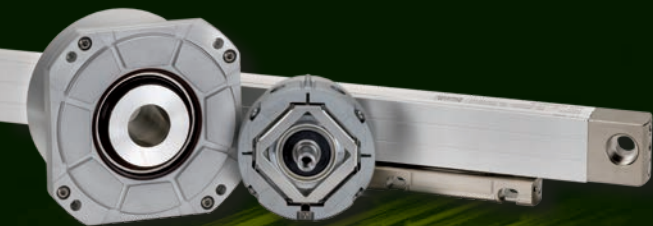


# HEIDENHAIN



## EnDat



**Functional  
Safety**

## EnDat

Proven Interface Technology  
Continuously Further Developed

EnDat is not only fast, high-output, and safe, but also universally deployable. That's why EnDat has long been a well-established interface in the **automation, machine tool, and electronics** industries. EnDat lets you expand the capabilities within your application to create true added value. Find out more about EnDat at [www.endat.de](http://www.endat.de).

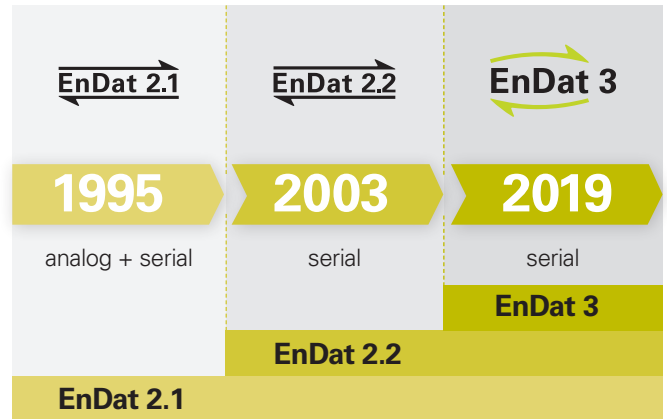
EnDat is a digital, bidirectional interface between the encoder and the downstream electronics. Along with position values, EnDat can transmit additional data for a variety of uses, including evaluation of an encoder's function reserve through online diagnostics. EnDat also gives you access to the encoder's internal memory for reading the electronic ID label, storing operating-status data, and more.

With EnDat, you benefit from a proven and scalable interface technology:

- Fast data transmission between the encoder and downstream electronics
- High transmission reliability and noise immunity
- A proven track record of over 20 years in diverse applications
- Continual further development

- Future-ready technology  
 - Flexible machine designs  
 - Wide range of encoders

[www.endat.de](http://www.endat.de)



**Added value  
for your application**

**Innovation based  
on continuity**

### Product portfolio

EnDat lets you use a wide range of encoders from various manufacturers.



### Universal

- Broad selection of encoders from various manufacturers
- Easy cabling and integration of additional sensors

### High-performance

- Short cycle times
- High bandwidth

### Communicative

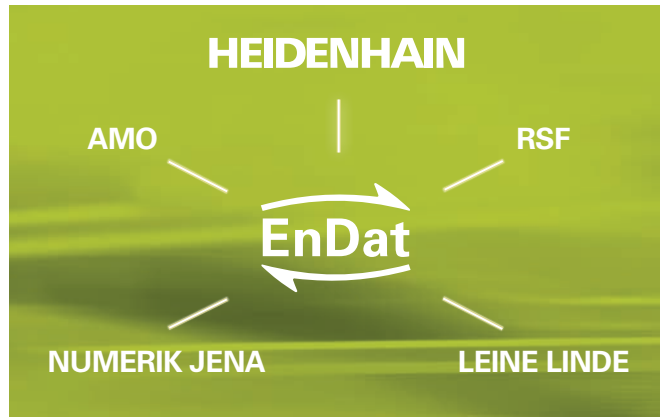
- Transmission of position values and sensor data
- Extensive system monitoring for Industry 4.0

### Diagnostics-capable

- Electronic ID label for automatic system installation
- Online encoder diagnostics
- Storage of operating status data

### Safe

- For safety-related applications up to SIL 3



**Wide range  
of encoders**

**Flexible  
within the application**



## EnDat 3

### Hybrid cable

- Purely serial, two-wire transmission with the HMC 2 hybrid cable
- Standard cable and connectors

### Functional safety

- Up to SIL 3
- Black-channel communication

### Sensor integration

- Simple integration of an external motor temperature sensor (KTY 84, PT 1000)

### System monitoring

- Easy initial operation
- Diagnostics
- Electronic ID label (for motor, encoder, and machine)

## EnDat 3 further development

- Operating status data acquisition through the encoder
- Bus operation for three axes with 30  $\mu$ s cycle time
- Transmission of additional position data for multidimensional measurement technology
- Support for other external sensors

## EnDat 2.2

### Hybrid cable

- Purely serial, six-wire transmission with the HMC 6 hybrid motor cable

Future development of EnDat 3

Forward-looking  
further development

DR. JOHANNES HEIDENHAIN GmbH develops and manufactures linear encoders, angle encoders, rotary encoders, digital readouts, touch probes, and numerical controls. With its products, HEIDENHAIN supplies machine tool manufacturers and producers of automated equipment and machines, especially for the semiconductor and electronics manufacturing industries.

HEIDENHAIN is represented in all industrialized countries—primarily through wholly owned subsidiaries. Sales engineers and service technicians support the user on-site with advisory services and servicing.



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