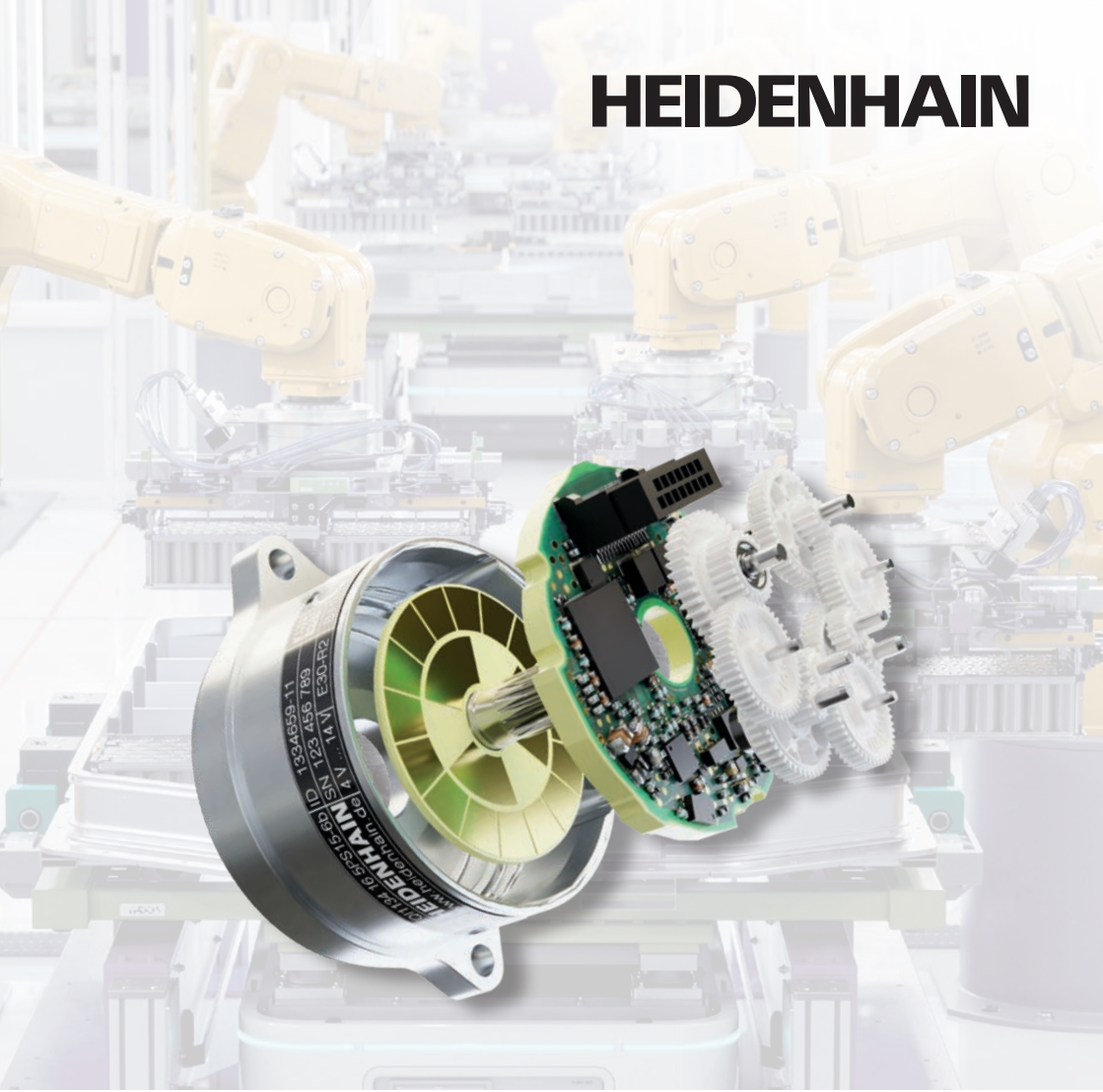
HEIDENHAIN



Rotary Encoder Platform: ECI/EQI 1100 and ECI/EQI 1300

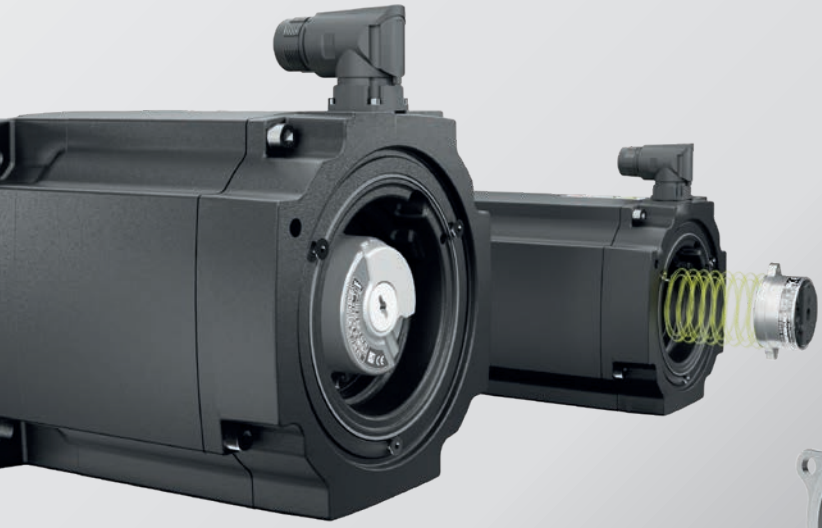
Optimal solutions for your applications

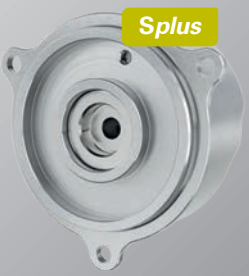
www.heidenhain.com/products/rotary-encoders/internal

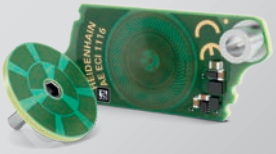
Next-generation motor feedback

The ECI/EQI platform offers inductive rotary encoders with a mutually compatible mounting design and easy installation, resulting in greater versatility, time savings and reduced costs. Their high-resolution inductive scanning technology and ability to collect operating data make them the optimal choice for servomotors of all performance levels.

- High resolutions of up to 23 bits per revolution
- Tracking of encoder operating data
- HMC 2 single-cable technology with the EnDat 3 interface
- Certified for functionally safe applications with up to SIL 3
- Versatile mounting options thanks to mutual mounting compatibility







ECI 1116

ECI 1119
EQI 1131

ECI 1323
EQI 1335

ECI 1122
EQI 1134

ECI 1323
EQI 1335

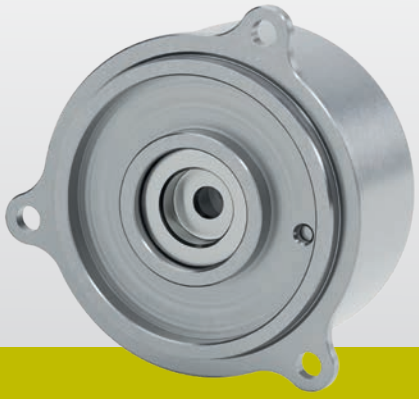
Performance level

ECI/EQI rotary encoder platform

	ECI/EQI 1100	
	ECI 1116	**ECI 1119/EQI 1131**
Positions per revolution	65536 (16 bits)	524288 (19 bits)
Revolutions	–	–/4096 (12 bits)
