



INGESYS

ROLLING STOCK AUTOMATION

Ingeteam



INGESYS™ is Ingeteam's rolling stock automation platform, which complies with EN50155 and EN45545-2 railway standards.

The INGESYS™ platform responds to the automation and monitoring requirements of both trains (VCU, RIO, RCM, etc.) and onboard subsystems (HVAC, WC, doors, galley, etc.). It offers a modular architecture which can be configured by the user according to their automation requirements. The platform also includes a wide range of interfaces and the most extensive communication buses and protocols in the railway sector (RS232/485, CAN, MVB/WTB, ETHERNET TCP/UDP, ETHERNET/IP, TRDP, PROFINET, etc.). It offers the user different programming tools (IEC61131, C/C++, MATLAB) in order to optimise the time needed to develop control applications.



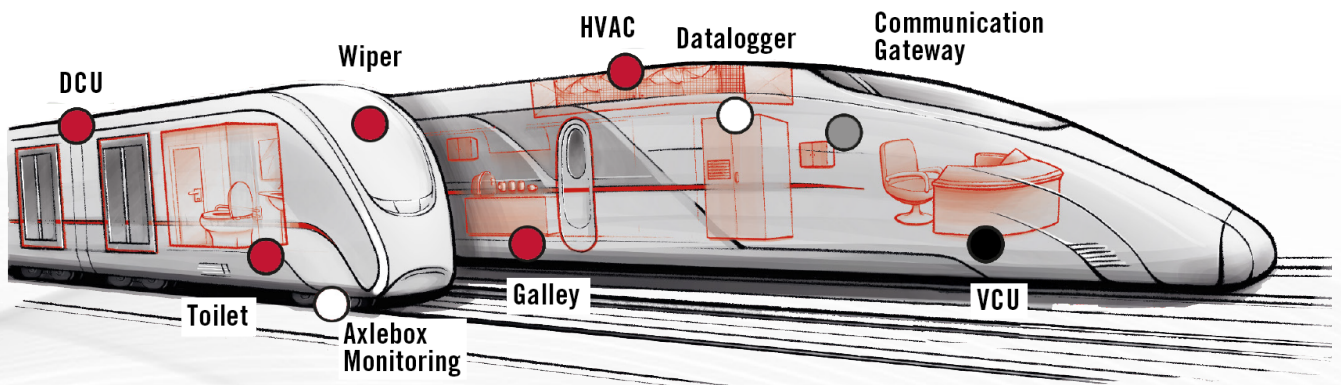
New Vehicles



Subsystems



Fleet Refurbished



Train Control & Management Systems



VCU, RIO, HMI, RCM

INGESYS RC3

- Complete range of racks, power supply modules processors and I/O modules.
- Modular structure.
- Redundant architectures (processors, comms, power supplies).
- EN50155 & EN45545-2 compliant.
- I/O concentrated or distributed topology.
- 30 years supply.

Communication Gateway



Communication Gateway

INGESYS GW

- Communications interfaces: RS232, RS485, CAN, MVB/WTB, ETHERNET UDP, TCP/IP, TRDP, ETHERNETIP, CIP, PROFINET, WIFI, GSM.
- Option to include local I/Os.
- Compliance with EN50155 and EN45545-2 traction standards.

Remote Condition Monitoring



Datalogger

INGESYS RCM



Advanced Condition Monitoring Software

INGESYS ACM



Acceleration Sensor

INGESYS SR

- Preventive monitoring and diagnostics system for optimising maintenance task.
- EN50155 and EN45545-2 railway certification.
- Wide range of digital or analog input signal acquisition modules.
- Extensive range of communication protocols.
- Centralised monitoring and analysis tool based on web technologies.
- Actions as a consequence of exceeding thresholds (log generation, sending SMS/ email, digital signal activation, etc.).

Subsystem Automation



HVAC, DCU, Galley, Wipers...

INGESYS IC2

- Control system designed for controlling train's subsystems.
- EN50155 and EN45545-2 railway certification.
- Wide range of digital/analog input and output modules.
- Communication buses and protocols: RS485, CAN, WTB/MVB, ETHERNET TCP/UDP, ETHERNET/IP, TRDP, PROFINET, etc.
- IEC61131-3 compatible programming tools (C/C++ and Matlab /Simulink).
- Built-in web server.

Projects

New vehicles



Marathon 111Ed Range
PESA (Poland) · TCMS



Uzbekistan Railways HS Power
Heads Talgo (Spain) · TCMS



Bilbao Tram
Euskotren (Spain) · TCMS



Kardemir Shunting Locomotive
Tülomsaş (Turkey) · TCMS

Subsystems



EMU
Hyundai Rotem (Turkey)
HVAC Control



DEMU
HITACHI (UK)
Galley Automation



High Speed Train · AMTRAK
Alstom (USA)
Toilets Automatron



EMU
CAF (Spain)
RCM (Data Logger)

Fleet refurbishment



UT 3500
FEVE (Spain) · TCMS

Traction control



Stuttgarter Straßenbahnen AG
Voith (Austria)

Remote Condition monitoring



DB project – Axle box
monitoring
Talgo (Spain) · RCM



VG fleet – MVB bus monitoring
Wiener Linien (Austria) · RCM

Services

Services offered:

- Manufacturing facilities and high-level testing to ensure the product's quality and flexibility.
- Application software desing and programming, in accordance with international standards.
- Data monitoring service based on cloud technology for system maintenance.
- 20 years of product availability, guaranteeing repair and maintenance service for 10 additional years.
- Product adaptation to the client's specific requirements.
- Systems engineering.
- Commissioning service.

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