Spectro CA-12
Automotive Battery Rapid-Tester

Biggest advance in battery testing

Batteries cause 60% of all car problems. Good cranking tells little about battery health; the secret lies in the capacity.

- **Measures Capacity, CCA and SoC**
- **Tests batteries in 15-seconds**
- **Identifies hidden battery faults**
- **Prints reports; interfaces with PC**

Why car batteries fail

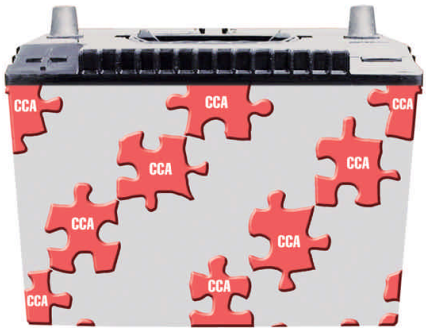
Electrical accessories place a heavy burden on the battery. The extra load often prevents full charge and the battery is replaced. A luxury carmaker says that half of all failed warranty batteries have no factory fault. Battery breakdown, perceived or real, has become the largest single complaint by new car owners.

Cadex has developed a battery tester that reads **CCA**, **capacity** (Ah) and **state-of-charge** (SoC). The Spectro CA-12 is based on *multi-model electrochemical impedance spectroscopy* (Spectro™), a technology that opens the future to an entirely new way of battery testing.

How is the Spectro CA-12 different?

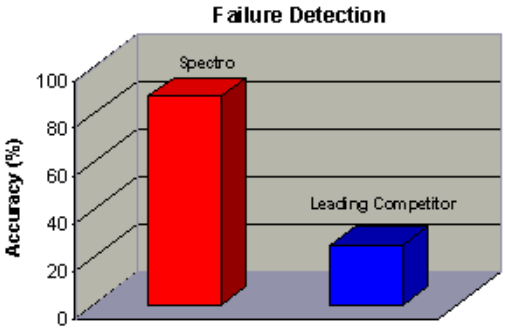
Conventional Testing

Single frequency excitation methods operate on one level only. Many pieces of the puzzle are missing and critical battery information remains hidden.



Advanced Testing

Spectro™ uncovers the missing pieces, enabling in-depth performance analysis even when surface charge and difficult load condition are present.



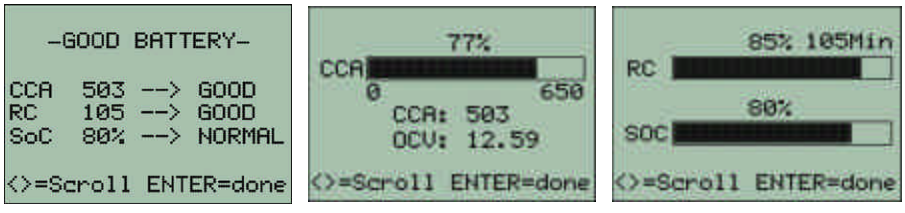
Spectro CA-12 detects 88% of failed batteries. This compares to a failure detection rate of only 25% by a leading competitor.

Why was this not done earlier?

Collecting data is easy; making practical use of the information is the difficult part. During the 15-second test, the CA-12 completes 40 million transactions. The heart of the instrument resides in the algorithm that calculates the results.

Ease of use

The CA-12 shows results in numeric and graphic format. You can also check the alternator and resistance of the battery cables. The test is non-invasive and safe.

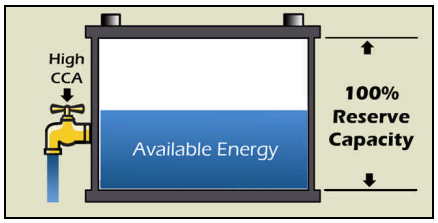


What are typical battery problems?

Conventional testers cannot determine the cause of a battery failure; the Spectro CA-12 discloses them with consistent accuracy. Here are examples of deficiencies the CA-12 detects.

Low charge

Short driving and heavy electrical load often prevents full charge.

