Unified Train Control System

State-of-the-art train control system using GNSS and cellular network

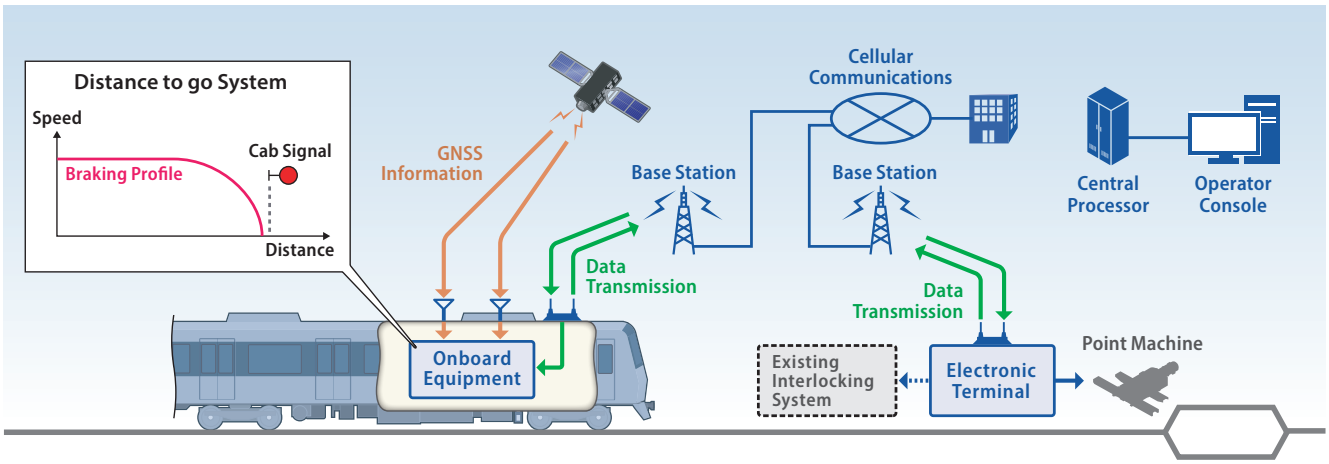
In light of the worldwide shortage of the train operation staff and the demand for enhanced efficiency in rail operations, Kyosan is developing a cutting-edge train control system for the for personnel by simplifying the installation, operation, and maintenance of the equipment while ensuring uncompromised safety standards.

Features

1. Wireless System

The system is developed based on Kyosan's CBTC (Communication Based Train Control) system technology. Seamless communication between trains, field equipment, and the control center is facilitated via cellular network. Train detection employs redundancy using both the speed sensor of each train and GNSS *1 network to ensure safety.

