

# HENGSTLER

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Our innovation - Your success

ENCODERS ■

■ RELAYS

COUNTERS ■

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Product Program

**HENGSTLER**

## >Resolver

## >MFB Rotary Encoders



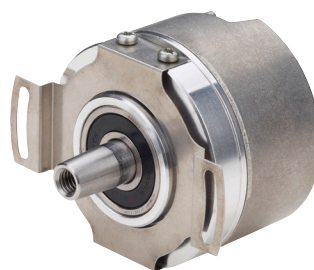
Resolver



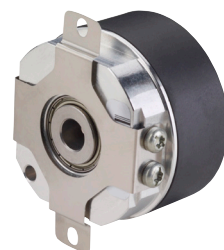
ICURO®  
RI64



S21



ACURO®  
AD35/36



### Absolute Singleturn

- > Ambient temperature up to 220°C
- > Absolute position feedback
- > Rugged: high shock and vibration
- > Pollution resistant
- > No electronic components
- > Maintenance-free
- > Size 10 ... 55
- > Frameless and housed resolvers available

### Incremental

- > Through Hollow shaft Ø 10 -16 mm
- > Unbreakable code disc
- > Protection class up to IP67
- > Isolated shaft
- > High shock and vibration resistance
- > Wide operating temperature range of -40°C ... +100°C
- > Up to 20,000 steps with 5,000 pulses
- > Wide power supply range DC 5-26 V
- > Wide operating temperature range of -40°C ... +100°C
- > Flexible due to many flange and configuration variants
- > Suitable for high shock ratings
- > 360° full screen

### Sine Wave Encoder

- > Operating temperature up to +120°C
- > 12,000 rpm continuous operation
- > Sine-Cosine 1 Vpp
- > Excellent immunity to interference
- > Higher signal quality **NEW**
- > Low harmonics (THD) **NEW**
- > High functional safety
- > Tapered solid or hollow shaft
- > Bandwidth 500 kHz with excellent signal quality
- > Easy installation by means of clamping ring front or rear
- > Wide temperature range of -25°C ... +100°C
- > 360° full screen

### Absolute Single

- > Operating temperature up to +120°C
- > 10,000 rpm continuous operation
- > Compact design: 24 ... 33,5 mm mounting depth
- > Resolution up to 22 Bit Singleturn
- > Multiturn 12 Bit (geared)
- > Interfaces: SSI, BiSS-B or BiSS-C
- > Option Sine wave 1 Vpp
- > Conical shaft 1:3, hub shaft or through hollow shaft 8 mm
- > Bandwidth 500 kHz

#### Options:

- > SCS open link

#### Options:

- > AD34 ST + MT notched shaft
- > AD36 ST + MT through hollow shaft

#### Fields of application:

- > Servo Motors
- > Medical technology (can be sterilized)
- > Robots
- > Gearless drives
- > Military devices

#### Fields of application:

- > Speed and position feedback in asynchronous geared and non-geared motors as well as point of motion measuring in any type of machine

#### Fields of application:

- > Servo Motors

#### Fields of application:

- > Servo Motors
- > Medical technology

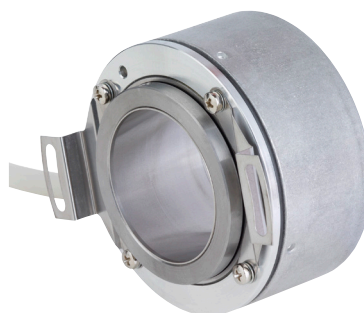
## >MFB Rotary Encoders for Series for Single Cable Solution

