

Precise Height Measurement with Driverless Forklifts

Compact Cable-Pull Rotary Encoder Can Handle Even Extreme Environments

At a Glance

- Measurement of linear motion up to 60 m without loss of accuracy
- Extensive portfolio possible, up to and including heavy duty
- Cable pull can be combined with any communication interface
- Height detection regardless of optical conditions and harsh environments



The Application

Automated vehicles and automated guided vehicles (AGVs) with driverless navigation are frequently found in production and warehouse logistics. Loading and unloading processes are also being increasingly automated. With driverless forklifts, the respective fork position is fed into the controller. Depending on the operation and application, the AGVs can be on the move in harsh environments and exposed to a variety of influences. These can include dust, dirt, damp and oily air, weather influences, and the constant change between inside and outside.

The Goal

For the forklift to pick up or put down a pallet, the controller must first know the current position of the fork. The fork must be moved precisely to the target position. In high-bay warehouses, this must function reliably over large height differences. The measurement of the fork height must not be affected by dirt, mechanical influences, or environmental influences. The measuring instrument should also fit in the AGV even in confined spaces.

The Solution

The ECA10TL cable-pull rotary encoder detects the height position with the highest accuracy. The sensor is fixed to the AGV, while the cable eyelet is attached to the moving fork. The linear movement of the fork height is converted into a rotation in the cable pull housing and recorded by the integrated absolute value encoder. The precise measured value enables the fork to be positioned exactly at the target height.

The Benefits

The principle of measurement and the technical design of the device guarantee a high degree of ruggedness against external influences. Optical conditions do not play a role. The compact design allows mounting even in very tight spaces and makes operation easier. A wide range of mounting options reduce the installation effort and offer flexibility in placement. An extensive range of interfaces and protocols is available for connection and communication. Moreover, a comprehensive range of accessories allows the cable pulls to be used even under the harshest conditions. Lastly, the coupling-free adaptation of the rotary encoder enables precise information feedback and guarantees reliable processes.

Technical Features

- Solid, lightweight plastic construction
- Compact, extremely slim design
- Coupling-free adaptation
- Wide range of mounting options
- Rust- and acid-resistant measuring cable
- Very high linearity and repeat accuracy
- Scalable measuring range

