Development of a Quick Charge System at Tram Stops for Contact-wire-less LRV

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For battery driven LRV use, there are considered several methods to charge the on-board battery quickly at tram stops or railway terminals. From the view point of the safety and the effective use of the existing infrastructure, the current collector of a pantograph type (including a single arm type one) is one of the most easily applicable methods. When adopting the above contact power collection system, we have to examine the performance of the system, in accordance with the charging current value and the energizing continuance time, especially with respect to the technical elements below: 1) Possibility of occurrence of melting and welding fusion of overhead trolley, 2) Heat rise and temperature of on-board battery, 3) Prevention method of electrical pitting of axle bearings due to leakage current from the return-circuit. In this paper, we report the experiment results of the continuance quick charge for a contact-wire and on-board battery hybrid test LRV, and the verification of the performance of the system.