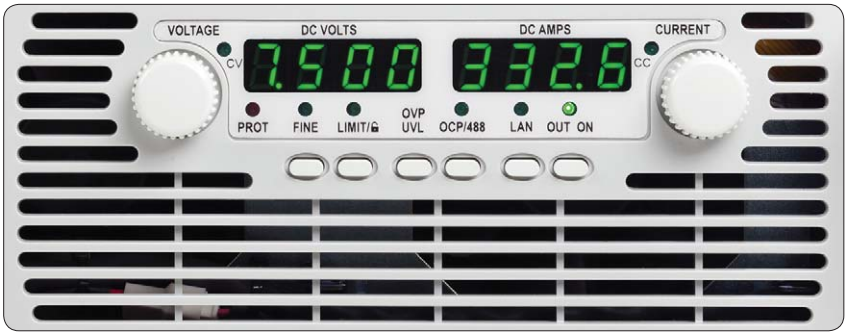



*Figure 1. Front panel control knobs and buttons make the N8700 easy to use in a system and on the bench*




*Figure 2. The N8700's standard LAN (LXI C), USB 2.0 and GPIB interfaces enable simple system connections*

## Simplify system connections

The N8700 Series power supplies comes standard with GPIB, Ethernet/LAN, and USB 2.0 interfaces giving you the flexibility to use your I/O interface of choice today and safeguard your test setup for the future. The N8700 is fully compliant with the LXI Class C specification.

## 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 or Mozilla Firefox®. This control goes above and beyond the LXI specification, giving user's the ability to monitor and control the instrument from anywhere. Using the Web browser, you can set up, monitor and operate the N8700 remotely.

## Easy system integration and configuration

To simplify system development, the N8700 comes standard with IVI-COM drivers. The N8700 supports the easy-to-use SCPI (Standard Commands for Programmable Instruments).

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

Should you need greater output power, the N8700 series power supplies give you the flexibility to connect in parallel up to four identical units (same model number) for greater output current or connect two identical units (same model number) in series for greater output voltage (see output terminal isolation information).

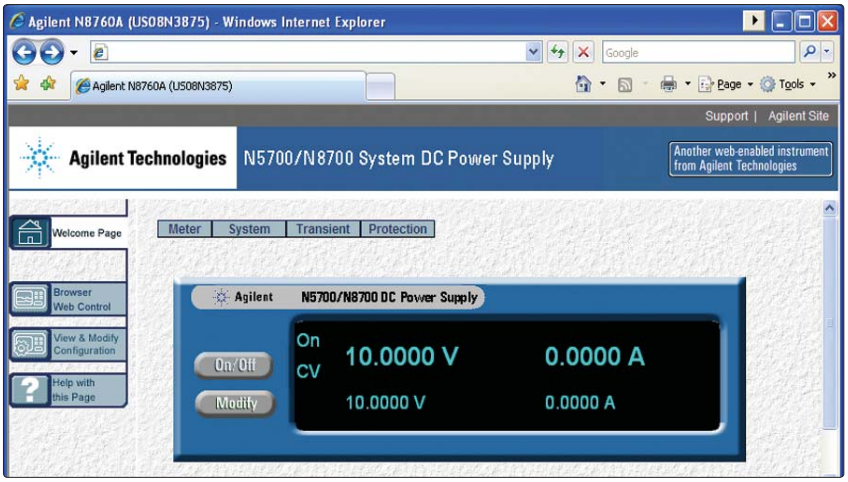



*Figure 3. N8700 series web graphical user interface for remote access and control of the power supply*

## 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 resistance of 0 to 5 kΩ or 0 to 10 kΩ.

## Flexible AC input voltage options

The N8700 models offer flexible AC input voltage options. Every N8700 model can be purchased with either a 208 V 3-phase or 400 V 3-phase voltage input option. The 3.3 kW models have the additional option of a 230 V single-phase AC input voltage. Choose the one that best fits your operating environment. They also provide power factor correction.

*Please choose carefully the AC input voltage option for your N8700 power supply. The AC input voltage cannot be changed without returning the unit to Agilent and placing a new order.*

## 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 N8700 into a test rack by providing all the necessary hardware to rack mount an N8700 series power supply in only 2 U of rack space. The N5740A rack mount slide kit is the same kit used with the N5700 series.

