WACHENDORFF
The Encoder Experts

Test Bench

WDGA absolute encoder as reference sensor

DEVELOPED AND
MADE IN GERMANY
5 YEARS WARRANTY

Reference speed
High resolution measurement
Customized protocol
Easy integration
Compact and robust

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LISTED

Industrie ROBUST

The real speed over ground
... speed measurement and odometry.

Source Wikipedia: Odometry (...) refers to a method of estimating the position and orientation (attitude estimation) of a mobile system using data from its propulsion system.

HaslerRail AG, based in Bern/Switzerland, offers a comprehensive range of on-board electronics for railroad applications and control systems.
Among other things, rail vehicles require robust and reliable speed measurement functions to ensure safe, reliable and smooth operation. HaslerRail offers here a complete, long-standing portfolio of speed sensors and related products.

HaslerRail speed sensors have been found in rail vehicles of all types for more than a century. With the non-contact CORRail®1000 - based on the principle of a Spatial Filtering Velocimetry, a non-contact optical measurement system - HaslerRail offers a reliable and very robust speed sensor for True-Speed-Over-Ground (TSOG) measurement.
These optical systems are designed to withstand extreme conditions, are non-slip and can withstand high mechanical stresses.
The sensor is a trackbed-independent, non-slip sensor that performs objective measurements. It directly measures the speed and direction of travel of a vehicle using the rail head as a reference.

Sécheron Hasler GmbH in Wetzlar, a development center of the group, is already working on the next generation of a TSOG sensor. In the course of this R&D project, the test rig used to excite and calibrate the new type of TSOG sensor is also being redesigned.

Thorsten Schreiner, development engineer at Sécheron Hasler in Wetzlar, explains: „In addition to the experimental determination of a suitable surface for the measuring wheel to be set in rotation, there is the need to record a highly precise reference speed (= actual speed). In particular, low speeds, respectively start-stop as well as dynamic aspects were the focus of the selection of a suitable sensor system. The choice fell on an absolute encoder from Wachendorff Automation as the reference sensor. The decisive factors here were the high resolution, the configurable serial RS485 interface and, last but not least, the compactness of the WDGA36E encoder from Wachendorff, as the space in the test stand is quite limited. To meet the test concept, Wachendorff Automation made adjustments to the encoder for us in a very short time: The baud rate and the start and stop bits were adapted according to our wishes and the cycle time was set to 10 ms. The adjustments to the serial protocol made it possible to easily integrate the encoder into the test setup.“

Thorsten Schreiner continues, „All of our devices go through an end-of-line test at the end of production and are also finally calibrated here. The new test concept provides that in the future the constant latency time of the HaslerRail sensors will also be determined and documented in order to be able to prove this to inquiring, critical customers.
With the previous test bench, we were also able to make such measurements, but unfortunately somewhat limited and there was a certain fuzziness of approx. 100 milliseconds, due to the setup. From the theory, a value of 40 ms can be assumed.
By integrating the encoder from Wachendorff into the test stand, with its internal cycle time of 10 ms, we can now objectively measure this value and thus also clearly prove it to customers.“

Based on the very positive experience with the WDGA encoder from Wachendorff, the company is considering not only integrating the encoder into new test stands, but also converting or retrofitting existing test stands if necessary.

Absolute encoder WDGA 36E RS485
... highly precise and highly dynamic, robust

- Hollow shaft (blind-bored): Ø 6 mm, Ø 1/4“,
- CRC checksum
- EnDra® multi-turn technology: maintenance-free and environmentally friendly
- Single-/Multi-turn (max. 16 bit /32 bit)
- Interface: RS485
- Preset input
- Direction of counting changeable
- 2-color LED for status signaling
- EMC: EN 61000-6-2, EN 61000-6-3
- Compact and robust industrial design

More information:
www.wachendorff-automation.com/wdga36ers485

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WA2101_1:
In Germany, for example, the HaslerRail speed sensor is used on the ICE.

WA2101_2:
Development engineer Thorsten Schreiner from Sécheron Hasler in Wetzlar during the redesign of the test bench.

WA2101_3:
Calibration of the optical sensor system and final testing.

WA2101_4:
The absolute rencoder from Wachendorff Automation acts as a reference sensor in the test stand.
The decisive factors in the choice of the WDGA36E from Wachendorff are the high resolution, the configurable serial RS485 interface, the very short cycle time and, last but not least, the compactness of the encoder, as the space in the test stand is quite limited.

Encoder

Any Questions? Just call us at +49 (0) 67 22 / 99 65 414, send us an E-Mail to support-wa@wachendorff.de or call your local distributor: **www.wachendorff-automation.com/distri**

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