

ROTARY ENCODERS

Reliable Motion Feedback for Elevator Systems

Built for Reliability. Trusted for Safety.

Rotary encoders for elevator applications

Elevators operate in some of the world's most demanding environments, where safety, uptime, and positioning accuracy are critical to passenger confidence and building performance. Whether used in traction drives, machine-room-less systems, door control applications, or modernization projects, rotary encoders play an essential role in ensuring smooth motion control, precise floor positioning, and safe operation throughout the life of the elevator.

Hengstler rotary encoders provide reliable position and speed feedback for elevator systems worldwide. Designed for long service life and dependable operation, our encoder portfolio helps elevator manufacturers and integrators improve system performance while reducing maintenance requirements and unplanned downtime. With robust mechanical construction, high immunity to electrical interference, and a wide range of interfaces and mounting configurations, Hengstler solutions support both new installations and retrofit applications.

Examples of typical application:

- Traction motors
- Gearless drives
- Elevator door control
- Elevator modernization
- Escalators
- Moving walkways

Meeting the demands of modern elevator systems

Elevator manufacturers, modernization providers, and service organizations face increasing pressure to improve system availability, reduce maintenance costs, and meet evolving safety expectations. As buildings become smarter and passenger expectations continue to rise, motion control systems must deliver precise positioning, smooth ride quality, and dependable operation throughout the life of the elevator. Hengstler-Dynapar encoders help address these challenges by providing the reliable position and speed feedback needed to support safe, efficient, and high-performance elevator operation.

Reliability & Uptime:

- Reliable position and speed feedback for continuous operation
- Robust designs engineered for long service life
- High resistance to shock, vibration, and electrical noise
- Reduced maintenance requirements
- Consistent performance in demanding operating environments

Safety & Compliance:

- Accurate positioning for smooth floor leveling and passenger comfort
- Reliable feedback for safe motion control
- Support for elevator control architectures requiring dependable position data
- High EMC resistance for operation in electrically noisy environments
- Designed for integration into safety-focused elevator systems



175,000+
encoders
installations
deployed
worldwide.

Motion feedback solutions for elevator systems

Reliable elevator performance starts with accurate motion feedback. From traction motors that move passengers between floors to door systems that operate continuously throughout the day, encoders provide the position and speed information required for safe, smooth, and efficient elevator operation.

Elevator Traction Motor Application

Traction motors require precise feedback to control speed, direction, and positioning. Incremental encoders provide reliable speed and direction feedback for motor control, while absolute encoders deliver immediate position information for precise commutation, floor leveling, and gearless drive systems.

Key benefits:

- Smooth ride quality
- Precise positioning and leveling
- Reliable speed feedback
- Support for geared and gearless drives

Elevator Door Motor Application

Door systems are among the most frequently used components in any elevator. Compact encoders provide the position and speed feedback needed to ensure smooth opening and closing, consistent operation, and long service life.

Key benefits:

- Smooth door operation
- Reliable position feedback
- Compact installation
- High-cycle durability

To support these applications, Hengstler offers a portfolio of incremental, absolute, and compact encoder solutions engineered for reliable elevator performance.

Elevator Digital Shaft Copy Application

For higher flexibility inside of shafts, a belt / cord based digital shaft copy system tracks the position of elevator car based on an incremental or absolute multiturn encoder. Position can be programmed after installation and do not need fine adjustment of single switches per stop position.

Key benefits:

- Easy programming after installation
- Independent on single position sensors / cabin load
- Available with incremental, Absolute Multiturn SSI or CANOpen LIFT interface
- ATEX protection optional

Elevator Overspeed Governor Application

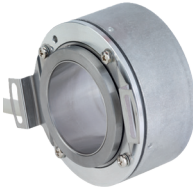
Mechanical overspeed governors can be extended with speed sensors that also provide electrical speed information.

