



EVC-Compact for retrofitting rolling stock

ETCS for existing vehicles,
without unnecessary complexity

ETCS is being deployed at large scale and rail operators across Europe face a difficult choice: invest in entirely new rolling stock to operate on ETCS lines, or retrofit existing vehicles with high costs, long downtime and complex re-certification processes. ICT InTraffic has designed the EVC-C to remove that dilemma for small series and special-purpose rolling stock.

A future-proof ETCS solution for retrofit projects

EVC-C is a full ETCS on-board system, purpose-built for retrofit projects where space, cost and certification effort matter most. It is particularly suited for:

- Track maintenance and inspection vehicles
- Shunting locomotives
- Freight and work locomotives
- Other unique or low-volume vehicle types

By deliberately implementing only the ETCS functionality required for the intended operation and national context, EVC-C reduces integration risk and shortens project lead times, while enabling smoother and more predictable certification.

Compact by design

EVC-C is compact in every sense. Its modular rack-based hardware. It has a small form factor and fits into limited installation space, while its functional scope is tailored to the applicable ERA requirements for the target fleet.

Instead of a one-size-fits-all approach, EVC-C focuses on what is actually needed, Fit for Purpose. This keeps complexity under control, limits re-certification impact and avoids unnecessary functionality, without compromising safety or interoperability.

Architecture built for safety and certification

Safety is at the core of the EVC C architecture, combined with deliberate simplicity. The system is designed per the SIL 4 compliant 2 out of 2 safety concept, with two independent safety processors executing identical, purpose built safety software. Each processor has its own direct brake control path, ensuring deterministic behaviour without hidden dependencies.

The architecture avoids the use of generic or third party software frameworks. Instead, all safety critical software is developed specifically for its function, with minimal layers, clear responsibilities and fully controlled behaviour. This keeps execution paths short, predictable and easy to analyse, a crucial advantage for safety assessment and long term maintenance.



A strict separation is maintained between the safety critical domain and the non safety communication domain. All protocol handling and communication tasks are isolated in a dedicated processor, while all safety decisions remain exclusively within the safety processors.

This straightforward, framework free and fully explainable design ensures that every function, interface and data flow can be traced, reviewed and justified, supporting efficient certification, predictable approval and a system that remains understandable throughout its lifecycle.

Modular and open, without unnecessary risk

EVC-C connects to on-board and trackside systems through standardised, validated interfaces, including:

- Driver interfaces
- Balise transmission module
- EuroRadio, odometry
- National systems via STM
- Train and juridical recording interfaces

To minimise technical and certification risk, a pre-selected set of proven peripherals is available. Alternative components can be supported when needed, while preserving architectural consistency. Only the train-specific interface is bespoke; all other interfaces are reusable across vehicles and projects.

Designed for long-term operation

Rolling stock lifecycles span decades, and EVC-C is engineered accordingly. The system supports long-term hardware availability, modular replacement and controlled lifecycle management.

Software and configuration updates can be applied efficiently during planned maintenance, on-site or remotely depending on deployment, keeping vehicles available for operation and ready for future ETCS baselines.

Our focus is your retrofit challenge

As an independent ETCS supplier, our sole focus is enabling existing rolling stock to remain compliant and operational as signaling evolves. We do not build trains. We ensure your current fleet remains usable on ETCS networks, efficiently, safely and predictably as long as it is fit for purpose.

EVC-C at a glance

EVC-C is a compact ETCS on-board solution optimised for retrofit and small series. It combines a modular rack-based hardware design with a SIL-4 compliant 2oo2 safety architecture, proven peripheral interfaces and a clear separation between safety and communication domains. The result is reduced cost, downtime and certification effort.

EVC-C – Retrofit with confidence.



Visit our website for
more information
about this product.

