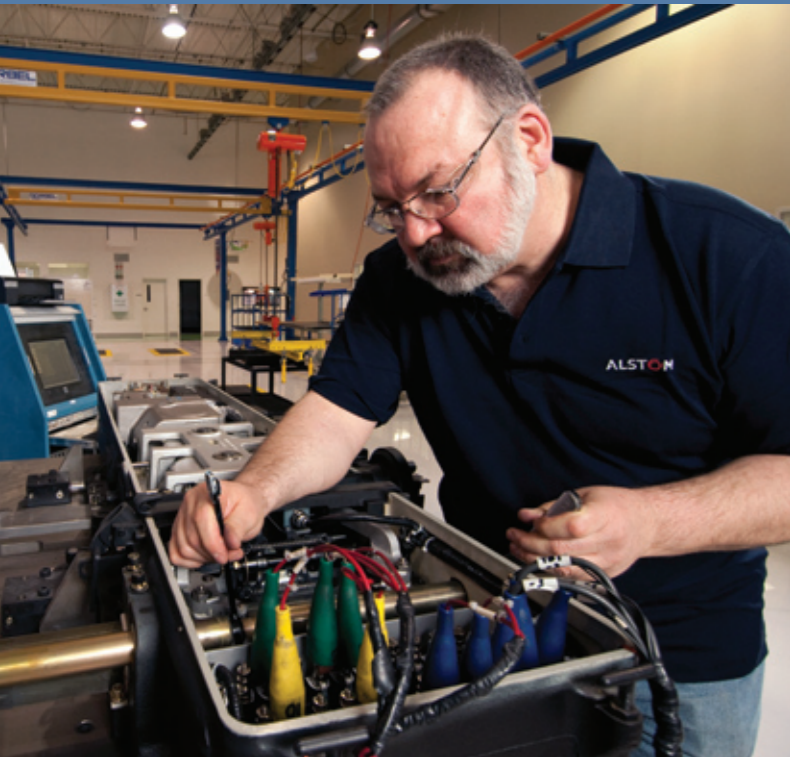
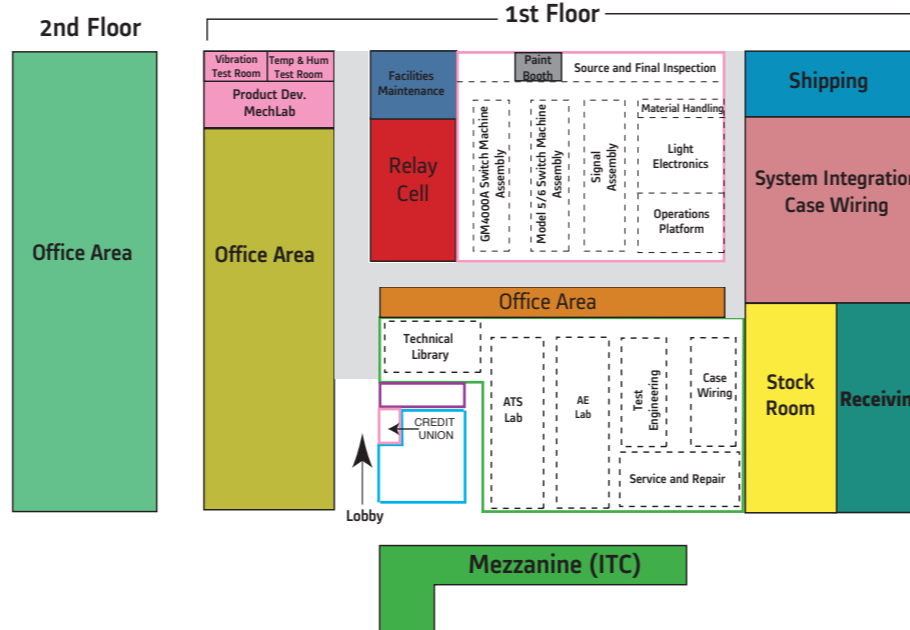


# Technological expertise and longstanding experience



## The site in local terms

Located in Western New York State, Rochester is on the southern shore of Lake Ontario. The Rochester metropolitan area is the second largest economy in New York State. The Alstom site is recognized as one of the major manufacturers in the area with 500 employees. Alstom also works with local universities to recruit engineering students. The Rochester Institute of Technology (RIT), a leading national university, is one of its many academic institutions.



### Where we are

- By plane: Fly to the Greater Rochester International Airport and then drive 11.7 miles south, taking I-390 South to the Rochester site.
- By train: The Amtrak station, located at 320 Central Avenue, has daily scheduled service on three lines. The Empire Service heads east to Syracuse, Albany, and New York City and west to Buffalo and Niagara Falls. The Maple Leaf is the same but keeps going past Niagara Falls across the Canadian border to Toronto. The Lake Shore Limited from Chicago to Boston or New York City also stops in Rochester.
- By car or taxi: From the Amtrak station, drive 12 miles, taking I-490 West to I-390 South to the Rochester site.

