Aumictech
Test & measurement · bought, sold, repaired, calibrated

Data Sheet
August 14, 2026

AGILENT / KEYSIGHT

Agilent/Keysight RP7942A

Agilent Keysight RP7942A Regenerative Power System 0 to 80 V 0 to plus or minus 125 A 0 to plus or minus 5 kW The Agilent/Keysight RP7942A is an RP7900 Series two-quadrant regenerative DC power system. OEM data sheet 5992-2335EN lists 0 to 80 V, 0 to plus or minus 125 A, and 0 to plus or minus 5 kW with autoranging output, sub-millisecond command processing, and energy returned to the AC mains. HEV/EV converter test, battery emulation, ATE high-power source/load, and (on 20 kW class) photovoltaic array simulation. The Agilent/Keysight RP7942A is an RP7900 Series two-quadrant regenerative DC power system. OEM data sheet 5992-2335EN lists 0 to 80 V, 0 to plus or minus 125 A, and 0 to plus or minus 5 kW with autoranging output, sub-millisecond command processing, and energy returned to the AC mains. HEV/EV converter test, battery emulation, ATE high-power source/load, and (on 20 kW class) photovoltaic array simulation. Two-quadrant source and regenerative electronic load in one chassis Autoranging output covers many voltage/current combinations at rated power

MODEL **Agilent / Keysight RP7942A**	CALIBRATION **Available on request**
CONDITION **Used**	STATUS **In stock**
RFQ / SKU **RP7942A**	LISTING **https://aumictechlabs.com/products/rp7942a-2/**

NIST-traceable cal · SAM registered · 30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight RP7942A is a single-output, bi-directional regenerative DC power supply operating in two-quadrant mode for source and sink functionality. It delivers 80 V maximum output, ±125 A current, and 5 kW maximum power while returning up to 90% of energy to the grid during

regenerative operation. Designed for HEV/EV power converter testing, this 3U instrument combines fast transient simulation, battery emulation with programmable internal resistance, and simultaneous voltage/current measurement in a compact 773 × 427 × 132.6 mm package.Technical Specifications Output Voltage: 0–80 V maximum Output Current: ±125 A maximum Maximum Power: 5 kW AC Input: 400–480 V, 3-phase, ±10% tolerance Power Factor: 0.99 Efficiency: >80% typical (up to 91.5% within RP7900 series) Regeneration Efficiency: 90% return to grid THD: 2% typical at full load during regenerative operation Form Factor: 3U rack, 27.3 kgKey Features Two-quadrant operation with uninterrupted sourcing/sinking transitions Autoranging output expands power curve beyond rectangular limits Battery emulation with adjustable internal resistance for state-of-charge characterization Step function and constant dwell arbitrary waveforms up to 65,535 data points List function mode with 512 steps and trigger-paced advancement Simultaneous voltage and current measurement with built-in calculationsTypical Applications High-voltage battery pack testing and early failure detection Electric vehicle power converter validation Transient response characterization under dynamic load conditions Regenerative energy capture and grid return scenariosCompatibility & Integration LXI Core compliant LAN, USB 2.0, GPIB interfaces Web browser remote control via LAN Seven user-configurable I/O pins on rear panel Programmable via standard instrument protocols

Features & description

From manufacturer datasheet

Built-in paralleling so paralleled units share current in the desired CV or CC mode

Technical Specifications Instrument Type: Bidirectional regenerative DC power system Series Family: Keysight RP7900 Rated Voltage: 0 to 80 V Rated Current Source And Sink: 0 to plus or minus 125 A Rated Power: 0 to plus or minus 5 kW AC Input: 3 phase 400 VAC plus or minus 15 percent and 480 VAC plus or minus 10 percent; L1 L2 L3 PE Package Height: 3 U (5 kW class) CV Ripple Peak To Peak: 80 mV from 20 Hz to 20 MHz CV Ripple RMS: 8 mV from 20 Hz to 10 MHz Load Regulation Voltage: 3 mV Load Regulation Current: 13 mA Voltage Programming Measurement Accuracy: 0.02 percent plus 8 mV Current Programming Measurement Accuracy: 0.03 percent plus 13 mA Transient Recovery Time: 300 us Transient Settling Band: 0.8 V CC Ripple RMS Typical: 70 mA Voltage Programming Range: 0.08 to 81.6 V Voltage Programming Resolution: 800 uV Current Programming Range: minus 127.5 A to 127.5 A Current Programming Resolution: 2.5 mA Resistance Programming Range: 0 to 1.25 ohm Resistance Programming Resolution: 9.8 uOhm Resistance Programming Accuracy: 0.05 percent plus 32 uOhm Voltage Rise Fall No Load: 75 us 10 to 90 percent no load Voltage Settling No Load: 480 us to 0.1 percent of step no load Voltage Speed Full Load Or Comp: 130 us rise/fall 10 to 90 percent full CC load; 1.35 ms settle to 0.1 percent

RP7942A Characteristics / Specifications

PARAMETER	VALUE
Instrument Type	Bidirectional regenerative DC power system
Series Family	Keysight RP7900
Rated Voltage	0 to 80 V
Rated Current Source And Sink	0 to plus or minus 125 A
Rated Power	0 to plus or minus 5 kW
AC Input	3 phase 400 VAC plus or minus 15 percent and 480 VAC plus or minus 10 percent; L1 L2 L3 PE
Package Height	3 U (5 kW class)
CV Ripple Peak To Peak	80 mV from 20 Hz to 20 MHz
CV Ripple RMS	8 mV from 20 Hz to 10 MHz
Load Regulation Voltage	3 mV
Load Regulation Current	13 mA
Voltage Programming Measurement Accuracy	0.02 percent plus 8 mV
Current Programming Measurement Accuracy	0.03 percent plus 13 mA
Transient Recovery Time	300 us
Transient Settling Band	0.8 V
CC Ripple RMS Typical	70 mA
Voltage Programming Range	0.08 to 81.6 V
Voltage Programming Resolution	800 uV
Current Programming Range	minus 127.5 A to 127.5 A
Current Programming Resolution	2.5 mA
Resistance Programming Range	0 to 1.25 ohm
Resistance Programming Resolution	9.8 uOhm
Resistance Programming Accuracy	0.05 percent plus 32 uOhm
Voltage Rise Fall No Load	75 us 10 to 90 percent no load

