



## Modular Power System: 1200 W per mainframe GPIB

Save rack space with 8 power supply outputs in one mainframe  
Increase test throughput with advanced triggering system and  
down-loadable LIST mode  
Reconfigure fast with easily swappable modules

66000A (mainframe)  
66001A (keyboard)

### Specifications

(at 0° to 55° C unless otherwise specified)

66101A 66102A 66103A 66104A 66105A 66106A

#### 66000 Modular Power System

The Agilent 66000 modular power system simplifies test-system assembly, cabling, programming, debugging and operation. It is ideal for ATE and production test environments, where it can supply bias power and stimulus to sub-assemblies and final products. The modular power system saves rack space, the 7-inch-high (4-EIA units) mainframe can accommodate up to eight dc power modules.

#### Key Features

- GPIB-programmable voltage and current
- Programmable over-voltage and over-current protection
- Self-test initiated at power-up or from GPIB command
- Electronic calibration over GPIB or from keyboard
- Over-temperature protection
- Discrete fault indicator/remote inhibit (DFI/RI)
- Five nonvolatile store-recall states per output
- User-definable power-on state

#### Multiple Mainframes at One GPIB Address

The Agilent serial link feature will allow you to control up to 16 outputs at one GPIB address by connecting an auxiliary mainframe. The serial link cable comes standard with the

#### Output ratings at 40° C

|                |           |            |            |            |             |             |
|----------------|-----------|------------|------------|------------|-------------|-------------|
| Output voltage | 0 to 8 V  | 0 to 20 V  | 0 to 35 V  | 0 to 60 V  | 0 to 120 V  | 0 to 200 V  |
| Output current | 0 to 16 A | 0 to 7.5 A | 0 to 4.5 A | 0 to 2.5 A | 0 to 1.25 A | 0 to 0.75 A |
| Maximum power  | 128 W     | 150 W      | 150 W      | 150 W      | 150 W       | 150 W       |

#### Programming accuracy at 25° C ± 5° C

|         |         |      |      |       |        |        |        |
|---------|---------|------|------|-------|--------|--------|--------|
| Voltage | 0.03% + | 3 mV | 8 mV | 13 mV | 27 mV  | 54 mV  | 90 mV  |
| Current | 0.03% + | 6 mA | 3 mA | 2 mA  | 1.2 mA | 0.6 mA | 0.4 mA |

#### Readback accuracy

(via GPIB or keyboard display at 25° C ± 5° C)

|         |         |      |      |      |       |        |        |
|---------|---------|------|------|------|-------|--------|--------|
| Voltage | 0.02% + | 2 mV | 5 mV | 8 mV | 16 mV | 32 mV  | 54 mV  |
| Current | 0.02% + | 6 mA | 3 mA | 2 mA | 1 mA  | 0.6 mA | 0.3 mA |

#### Ripple and noise (20 Hz to 20 MHz)

|                      |      |      |       |       |       |       |
|----------------------|------|------|-------|-------|-------|-------|
| Constant Voltage rms | 2 mV | 3 mV | 5 mV  | 9 mV  | 18 mV | 30 mV |
| peak-peak            | 5 mV | 7 mV | 10 mV | 15 mV | 25 mV | 50 mV |
| Constant Current rms | 8 mA | 4 mA | 2 mA  | 1 mA  | 1 mA  | 1 mA  |

#### Line regulation

|         |         |        |        |        |       |       |
|---------|---------|--------|--------|--------|-------|-------|
| Voltage | 0.5 mV  | 0.5 mV | 1 mV   | 2 mV   | 3 mV  | 5 mV  |
| Current | 0.75 mA | 0.5 mA | 0.3 mA | 0.1 mA | 50 µA | 30 µA |

#### Load regulation

|         |        |        |        |        |       |       |
|---------|--------|--------|--------|--------|-------|-------|
| Voltage | 1 mV   | 1 mV   | 1 mV   | 2 mV   | 4 mV  | 7 mV  |
| Current | 0.5 mA | 0.2 mA | 0.2 mA | 0.1 mA | 50 µA | 30 µA |

#### Transient response time

Less than 1 ms for the output voltage to recover within 100 mV of its previous level following any step change in load current up to 10 percent of rated current

