



Your vehicle, our navigation

Do you need autonomous navigation for your vehicle?

BlueBotics proposes ANT® – Autonomous Navigation Technology – a state-of-the-art and industry-proven product line, which simplifies and shortens the installation of your AGVs and mobile robots.



Simple and robust

 ANT^{\circledR} uses natural structures in the environment as reference for localization thus requiring no infrastructure (no need for inductive wires, magnets, or reflectors for triangulation). ANT^{\circledR} can also use simple reflectors either in combination with natural structures, or even alone, providing the best solution for your setup.



Quick to install

ANT[®] driven vehicles are quickly installed with the ANT[®] lab tool suite, modifications are even simpler. This makes all setups simple and economical to install and to maintain, no matter if it is a single vehicle or a large fleet.



Industrial

 ${\sf ANT}^{\circledR}$ combines information from industrial encoders and laser scanners to reach an accuracy of ± 1 cm and $\pm 1^{\circ}.$ ${\sf ANT}^{\circledR}$ even uses the data from the safety laser scanners available on your vehicle.



Handles obstacles

ANT[®] autonomously handles obstacles by either moving around them (obstacle avoidance), or adapting the speed to avoid emergency situations (path following).

	ANT [®] lite+	ANT [®] localization+	ANT [®] localization
Localization	√	√	√
Control	√	X	X
Embedded missioning management	√	X	X
Emulation of line following	X	√	X
Fleet management	√	X	X

OUR FEATURES

No inductive wires, magnets, triangulation reflectors
Simple and robust localization
Optimal control of the vehicle
Embedded management of missions
Use of safety laser scanners
Fleet management with ANT[®] server

YOUR BENEFITS

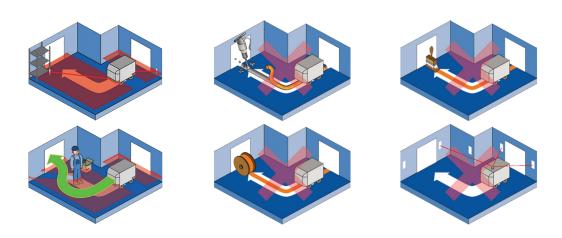
Proven in different markets all around the world Quick installation and modification

Easy and flexible industrial integration

Compatible with hybrid manual/automatic use

Economical from single vehicle to large fleet

Integrated mission management



Comparison with traditional guidance systems

	ANT [®]	Laser-guided	Magnets & Gyro	Wire-guided
Installation/modification	+	=	_	_
Precision	+	+	=	=
Speed	+	+	=	-
Manual/automatic	+	+	_	_
Cost of infrastructure	+	=	=	-
Cost of maintenance	+	+	=	=

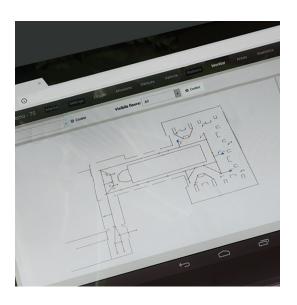


ANT® lite+

Localization, control & mission management for your vehicle

Complete navigation solution
Simple and robust localization
Optimal control of the vehicle
No inductive wires, magnets, triangulation reflectors
Use of safety laser scanners
Embedded management of missions
Compatible with hybrid manual/automatic use
Compatible with ANT® server

Ideal use: AGVs and automated forklifts



ANT® server

Fleet management

Intelligent scheduling of missions

Deadlock-free traffic control

Battery charge management

Interface to the environment and external devices

Simulation of vehicles and missions

Handling configuration of different vehicle types

ANT[®] monitor

Monitoring of the complete system on PC, tablet, phone



ANT® localization+

Localization & emulation of line following for your vehicle

Emulation of line following and tags
Simple and robust localization
No inductive wires, magnets, triangulation reflectors
Use of safety laser scanners

Ideal use: retrofitting or substitution of line following



ANT[®] localization

Localization for your vehicle

Simple and robust localization

No inductive wires, magnets, triangulation reflectors

Use of safety laser scanners

Compatible with hybrid manual/automatic use

Supports omni-directional kinematics

Can be used to track manual vehicles

Ideal use: AGV suppliers having their own control

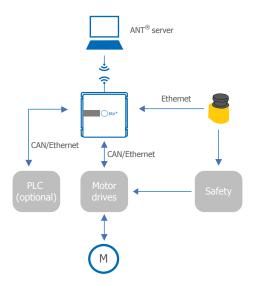


ANT[®] lab

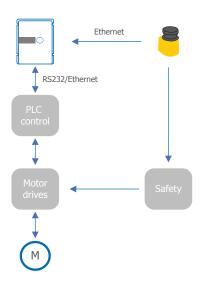
Integrated tool for configuration and installation

Vehicle configuration and calibration
Mapping of the environment for localization
Drawing of the routes
Definition of environment-related actions
Configuration of devices (chargers, doors, lifts, ...)
Simple monitoring for testing and validation
Handling configuration of different vehicle types

ANT® lite+ : Vehicle components



ANT® localization : Vehicle components



Specifications

Functionality	ANT® lite+	ANT® localization+	ANT® localization
	localization, control, missioning lite	localization, emulation of line following	localization only
Vehicle compatibility			
Kinematics	differential drive, tricycle, car-like	differential drive, tricycle, car-like	differential drive, tricycle, car-like, omni-directional
Maximal speed	>2.0 m/s	>5.0 m/s	>5.0 m/s
Localization			
Accuracy	±1 cm and ±1°	±1 cm and ±1°	±1 cm and ±1°
Localization rate	5 Hz	up to 20 Hz	up to 20 Hz
Control			
Obstacle avoidance rate	10 Hz	-	-
Path following rate	10 Hz	10 Hz (emulation)	-
Interfaces			
Safety laser scanners	HOKUYO UAM-05LP LEUZE RSL4XX OMRON OS32C-DM SICK microScan3 SICK S300 / S3000 Expert	HOKUYO UAM-05LP LEUZE RSL4XX OMRON OS32C-DM SICK microScan3 SICK S300 / S3000 Expert	HOKUYO UAM-05LP LEUZE RSL4XX OMRON OS32C-DM SICK microScan3 SICK S300 / S3000 Expert
Non-safety laser scanners	P+F OMD30M-R2000 P+F OMD30M-R2000 HD SICK LMS10x/LMS141/LMS151 SICK LMS5xx SICK TiM571	P+F OMD30M-R2000 P+F OMD30M-R2000 HD SICK LMS10x/LMS141/LMS151 SICK LMS5xx SICK TiM571	P+F OMD30M-R2000 P+F OMD30M-R2000 HD SICK LMS10x/LMS141/LMS151 SICK LMS5xx SICK TiM571
Motor drives	CANopen, EtherNet/IP	-	-
User configurable I/Os	8 dig. in / 6 dig. out	-	-
Hardware			
Embedded computer	industrial PowerPC	industrial PowerPC	industrial PowerPC
Operating voltage	24 VDC (20 VDC30 VDC)	24 VDC (20 VDC30 VDC)	24 VDC (20 VDC30 VDC)
Power consumption	<20 W	<20 W	<20 W
Operating temperature	0°C to 60°C	0°C to 60°C	0°C to 60°C
Storage temperature	-25°C to 85°C	-25°C to 85°C	-25°C to 85°C
Relative humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)	5% to 95% (non-condensing)
IP rating	IP20	IP30	IP30
Dimensions	182 x 60 x 190 mm (WxHxL)	134 x 26 x 160 mm (WxHxL)	134 x 26 x 160 mm (WxHxL)
Weight	1.1 kg	0.6 kg	0.6 kg

