ROHDE&SCHWARZ
Make ideas real

R&S®NGM200
versus Keithley 2281S-20-6

Key features

► Fast regulation of output voltage with minimum overshoot and very fast load recovery time
► Minimum residual ripple and noise to supply interference-free voltage to sensitive DUTs
► Acquisition rate of up to 500 ksample/s to capture extremely fast variations in voltage or current
► High accuracy and readings with up to 6½ digit resolution
► Two quadrants: operates as source and sink
► Battery simulation

Your benefit	Features
Optimized load recovery time with minimal overshoot	Featuring optimized load recovery time of < 30 µs, the R&S®NGM200 power supplies can handle abrupt load changes from a few µA to the ampere range without creating voltage drops or overshoots.
Low ripple and noise	Low ripple and noise make it possible to supply interference-free voltage to sensitive designs, such as complex semiconductors, and to support the development of power amplifiers and MMICs.
High-speed acquisition (FastLog functionality)	With an acquisition rate of up to 500 ksample/s, voltage and current results are available every 2 µs. On the R&S®NGM202, data acquisition can be performed on both channels in parallel.
Battery simulation	The battery simulator function of the R&S®NGM200 enables simulation of the actual battery output performance. Testing can be based on a selected battery model, while battery capacity, SoC and Voc can be set to any state to test the device under specific conditions

For prices and more information, visit:
www.rohde-schwarz.com/product/NGM200

Parameter	R&S®NGM200	Keithley 2281S
Number of channels	1 / 2	1
Output voltage per channel	0 V to 20 V	0 V to 20 V
Max. output power per channel	60 W	120 W
Max. output current per channel	≤ 6 V output voltage: 6 A > 6 V output voltage: 3 A	6 A
Max. sink current per channel	3 A	1 A
Adjustable output impedance	−50 mΩ to 100 Ω	not specified
Voltage ripple and noise (20 Hz to 20 MHz)	< 500 µV (RMS) < 2 mV (peak-to-peak)	< 1 mV (RMS) < 6 mV (peak-to-peak)
Current ripple and noise (20 Hz to 20 MHz)	< 1 mA (RMS)	< 3 mA (RMS)
Load recovery time (20 mV)	< 30 µs	< 50 µs
Programming resolution	1 mV / 0.1 mA	1 mV / 0.1 mA
Max. readback resolution	10 µV / 10 nA	100 µV / 10 nA
Readback accuracy, voltage	20 V range: < 0.02 % + 2 mV 5 V range: < 0.02 % + 500 µV	< 0.02 % + 2 mV
Readback accuracy, current	10 A range: < 0.05 % + 250 µA 1 A range: < 0.05 % + 1 mA 100 mA range: < 0.05 % + 100 µA 10 mA range: < 0.05 % + 15 µA	10 A range: < 0.05 % + 250 µA 1 A range: < 0.04 % + 250 µA 100 mA range: < 0.04 % + 10 µA 10 mA range: < 0.04 % + 10 µA
Max. measurement speed	500,000 sample/s (2 µs)	6½ digit: 20 readings/s 3½ digit: 845 readings/s
Protection functions	OCP / OVP / OPP / OTP	OCP / OVP /OTP
Remote control interfaces	standard: USB / LAN optional: IEEE-488 (GPIB)	standard: USB / LAN / IEEE-488 (GPIB)
Display	5", 800 × 480 pixel WVGA, capacitive touchscreen	4.3", 480 × 272 pixel, TFT LCD
Dimensions (W × H × D)	222 mm × 97 mm × 436 mm	255 mm × 107 mm × 415 mm
Weight	7.1 kg / 7.3 kg	10.85 kg
Weight	7.4 kg	8.2 kg

R&S®NGM200 series vs. Keithley 2281S

R&S®NGM200 series
► Two instruments, one or two channels
► Output power: 60 W per channel
► Output voltage: 0 V to 20 V per channel
► Available worldwide

Keithley 2281S:
► Single-channel instrument
► Output power: 120 W
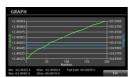► Output voltage: 0 V to 20 V
► Max. sink current: 1 A

Display size

R&S®NGM200 series
The 5" display with 800 × 480 pixel resolution makes it easy to read results even from a distance. Information such as power values and statistics can be displayed in addition. Icons indicate the status of selected protection and special functions.
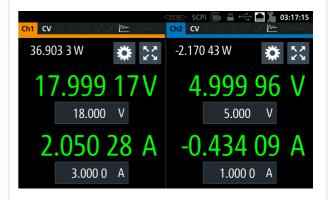

Keithley 2281S:
4.3" display with 470 × 272 pixel resolution; capability to generate graphs.

Source and sink and 6½ digit resolution

A resolution of up to 6½ digits is perfect for characterizing DUTs that have low power consumption in standby mode and high current in full load operation. The R&S®NGM200 power supplies automatically switch between source and sink mode. A negative current reading indicates that the instrument operates as a load.

Battery simulation

R&S®NGM200 series:

► **Discharging tests:** Based on a selected battery model, the battery capacity, SoC and Voc can be set to any state.
► **Charging tests:** Similar to discharging tests; here, the R&S®NGM200 operates in sink mode.
► **Dynamic simulation:** Voc, ESR and SoC change according to charging/discharging conditions like a real battery. SoC is shown graphically; other values numerically.

Keithley 2281S:

► **Discharging and charging tests:** similar to R&S®NGM200.
► **Single-channel instrument:** The Keithley 2281S can run a charging or a discharging test, while the R&S®NGM202 can run both tests in parallel using the second channel.
► **Graphs:** Built-in graph function simplifies analyzing trends and displaying voltage and current waveforms.

Large touchscreen – new standard for power supplies

The large capacitive touchscreen is the central operating element on the R&S®NGM200. Lightly tapping a numerical value will display a virtual keyboard to enter the desired value. Alternatively, the rotary knob can be used to set voltage and current values as well as limits for the various protection functions.