SOLUTIONS FOR RAIL APPLICATIONS | iXblue

Pioneering solutions for train localization and metrology

Since the beginning of the 2000s, iXblue products and solutions have been largely used by many railway companies for tracks mapping and data georeferencing.

Thanks to its navigation expertise, iXblue now offers a cost-efficient, high-performance real time localization solution. User friendly and compliant to railway standards, our high-performance Atlans R7 inertial navigation system directly answers railway operators. It provides undisrupted data, in all environments including when GNSS signals are disturbed or non-existent.

iXblue at a glance

30
YEARS OF
EXPERIENCE

150+
MILLION EUROS
OF TURNOVER

750+
EMPLOYEES

25,000+
FIBER-OPTIC
GYROSCOPES SOLD

4+
OPERATIONAL TRAINS
EQUIPPED

ERTMS
LOC4RAIL PROJECT
LEADER

150,000+
KM TRAVELED

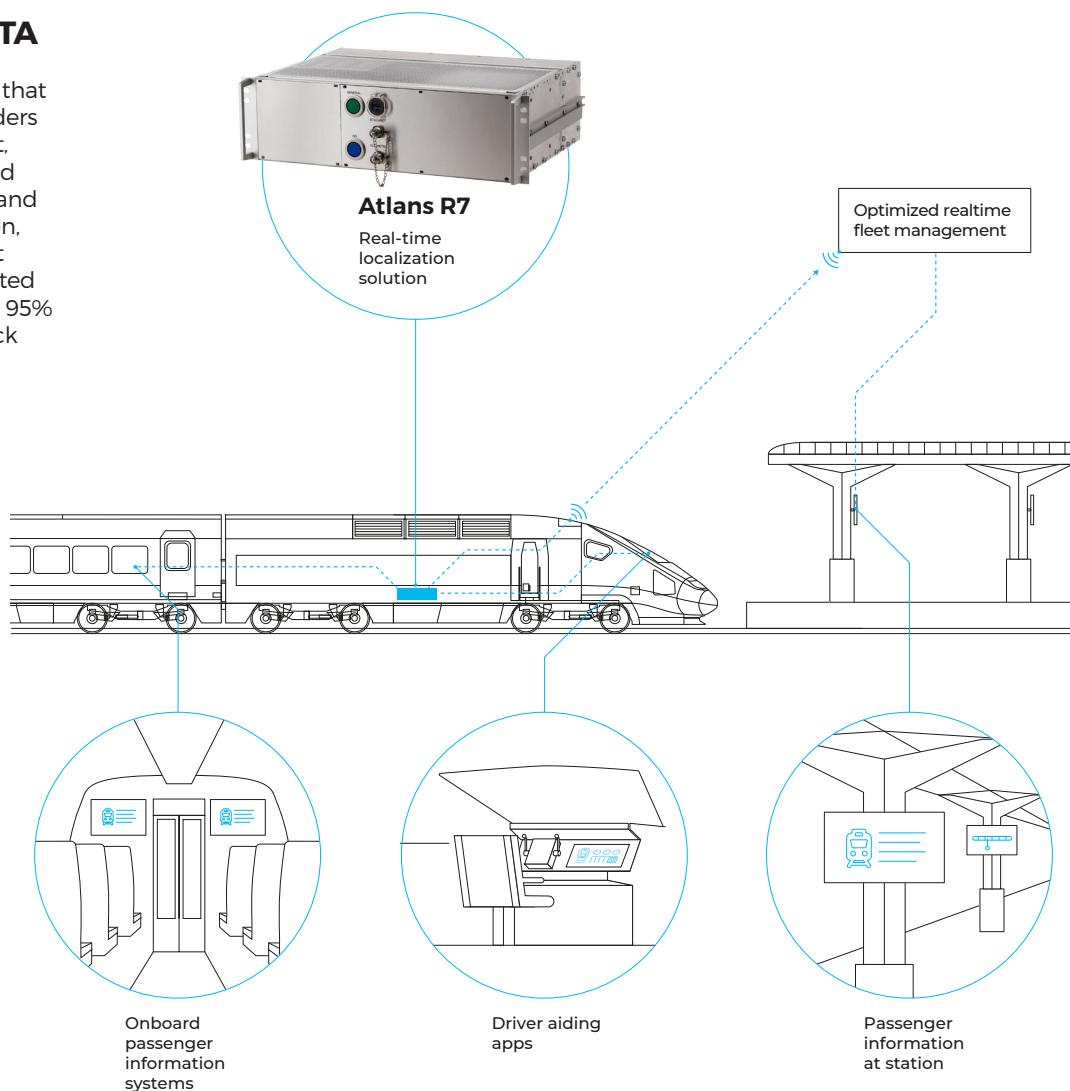**10+**
YEARS OF MOBILE
MAPPING SYSTEMS
EXPERIENCE

24/7
TECHNICAL SUPPORT

GAME CHANGING SOLUTION FOR TRAIN LOCALIZATION

HIGH RATE AND ACCURATE GEOLOCALIZATION DATA

Atlans R7 is a turnkey equipment that gives an edge to railway stakeholders by improving traffic management, railway operations, and all onboard geoservices. It provides real-time and continuous georeferenced position, speed and attitudes of the train. It delivers unrivaled and demonstrated performance better than 5m over 95% of the traveled distance along track without GNSS.

