

Enabling efficient energy consumption calculations for final inspections of electrified vehicles!

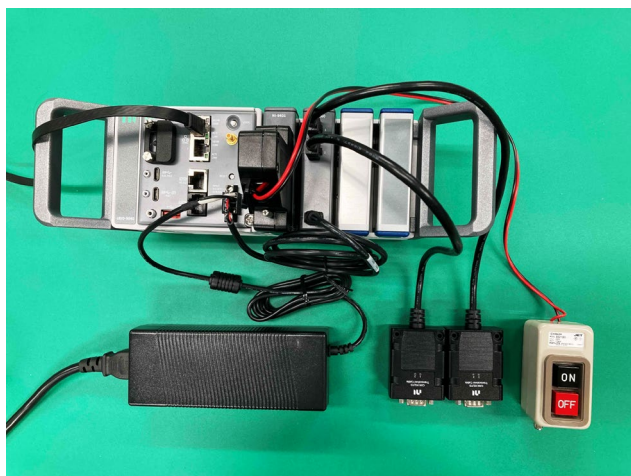


Fig. 1: Inspection Device for Calculating Energy Consumption Efficiency Using a Data Logger

Suzuki Motor Corporation



Quality assurance (QA) inspection division
Final Inspection Engineering Section
Mr. Takasugi, Engineer

◆What kind of work do you do?

I work on the development of inspection equipment necessary for vehicle inspections of completed vehicles, and serve as the person in charge of adoption and maintenance administration.

◆What kind of equipment was adopted?

This time, we installed equipment developed to measure the energy consumption of electric vehicles in compliance with regulation UN-R154. The test uses this equipment and a chassis dynamometer*1 to reproduce a driving cycle compliant with regulations. Electricity consumption is then calculated based on the distance traveled and the current and voltage data acquired from the vehicle.

*1: Equipment that tests the acceleration performance, fuel economy, and durability of a vehicle.

◆Were there any issues that came with installation?

I have been in charge of inspection equipment development since 2004, and have accumulated much knowledge and experience regarding mechanical tools used for vehicle inspections. However, this was my first time working on the development of an electric vehicle yet to be released. Furthermore, working in collaboration with another company made assessing inspection methods quite the challenge. For those reasons, and because the information necessary for assessing inspection methods spanned across collaborating regions, most of my time was spent on confirmations.

We also considered repurposing equipment used by one of our partner companies. However, intellectual property concerns arose, and it became clear that obtaining the information required by the system would be difficult.

In addition, vehicle modifications cannot be made as part of the final inspection process. With valuable input and suggestions from TTDC, we evaluated a range of measurement methods and ultimately succeeded in developing this equipment.



Working environment of evaluations and tests
Source: Suzuki Motor Corporation

Leveraging vehicle communication expertise to capture required data in real time!

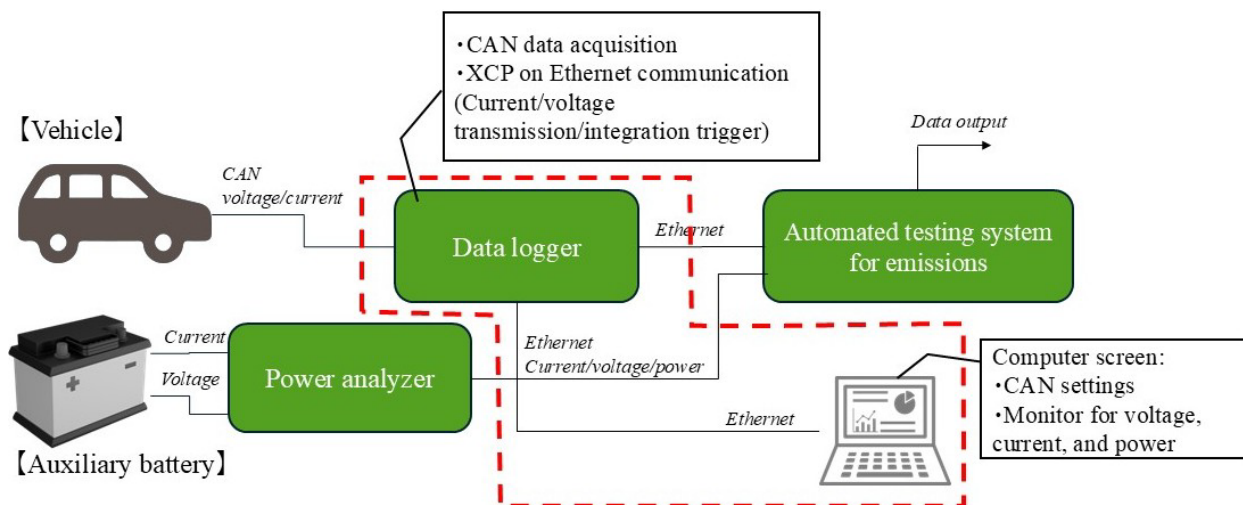


Fig. 2: Conceptual Diagram of the Adopted Equipment

◆Could you tell us why you choose TTDC?

When collaborating with another company, we need to obtain the necessary data, which requires preparing equipment that is equivalent to (or more efficient) than the equipment used by our partner. However, our suppliers were unable to support this approach because it was difficult to obtain the vehicle data required for measuring energy consumption in electrified vehicles, such as current and voltage values. As a result, we chose TTDC as our development partner due to its deep expertise and proven experience in the region

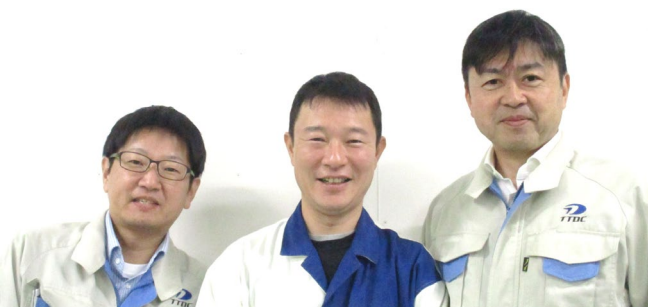
◆What were the benefits of adoption?

Thanks to TTDC, we received valuable information and insights that were essential to the development of the system, enabling us to successfully move the project forward. Thinking about it again, I'm very glad we chose to work with TTDC. We are working to streamline the final inspection process. We are developing and introducing automated judgment systems using inspection equipment to replace inspections that rely on manual labor. The Ministry of Land, Infrastructure, Transport and Tourism has also advocated the promotion of final inspection rationalization, making automation one of our key priorities. As shown in Fig. 2, this initiative combined a data logger, a power analyzer, an emissions test automation system, and TTDC's control system, enabling the automated output of inspection results. Automation not only helps prevent errors associated with manually recording data on paper and performing visual inspections, but also allows inspectors to focus solely on reviewing the inspection results. As a result, it is expected to enable a more efficient and accurate inspection process.

Our company operates under the guiding principle of creating valuable products from the customer's perspective. The introduction of this system has delivered significant benefits by helping us provide products that customers can use safely and with confidence, while also ensuring that legally required inspections are carried out reliably.

◆Could you tell us about your plans for the future?

We are expecting an expansion in the range of electrified vehicle models. As production of electrified vehicles begins at manufacturing sites both inside and outside Japan, it will become necessary to measure energy consumption in accordance with the regulations of each country. For that reason, we plan to further enhance the equipment so that it can flexibly accommodate these future requirements. We would also like to continue using it when new vehicle models equipped with new features are developed.



Center: Mr. Takasugi (Suzuki)
Left: Mr. Onogi (TTDC), right: Mr. Saito (TTDC),
both from the Measurement Engineering Department