# Performance Specifications

| | | N8731A | N8732A | N8733A | N8734A | N8735A | N8736A |
|---|---|---|---|---|---|---|---|
| **DC output ratings** | | | | | | | |
| Voltage [1] | | 8 V | 10 V | 15 V | 20 V | 30 V | 40 V |
| Current [2] | | 400 A | 330 A | 220 A | 165 A | 110 A | 85 A |
| Power | | 3200 W | 3300 W | 3300 W | 3300 W | 3300 W | 3400 W |
| **Output ripple and noise** | | | | | | | |
| CV $_{p\text{-}p}$ [3] | | 60 mV | 60 mV | 60 mV | 60 mV | 60 mV | 60 mV |
| CV $_{rms}$ [4] | | 8 mV | 8 mV | 8 mV | 8 mV | 8 mV | 8 mV |
| **Load effect** | | | | | | | |
| CV load regulation [5] | | 6.2 mV | 6.5 mV | 7.25 mV | 8 mV | 9.5 mV | 11 mV |
| CC load regulation [6] | | 85 mA | 71 mA | 49 mA | 38 mA | 27 mA | 22 mA |
| **Source effect** | | | | | | | |
| CV line regulation [7] | | 2.8 mV | 3 mV | 3.5 mV | 4 mV | 5 mV | 6 mV |
| CC line regulation [7] | | 42 mA | 35 mA | 24 mA | 18.5 mA | 13 mA | 10.5 mA |
| **Programming accuracy** | | | | | | | |
| Voltage [1] | 0.05% + | 4 mV | 5 mV | 7.5 mV | 10 mV | 15 mV | 20 mV |
| Current [2, 8] | 0.1% + | 800 mA | 660 mA | 440 mA | 330 mA | 220 mA | 170 mA |
| **Measurement accuracy** | | | | | | | |
| Voltage | 0.1% + | 8 mV | 10 mV | 15 mV | 20 mV | 30 mV | 40 mV |
| Current [8] | 0.1% + | 1200 mA | 990 mA | 660 mA | 495 mA | 330 mA | 255 mA |
| **Load transient recovery time** | | | | | | | |
| Time [9] | | <1 ms | <1 ms | <1 ms | <1 ms | <1 ms | <1 ms |

***Notes:***

1. *Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.*
2. *Minimum current is guaranteed to maximum 0.4% of rated output current.*
3. *20 MHz*
4. *5 Hz - 1 MHz*
5. *From no-load to full-load, constant input voltage. Maximum drop in remote sense.*
6. *For load voltage change equal to the unit voltage rating, constant input voltage*
7. *Single-phase and 3-Phase 208 V models: 170~265 VAC, constant load. 3-Phase 400 V models: 342~460 VAC, constant load.*
8. *The constant current programming readback and monitoring accuracy does not include the warm-up and load regulation thermal drift.*
9. *Time for output voltage to recover within 0.5% of its rated output for a load change 10 - 90% of rated output current, local sense.*

# Performance Specifications (Continued)

| | | N8737A | N8738A | N8739A | N8740A | N8741A | N8742A |
|---|---|---|---|---|---|---|---|
| **DC output ratings** | | | | | | | |
| Voltage [1] | | 60 V | 80 V | 100 V | 150 V | 300 V | 600 V |
| Current [2] | | 55 A | 42 A | 33 A | 22 A | 11 A | 5.5 A |
| Power | | 3300 W | 3360 W | 3300 W | 3300 W | 3300 W | 3300 W |
| **Output ripple and noise** | | | | | | | |
| CV $_{p\text{-}p}$ [3] | | 60 mV | 80 mV | 100 mV | 100 mV | 300 mV | 500 mV |
| CV $_{rms}$ [4] | | 8 mV | 25 mV | 25 mV | 25 mV | 100 mV | 120 mV |
| **Load effect** | | | | | | | |
| CV load regulation [5] | | 14 mV | 17 mV | 20 mV | 27.5 mV | 50 mV | 95 mV |
| CC load regulation [6] | | 16 mA | 13.4 mA | 11.6 mA | 9.4 mA | 7.2 mA | 6.1 mA |
| **Source effect** | | | | | | | |
| CV line regulation [7] | | 8 mV | 10 mV | 12 mV | 17 mV | 32 mV | 62 mV |
| CC line regulation [7] | | 7.5 mA | 6.2 mA | 5.3 mA | 4.2 mA | 3.1 mA | 2.6 mA |
| **Programming accuracy** | | | | | | | |
| Voltage [1] | 0.05% + | 30 mV | 40 mV | 50 mV | 75 mV | 150 mV | 300 mV |
| Current [2, 8] | 0.1% + | 110 mA | 84 mA | 66 mA | 44 mA | 22 mA | 11 mA |
| **Measurement accuracy** | | | | | | | |
| Voltage | 0.1% + | 60 mV | 80 mV | 100 mV | 150 mV | 300 mV | 600 mV |
| Current [8] | 0.1% + | 165 mA | 126 mA | 99 mA | 66 mA | 33 mA | 16.5 mA |
| **Load transient recovery time** | | | | | | | |
| Time [9] | | <1 ms | <1 ms | <1 ms | <2 ms | <2 ms | <2 ms |

***Notes:***

1. *Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.*
2. *Minimum current is guaranteed to maximum 0.4% of rated output current.*
3. *20 MHz*
4. *5 Hz - 1 MHz*
5. *From no-load to full-load, constant input voltage. Maximum drop in remote sense.*
6. *For load voltage change equal to the unit voltage rating, constant input voltage*
7. *Single-phase and 3-Phase 208 V models: 170~265 VAC, constant load. 3-Phase 400 V models: 342~460 VAC, constant load.*
8. *The constant current programming readback and monitoring accuracy does not include the warm-up and load regulation thermal drift.*
9. *Time for output voltage to recover within 0.5% of its rated output for a load change 10 - 90% of rated output current, local sense.*

