ELVAC

Reference sheet

Industrial Automation

Reference name: Measuring the electrical resistance of wheelsets

Supplier: ELVAC a.s.
Customer: BONATRANS INDIA PRIVATE LIMITE
Market segment: Metallurgy and mechanical engineering
Year of implementation: 2016

Introductory text:

The customer's request was to design a technical solution and implement a device for measuring the electrical resistance of wheelsets, including a connection system (magnetic) for railway wheels, in accordance with applicable safety and legal regulations.
The electrical resistance of each wheelset, measured between the running surfaces of the two wheels, must not exceed 0.01 ohm.
We supplied the same device to Bonatrans Bohumín in 2011.

Application description:

The solution is based on a powerful power supply with a constant voltage mode and automatic transition to constant current mode when the limit is reached. The measuring circuit is equipped with current and voltage measurement on the attached magnetic probes. The system works automatically, the measuring cycle is started by the operator. The real value of the wheelset resistance is around 0.001 ohm. Required values: - Max. current 250A - Test voltage 1.8 - 2.0V. The result is displayed on a panel computer in milliohms.
The scope of delivery was 2 calibration standards. The system is equipped with a built-in panel computer with a touch screen for power supply control, measurement evaluation, data archiving and connection to the corporate computer network. A barcode reader is used to identify the worker and the measured wheelset. The device is delivered on a trolley/mobile table for easy transport around the production hall. The measurement scheme is based on the above-described power supply with a set voltage of 2V (feedback from the measuring probes) and a current limit of 250A, current measurement with a sensor with a Hall probe and voltage measurement on the applied probes (four-wire resistance measurement method).

Products and technologies used:

- 300A power supply
- IEC Integra PRO
- Mobile trolley
- 2 pcs of test standards
- Custom SW

Photo:

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