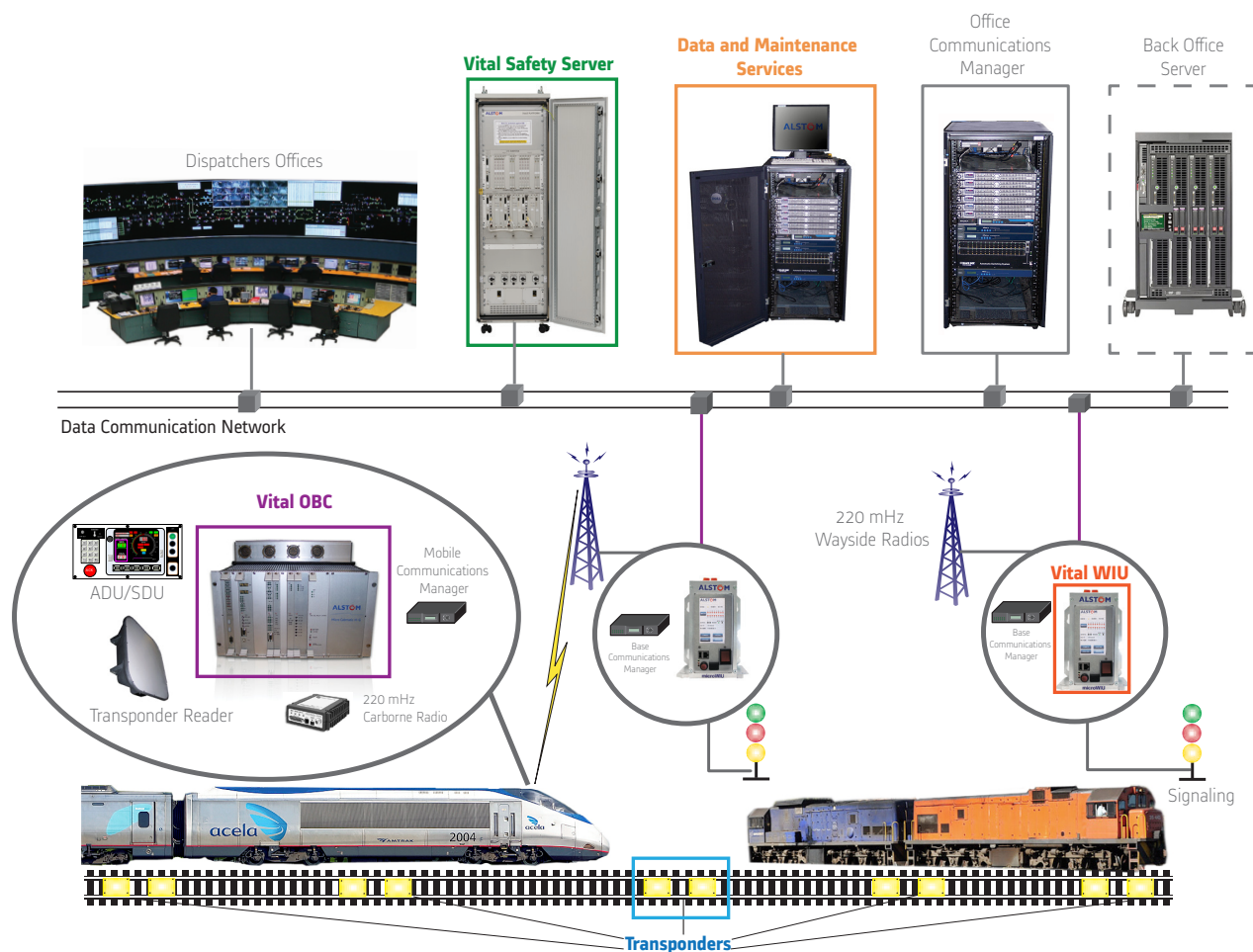


ACSES II -Advanced Civil Speed Enforcement System



Alstom's **Advanced Civil Speed Enforcement System (ACSES II)** is a service proven Positive Train Control (PTC) solution. It is a continuous speed control system with transmission of data from transponders and radios. ACSES II core functionality utilizes Alstom's worldwide products for PTC systems. ACSES II is in operation on the Northeast Corridor (NEC), the busiest rail segment in North America, allowing high-speed train travel up to 150 mph.

FEATURES

- Maintenance information from the onboard and the wayside equipment is provided directly to the maintainers' stations via the communications network.
- Network management system monitors the state of the communications network, radios and WIU's.
- Can easily connect to your control center, or a TSR local control station can be provided for the TSR entry function.

Only available fully functional PTC solution with FRA Type Approval (49CFR236 subpart I) in revenue service since 2000.

ACSES II © -2011. ALSTOM, the ALSTOM logo and any alternative version thereof are trademarks and service marks of ALSTOM. The other names mentioned, registered or not, are the property of their respective companies. The technical and other data contained in this document is provided for information only. Neither ALSTOM, its officers and employees accept responsibility for or should be taken as making any representation or warranty (whether express or implied) as to the accuracy or completeness of such data or the achievement of any projected performance criteria where these are indicated. ALSTOM reserves the right to revise or change this data at any time without further notice.

We are shaping the future

ALSTOM

ACSES II - Advanced Civil Speed Enforcement System

Modularity

- The technology is adaptable to meet customer needs.
- ACSES II is a cost-effective upgrade of signaled territories to include enforcement and is suitable for non-cab signaled territories.
- ACSES II can be added to a separate and independent existing cab signal system, successfully merging two rail road safety technologies, or as a standalone train protection system.
- ACSES II is a modular system that can be deployed in stages.

Subsystems

Transponder to Train Transmission Subsystem

- > Location, speed control and auxiliary data sent to train at regular intervals along the track.
- > Simple, safe and accurate location determination system.
- > Passive transponders powered by the antenna located under the train.
- > Data from transponders stays available in case of radio unavailability.

Vital On-Board Subsystem

- > Acts upon the data received from the transponders, WIU's and safety TSR server.
- > Determines precise location of train.
- > Builds and enforces maximum speed envelope.
- > Manages interfaces with customizable ACSES II display unit, cab signaling system and other vehicle equipment.
- > Can manage other miscellaneous functions such as propulsion voltage breaks.
- > Embedded in Micro Cabmatic OBC platform with or without ATC

Vital Wayside Interface Units (Encoders)

- > Used where an interface to signaling logic is required.
- > Safely encodes and transmits to train signal status and route data.

Communications System

- > An onboard to wayside radio system used to transmit TSR, signaling, and maintenance data to/from the train.
- > Redundant communications equipment at a central location to control message routing and delivery between equipment.
- > Radios and communications system are used for the NEC application. ACSES II application messages are self-protecting and ACSES II can use various types of communication subsystems depending on the communications services required by each application.

Vital Safety Server

- > A centralized server safely manages all temporary speed restriction data to/from train and to/from dispatchers
- > The safety server is a standard Alstom product (2003 platform) designed for use in the rail industry that can be utilized for various vital server applications

ACSES II offers a high level of service, proven safety along with reliability, availability, and maintainability.