

**Development of Prototype Current Monitoring System
for Detecting High-resistance Earth Faults in DC Traction Power Supply Systems**

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In DC 1.5 kV traction power supply systems for electrified railway, it is difficult to detect high-resistance earth faults using only electrical measurements installed in traction substations. On the other hand, utilizing the current data of both substations and vehicles, methods for detecting fault based on Kirchhoff's law have been proposed for the past 30 years. The recent rapid progress in the fields of telecommunication technology leads to increasing the possibility of realizing this method. Therefore, we have developed a prototype of current monitoring system for traction power supply systems which can distinguish the fault current with about 100 amperes by combining this method with telecommunication technology.