



1.0 General

This specification sets forth the minimum requirements for a detector rack-based hybrid remote-sensor detection system that provides vehicle presence, traffic flow statistics, event alarms, video snapshots, and full-motion video for traffic control and management systems. The hybrid detection system may also apply to various bicycle, pedestrian, and safety applications. Through intelligent decision logic, this system processes radar information and video images to provide detector outputs to a traffic controller or similar device and complies with the National Electrical Manufacturers Association (NEMA) type C or D detector rack and TEES Input File rack standards.

The system architecture will fully support Ethernet networking of system components through a variety of industry standard and commercially available infrastructures. The data communications shall support direct, modem, and multi-drop interconnects. Simple, standard Ethernet wiring shall minimize overall system cost and improve reliability, utilizing existing infrastructure for easy system installation and maintenance. Optionally, both streaming video and data communications shall be possible over long distances through fiber optic, microwave, or other commonly used digital communications transport configurations.

On the software application side of the network, the system will be integrated through a client-server relationship. The client applications will either be hosted on the same PC as the communications server or may be distributed over a local area network of PC's using the industry standard TCP/IP network protocol. Multiple client applications will execute simultaneously on the same host or multiple hosts, depending on the network configuration.

1.1 System Hardware

The hardware will consist of the following items:

Items to be provided by the system supplier:

- a. One or more hybrid radar and image sensors
- b. Corresponding number of rack-based MVP detection modules
- c. A cabinet interface panel for 1 to 4 sensors with surge suppression and communications distribution
- d. Interconnecting cables from the interface panel to the sensor and detection module
- e. Optional interface cards for traffic signal control applications.
- f. Optional notebook or desktop computers to run system software (Supervisor computer).

Items may be provided by others:

- a. Hardware installation.
- b. Setup and commissioning

1.2 System Software

Each MVP detection module will include detection software for one sensor input for detecting approaching vehicles in multiple traffic lanes and for communicating with traffic controllers or other control devices. Detection zones and special detection instructions will be user-definable through interactive graphics, typically by placing lines or boxes onto an image on a monitor. A personal computer will allow configuration of all applications. The user may change previously defined detection zones. Each MVP will calculate traffic parameters in real-time, allow real-time polling for vehicle presence, traffic flow, event alarms, and video snapshots, and provide local non-volatile data storage for backup or later downloading and analysis.

A software suite will include management tools to plan, install, troubleshoot, and maintain the video detection system. The communications server function will allow multiple office users to share access to video detection installations. To create a custom interface to other TMC systems, an optional software developer's kit or traffic data protocol will provide tools and examples for a system programmer to integrate the video detection system.