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LED display system and touch panel regulate rope-driving regulation in potash mine

Minimal technical effort, maximum benefit:
Simple order basket by basket

700 metres into the depths every day - and back up again at the end of the (working) day. The destination of the long journey: Potash mining at the Zielitz plant of K+S Minerals and Agriculture GmbH. A so-called rope-driving regulation ensures order and smooth cycles in the operation of the shaft (the lift to the underground). To ensure that this is easy for everyone to understand, an LED-based display system and touch panel from the system electronics provider microSYST records and visualises the status of the shaft in real time.

Advantages at a glance

- Process optimisation thanks to real-time visualisation
- Avoidance of wrong turns and overloading
- Maintenance-free electronics designed for use in harsh environments

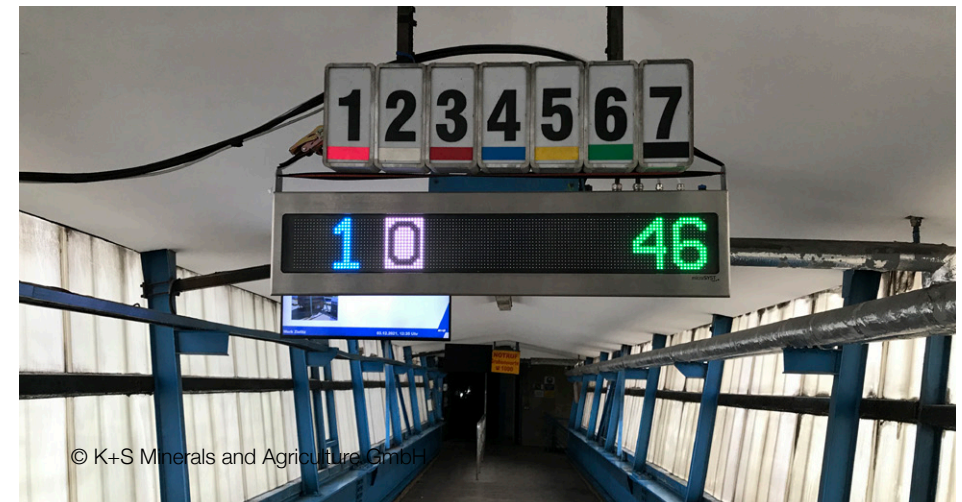


Challenge: complex rope driving regulations

„The rope driving order is eminently important for the process in the mine. Up to 500 miners have to be transported in various lift movements, called baskets in mineworking. Between the total of eight baskets for transporting people, material handling also takes place via the system. The shaft is therefore not at all comparable to an ordinary lift,“ explains Thomas Schulz, the mine’s electrical engineer. The rope travels for employees and material, including the loading of the baskets, are therefore precisely timed. In case of incorrect loading, the entire system is in danger of collapsing. A colour system was introduced to ensure order and efficient operations: Thus, the morning shift begins with basket 1, also called basket „pink“, with the first rope run and ends with basket 7, „black“. In the evening and night shifts there are additional basket groupings - basket „pink“ and basket „white“ (1 & 2), for example, are grouped together because there are fewer employees working. Each worker is clearly assigned to a basket for entering and leaving the mine. A coloured sticker on his mine lamp, matching the basket colour, indicates this.

The solution: digital, intuitive, simple

In order to provide employees with an overview of the status of the mine shaft prior to their trips, microSYST installed two slimline display systems, each with two main components: a graphics-capable LED display from the migra series and a particularly robust touch panel from the mitex TFT series. The system was installed both in the mine driveway and above the surface at the entrance to the mine. The display signals to the waiting employees which basket is currently moving and how much space is left on the basket. The constant, maximum number of passengers is also visualised.



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A light barrier is also connected to the display, which counts each employee who has passed through. When 87 people have been counted, the colour of the display changes from green to yellow and an intermediate horn sounds. At the maximum permitted number of 92 persons per basket, the display colour turns red and the horn sounds twice - simple, intuitive, understandable. On the touch panel, which is also installed, an authorised employee can select the colour of the shift or basket (e.g. „pink“ for the morning shift) in order to manually change the visualisation on the display.



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In addition to the different shifts, malfunctions or other messages can also be shown on the display. In accordance with the requirements in the mine - darkness, crude salts, dust exposure - the LED system impresses with luminous as well as high-contrast, yet fanless and maintenance-free technology. The robust „packaging“ in a stainless steel housing completes the picture.

Flexible solution for everyday mine life

„The digital display technology not only facilitates visibility. In addition, we can react more quickly to changes in the rope driving regulations, for example due to Corona or repair phases during the summer break,“ Schulz sums up the benefit in everyday mine life. „The fact that the microSYST team was able to implement all of this without any problems and in an extremely demand-oriented manner of course made it easier to switch to the digital LED solution.“



Advantages at a glance

- Process adaptation just in time
- Easy operation via touch panel
- Very good readability for the operator