

ČMŽO-elektronika: Han-Eco® – the right interfaces for refurbishing Czech rail vehicles



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A high reliability, low operating and maintenance costs, ease of use as well as compliance to contemporary safety standards: These are the characteristics expected by operators when deciding to buy a refurbished rail vehicle. Lightweight is a key to an energy-efficient operation. That's why the Czech rail vehicle refurbishment service provider ČMŽO-elektronika has decided to use Han-Eco® connectors, which are made of high-performance plastic and differentiate by their low weight.



Martin Štajgr, Head of Development, ČMŽO-elektronika



Tomas Krupka, Sales Engineer, HARTING s.r.o.

HARTING has equipped the electrical cabinets of Czech and Slovakian locomotives CZ LOKO Effiliner 3100, originally SNCB Class 12, with Han-Eco® interfaces. In combination with preassembled cable harnesses, the connectors enable customer ČMŽO-elektronika to modernise the supply of train vehicles with power, data and signals according to the latest state of the art.

ČMŽO-elektronika Ltd. is a young, dynamically growing company focusing on the design, development and production of rail vehicle management and support systems, working up wagons and trains in their facilities in Přerov, which is located in the east of the Czech Republic. The company's development and production activities are aimed at reconstructing the involved electric equipment and diagnostic systems as well as detecting and repairing faults.

In addition, ČMŽO cooperates with leading Czech and foreign manufacturers of rail equipment on custom development and component supply. The Han-Eco® applications are part of the renovation of former SNCB

Class 12 locomotives, known under the trade name CZ LOKO Effiliner 3100. In the second phase of the project, all locomotives are refurbished – each modernisation taking up to three months.

Supplying the required electrical equipment, ČMŽO-elektronika operates as subcontractor to CZ LOKO. Currently most electrical circuits on board are "hardwired", each pin having a special, well-defined function. With connectorisation, the interfaces can be arranged in the rail vehicle according to functional criteria, connecting the electrical cabinet to equipment "in the field". Typical example is a locomotive's controlling unit that has to analyse signals from periphery sources or collect data from the Ethernet backbone.

The Han-Eco® connectors assist with the modernisation of the Effiliner's switchboards: These devices enable the locomotive to combine and control all kind of power, signal and data transmissions within well-defined sections of the train. They also play a role, when it comes to controlling and activating relays or contactors: A vivid example would be the use of the signal horn when the train is arriving at a platform.

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Han-Eco® interfaces prepared for installation in an Effiliner 3100's electrical cabinet.

Benefits of using Han-Eco® connectors in rail vehicles:

- Rear and front mounting options reduce installation time
- Lightweight solution offering high mechanical robustness
- Outdoor variants available for enhanced environmental requirements
- Corrosion resistant hoods and housings made of plastic
- Fire resistance according to UL94 V0 and EN 45545, hazard level 2 and 3
- Metal and plastic versions of standard Han® B and Han-Eco® B connectors are intermateable



„Due to its easy assembly handling, the Han-Eco® product family saves us installation time. Furthermore, it simplifies the connectivity of our systems. We can design individual and compact solutions by choosing from a wide range of data, signal and power

modules. Thanks to the Han-Eco® connectors, locomotives are more reliable and have lower maintenance and service costs.“

*Martin Štajgr, Leiter Entwicklung,
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