AEGIS® BY EFACEC

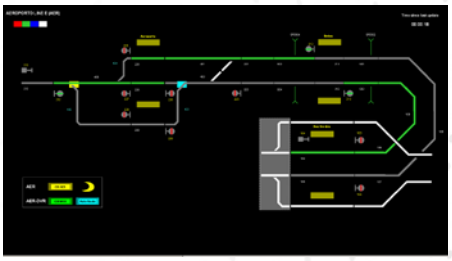
AEGIS by EFACEC ® is a modular and cost-effective signalling solution for light rail and rail systems based on highly reliable and fail safe electronic interlocking equipment, complying with CENELEC EN 50126, 50128 and 50129 standards with SIL 4 Level.

Key features

- Modular architecture, making the system suitable for all applications, from light rail to conventional railway lines;
- COTS base solution, reducing both CAPEX and OPEX, when compared to a traditional interlocking;
- IP based communication between modules, using safety certified protocols;
- Solution for Operation Control Centres, Local Control Centres and Local Control Panels;
- Single on-board wireless solution for remote route command and traffic-light priority request.

Customer Benefits

The solution design is based on market standard HW & SW COTS (Commercial off the shelf) and its modular and scalable architecture enables flexible, highly reliable application with low life cycle costs, compliant with the client's specific requirements and guaranteeing future-proof investments.



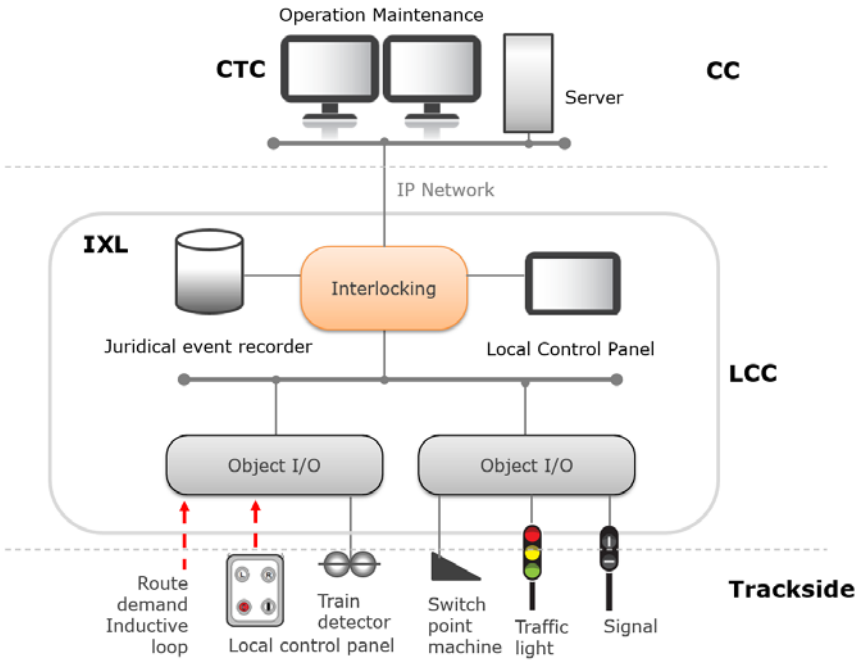
Benefits

- Modular hardware and software architectures guaranteeing scalable SIL3&4 safety certified solutions according to CENELEC standards;
- Standard certified engineering configuration and test tools;
- Easy upgrading and updating;
- High reliability and availability;
- Lower life cycle costs.

