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**FOR IMMEDIATE RELEASE**

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## **Mitsubishi Electric Develops Online Performance-diagnostic Technology for Storage-battery Systems**

*Contributes to more efficient and wide-ranging use of battery systems*

**TOKYO, February 17, 2016** – [Mitsubishi Electric Corporation](http://www.mitsubishielectric.com) (TOKYO: 6503) announced today a new online, real-time diagnostic technology that enables users to estimate the performance of storage-battery systems. Battery-charge levels can be confirmed remotely to within an accuracy of one percent or better. Degradation levels of battery capacity and resistance can be monitored without suspending battery operation, contributing to more efficient and wide-ranging uses of battery systems. Mitsubishi Electric aims to apply the technology in battery systems for electric and hybrid cars, trains and large-scale wind and solar power-generation plants.

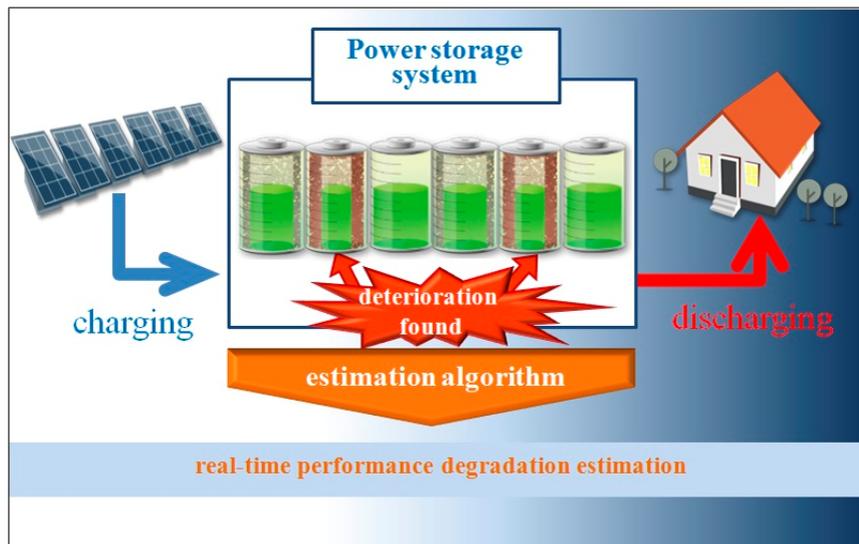


Fig.1 Mitsubishi Electric's storage battery performance online diagnostic technology

Existing technologies estimate electric charge levels by integrating current sensor values, which can accumulate sensor errors, or by using a model based on the same current, voltage and other characteristics of the battery, which may not accurately reflect the degraded capacity of the actual battery. The former accumulates sensor error due to the time required to take measurements, while the latter is susceptible to

capacity degradation. Such methods require periodical capacity measurements and battery operation needs to be suspended for up to three hours each time.

Together with a new technology that combines the current and voltage of batteries, Mitsubishi Electric has developed a new algorithm that integrates the two methods to simultaneously estimate current and battery capacity and correct any errors, resulting in highly accurate, real-time estimations of battery-charge levels. The technology also estimates performance degradation, including decreased capacity and increased resistance, in real time and without suspending operation. Further, the diagnostic data provides useful information for maintaining battery systems and reusing degraded batteries.

The monitoring of battery degradation can help to stabilize and extend the operation of large-scale battery systems. Mitsubishi Electric’s new technology is expected to enable battery systems to achieve more efficient operation, more efficient energy control and a wider range of usage.

Existing methods for electric charge estimation of a battery

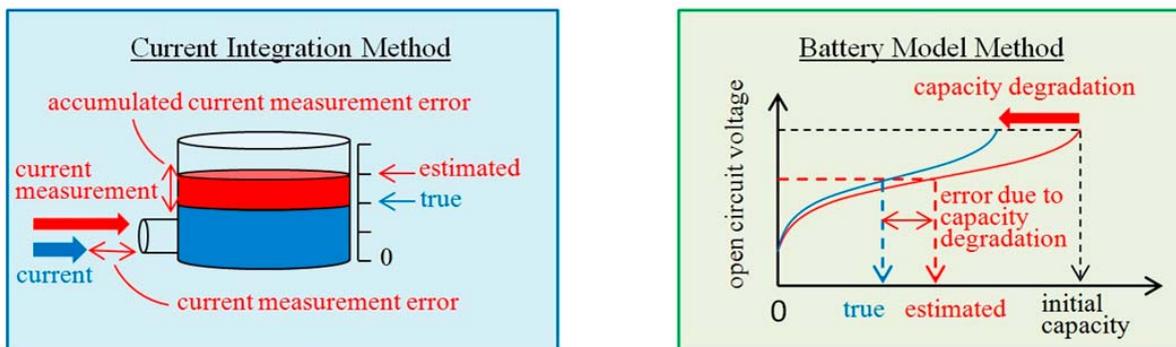


Fig.2 Conventional technologies for electric charge estimation of a battery

**Patents**

Pending patents for the technology announced in this news release number two in Japan and two abroad.

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**About Mitsubishi Electric Corporation**

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,323.0 billion yen (US\$ 36.0 billion\*) in the fiscal year ended March 31, 2015. For more information visit:

<http://www.MitsubishiElectric.com>

\*At an exchange rate of 120 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2015