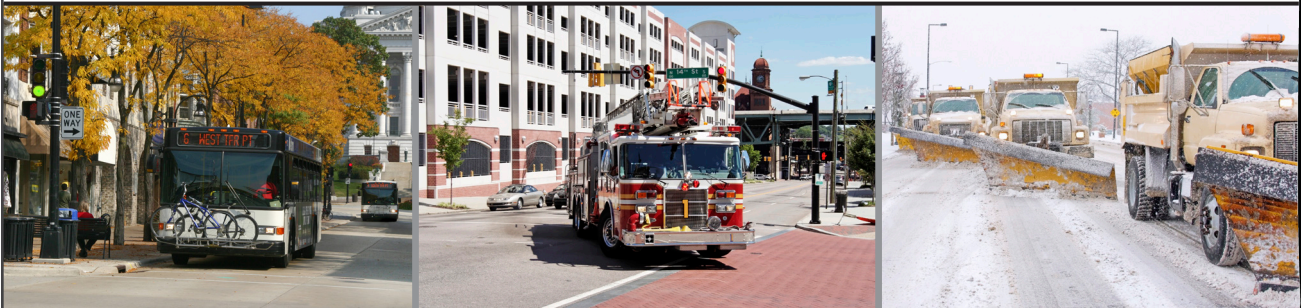# Dual-System Signal-Priority Detection

Many agencies find themselves maintaining outdated signal-priority systems due to the expense involved with a full-system replacement. Upgrading from a legacy optical system to an advanced GNSS/RF system had *previously* meant replacing *all* vehicle and wayside equipment. This is no longer the case.

The EMTRAC system can detect optical signals from all major optical brands, as well as from the more-advanced EMTRAC GNSS/RF system. This capability enables cities to upgrade selected optical components while leaving other components in place until budgets allow for expanded upgrades.

Dual RF/Optical Priority Detector

About the EMTRAC System

Vehicles equipped with the EMTRAC system utilize precise positioning technology and secure RF communication to request signal priority for equipped intersections. EMTRAC Priority Detectors in traffic-control cabinets receive these requests and relay them to the signal controllers.

EMTRAC Priority Detectors support up to 16 inputs, allowing for priority calls to be received for multiple phases from both optical and EMTRAC GNSS systems. Detectors plug into the same input files as optical phase selectors (or may be housed in shelf-mount enclosures in NEMA cabinets). Priority Detectors are capable of connecting to optical sensors while simultaneously connecting to omnidirectional antennas for the RF-based EMTRAC system.

EMTRAC Components

Vehicle Computer Unit (VCU) and Dual Antenna: Onboard unit receives precise GNSS data, transmits TSP and EVP requests, tracks real-time vehicle location, and saves detailed logs of vehicle activity. The VCU requires no driver interaction to operate.


Vehicle Computer Unit (VCU) and Dual RF/GNSS Antenna

Priority Detector: Dual-card unit installed in traffic-control cabinets receives priority requests from vehicles equipped with either optical or EMTRAC GNSS/RF systems, relays requests to the signal controller, and forwards real-time vehicle and intersection activity to central locations running the EMTRAC Central Monitor application. The detector unit can simultaneously connect to a pole or cabinet-mounted omnidirectional antenna as well as optical sensors.

Systems Manager Software: This robust application is used to set up and program EMTRAC components and to retrieve activity logs. It offers a wide-range of customization options and supports both direct and remote connections to EMTRAC equipment.
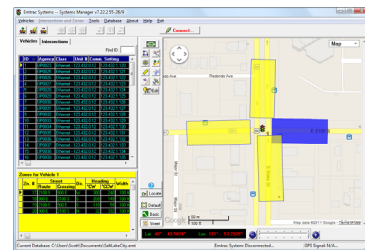
Systems Manager Software
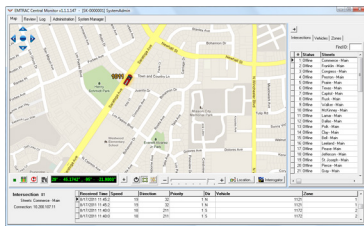
Central Monitor Software

Central Monitor Software (optional): Installed on operation center server and workstations to display real-time vehicle and intersection activity, set up automatic log retrieval, program updates, and configure system settings.

EMTRAC System Features

- Support for up to 16 inputs *and* outputs allows for detection of multiple phase types (such as traffic and pedestrian phases, signal-state confirmation, etc).

- Detailed event logging enables agency personnel to view system-specific logs or merged logs—allowing for easy evaluation and comparison.

- Dual-card Priority Detector plugs into the same card files as optical systems.

- Ethernet and USB ports on Priority Detector facilitate local and remote configuration, programming, firmware upgrades, and log retrieval.

- Priority Detector is compatible with NEMA, 170/2070, Caltrans, ITS, and custom cabinets.

Benefits of EMTRAC

- **Cost Effective**: *Decrease upgrade costs by replacing vehicle and wayside units as budgets allow.*

- **Expandable**: *Add new functionality and system components without having to replace installed EMTRAC equipment. Expand the system later to take advantage of advanced features, such as adaptive Transit Signal Priority (TSP) and real-time centralized monitoring (AVL).*

- **Reliable**: *Wireless communication is not hampered by adverse weather or urban-canyon conditions, with typical range no less than 3,000 feet.*

- **Low Maintenance**: *Reduce or eliminate the need for repeated cleaning of wayside optical components.*

www.emtracsystems.com

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