#### Supplemental Characteristics

(Non-warranted characteristics determined by design that are useful in applying the product)

#### Average resolution

|                                  |        |        |         |         |         |         |
|----------------------------------|--------|--------|---------|---------|---------|---------|
| Voltage                          | 2.4 mV | 5.9 mV | 10.4 mV | 18.0 mV | 36.0 mV | 60.0 mV |
| Current                          | 4.6 mA | 2.3 mA | 1.4 mA  | 0.75 mA | 0.39 mA | 0.23 mA |
| Output voltage programming (OVP) | 50 mV  | 120 mV | 200 mV  | 375 mV  | 750 mV  | 1.25 mV |
| OVP accuracy                     | 250 mV | 500 mV | 800 mV  | 1 V     | 1.5 V   | 2.5 V   |



## Modular Power System: 1200 W per mainframe GPIB (Continued)

66000 MPS mainframe. For applications with a broader range of power requirements, one 66000 mainframe can be connected with up to eight of the 6640, 6650, 6670, 6680, 6690 or 6030 series of system power supplies. This solution provides power ranges from 150 watts to 5000 watts at one primary GPIB address.

### Output Connections

System assembly is simplified thanks to a quick-disconnect connector assembly on each module. Once your wires are connected to the load, the connector design permits the modules to be removed from the front of the mainframe without disconnecting cabling or removing the mainframe from the rack. One connector assembly is shipped with each module.

### Output Sequencing

Increase test throughput by using the output sequencing feature of the 66000 MPS. This powerful feature allows you to download up to 20 voltage, current, and dwell-time parameter sets per output. This sequence can be paced by the programmed dwell times. As an alternative, triggers can be used to step through the output list. The output sequences can be executed without controller intervention, thereby increasing overall test system throughput. More detailed information on the triggering and output sequencing capabilities can be obtained by ordering the 66000 Modular Power System Product Note (p/n 5091-2497E) described below.

### Key Literature

66000 Modular Power System Product Note  
p/n 5091-2497E

### Specifications

(at 0° to 55° C unless otherwise specified)

#### Output ratings at 40° C

|                | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|----------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Output voltage | 5.7 V                              | 12 V                               | 15 V                               | 37 V                               | 40 V                               |
| Output current | 20 A                               | 12 A                               | 10 A                               | 4.5 A                              | 3.6 A                              |
| Maximum power  | 114 W                              | 144 W                              | 150 W                              | 167 W                              | 144 W                              |

#### Programming accuracy at 25° C ± 5° C

|         | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 0.03% + 2.5 mV                     | 5 mV                               | 8 mV                               | 13 mV                              | 15 mV                              |
| Current | 0.03% + 8 mA                       | 6 mA                               | 4 mA                               | 2 mA                               | 2 mA                               |

#### Readback accuracy (via GPIB keyboard display at 25° C ± 5° C)

|         | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 0.02% + 2 mV                       | 3 mV                               | 5 mV                               | 8 mV                               | 9.2 mV                             |
| Current | 0.02% + 8 mA                       | 6 mA                               | 4 mA                               | 2 mA                               | 2 mA                               |

#### Ripple and noise (20 Hz to 20 MHz)

|                      | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|----------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Constant Voltage rms | 2 mV                               | 3 mV                               | 3 mV                               | 5.3 mV                             | 6 mV                               |
| peak-peak            | 5 mV                               | 7 mV                               | 7 mV                               | 10.6 mV                            | 11.5 mV                            |
| Constant Current rms | 10 mA                              | 8 mA                               | 6 mA                               | 2 mA                               | 2 mA                               |

#### Line regulation

|         | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 0.5 mV                             | 0.5 mV                             | 0.5 mV                             | 1 mV                               | 1 mV                               |
| Current | 0.5 mA                             | 0.75 mA                            | 0.5 mA                             | 0.3 mA                             | 0.3 mA                             |

#### Load regulation

|         | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 1 mV                               | 1 mV                               | 1 mV                               | 1 mV                               | 1 mV                               |
| Current | 1 mA                               | 0.5 mA                             | 0.3 mA                             | 0.2 mA                             | 0.2 mA                             |