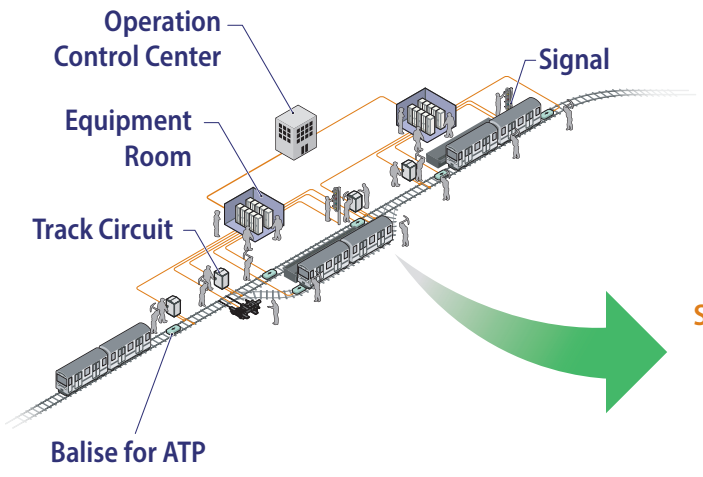
*1: Global Navigation Satellite System



2. Cost Effective

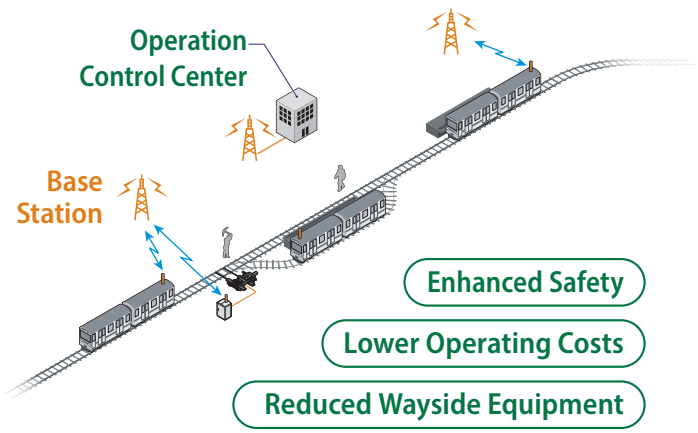
Being a wireless system, it eliminates the need for installing cables between wayside equipment and control center in addition to construction of equipment rooms along the track, as required in conventional systems. Consequently, this leads to significant reductions in construction and maintenance costs.

Conventional System



New System

The use of off-the-shelf technologies (GNSS and Cellular Communications)



- Enhanced Safety
- Lower Operating Costs
- Reduced Wayside Equipment

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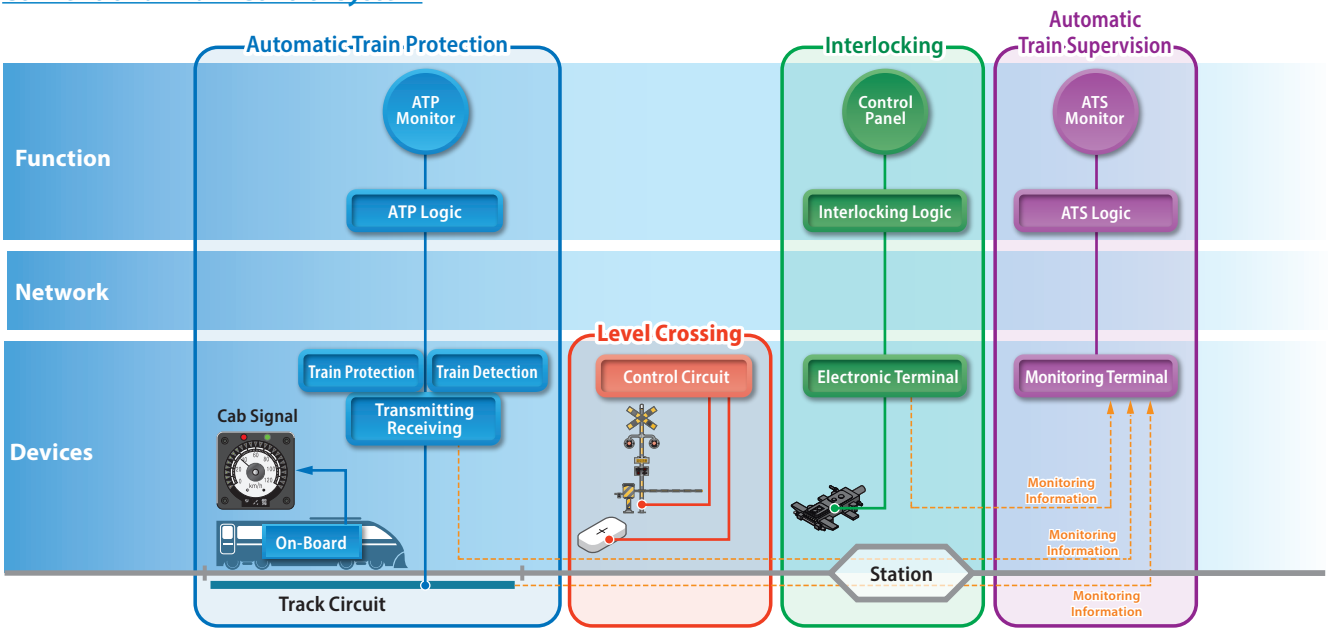
3. Centralized Control and Monitor

The control center seamlessly integrates all train control system functions including Automatic Train Protection, Automatic Train Supervision, Interlocking System, and Level Crossing System. It efficiently manages and monitors all system equipment, eliminating the necessity for station or level crossing staff for regular operations.