Functional safety	SIL 2*	SIL 2*
System accuracy	±240''	±120''
Shaft speed for singleturn/ multiturn	≤ 9000 rpm	≤ 12000 rpm ≤ 8000 rpm
Axial tolerance	±0.4 mm	±0.5 mm
Operating temperature	–40 °C to +110 °C	–20 °C to +115 °C
External temperature sensor	KTY, PT1000	KTY, PT1000
Operating data	✓	✓
Built-in vibration analysis	–	–

* SIL 3 possible after additional measures taken in the downstream electronics

		ECI/EQI 1300	
	ECI 1122/EQI 1134	**ECI 1323/EQI 1335**	**ECI 1323 S*plus*/ EQI 1335 S*plus***
	4 194 304 (22 bits)	8 388 608 (23 bits)	8 388 608 (23 bits)
	–/4096 (12 bits)	–/4096 (12 bits)	–/4096 (12 bits)
	SIL 3	SIL 3	–
	±65″	±40″	±40″
	≤ 15 000 rpm ≤ 12 000 rpm	≤ 15 000 rpm ≤ 12 000 rpm	≤ 15 000 rpm ≤ 12 000 rpm
	±0.4 mm	±0.5 mm	±0.5 mm
	–40 °C to +115 °C	–40 °C to +115 °C	–40 °C to +115 °C
	KTY, PT1000	KTY, PT1000	KTY, PT1000
	✓	✓	✓
	–	–	✓



System monitoring

Operating data collection and diagnostics with EnDat 3

Today's machines are able to monitor themselves, track their own wear and even self-optimize during operation. But this is possible only if a machine can exchange information between its servomotors, sensors and control unit. HEIDENHAIN encoders support this capability by enabling extensive intra-machine communication while providing functions that enhance the reliability and efficiency of servomotors.