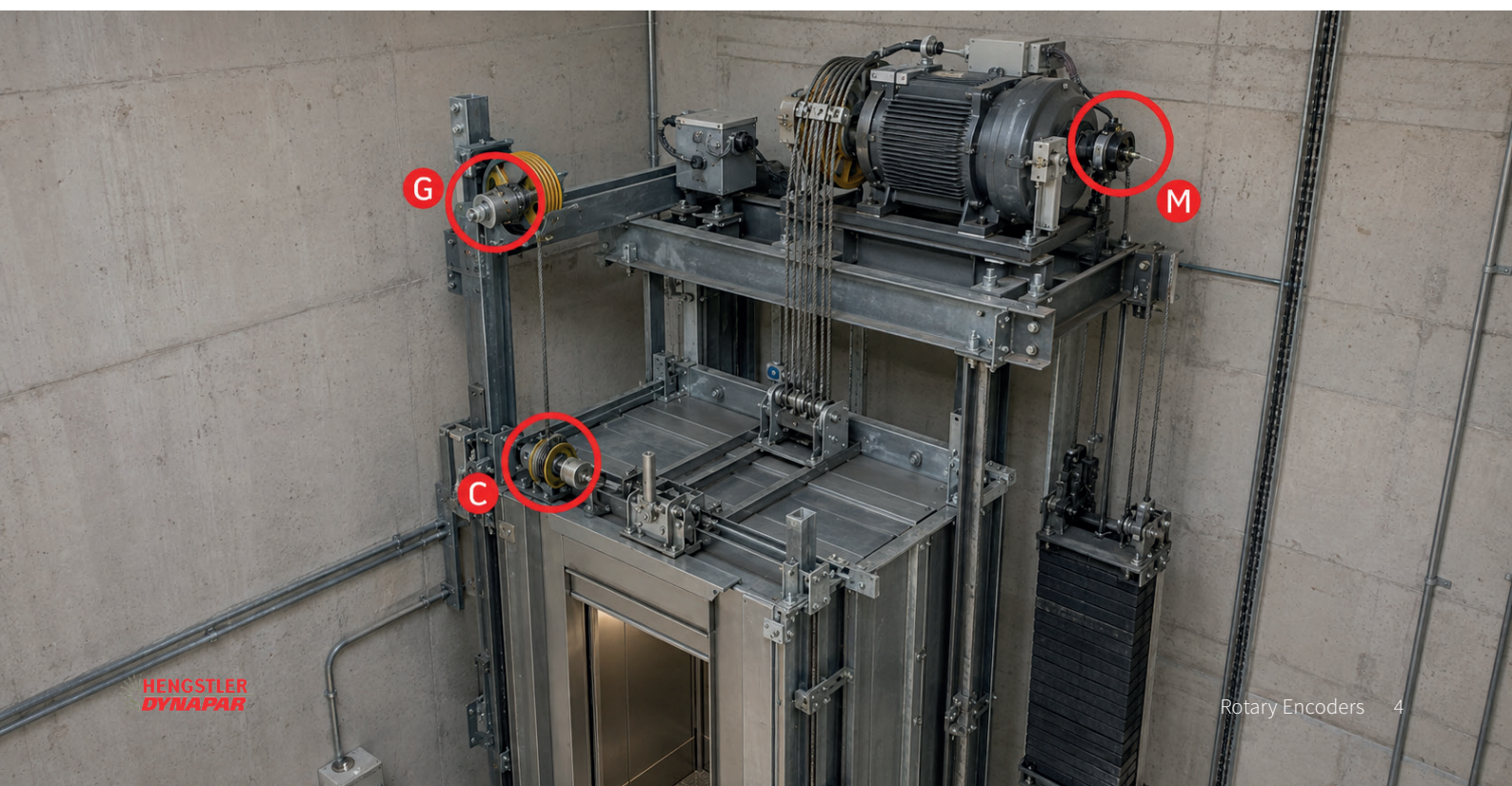
Key benefits:

- Small-size encoders
- High interference protection
- Suitable for high pulse frequencies
- Suitable interfaces available

Trusted in
elevator
applications for
**more than 25
years.**

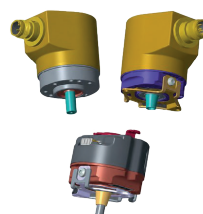
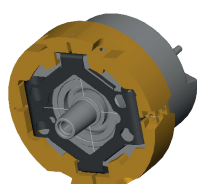
Incremental Encoder Solutions for Elevator Drives

 RI58	 RI76	RF53	 HS35R	 HS35iQ
				
G C M	M	M	G C M	G C M
Standard Incremental Encoder	Hollow-Shaft Incremental Encoder	Solid-Shaft Motor Encoder	High-Resolution Incremental Encoder	Smart Connected Encoder
• Universal industry standard encoder • Up to 40,000 steps with 10,000 pulses • High signal accuracy • Protection class up to IP67 • Flexible due to many flange and configuration variants • Suitable for high shock ratings • Operating temperature up to 100 °C (RI 58-T); up to -40 °C (RI58-C)	• Through hollow shaft Ø 15 to 42 mm • Outside diameter only 76 mm • Easy installation by means of clamping ring front or rear • Operating temperature up to 100°C • 10,000 pulses “true-read” • Condition Monitoring through Alarm– Signal	• Solid shaft motor encoder for BLDC and gearless elevator traction machines • Incremental & Commutation • up to 10 000 ppr • up to +120 °C operating temperature • IP54 • Housing diameter 53 mm	• High resolution up to 20,000 PPR • Heavy duty design rated to 400G shock and 20G vibration • Phased array optics for reliable output • Environmentally protected up to IP67 • Customizable mounting and protective cover options included	• High resolution up to 20,000 PPR • Heavy duty design rated to 400G shock and 20G vibration • Advanced diagnostics via software service tool • Immediate fault awareness via LED + digital output • Programmable parameters, reducing SKUs • Field diagnostics & history logging aid predictive maintenance



