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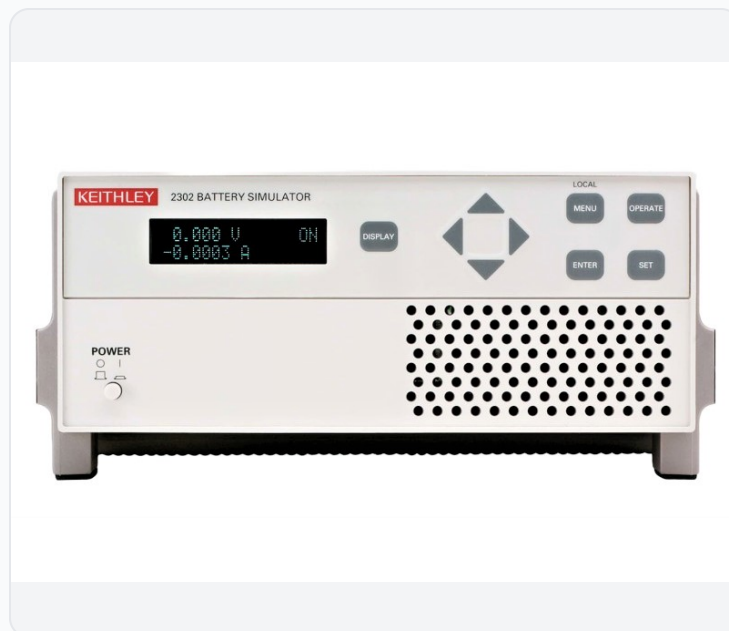
Data Sheet

August 2, 2026

KEITHLEY

Keithley 2302 Battery Simulator

The 2302 provides a single-channel battery-simulating DC power supply designed for development and production test of portable battery-operated products, with ultrafast transient response and programmable output resistance so the voltage behavior matches a real battery under standby-to-transmit load steps. Cellular, cordless, mobile radio, and pager device development and production test; battery internal-resistance emulation during RF transmit current spikes; pulse peak/average/baseline current measurement for power-consumption analysis; discharged-battery sink simulation for charger testing; built-in DVM measurements in the same half-rack instrument. Transient Recovery: $<40\ \mu\text{s}$ or $<60\ \mu\text{s}$ (high bandwidth, specified conditions) Current Readback Resolution: $100\ \mu\text{A}$ (5 A range); $0.1\ \mu\text{A}$ (5 mA range) DVM Input: one set, $-5\ \text{V}$ to $+30\ \text{V}$ DC class Related Models: 2302-PJ (500 mA range); 2306 dual-channel battery/charger simulator



MODEL

Keithley 2302

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

2302

LISTING

<https://aumictechlabs.com/products/2302-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keithley 2302 Battery Simulator is a single-output instrument that emulates battery characteristics for development and testing of battery-powered devices. It reproduces the voltage and current behavior of real batteries under dynamic operating conditions, including rapid transient response during current demand transitions - such as shifts from low-power standby to high-power RF transmission. The instrument simulates discharged battery states and sources

current to external chargers, enabling comprehensive evaluation of device performance across the battery's discharge cycle. Variable output resistance (0 to 1.00 Ω) models real battery response. Built-in pulse current measurement captures peak, average, and baseline values. A long integration mode measures average current over 850ms to 60 seconds. Onboard DVM reads applied voltage from -5V to +30V DC. Automatic sense lead detection prevents faults from disconnected measurement leads.

Technical Specifications

Output Characteristics

Voltage range: 0 to +15V DC
Voltage accuracy: $\pm(0.05\% + 10\text{mV})$
Voltage resolution: 10mV
Current output (0–4V): 5A maximum
Current output (>4V): 60W / (VSET + 6V)
Current readback accuracy (5A range): $\pm(0.2\% + 200\mu\text{A})$
Current readback resolution: 100 μA
Current sinking capability: Up to 3A DC
current sensitivity: 100nA
Power rating: 60W
Line regulation: 0.5mA
Load regulation: 0.01% + 1mA
Stability: 0.01% + 50 μA
Variable Output Resistance (Battery Simulation) Range: 0 to 1.00 Ω
Resolution: 10m Ω
Patents: U.S. Patent No. 6,204,647

Integrated Measurements

DVM input range: -5V to +30V DC
DVM accuracy: $\pm(0.05\% + 3\text{mV})$
DVM resolution: 1mV
Pulse current measurements: Peak, average, baseline
Long integration mode: 850ms to 60 seconds

