



Tracking control of gantry and overhead cranes

Gantry and overhead cranes are guided on rails. Rail-guiding elements (wheel flanges, guide pulleys) ensure that the crane stays on the rails. Due to uneven distribution of mass, track errors, rails offset and different driving speeds, the rail-guiding elements can mesh. The lateral forces arising from this can lead to noise, stress in the crane construction or wear of the wheels and rails. Machines of this type require considerable maintenance. In order to reduce the latter, so-called tracking controllers are used in order to ensure that the crane wheels are kept central to the rail track.

This feature is achieved by separately controlling both sides of the crane drive. In this case, a number of sensors keep the controller informed about the position and direction of the crane, as well as any deviations that occur. Inductive sensors are normally applied for such tasks. However, because their adjustment takes considerable time and they can come too close to the rails under unfavourable conditions, company LEHNERT is using laser scanners from Micro-Epsilon on its „LENNIX.Foxtrot“ tracking controller to fulfil the highest requirements in terms of precision and wear resistance. These sensors measure the distance profile using a laser line and provide the exact linear edge position for position control of the gantry crane.

Advantages

- Easy sensor adjustment and parameter set up
- Exact linear detection of edge position
- High resolution
- High electromagnetic compatibility (EMC)
- Comparatively large measuring range and higher measurement distance
- Low risk of damage

Requirements for the measurement system

- Compact sensor without external controller
- Only one cable to the sensor/power supply due to PoE power supply

System design

- 2 x Laser scanners LLT2610-100
- Software Configuration Tools
- 2 x SC2600/2900-10 sensor cables