

RAIL



**TagMaster**

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## **Automatic Train Protection (ATP)**

Tram and Light Rail Safety System

## The challenge

As cities continue to grow and traffic becomes increasingly dense, the need for sophisticated and proven solutions to safeguard trams and light trains – along with their passengers – has never been more pressing. These modes of transport are vital in the urban environment, coexisting with a myriad of other city elements. Compared to conventional railway systems, Trams and LRV's operates in an open street traffic environment. This landscape is a mix of various traffic elements, including pedestrians, bicycles, cars, and buses. Such diversity demands a signalling solution that is not only intricate but also highly adaptive to ensure seamless and safe urban mobility.

## Automatic Train Protection (ATP)

At the core of this challenge is the 'Automatic Train Protection' (ATP) system, which among others, integrates two critical functions:

Automatic Speed Control: Ensuring trams maintain safe speeds in varying urban conditions.

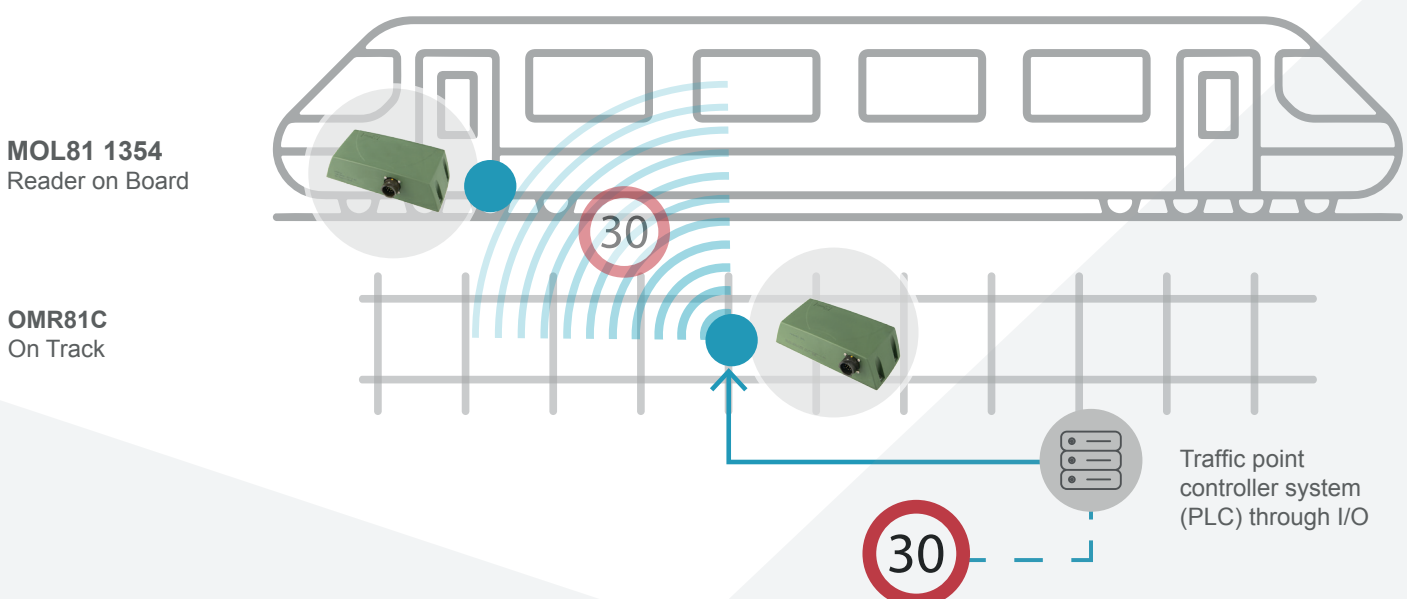
Crossroad Overpassing Control: Safeguarding intersections where tram paths intersect with other traffic.

**These functionalities operate in real time with high availability and are essential for smooth and secure operation of trams in the bustling urban landscape.**

