

BLUEBOTICS

— Your Vehicle Navigation Partner



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[®] 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[®] 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

ANT[®] combines information from industrial encoders and laser scanners to reach an accuracy of ± 1 cm and $\pm 1^\circ$. ANT[®] 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).

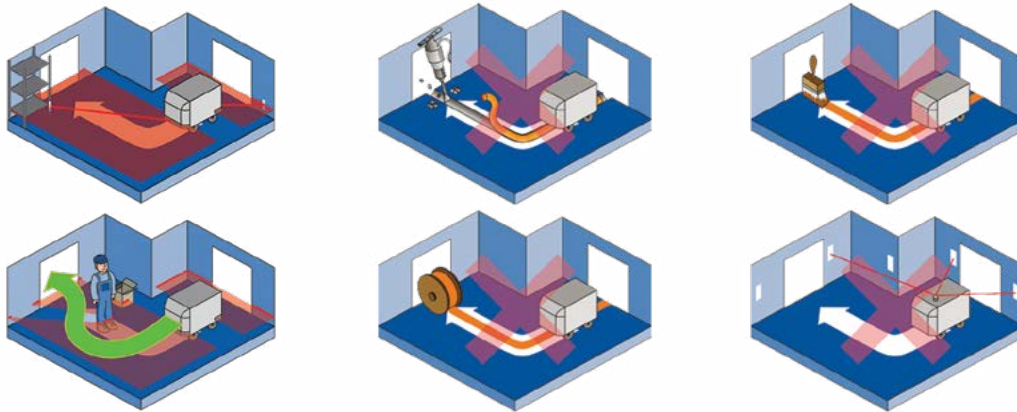
	ANT [®] lite+	ANT [®] localization+	ANT [®] localization
Localization	✓	✓	✓
Control	✓	X	X
Embedded missioning management	✓	X	X
Emulation of line following	X	✓	X
Fleet management	✓	X	X

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	+	+	=	=

+ Positive

= Neutral

- Negative



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

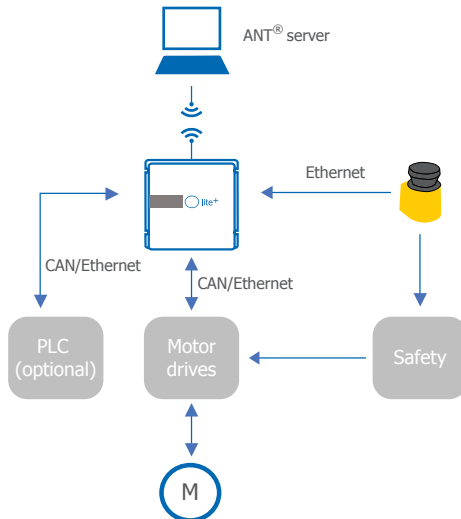
Definition of environment-related actions

Configuration of devices (chargers, doors, lifts, ...)

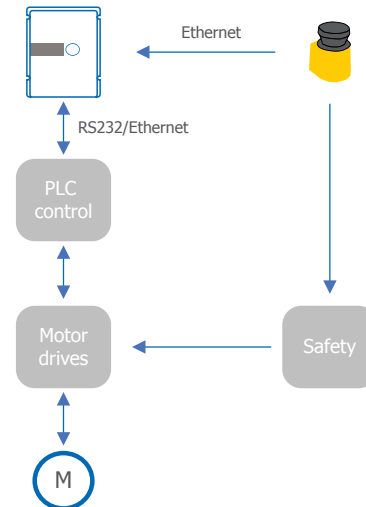
Simple monitoring for testing and validation

Handling configuration of different vehicle types

ANT[®] lite+ : Vehicle components

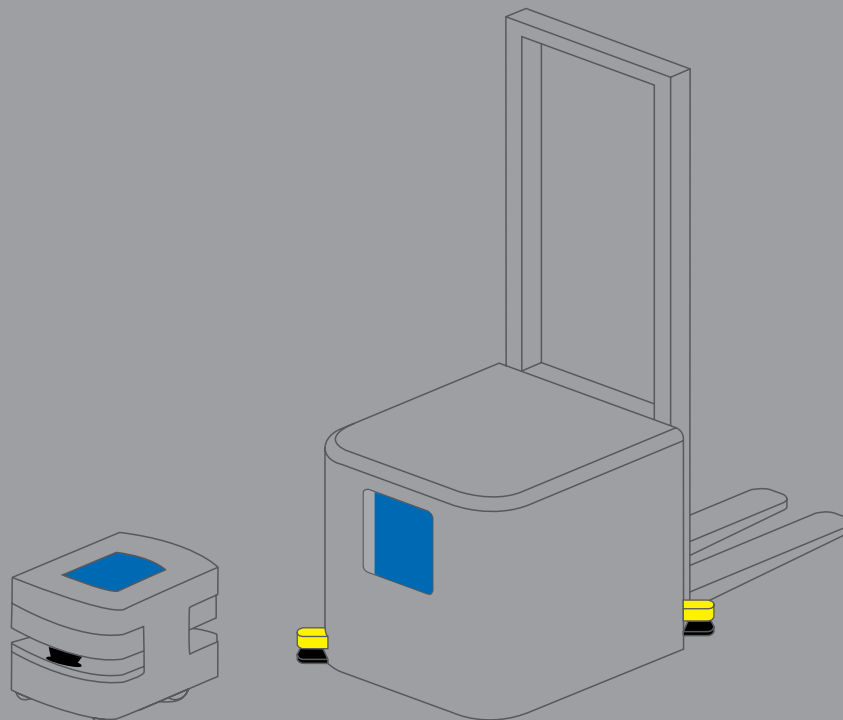


ANT[®] localization : Vehicle components



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 VDC...30 VDC)	24 VDC (20 VDC...30 VDC)	24 VDC (20 VDC...30 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



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