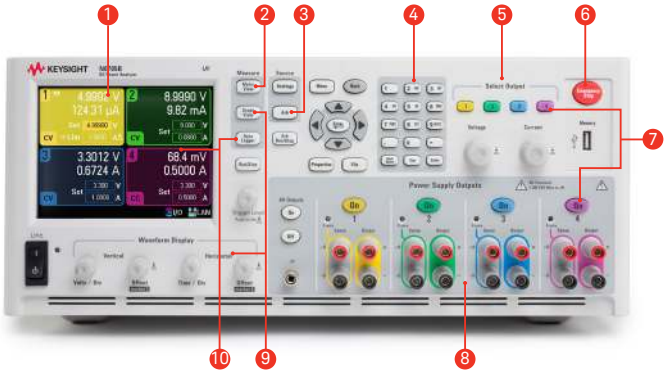
Product Fact Sheet

Keysight N6705B DC Power Analyzer Mainframe and Source Measure Unit (SMU) Modules: N6781A, N6782A, N6784A, N6785A, N6786A

Deliver exceptional battery life

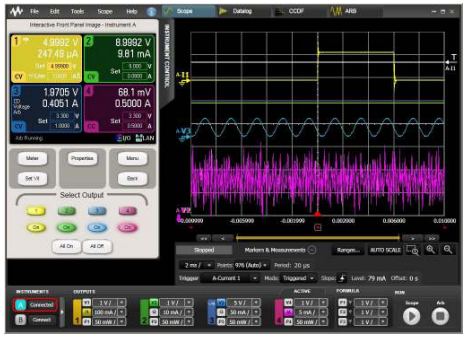
Only Keysight's N6780 Series SMUs let you visualize current drain from nA to A in one pass and one picture unlocking insights to deliver exceptional battery life.



1. Color display for fast, simple setup and monitoring
2. Digital voltage and current read back with meter view
3. Arbitrary power waveform generator
4. Easy front-panel controls eliminate the need to develop programs
5. Rear panel computer interfaces: GPIB, USB, LAN (LXI class C compliant)
6. Emergency stop button-stops output of power but measurements continue
7. Connections and controls color-coded to display
8. Up to 4 advanced DC power outputs
9. Oscilloscope-like view of voltage and current with markers and calculated measurements
10. Data logging of voltage, current, and power

Save time with this single-box solution

- Unrivaled productivity gains for sourcing and measuring DC voltage and current
- One-box solution that eliminates the need to gather multiple instruments: Up to 4 advanced DC power supplies, DMM, scope, arb and data logger



14585A control and analysis software

The software for the DC power analyzer compliments the front panel of the N6705A/B mainframe, offering advanced functionality and PC control. It is a flexible R&D tool for any application. It can control any of the N6700 family's over 30 DC power modules when installed in a N6705A/B mainframe. When used to control an N6781A SMU, it can be used for advanced battery drain analysis applications.

Key N6780 Series SMU features [1]:

- Exceptional sourcing: Accurately emulate a battery
  - Stable, glitch-free sourcing and sinking (charge/eLoad), just like a battery
  - Programmable output resistance mimics the battery's internal resistance
- Exceptional measurement: Make measurements you didn't think were possible
  - Characterize your device's off-, sleep-, and transmit-mode current in one pass and one picture with Keysight's exclusive, patented seamless measurement ranging technology - no need to make multiple measurement sweeps
  - Perform battery rundown tests and characterize how your device performs with an actual battery with the SMU's ammeter (zero-burden current shunt) mode
- Exceptional Analysis: See your device's power consumption like never before
  - Built-in digitizer measures and logs voltage, current, and power every ~5 us (~200 kHz)
  - 14585A software provides scope, data logger, and CCDF functionality to see and analyze short- and long-term power usage

1. For key features of N6705B, see 5990-9394ENDI http://literature.cdn.keysight.com/litweb/pdf/5990-9394ENDI.pdf

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N6780 Series Source/Measure Units (SMUs)

	N6781A	N6782A	N6784A	N6785A	N6786A
Power	20 W, 2-quadrant	20 W, 2-quadrant	20 W, 4-quadrant	80 W	80 W
Voltage	20 V, 6 V	20 V, 6 V	± 20 V, ± 6 V	20 V/15 V/ 10 V/6 V	20 V/15 V/ 10 V/6 V
Current	± 1A, ± 3A	± 1A, ± 3A	± 1A, ± 3A	± 4 A/± 5 A/ ± 6.7 A/± 8 A	± 4 A/± 5 A/ ± 6.7 A/± 8 A
Seamless measurement autoranging	Yes	Yes	No	Yes	Yes
Voltmeter accuracy [1]	0.025% + 50 uV	0.025% + 50 uV	0.025% + 50 uV	0.025% + 1.8 mV	0.025% + 1.8 mV
Ammeter accuracy [1]	0.025% + 8 nA	0.025% + 8 nA	0.025% + 8 nA	0.025% + 100 nA	0.025% + 100 nA
Arb waveforms (V and I)	Sine, step, pulse, ramp, staircase, exponential, user defined				
Scope function	Digitizes up to ~200 kHz, up to 512 K points, 18-bits				
Data logger	Measurement interval 20 usec to 60 sec, 500 million readings				
Memory (resides in mainframe)	4 GB internal, up to 2 GB from external USB memory device				
Battery emulator/ charger	Yes	No	No	Yes	No
Programmable output resistance	Yes –40 mΩ to 1 Ω	No	No	Yes –40 mΩ to 1 Ω	No
External DVM input	Yes	No	No	Yes	No
Logging ammeter mode	Yes	Yes	Yes	Yes	Yes
CCDF/histogram (requires 14585A)	Yes	No	No	Yes	No
Output disconnect relay	Yes	Yes	Yes	Yes	Yes
Interface	LAN, USB, GPIB (LXI Class C)				

1. Range dependent; best accuracy shown.

Ordering information

Model	Description
N6705B	N6705B DC power analyzer, modular, 600 W max, 4 slots
N6781A	2-quadrant source/measure unit for battery drain analysis (20 W)
N6782A	2-quadrant source/measure unit for functional test (20 W)
N6784A	4-quadrant general-purpose source/measure unit
N6785A	2-quadrant source/measure unit for battery drain analysis (80 W)
N6786A	2-quadrant source/measure unit for functional test (80 W)
14585A control and analysis SW (see below)	Downloadable for free; To communicate to N6705A/B and N67xx modules a license key must be installed in the N6705A/B after 30-day free trial
N6705B-056	14585A license ordered as option to new N6705B
N6705U-056	14585A license for already owned N6705A [discontinued] or N6705B

Select	Example applications	Description
N6781A, N6785A	Battery simulator/charger, current drain analysis, battery run down test	Fast output response, programmable output resistance, seamless measurement (measure uA to A in a single sweep)
N6782A, N6786A	Advanced functional test	Seamless measurement (measure uA to A in a single sweep)
N6784A	General purpose discrete component test	4-quadrant operation, bipolar power source, bipolar electronic load

For functional test applications consider the Keysight N6700 low-profile mainframes with similar capabilities in a small 1U footprint.

Three-Year Warranty

www.keysight.com/find/ThreeYearWarranty

Keysight's commitment to superior product quality and lower total cost of ownership. The only test and measurement company with three-year warranty standard on all instruments, worldwide.

Keysight Assurance Plans

www.keysight.com/find/AssurancePlans

Up to five years of protection and no budgetary surprises to ensure your instruments are operating to specification so you can rely on accurate measurements.

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Published in USA, December 9, 2014
5989-8615EN
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