Europa-Park: Inductive charging technology for Panorama Train

"Toot-toot" without any exhaust gases: Electric locomotive in nostalgic look

Overview

The oldest people mover at Europa-Park, the historic Panorama Train, is saying goodbye to the internal combustion engine. The switch to environmentally friendly electrification is taking place at the most modern level. In addition to the drive technology, MOVITRANS® spot contactless charging technology, energy storage units and control technology from SEW-EURODRIVE are used. The look and sound of the nostalgic steam experience is preserved, but without the problems posed by the internal combustion engines that were previously used.

The Panorama Train at Europa-Park in Rust, in the southern Baden region of Germany, is now more than 45 years old; intelligent and sustainable electrification not only makes it environmentally friendly, but also more attractive. The people mover is one of the oldest attractions on the extensive premises, and one of the amusement park's first amusement rides. For visitors of all ages, this means unadulterated nostalgia. People like to use the historic lazy train for an attractive sightseeing tour through the park. Or they board, without long waiting times, to travel from country to country in complete relaxation over a distance of 1.8 kilometers.

This tradition needs to be respected, even if the age of electric mobility is now making inroads into the nostalgia. The individual solution in the form of a drive and automation package including contactless charging technology and decentralized energy supply was developed at SEW-EURODRIVE and implemented in close cooperation with the Electrical Engineering and Mechanical Engineering departments of the Europa-Park. The conversion of the first locomotive took place while the amusement park was in operation. This means that the remaining diesel or petrol-engined trains continued to run regularly on the same track.

The first amusement ride powered by electricity and without CO2 emissions – all in black-and-red livery – has been successfully making its rounds since the 2019 winter season. Another train with an electric steam locomotive followed in the 2020 summer season, to the delight of passengers. There are plans to gradually retrofit the remaining trains with our pioneering environmentally friendly drive technology as well.

Panorama Train in the station

Customer

Europa-Park GmbH & Co Mack KG
Rust (Germany)

Challenge

- Environmentally friendly conversion of the railway
- Conversion during ongoing operation
- Sustainable power supply
- Rapid availability of spare parts whenever service is required
- Short charging times
- Nostalgic appearance of the railway should be preserved
- High safety

Panorama Train in the station

Solution

Decentralized contactless charging technology and decentralized drive technology

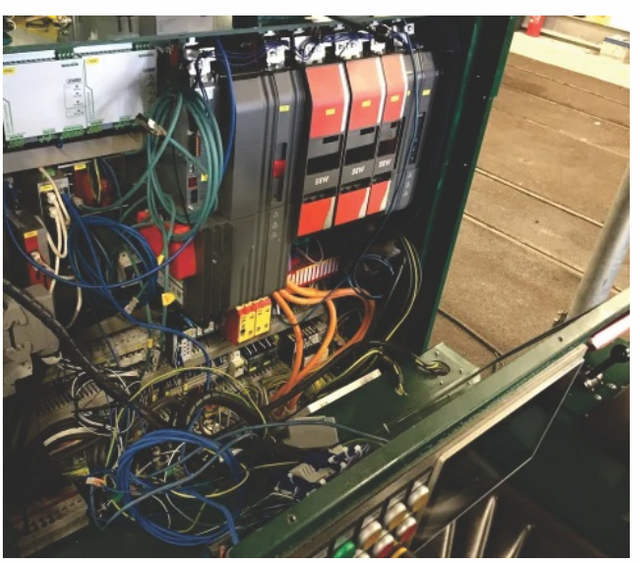
Mobile components on the locomotive:

- MOVI-DPS® energy storage system
- Safe two-channel disconnection of the system with UCS10B safety controller
- 4 MOVIGEAR® MGF..-DSM.. drive units on the locomotive
- MOVIDRIVE® modular application inverter in the driver's cab

Stationary components in each of the four stations:

- 4 MOVITRANS® spot TFS field plates per station in the floor between the rails
- 4 MOVITRANS® spot TES supply units per station in the control cabinet next to the trackw

Control panel with display for operating the locomotive



MOVIDRIVE® modular in the driver's cab

Stationary MOVITRANS® spot TFS field plates

Four MOVITRANS® spot TES decentralized supply units

SEW EURODRIVE

Customer benefits

- Operation without the use of fossil fuels and without fuel costs
- Visitors can enjoy the ride without smelling exhaust gases, and there are no odor problems
- Battery-free electric operation without conductor rails or overhead lines
- Fast charging in the station takes only one minute while the passengers are disembarking and boarding
- The absorbed energy supplies all electrical loads on the train, including nostalgic light, sound and steam effects or elaborate lighting during the Christmas period
- Improved workplace ergonomics for train drivers
- The remaining trains with internal combustion engines can continue to run as normal on the same track during the changeover
- Significantly reduced maintenance costs
- Fast service even on weekends

Energy transfer from field plate to TDM80E pickup

Camera view from the driver's cab

Compressor for compressed air supply to the brakes

Accumulators for several million full charge cycles

RFID sensor for positioning above the field plate

Drive unit and pickup behind the plow

SEW EURODRIVE