

Programmable Dc Electronic Load Single And Dual Channel

Benchtop Power Testing System

Item Number: CD11



Introduction

High-precision single and dual channel programmable DC electronic load offering 1mV/1mA resolution, versatile CC, CV, CR, and CP modes, dynamic battery discharge analysis, and comprehensive hardware protection for advanced laboratory research and automated industrial power supply production testing.

[Learn More](#)

Application	Description	Key Benefit
Battery Pack & Cell Validation	Automated constant current and constant resistance discharge testing to measure cell capacity, internal resistance, and degradation kinetics.	Delivers precise 9999Ah capacity tracking and automated voltage cutoff to prevent destructive over-discharge.
Switch-Mode Power Supply (SMPS) Testing	Dynamic load step-response, transient recovery time analysis, and line/load regulation verification across varying load profiles.	Rapid transition times and dual-rate dynamic testing accurately simulate real-world transient loading conditions.
Charger & Adapter Burn-In	High-throughput burn-in, static efficiency validation, and continuous overload stress testing on production lines.	Robust multi-channel configurations maximize test density while programmable protection limits prevent catastrophic line downtime.
Linear Power Supply Characterization	High-precision ripple, noise, load regulation, and current limit threshold measurements across precise operating bands.	Ultra-low noise architecture and 1mV/1mA resolution detect minute voltage sags and regulation instabilities.
Automotive & Industrial DC-DC Converters	Sustained high-voltage (up to 500V) and high-current sink testing under diverse thermal and electrical operating envelopes.	Extended voltage and power ranges accommodate industrial and electric vehicle auxiliary DC-DC testing requirements.
Solar PV & Fuel Cell Research	Emulating dynamic source loading conditions and evaluating I-V curves under variable output resistance simulations.	Flexible CR, CP, and combined CR+CV modes allow accurate simulation of non-linear renewable source behavior.

Parameter	Specification Details
Input Line Voltage	220 Vac $\pm 10\%$ / 110 Vac $\pm 10\%$, 45 - 65 Hz
Display Interface	3.5-inch TFT LCD, 480 $\times$ 320 Resolution
Operating Temperature Range	0°C to 40°C
Storage Temperature Range	-10°C to 70°C
Operating Relative Humidity	< 80% RH
Standard Communication Interfaces	USB, RS-232
Optional Communication Interface	RS-485
Form Factor Dimensions	320 mm (L) $\times$ 220 mm (W) $\times$ 100 mm (H)

Model Identifier	Channels	Rated Power	Input Voltage Range	Input Current Range
CD11-5300A	Single Channel	200 W	0 - 150 V	0 - 30 A
CD11-5300	Single Channel	400 W	0 - 150 V	0 - 40 A
CD11-5301	Single Channel	400 W	0 - 150 V	0 - 60 A

Model Identifier	Channels	Rated Power	Input Voltage Range	Input Current Range
CD11-5302	Single Channel	400 W	0 – 500 V	0 – 15 A
CD11-5303	Single Channel	400 W	0 – 500 V	0 – 30 A
CD11-5304	Dual Channel	400 W (200 W × 2)	0 – 150 V	0 – 60 A (30 A × 2)

Function Mode	Parameter / Range	CD11-5300A	CD11-5300	CD11-5301	CD11-5304 (Per CH)
Constant Voltage (CV)	Range	0.1 – 19.999 V, 0.1 – 150.00 V	0.1 – 19.999 V, 0.1 – 150.00 V	0.1 – 19.999 V, 0.1 – 150.00 V	0.1 – 19.999 V, 0.1 – 150.00 V
	Resolution	1 mV, 10 mV	1 mV, 10 mV	1 mV, 10 mV	1 mV, 10 mV
	Accuracy	±(0.05% + 0.02% FS)	±(0.05% + 0.02% FS)	±(0.05% + 0.02% FS)	±(0.05% + 0.02% FS)
Constant Current (CC)	Range	0 – 3.000 A, 0 – 30.00 A	0 – 6.000 A, 0 – 40.00 A	0 – 6.000 A, 0 – 60.00 A	0 – 3.000 A, 0 – 30.00 A
	Resolution	1 mA, 10 mA	1 mA, 10 mA	1 mA, 10 mA	1 mA, 10 mA
	Accuracy	±(0.05% + 0.05% FS)	±(0.05% + 0.05% FS)	±(0.05% + 0.05% FS)	±(0.05% + 0.05% FS)
Constant Resistance (CR)	Range	0.05 Ω – 1 kΩ, 1 kΩ – 4.5 kΩ	0.05 Ω – 1 kΩ, 1 kΩ – 4.5 kΩ	0.05 Ω – 1 kΩ, 1 kΩ – 4.5 kΩ	0.05 Ω – 1 kΩ, 1 kΩ – 4.5 kΩ
	Resolution	10 mΩ, 100 mΩ	10 mΩ, 100 mΩ	10 mΩ, 100 mΩ	10 mΩ, 100 mΩ
	Accuracy	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)
Constant Power (CP)	Range	0 – 200 W	0 – 400 W	0 – 400 W	0 – 200 W
	Resolution	10 mW	10 mW	10 mW	10 mW
	Accuracy	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)

