

[Charging & discharging]

The charging & discharging test solution for 48V mild hybrid systems

One box for both source and sink (load)



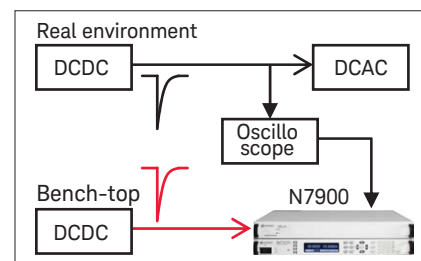
The charging & discharging test solution for 48V micro / mild hybrid systems by using N7900 series power supply.

- “ Want to simulate the real state of an engine-start or battery cut-off ? ”
- “ Want to simulate the real state when stepping off the accelerator, or when braking happens ? ”
- “ Want high accuracy current measurement ? ”

If so, we can support you !

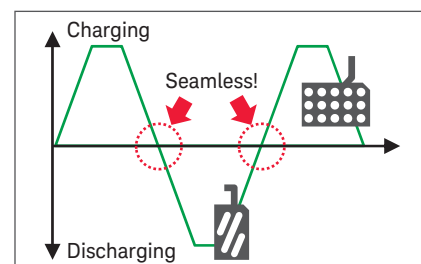
Arbitrary waveform can be output as a load !

The N7900 Series power supplies can act as both a source and a load. For example, the real load current fluctuation can be reproduced on the bench by using a waveform file captured by an oscilloscope. This helps to verify real characteristics which can't be seen using a static electronic load.



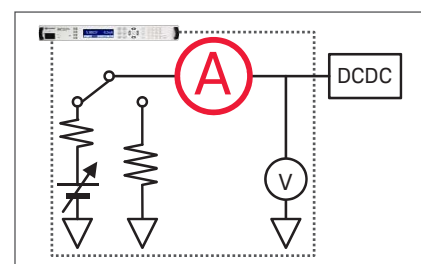
Seamless source & measurement of charge & discharge transients !

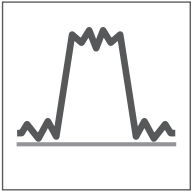
Seamlessly transition between power supply and load behavior, with high-speed switching capability. Simulate going between acceleration (discharging) and braking (regenerative charging). Perfect for charge & discharge test of bidirectional DC-DC converters or batteries.



High accuracy measurement of high current is also available !

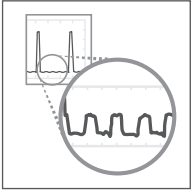
Take advantage of the built-in, high accuracy ammeter. “Existing DMMs can't measure high current...” “It's troublesome to develop a current measurement system by using a shunt resistor. The measured value is not guaranteed...” This solution resolves such issues.





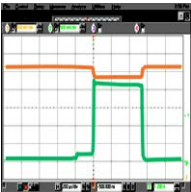
Generating power transients

Arbitrary waveforms can be created for both source and load transients. Fast programming speeds enable micro- and milli-second automotive power waveforms.



Characterizing dynamic current profiles

18-bit current digitizer with sample rate up to 200 kSa/s enables seamless current measurement with 0.04% accuracy.



Simulation of battery deterioration

Programmable output resistance simulates battery deterioration behavior which helps to understand DC-DC characteristics when the battery is degraded.

**ALL
in
ONE**

One-box solution providing all necessary functions

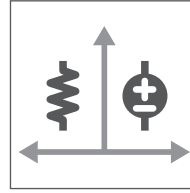
Source, load, ammeter and switch - the all-in-one solution improves work efficiency and brings high ROI.



N7909A

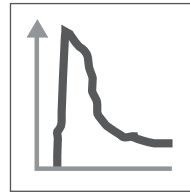
E-load operation also available

The power dissipater unit to use together is prepared. This separate user-configurable hardware accessory helps to develop a module system according to required power.



Continuous source / load characteristics

Full two-quadrant and glitch-free operation across quadrants underlines this "one-box source and sink" solution.



Characterizing input current

A special current measurement range that is 2.25x higher than the max output rating can capture large current surges when the DUT is powered on.



x5

Bidirectional power up to 10 kW

Parallel up to 5 units to create the desired voltage and current combination. Refer to recommended model table below to understand the maximum voltage / current.

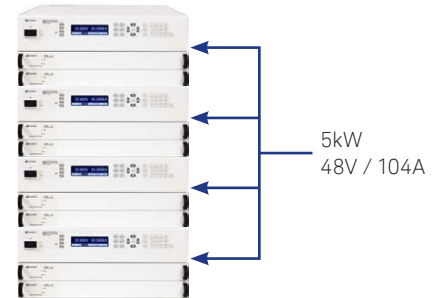
Recommended models

	1kW model		2kW model	
12V system	N7951A	20V, 50A	N7971A	20V, 100A
	N7952A	40V, 25A	N7972A	40V, 50A
48V system	N7953A	60V, 16.7A	N7973A	60V, 33A
	N7954A	80V, 12.5A	N7974A	80V, 25A
			N7976A	120V, 16.7A
			N7977A	160V, 12.5A

Config example 1 (48V mild hybrid)

" Want sinking capability for DC-DC converter in 5 kW regenerative operation ! "

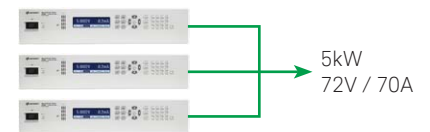
N7973A + N7909A x4 parallel connection
As a battery simulator (e-load operation)



Config example 2 (72V construction machinery)

" Want sourcing capability for DC-DC converter in 5 kW motor driving system ! "

N7974A x3 parallel connection
As a battery simulator (source operation)



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