RAIL SWEDEN

Welcome Trail to Rail webinar!

The Digital Automatic Coupler - key enabler for digital freight train operations

2024-02-14

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TRAFIKVERKET

FP5TRANS4M-R Transforming Europe's Rail Freight

Europe's Rail

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Rail Sweden

- Accelerating rail innovation and competitiveness through collaboration

- Automation & digitalization
- Demonstration and testing
- Knowledge hub for development

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Agenda – an update on ongoing DAC-activities

12.00 Welcome and introduction to Rail Sweden
Emilie Zetterström, Communications Officer, Rail Sweden

Introduction to DAC
Anna Björkman, Program Manager, Rail Sweden

Goal of the TRANS4M-R project and the benefits of DAC
Jan Bergstrand, Senior Strategist, Trafikverket

12.30 Overwiev of ongoing and concluded DAC tests in Europe
Anna Björkman

Overwiev of Swedish DAC tests
Anna O Åkerman, Project Manager, Rail Sweden

Discussion with operator Green Cargo
Björn Landström, Green Cargo, Change Manager

12.59 Closing of the meeting
Emilie Zetterström

Introduction to DAC

Anna Björkman, Program Manager
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Rail Sweden/Lindholmen Science Park
2024-02-14

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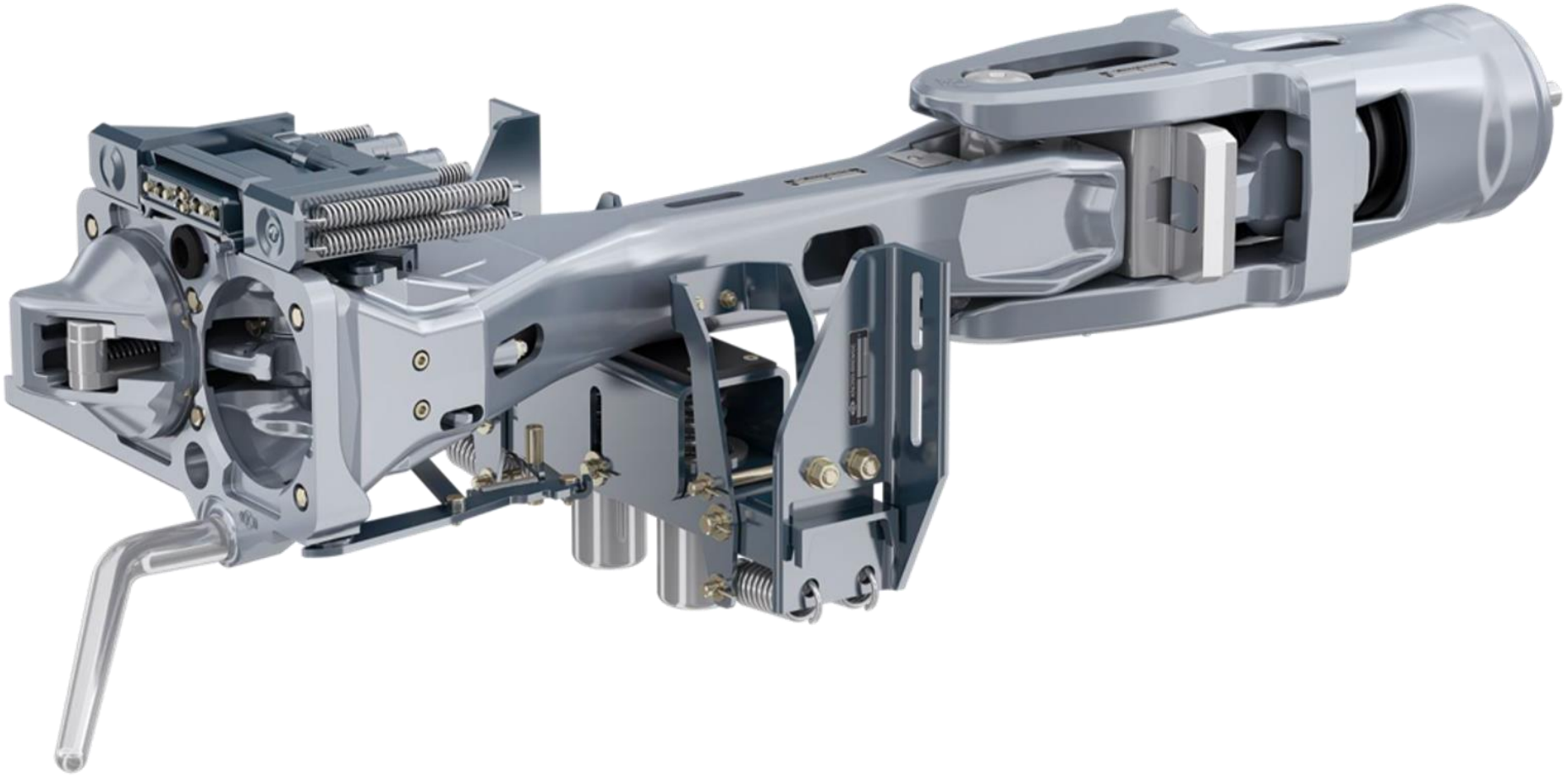
From screw coupler to DAC

What is the Digital automatic coupler?



