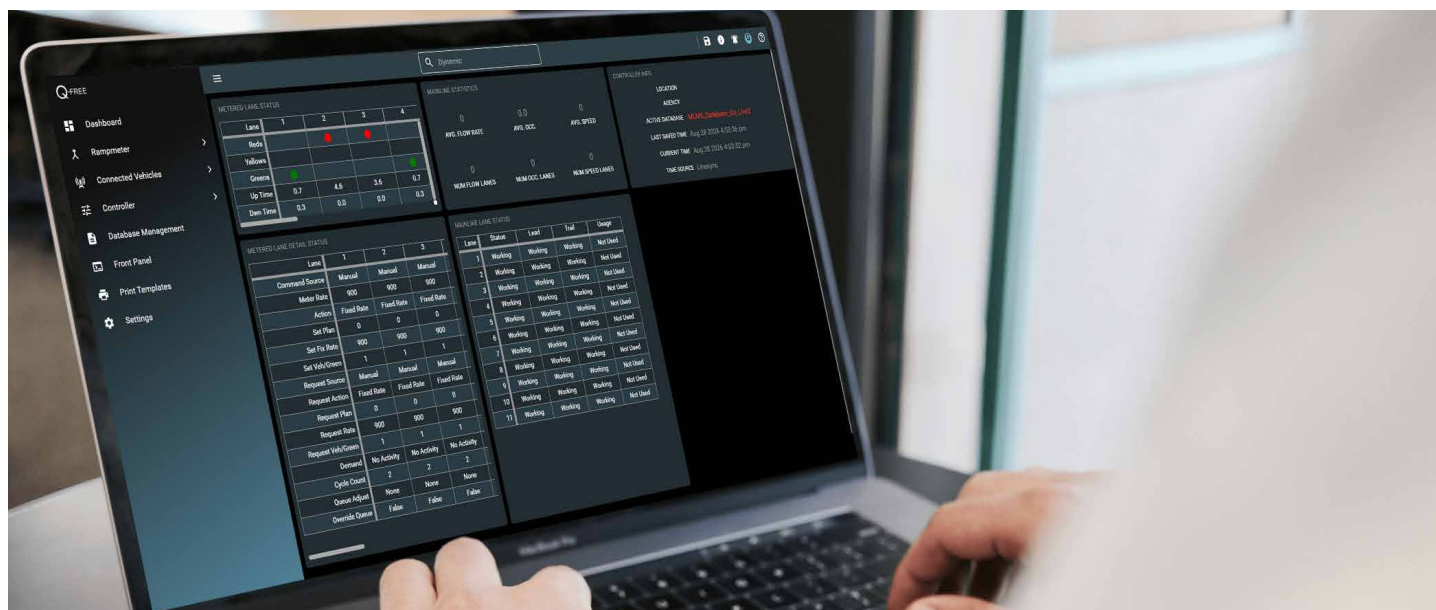


DYNAMIC[®] METERING

SECURE RAMP & MAINLINE METERING SOFTWARE



OVERVIEW

Dynamic Metering is the metering module of Q-Free's Dynamic software, bringing modern cybersecurity to ramp and mainline metering operations. It combines advanced metering capabilities with encrypted communications, authenticated access, and centralized user management to help agencies protect critical infrastructure while improving traffic operations.

Metering is one of the most cost-effective strategies for improving traffic flow and safety. By controlling the frequency at which vehicles enter a highway, bridge, or tunnel, Dynamic Metering helps reduce congestion, improve travel time reliability, increase throughput, and minimize collisions caused by merging traffic.

Whether managing traditional freeway on-ramps or complex mainline metering applications, Dynamic Metering delivers advanced operational capabilities within a modern, cybersecurity-first software environment.

Dynamic Metering can also be peered with other ramp meters, signal controllers, and field devices to enable secure data sharing and integrated corridor management.

BENEFITS

- Minimize congestion by controlling traffic flow onto freeways and coordinating with nearby intersections
- Reduce collisions by breaking up groups of vehicles entering the freeway competing for the same limited gaps in traffic
- Support up to 16 mainline and 16 metered lanes, and 64 detectors
- Built-in encryption and authentication eliminating vulnerabilities tied to legacy protocols
- Intuitive web-based user interface and menu structure
- Seamlessly upgrade software remotely or onsite without putting signals into flash
- Centralized user management with federated authentication



Meaningful
cybersecurity



Best-in-class signal
control functionality



Simplified central
user management



Encrypted and
authenticated

INDUSTRY-LEADING FEATURES

- Intuitive and advanced user logic programming
- On-board web server (no proprietary database editor)
- Monitor and modify timing directly from Windows and Apple-based computers, tablets, or smart phones
- NTCIP 1207v2 compliant
- Operate in local traffic responsive mode by TOD
- Adjust metering rates using volume and occupancy triggers to manage queuing
- Shutdown metering in case of overflow using unique shutdown triggers
- Easily and automatically update software via WebUI or USB flash drive — no need for terminal servers or proprietary installer programs
- Share data with authorized third-party applications to display ramp meter information

Dynamic Metering supports

- Wavetronix HD125 side fire radar for speed, volume, occupancy, 85% speed data
- Ethernet communications
- Network Time Protocol (NTP) and all other GPS-based clock inputs for time synchronization
- Local intersection integration
- Peer-to-peer communications with Advanced User Logic

STANDARD FEATURES

- Runs on Linux O/S and the ATC platform
- Supports logging volume, occupancy and speed data to the local controller or USB drive for later analysis
- Dynamic API documentation available
- Pre-configured or user-defined cabinet support (332, 334)
- Includes offline volume/occupancy testing tools for lab simulation of metering functions
- Intuitive and advanced user logic programming

HARDWARE REQUIREMENTS

Recommended minimum hardware specifications:

- 400 MHz Processor
- 128MB of DRAM

SECURITY-FIRST APPROACH

Legacy systems rely on unencrypted communications, leaving critical infrastructure at risk.

Dynamic Metering changes that—bringing added security to the core of metered operations.



End-to-End Encryption

Secure communications using modern protocols (HTTPS, secure web sockets), replacing legacy SNMP-based approaches.



Secure Remote Access

Web-based interface with encrypted access eliminates security risks tied to traditional remote logins.



Access Control & User Management

Centralized authentication and user federation with Kinetic Mobility.