HMC 2 hybrid motor cable
Cost and quality benefits from the HEIDENHAIN single-cable solution

Functional safety
Suitability for functionally safe applications up to SIL 3

Temperature tracking
Early detection of wear and excessive loading on the motor-shaft bearing through temperature feedback from the HEIDENHAIN rotary encoder; this feedback is sent to the drive via the EnDat interface

Scanning-gap tracking
Output of the inductive encoder's scanning gap to detect phenomena such as high forces acting on the motor shaft during operation

Diagnostics
Cyclical output of valuation numbers during normal operation for verifying proper encoder functioning

Operating data

New

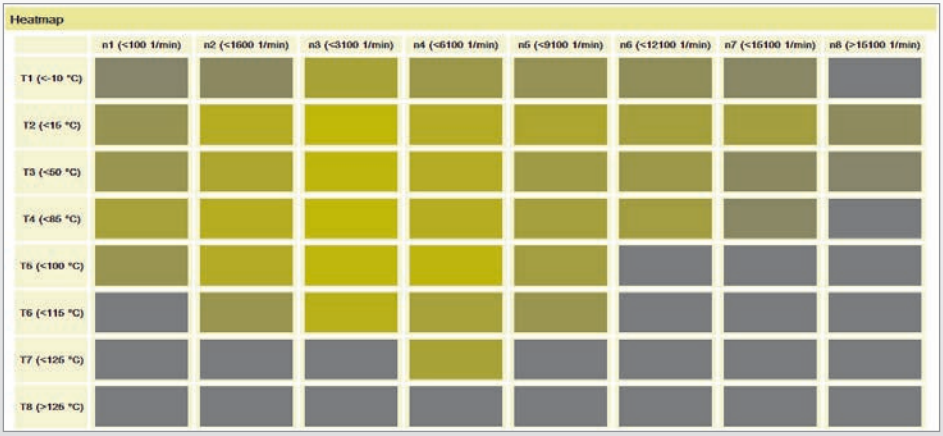
These next-generation inductive encoders are the first to offer operating data collection. During operation, the following types of data are collected and stored in the encoder's non-volatile memory:

- Periodic data: performance data, histogram and operating statuses
- Conditional data: Extreme values for temperature, shaft speed and more
- Status-triggered data: Logging of error messages and warnings (e.g., regarding the position, temperature or speed, including a time stamp)

Collecting this application-specific data enables:

- Condition monitoring
- Support during servicing
- Quality management

The data can be retrieved directly over the EnDat 3 interface or by a HEIDENHAIN testing or inspection device. The ATS software from HEIDENHAIN allows users to visualize the collected data in tables and histograms.



A typical heat map (showing temperature relative to shaft speed during operation)

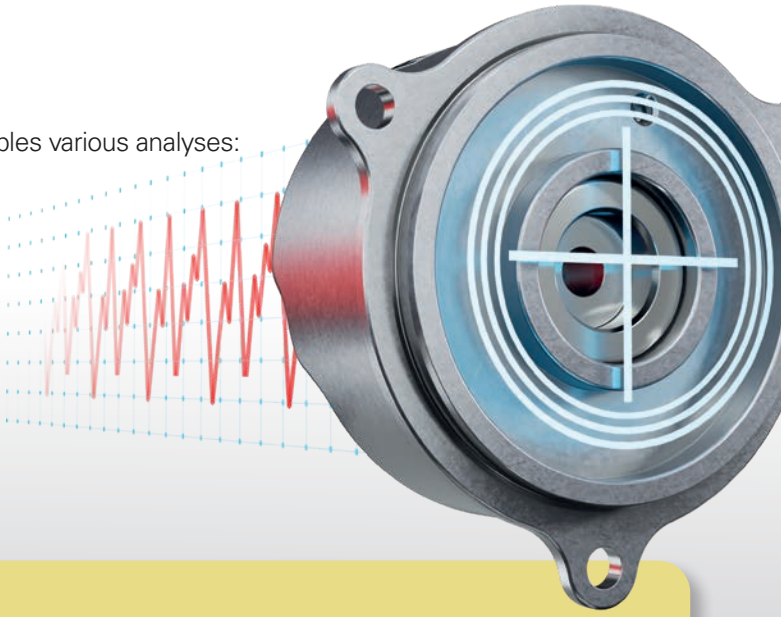
Operating status monitoring with S*plus*