#### Transient response time

Less than 1 ms for the output voltage to recover within 100 mV of its previous level following any step change in load current up to 10 percent of rated current

### Supplemental Characteristics

(Non-warranted characteristics determined by design that are useful in applying the product)

#### Average resolution

|              | 66101A-J03<br>Special Order Option | 66101A-J05<br>Special Order Option | 66102A-J05<br>Special Order Option | 66103A-J01<br>Special Order Option | 66103A-J02<br>Special Order Option |
|--------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage      | 2 mV                               | 3.6 mV                             | 4.5 mV                             | 11 mV                              | 12 mV                              |
| Current      | 6 mA                               | 4.6 mA                             | 3.1 mA                             | 1.4 mA                             | 1.2 mA                             |
| OVP          | 45 mV                              | 75 mV                              | 90 mV                              | 200 mV                             | 230 mV                             |
| OVP accuracy | 250 mV                             | 375 mV                             | 375 mV                             | 850 mV                             | 920 mV                             |

### Supplemental Characteristics for all model numbers

**dc Floating Voltage:** Output terminals can be floated up to ±240 Vdc from chassis ground

**Remote Sensing:** Up to half the rated output voltage can be dropped across each load lead. Add 2 mV to the voltage load regulation specification for each 1-V change in the negative output lead caused by a load current change.

**Command Processing Time:** The average time for the output voltage to change after getting a GPIB command is 20 ms

**Output Programming Response Time (with full resistive load):** The rise and fall time (10% to 90% and 90% to 10%) of the output voltage is less than 20 ms. The output voltage change settles within 0.1% of the final value in less than 120 ms.



## Modular Power System: 1200 W per mainframe GPIB (Continued)

**Down Programming:** An active down-programmer sinks approximately 10% of the rated output current

**Calibration Interval:** One year

### ac Input of System Mainframe

**Voltage** 100 Vac 120 Vac 200 Vac 220 Vac 230 Vac 240 Vac

**Max. Current** 29 A 25 A 16 A 16 A 15 A 15 A

**Input Power of System Mainframe:** 3200 VA (max.), 1800 W (max.), 1600 W (typ.)

**GPIB Capabilities:** SH1, AH1, TE6, LE4, SR1, RL1, PP0, DC1, DT1, E1, and C0, and a command set compatible with IEEE-488.2 and SCPI

**Regulatory Compliance:** Listed to UL 1244; certified to CSA 22.2 No. 231; conforms to IEC 61010-1.

**Weight:** Net, 66000A, 15 kg (33 lb); 66001A, 1.05 kg (2.3 lb); 66101-66106A, 2.8 kg (6 lb). Shipping, 66000A, 19 kg (42 lb); 66001A, 1.34 kg (2.95 lb); 66101-66106A, 4.1 kg (9 lb).

**Size:** 66000A: 425.7 mm W x 192 mm H x 677.93 mm D (16.76 in x 7.28 in x 26.69 in), including feet and rear connectors (See Page 104 for more details.)

**Warranty Period:** One year

### Ordering Information

**66000A** MPS Mainframe

**Opt 120** for operation at 100 Vac or 120 Vac nominal

**Opt 240** for operation at 200 Vac or 220-240 Vac nominal

\* **Opt 908** Rack-mount Kit (p/n 5063-9215)

\* **Opt 909** Rack-mount Kit with Handles (p/n 5063-9222)

**Opt 0L2** Extra Standard Documentation Package

**Opt 0B3** Service Manual

**Opt 0B0** No documentation package

\* **Note:** Options 908 and 909 require cabinet rails (E3663AC) or a slide kit (p/n 1494-0059) to support the loaded mainframe's weight.

