
# Innok

## Robotics

Innok Robotics

# **Advanced AMR**
# Indoor and Outdoor

**Autonomous Mobile Robots from the market leader**

Innok develops new areas of application for autonomous mobile robots (AMRs) by transferring forward-looking research & development into proven, reliable technology to quickly improve productivity at your company.
We offer flexible robotic solutions that can be used economically by companies of all sizes. While other AMRs are limited to easily controlled indoor environments like production and logistics warehouses, our AMRs also excel in **outdoor areas** – where we have been one of the global technology leaders for years! Thanks to our outstanding outdoor capabilities, our robots can easily cope with poor floors (indoors and outdoors) and thresholds and are reliable even in heavy rain. In addition to our existing standard products INDUROS (transport AMR), RAINOS (irrigation AMR) and INSPECTOS (inspection and monitoring AMR), our HEROS platform provides fast solutions for more specialized demands due to its modularity. We offer complete in-house development and production of AMR solutions tailored to your specific requirements – made in Bavaria.

# INDUROS

## Your superior AMR solution for intralogistics and logistics

INDUROS is an autonomously operating mobile robot that can transport loads both indoors and outdoors. It also masters combined indoor & outdoor operations.
If your operational processes span multiple buildings where rough surfaces or inclines prohibit the use of conventional AMRs, Innok INDUROS is the right choice – and one of the few AMR in the world that can do that. With superior traction and towing capabilities (tractive load up to 700 kg depending on ground conditions and route), Innok INDUROS unlocks previously unreachable areas for automation. Seamlessly automating intralogistics where they were previously thought of as impossible.

**Tugger train capable transport robot, indoor and outdoor**


# **Research**
# and Development

Our robots have provided platforms for international research projects since 2012. In contact with leading scientists, we are already developing the next generation of robots, and the one after that.

**Innok Robotics works hand in hand with the world's leading universities**

**Groundbreaking research and development projects**

In the Mining RoX project at TU Bergakademie Freiberg, Saxony, Innok HEROS is exploring another frontier for autonomous robots: underground mines. Heat and humidity make mines a strenuous work environment for humans. Here, robots reduce mining costs, as expensive air conditioning is not required for unmanned operation. Safety: In the event of a disaster, rescue robots help find missing persons.

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# **We drive AMR**
# The Products

## **INDUROS** – Logistics

Autonomous outdoor and indoor intralogistics transport. No external guiding systems (in-floor or otherwise) required due to 3D LIDAR powered localization. Fully automatic coupling and uncoupling of trailers. Compact and manoeuvrable, excels even in confined spaces. Solution to staff shortage.

2.5 kWh battery capacity • Up to 12 hours running time
Robust • Towing capacity up to 1.5 t • Fast ROI


## **INDUROS** – with Roller Conveyor Option

Options for the fully integrated roller conveyor (in cooperation with Innok partner TruPhysics) make our autonomous mobile transport robot INDUROS even more universal. The complete package includes the roller conveyor module, built-in safety systems, all sensors and controls and the API for the Innok INDUROS, including fleet and order management. It has been developed for stationary Interroll LCP modules and can be expanded to include stationary roller conveyors.


## **RAINOS** – Irrigation

Fully autonomous irrigation robot. Independently waters cemeteries/graves, parks, green areas, etc. Massive reduction of manpower requirements. Solution to staff shortage.
Easy to operate • Safe and suitable for off-road use
Grave-specific irrigation possible • Fast ROI of approx. 1 year

## **INSPECTOS** – Inspection

Autonomously traverse predefined routes. Take photos or gather other sensor data (heat, movements, odours, radiation, etc.). Transmit gathered data digitally to a control centre.

Excels in hazardous environments • No on-site inspection personnel necessary • Up to 12 hours running time • Fast ROI


## **HEROS** – Modular Platform

Modular design, configuration tailored to requirements.
Various setups and applications possible.
Easy to operate, e.g., in industry, agriculture, logistics, research/universities.