## >MFB Rotary Encoders

MFB	MFB	MFB	MFB
ACURO® AD37	ACURO® AD38	ACURO® AD58	ACURO® AD58 DRIVE-CLiQ
			
 ACURO® link  	ACURO® link   	ACURO® link   	
Absolute Single + Multiturn Encoder -Functional Safety	Absolute Single + Multiturn Encoder - Functional Safety	Absolute Single + Multiturn Encoder - Functional Safety	Absolute Single + Multiturn
<ul style="list-style-type: none"> <li>&gt; High performance motor feedback</li> <li>&gt; ACURO®link interface</li> <li>&gt; Allow users to create SIL2 and SIL3 Functional Safety Applications</li> <li>&gt; Electronic Data Sheet</li> <li>&gt; Motor and Drive data storage</li> <li>&gt; High resolution 20 Bit Singleturn</li> <li>&gt; 12 Bit Multiturn</li> <li>&gt; Operating temperature of -40°C ... +115°C</li> <li>&gt; 12,000 rpm max. speed</li> <li>&gt; Shortest mounting depth</li> <li>&gt; Motor winding temperature sensor input</li> </ul>	<ul style="list-style-type: none"> <li>&gt; High performance motor feedback</li> <li>&gt; ACURO®link interface</li> <li>&gt; SCS open link interface</li> <li>&gt; Allow users to create SIL2 and SIL3 Functional Safety Applications</li> <li>&gt; Safe absolut singleturn position</li> <li>&gt; Electronic Data Sheet</li> <li>&gt; Motor and Drive data storage</li> <li>&gt; Condition monitoring data</li> <li>&gt; High resolution 20 Bit Singleturn, Advanced version up to 24 Bit</li> <li>&gt; High accuracy ±36 arcsec</li> <li>&gt; 12 Bit Multiturn (geared)</li> <li>&gt; Operating temperature of -40°C ... +115°C</li> <li>&gt; 10,000 rpm max. speed</li> <li>&gt; Shortest mounting depth</li> <li>&gt; Tethermounting/ 8mm shaft cone 1:3, M4</li> <li>&gt; Motor winding temp. sensor input</li> <li>&gt; Encoder temperature sensor</li> <li>&gt; Solid or hollow shaft available</li> <li>&gt; Compact design: 32 mm mounting depth</li> <li>&gt; High corrosion resistance: high grade stainless steel housing</li> <li>&gt; DNV GL certificate for maritime appl.</li> <li>&gt; Interfaces: SSI, BiSS, CANopen, Analog</li> <li>&gt; CANopen interface with E1 approval for vehicle applications</li> </ul>	<ul style="list-style-type: none"> <li>&gt; High performance motor feedback</li> <li>&gt; ACURO®link interface</li> <li>&gt; SCS open link interface</li> <li>&gt; Allow users to create SIL2 and SIL3 Functional Safety Applications</li> <li>&gt; Electronic Data Sheet</li> <li>&gt; Motor and Drive data storage</li> <li>&gt; High resolution 24 Bit Singleturn</li> <li>&gt; High accuracy ±20 arcsec</li> <li>&gt; 12 Bit Multiturn</li> <li>&gt; Operating temperature of -20°C ... +115°C</li> <li>&gt; 12,000 rpm max. speed</li> <li>&gt; Shortest mounting depth</li> <li>&gt; Motor winding temperature sensor input</li> <li>&gt; Internal encoder temperature sensor</li> <li>&gt; Condition monitoring data</li> </ul>	<ul style="list-style-type: none"> <li>&gt; High performance motor feedback</li> <li>&gt; DRIVE-CLiQ Interface</li> <li>&gt; SINAMICS compatible</li> <li>&gt; Allow users to create SIL2 Functional Safety Applications</li> <li>&gt; Operating Temperature of -25°C ... +110° C</li> <li>&gt; 10,000 rpm Continuous Operation</li> <li>&gt; Optical encoder with a true geared 12 Bit Multiturn</li> <li>&gt; High resolution up to 24 Bit Singleturn</li> <li>&gt; High accuracy up to ±20 arcsec</li> <li>&gt; Motor winding temperature sensor input</li> <li>&gt; Internal Temperature Control of Encoder</li> <li>&gt; EDS</li> </ul>
<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Servo Motors</li> </ul>	<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Functional Safety Applications</li> <li>&gt; Single Cable Solution</li> </ul>	<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Functional Safety Applications</li> <li>&gt; Single Cable Solution</li> </ul>	<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; SINAMICS motion control</li> <li>&gt; Functional safety applications</li> </ul>