The ECI 1323 S*plus* and EQI 1335 S*plus* rotary encoders

Featuring a built-in 3D accelerometer with vibration analysis performed inside the encoder, the ECI 1323 S*plus* and EQI 1335 S*plus* inductive rotary encoders are a highly efficient solution for operating status monitoring. With this added functionality, users can detect damage to rotating machine components at an early stage.

S*plus* technology enables various analyses:

- RMS value (root mean square)
- Frequency analysis
- Order analysis



Thanks to high-performance vibration analysis inside the encoder, the additional feedback from HEIDENHAIN *Splus* technology unlocks new approaches to process optimization:

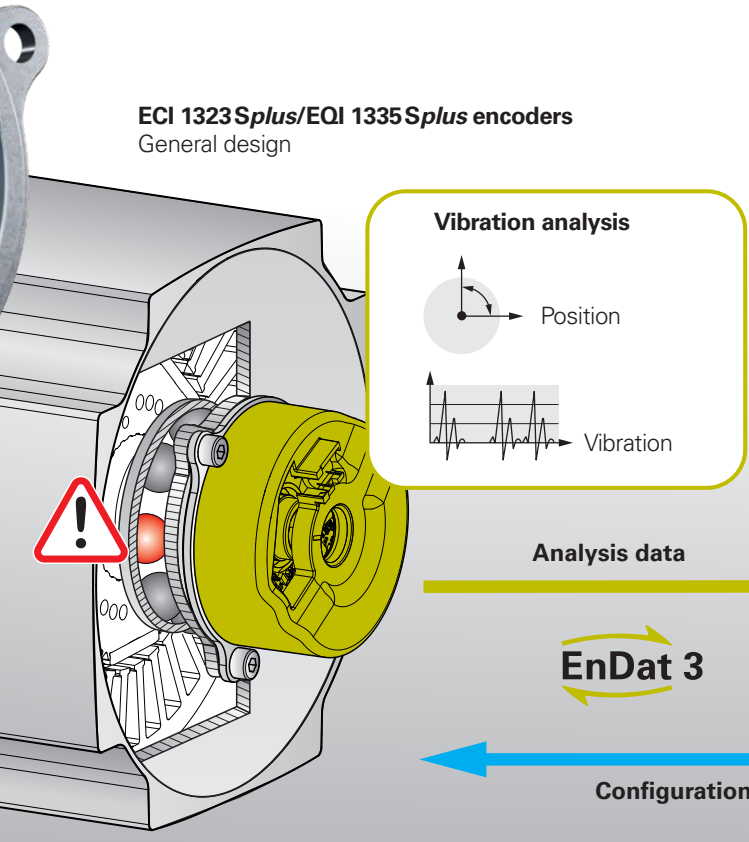
+ Identification of the damaged part through frequency and order analysis
+ Effective in-process operating status monitoring
+ Low hardware costs thanks to full integration within the encoder

New

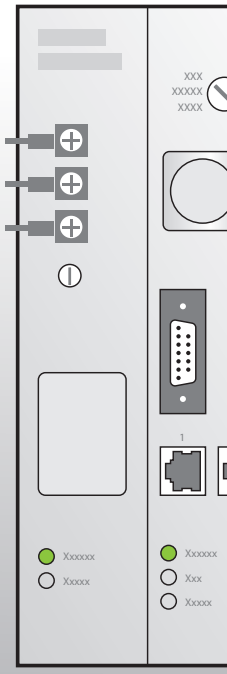
S*plus* functionality

- Detailed position and vibration data are provided by the encoder.
- Acceleration signals are collected and processed inside the encoder, providing vibration analysis.
- Synchronized position and acceleration signals enable order analysis.
- Data transmission and configuration are performed via the high-performance EnDat 3 interface.

