

Components, Semiconductors, FPD, PCB / Automotive, Transportation | R&D, Testing/QA, Inspection

Check for Battery Leakage Current by Measuring its Voltage

Reasons for Car Battery Failures

There are many reasons a car battery is drained, including normal wear and tear of the battery, alternator failure, and starter malfunction. One other reason is external leakage currents, which can be caused by a number of factors including battery terminal contamination or oxidation, car wiring insulation failure, or even incorrect connection of after market equipment like car radios and alarm systems. After conducting initial visual tests, the battery can only be checked with additional testing equipment such as a DMM or clamp meter.

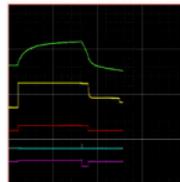
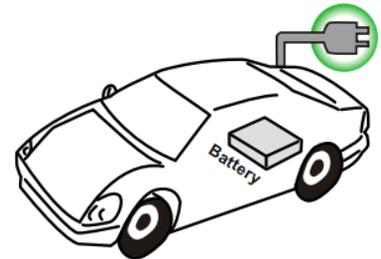


Professional Testing

At large service stations and professional garages, more advanced equipment that delivers consistency and testing efficiency helps increase productivity and accuracy.

When a voltmeter with relatively low input impedance is connected to an automobile battery, enough current flows through the voltmeter to overwhelm the capability to measure leakage current. For adequate sensitivity to the weak currents to be measured in such cases, only a voltmeter with higher input impedance can make measurements in a state close to actual specifications.

The Memory HiCorder MR8741 (DMM Logging Station) is an advanced measurement system ideal for the professional automobile battery voltage measurements needed to determine leakage current.



The MR8741 along with the Digital Voltmeter Unit MR8990 exhibit exceptionally high input impedance for a voltmeter, making it significantly more sensitive to abrupt minute current variations than common logger voltmeters having input impedance around 1 MΩ.

| Measurement range | Effective input range | Input resistance |
|---------------------|-----------------------------|------------------|
| 100 mV (5 mV/div) | -120,000 mV to 120,000 mV | More than 100 MΩ |
| 1000 mV (50 mV/div) | -1200,000 mV to 1200,000 mV | |
| 10 V (500 mV/div) | -12,00000 V to 12,00000 V | 10 MΩ ± 5% |
| 100 V (5 V/div) | -120,0000 V to 120,0000 V | |
| 1000 V (50 V/div) | -500,000 V to 500,000 V | |

Benefits of using the MR8741

The MR8741 can simultaneously measure 16 voltage channels, all independently isolated. Measured data can also be recorded and displayed as waveforms. The sister model MR8740 measures up to 54 voltage channels.

Products Used

MEMORY HiCORDER (DMM LOGGING STATION) : MR8741

DIGITAL VOLTMETER UNIT : MR8990 x 8 (16 channels)

TEST LEAD : L2200

(Although not depicted in the photos, test leads are required for each measurement channel.)

Information valid as of June 2019. Specifications are subject to change and revision without notice.