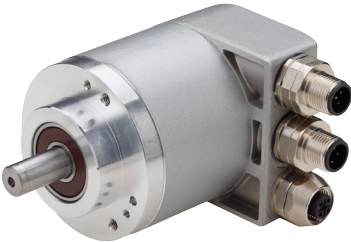
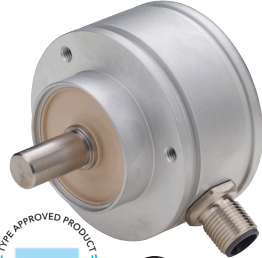
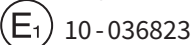





## > Rotary Encoders for Factory Automation Applications

FA ELV HD MED	FA ELV HD MED	FA ELV	FA MED
ICURO® RI30	ICURO® RI58	ICURO® RI76	ACURO® AC36



Incremental	Incremental	Inkremental	Absolute Single + Multiturn
<ul style="list-style-type: none"> <li>&gt; Small rotary encoder for industrial applications</li> <li>&gt; Very compact design: 30 mm housing diameter / mounting depth 27 mm</li> <li>&gt; Up to 6,000 steps with 1,500 pulses</li> <li>&gt; Protection class up to IP64</li> <li>&gt; Solid shaft Ø 5 mm</li> <li>&gt; Temperature range of -10°C ... +70°C</li> <li>&gt; Low current consumption</li> <li>&gt; High interference protection</li> <li>&gt; Suitable for high pulse frequencies</li> <li>&gt; 360° full screen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Up to 40,000 steps with 10,000 pulses</li> <li>&gt; Solid shaft, hub shaft or through hollow shaft (up to Ø 15mm) versions available</li> <li>&gt; Compact design</li> <li>&gt; High signal accuracy</li> <li>&gt; Protection class up to IP67</li> <li>&gt; Wide operating temperature range of -40°C ... +100°C</li> <li>&gt; Flexible due to many flange and configuration variants</li> <li>&gt; Suitable for high shock ratings</li> <li>&gt; 360° full screen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Up to 40,000 steps with 10,000 pulses</li> <li>&gt; Through hollow shaft Ø 15 to 42 mm</li> <li>&gt; Outside diameter only 76 mm</li> <li>&gt; Compact design: 43 mm mounting depth</li> <li>&gt; Easy installation by means of clamping ring front or rear</li> <li>&gt; Wide temperature range of -25°C ... +100°C</li> <li>&gt; 360° full screen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Resolution up to 22 Bit Single-turn + 12 Bit Multiturn</li> <li>&gt; High accuracy 35"</li> <li>&gt; Solid or hollow shaft versions available</li> <li>&gt; Overall length: 36 mm</li> <li>&gt; Wide temperature range of -40°C ... +100°C</li> <li>&gt; Protection class IP64</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Interfaces: SSI, BiSS-B or BiSS-C</li> <li>&gt; Optional Sine wave 1 Vpp</li> <li>&gt; Bandwidth 500 kHz</li> <li>&gt; 360° full screen</li> </ul>
<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Positionsbestimmung in jeglicher Art von Maschinen- und Automations-Anwendung.</li> </ul>	<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Machine tools</li> <li>&gt; CNC axes</li> <li>&gt; Packing Machines</li> <li>&gt; Motors/drives</li> <li>&gt; Injection Moulding Machines</li> <li>&gt; Sawing Machines</li> <li>&gt; Textile Machines</li> </ul>	<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; Speed and position feedback in asynchronous geared and non-geared motors</li> <li>&gt; Point of motion measuring in any type of machine</li> </ul>	<b>Fields of application:</b> <ul style="list-style-type: none"> <li>&gt; For equipment engineering and industry</li> </ul>