# Supplemental Characteristics

| | N8731A | N8732A | N8733A | N8734A | N8735A | N8736A |
|---|---|---|---|---|---|---|
| **Output response time** | | | | | | |
| Up-prog response time [10] | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms | 80 ms |
| Down-prog response time Full-load [10] | 20 ms | 100 ms | 100 ms | 100 ms | 160 ms | 160 ms |
| Down-prog response time No-load [11] | 500 ms | 600 ms | 700 ms | 800 ms | 900 ms | 1000 ms |
| **Command response time** (add this to the output response time to obtain the total programming time) | | | | | | |
| | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) |
| **Remote sense compensation** | | | | | | |
| | 2 V | 2 V | 2 V | 2 V | 5 V | 5 V |
| **Over-voltage protection** | | | | | | |
| Range | 0.5-10 V | 0.5-12 V | 1-18 V | 1-24 V | 2-36 V | 2-44 V |
| **Output ripple and noise** | | | | | | |
| CC rms [12] | 1300 mA | 1200 mA | 880 mA | 660 mA | 300 mA | 200 mA |
| **Programming resolution Measurement resolution** | | | | | | |
| Voltage | 0.96 mV | 1.2 mV | 1.8 mV | 2.4 mV | 3.6 mV | 4.8 mV |
| Current | 48 mA | 39.6 mA | 26.4 mA | 19.8 mA | 13.2 mA | 10.2 mA |
| **Front panel display accuracy** (4 digits; ± 1 count) | | | | | | |
| Voltage | 40 mV | 50 mV | 75 mV | 100 mV | 150 mV | 200 mV |
| Current | 2000 mA | 1650 mA | 1100 mA | 825 mA | 550 mA | 425 mA |
| Temperature stability (over 8 hours, after a 30 minute warm-up, with constant line, load, and temperature) | | | | | | |
| Voltage | 4 mV | 5 mV | 7.5 mV | 10 mV | 15 mV | 20 mV |
| Current | 200 mA | 165 mA | 110 mA | 82.5 mA | 55 mA | 42.5 mA |
| **Temperature coefficient** (after a 30 minute warm-up) | | | | | | |
| Voltage from rated output voltage | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C |
| Current from rated output current | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C |

***Notes:***

*10. From 10% to 90% or 90% to 10% of rated output voltage, with rated, resistive load.*

*11. From 90% to 10% of rated output voltage.*

*12. For 8 V - 15 V models the ripple is measured from 2 V to rated output voltage and rated output current. For other models, the ripple is measured at 10 - 100% of rated output voltage and rated output current.*

# Supplemental Characteristics (Continued)

| | N8737A | N8738A | N8739A | N8740A | N8741A | N8742A |
|---|---|---|---|---|---|---|
| **Output response time** | | | | | | |
| Up-prog response time [10] | 150 ms | 150 ms | 150 ms | 150 ms | 150 ms | 250 ms |
| Down-prog response time Full-load [10] | 160 ms | 300 ms | 300 ms | 300 ms | 300 ms | 500 ms |
| Down-prog response time No-load [11] | 1100 ms | 1200 ms | 1500 ms | 2000 ms | 3500 ms | 4000 ms |
| **Command response time** (add this to the output response time to obtain the total programming time) | | | | | | |
| | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) |
| **Remote sense compensation** | | | | | | |
| | 5 V | 5 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 |
| **Output ripple and noise** | | | | | | |
| CC rms [12] | 100 mA | 80 mA | 70 mA | 60 mA | 20 mA | 10 mA |
| **Programming resolution Measurement resolution** | | | | | | |
| Voltage | 7.2 mV | 9.6 mV | 12 mV | 18 mV | 36 mV | 72 mV |
| Current | 6.6 mA | 5 mA | 4 mA | 2.6 mA | 1.3 mA | 0.66 mA |
| **Front panel display accuracy** (4 digits; ± 1 count) | | | | | | |
| Voltage | 300 mV | 400 mV | 500 mV | 750 mV | 1500 mV | 3000 mV |
| Current | 275 mA | 210 mA | 165 mA | 110 mA | 55 mA | 27.5 mA |
| **Temperature stability** (over 8 hours, after a 30 minute warm-up, with constant line, load, and temperature) | | | | | | |
| Voltage | 30 mV | 40 mV | 50 mV | 75 mV | 150 mV | 300 mV |
| Current | 27.5 mA | 21 mA | 16.5 mA | 11 mA | 5.5 mA | 2.8 mA |
| **Temperature coefficient** (after a 30 minute warm-up) | | | | | | |
| Voltage from rated output voltage | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C |
| Current from rated output current | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C | 200 PPM/°C |

***Notes:***

*10. From 10% to 90% or 90% to 10% of rated output voltage, with rated, resistive load.*

*11. From 90% to 10% of rated output voltage.*

*12. For 8 V - 15 V models the ripple is measured from 2 V to rated output voltage and rated output current. For other models, the ripple is measured at 10 - 100% of rated output voltage and rated output current.*

