# **ROHDE&SCHWARZ**

Make ideas real

# R&S®NGM200 versus Keithley 2281S-20-6

# **P**S





# **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

Features
Featuring optimized load recovery time of < 30 $\mu$ s, the R&S*NGM200 power supplies can handle abrupt load changes from a few $\mu$ A to the ampere range without creating voltage drops or overshoots.
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.
With an acquisition rate of up to 500 ksample/s, voltage and current results are available every 2 $\mu$ s. On the R&S®NGM202, data acquisition can be performed on both channels in parallel.
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

Number of channels			
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 mQ to 100 Q         not specified           Voltage ripple and noise (20 Hz to 20 MHz)         < 2 mV (peak-to-peak)         < 1 mV (RMS)           Current ripple and noise (20 Hz to 20 MHz)         < 1 mA (RMS)         < 3 mA (RMS)           Current ripple and noise (20 Hz to 20 MHz)         < 1 mV / 0.1 mA         1 mV / 0.1 mA           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         < 0.02 % + 2 mV           5 Vrange: < 0.05 % + 250 μA         1 A range: < 0.05 % + 250 μA         1 A range: < 0.05 % + 250 μA           1 A range: < 0.05 % + 1 mA         100 mA range: < 0.04 % + 10 μA         100 mA range: < 0.04 % + 10 μA           10 mA range: < 0.05 % + 1 mA         100 mA range: < 0.04 % + 10 μA         10 mA range: < 0.04 % + 10 μA	Parameter	R&S®NGM200	Keithley 2281S
Max. output power per channel         60 W         120 W           Max. output current per channel         ≤ 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)	Number of channels	1/2	1
Max. output current per channel $\leq 6 \text{ V output voltage: } 6 \text{ A}$ $> 6 \text{ V output voltage: } 3 \text{ A}$ $6 \text{ A}$ Max. sink current per channel $3 \text{ A}$ $1 \text{ A}$ Adjustable output impedance $-50 \text{ mQ to } 100 \text{ Q}$ not specifiedVoltage ripple and noise (20 Hz to 20 MHz) $< 500 \text{ µV (RMS)}$ $< 2 \text{ mV (peak-to-peak)}$ $< 1 \text{ mV (RMS)}$ $< 6 \text{ mV (peak-to-peak)}$ Current ripple and noise (20 Hz to 20 MHz) $< 1 \text{ mA (RMS)}$ $< 3 \text{ mA (RMS)}$ Load recovery time (20 mV) $< 30 \text{ µs}$ $< 50 \text{ µs}$ Programming resolution $1 \text{ mV / 0.1 mA}$ $1 \text{ mV / 0.1 mA}$ Max. readback resolution $10 \text{ µV / 10 nA}$ $100 \text{ µV / 10 nA}$ Readback accuracy, voltage $20 \text{ V range: } < 0.02 \% + 2 \text{ mV}$ $5 \text{ V range: } < 0.02 \% + 250 \text{ µA}$ $1 \text{ A range: } < 0.05 \% + 250 \text{ µA}$ $1 \text{ A range: } < 0.05 \% + 250 \text{ µA}$ $10 \text{ Ma range: } < 0.05 \% + 250 \text{ µA}$ $10 \text{ Ma range: } < 0.04 \% + 250 \text{ µA}$ $10 \text{ mA range: } < 0.05 \% + 15 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 250 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.05 \% + 15 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100 \text{ mA range: } < 0.04 \% + 10 \text{ µA}$ $100  mA ra$	Output voltage per channel	0 V to 20 V	0 V to 20 V
Max. output current per channel $> 6 \text{ V output voltage: } 3 \text{ A}$ $6 \text{ A}$ Max. sink current per channel $3 \text{ A}$ $1 \text{ A}$ Adjustable output impedance $-50 \text{ mΩ to } 100 \Omega$ not specifiedVoltage ripple and noise (20 Hz to 20 MHz) $< 500 \text{ μV (RMS)}$ $< 2 \text{ mV (peak-to-peak)}$ $< 1 \text{ mV (RMS)}$ $< 6 \text{ mV (peak-to-peak)}$ Current ripple and noise (20 Hz to 20 MHz) $< 1 \text{ mA (RMS)}$ $< 3 \text{ mA (RMS)}$ Load recovery time (20 mV) $< 30 \text{ μs}$ $< 50 \text{ μs}$ Programming resolution $1 \text{ mV / } 0.1 \text{ mA}$ $1 \text{ mV / } 0.1 \text{ mA}$ Max. readback resolution $10 \text{ μV / } 10 \text{ nA}$ $100 \text{ μV / } 10 \text{ nA}$ Readback accuracy, voltage $10 \text{ A range: } < 0.02 \% + 2 \text{ mV}$ $< 0.02 \% + 2 \text{ mV}$ $5 \text{ V range: } < 0.05 \% + 1 \text{ mA}$ $100 \text{ mA range: } < 0.05 \% + 1 \text{ mA}$ $100 \text{ mA range: } < 0.04 \% + 250 \text{ μA}$ $10 \text{ mA range: } < 0.04 \% + 250 \text{ μA}$ $10 \text{ mA range: } < 0.04 \% + 10 \text{ μA}$ $10 \text{ mA range: } < 0.04 \% + 10 \text{ μA}$ $10 \text{ mA range: } < 0.04 \% + 10 \text{ μA}$ $10 \text{ mA range: } < 0.04 \% + 10 \text{ μA}$ Max. measurement speed $500,000 \text{ sample/s } (2 \text{ μs})$ $500,000 \text{ sample/s } (2 \text{ μs})$ $500,000 \text{ sample/s } (2 \text{ μs})$ Remote control interfaces $500,000 \text{ sample/s } (2 \text{ μs})$ $500,000 \text{ sample/s } (2 \text{ μs})$ $500,000 \text{ sample/s } (2 \text{ μs})$ Display $500,000 \text{ sample/s } (2 \text{ μs})$ Display $500,000 \text{ sample/s } (2 \text{ μs})$ $500,000 \text{ sample/s } (2 \text{ μs})$ <	Max. output power per channel	60 W	120 W