ECI 1323 S*plus*/EQI 1335 S*plus* encoders
General design



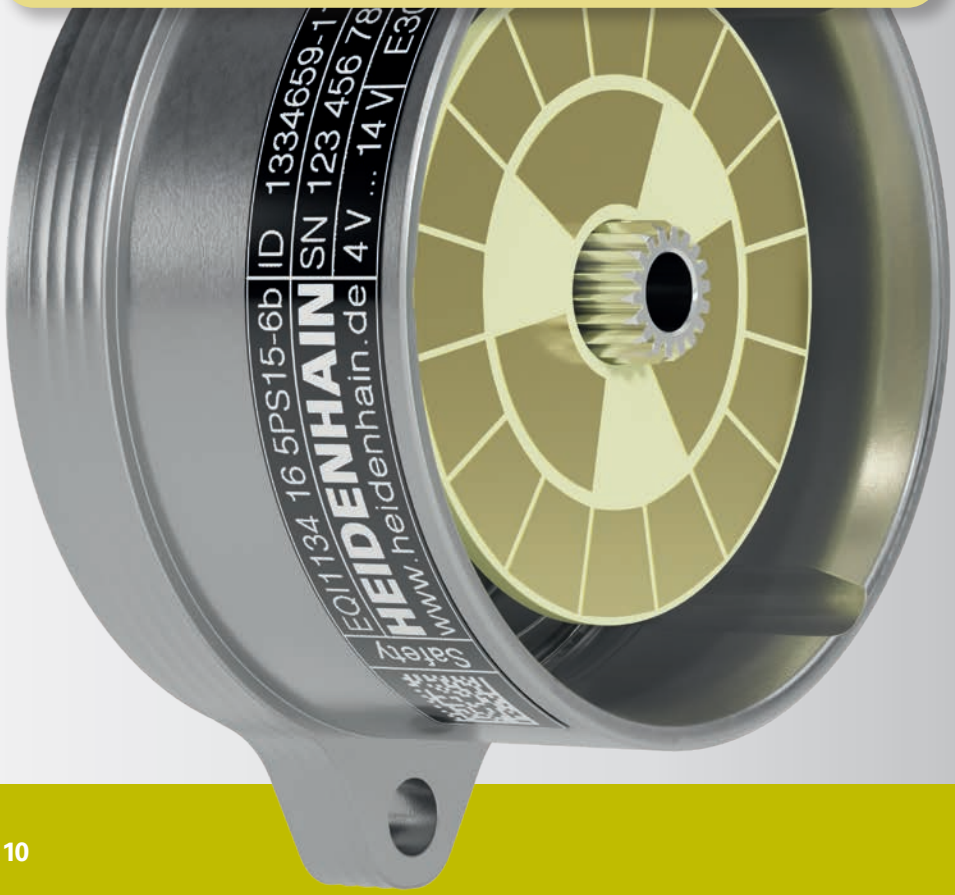
Controller



Inductive scanning

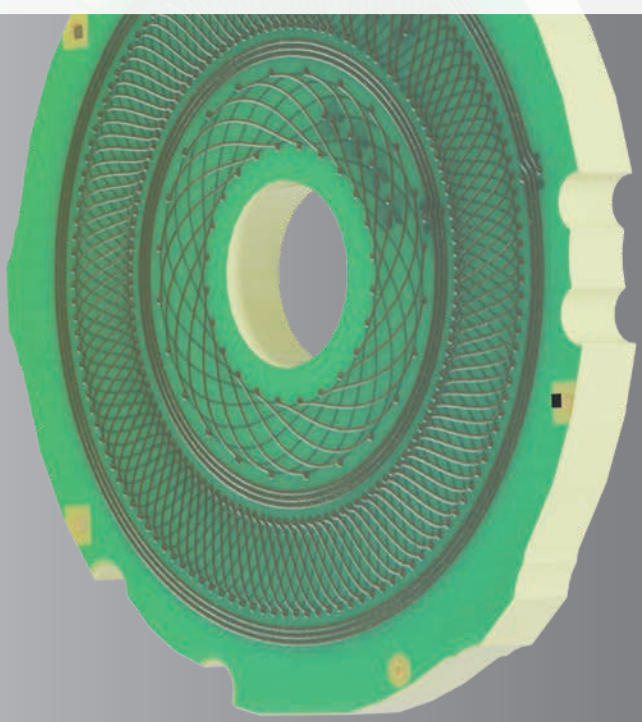
Robust, reliable and accurate

The ECI/EQI rotary encoders utilize inductive scanning technology. These inductive rotary encoders are made up of a graduated disk featuring copper-alloy graduation structures accompanied by a scanning unit equipped with a field coil and multiple receiver coils. As the graduated disk rotates, the amplitude and phase of the resulting high-frequency signal are modulated. Thanks to circumferential scanning, the signals from all receiver coils are used to determine the position value. Highly robust scanning, wide mounting tolerances and high resolution are the result.