Function Mode	Parameter / Range	CD11-5302	CD11-5303
Constant Voltage (CV)	Range	0.1 – 19.999 V, 0.1 – 500.00 V	0.1 – 19.999 V, 0.1 – 500.00 V
	Resolution	1 mV, 10 mV	1 mV, 10 mV
	Accuracy	±(0.05% + 0.02% FS)	±(0.05% + 0.02% FS)
Constant Current (CC)	Range	0 – 3.000 A, 0 – 15.00 A	0 – 3.000 A, 0 – 30.00 A
	Resolution	1 mA, 10 mA	1 mA, 10 mA
	Accuracy	±(0.05% + 0.05% FS)	±(0.05% + 0.05% FS)
Constant Resistance (CR)	Range	0.05 Ω – 1 kΩ, 1 kΩ – 4.5 kΩ	0.05 Ω – 1 kΩ, 1 kΩ – 4.5 kΩ
	Resolution	10 mΩ, 100 mΩ	10 mΩ, 100 mΩ
	Accuracy	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)
Constant Power (CP)	Range	0 – 400 W	0 – 400 W
	Resolution	10 mW	10 mW
	Accuracy	±(0.1% + 0.5% FS)	±(0.1% + 0.5% FS)

Measurement Parameter	Metric	150V Models (CD11-5300A, 5300, 5301, 5304)	500V Models (CD11-5302, 5303)
Voltage Readback	Range	0 – 19.999 V, 0 – 150.00 V	0 – 19.999 V, 0 – 500.00 V
	Resolution	1 mV, 10 mV	1 mV, 10 mV
	Accuracy	±(0.05% + 0.1% FS)	±(0.05% + 0.1% FS)
Current Readback	Range	Matches Model Maximum Current Limit	Matches Model Maximum Current Limit
	Resolution	1 mA, 10 mA	1 mA, 10 mA
	Accuracy	±(0.05% + 0.1% FS)	±(0.05% + 0.1% FS)
Power Readback	Range	200 W / 400 W (Model Dependent)	400 W

Measurement Parameter	Metric	150V Models (CD11-5300A, 5300, 5301, 5304)	500V Models (CD11-5302, 5303)
	Resolution	10 mW	10 mW
	Accuracy	$\pm(0.1\% + 0.5\% \text{ FS})$	$\pm(0.1\% + 0.5\% \text{ FS})$

Category	Parameter	Specification Details
Dynamic Test Function	Modes	Constant Current (CC), Constant Voltage (CV)
	Time Parameters (T1 & T2)	50 ms to 60 s
Battery Discharge Test	Discharge Modes	Constant Current (CC), Constant Resistance (CR)
	Max Capacity Tracking	9999 Ah
	Readout Resolutions	1 mA, 10 mA, 10 mΩ, 100 mΩ
Over-Voltage Protection (OVP)	Threshold	> 21 V or > 155 V (150V Models); > 21 V or > 510 V (500V Models)
Over-Current Protection (OCP)	CD11-5300A	> 3.1 A or > 31 A
	CD11-5300	> 3.1 A or > 41 A
	CD11-5301	> 6.1 A or > 61 A
	CD11-5302	> 3.1 A or > 16 A
	CD11-5303	> 3.1 A or > 31 A
	CD11-5304	> 3.1 A or > 31 A (Input cutoff per channel)
Over-Power Protection (OPP)	Threshold	210 W (200W Channels) / 410 W (400W Models)
Over-Temperature (OTP)	Thermal Cutoff	85°C Internal Heat Sink Limit
Additional Safety Features	Diagnostic Prompts	Input Reverse Polarity Indication, Audio Beeper Alarm, Non-Volatile Data Retention