PARAMETER	VALUE
Voltage Settling No Load	480 us to 0.1 percent of step no load
Voltage Speed Full Load Or Comp	130 us rise/fall 10 to 90 percent full CC load; 1.35 ms settle to 0.1 percent
Output Terminal Isolation	no output terminal more than plus or minus 240 VDC from any other terminal or chassis ground
Command Processing Time	less than or equal to 1 ms from GPIB command to start of output change
Constant Dwell ARB Points	up to 65535 points
ARB Dwell Range	10.24 us to 0.30 s rounded to 10.24 us
List Steps	up to 512 steps; list not supported in primary/secondary on 5 kW and 10 kW RP7931A to RP7963A
AC Input VA	6.5 kVA
AC Input Current Per Phase	8.66 A at 400 VAC
Efficiency At Full Power	84 percent
Power Factor	0.99 at nominal input and rated power
Weight Typical	27.3 kg (60 lb)
Autorange Voltage V	80 V
Autorange Current I	62.5 A
Minimum Sink Resistance	8 mOhm
Remote Interfaces	GPIB SCPI 1993 IEEE 488.2; USB 2.0 USB-TMC488; LAN 10/100/1000; LXI 1.5
Spec Temperature Window	warranted 0 to 40 C after 30 minute warm-up; local sense unless noted
Accuracy Conditions	percent of value plus offset at 25 C plus or minus 5 C; NPLC=1; 1 year
Parallel Operation	identical voltage ratings; up to 20 units; up to 600 kW total class
Sink Duration	continuous sink up to 100 percent of rated current
Grid Regeneration THD Typical	2 percent typical at full load

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
Instrument Type	Bidirectional regenerative DC power system
Series Family	Keysight RP7900
Rated Voltage	0 to 80 V
Rated Current Source And Sink	0 to plus or minus 125 A
Rated Power	0 to plus or minus 5 kW
AC Input	3 phase 400 VAC plus or minus 15 percent and 480 VAC plus or minus 10 percent; L1 L2 L3 PE
Package Height	3 U (5 kW class)
CV Ripple Peak To Peak	80 mV from 20 Hz to 20 MHz
CV Ripple RMS	8 mV from 20 Hz to 10 MHz
Load Regulation Voltage	3 mV
Load Regulation Current	13 mA
Voltage Programming Measurement Accuracy	0.02 percent plus 8 mV
Current Programming Measurement Accuracy	0.03 percent plus 13 mA
Transient Recovery Time	300 us
Transient Settling Band	0.8 V
CC Ripple RMS Typical	70 mA
Voltage Programming Range	0.08 to 81.6 V
Voltage Programming Resolution	800 uV
Current Programming Range	minus 127.5 A to 127.5 A
Current Programming Resolution	2.5 mA
Resistance Programming Range	0 to 1.25 ohm
Resistance Programming Resolution	9.8 uOhm
Resistance Programming Accuracy	0.05 percent plus 32 uOhm
Voltage Rise Fall No Load	75 us 10 to 90 percent no load
Voltage Settling No Load	480 us to 0.1 percent of step no load

PARAMETER	VALUE
Voltage Speed Full Load Or Comp	130 us rise/fall 10 to 90 percent full CC load; 1.35 ms settle to 0.1 percent
Output Terminal Isolation	no output terminal more than plus or minus 240 VDC from any other terminal or chassis ground
Command Processing Time	less than or equal to 1 ms from GPIB command to start of output change
Constant Dwell ARB Points	up to 65535 points
ARB Dwell Range	10.24 us to 0.30 s rounded to 10.24 us
List Steps	up to 512 steps; list not supported in primary/secondary on 5 kW and 10 kW RP7931A to RP7963A
AC Input VA	6.5 kVA
AC Input Current Per Phase	8.66 A at 400 VAC
Efficiency At Full Power	84 percent
Power Factor	0.99 at nominal input and rated power
Weight Typical	27.3 kg (60 lb)
Autorange Voltage V1	80 V
Autorange Voltage V2	40 V
Autorange Voltage V3	1 V
Autorange Current I1	125 A
Autorange Current I2	62.5 A
Minimum Sink Resistance	8 mOhm
Remote Interfaces	GPIB SCPI 1993 IEEE 488.2; USB 2.0 USB-TMC488; LAN 10/100/1000; LXI 1.5
Spec Temperature Window	warranted 0 to 40 C after 30 minute warm-up; local sense unless noted
Accuracy Conditions	percent of value plus offset at 25 C plus or minus 5 C; NPLC=1; 1 year
Parallel Operation	identical voltage ratings; up to 20 units; up to 600 kW total class
Sink Duration	continuous sink up to 100 percent of rated current
Grid Regeneration THD Typical	2 percent typical at full load

Notes
Numeric rows from Keysight RP7900 Series Regenerative Power System data sheet 5992-2335EN model column RP7942A.

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
NAICS 423690 · 811210 · 541380
Generated August 14, 2026