## Automatic Speed Control

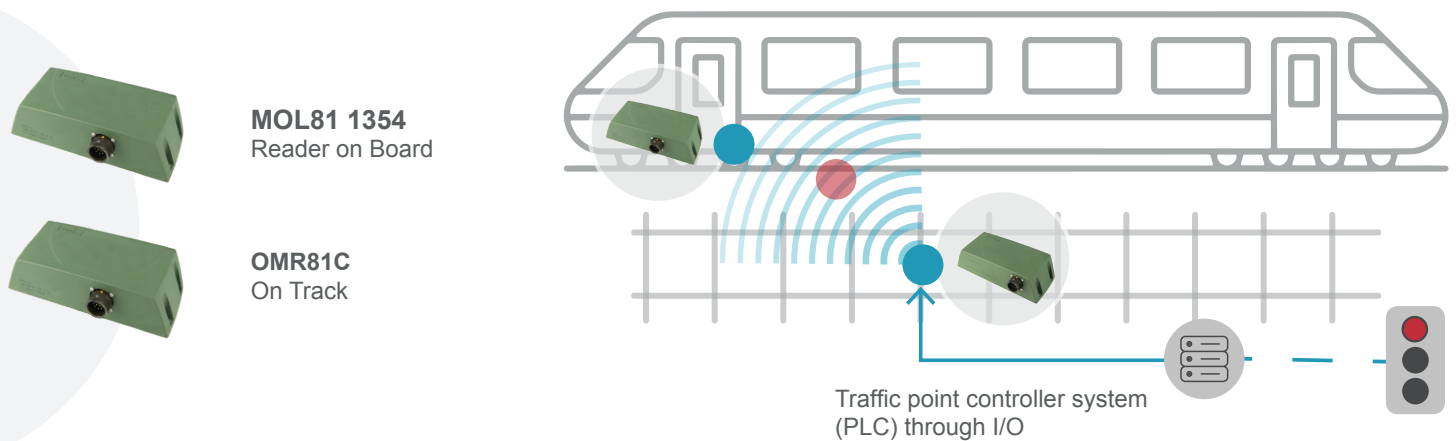
The Automatic Speed Control System is designed to enhance train safety and efficiency. It involves two key components: the **Onboard ATP MOL81 1354 Reader**, an Automatic Train Protection RFID Reader installed on the train, and the **Trackside OMR81C Commutable Beacon**, positioned along the track.

As a train travels, it automatically adjusts its speed to comply with limits communicated by the infrastructure. When the train passes the OMR81C beacon, the onboard ATP MOL81 1354 Reader receives crucial information about speed limit and location. This data is then relayed to the train's computer for processing, ensuring the train complies to the set speed limits.



## Crossroad overpassing control

Additionally, the system plays a crucial role in crossroad overpassing scenarios. The trackside controller can use it to grant or deny train passage (indicated by green or red lights) at crossings, enhancing safety at these critical points.



Overall, this system represents a significant step forward in railway management, offering a blend of advanced technology and user-friendly features to ensure safe and efficient train operations.

**The MOL81 1354 Reader** is equipped with sophisticated technology. It transmits raw encoded data using a unidirectional differential output RS422 Data Tx. This system is designed for simplicity and reliability, without internal decoding, software processing or storing of the beacon's identification code. The reader includes a self-test feature for its 6.78MHz receiver, which can be activated through a specific input. It also signals its operational status of the 125 kHz transmitter through a digital output, indicating the proper functioning.

**The OMR81C Beacon** is versatile, capable of handling up to three different speed control references and as well the location reference. These can be selected and adjusted by the trackside controller to reflect the current condition.

## Solution benefits

### Universal Compatibility:

Adaptable to any vehicle or trackside infrastructure, ensuring versatile application across diverse civil work designs.

### Effortless Installation:

Designed for straightforward installation, the system requires no configuration, enabling a hassle-free setup process.

### All-Weather Reliability:

Engineered to perform consistently in various weather conditions, ensuring dependable operation when it matters most.

### Compliance Excellence:

Fully compliant with European and SNCF STME 001 Operator Standards, meeting rigorous industry requirements for safety system and performance.

### Advanced HF Technology:

Utilizes magnetic field inductive coupling for selective protection, ensuring precise and targeted safety measures. This technology's rapid attenuation over distance ensure the protection is focused on the correct train, enhancing operational accuracy and security.

Our RFID ATP system is designed to effectively meet the needs of contemporary train protection, providing a reliable, compatible, and compliant solution for modern rail systems.

# TagMaster

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TagMaster, an application-driven technology company founded in 1994, specializes in designing and marketing advanced sensor systems and solutions. Our expertise lies in utilizing radio, radar, vision, and wireless magnetic technology to cater to demanding environments. Our business is segmented into Traffic Solutions and Rail Solutions, offering innovative mobility solutions under the renowned brands TagMaster, Sensys Networks, and Citilog. Our aim is to enhance efficiency, security, and convenience while reducing the environmental impact within Smart Cities.

Headquartered in Stockholm, Sweden, with additional offices in the UK, France, and the USA, and dedicated agencies in the US and China, TagMaster has established a strong global presence. We primarily export to Europe, the Middle East, Asia, and North America, leveraging a vast network of partners, systems integrators, and distributors.

Our journey began in the RFID sector in 1994, where we quickly became pioneers in RFID technology. We expanded into the RAIL Activity, focusing on the AVLS Application 'Location' for trams and metros in outdoor environments. This expansion was a pivotal moment, demonstrating our adaptability and commitment to innovation.

In 2003, we undertook a significant project in collaboration with a prominent safety partner, designing our RFID ATP Solution. This project marked a major milestone, catering to prominent tram lines in France and Belgium and solidifying our market presence.

Our global clientele includes Metro, Light Train, and Tram Operators. We strategically target main rail integrators to ensure a broad and impactful reach. Our RFID solutions are globally recognized, with successful operations in regions including APAC and China.

To date, TagMaster has installed approximately 200 Tram and LRV lines worldwide, a clear indication of our expertise and the trust our clients have in us. These installations are meticulously detailed in our joint project reference table, showcasing our extensive experience and success in this domain.

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