## >Explosion Proof Rotary Encoders

FA WE ELV MED	HD FA WE	O&G HD	O&G HD
ACURO® AC58	ACURO® AR Series	ACURO® AX65	ACURO® AX73
	  	 	 
Absolute Single + Multiturn	Absolute Heavy Duty	Explosion Proof – Absolute Heavy Duty	Explosion Proof – Absolute Heavy Duty
<ul style="list-style-type: none"> <li>&gt; Solid or hollow shaft versions available</li> <li>&gt; Wide temperature range of -40°C ... + 85°C</li> <li>&gt; Resolution up to 22 Bit Single-turn + 12 Bit Multiturn</li> <li>&gt; High EMC – Resistance</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Housing diameter 58 mm</li> <li>&gt; Interfaces: EtherCAT, Profinet, Ethernet-IP, Profibus, CANopen, DeviceNet, CAN Layer 2, Interbus, SSI, BiSS-B and BiSS-C</li> <li>&gt; Interfaces: EtherCAT, Profinet, Ethernet-IP </li> <li>&gt; Profibus Interface up to 16 Bit ST available </li> <li>&gt; MT Absolute SSI encoder + Incremental output TTL or HTL (AC58-I)</li> <li>&gt; Wide range of programmable functions</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; High shock and vibration resistance</li> <li>&gt; Large number of configuration options</li> <li>&gt; Stainless steel as ACURO® AC61 available</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Single and Multiturn: Resolution up to 28 Bit</li> <li>&gt; Wearless electronic Multiturn: contact- and battery-less, self-energetic</li> <li>&gt; 300 N axial and radial load</li> <li>&gt; 200 g shock resistance / 20 g vibrations resistance</li> <li>&gt; Submersible: Protection class up to IP69K</li> <li>&gt; Wide temperature range of -40°C ... +100°C</li> <li>&gt; Solid or hollow shaft versions available</li> <li>&gt; Compact design: 32 mm mounting depth</li> <li>&gt; High corrosion resistance: high grade stainless steel housing</li> <li>&gt; DNV GL certificate for maritime application</li> <li>&gt; Interfaces: SSI, BiSS, CANopen, Analog</li> <li>&gt; CANopen interface with E1 approval for vehicle applications</li> </ul>	<ul style="list-style-type: none"> <li>&gt; ATEX and IECEx certification for Gas, Dust and Mining               <ul style="list-style-type: none"> <li>- Gas: Ex II 2G Ex db IIC T4</li> <li>- Dust: Ex II 2D Ex tb IIIC T135 °C</li> </ul> </li> <li>&gt; Mining: Ex I M2 Ex db I</li> <li>&gt; Most compact design of its class: 59 mm housing diameter / 70 mm mounting depth</li> <li>&gt; Extreme robust design</li> <li>&gt; 300 N axial and radial load</li> <li>&gt; 200 g shock resistance / 30 g vibrations resistance</li> <li>&gt; Protection class up to IP66 / IP67</li> <li>&gt; Easy field installation               <ul style="list-style-type: none"> <li>- Free choice of cable in the field (terminal box with cage clamp technology)</li> <li>- In case of emergency service, encoder and cable can be removed separately</li> <li>- Access to control elements (DIP)</li> </ul> </li> <li>&gt; Extreme corrosion resistance: high grade stainless steel housing (1.4404 / AISI 316L)</li> <li>&gt; Wearless electronic Multiturn: contact- and battery-less, self-energetic</li> <li>&gt; Interfaces: SSI and CANopen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; ATEX and IECEx certification for Gas and Dust</li> <li>&gt; Gas: Ex II 2 G Ex d IIC T4 Gb</li> <li>&gt; Dust: Ex II 2 D Ex tb IIIC T130 Db</li> <li>&gt; High precision standard as ACURO Industry</li> <li>&gt; Resolution up to 22 Bit Single-turn + 12 Bit Multiturn</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Interfaces: SSI/BISS and Profibus</li> <li>&gt; Easy field installation</li> <li>&gt; Free choice of cable in the field (terminal box with cage clamp technology)</li> <li>&gt; In case of emergency service, encoder and cable can be removed separately</li> <li>&gt; Access to control elements (DIP)</li> <li>&gt; Robust design</li> <li>&gt; Extreme corrosion resistance: high grade stainless steel housing (1.4404 / AISI 316L)</li> <li>&gt; Protection class IP66 / IP67</li> </ul>
Fields of application:	Fields of application:	Fields of application:	Fields of application:
<ul style="list-style-type: none"> <li>&gt; Position Feedback in any kind of general machinery or factory automation application</li> <li>&gt; Packaging Machines</li> <li>&gt; Injection Molding Machines</li> <li>&gt; Wood Processing Machines</li> <li>&gt; Assembly and Handling Technology</li> <li>&gt; Conveyor Technology</li> <li>&gt; Printing and Paper Machines</li> <li>&gt; Pitch Control systems (AC58-I)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Wind Power Plants</li> <li>&gt; Cranes</li> <li>&gt; Marine Equipment</li> <li>&gt; Offshore Plants</li> <li>&gt; Commercial Solar Plants</li> <li>&gt; Bottling Machines</li> <li>&gt; Presses</li> <li>&gt; Food &amp; Beverage Industrymaschinen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Drilling Equipment</li> <li>&gt; Winches</li> <li>&gt; Cranes</li> <li>&gt; DrawWorks</li> <li>&gt; Topdrive</li> <li>&gt; Pipe Handling</li> <li>&gt; Mills</li> <li>&gt; Enameling Production Line</li> <li>&gt; Petro Chemistry</li> <li>&gt; Bottling Machines</li> <li>&gt; Mixers</li> <li>&gt; Silo Works</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Drilling Equipment</li> <li>&gt; Winches</li> <li>&gt; Cranes</li> <li>&gt; DrawWorks</li> <li>&gt; Topdrive</li> <li>&gt; Pipe Handling</li> <li>&gt; Mills</li> <li>&gt; Enameling Production Line</li> <li>&gt; Petro Chemistry</li> <li>&gt; Bottling Machines</li> <li>&gt; Mixers</li> <li>&gt; Silo Works</li> </ul>