Inductive scanning: easy and reliable position feedback

- Contamination-resistant, inductive circumferential scanning
- High mechanical loading possible (shock and vibration)
- Convenient installation
- Wide mounting tolerances of up to ±0.5 mm
- No calibration required
- High immunity to magnetic fields

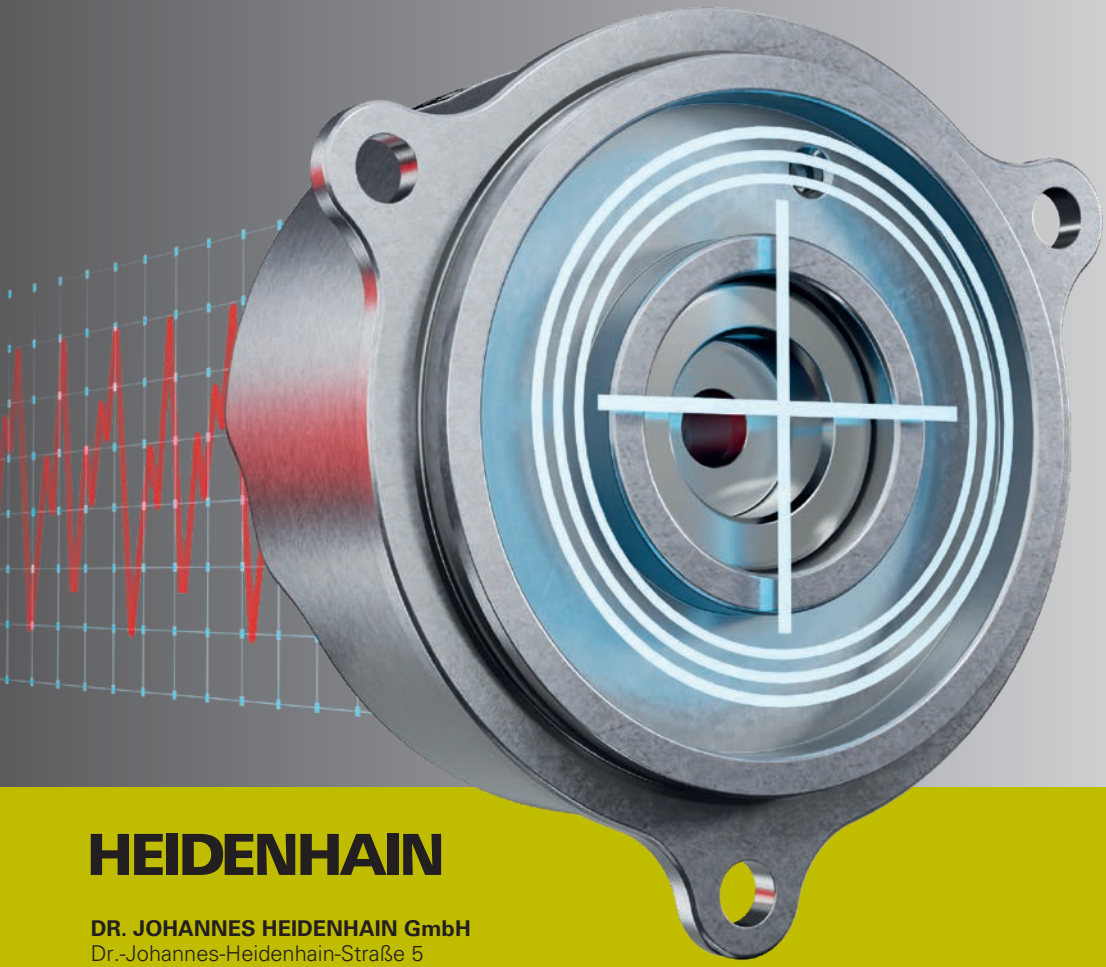


Get more out of your servomotors

The rotary encoders of the ECI/EQI platform offer key benefits for compact servomotors in automation applications, including low noise, low speed ripple, streamlined cabling and operating data tracking.

EnDat 2.2

EnDat 3



HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH
Dr.-Johannes-Heidenhain-Straße 5
83301 Traunreut, Germany
☎ +49 8669 31-0
FAX +49 8669 32-5061
info@heidenhain.de

www.heidenhain.com

1465030-22 · 05/2026 · PDF