



# P2M System

## PERFORMANCE PLANNING AND MANAGEMENT



The **Trimble P2M** in-service performance planning and management system uses timetable, actual vehicle location, and real-time diagnostic information to identify the root cause of delays and to plan journeys for optimum timetable adherence. Through a combination of journey planning and improved driver awareness, it also maximizes energy and fuel efficiency, and helps manage driver behavior. It also provides the operations team with in-service recommendations when fleet failures occur to reduce delays and penalties.

### Benefits

- ▶ Alarms and alerts in real time with recommended actions to rectify problems reducing in-service delays and performance penalties
- ▶ Analyzes in service performance constantly maximizing energy and fuel consumption
- ▶ Optimizes maintenance scheduling
- ▶ Uses timetable, location, and on-train diagnostic data improving service punctuality
- ▶ Minimizes timetable revisions by monitoring detailed route timing points and fleet location for greater timetable conformance
- ▶ Intelligently calculates optimal driving patterns reducing energy and fuel costs
- ▶ Correlates real-time on-train diagnostic data with delay information improving delay attribution

### Features

- ▶ Identifies faults and patterns of faults using a detailed vehicle performance monitoring and recovery system to prevent in-service problems
- ▶ Graphical in-service fault finding guide
- ▶ Knowledge based fault recovery
- ▶ Tracks vehicle and fleet location through mapping software
- ▶ View cab equipment in real time from the control room to understand the driver's experience
- ▶ Facilitates interactive and predictive fault detection through the definition of rules and alarms using an intuitive graphical user interface
- ▶ New alerts and rules can be defined and added to the system without affecting the vehicles in service
- ▶ Real-time cross fleet performance monitoring identifies trends as they occur within a fleet
- ▶ Integrates with control room and maintenance depot
- ▶ Analyzes timetable performance
- ▶ Section delay analysis
- ▶ Real-time delay information and root cause analysis

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### P2M: Customer Experience

“Trimble and South West Trains have a very successful long term relationship in bringing asset management, condition and performance monitoring technologies to all elements of our rail business from in-service operations to maintenance. We have successfully implemented and benefited from the various Trimble systems across all our fleets and look forward to our continued collaborative and successful relationship.”

**Christian Roth**  
Managing Director  
South West Trains

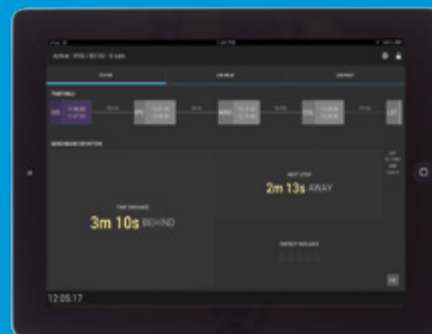
**Trimble CAB advisory** is an on-board system that informs the driver about on-train performance and adherence to timetable. The system is designed for use on a tablet PC (iPad, iPad mini, or Android tablets) and can also be installed on TMS MMI displays. The system also advises the driver in the event of a fault on the best recovery actions and advice to keep the train in-service.

#### BENEFITS

- ▶ Improves timetable conformance
- ▶ Reduces delay penalties
- ▶ Advises driver of in-service failures so corrective action can be taken
- ▶ Give drivers the ability to log defects when in service improving maintenance

#### FEATURES

- ▶ Informs the driver of performance against the timetable identifying delays and also advising on recovery times
- ▶ Notifies on the overall journey performance and timetable adherence
- ▶ Advises the driver about energy and fuel usage and best driving style
- ▶ Informs the driver of in-service recovery options in the event of a fault
- ▶ Allows the operations team to communicate with the driver
- ▶ Supports electronic submissions by the driver to report faults and failures directly into the maintenance system



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