Key Features

Single output channel with 60W power budget
Ultrafast transient response for RF load simulation
Current sink function for charger testing
Automatic open sense lead detection
4-channel relay control port (DB-9): 100mA per channel, 250mA total capacity at 24V maximum

Interfaces & Environment

GPIB (IEEE-488) control
Input voltage: 100–120/220–240 VAC
Operating temperature: -20°C to 70°C
Operating humidity: <80% at 35°C non-condensing
Dimensions: 89mm H $\times$ 213mm W $\times$ 411mm D
Mounting: Benchtop

Features & description

From manufacturer datasheet

Features

- Single-output battery simulator
- Output voltage 0 to +15 V DC
- Ultrafast transient response (droop <100 mV; recovery <60 μ s class under specified conditions)
- Variable output resistance 0 to 1.00 Ω in 0.01 Ω steps (output may remain on while changing)
- Pulse peak, average, and baseline current measurements
- 100 nA DC current sensitivity class (5 mA range)
- Current step measure function
- Sink up to 3 A
- Open sense lead detection
- Built-in digital voltmeter (–5 V to +30 V class input)
- IEEE-488.2 (SCPI) programming
- Four-channel digital relay control port

2302 Characteristics / Specifications

PARAMETER	VALUE
Model	2302
Manufacturer	Keithley (Tektronix)
Instrument Type	Single-Channel Battery Simulator / DC Power Supply
Output Voltage	0 to +15 V DC
Output Accuracy	$\pm(0.05\% + 3 \text{ mV})$ (2 years, 23°C $\pm 5^\circ\text{C}$)
Programming Resolution	1 mV
Continuous Average Output Current	0–4 V: 5 A max; >4 V: $\text{IMAX} = 60 \text{ W}/(\text{VSET} + 6)$; peak to 5 A within average limits
Sink Current	up to 3 A continuous (0–5 V class; derate above 5 V per datasheet)
Variable Output Impedance	0 to 1.00 Ω , 0.01 Ω steps
Transient Voltage Drop	<75 mV or <100 mV (bandwidth-dependent, specified conditions)
Transient Recovery	<40 μs or <60 μs (high bandwidth, specified conditions)
Current Readback Resolution	100 μA (5 A range); 0.1 μA (5 mA range)
DVM Input	one set, –5 V to +30 V DC class
Remote Interface	IEEE-488.2 (SCPI)
Form Factor	Half-rack
Related Models	2302-PJ (500 mA range); 2306 dual-channel battery/charger simulator
Alias	2302 Standard Operating Conditions Use remote sense with integrity monitoring enabled; observe isolation limits (22 V DC max low-to-earth on Model 2302). Keep average current within the $60 \text{ W}/(\text{VSET}+6)$ envelope. Program output resistance to match the intended battery before RF transmit current-step tests.
Bandwidth	dependent, specified conditions)

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	2302
Manufacturer	Keithley (Tektronix)
Instrument Type	Single-Channel Battery Simulator / DC Power Supply
Output Voltage	0 to +15 V DC
Output Accuracy	±(0.05% + 3 mV) (2 years, 23°C ±5°C)
Programming Resolution	1 mV
Continuous Average Output Current	0–4 V: 5 A max; >4 V: IMAX = 60 W/(VSET + 6); peak to 5 A within average limits
Sink Current	up to 3 A continuous (0–5 V class; derate above 5 V per datasheet)
Variable Output Impedance	0 to 1.00 Ω, 0.01 Ω steps
Transient Voltage Drop	<75 mV or <100 mV (bandwidth-dependent, specified conditions)
Transient Recovery	<40 μs or <60 μs (high bandwidth, specified conditions)
Current Readback Resolution	100 μA (5 A range); 0.1 μA (5 mA range)
DVM Input	one set, –5 V to +30 V DC class
Remote Interface	IEEE-488.2 (SCPI)
Form Factor	Half-rack
Related Models	2302-PJ (500 mA range); 2306 dual-channel battery/charger simulator
Alias	2302

Standard Operating Conditions

Use remote sense with integrity monitoring enabled; observe isolation limits (22 V DC max low-to-earth on Model 2302). Keep average current within the 60 W/(VSET+6) envelope. Program output resistance to match the intended battery before RF transmit current-step tests.

Operational Notes

Model 2302 is single-channel only—charger-channel features apply to Model 2306 family. Distinguish 2302 from 2302-PJ (500 mA current-range option). Alias 2302.

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

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

NIST-traceable calibration · SAM registered ·
30-day returns
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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.