Atlans R7

Real-time localization solution

Optimized realtime fleet management

Onboard passenger information systems

Driver aiding apps

Passenger information at station

BEST-IN-CLASS PERFORMANCE
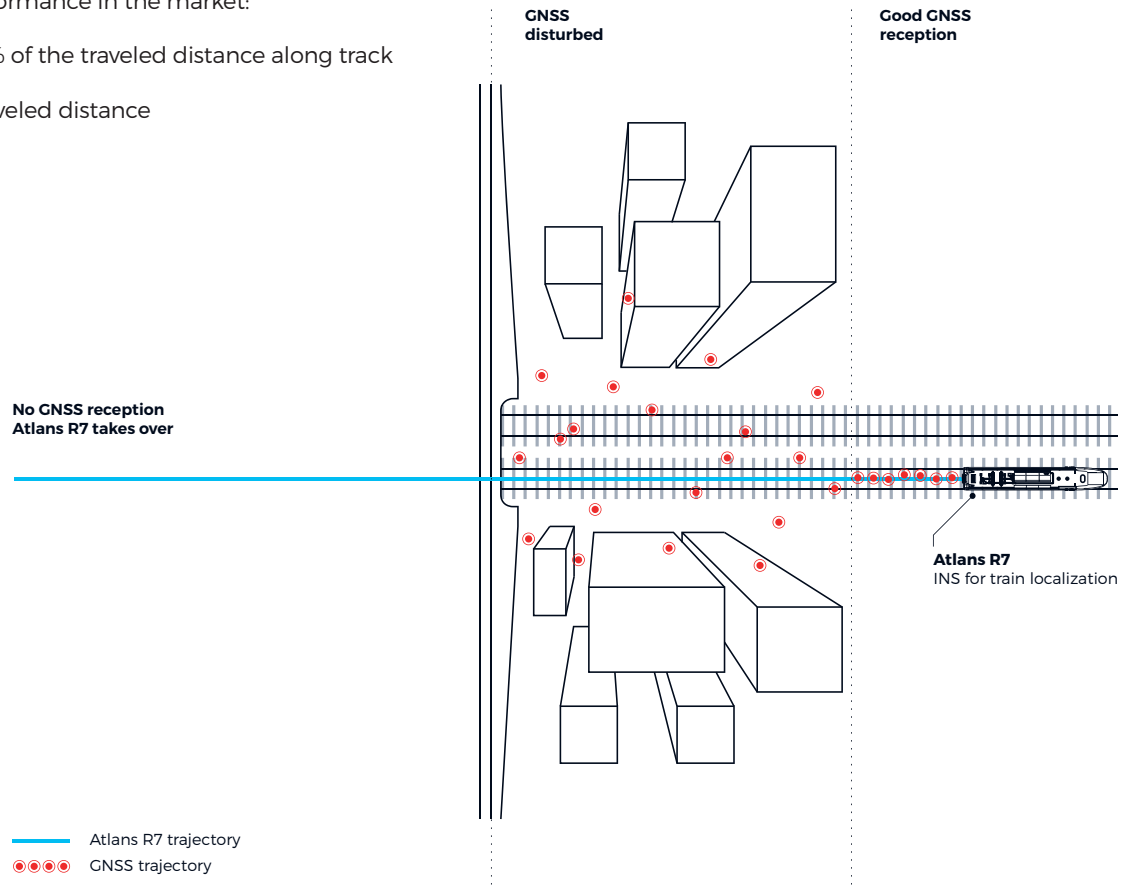
UNRIVALED REAL-TIME ACCURACY ANYTIME, ANYWHERE

Atlans R7 delivers pinpoint geolocalization and highly accurate speed information, even in GNSS denied environments (tunnels, woods, urban canyons...). In areas with proper GNSS coverage, iXblue's Rail Vehicle Model ensures unrivaled accuracy.

It delivers the highest performance in the market:
· Track selective
· Better than 5m over 95% of the traveled distance along track without GNSS.
· Better than 0,05% of traveled distance

UNMATCHED VALUE FOR MONEY

Atlans R7 is the most cost-effective solution on the market and is maintenance-free.

GNSS disturbed

Good GNSS reception

No GNSS reception Atlans R7 takes over

Atlans R7
INS for train localization

—— Atlans R7 trajectory

◉◉◉◉ GNSS trajectory

FIBER-OPTIC GYROSCOPE TECHNOLOGY

Atlans R7 is based on solid-state fiber-optic gyroscope (FOG) technology. It is the result of more than 30 years of research and development and is today considered to be the best gyroscope in the world. Solid-state, the FOG technology does not involve any movement of mechanical parts causing dithers, vibrations, frictions and resulting in parts' weariness and noise. This ensures many benefits for the user: robustness of the system (Power-on and Forget), cost-effectiveness and the lowest cost-of-ownership on the market.

