


Aumictech

Test & measurement · bought, sold, repaired, calibrated

Data Sheet

August 13, 2026

KEITHLEY

Keithley Series 2281S-20-6 Dynamic Model Battery Simulator

Key Features - Battery simulator with static and dynamic SOC - Creates models from a charge test or from a 2450/2460 SMU discharge script - Amp-hour capacity and ESR computation - Precision supply mode with 6.5-digit readback - Sink 1 A for controlled discharge (higher than 2280S 0.45 A sink) - Digital I/O configurable as trigger in or measure-complete out in battery modes

Technical Specifications Model: 2281S-20-6 Manufacturer: Keithley / Tektronix

Instrument Type: Battery simulator and precision DC power supply Alias: 2281S206; 2281S-20-6

Voltage range: 0 to 20 V Current range: 0 to 6 A Maximum power: 120 W Sink current: up to 1 A

Source setting accuracy voltage: $\pm(0.02\% + 3 \text{ mV})$ Source setting resolution voltage: 1 mV

Voltage measurement accuracy: $\pm(0.02\% + 2 \text{ mV})$ Voltage measurement resolution: 0.1 mV

Load regulation voltage: $\pm(0.02\% + 2 \text{ mV})$



MODEL

Keithley 2281S-20-6

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

2281S-20-6

LISTING

<https://aumictechlabs.com/products/2281s-20-6-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keithley Series 2281S-20-6 is a single-output dynamic model battery simulator and precision DC bench power supply delivering 120 W across a 20 V, 6 A source range with 1 A sink capability. It combines high-precision DC sourcing, battery charging, and battery emulation in one

instrument - test battery-dependent devices under realistic discharge profiles without physical batteries. The unit stores up to 14 battery models, including 5 built-in emulator models, and uses a 101-point dynamic model to define open circuit voltage and internal resistance as functions of state of charge. Internal resistance simulation extends to 100 Ω . Technical Specifications Output: 1 channel, 120 W maximum Voltage: 0–20 V with 100 μ V resolution Source Current: 0–6 A Sink Current: 0–1 A maximum Measurement Accuracy: Up to 6½ digits with DMM-quality precision; source setting accuracy 0.02% Current Ranges: 10 A, 1 A, 100 mA, 10 mA Display: 4.3-inch color TFT LCD, 6½-digit resolution Sampling Rate: 1.5 ms Memory: 2500 locations Battery Testing: Charge to 6 A, discharge to 1 A; automatic capacity (Amp-Hour) and ESR computation Interfaces: GPIB, USB, LAN, Digital I/O Power Input: 100–240 VAC Operating Range: 0–40 °C; 0–80% relative humidity Dimensions: 4.22 × 10.1 × 16.34 inches; 14 kg Key Features Dynamic and static simulation modes for battery behavior across discharge cycles Parametric battery models: open circuit voltage (Voc), internal resistance, state of charge (SoC), remaining capacity, terminal voltage (Vt) Stores custom battery models generated from measured charge-cycle data Built-in graphing for voltage and current waveform analysis High-resolution icon-based TFT interface with soft-key control Typical Applications Battery-powered device development and validation Low-battery condition testing and performance analysis Battery model generation from measured charge characteristics Device runtime estimation under variable battery states Compatibility & Integration GPIB, USB, LAN, and Digital I/O connectivity enable integration into automated test systems and remote operation environments.

