
ENVILINE™ EMS

Energy Management Solution

Recovery and receptivity of braking energy
for DC rail transportation



ENVILINE Energy Management Solutions

High energy efficiency and reliability for DC rail transportation

Transportation is energy intensive and it is not surprising that electric rail transit operators are amongst the largest consumers of electricity in their urban territory. ABB, the largest independent provider of DC wayside energy management solutions, offers a complete suite of products for more energy efficient rail transportation and can reduce the overall power consumption by as much as 30 percent*. With the ENVILINE product portfolio, ABB offers the right solution for each network environment. In addition to energy management solutions, the ENVILINE offering includes DC power supply and protection equipment.



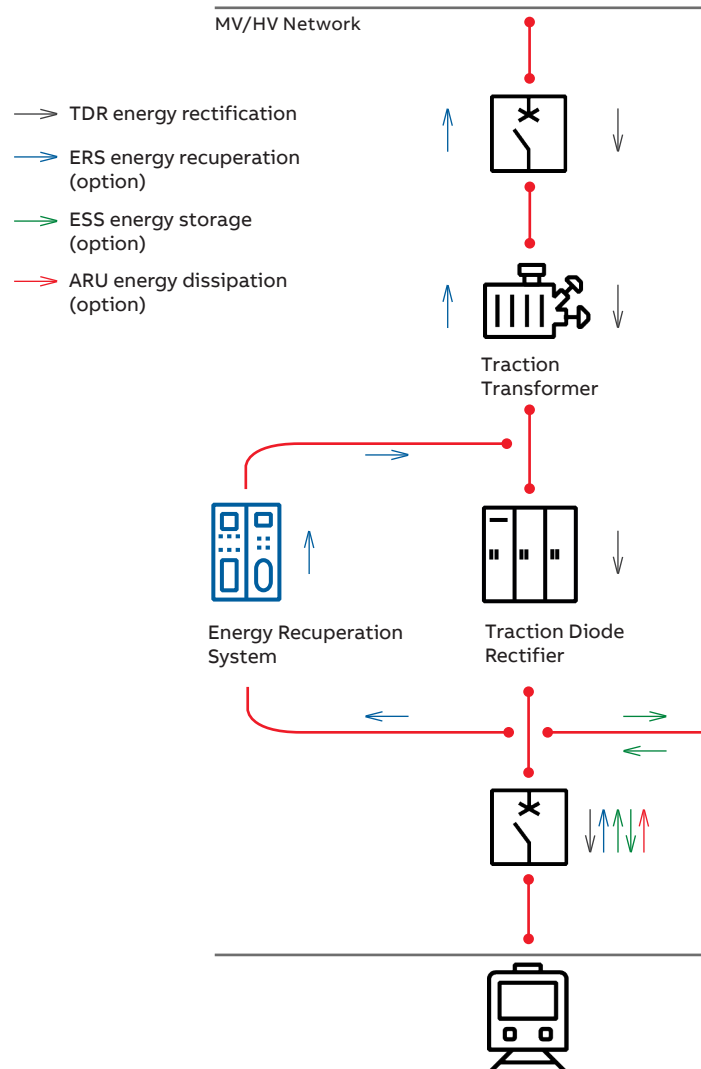
ENVILINE ERS

ENVILINE ERS is a wayside Energy Recuperation System (AC connected) that saves the surplus braking energy by returning it back to the AC network, thus reducing the total energy consumption of rail transportation system up to 30 percent. The ERS can be configured to provide rectification boost (bidirectional operation of ERS) and reactive power mitigation when not recovering the energy.

Key features

- Lowers energy costs through energy recuperation
- Lowest upfront and maintenance costs
- Easy installation
- Moving the heat out of the tunnel
- Compatible with new and existing train systems

Complete portfolio that covers all needs
High reliability with proven technology
Whole life cycle support
Over 50 years of experience



Braking energy management diagram

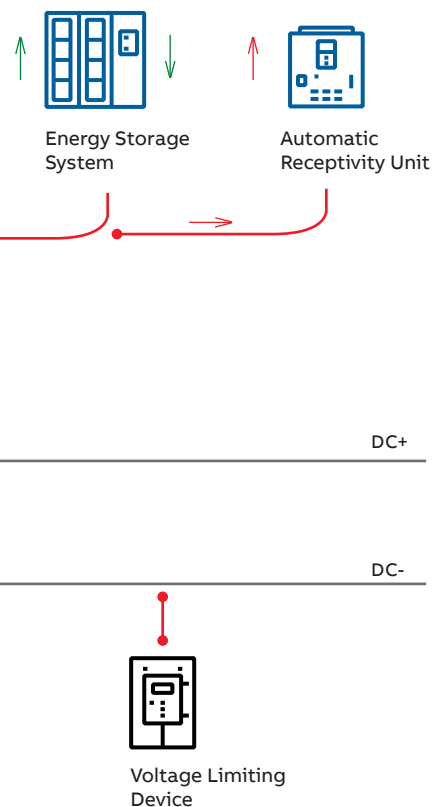
*The level of savings will depend on the operating conditions of the train system. ABB can assist in determining the expected level of energy savings for specify scenarios.

ENVILINE

Reliability and efficiency on track

Up to
30
percent
energy savings

AC~



ENVILINE ARU

ENVILINE ARU is a wayside Automatic Receptivity Unit that ensures track receptivity during regenerative braking by dissipating all surplus energy that cannot be absorbed by other onboard loads / nearby trains, nor recovered by the ENVILINE ERS or ESS. By deploying the wayside ARU instead of onboard resistors, the rail operator reduces the train's weight and energy consumption, and also eliminates accumulation of heat caused by braking in tunnels and underground stations.



Key features

- Highest reliability at low operational and maintenance costs
- Elimination of on-board resistors
- Moving the heat out of the tunnel
- No EMC or audible noise
- Easy deployment
- Compatible with new and existing train systems

ENVILINE ESS

ENVILINE ESS is a wayside Energy Storage System (DC connected) which stores and recycles the surplus braking energy, helping reduce the total energy consumption of a rail transportation system up to 30 percent. The ESS



can be configured with batteries, super capacitors or in a hybrid configuration of super capacitors and batteries to combine the benefits of braking energy recovery and peak power reduction with local grid support services such as frequency regulation, peak shaving or demand shifting.

Key features

- Lowers energy costs through energy recovery
- Reduces demand charge and peak power penalties
- Easy deployment with no AC connection
- Smart Grid Services for additional revenue generation
- Compatible with new and existing train systems

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