# Performance Specifications

| | | N8754A | N8755A | N8756A | N8757A | N8758A |
|---|---|---|---|---|---|---|
| **DC output ratings** | | | | | | |
| Voltage [1] | | 20 V | 30 V | 40 V | 60 V | 80 V |
| Current [2] | | 250 A | 170 A | 125 A | 85 A | 65 A |
| Power | | 5000 W | 5100 W | 5000 W | 5100 W | 5200 W |
| **Output ripple and noise** | | | | | | |
| CV $_{p\text{-}p}$ [3] | | 75 mV | 75 mV | 75 mV | 75 mV | 100 mV |
| CV $_{rms}$ [4] | | 10 mV | 10 mV | 10 mV | 10 mV | 15 mV |
| **Load effect** | | | | | | |
| CV load regulation [5] | | 8 mV | 9.5 mV | 11 mV | 14 mV | 17 mV |
| CC load regulation [6] | | 250 mA | 170 mA | 125 mA | 85 mA | 65 mA |
| **Source effect** | | | | | | |
| CV line regulation [7] | | 2 mV | 3 mV | 4 mV | 6 mV | 8 mV |
| CC line regulation [7] | | 125 mA | 85 mA | 62.5 mA | 42.5 mA | 32.5 mA |
| **Programming accuracy** | | | | | | |
| Voltage [1] | 0.025% + | 15 mV | 22.5 mV | 30 mV | 45 mV | 60 mV |
| Current [2, 8] | 0.1% + | 750 mA | 510 mA | 375 mA | 255 mA | 195 mA |
| **Measurement accuracy** | | | | | | |
| Voltage | 0.025% + | 25 mV | 37.5 mV | 50 mV | 75 mV | 100 mV |
| Current [8] | 0.1% + | 750 mA | 510 mA | 375 mA | 255 mA | 195 mA |
| **Load transient recovery time** | | | | | | |
| Time [9] | | <1 ms | <1 ms | <1 ms | <1 ms | <1 ms |

***Notes:***

1. *Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.*
2. *Minimum current is guaranteed to maximum 0.4% of rated output current.*
3. *20 MHz*
4. *5 Hz - 1 MHz*
5. *From no-load to full-load, constant input voltage. Maximum drop in remote sense.*
6. *For load voltage change equal to the unit voltage rating, constant input voltage*
7. *Single-phase and 3-Phase 208 V models: 170~265 VAC, constant load. 3-Phase 400 V models: 342~460 VAC, constant load.*
8. *The constant current programming readback and monitoring accuracy does not include the warm-up and load regulation thermal drift.*
9. *Time for output voltage to recover within 0.5% of its rated output for a load change 10 - 90% of rated output current, local sense.*

# Performance Specifications

| | N8759A | N8760A | N8761A | N8762A |
|---|---|---|---|---|
| **DC output ratings** | | | | |
| Voltage [1] | 100 V | 150 V | 300 V | 600 V |
| Current [2] | 50 A | 34 A | 17 A | 8.5 A |
| Power | 5000 W | 5100 W | 5100 W | 5100 W |
| **Output ripple and noise** | | | | |
| CV $_{p\text{-}p}$ [3] | 100 mV | 120 mV | 300 mV | 500 mV |
| CV $_{rms}$ [4] | 15 mV | 25 mV | 60 mV | 120 mV |
| **Load effect** | | | | |
| CV load regulation [5] | 20 mV | 27.5 mV | 50 mV | 95 mV |
| CC load regulation [6] | 50 mA | 34 mA | 17 mA | 8.5 mA |
| **Source effect** | | | | |
| CV line regulation [7] | 10 mV | 15 mV | 30 mV | 60 mV |
| CC line regulation [7] | 25 mA | 17 mA | 8.5 mA | 4.3 mA |
| **Programming accuracy** | | | | |
| Voltage [1] 0.025% + | 75 mV | 112.5 mV | 225 mV | 450 mV |
| Current [2, 8] 0.1% + | 150 mA | 102 mA | 51 mA | 25.5 mA |
| **Measurement accuracy** | | | | |
| Voltage 0.025% + | 125 mV | 187.5 mV | 375 mV | 750 mV |
| Current [8] 0.1% + | 150 mA | 102 mA | 51 mA | 25.5 mA |
| **Load transient recovery time** | | | | |
| Time [9] | <1 ms | <2 ms | <2 ms | <2 ms |

***Notes:***

1. *Minimum voltage is guaranteed to maximum 0.2% of rated output voltage.*
2. *Minimum current is guaranteed to maximum 0.4% of rated output current.*
3. *20 MHz*
4. *5 Hz - 1 MHz*
5. *From no-load to full-load, constant input voltage. Maximum drop in remote sense.*
6. *For load voltage change equal to the unit voltage rating, constant input voltage*
7. *Single-phase and 3-Phase 208 V models: 170~265 VAC, constant load. 3-Phase 400 V models: 342~460 VAC, constant load.*
8. *The constant current programming readback and monitoring accuracy does not include the warm-up and load regulation thermal drift.*
9. *Time for output voltage to recover within 0.5% of its rated output for a load change 10 - 90% of rated output current, local sense.*

