

- TCN based standard solution.
- Modular and distributed system.
- Flexible system.
- Reliability and strength.
- Interoperability.

DESCRIPTION

COSMOS is a train **control and monitoring** system (TCMS) based on the train communications standard **TCN**.

It is a robust system with the purpose of covering a wide range of requirements, and it is also flexible, capable of being adapted to each specific application or project.

COSMOS is a **modular** system which is **arranged** along the whole train making it possible for the incorporation of equipment and functionalities to the system virtually **plug-and-play** ones.

As well as being robust, modular and flexible, the COSMOS system permits simple and uniform access to all the information available on the train.

As a result:

- The complexity of the commissioning as well as the train maintenance tasks are kept to a minimum.
- The COSMOS system items are set by means of simple setting tools developed by Traintic.
- It provides for easier assembly and requires less wiring on the train.



CHARACTERISTICS

Following the principles defined in rail standard IEC 61375-1, the COSMOS system contemplates two bus levels:

- MVB vehicle bus: permits communication between equipment in each car.
- WTB train bus: allows information to be shared between different trains. Coupling between units, regardless of the manufacturer.

In addition the COSMOS system can be easily integrated with the HERMES platform, which includes a third bus (the ETHERNET bus) to provide access to all equipment with a high data traffic requirement (passenger information system, video entertainment, etc.). **See Hermes datasheet*

The COSMOS system development includes the control principles of the RAMS parameters (reliability, availability, maintainability and security) introduced and defined by railway standards EN50126, EN50128 and EN50129.

According to the requirements of each project, the COSMOS system consists of the following equipment:

- Control Module: CCU **See Cosmos-CCU sheet*
- Inputs and Outputs Modules: M I/O **See Cosmos-M I/O sheet*
- Man-Machine Interface: HMI **See Cosmos-HMI sheet*
- Repeater Module: RP **See Cosmos-RP sheet*
- Gateway Module: GW **See Cosmos-GW sheet*

Each COSMOS system item of equipment is fitted with a complete self-diagnosis system whereby we can offer a control system with high reliability and robustness.

To this end, the system is fitted with configurable degrees of redundancy both in relation to equipment and functions.

Also, as an added value of the product, TRAINTIC provides a series of tools for setting, analysis and monitoring to facilitate system control. These tools allow us to:

- Generate equipment configurations.
- Configure the different equipment making up the unit.
- Check the quality of communications.
- Monitor variables.
- Monitor the downloading of variables and the automatic alarms.
- Ease driving by means of driver friendly graphic applications.

** See Services sheet*

With TRAINTIC clearly opting for equipment integration, the COSMOS system can easily be integrated with another TRAINTIC developed product (telecommunication systems, event recording systems, etc.), as well as with other systems which need to be integrated with the TCMS system.