Adjustable output impedance $ -50 \text{ mQ to } 100 \text{ Q} $ not specified $ \sqrt{\text{Voltage ripple and noise}} \\ \text{Voltage ripple and no$	Max. output current per channel		6 A
Voltage ripple and noise         < 500 μV (RMS)	Max. sink current per channel	3 A	1 A
COURT   COU	Adjustable output impedance	$-50~\text{m}\Omega$ to $100~\Omega$	not specified
$ \begin{array}{llllllllllllllllllllllllllllllllllll$			,
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		< 1 mA (RMS)	< 3 mA (RMS)
Max. readback resolution       10 μV / 10 nA       100 μV / 10 nA         Readback accuracy, voltage       20 V range: $< 0.02 \% + 2$ mV $< 0.02 \% + 2$ mV $< 0.02 \% + 2$ mV         Readback accuracy, voltage       10 A range: $< 0.05 \% + 250$ μA $< 0.05 \% + 100$ μα $< 0.05 \% + 100$ μA $< 0.05 \% + 100$ μΑ	Load recovery time (20 mV)	< 30 µs	< 50 μs
Readback accuracy, voltage       20 V range: $< 0.02 \% + 2 \text{ mV}$ $< 0.02 \% + 2 \text{ mV}$ Readback accuracy, current       10 A range: $< 0.05 \% + 250 \mu A$ 10 A range: $< 0.05 \% + 250 \mu A$ 1 A range: $< 0.05 \% + 1 \text{ mA}$ 100 mA range: $< 0.04 \% + 250 \mu A$ 100 mA range: $< 0.05 \% + 1 \text{ mA}$ 100 mA range: $< 0.04 \% + 250 \mu A$ 10 mA range: $< 0.05 \% + 15 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 6½ digit: 20 readings/s       3½ digit: 845 readings/s         9 rotection functions       0CP / 0VP / 0PP / 0TP       0CP / 0VP / 0TP         10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$ 10 mA range: $< 0.04 \% + 10 \mu A$	Programming resolution	1 mV / 0.1 mA	1 mV / 0.1 mA
Readback accuracy, voltage         5 V range: $< 0.02 \% + 500  \mu V$ $< 0.02 \% + 250  \mu A$ 10 A range: $< 0.05 \% + 250  \mu A$ 10 A range: $< 0.05 \% + 250  \mu A$ 1 A range: $< 0.05 \% + 1  mA$ 100 mA range: $< 0.05 \% + 100  \mu A$ 100 mA range: $< 0.04 \% + 250  \mu A$ 100 mA range: $< 0.05 \% + 15  \mu A$ 100 mA range: $< 0.04 \% + 10  \mu A$ 100 mA range: $< 0.04 \% + 10  \mu A$ 100 mA range: $< 0.04 \% + 10  \mu A$ Max. measurement speed $500,000  \text{sample/s}  (2  \mu \text{s})$ $61\%  \text{digit: 20 readings/s}$ Protection functions $0\text{CP / OVP / OPP / OTP}$ $0\text{CP / OVP / OTP}$ Remote control interfaces $0\text{Standard: USB / LAN / optional: IEEE-488 (GPIB)}$ $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ Display $0\text{Standard: USB / WGA, capacitive touchscreen}$ $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ Dimensions (W × H × D) $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ Dimensions (W × H × D) $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ Dimensions (W × H × D) $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ Dimensions (W × H × D) $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ $0\text{Standard: USB / LAN / IEEE-488 (GPIB)}$ <td>Max. readback resolution</td> <td><math>10~\mu V / 10~nA</math></td> <td>100 μV / 10 nA</td>	Max. readback resolution	$10~\mu V / 10~nA$	100 μV / 10 nA
Readback accuracy, current $ \begin{array}{lll} 1 \ A \ range: < 0.05 \ \% + 1 \ mA \\ 100 \ mA \ range: < 0.05 \ \% + 100 \ \muA \\ 100 \ mA \ range: < 0.05 \ \% + 100 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 250 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 100 \ mA \ range: < 0.04 \ \% + 10 \ \muA \\ 1$	Readback accuracy, voltage	•	< 0.02 % + 2 mV
Max. measurement speed       500,000 sample/s (2 μs)       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	Readback accuracy, current	1 A range: < 0.05 % + 1 mA 100 mA range: < 0.05 % + 100 µA	1 A range: $< 0.04~\% + 250~\mu A$ 100 mA range: $< 0.04~\% + 10~\mu A$ 10 mA range: $< 0.04~\% + 10~\mu A$
Remote control interfacesstandard: USB / LAN optional: IEEE-488 (GPIB)standard: USB / LAN / IEEE-488 (GPIB)Display $5''$ , $800 \times 480$ pixel WVGA, capacitive touchscreen $4.3''$ , $480 \times 272$ pixel, TFT LCDDimensions (W × H × D) $222 \text{ mm} \times 97 \text{ mm} \times 436 \text{ mm}$ $255 \text{ mm} \times 107 \text{ mm} \times 415 \text{ mm}$ Weight $7.1 \text{ kg} / 7.3 \text{ kg}$ $10.85 \text{ kg}$	Max. measurement speed	500,000 sample/s (2 μs)	o o
Remote control interfaces optional: IEEE-488 (GPIB) IEEE-488 (GPIB)  Display $5''$ , $800 \times 480$ pixel WVGA, capacitive touchscreen $4.3''$ , $480 \times 272$ pixel, TFT LCD  Dimensions (W × H × D) $222 \text{ mm} \times 97 \text{ mm} \times 436 \text{ mm}$ $255 \text{ mm} \times 107 \text{ mm} \times 415 \text{ mm}$ Weight $7.1 \text{ kg} / 7.3 \text{ kg}$ $10.85 \text{ kg}$	Protection functions	OCP / OVP / OPP / OTP	OCP / OVP /OTP
Display       capacitive touchscreen       4.3 , 480 × 272 pixel, 1F1 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	Remote control interfaces		
Weight 7.1 kg / 7.3 kg 10.85 kg	Display		4.3", 480 × 272 pixel, TFT LCD
	Dimensions (W $\times$ H $\times$ 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	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 WOutput voltage: 0 V to 20 V
- ► Max. sink current: 1 A