# Supplemental Characteristics

| | N8754A | N8755A | N8756A | N8757A | N8758A |
|---|---|---|---|---|---|
| **Output response time** | | | | | |
| Up-prog response time [10] | 30 ms | 30 ms | 30 ms | 50 ms | 50 ms |
| Down-prog response time Full-load [10] | 50 ms | 80 ms | 80 ms | 80 ms | 100 ms |
| Down-prog response time No-load [11] | 700 ms | 800 ms | 900 ms | 1000 ms | 1200 ms |
| **Command response time** (add this to the output response time to obtain the total programming time) | | | | | |
| | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) |
| **Remote sense compensation** | | | | | |
| | 2 V | 5 V | 5 V | 5 V | 5 V |
| **Over-voltage protection** | | | | | |
| Range | 1-24 V | 2-36 V | 2-44 V | 5-66 V | 5-88 V |
| **Output ripple and noise** | | | | | |
| CC rms [12] | 1000 mA | 460 mA | 300 mA | 150 mA | 120 mA |
| **Programming resolution Measurement resolution** | | | | | |
| Voltage | 2.4 mV | 3.6 mV | 4.8 mV | 7.2 mV | 9.6 mV |
| Current | 30 mA | 20.4 mA | 15 mA | 10.2 mA | 7.8 mA |
| **Front panel display accuracy** (4 digits; ± 1 count) | | | | | |
| Voltage | 100 mV | 150 mV | 200 mV | 300 mV | 400 mV |
| Current | 1250 mA | 850 mA | 625 mA | 425 mA | 325 mA |
| **Temperature stability** (over 8 hours, after a 30 minute warm-up, with constant line, load, and temperature) | | | | | |
| Voltage | 10 mV | 15 mV | 20 mV | 30 mV | 40 mV |
| Current | 125 mA | 85 mA | 62.5 mA | 42.5 mA | 32.5 mA |
| **Temperature coefficient** (after a 30 minute warm-up) | | | | | |
| Voltage from rated output voltage | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C |
| Current from rated output current | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C |

***Notes:***

*10. From 10% to 90% or 90% to 10% of rated output voltage, with rated, resistive load.*

*11. From 90% to 10% of rated output voltage.*

*12. For 8 V - 15 V models the ripple is measured from 2 V to rated output voltage and rated output current. For other models, the ripple is measured at 10 - 100% of rated output voltage and rated output current.*

# Supplemental Characteristics (Continued)

| | N8759A | N8760A | N8761A | N8762A |
|---|---|---|---|---|
| **Output response time** | | | | |
| Up-prog response time [10] | 50 ms | 50 ms | 50 ms | 100 ms |
| Down-prog response time Full-load [10] | 100 ms | 100 ms | 100 ms | 200 ms |
| Down-prog response time No-load [11] | 1500 ms | 2000 ms | 2500 ms | 3000 ms |
| **Command response time** (add this to the output response time to obtain the total programming time) | | | | |
| | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) | 100 ms (typical) |
| **Remote sense compensation** | | | | |
| | 5 V | 5 V | 5 V | 5 V |
| **Over-voltage protection** | | | | |
| Range | 5-110 V | 5-165 V | 5-330 V | 5-660 V |
| **Output ripple and noise** | | | | |
| CC rms [12] | 100 mA | 90 mA | 30 mA | 15 mA |
| **Programming resolution Measurement resolution** | | | | |
| Voltage | 12 mV | 18 mV | 36 mV | 72 mV |
| Current | 6 mA | 4.1 mA | 2 mA | 1 mA |
| **Front panel display accuracy** (4 digits; ± 1 count) | | | | |
| Voltage | 500 mV | 750 mV | 1500 mV | 3000 mV |
| Current | 250 mA | 170 mA | 85 mA | 42.5 mA |
| **Temperature stability** (over 8 hours, after a 30 minute warm-up, with constant line, load, and temperature) | | | | |
| Voltage | 50 mV | 75 mV | 150 mV | 300 mV |
| Current | 25 mA | 17 mA | 8.5 mA | 4.3 mA |
| **Temperature coefficient** (after a 30 minute warm-up) | | | | |
| Voltage from rated output voltage | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C |
| Current from rated output current | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C | 100 PPM/°C |

***Notes:***

*10. From 10% to 90% or 90% to 10% of rated output voltage, with rated, resistive load.*

*11. From 90% to 10% of rated output voltage.*

*12. For 8 V - 15 V models the ripple is measured from 2 V to rated output voltage and rated output current. For other models, the ripple is measured at 10 - 100% of rated output voltage and rated output current.*

