

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).

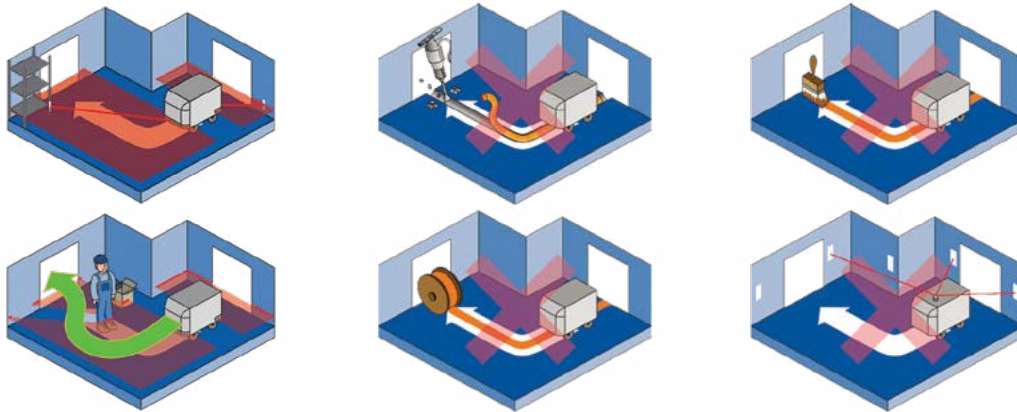
| | ANT [®] lite+ | ANT [®] localization+ | ANT [®] localization |
|--------------------------------|------------------------|--------------------------------|-------------------------------|
| Localization | ✓ | ✓ | ✓ |
| Control | ✓ | X | X |
| Embedded missioning management | ✓ | X | X |
| Emulation 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

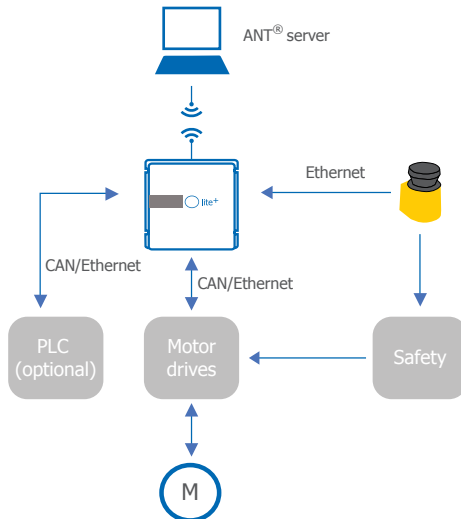
Definition of environment-related actions

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

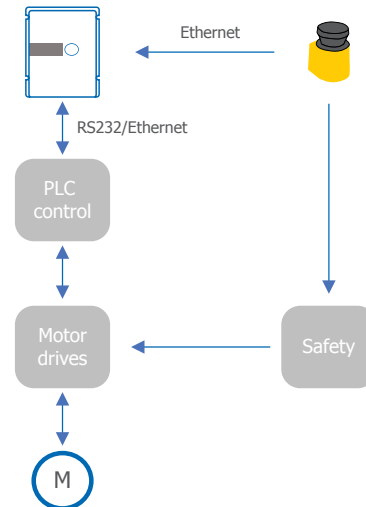
Simple monitoring for testing and validation

Handling configuration of different vehicle types

ANT[®] lite+ : Vehicle components

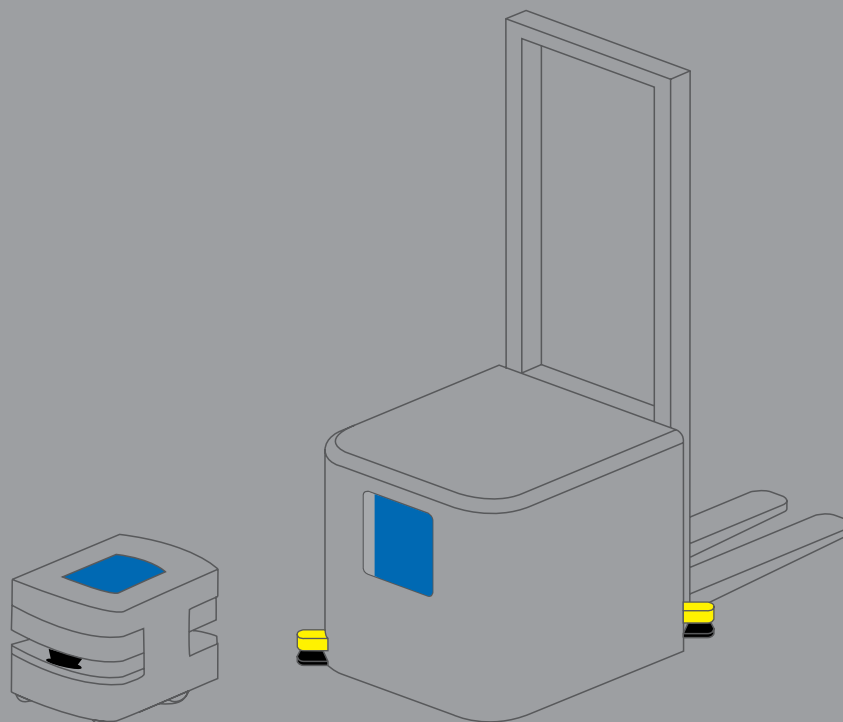


ANT[®] localization : Vehicle components



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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