



PTC 2.0

The world's most advanced train control system

INCREASE SAFETY AND CAPACITY; REDUCE COSTS

One of the biggest challenges for railway operators is to increase capacity and reduce operating costs. Existing signaling infrastructure can't keep pace with today's rail demands for more efficient transport. Dedicated radio networks, track circuits, axel counters, transponders, signals, and cables all add cost, maintenance, and performance impacts.

PTC 2.0 combines virtual block signaling, communications, and precise positioning into a comprehensive train solution that is truly transformative for the rail industry, significantly reducing signaling infrastructure – and ultimately enhancing safety, increasing capacity, and saving railroads significant costs.

KEY DIFFERENTIATORS

Virtual Block Signaling

The integration of I-ETMS Protect with IVOC (Independent Validation Office Controller) enables the realization of virtual block capability, which is transformative for the rail industry in reducing or eliminating signaling infrastructure and enabling more traffic to move on existing track.

Communications

PTC 2.0 supports all IP-based telecom technologies, ensuring seamless integration with existing infrastructure and enabling flexible, future-proof communications.

Ultimate Safety Assurance

PTC 2.0 is a SIL 4 certifiable safety system, supporting the highest levels of safety and dependability.

KEY TECHNOLOGIES

OnBoard

Enhance the train and its crew with greater intelligence, safety, and visibility.

- **I-ETMS® Protect:** Interoperable Electronic Train Management System. Vital management and application of movement authorities and restrictions.
- **GoLINC™ Precision Navigation Module:** High precision locomotive location with centimeters of accuracy.
- **TrainLink™ EOT & HOT Devices:** Industry leading communication capabilities for robust train integrity monitoring.

Control Center

Optimize dispatch and transform the delivery of movement authorities and control of switches with virtual block signaling.

- **IVOC:** Independent Validation Office Controller. Safety critical delivery of movement authorities and restrictions. Centralized interlocking with remote control of power switches.
- **TMDs CAD:** Computer Aided Dispatch. Streamline dispatch execution and improve service delivery.
- **PTC Apps:** Back Office Server (BOS) and Mobile Device Manager (MDM) provide interface applications between Control Center and Onboard.

Wayside

Modernize wayside infrastructure by reducing equipment and associated maintenance.

- **Communications:** PTC 2.0 supports a wide range of communications technologies, including Cell, Radio, Wi-Fi, and Satellite, for powerful performance and cost effectiveness.
- **Object Controllers:** Simplified object controllers are used to control switches, electric locks, and derailleurs.
- **Wayside Detectors:** Integrates with wayside detector systems and Control Center to meet specific needs.
- **TMDs SSMC:** Smart Secure Mobile Client. Provides maintenance of way field crew users with real-time track line display and other features to increase safety and productivity.
- **Wireless Crossings:** Combines a wireless communication control system with powerful real time analytics and monitoring – for optimized crossing activations and insights.

BENEFITS & OUTCOMES

Cost

Minimal CapEx: Minimal equipment to be installed, minimal installation, minimal disruptions to operations.

Minimal OPEX: Minimal equipment drives minimal maintenance, minimal failures.



Safety

Prevents Collisions: Enforces safe train separation across the network.

Prevents Overspeeds: Enforces civil and temporary speeds.

Protect Track Workers: Enforces track permits, speed restrictions.



Flexibility

IP-based radio protocols ensure maximum flexibility.

Easy integration with other transport modes for intermodality.



Capacity

Increases capacity to move more goods and passengers by rail on existing infrastructure.



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