



1 Specification

1.1 Environmental Requirements

- For all other components 230 VAC should be provided
- Depending on the local regulations, the driving path of the AGV has to be marked by signs or tape on the floor.
- The fire doors which are normally closed have to be automated so that, the AGV-System can drives through it. An interface needs to be provided from the fire door control of the door.
- All other doors in the driving path of the AGV-System needs to be motorized or the one which are constant open, have to be hold by a electromagnet open, which is controlled by the AGV System.
- To integrate elevators an interface has to be defined potential free contact, OPC etc.

Environmental Requirements	
Humidity	30% non-condensing to 80%
Temperature	+ 5 ° C to 35 ° C
LiFePO Battery charger	3-phase 400 VAC ± 10 %

1.2 Pulling and Lifting AGV specification



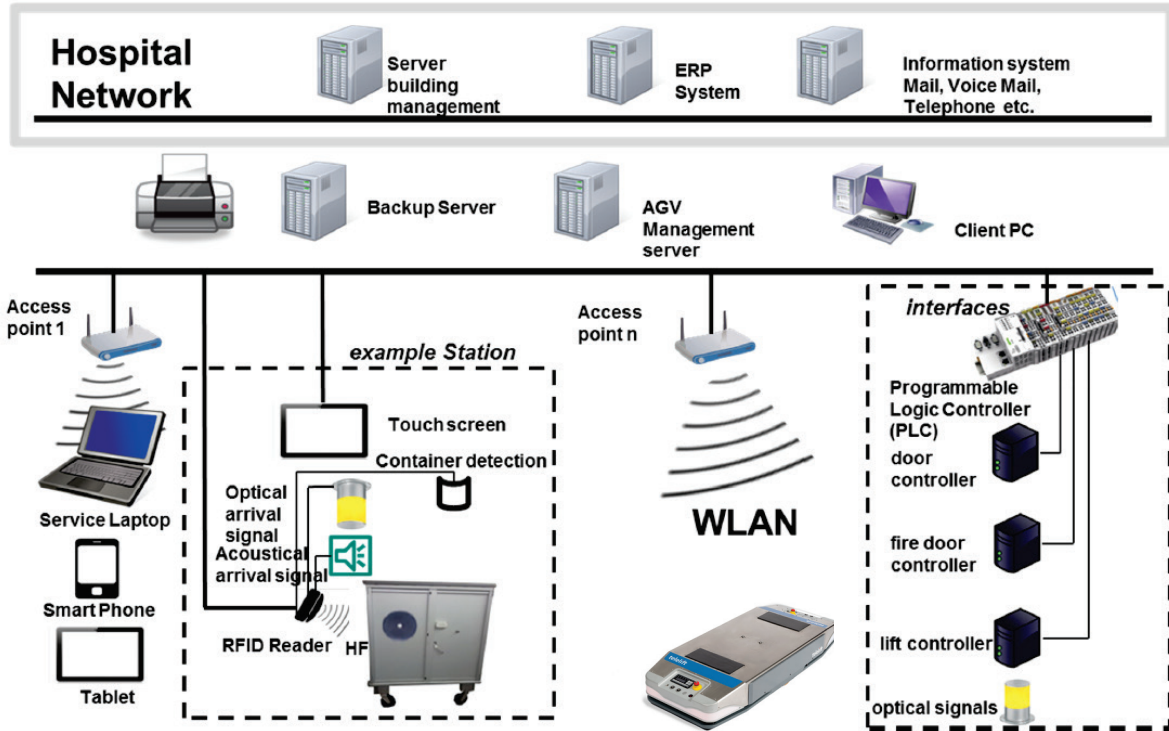
Speed	V max. up to 1.2 m/s
Weight	less than 300 kg
Payload	380 kg
Dimension	659 mm x 240 mm x scalable length typically 1600 mm
Two safety laser scanner for 360° view	S 300 Sick
Additional Sensors	4 floor detection sensors, Optional 3 D / ultrasonic sensor
Communication	WLAN 802.11g
Battery type	Lithium-Ion (LiFePO4), for up to 6 hours Run-time, fast chargeable
Navigation	free navigation (“Contour Navigation” system provides flexibility without installed infrastructure) and tape guided (stable navigation in noisy environments)
Max. slope	7%
Accuracy	lengthwise: +/- 10mm sidewise: +/- 15 mm
Wheels	2 driving wheels, 2 steering wheels -> vehicle can turn on spot
User interface	For tablet or smartphone



1.3 Requirements for the floor

- According to DIN 53516, ISO 4649 may abrasion of the floor (rubber) may be max. 110mm³ be at 5N load.
- The value of electrical resistance of the floorcovering, measured according to DIN EN 1081 and DIN IEC 61340-4-1, must be <1 GΩ for an area of 20 cm² at an ambient temperature of 20 ° C and 50% relative humidity. For deviations from this, further actions may be necessary.
- The coefficient of friction between the wheels of the automated guided vehicle and the floor surface under a variety of conditions such as dirt, moisture etc. must stay > 0.5.
- The maximum dynamic floor loading of the automated guided vehicle 450 N / cm² on the vehicle.
- The flatness tolerance of the floor area according to DIN 18202
 - may not exceed 4mm to 1 m in the area of the lane
 - may not exceed 3mm 1 meter in the area of charging stations
- Height jumps and half-landings between different floor coverings and expansion joints between different building sections should not exceed 1mm; otherwise the speed must be reduced before these edges to avoid damage to the vehicle in the long run.
- Upward slopes may not exceed 7% and have to be planned only in a straight lane. The transition radius is 23m.

1.4 Communication



- The data between the vehicles and to the AGV Management System is transmitted via radio (WLAN)
- Along the travel path (min. -70 dBm 20 cm above the ground) and in the areas in which users can be located using a tablet or a maintenance laptop, a complete cover over 802.11a / b / g / n has to be ensured.
- The number and spacing of the access point has to be defined in that way, that at all areas, even in fire areas and elevator cabins, sufficient coverage is achieved.
- AGV-System is able to use the existent network jointly



1.5 Interfaces

Connected with Programmable Logic Controller (PLC)

- Charger
- Elevators/lifts
- fire / automatic doors
- Cart washers
- Operator input terminals
- Door openers
- Trolley detection sensors
- Warning lights
- Arrival lights
- Remote Alarms