AN EXTENSIVE TRACKRECORD

Atlans R7 is already equipping several French trains, ranging from high-speed trains (TGV) to regional and suburban trains (TER and RER), and boasts a massive trackrecord of over 150,000km of analyzed trajectories.

KEY PARTNER OF ERTMS PROGRAM

iXblue is the project leader of LOC4RAIL ERTMS program for a safe and precise localisation solution.
The disruptive and innovative safe architecture led by inertial technology proposed by iXblue benefits directly to European operators and can be quickly proposed to the ERTMS market, or CBTC tracking subsystems.
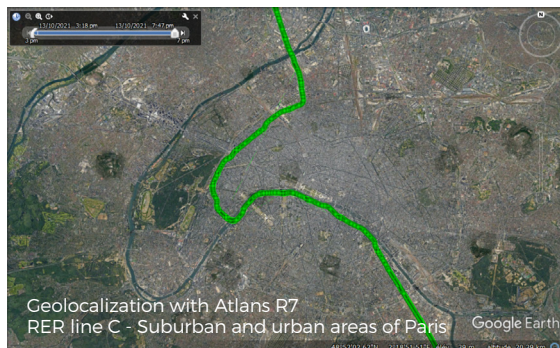
COVERING A WIDE RANGE
OF RAIL APPLICATIONS

TRAIN LOCALIZATION

Replacing the localization infrastructures from the tracks with systems directly onboard trains present several crucial advantages in terms of costs and efficiency. This comes with a number of challenges too. Atlans R7 directly answers them by providing undisrupted localization in all environments, no matter the strength of the GNSS signal. It effectively replaces the old, physical balises by innovative, virtual ones.
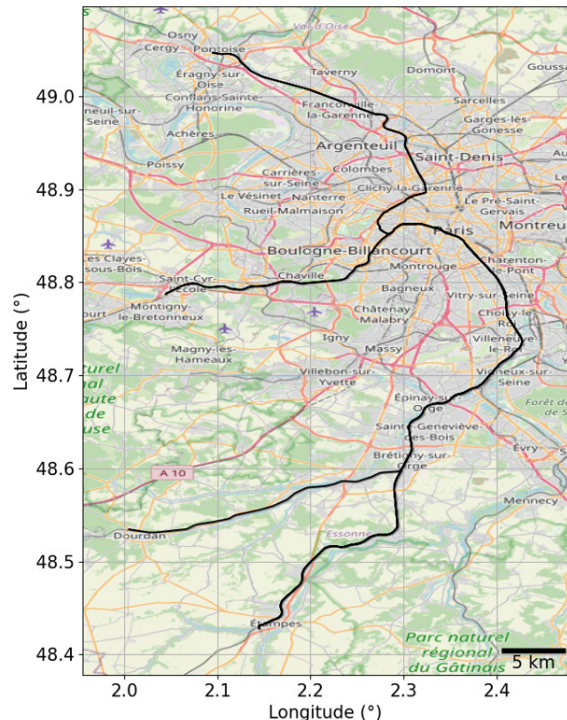
Another key advantage of trusting iXblue's solution for localization is the gyro-compassing capability, which does not require any train movement for initialization. iXblue's expertise in navigation data fusion (GNSS, INS, cartography) has already helped many customers for their trials.

Geolocalization without Atlans R7
RER line C - Suburban and urban areas of Paris

Geolocalization with Atlans R7
RER line C - Suburban and urban areas of Paris

METROLOGY

As applications requiring track geometry measurements increase, so does the need for accurate and reliable data for images positioning and georeferencing. Atlans R7 directly answers this need.

Atlans R7 provides undisrupted georeferencing position, speed and attitude of the train, making it a key solution for 2D network mapping applications.

SPECIFICATIONS

ATLANS R7
Real-time localization inertial solution

Performance*

	Position	Speed	Attitude
Sampling rate	Up to 200Hz	Up to 200Hz	Up to 200Hz
Along track accuracy in high density urban environment, With SBAS GNSS outages over 20 mn**	<5m 95% of measurements	<0.05 m/s 95% of measurements Fully compliant to Subset-41, regardless of speed	Heading 0.03 | Roll&Pitch 0.015
Max along track accuracy without GNSS	<0.1% DT	<0.005 m/s per 100m DT	Heading 0.03 | Roll&Pitch 0.015

*No map coupling implementation | **From track records on all Paris Suburb Regional Line C

Interfaces

4G/LTE*	1 x 4G/LTE interface on rear panel - Type N receptacle
Odometer input	1 x odometer input on rear panel - Free-floating blind mate connector
Ethernet port output	1 x PPS output on rear panel - X-coded M12 receptacle

* 4G/LTE for Atlans R7 full configuration (optional)

Mechanical

Rack dimensions according to F61-005	3U x 21T x 320 mm
Overall dimensions	132.6 mm height x 483 mm width x 399 mm depth
Weight	15 kg

www.ixblue.com

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