Harting, INTACS Partner on RFID-enabled Warehouse Training Rig

Harting has teamed up with INTACS Industrial Training to create a warehouse training system that employs radio frequency identification. INTACS, a U.K.-based provider of training on industrial control systems equipment, works with equipment manufacturers, including Harting, to provide programmable logic controller (PLC), automation and electrical training. Harting's Ha-VIS RFID products are key elements in the INTACS Hi-Bay system, according to the two companies. The solution is used as a training rig to illustrate how RFID can replace bar coding for capturing product information using easily programmable and flexible RFID technology linked to industry standard PLCs

The Hi-Bay training system consists of a nine-bay warehouse system that is fed via a high-speed crane from an integral load-unload station. Harting ultrahigh-frequency (UHF) RFID transponder tags are affixed to various products, which are placed on pallets for storage. The load-unload station houses a Harting RFID antenna. As a loaded pallet passes through the station, the RFID product information is read and transmitted to a Harting Ha-VIS RFID RF-R300 system and sent over an Ethernet link to a Siemens S7-ET200S I/O module. The HARTING Ha-VIS RFID reader, compatible with Harting's GS1 EPC global-certified Ha-VIS middleware, can communicate directly with the S7-1500 PLC controlling the Hi-Bay warehouse, according to the companies, or via the input-output module located remotely and networked wirelessly or via either PROFINET or PROFIBUS.

During a recent demonstration showcasing the training system in a warehouse rig, product information was transferred from the Harting RFID transponder attached to the product via the antenna to the Ha-VIS RFID reader, and then via PROFINET to the PLC. The PLC was programmed using the latest TIA-Portal STEP7 software, and the program allocated an appropriate empty bay to house the goods loaded on the pallet. The integral high-speed crane then picked up the loaded pallet and delivered it to the selected storage bay. The product ID and details stored on the RFID transponder were transferred to data blocks in the PLC's memory, which tracks and records stock in the Hi-Bay warehouse. A Siemens KTP color HMI touchscreen provided a graphical view of the types of products in the Hi-Bay warehouse's storage bays. The HMI was connected by PROFINET to the PLC, enabling operators to select a product to be removed from the Hi-Bay and delivered back out to the load-unload station.

From there, a Hi-Bay crane was sent to pick the pallet from the selected storage bay and transport it, along with the products loaded onto it, to the load-unload station. As the pallet and goods were moved back through the load-unload station, the RFID tag ID and product details were re-transmitted to the Harting Ha-VIS RFID reader, transferred over PROFINET to the S7-1500 PLC, and compared with the selected product code, in order to ensure that the correct product was picked.

INTACS Industrial Training works closely with a number of leading equipment manufacturers, including Harting, to provide PLC, automation and electrical training to original equipment manufacturers and end users. INTACS can provide training regarding the use of RFID technology, as well as the implementation of RFID into such control systems as the Hi-Bay application.