Goal of the TRANS4M-R project and the benefits of DAC

Jan Bergstrand, Senior Strategist
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Trafikverket
2024-02-14

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DAC is part of Europe´s Rail

European Green Deal

30% 2030

Increasing the modal split for rail freight

Europe's Rail

Part of Europe‘s Rail

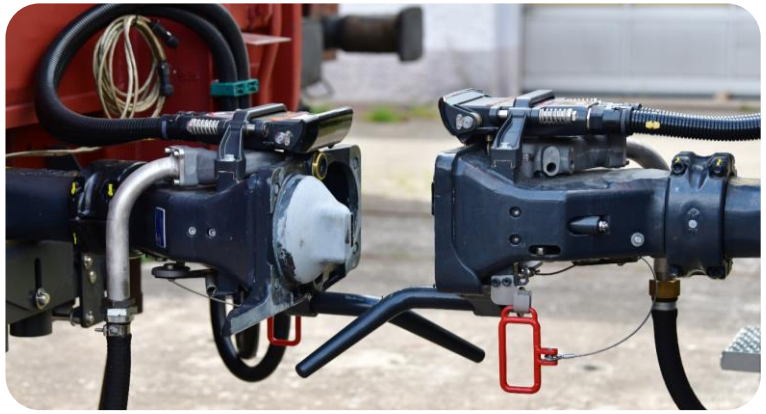
FP5TRANS4M-R
Transforming Europe's Rail Freight

95 Mio. € Total project cost

Collaboration of 71 European partners from the whole railway sector

2 workstreams: FDFTO & Seamless

Digitalisation and automation of rail freight



The digital automatic coupler (DAC) is the enabler of digitalisaion

Demonstrating new technology in real operational environment

The introduction of DAC is urgently needed for the European rail freight sector

It is an essential prerequisite for:

- Automatic (de)coupling/shunting
- ETCS Level 3 as well as Automatic Train Operation, moving blocks for freight trains
- Increasing capacity of the railway system
- Reducing costs and process time
- Increasing safety and process reliability
- Enabling heavier and longer freight convoys as the coupler can deal with stronger forces.
- Paving the way to intelligent freight trains

Basic package of train functions

- DAC-coupler incl. energy and data system
- Train composition detection
- Automated brake test
- Train integrity/train length determination
- Automated uncoupling (in-train from loco and with wagon-sided push-button)

Aiming for deployment trains and migration

To gather statistically significant and sufficient information and data to represent European freight traffic, long-term tests with DAC pre-deployment trains are considered to prepare migration.

They are foreseen to operate for approximately two years throughout Europe, collecting important findings on technical challenges, regional specificities and use in different operational scenarios, added value for customers, and for potentially gaining cross-border experience.

Overview of ongoing & concluded DAC tests

Anna Björkman, Program Manager
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Rail Sweden/Lindholmen Science Park
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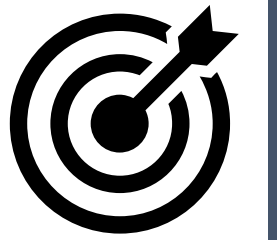
What is the next step?

- Test interoperability & reliability of solutions
- Provide input for the decision regarding certain technical solutions (e.g. energy & data, e-coupler)
- Test solutions regarding safety requirements
- Test solutions regarding operational processes
- Provide validation tests for certification

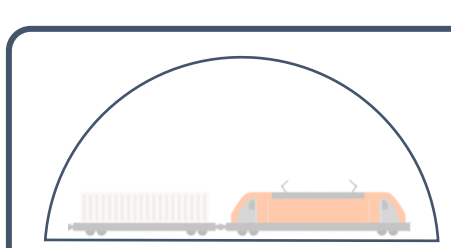


Focus topics

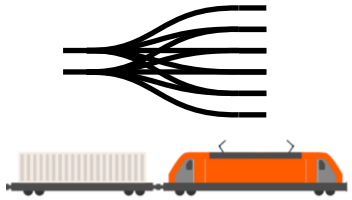
Wagon DAC 2, 4, 5 | Hybrid Coupler | Special Wagon DAC | E-coupler