### Contacts

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 Customer Service 1-800-717-4477

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## Rochester World-Class Signaling and Control Systems





# Rochester

## Signaling and Control Systems

### Key dates

- 1904** ■ General Railway Signal Co. formed by merger of Pneumatic Signal Co. and Taylor Signal Co. and located in Rochester, NY
- 1913** ■ New electro-mechanical interlocking placed in service in the new Grand Central Station Terminal in New York City
- 1927** ■ World's first centralized traffic control system (CTC) installed
- 1986** ■ Vital Processor Interlocking (VPI) placed in revenue service
- 1998** ■ Alstom U.S. acquires General Railway Signaling Corp. which becomes Alstom Signaling Inc.
- 2000** ■ First Advanced Civil Speed Enforcement System (ACSES) installed, Alstom's first Positive Train Control system solution in the U.S.
- 2006** ■ VPI marks 20 years in service with a perfect safety record
- 2009** ■ Complete transformation of the factory into a state-of-the-art operation
- 2010** ■ New line of Positive Train Control products introduced



1



2



3

### Dexterity in managing multiple complex projects

The Rochester site frequently executes 50 projects running simultaneously. These projects are managed efficiently through the proper allocation and utilization of project management and engineering personnel. The site's ability to handle simultaneous projects diverse in scope is demonstrated by the project range that often goes from US \$500,000 to US \$75,000,000. Many of the site's experienced project managers are certified by the Project Management Institute (PMI) and fulfill contracts in accordance with the nine industry-recognized knowledge areas to reduce risks, adhere to schedule and favor successful results. The nine areas are integration, scope, time, cost, quality, human resources, communications, and risk management. The project managers typically handle projects representing all aspects of train control technology, including trackside signaling, trainborne control systems and central office supervisory control centers. The site is known for providing safety-critical systems for customers in the transit, commuter and light rail markets. Project managers offer customers a single point of interface that drives crisp decision-making for a fast-paced deployment of projects. This proven capability to deliver according to demanding schedules and performance criteria has led to a large installed base with many repeat customers.

### Signaling and control systems

In 2009 the Rochester factory underwent a complete transformation and reorganization, furthering its efficiency of operation and productivity and became a state-of-the-art factory. Its optimized manufacturing layout is consistent with the worldwide Alstom Production SYStem (APSYS) and includes:

- A new "open floor" offering flexible and continuous flow
- A new relay room, better integrated in the production flow
- An epoxy floor for increased durability and safety
- An improved vital relay room footprint, with updated equipment, making it "Best in Class"

The new configuration is extremely flexible as is the latest equipment and can adapt easily to changing manufacturing needs, even on a daily basis.

One significant result has been a reduction in delivery times as demanded by customers. The most popular switch machines, for example, now have an estimated delivery time of six weeks or less instead of six months.

All departments adhere to APSYS to implement "lean manufacturing", reduce cycle time, increase quality and promote team involvement. They are also actively utilizing a 5S Program, the internationally-known organizational methodology for the workplace to improve safety, efficiency and effectiveness. There are five phases to the process which include sort, set in order, shine, standardize, and sustain. This has helped Rochester build more effective and reactive teams.

### Industry Standard products and systems

Building on its century of experience, the Rochester site has consistently set the industry standard for safety and quality in key products such as switch machines, vital relays, track circuits, interlocking products, signals and carborne equipment. It has taken part in the development and implementation of a Positive Train Control (PTC) family of products. This family shares a common Wayside Interface Unit (WIU) providing the functionality and flexibility required by customers. The technology behind these products is based on proven design principles utilized for over 20 years, which enable Alstom to provide robust, scalable PTC products. Alstom's PTC turnkey solution expertise is well-established on the Northeast Corridor (NEC). For nearly 10 years, its Advanced Civil Speed Enforcement System (ACSES) has been installed on hundreds of freight and commuter trains traveling across the NEC, the only incremental high-speed line in North America. This system provides unsurpassed PTC functionality in an industry-proven solution that is easily implemented for railroad applications well beyond the NEC. ACSES is a PTC solution specifically designed to meet PTC objectives and has been accepted by the Federal Railroad Administration (FRA).

### Customers served include:

- **Utah Transit Authority (UTA) – FrontRunner South Project** All signal, communications and office systems for this commuter rail line
- **Washington Metropolitan Area Transit Authority (WMATA) – Dulles Transit Partner** Automatic Train Control system for an 11.6 mile metro extension including 13 new train control rooms
- **Toronto Transit Commission (TTC)** Communication Based Train Control (CBTC) Urbalis™ technology to re-signal Toronto's highly-traveled YUS metro line
- **New York City Transit (NYCT) East 180th Street Bronx** Relay-based signal equipment update
- **Amtrak** ACSES implementation, allowing for higher speed rail in the NEC
- **Xinyi/Sōngshān metro line Taipei (R.O.C.)** Full Automatic Train Operations signaling system for 14 stations on 8.9 miles

### Key figures

- **150,000 sq. ft. total** one facility
- **367 employees**
- **60% engineering and technical staff**
- **Local management of over 50** active projects
- **ISO 9001:** 2008 certification
- **CMMI Level 2** certification
- **ISO 17025:** 2005 Accreditation to perform tests to AREMA & MIL-STD 810F standards



4

- 1 -Relay Inspection
- 2 -Automatic Train Control
- 3 -Model 6 Switch Machine Inspection
- 4 -Typical bungalow being wired