# Supplemental Characteristics (Continued)

| All Models (unless otherwise specified) | |
|---|---|
| **Analog programming and monitoring** | |
| $V_{out}$ voltage programming | 0-100%, 0-5 V or 0-10 V, user selectable. Accuracy and linearity: ±0.5% of rated $V_{out}$. |
| $I_{out}$ voltage programming [8] | 0-100%, 0-5 V or 0-10 V, user selectable. Accuracy and linearity: ±1% of rated $I_{out}$. |
| $V_{out}$ resistor programming | 0-100%, 0-5/10 Kohm full scale, user selectable. Accuracy and linearity: ±1% of rated $V_{out}$. |
| $I_{out}$ resistor programming [8] | 0-100%, 0-5/10 Kohm full scale, user selectable. Accuracy and linearity: ±1.5% of rated $I_{out}$. |
| On/Off control (rear panel) | Controlled by voltage: 0-0.6 V/2-15 V, or dry contact, user selectable logic. |
| Output current monitor [8] | 0-5 V or 0-10 V, user selectable, Accuracy: ±1%. |
| Output voltage monitor | 0-5 V or 0-10 V, user selectable, Accuracy: ±1%. |
| Power supply OK signal | TTL high (4-5 V) = OK; 0 V = Fail; 500 ohm series resistance. |
| CV/CC Indicator | 3.3 kW: CV = TTL high (4-5 V) (source current: 10 mA); CC = TTL low (0-0.6 V) (sink current = 10 mA)<br>5 kW: Open collector; CV mode: OFF, CC mode: ON, Max voltage = 30 V; Max sink current = 10 mA |
| Enable/disable | Dry contact. Open: off, Short: on. Max. voltage at terminal = 6 V |
| **Series and parallel capability** | |
| Parallel operation | Up to 4 identical units (same model number) can be connected in master/slave mode with single-wire current balancing |
| Series operation | Up to 2 identical units (same model number) can be connected using external protection diodes (see Output Terminal Isolation on page 13) |
| **Savable states** | |
| In volatile memory | 16 (in memory locations 0-15) |
| **Interface capabilities** | |
| GPIB | SCPI - 1993, IEEE 488.2 compliant interface |
| LXI Compliance | Class C (only applies to units with the LXI label on the front panel) |
| USB 2.0 | Requires Agilent I/O Library version M.01.01 and up, or 14.0 and up |
| 10/100 LAN | Requires Agilent I/O Library version L.01.01 and up, or 14.0 and up |
| **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.<br>Above 2000 m, derate the output current by 2%/100 m and derate the maximum ambient temperature by 1°C/100 m. |
| Built-in Web server | Requires Internet Explorer 5+ or Netscape 6.2+ |

***Notes:***

*8. The constant current programming readback and monitoring accuracy does not include the warm-up and load regulation thermal drift.*

# Supplemental Characteristics (Continued)

| All Models (unless otherwise specified) | |
|---|---|
| **Dimensions** | |
| (excluding connectors and handles) | Height: 88 mm (3.46 in); Width: 423 mm (16.65 in); Depth: 442.5 mm (17.42 in) |
| **Weight** | |
| | 3.3 kW: 13 kg (28.6 lbs.); 5 kW: 16 kg (35.2 lbs.) |
| **Regulatory compliance** | |
| EMC | Complies with the European EMC directive 89/336/EEC for Class A test and measurement products. |
| | Complies with the Australian standard and carries the C-Tick mark. |
| | This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme à la norme NMB-001 du Canada. |
| | Electrostatic discharges >1 kV near the I/O connectors may cause the unit to reset and require operator intervention. |
| Safety | Complies with the European Low Voltage Directive 73/23/EEC and carries the CE-marking. |
| | Complies with the US and Canadian safety standards for test and measurement products. |
| | Any LEDs used in this product are Class 1 LEDs as per IEC 825-1 |
| **Acoustic noise declaration** | |
| | Statements provided to comply with requirements of the German Sound Emission Directive, from 18 January 1991: |
| | Sound Pressure Lp <70 dB(A), *At Operator Position, *Normal Operation, *According to EN 27779 (Type Test). |
| | Schalldruckpegel Lp <70 dB(A) *Am Arbeitsplatz, *Normaler Betrieb, *Nach EN 27779 (Typprüfung). |
| **Output terminal isolation** | |
| 8 V to 60 V units | No output terminal may be more than ± 60 VDC from any other terminal or chassis ground. |
| 80 V to 600 V units | No positive output terminal may be more than ± 600 VDC from any other terminal or chassis ground. |
| | No negative output terminal may be more than ± 400 VDC from any other terminal or chassis ground. |

