전고조파 왜율 분석을 통한 연료전지 스택 고장진단 기술

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Technology of Fuel cell stack fault detection by THDA

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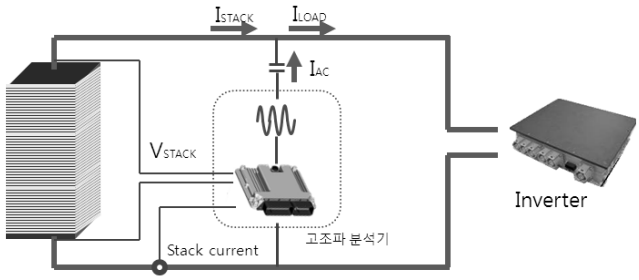
This technology is applicable to Electrical vehicle that using Energy from Hydrogen Fueled Cell. Electricity & water is got from chemical reaction between H2 & O2 in stack. This technology is used when fault diagnosis of Fuel cell is needed. It is General method that measure each cell's voltage of stack for fault diagnosis. but, this technology is method of measuring entire voltage of stack. For this reason, fault diagnosis system is simplified and cost of system is lower than previous one.

In normal stack condition, characteristic graph of voltage-current has linearity. In fault stack condition, it has non-linearity. we use this characteristic to diagnosis of stack fault. In this technology, Specific frequency current is injected into stack & Stack voltage is measured in response. After that, stack voltage difference is analyzed to diagnosis of stack fault. Presently, Development of current injection module & basic program of THDA is finished. in future we will develop the technology of precise measurement technology about entire stack voltage.



<연료전지 스택 진단 구성>

Key words : THDA(전고조파 왜율 분석), Fuel cell(연료전지), Stack(스택), Fault diagnosis(고장진단)

연료전지 블로워의 유로 크기에 따른 소비전력과 소음저감 방법

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Reduction of Noise and Input Power in Fuel Cell Blower by Controlling Flow Path

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This paper describes performance enhancement of a fuel cell's blower by controlling flow path. Different duct diameter at the inlet and outlet of the blower is selected for reducing blower noise level and input power. Hole diameter and the number of hole at the check valve are tested to reduce the input power of the blower. Two types of blower, fuel pressurized blower and cathode blower, are considered in the present study. Throughout experimental measurements of the test blowers, it is found that duct diameter is effective to reduce noise level and input power in the fuel cell blower. Noise reduction due to the optimal duct diameter at the outlet is more effective when flow rate is relatively large. That is, cathode blower has larger noise reduction compared to fuel pressurized blower because of larger flower rate. Input power of the blower can be reduced by controlling the hole diameter and the number of hole at the check valve.

Key words : Fuel pressurized blower(연료승압 블로어), Cathode Blower(캐소드 블로어), Fuel cell(연료전지), Noise (소음), Blower performance curve(블로어 성능곡선)

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