Architecture

Three levels of system architecture

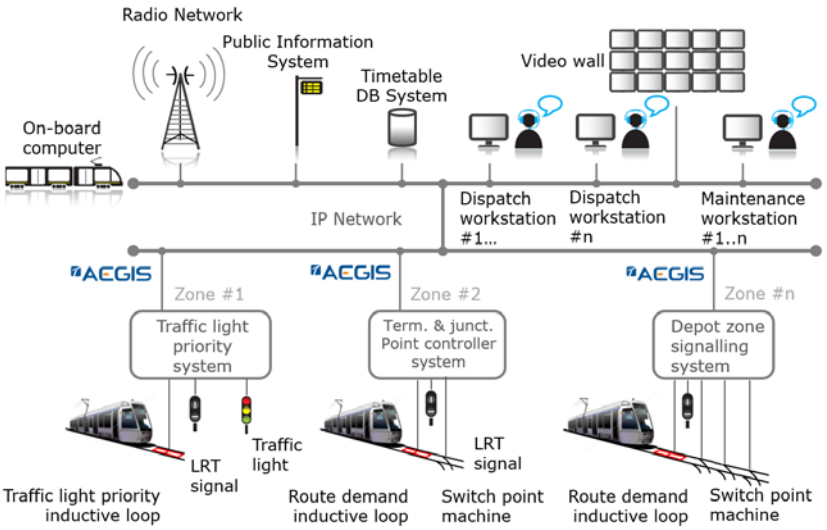
- The CC (Control Centre) level, from where the train dispatch of a line or a rail network is performed and the signalling system is remotely controlled and supervised;
- The Interlocking level, which includes the LCC (Local Control Centre), where the safety is assured, implementing all functions related with train movement authority and controlling the trackside signalling objects. The traffic dispatch of a geographic zone can be controlled from this level in case of failure on the network communications or CC (degraded mode);
- The Trackside level, the sensors and actuators level, such as axle counters, track circuits, point switch machines, route and shunt signals, level crossings and traffic light controllers, route demand local control panels and inductive loops.



Applications

AEGIS by EFACEC ® signalling system offers solutions for the following light rail and rail application scenarios:

- Interlocking of Terminus & Junctions;
- Traffic light priority & point controllers;
- Depot signalling systems;
- Conventional railway stations interlocking, including block system.



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Metro do Porto

Airport Branch line Signalling System

About AEGIS
Our Rail Signalling System

Efacec installed AEGIS, the first interlocking of Portuguese design, at the Airport line of Metro do Porto (Oporto's Light Rail System), Which has been certified to SIL 4 level by TUV SUD.

The Airport branch, also known as Line E, is a new 1,5 km double track line that connects the Dos Verdes station of Line B to the Oporto Airport terminal station. This Line includes the Airport terminus station plus two stops and two road crossings.

The AEGIS signalling system supervises the train movements by commanding and controlling the aspect of (11) led signals, the occupation of (21) axle counting sections, the position of the (3) Airport station point machines and the working of (2) road traffic light systems.

The AEGIS interlocking is installed at the Airport technical room and is remotely operated from the Metro do Porto's main Operation Control Centre (OCC).

Key Features

- **Signals** LED technology – SIL4 certified
- **Switch point machines** Contec CSV24
- **Train detectors** Frauscher ACS2000axle counters - RSR180 sensors and ACB
- **Interlocking** AEGIS SIL4 certified – (35) signalling objects – (15) routes
- **Local Control Panel**
- **Remote Control Centre**
- **Communication** Safethernet over IP network
- **Power supply** 230 Vac 50 Hz
- **UPS** 4 hrs autonomy

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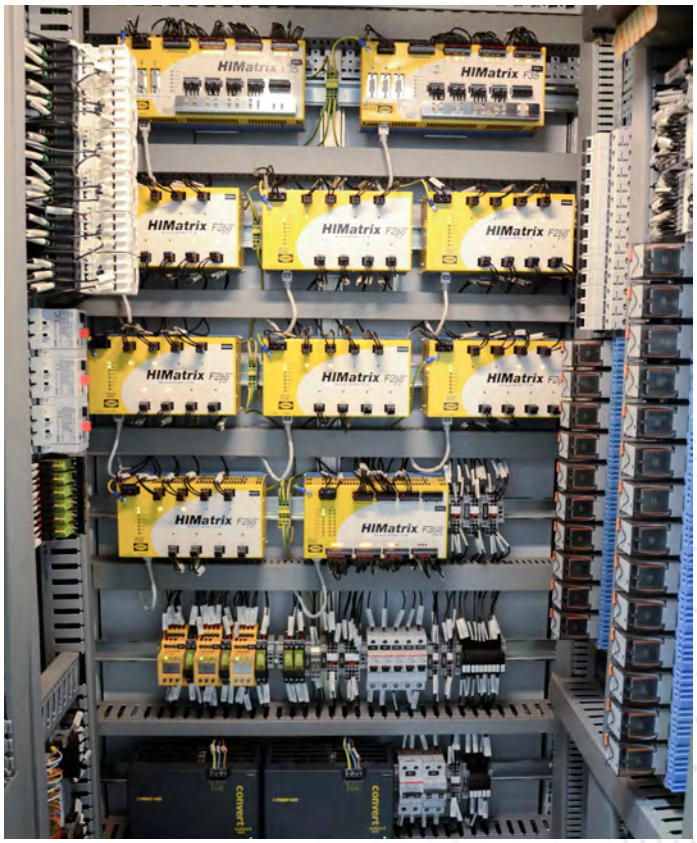
Benefits