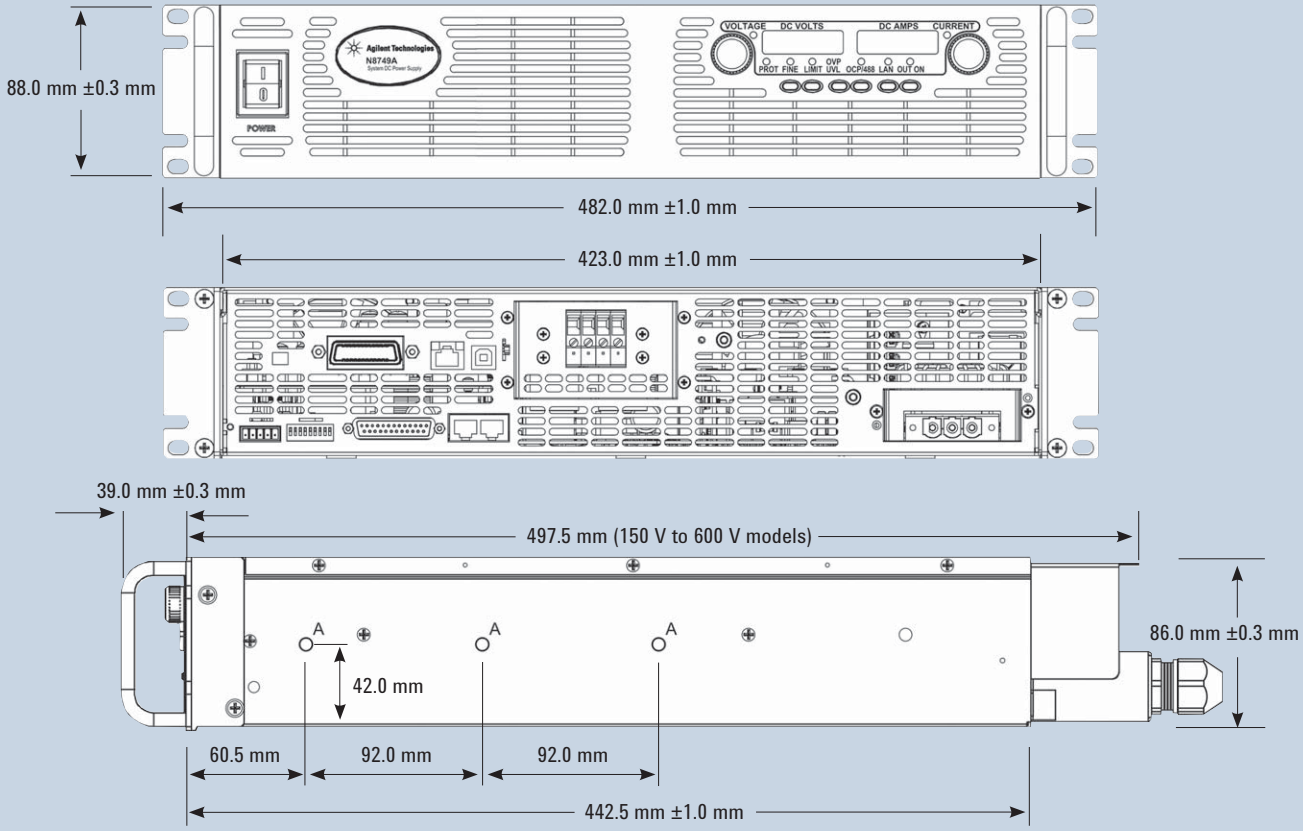
# Supplemental Characteristics (Continued)

| All Models (unless otherwise specified) | | |
|---|---|---|
| **AC Input** | | |
| Nominal input | 230 VAC single-phase option [13] | 190 - 240 VAC; 50/60 Hz |
| | 208 VAC 3-phase option | 190 - 240 VAC; 50/60 Hz |
| | 400 VAC 3-phase option | 380 - 415 VAC; 50/60 Hz |
| Input current | 230 VAC single-phase option [13] | 23 - 24 A Max @ 100% load |
| | 208 VAC 3-phase option | 3.3 kW models: 13.6 - 14.5 A Max @ 100% load<br>5 kW models: 21-22 A max @ 100% load |
| | 400 VAC 3-phase option | 3.3 kW models: 6.8 - 7.2 A Max @ 100% load<br>5 kW models: 10.5 - 12 A Max @ 100% load |
| Input range | 230 VAC single-phase option [13] | 170 - 265 VAC; 47 - 63 Hz |
| | 208 VAC 3-phase option | 170 - 265 VAC; 47 - 63 Hz |
| | 400 VAC 3-phase option | 342 - 460 VAC; 47 - 63 Hz |
| Input VA | 3.3 kW models | 4000 VA |
| | 5 kW models | 5800 VA |
| Power factor | 230 VAC single-phase option [13] | 0.99 at nominal input and rated output power |
| | 208 & 400 VAC 3-phase options | 3.3 kW models: 0.95 at nominal input and rated output power<br>5 kW models: 0.94 at nominal input and rated output power |
| Efficiency | 3.3 kW models | 82% - 88% |
| | 5 kW models | 83% - 88% |
| Inrush current | 230 VAC single-phase option [13] | < 50 A |
| | 208 VAC 3-phase option | < 50 A |
| | 400 VAC 3-phase option | < 20 A |