Energy System | Communication Sys. | Train Functions | Operational Processes | Further technical enablers

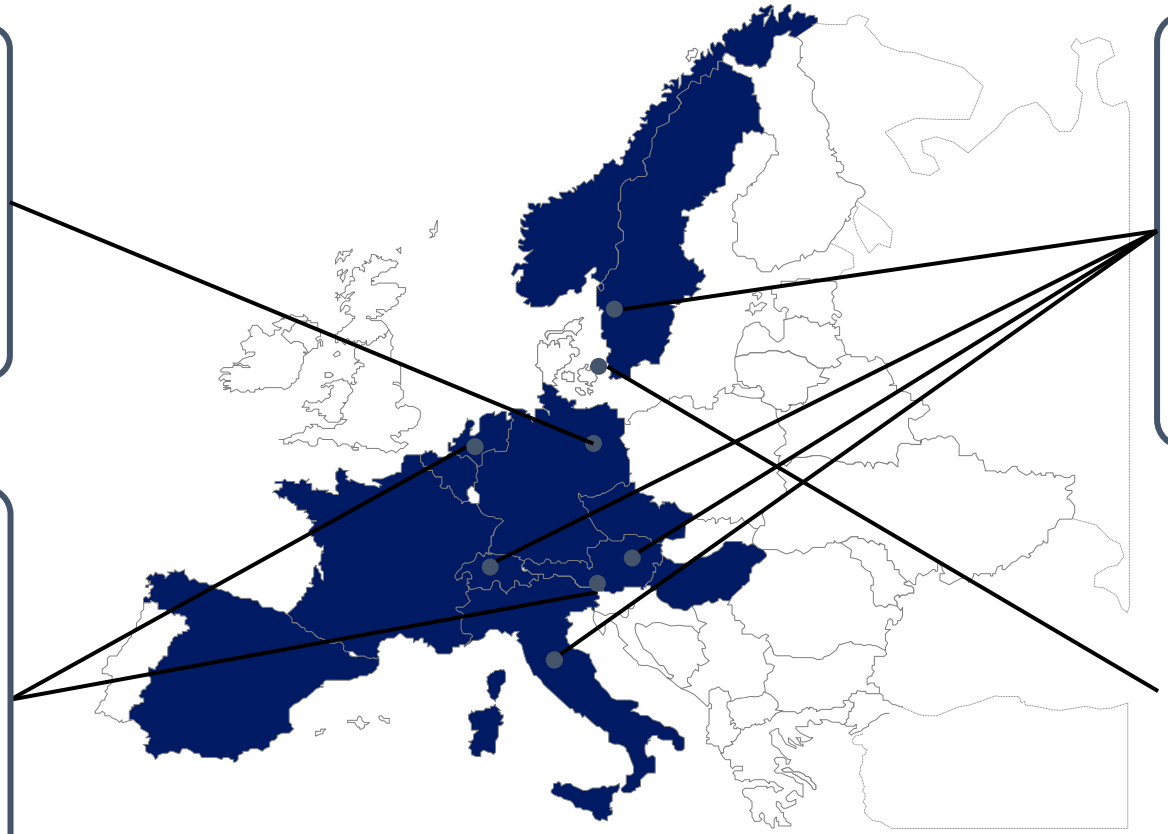
Demonstrations



Train test lab
(Closed environment)



Automated shunting
(Hump and flat yard)



Demo trains
(Public tracks)

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Overview of Swedish DAC tests

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Demo trains in Sweden

- Intermodal train Nässjö/Gothenburg
- Steel train Luleå/Borlänge

Intermodal train: Nässjö/Gothenburg

Run in commercial traffic 5 times a week

Time frame: 2024-2026

Distance per year: 110 000 km

RU: CFL Cargo

Wagon owner: VTG

Test focus: Evaluate long-term effects, compatibility between DAC, real operations, winter conditions

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Steel train: Luleå/Borlänge

Run in commercial traffic 7 times a week

Time frame: 2024-2026

Distance per year: 250 000 km

RU: Green Cargo

Wagon owner: Wascosa

Test focus: Evaluate long-term effects, compatibility between DAC, real operations, hard winter conditions & heavy applications

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Possibility to run tests in Norway

Norweigan operators experience major temperature changes in short distances due to mountains and tunnels.

Testing reliability in these conditions is the main reason why it's so important to include a demonstrator in Norway.

Discussion with operator Green Cargo

Björn Landström, Change Manager
bjorn.landstrom@greencargo.com

Green Cargo
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Thanks for your attention!

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