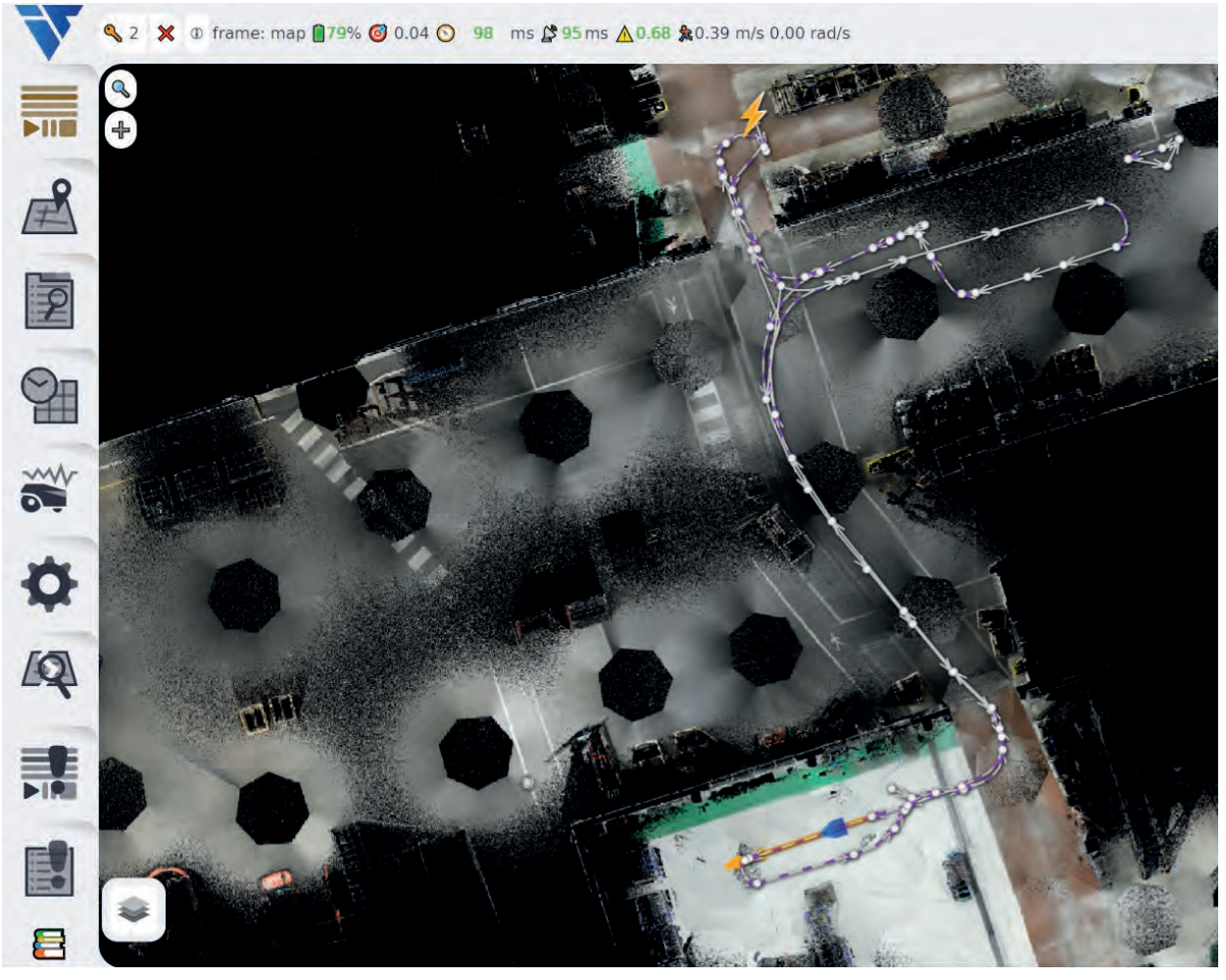
3- and 4-wheeled • 2 or 4 wheel drive • Payload up to 1.5 tons
Versatile expandability • Proven for more than 10 years
Extremely robust and reliable

# **Innok COCKPIT™**
# The Ultimate in Control

**For the most difficult requirements from remote controlled to fully autonomous**

To achieve high precision, reliability, and usability, we have continuously developed and improved, with ROS/ROS2 as a basis, the proprietary code of our Innok COCKPIT™ autonomy software over the past 10 years and enriched it with powerful algorithms for a wide range of AMR tasks. Whether it is efficiently planning routes for irrigation or roll-over prevention in rough terrain, Innok COCKPIT™ safely guides your robot to its destination. Optionally with safety rated laser scanners for use around humans. Through smart sensor data fusion, Innok COCKPIT™ allows our AMRs to master complicated operational situations, e.g. navigating and scanning underground salt mines for our customer Kali+Salz (K+S). Control your AMR fleet with quality software – made in Germany.

Application example in which the INDUROS travels over an outdoor area between two halls.



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# HYBRID NAVIGATION™
## Smart Sensor Suite

To perform their tasks, mobile robots must have suitable and reliable self-localization and navigation capability. Innok HYBRID NAVIGATION™ combines multiple state-of-the-art navigation technologies to ensure our AMRs always know where they are, and what is around them. Innok HYBRID NAVIGATION™ can integrate low and high-precision GPS/RTK, high-performance 2D and 3D LiDAR laser scanners, camera-based vision, radar, and other application-specific sensors to assure a precise and reliable reference system for autonomous navigation. Warehouses, fields, vegetation, underground tunnels, or any other environment you can throw at them: our robots find their way with Innok HYBRID NAVIGATION™.

**Always using the best technology for the task at hand**

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