EOS

EOS Controller Software

Industry Leading Traffic Signal Controller Software

EOS is Econolite's revolutionary Advanced Transportation Controller (ATC) software designed to power Econolite's Cobalt® and 2070 series, and other standard ATC controllers. EOS provides improved core traffic controller operation, enhanced features, and improved usability, helping prepare transportation agencies, cities, MPOs, and others for support of a variety of ITS applications including adaptive, signal priority, Connected and Automated Vehicles (CAV), and Smart City applications.

EOS provides a user interface that has been designed to maximize usability on traditional displays, as well as incorporating a web-based user interface. EOS has improved real-time decision-making, allowing dynamic changes to nearly all features and timing on-the-fly. It also includes localized adaptive splits, providing operational benefits of adaptive control without the need for a separate adaptive system.

Key features

- Advanced coordinator design, enabling immediate coordination decisions

- Local adaptive split balancing

- Support for graphical touch screen display

- Simple configuration of advanced features such as Flashing Yellow Arrows (FYA) and HAWK pedestrian crossings

- Robust support for signal priority and preemption

- Microsimulation capability within PTV Vissim

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Software description

EOS can be accessed via a network interface, which can be local or remote, wired or wireless, and allows monitoring or programming of the controller through any web-enabled device, including smart phone, tablet, laptop, or desktop computer. EOS also offers a web-based user interface that includes a virtual suitcase tester.

EOS supports the configuration of phase and overlap timing in predefined tables that can be swapped to meet immediate needs. Dynamic sequencing is achieved by updating prior phase-next selections at the end of a red clearance and even allows phase-sequence swaps in the middle of active phase timing.

EOS features a revolutionary coordinator design, enabling immediate coordination decisions rather than awaiting a cycle endpoint. This coordinator includes adaptive split balancing using the Purdue GOR/ROR5 metric for phase failure. This feature brings many of the operational benefits of adaptive control, without the need for a separate adaptive control system.

Coordination features

- 120 event plans, each with its own cycle, offsets, and splits, coordinated phases, vehicle and pedestrian recall, and phase omits
- Offset and split entries displayed in percent or seconds
- Automatic or manual permissive periods
- Fixed or floating force-off selection
- Crossing arterial coordination
- Adjustable transition recovery

Preemption features

- 16 preemption sequences; each may be configured as priority, first-come-first-serve, or bus preemption operation
- Railroad gate-down input and timing, and gate fault detection
- Conditional delay when entering preemption
- Multiple exit preemption options
- Cabinet interlock feature to protect and verify critical preemption configuration

Priority features

- NTCIP 1211-based Signal Control Priority (SCP) for 10 classes of priority vehicles
- Handles multiple concurrent requests with different priority service levels based on vehicle class
- Logging of priority requests
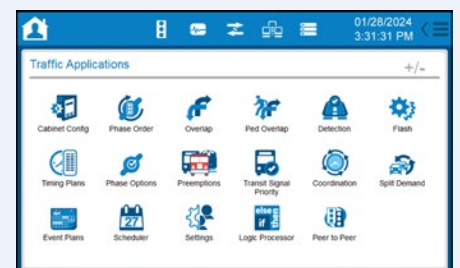
Enhanced traffic control capabilities

The robust traffic control capabilities of EOS, combined with its ease-of-use, helps ensure that transportation agencies can provide the safest and most efficient intersections for its driving public. It is also designed with the future in mind, supporting the demands of Smart City and CAV applications for the next level in intersection safety.

Time-based features

- 200 schedule programs, configurable for any combination of months, days of the week, and days of the month
- Fixed or floating exception day programs that override the day plan event on a specific day
- 16-day plans that can use any of the 120 event plans

Display features

- Textual and Graphical user interface options
- Powerful web-based user interface with graphical coordination dial and virtual suitcase tester features
- Context-sensitive online help

Detector features

- 64 vehicle detectors, any of which can be configured as bicycle detectors
- 16 system or speed detectors
- Lock/non-lock function by detector
- Four detector plans
- Four detector diagnostic plans
- Four pedestrian diagnostic plans
- Individually assignable to phase and functions
- Logging of volume and/or occupancy assignable by detector
- Red Extend support for red light running safety applications

Logging features

- Separate log buffers for detector activity, detector failures, controller events, and MMU events
- Full, high-resolution Measures of Effectiveness (MOE) logging with tenth second resolution

ATMS features

- NTCIP 1201, 1202
- Supports Econolite's Centracs® or other NTCIP-based management systems
- Remote software update without putting intersection in flash

Security features

- 50 unique user accounts
- Configurable credentials and permissions
- Support for remote management of security credentials and settings

Support of CAV and Smart City applications

EOS provides to the core traffic controller operation, enhanced features, and improved usability, helps prepare transportation agencies, cities, MPOs, and others for support of CAV and Smart City applications. EOS supports Signal Phase and Timing (SPaT), MAP (intersection geometry), Signal Request Message (SRM), and wSignal Status Message (SSM) per the SAE J2735 standards.

Connected Vehicles

- SAE J2735 SPaT and MAP messaging support for current CAV devices
- ICD-2009 (TSCBM) messaging support for legacy CAV devices
- Simultaneous messaging to up to 16 Smart City devices
- Optional support for Signal Request Messaging for connected transit and emergency vehicles

Microsimulation capability within PTV Vissim

EOS is integrated as a virtual controller into the PTV Vissim microsimulation model, and can be used to operate the signals within the simulated network. All EOS features can be precisely modeled and evaluated in VISSIM, allowing you to evaluate and optimize the performance of the transportation infrastructure more accurately than ever before. The virtual EOS controllers behave exactly the same as real physical controllers, and share the same database file format.

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