Absolute Encoder Solutions for Gearless Elevator Systems

ACURO® industry AC58	ACURO® industry AF58	ACURO® robust AR60	ACURO® industry ACURO® drive AC37/38	S21
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Absolute Encoder	Absolute Encoder	Absolute Encoder	Absolute Encoder (Preliminary)	Sine - Wave Encoder
• Compact design: 50 mm length for single or multiturn • Aids for start up and operation: diagnostic LED, preset key with optical response, status information • Temperature Range: - 40 bis +100°C • Control input: Preset and Direction • Resolution up to: 22 Bit Singleturn + 12 Bit Multiturn (34Bit) • Interfaces: SSI, BiSS • Use of sine/cosine signals for fast control task possible (2048 Impulses)	• All-digital and highspeed • +120°C operating temperature • 10,000 rpm continuous operation • Optical encoder with a true geared multiturn • Interface: SSI, BiSS • Option Sinewave 1 Vpp: Harmonic distortion less than 1% • Bandwidth 500 kHz	• Single- and multi turn: Resolution up to 28 Bit • Wearless electronic multi turn: contact -and battery less, self-energetic • 200 g shock resistance/ 20 g vibration resistance • High temperature range: -40 ... +100°C • Compact design: 32 mm mounting depth • Speed up to max. 5.000 rpm (continuous) • Interfaces: SSI, CANopen, CANopen Lift, Analog • CANopen interface with E1 approval for vehicle application (CiA DSP 406) • Analog interface: Measuring range in Degrees; Current or voltage output • CANopen Lift: Especially for lift controls and components. (CiA DSP 417)	• Singleturn and Multiturn Encoder for high performance Applications • Interface: CANopen / CAN SAE J1939 / CANOpen-Safety / CANopen Lift • Max Speed: 12.000 rpm • Wide operating temperature range (-40°C ... +105°C) • CAN Profile: CANopen CiA 406 / CiA 417 und SAE J1939 • Resolution: 20 Bit Singleturn + 12 Bit Multiturn • Encoder for Functional Safety applications (SIL2 PLd) • Programmable: CAM, Resolution, Preset, Offset, Direction, Heartbeat • Address and baud rate can be parameterized via LSS (optional) • CANopen/ SAE J1939 interface with E1 approval for vehicle application (not cert) • CANopen Lift for Elevator Applications • LED ´s for Status Feedback • Terminating resistor, electrically switchable	• Wide operating temperature range, -15 to +120°C, therefore optimum use of the motor capacity • High limiting frequency with excellent signal quality, allowing highest peak speeds and reduced non-productive time wastage. • Excellent noise immunity (EN61000-4-4 Class 4) • High signal quality through control and error compensation signals quality enhanced • EMC interference immunity improved • With grounding to PCB • Expansion flange available

Compact Encoder Solutions for Elevator Door Control



E14



RI32

RI36-H

RI36-O



AC36



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Miniature Incremental Encoder

- Rugged Metal Housing
- Optional Differential Line Driver Outputs
- Up to 2540 PPR with Optional Index

Miniature Incremental Encoder

- The economical encoder for small appliances
- High efficiency by means of ball bearing
- Small torque
- Very compact design: 30 mm housing diameter / mounting depth 27 mm
- Up to 6,000 steps with 1,500 pulses
- Solid shaft Ø 5 mm or 6 mm
- Operating temperature -10°C ... +60°C

Miniature Incremental Encoder

- Compact design: 36 mm housing diameter / mounting depth 40 mm
- Up to 14,400 steps with 3,600 pulses
- Incremental output TTL or HTL
- Protection class up to IP64
- Hub shaft Ø4 to 10 mm
- Low current consumption
- High interference protection
- Suitable for high pulse
- 360° full screen

Miniature Incremental Encoder

- Compact design: 36 mm housing diameter / mounting depth 27 mm
- Up to 14,400 steps with 3,600 pulses
- Incremental output TTL or HTL
- Wide range power supply DC 3 - 38 V available
- Low current consumption
- Protection class up to IP64
- Solid shaft Ø 6
- High interference protection
- Suitable for high pulse frequencies
- 360° full screen

Absolute Encoder

- Overall length: 36 mm
- Resolution up to 22 Bit Singleturn + 12 Bit Multiturn
- High accuracy +/- 35"
- 6mm solid shaft or 8mm hubshaft
- Wide temperature range of -40°C ... +100°C
- Protection class IP64
- 10,000 rpm continuous operation
- Optical encoder with a true geared Multiturn
- Interfaces: SSI, BiSS-B or BiSS-C
- Optional Sine wave 1 Vpp
- Bandwidth 500 kHz
- 360° full screen





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