

Turkish wholesale company uses RFID for warehouse and logistics management

Tetaş AŞ

For the operators of logistics distribution centers, it is of primary importance that the actual inventory and storage locations are consistent with the data stored in the IT system. Every discrepancy between database and reality results in time-consuming searching and counting which entails significant costs and even delivery delays. A leading wholesale dealer for the textile industry now meets these challenges at the click of a mouse: Radio Frequency Identification (RFID) provides the necessary knowledge automatically and error-free.

Tetaş AŞ was founded in 1982 as a service provider for the textile industry in Istanbul, Turkey. Today, Tetaş supplies more than 4,000 customers with a wide range of machines, spare parts and consumables which it obtains from the domestic and overseas markets. Tetaş maintains three regional distribution centers for the purpose of supplying its customers. Due to the high number of different products (more than 25,000 article numbers), high-ly efficient logistics processes with low error rates are of paramount importance.

For many years, the company has therefore backed software-based monitoring and reporting tools for gaining comprehensive information about the quality of its own processes, as well as for operative control. The problem: synchronizing the data of the IT systems with the actual facts requires significant manual input that costs time and results in errors.

The in-house IT department has now introduced an RFID (Radio Frequency Identification) system to provide automatic comparison of the recorded data with the actual flows of goods.

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Thanks to the RFID antennas mounted on the stacker, the storage location of each pallet can be calculated at any time at the click of a mouse.

In an initial step, RFID has been installed in the distribution center in Tekbes near Izmir – the largest with a surface area of 8,500 m². RFID ensures that the precise storage location can be called up for any article at any time – fully automated and error-free. For this purpose, the products delivered by the manufacturers are first stacked on pallets by Tetaş. Each of these storage pallets is equipped with an RFID transponder to identify the goods henceforth. When this RFID transponder is programmed with the goods barcode ID number, receipt of the goods is automatically recorded in the software systems through hand held terminals or by entering RFID gates.

Fork lift trucks with RFID antennas

Tetaş has equipped its fork lift trucks with RFID readers for the purpose of tracking the storage units as they are transported within the distribution center. The RFID antennas mounted on the stackers automatically capture the signals from the transponder of the storage unit and warehouse shelves (each shelf in the warehouse is identified by an RFID tag). Another antenna is mounted underneath each fork-lift truck. This is used to capture the signals of the other RFID transponders that are permanently installed in the floor and contain the spatial coordinates to identify zones in the warehouse. The stacker can calculate its own position when it crosses one of these floor transponders. Assignment of this data to the pallet transponder makes it possible to track each movement of goods in the distribution center and thus each storage location for the pallets.



The transponders are programmed for each storage unit (pallet) using a mobile RFID device of the type Simatic RF610M.

Other RFID installations are located in the loading doors of the warehouse. Permanently mounted RFID gates are used here to automatically capture incoming and outgoing goods. This means, not only can an error-free shipping advice be created in real time, but also a permanent inventory list of the warehouse can be generated.

Tetaş decided in favor of RFID components from Siemens for the implementation of the system. Thanks to its high degree of ruggedness, Simatic RF600 offers a decisive advantage for use in day-to-day business: "We have selected Siemens readers and antennas because of their long service life, performance, flexible integration options, and, not least, their outstanding technical documentation", says Moris Yaffe, project head at Tetaş. But the level of technical development is also a highly significant factor: "Thanks to the antenna hopping procedure of Siemens, we can achieve almost 100 % read rates", says Yaffe. One Simatic RF660R read unit with two antennas is mounted on a stacker for sensing the pallets and the position transponders embedded in the floor.

The turquoise antennas from Siemens can also be found on the RFID gates. Mobile handheld devices of the type Simatic RF610M are used at incoming goods for writing to the newly attached transponders. UPM Raflatec supplies the RFID transponders at a rate of approximately 2,500 per month.

RFID middleware developed by Tetaş links the collected data to the software systems for inventory control (Enterprise Resource Management, ERP). Thus, the logistics managers have all the inventory and performance data of the distribution system onscreen at the click of a mouse – totally automatic and error-free. Automatic recording of goods (incoming and outgoing) and continuous inventory also ensure further improvements in the quality of the databases in the IT systems.

Conclusion and outlook

There is no doubt that the RFID technology has paid off for Tetaş. Simpler and faster inventory at the click of a mouse, no longer deviation between the inventories stored in the IT system and the actual inventory, fewer delivery errors, reduced losses, and, not least – increased customer satisfaction results in significant cost savings that quickly offset the installation costs of the RFID system. Increased transparency in the processes also provides important reference points for further optimization. Tetaş will consequently use the RFID concept in its newly built head office (entrance and exits) as well as in its new warehouse with a size of 25.000 m².



The RFID antennas on the warehouse doors ensure automatic recording of incoming and outgoing goods.

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