InSystems
automation

01

prOANT
Automatisch Navigierender Transportfahrzeug

prOANT
Automatisch Navigierender Transportfahrzeug

prOANT
Automatisch Navigierender Transportfahrzeug

www.proANT.de

prOANT

Automatic Navigating Transport Vehicle

Fully automated material handling

Freely navigating transport systems represent a flexible and scalable solution when material flow and factory workers share transport routes. The aAGVs (Autonomous Guided Vehicle) connect machines towarehouses, buffer storages, stationary material handling and workstations for a highly effective internal logistics system. The proANTS are customized to the individual customer requirement.

We are using reliable components to adjust the AGV to the task's specific size, weight and method of handling. The robots navigate freely and identify their surroundings with laser scanners. Due to this, no guiding tapes or reflectors need to be installed in the plant.

The proANTs detect obstacles and humans on their path and automatically calculate alternative routes to avoid collisions. They are safe for interactions with humans and certified with the restrictive EN1525 norm.

Safety and navigation

The proANTs are equipped with a safety laser scanner that continuously monitors the surroundings in the driving direction.

Warning and protective fields are implemented in the scanner. This makes the proANT decelerating once it approaches an obstacle or a narrow path. The protective fields enable the proANT to immediately stop from any speed once a human crosses the robot's path.

Additionally, it is possible to define specific areas in the factory plant in which the robot is either forbidden to enter, may only drive in reduced speed or in a single direction. It is also possible to define a maximum number of vehicles per area. This is specified by narrow paths between machines, emergency routes or other delicate areas.

Technical specifications

proANT	
Dimensions:	customized, e.g. Ø 600 mm, 800 mm, 1000 mm
Laser scanner:	S300 from SICK (personal safety)
Load:	up to 200 kg
Load handling:	specified by the load to be handled e.g. Floating conveyor for heavy boxes, roller-conveyor for commissioning containers or cardboard boxes
Height of load transfer:	customized as required
Drive:	Electric motor, 2 wheels differential drive and 2 free spinning wheels
Speed:	1.5 m/s
Turning circle:	0 mm (turns on the spot)
Positioning accuracy:	1° +/- 10 mm
Battery:	8 cells LiFeYPO4 with balancing board and temperature monitoring, 24 V DC

Communication

The proANTs communicate among each other and with the fleet management software using WLAN. This enables the robots to avoid obstructing each other or jamming in traffic. The fleet management software monitors the batteries of the proANTs and automatically sends them to charging station. The transport requests are tunneled to the fleet management software by an AGV Interface Controller (AIC). The AIC is a software application that can communicate with the costumer's ERP or MES to automatically generate transport requests.

The proANTS also communicate with the transfer point using a hardware handshake. Various solutions can be used to implement the hardware handshake.
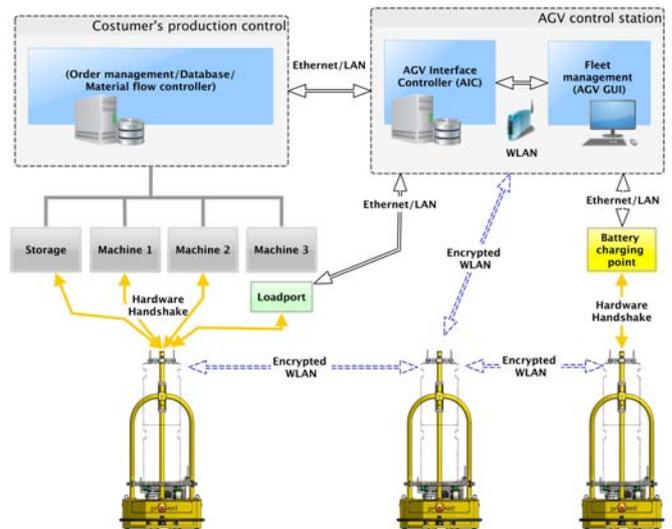

Battery and Motors

The proANTs are equipped with modern LiFeYPO4 batteries. Lithium-iron-phosphate is not hazardous or inflammable. LiFeYPO4 cells are capable of handling high loading currents, have a highly reduced self-discharge and don't lose their characteristics even after many loading cycles. The batteries have short loading times and the longest lifespan when operated with a load of 30-70%.
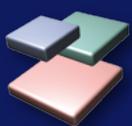
The proANTs are equipped with a 2-wheel differential drive, which enables them to turn on the spot. Two free spinning wheels support the vehicle and guarantee that it stands steadily during the handling of material.

Load handling

The load handling is individually designed to adapt to the costumer's needs. When heavy loads are carried, we usually rely on our floating belt conveyor. This system greatly facilitates the passing of heavy loads between robot and transfer point.
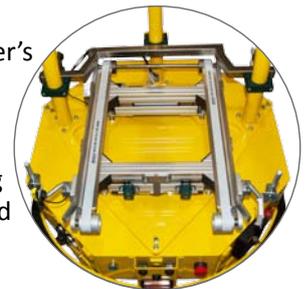
Find further proANT information at **www.proant.de**

InSystems
automation