4. Flexible

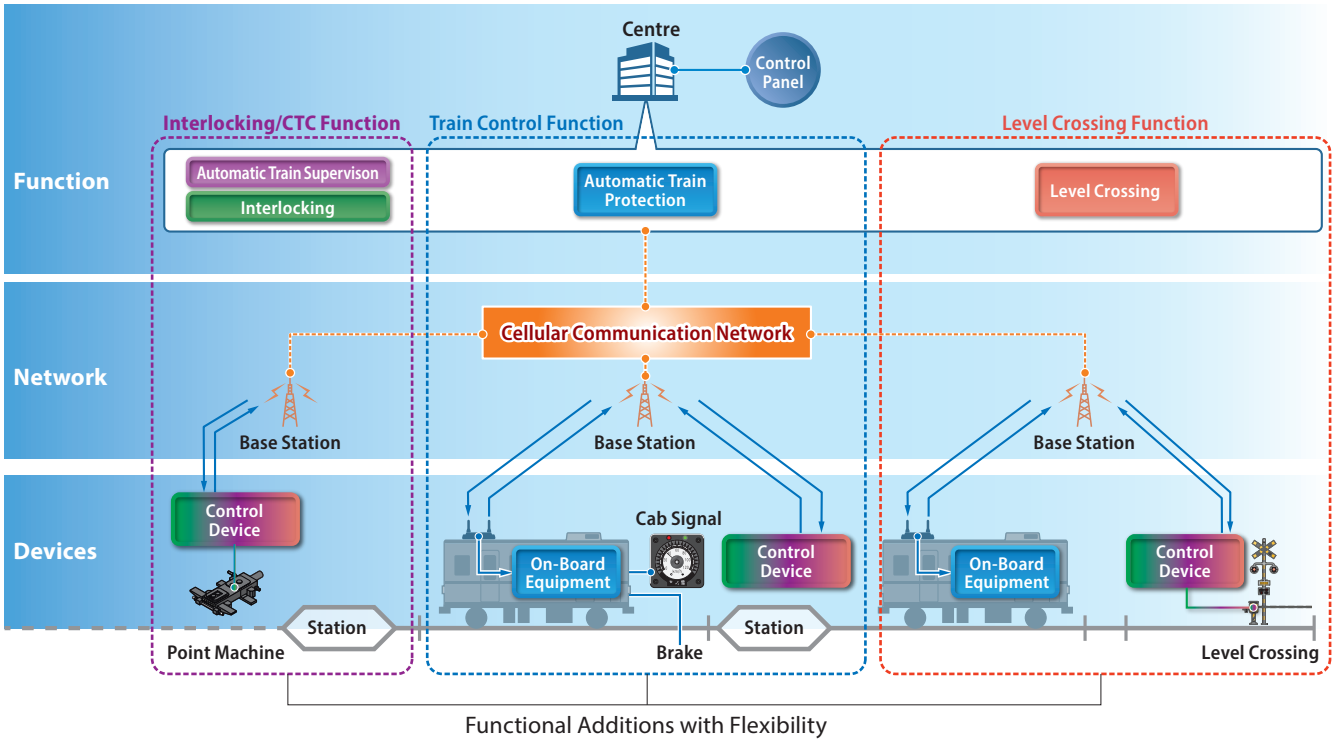
Each of the functions on train control system could be installed based on the needs of the train operator. The flexibility allows for gradual implementation and addition of new functions in the future.

Conventional Train Control System



Simplified and Optimized

New Train Control System



Functional Additions with Flexibility