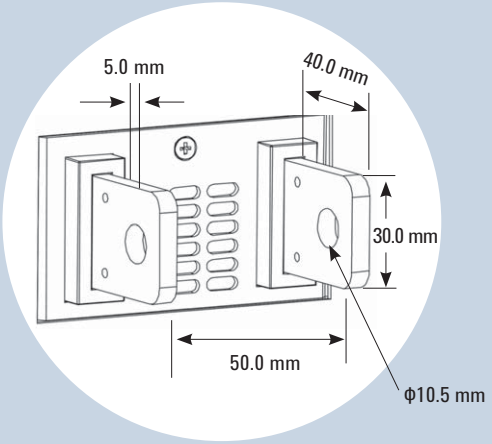
***Notes:***

*13. Available on 3.3 kW models only.*

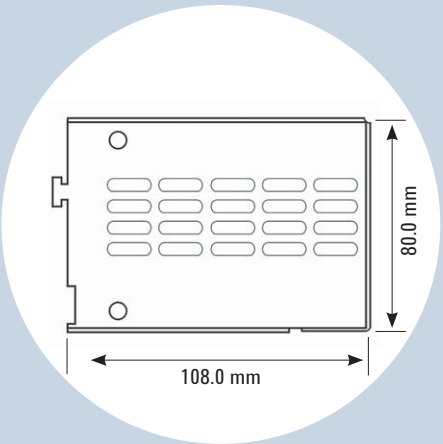
# Outline Diagram




**DC Output**
Bus-Bar detail
8 V to 100 V
models

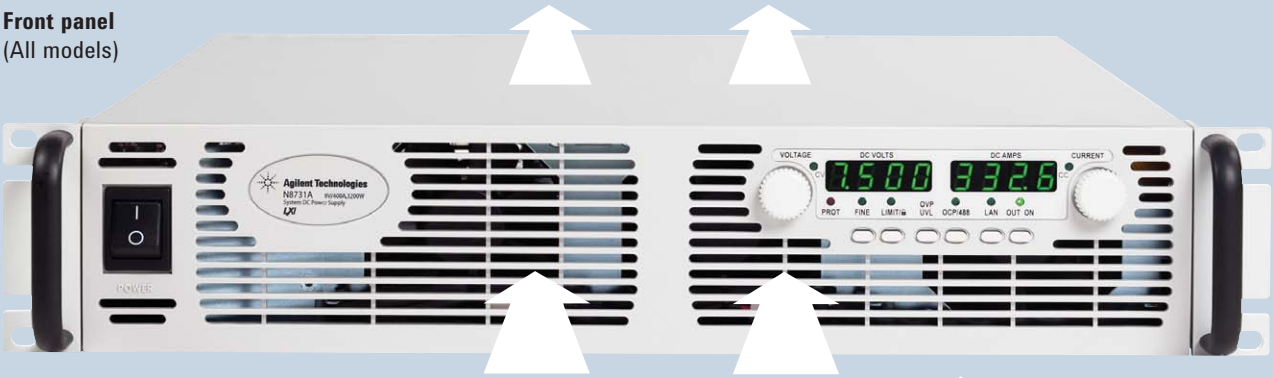



**AC Input**
Output cover
detail
8 V to 100 V
models



# Front and Rear Panel Detail

**Front panel**
(All models)




= air flow (in front, out rear)

**Rear panel with busbars**
8 V to 100 V models (shown with 230 V single-phase AC input voltage option, available on 3.3 kW models only)




**Rear panel with wire clamp connectors**
150 V to 600 V models (shown with 400 V 3-phase AC option, available on all models)



# Ordering Information

## Agilent N8700 Series

| Model | Voltage (V) | Current (A) | Max Power (W) | Series |
|---|---|---|---|---|
| N8731A | 8 V | 400 A | 3200 W | 3.3 kW |
| N8732A | 10 V | 330 A | 3300 W | 3.3 kW |
| N8733A | 15 V | 220 A | 3300 W | 3.3 kW |
| N8734A | 20 V | 165 A | 3300 W | 3.3 kW |
| N8735A | 30 V | 110 A | 3300 W | 3.3 kW |
| N8736A | 40 V | 85 A | 3400 W | 3.3 kW |
| N8737A | 60 V | 55 A | 3300 W | 3.3 kW |
| N8738A | 80 V | 42 A | 3360 W | 3.3 kW |
| N8739A | 100 V | 33 A | 3300 W | 3.3 kW |
| N8740A | 150 V | 22 A | 3300 W | 3.3 kW |
| N8741A | 300 V | 11 A | 3300 W | 3.3 kW |
| N8742A | 600 V | 5.5 A | 3300 W | 3.3 kW |
| N8754A | 20 V | 250 A | 5000 W | 5 kW |
| N8755A | 30 V | 170 A | 5100 W | 5 kW |
| N8756A | 40 V | 125 A | 5000 W | 5 kW |
| N8757A | 60 V | 85 A | 5100 W | 5 kW |
| N8758A | 80 V | 65 A | 5200 W | 5 kW |
| N8759A | 100 V | 50 A | 5000 W | 5 kW |
| N8760A | 150 V | 34 A | 5100 W | 5 kW |
| N8761A | 300 V | 17 A | 5100 W | 5 kW |
| N8762A | 600 V | 8.5 A | 5100 W | 5 kW |

## Options

| All Models (unless otherwise specified) | |
|---|---|
| Opt 861 | Unterminated line cord for 208 V 3-phase AC input voltage (Option 208) |
| Opt 862 | Unterminated line cord for 400 V 3-phase AC input voltage (Option 400) |
| Opt 831[13] | Unterminated line cord for 230 V single-phase AC input voltage (Option 230) |
| Opt 832[13] | Unterminated, harmonized line cord for Europe for 230 V single-phase AC input voltage (Option 230) |
| Opt 208 | 190-240 V, 3-phase AC, 50/60 Hz input (use with line cord Opt 861) |
| Opt 400 | 380-415 V, 3-phase AC, 50/60 Hz input (use with line cord Opt 862) |
| Opt 230[13] | 190-240 V, single-phase AC, 50/60 Hz input (use with line cord Opt 831 or 832) |

## Accessories

| | |
|---|---|
| N5740A | Rack mount slide kit (required for rack mounting; standard system rack-mounting hardware will not work) |

***Notes:***

*13. Available on 3.3 kW models only.*

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