

CA 6630

Battery capacity tester



Preventive maintenance testing of nickel-cadmium, lithium-ion and nickel-metal hydride battery banks

CA 6630

Internal resistance and open-circuit voltage in a single reading

amperis

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Tests nickel-cadmium, lithium-ion and nickel-metal hydride batteries by measuring their internal resistance and open-circuit voltage.

Overview



Tester with carrying case, measurement leads and retractable test probes

Internal resistance and voltage measurement

The CA 6630 measures the battery's internal resistance by the precise 4-wire method and, at the same time, the open-circuit voltage, showing both values on the 2-display LCD screen.

Battery types supported

- Nickel-cadmium batteries.
- Lithium-ion batteries.
- Nickel-metal hydride batteries.

Result with the comparator function

The comparator function compares the measurement with the theoretical results built into the instrument and shows the result as PASS, WARNING or FAIL, for a quick assessment of battery deterioration.



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Measurements can be stored manually or in data logger mode, and downloaded to a PC with dedicated software.

Storage and treatment of the records



Instrument, carrying case, measurement leads and PC connection cable

Manual storage and data logger mode

Up to 999 measurements can be stored manually, and in data logger mode they are stored continuously with a sampling interval adjustable from 1 to 255 s.

Treatment of the records on a PC

A PC program exports the data stored in the instrument, collects the data-logger values and displays them graphically, and stores all the results on the computer's hard drive.

Easy to set up

- The instrument's + terminal is connected to the + terminal of the battery being tested.
- The - terminal is connected to the - terminal of the battery.
- The instrument is switched on and the results are read on the screen.



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Periodic measurement of internal resistance anticipates ageing of stationary batteries before it causes a backup-power failure.

Preventive maintenance of stationary batteries

Why measure internal resistance

In stationary batteries that power uninterruptible power supplies, telephone exchanges or security installations, a rise in internal resistance is one of the earliest signs of cell ageing, appearing before capacity falls noticeably. Measuring it periodically with the 4-wire method makes it possible to detect weak cells without discharging the battery.

Checking routine

- Direct connection to each cell or block of the battery with the supplied measurement leads.
- Simultaneous reading of the internal resistance and the open-circuit voltage of each cell.
- Immediate assessment with the comparator function (pass, warning or fail).
- Manual or data-logger recording of the complete maintenance round.

Tracking over time

By downloading the records to a PC with the data-treatment software, the measurements from each maintenance round can be compared with previous ones to track the trend of each cell and plan its replacement before it compromises the installation's backup autonomy.



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Internal resistance measurement (4-wire method)

Measurement current: 1.5 mVAC; measurement frequency: 1 kHz $\pm$ 10 %.

Range	Resolution	Measurement current	Accuracy
40 m Ω	10 $\mu\Omega$	37.5 mA	$\pm(1\% \text{ m.v.} + 8 \text{ digits})$
400 m Ω	100 $\mu\Omega$	3.75 mA	$\pm(1\% \text{ m.v.} + 8 \text{ digits})$
4 Ω	1 m Ω	375 μA	$\pm(1\% \text{ m.v.} + 8 \text{ digits})$
40 Ω	10 m Ω	37.5 μA	$\pm(1\% \text{ m.v.} + 8 \text{ digits})$

Open-circuit voltage

Range	Resolution	Accuracy
4 V	1 mV	$\pm(0.1\% \text{ m.v.} + 6 \text{ digits})$
40 V	10 mV	$\pm(0.1\% \text{ m.v.} + 6 \text{ digits})$

Temperature coefficient of the resistance measurement: $\pm(0.1\% \text{ m.v.} + 0.5 \text{ digits}) / ^\circ\text{C}$.

Temperature coefficient of the voltage measurement: $\pm(0.1\% \text{ m.v.} + 0.5 \text{ digits}) / ^\circ\text{C}$.



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Battery types, comparator and operating modes

Battery types supported	Nickel-cadmium, lithium-ion and nickel-metal hydride
Comparator function	Compares the measurement with built-in theoretical results and shows PASS, WARNING or FAIL
Manual mode	Manual storage of up to 999 measurements
Data logger mode	Continuous storage with a sampling interval adjustable from 1 to 255 s
Display	LCD with 2 displays and numerous symbols

The manufacturer's brochure does not describe a lead-acid battery mode for this instrument; only the three types listed above are stated, so no other type is included here.



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Power supply, autonomy and functions

Power supply	6 × 1.5 V batteries
Autonomy	7 hours in continuous use
Maximum power consumption	1 VA
Automatic standby	After 30 minutes with no action on the keys
Zero adjustment	Zero-adjustment function to compensate the displayed voltage circuit

Dimensions, weight and contents of supply

Dimensions	250 × 100 × 45 mm
Weight	500 g, including batteries

Contents of supply (rigid carrying case)

Measurement leads	Set of two 1 m leads ending in retractable test probe tips
Software	PC data-transfer program for exporting and treating the stored records
Connection cable	Connection cable between the instrument and the PC
Manual	Instruction manual in 5 languages

The dimensions above come from the manufacturer's English brochure; the ES/PT/FR previous Amperis catalogues show "250 x 1.000 x 45 mm", a thousands-separator transcription slip for 100 mm, corrected here against the EN brochure.



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