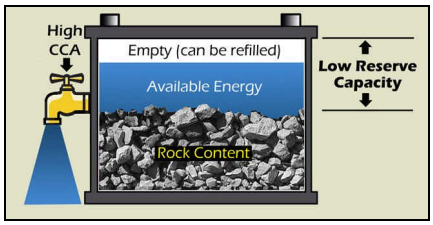


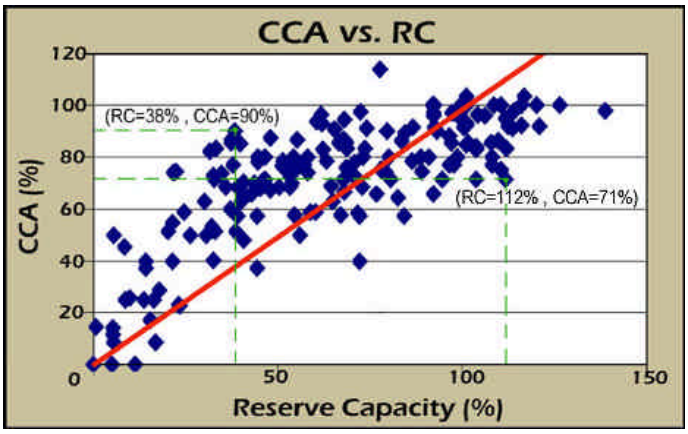
Low CCA

High capacity but low CCA. Cranking is poor and motor may not start

Low capacity

High CCA but low capacity. Good cranking but battery may fail suddenly



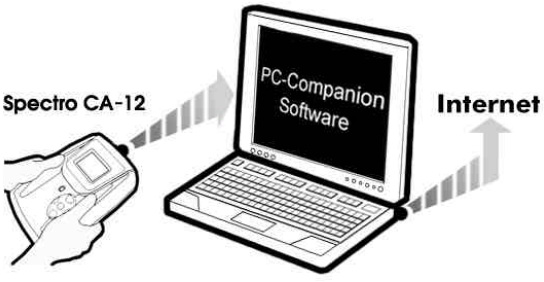


This chart illustrates the discrepancy between *CCA* and *capacity* of car batteries. With a correlation of only 55%, CCA cannot be used to estimate capacity.

175 car batteries tested to SAE J537 standard

Prints reports, interfaces with PC

The CA-12 interfaces to optical printer by infrared link; prints test results.



Comes with PC-Companion software. RS232 or optional Bluetooth transfers test data to a PC.

Clamps and Probes

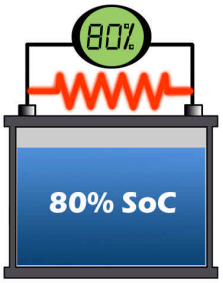
The Spectro CA-12 connects to the battery by:
- **Heavy-duty clamp**, for large automotive batteries
- **Compact clamp**, for most automotive batteries
- **Contact probe** with infrared sensor and light, for hard to reach batteries.

State-of-Charge under Load

The Spectro CA-12 can be configured to read SoC with parasitic loads of up to 30A. Battery surface charge does not affect the reading. This feature is useful for automotive assembly.

Customer Satisfaction

When purchasing a Cadex product, you are assured of advanced design, superior quality and competitive pricing. Cadex combines engineering strength with 25 years of manufacturing excellence.



Specifications

Application	Non-invasive hand-held rapid-tester for lead acid batteries. Based on *multi-model electrochemical impedance spectroscopy;* excitation frequency 20-2000 Hertz. Patented algorithm.
Battery types	Flooded lead acid, AGM, spirally wound, gel; starter and deep-cycle,12V
Test conditions	40-100% SoC tolerates steady parasitic loads of up to 30A. Each battery group requires specific matrix; stores up to 5 matrices; additional matrices can be stored on PC-Companion software. Maximum test voltage 16V
Tests	- Capacity; 10 -120Ah, 10-165 min - CCA, 50-1250 CCA - State-of-charge in percent - Alternator test, continuity test
Test Time	Approximately 15 seconds
Power Source	Li-ion battery provides ~150 tests per charge; charge indicator; 3-hour charge.
Physical *Dimensions* *Weight*:	ABS housing with rubber over-molds. 172 x 248 x 60.5mm (6.75” x 9.76" x 2.38") 1.10 kg (2.45 lbs)
Ports	RS232. Infrared port for printer, optional Bluetooth for wireless data transfer
Environmental	Operating temp: 0 to 40°C (32 to 104°F); Storage temp: -20°C to 70°C (-4 to 158°F)
Safety	UL3101, CSA 1010, EN61010 EMI/EMC: FCC part 15 Class A, EN55011 Level A, EN61000-6-3:2001 for EMC
Warranty	One (1) year from the original purchase date.
PC-Software	PC-Companion on CD-ROM, provides PC-interface to update firmware, download test results, print data, store and review historical data, provides Nyquist and Bode charts.

Specifications subject to change

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