Manufacturer-Independent Integration of AGVs

SIGMATEK has introduced a fleet management system to the market, with which AGVs can be integrated into existing production facilities regardless of their manufacturer. Managing Director Alexander Melkus provides insights.

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(Pic.: Uwe Niklas/WFM)

Why should a company simulate the use of AGVs in advance?
Since AGVs are often integrated into existing factory and logistics areas, simulation is essential for time- and cost-saving implementation. The simulation integrated into the TCS can run processes 720 times faster than in real time. In just a few minutes, an entire day's worth of vehicle movements and loading cycles can be visualized, as well as routes optimized. The graphical heat maps stand out from the report functions, which show the location of problematic zones with high traffic that would affect transportation volumes in real operations. On the other hand, the information interface between the ERP system and TCS can be thoroughly tested in the simulation. In short – simulation allows optimizing system processes to achieve the best possible throughput before going into operation, as well as keeping the initial start phase itself as short as possible.

How can AGVs be integrated into production/intra-logistics independently of the manufacturer?
The TCS already supports the recent VDA5050 standard, created to network vehicles from different manufacturers. If the AGV does not support this standard, the TCP/IP and UDP data interface can also be used, which is exactly tailored to the requirements of the respective AGV in the TCS.

What are the three essential points in which a fleet management system differs from guidance systems or classic facility control systems?
In comparison with classic SCADA solutions, the fleet management system assumes the active traffic control of the vehicles and selects the appropriate detours and alternative routes if needed. The TCS knows the actual operating conditions of all vehicles in the fleet and considers these when planning and assigning vehicle tasks, as well as for active traffic control. It also manages the intelligent battery and charging of the fleet's vehicles. This includes managing the SLAM maps and keeping them consistent and up-to-date in all vehicles.
Additionally, the TCS provides specific protocols for the ERP connection and produces complete AGV-specific reports and KPIs for capacity, OEE and much more.

What should companies generally watch for when they want to use automated guided vehicles?
The most important requirement is that suitable AGV processes are already in place for the material flow in the company. For successful implementation, the existing infrastructure must be checked. For example, whether the load carriers are constructed in such a way that the AGV can load, transport and unload them. And whether the appropriate routes can be defined. This includes the controllability of any gates or barriers to allow the AGV to pass through without interruption. The condition of the floor on which the vehicles should travel is also essential for a seamless process. For wireless data communication, a WLAN structure is required. Whether an existing system can be used or a separate WLAN is needed must therefore be checked.
Fire safety must also be taken into account: How the AGV should respond in the event of a fire must be clarified. While it is enough to bring the AGV to a standstill in many cases, there are also cases where routes intersect or cross escape routes for personnel and AGVs may only be brought to a standstill outside these crossing points. ag