

## Take product quality to the next level

When it comes to load data acquisition, Jungheinrich relies on HBM. The QuantumX CX22B-W stand-alone data recorder plays a key role in this.

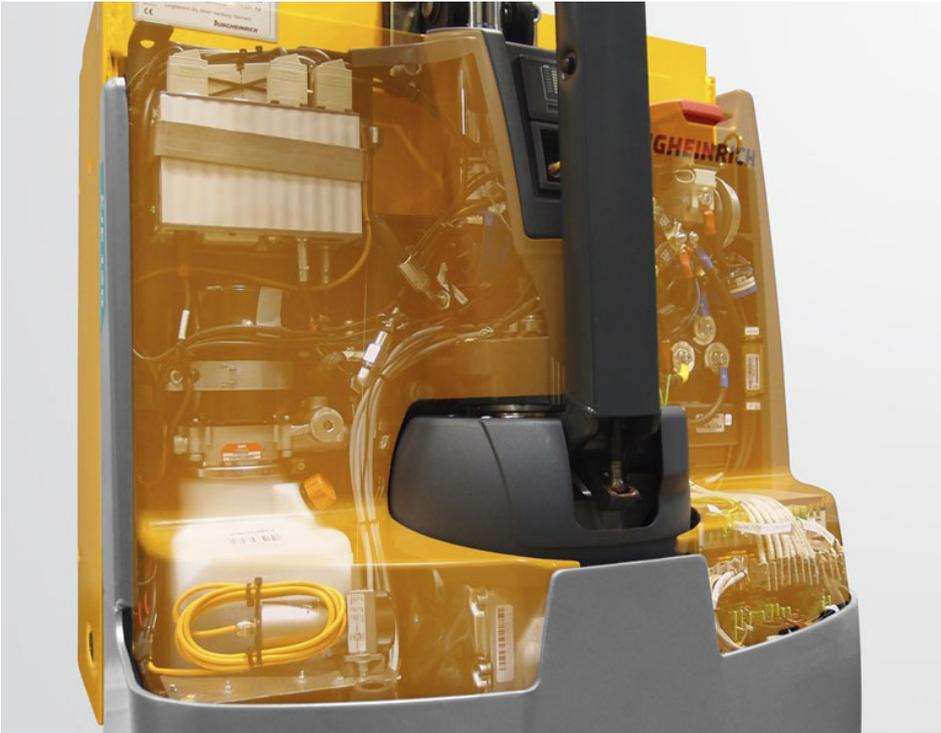


Figure 1: Data recorder and universal amplifier in the EJE series of electric walkie pallet trucks (Source: HBM/Jungheinrich)

Jungheinrich is a manufacturer of forklift, warehouse, and material flow technology. Recently the German company joined the CiA association. The company provides warehouse logistics solutions offering high functionality, reliability, and quality. These are the result of extensive testing prior to and also after the market launch of new products. Jungheinrich relies on extensive product testing at the customers' premises. The insights about actual loads in day-to-day operation gained under real conditions are not only used to validate the values forecast during product development, the specialists also use the practical test results to continuously improve their products.

For measurement and analysis, Jungheinrich relies on solutions from HBM such as the universal QuantumX data acquisition system. The EJE series of electric pedestrian pallet trucks from Jungheinrich allows customers to load and unload trucks and to transport pallets over short distances. The pallet trucks feature a maintenance free three-phase AC motor. Furthermore, the EJE 116 to 120 pedestrian trucks, regardless of their compact dimensions, offer a striking capacity of up to 2 t.

The EJE series' performance data is, amongst other things, a result of the fork lift trucks' quality and continuous optimization. This is why the company performs extensive series of tests, not only during development. As part of their quality assurance and further development program, the pallet truck provider collects valuable data directly on site at select customers - upon consultation with the customer and in compliance with applicable data protection guidelines. The company acquires the required data on the actual device structure in practical use and virtually "undercover" - without any effort to the user or loss of performance. The measurement electronics, invisibly integrated in the pallet truck, autonomously takes the required measurements in day-to-day use.

The QuantumX CX22B-W stand-alone data recorder is the heart of the test and measuring equipment used in this "undercover operation". The compact measurement modules are distributed and invisibly integrated behind the pallet truck cover. The data recorder stores the test data that is either supplied by strain gauges, pressure transducers, current, voltage, acceleration, and temperature sensors or taken from the in-vehicle CAN network directly in the data recorder. Neither connection to a PC nor user intervention is required - the system operates autonomously in the background.

After about two weeks regular day-to-day use, the real-life data is read out on site at the customer's premises. The goal for the future is to implement this via remote access (cellular network) to further reduce personnel requirements. The data packages are subsequently analyzed using nCode Glyphworks software from HBM, a tool for test data analysis in engineering with a focus on durability and fatigue life analysis. The analysis results allow valuable conclusions to be drawn about how loads

Everything from a single source



QuantumX  
CX22B-W stand-alone  
data recorder (Source: HBM)

Jungheinrich has been using reliable test and measurement equipment from HBM for several years now. On the one hand, this is due to straightforward collaboration and fast response to inquiries. On the other hand, HBM provides everything from a single source, complete solutions for the entire measurement chain as well as components offering universal use, scaling, and convenient configuration. Moreover, HBM test and measuring equipment is outstanding for its reliability and high performance. One example of this is the QuantumX data acquisition system used in field testing of EJE type series electric pedestrian pallet trucks: It provides compatibility with the Jungheinrich CANopen network and, in addition, fast disassembly, high sample rates and up to 512-GiB memory capacity. Wireless routers can easily be connected via Ethernet at any time.

affect the structure of a product in practical use. Both the values forecast within the scope of simulations in the development stage and the values determined in the test bench can thus be validated on the basis of actual data acquired in practical use. In addition, the insights gained under real-life conditions provide a basis for the further improvement of products from Jungheinrich. ◀

Based on information by [HBM](#) and [Jungheinrich](#)



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