

Title (en)
TRAIN-ORIENTED LINE SAFETY LOGIC FOR RAILWAY SAFETY SYSTEMS

Title (de)
ZUGORIENTIERTE STRECKENSICHERUNGSLOGIK FÜR BAHNSICHERUNGSANLAGEN

Title (fr)
LOGIQUE DE SÉCURITÉ DES VOIES CÔTÉ TRAIN POUR INSTALLATIONS DE SÉCURITÉ FERROVIAIRE

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Abstract (en)
[origin: WO2018091186A1] The problem addressed by the invention is that of specifying a method for securing the travel of a rail vehicle over a section of a track network, by means of which method a high safety level according to SIL4 and, at the same time, high flexibility in the line usage can be achieved. According to the invention, said problem is solved by means of a method for securing a travel of a rail vehicle or rail vehicle assembly, referred to in general as a rail vehicle below, over a section of a track network, in which method: a) the current position of the rail vehicle and the travel criteria specified for the rail vehicle by a control system are evaluated and a protection space toward the front is determined and b) the track elements arranged in the section of the track network are represented in a track diagram principle and, on the basis of the position of the rail vehicle and the travel criteria, always the one or more next track elements including the track elements laterally granting the protection space, which track elements lie outside of the track already reserved for the travel plus the protection space toward the front, in the position and extent required for the travel, are reserved and optionally set uniquely for the identity of said rail vehicle. In this way, the route instances and start-destination element instances known from the safety methods known today, together with the safety logic functionalities of said instances, can be completely eliminated, because the safety logic now operates in a train-oriented manner and no longer in a line-oriented manner and reserves for travel (blocks) track elements for the train travel only in relation to the one or more next track elements located toward the front outside of the determined protection space for a certain extent, whereby the reservation also can be immediately provided again for other train travels after passage when a track vacancy notification of a certain extent exists. Thus, the information about the entire reservation of a route does not have to be exchanged and kept current by the signal box in question or the control system in question, and as a result, during driving operation, the individual track elements only have to be reserved (blocked) for a shorter time for a certain train travel and thus are available considerably earlier or longer for reservation by other trains. Thus, higher throughput on the line and a reduction of the complexity of the current signal-box and control-system logic are brought about, which leads to considerable savings in engineering expenditures and necessary expenditures for approval, especially in the case of conversions of the line or new construction of line parts in the existing infrastructure.

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