Digitalization In The Cable Business: Towards Self-monitoring Cable Systems In The Field

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Abstract

At Leoni, we are not only working towards even more reliable, performant cables by simulating their electric, magnetic, mechanical as well as thermal properties but also bring our customer applications to our design board. Based, amongst others on multi-physical simulations, we prepare digital twins of our data and energy cables which can then be used in all phases of our customer's application lifecycle. From finding the right cable for a given application (for example anticipating different environmental conditions or use cases) during the system design phase to condition monitoring and even turn-key predictive maintenance solutions. We will briefly present cable simulations in different physical domains from different applications, as well as their validation. Finally, we will discuss an exemplary development and the advantages of the digital twin of an actively cooled high performance charging cable for electric vehicles.