**A line cord option must be specified.**

**See pages 93-98.**

**66001A** MPS Keyboard includes 2m (6 ft) cables

**66002A** Rack kit for 66001A keyboard

### Specifications

(at 0° to 55° C unless otherwise specified)

#### Output ratings at 40° C

|                | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|----------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Output voltage | 28.5 V                             | 24 V                               | 55 V                               | 35 V                               |
| Output current | 5.5 A                              | 6 A                                | 3 A                                | 1.25 A                             |
| Maximum power  | 157 W                              | 144 W                              | 165 W                              | 44 W                               |

#### Programming accuracy at 25° C ± 5° C

|         | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 0.03% + 13 mV                      | 13 mV                              | 25 mV                              | 15 mV                              |
| Current | 0.03% + 3 mA                       | 3 mA                               | 1.5 mA                             | 0.6 mA                             |

#### Readback accuracy (via GPIB or keyboard display at 25° C ± 5° C)

|         | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 0.02% + 8 mV                       | 8 mV                               | 15 mV                              | 9 mV                               |
| Current | 0.02% + 3 mA                       | 3 mA                               | 1.2 mA                             | 0.6 mA                             |

#### Ripple and noise (20 Hz to 20 MHz)

|                      | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|----------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Constant Voltage rms | 5 mV                               | 5 mV                               | 9 mV                               | 6 mV                               |
| peak-peak            | 10 mV                              | 10 mV                              | 15 mV                              | 11.5 mV                            |
| Constant Current rms | 4 mA                               | 4 mA                               | 1.2 mA                             | 1 mA                               |

#### Line regulation

|         | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 1 mV                               | 1 mV                               | 2 mV                               | 1 mV                               |
| Current | 0.3 mA                             | 0.3 mA                             | 0.1 mA                             | 50 µA                              |

#### Load regulation

|         | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|---------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage | 1 mV                               | 1 mV                               | 2 mV                               | 1 mV                               |
| Current | 0.2 mA                             | 0.2 mA                             | 0.1 mA                             | 50 µA                              |

#### Transient response time

Less than 1 ms for the output voltage to recover within 100 mV of its previous level following any step change in load current up to 10 percent of rated current

### Supplemental Characteristics

(Non-warranted characteristics determined by design that are useful in applying the product)

#### Average resolution

|                     | 66103A-J09<br>Special Order Option | 66103A-J12<br>Special Order Option | 66104A-J09<br>Special Order Option | 66105A-J01<br>Special Order Option |
|---------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| Voltage             | 10.4 mV                            | 8 mV                               | 16.5 mV                            | 2 mV                               |
| Current             | 2 mA                               | 2 mA                               | 0.9 mA                             | 1.2 mA                             |
| OVP                 | 200 mV                             | 150 mV                             | 350 mV                             | 230 mV                             |
| <b>OVP accuracy</b> | 800 mV                             | 600 mV                             | 950 mV                             | 920 mV                             |

### Module Options

**Opt 760** Open/Close and Polarity Reversal Relays

**Opt J17** External Imon

**Opt 0L2** Extra Standard Documentation Package

**Opt 0B3** Service Manual

**Opt 0B0** No documentation package

### Accessories

**p/ n 5060-3351** Field-Installable Relay Kit

**p/ n 5060-3386** Standard Connector Assembly

**p/ n 5060-3387** Standard Connector

Assembly with installed relays (Option 760)

**p/ n 66000-90001** Mainframe

Installation Guide

**p/ n 5959-3360** dc Power Module User's Guide

**p/ n 5959-3362** dc Power Module Programming Guide

**p/ n 66000-90003** Mainframe Service Manual

**p/ n 5959-3364** dc Power Module Service Manual

**p/ n 1252-1488** 4-Pin FLT/Inhibit Connector

**E3663AC** Support rails for Agilent rack cabinets

### Your Requested Excerpt from the Agilent Power Products Catalog

The preceding page(s) are an excerpt from the *2002-2003 Power Products Catalog*.

We hope that these pages supply the information that you currently need.

If you would like to have further information about the extensive selection of Agilent dc power supplies, ac sources, and dc electronic loads, please visit [www.agilent.com/find/power](http://www.agilent.com/find/power) to print a copy of the complete Power Products catalog, or to request that a copy be sent to you. You will also find a lot of other useful information on this web site.

In the full Power Products Catalog, you will find that Agilent offers much more than basic power generation. If you need basic, clean, power for your lab bench, it's there. But in each product category, we've also integrated the capabilities that you need for a complete power solution, including extensive measurement and analysis capabilities.

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To see a copy of the user's guide, please visit our Web site at [www.agilent.com/find/manuals](http://www.agilent.com/find/manuals)

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