# Display size

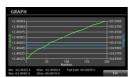
#### R&S®NGM200 series

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.



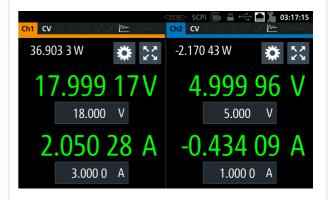
### Keithley 2281S:

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.

#### Rohde & Schwarz GmbH & Co. KG (www.rohde-schwarz.com)

Rohde & Schwarz customer support (www.rohde-schwarz.com/support) Rohde & Schwarz training (www.training.rohde-schwarz.com)

 $R\&S^{\circ} \text{ is a registered trademark of Rohde \& Schwarz GmbH \& Co. KG} \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} 3609.5222.32 \hspace{0.2cm} | \hspace{0.2cm} Version \hspace{0.2cm} 01.10 \hspace{0.2cm} | \hspace{0.2cm} May \hspace{0.2cm} 2022 \hspace{0.2cm} (as) \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} 3609.5222.32 \hspace{0.2cm} | \hspace{0.2cm} Version \hspace{0.2cm} 01.10 \hspace{0.2cm} | \hspace{0.2cm} May \hspace{0.2cm} 2022 \hspace{0.2cm} (as) \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} 3609.5222.32 \hspace{0.2cm} | \hspace{0.2cm} Version \hspace{0.2cm} 01.10 \hspace{0.2cm} | \hspace{0.2cm} May \hspace{0.2cm} 2022 \hspace{0.2cm} (as) \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} 3609.5222.32 \hspace{0.2cm} | \hspace{0.2cm} Version \hspace{0.2cm} 01.10 \hspace{0.2cm} | \hspace{0.2cm} May \hspace{0.2cm} 2022 \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} 3609.5222.32 \hspace{0.2cm} | \hspace{0.2cm} Version \hspace{0.2cm} 01.10 \hspace{0.2cm} | \hspace{0.2cm} May \hspace{0.2cm} 2022 \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} 3609.5222.32 \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} | \hspace{0.2cm} PD \hspace{0.2cm} | \hspace{0.2c$ 

Trade names are trademarks of the owners | R&S\*NGM200 versus Keithley 2281S-20-6 | Data without tolerance limits is not binding

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