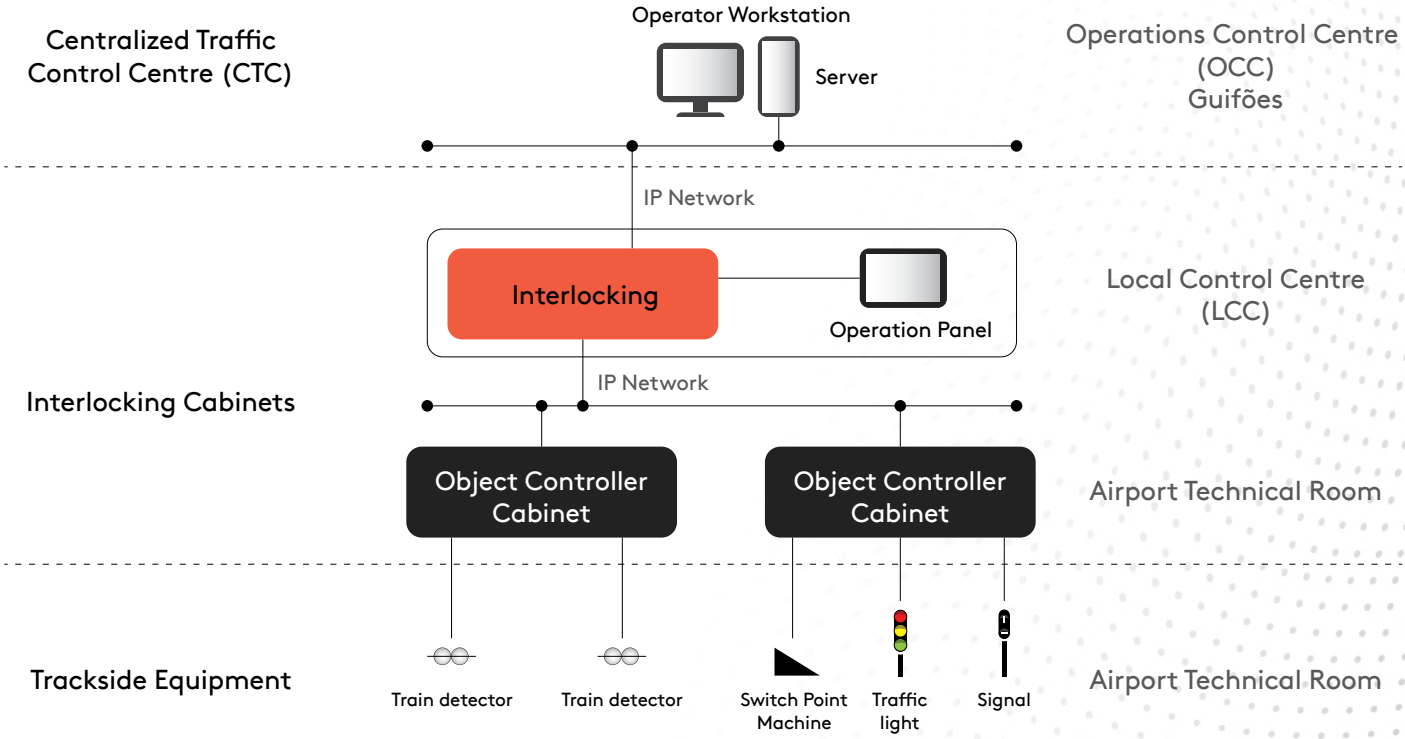
The AEGIS system is an all-new concept for signalling systems based on SIL 4 certified hardware and software, which allows modular and scalable application configurations.

The AEGIS was designed to meet the highest railway safety standards, addressing customers' expectations regarding their investment and life-cycle costs.

The modular and flexible architecture of the AEGIS signalling system enables a flexible railway traffic control solution, according to the specific requirements of Metro do Porto.

The use of available industrial standard products and solutions independent from the manufacturer lessened the need for specially trained staff for the system design, installation and maintenance, thus reducing the associated costs and guaranteeing future-proof solutions.





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