Features & description

From manufacturer datasheet

Features

- Battery simulator with static and dynamic SOC

2281S20 Characteristics / Specifications

PARAMETER	VALUE
Model	2281S-20-6
Manufacturer	Keithley / Tektronix
Instrument Type	Battery simulator and precision DC power supply
Alias	2281S206; 2281S-20-6
Voltage range	0 to 20 V
Current range	0 to 6 A
Maximum power	120 W
Sink current	up to 1 A
Source setting accuracy voltage	$\pm(0.02\% + 3 \text{ mV})$
Source setting resolution voltage	1 mV
Voltage measurement accuracy	$\pm(0.02\% + 2 \text{ mV})$
Voltage measurement resolution	0.1 mV
Load regulation voltage	$\pm(0.01\% + 2 \text{ mV})$
Line regulation voltage	$\pm(0.01\% + 1 \text{ mV})$
Output ripple	less than 1 mV RMS / less than 6 mV peak to peak (20 Hz to 20 MHz)
Load transient recovery	less than 50 μs to within 15 mV of Vset
Slew rate	10 V/s to 100 V/s (default 100 V/s); up to 1000 V/s limited
Current limit full scale	6.1 A
Current limit accuracy	$\pm(0.05\% + 5 \text{ mA})$
Current limit resolution	0.1 mA
Current measure 10 mA	10 nA resolution, $\pm(0.04\% + 10 \text{ uA})$
Current measure 100 mA	100 nA resolution, $\pm(0.04\% + 10 \text{ uA})$
Current measure 1 A	1 uA resolution, $\pm(0.04\% + 250 \text{ uA})$
Current measure 10 A	10 uA resolution, $\pm(0.05\% + 250 \text{ uA})$
Simulated ESR range	0 to 10 ohm, 1 milliohm resolution

PARAMETER	VALUE
Simulated Voc range	0 to 20 V, 1 mV resolution
Simulated capacity range	1 mAh to 99 Ah, 1 mAh resolution
Simulation points	101 from 0% to 100% SOC
Offset extra 0.1 PLC	0.21 mV
Offset extra 0.01 PLC	1.44 mV
Offset extra 0.002 PLC	7.60 mV
Power consumption	630 VA peak
Line	100/120/220/240 V $\pm 10\%$, 50/60 Hz ± 3 Hz
Operating	0 C to 40 C; $\leq 80\%$ RH to 35 C
Interfaces	GPIB, USB TMC, LAN LXI, digital I/O Notes Specs from Keithley Series 2281S battery simulator data sheet at 23 C ± 5 C after 1 hour warm-up. Distinct from 2280S-32-6 (32 V precision supply without battery model/simulation).

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Specifications	
PARAMETER	VALUE
Model	2281S-20-6
Manufacturer	Keithley / Tektronix
Instrument Type	Battery simulator and precision DC power supply
Specifications	
PARAMETER	VALUE
Alias	2281S206; 2281S-20-6
Voltage range	0 to 20 V
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Specifications	
PARAMETER	VALUE
Maximum power	120 W
Sink current	up to 1 A
Source setting accuracy voltage	$\pm(0.02\% + 3\text{ mV})$
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PARAMETER	VALUE
Source setting resolution voltage	1 mV
Voltage measurement accuracy	$\pm(0.02\% + 2\text{ mV})$
Voltage measurement resolution	0.1 mV
Specifications	
PARAMETER	VALUE
Load regulation voltage	$\pm(0.01\% + 2\text{ mV})$
Line regulation voltage	$\pm(0.01\% + 1\text{ mV})$
Output ripple	less than 1 mV RMS / less than 6 mV peak to peak (20 Hz to 20 MHz)

Specifications

PARAMETER	VALUE
Load transient recovery	less than 50 us to within 15 mV of Vset
Slew rate	10 V/s to 100 V/s (default 100 V/s); up to 1000 V/s limited
Current limit full scale	6.1 A

Specifications

PARAMETER	VALUE
Current limit accuracy	$\pm(0.05\% + 5 \text{ mA})$
Current limit resolution	0.1 mA
Current measure 10 mA	10 nA resolution, $\pm(0.04\% + 10 \text{ uA})$

Specifications

PARAMETER	VALUE
Current measure 100 mA	100 nA resolution, $\pm(0.04\% + 10 \text{ uA})$
Current measure 1 A	1 uA resolution, $\pm(0.04\% + 250 \text{ uA})$
Current measure 10 A	10 uA resolution, $\pm(0.05\% + 250 \text{ uA})$

Specifications

PARAMETER	VALUE
Simulated ESR range	0 to 10 ohm, 1 milliohm resolution
Simulated Voc range	0 to 20 V, 1 mV resolution
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Specifications

PARAMETER	VALUE
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Offset extra 0.002 PLC	7.60 mV
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Operating: 0 C to 40 C; $\leq 80\%$ RH to 35 C

Interfaces: GPIB, USB TMC, LAN LXI, digital I/O

Notes

Specs from Keithley Series 2281S battery simulator data sheet at 23 C ± 5 C after 1 hour warm-up. Distinct from 2280S-32-6 (32 V precision supply without battery model/simulation).

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
30-day returns
NAICS 423690 · 811210 · 541380
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.