**Redefining high-end applications:  
The ERP 1000 modular angle encoder from HEIDENHAIN**

*The ERP 1000 family of angle encoders was developed by HEIDENHAIN for applications requiring exceptionally constant speed control or high position stability at standstill. The outstanding characteristics needed for such demanding applications come from these encoders’ special design, which includes numerous circular scale variants and the HSP 1.0 signal processing ASIC from HEIDENHAIN.*

The new ERP 1000 optical scanning angle encoder series from HEIDENHAIN is redefining angular measurement capability in high-end applications. This is particularly evident in how flexibly these encoders can be integrated into the machine manufacturer’s complete system, as well as in their accuracy and the robustness of their measured value acquisition. Key factors in these characteristics are the combination of a modular design and the first-ever use of the HEIDENHAIN HSP 1.0 signal processing ASIC in an angle encoder.

**Flexibility thanks to a wide range of variants**

The high flexibility with which the ERP 1000 can be adapted to the customer’s specific application is achieved through an extensive variety of variants with different circular scale sizes. These variants are available as full-circle and segment versions in diameters of 57 mm, 75 mm, 109 mm, and 151 mm, thus allowing them to perfectly accommodate nearly any requirement. Their compact dimensions as well as the very low weight of their scanning heads and circular scales also contribute to their flexibility. The scanning head is just 26 mm long, 12.7 mm high, and 6.8 mm wide, and weighs only 5 g. The circular scales are no more than 10.2 mm high, and the lightest full-circle scale weighs just 57 g. These dimensions and weights impose almost no limits on how these encoders can be deployed. The ERP 1000 modular angle encoders can be installed to space-saving effect and offer low masses and mass moments of inertia for use in highly dynamic applications.

**Optical scanning for outstanding accuracy**

The measuring standard of the ERP 1000 family of angle encoders is an OPTODUR graduation on glass. Depending on their diameters, the different circular scales feature signal periods of 23 000, 30 000, 50 000 or 63 000. In combination with the HEIDENHAIN HSP 1.0 signal processing ASIC, which is now being used in an angle encoder for the first time with the ERP 1000, the modular angle encoders achieve accuracy grades of down to ±0.9 arc seconds at exceptional signal quality. They achieve an interpolation error down to ±0.02 arc seconds, and their RMS position noise can be as low as 0.002 arc seconds. All of this is possible in highly dynamic applications with very high shaft speeds of up to 2600 rpm. At the same time, noise immunity during scanning ensures high reliability during operation.

**Generous mounting and operating tolerances**

As a non-paired system, all versions of the ERP 1000 modular angle encoders offer generous mounting and operating tolerances, as well as convenience in mounting. For example, an ERP 1000 achieves very good measurement accuracies, even if the mounting surface for the circular scale has not been machined to absolute perfection. However, the better the mounting conditions are, the higher are the achievable accuracies in the application. For the electrical connection of the scanning head to the control on the machine, a wide selection of cables and connectors is available. In addition, all of the scanning heads are available in a variety of cable lengths in order to offer the optimum solution, even in situations with low installation space. The incremental signals and the reference signal are electronically adjusted automatically and conveniently with the mounting assistants of the ATS software and the HEIDENHAIN PWM 21 testing device. This capability facilitates mounting and further simplifies the adjustment process.

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|  | *The new HEIDENHAIN ERP 1000 angle encoders: accurate and robust measured-value acquisition combined with a variety of integration options.* |
|  | *Particularly flexible: the segment versions of the HEIDENHAIN ERP 1000 modular angle encoder can be adapted to any mounting situation and yield highly accurate position values.* |
|  | *The HEIDENHAIN HSP 1.0 signal processing ASIC: contamination on the measuring standard has no effect on the signal quality.* |

**HEIDENHAIN at CONTROL 2019: Hall 4, Booth 4503**

***For more information, visit:***

[https://control.heidenhain.de/en/](https://control.heidenhain.de/)

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