The Trainguard MiniLEU S15 is intended for use in mass transit and mainline services for ETCS Level 1 Limited Supervision (L1 LS). Comparable applications are possible (e.g. TBL1+, ZBS).

The Trainguard MiniLEU S15 can be used to upgrade a line already equipped with a national train protection system to L1 LS. The existing train protection systems (e.g. track magnets) can remain on the track and are supplemented by a cost-optimized ETCS solution (Trainguard MiniLEU S15 and Trainguard Eurobalise S21).

The Trainguard MiniLEU S15 connects the Trainguard Eurobalise S21 to the lineside signals. The indicated signal aspect is read in by the Trainguard MiniLEU S15 via the PZB contacts and generates a pointer which, in turn, activates one of the configured telegrams per balise output and transmits it to the transparent balise(s), thus ensuring a minimum need for modification.

The Trainguard MiniLEU S15 offers the fast, cost-optimized conversion of transmission points and considerably reduces installation and cabling costs due to an integrated contact multiplier for the control of PZB magnets and earth-leakage monitoring of the PZB cables.

Benefits

- Compliance with European standards
- Simplification of signal-interlocking configuration
- Reduction of the scope of equipment along the track
- Migration of the existing national systems to ETCS
- Further usage of existing outdoor equipment
- Very low power consumption
- Possibility of autonomous solar power supply
- Low life-cycle costs
- Reusability after alterations
- Simple evidence of absence of any interaction
The Trainguard MiniLEU S15 complies with European railway standards (EN 50129 ff) in adherence to the specifications of Subsets 036, 085 and 091. Adherence to the requirements stipulated by UNISIG ensures that the group of constituents (Trainguard MiniLEU S15 and Trainguard Eurobalise S21) interacts with the components of other vehicle manufacturers.

Applications

The PZB 90 system operated in Germany uses track magnets which are directly connected to the different signaling systems via a standard interface.

This interface is described in German Railways’ Guideline 819.1310. Usually, there is only one in the interlocking. Since the PZB system (track and vehicle magnets) has to be maintained until the railway operator’s rolling stock has been completely converted, the PZB function must not be influenced.

The control information of the national Indusi train protection system is read into the Trainguard MiniLEU S15 and provided again via a contact multiplier to control the relevant magnets. A pointer which selects the ETCS data telegram stored for each balise output is generated from this information. The telegram is then sent to the Trainguard Eurobalise S21.

When traversed, the Eurobalise is activated by the train-mounted antenna’s magnetic coupling and then sends the telegram which is received again by the train-mounted antenna and evaluated by the on-board computer.

The information in this document contains general descriptions of the technical options available. The required features should therefore be specified in each individual case at the time of closing the contract. For the secure operation of Siemens products and solutions, it is necessary to take suitable preventive action and integrate each component into a holistic, state-of-the-art security concept. Third-party products that may be in use should also be considered.

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