## >Customized Rotary Encoders

## >Explosion Proof Counters



ACURO® / ICURO®  
Customized Versions



Pneumatic Preset Counter



Pneumatic Proximity Switch



### Incremental

#### Mechanic interface modifications as:

- › Special flanges
- › Multifaceted shaft styles in terms of diameter or joint shapes

#### Connection Interface modifications as:

- › Special cable-styles,
- › Various connectors or pinnings

#### Signal modifications as:

- › Customized Zero-Signals (length, position or amount)

#### Specific interface configurations as:

- › Added Parity-Bit, Alarm-Bit, specific Data-formats, predefined Direction, Monofloptime or Preset-Value

#### Increased safety designs as:

- › Fully redundant designs
- › Dual outputs
- › Positive locking mounting style

#### Versatile adaption for environmental conditions as:

- › Extended voltage range
- › Extended temperature range
- › Extended IP-rating
- › Extended vibration / shock-rigidity
- › Extended shaft speed
- › Vacuum suitable encoders
- › Usability in extreme magnetic fields

#### Improved chemical behavior as:

- › Specific corrosion resistances
- › Seawater proofing
- › Silicone- / PWIS-free (LABS frei)
- › Halogen free or fire proof cables

#### Customer specific documentation as:

- › CoC's, certificates
- › Customized labeling

#### Fields of application:

- › Positionsbestimmung in jeglicher Art von Maschinen- und Automations-Anwendung.

### Pneumatic

- › Easy and simple installation – via hose coupler M5 or rapid-fit connector
- › ATEX marked products ready to install into final ATEX applications
- › 3 or 5 digits versions
- › Service pressure of 2 to 8 bar
- › Integrated pneumatic reset available
- › Permanently visible preset value
- › Easy pushbutton setting and simple operation
- › Maintenance free
- › Unique products on the market
- › Operating temperature 0 up to 140°C
- › Fully pneumatic operated device

#### Fields of application:

- › Industrial and factory transportation of materials (eg. fine powders which can be combustible)
- › Packaging unit controls
- › Oil and Gas areas
- › Various dosing and filling (resins, liquids, powders, paints, etc.)
- › Pumps

### Pneumatic

- › Non-contact actuation
- › Responds to magnetic field and Fe
- › Compact dimensions
- › Continuous air supply not required
- › Service pressure of 2 to 6 bar
- › Solid or hollow shaft versions available
- › Compact design: 32 mm mounting depth
- › High corrosion resistance: high grade stainless steel housing
- › DNV GL certificate for maritime application
- › Interfaces: SSI, BiSS, CANopen, Analog
- › CANopen interface with E1 approval for vehicle applications

#### Fields of application:

- › Detection of pneumatic cylinders positions
- › Industrial and factory transportation systems
- › Any application areas with a need of health and safety requirements



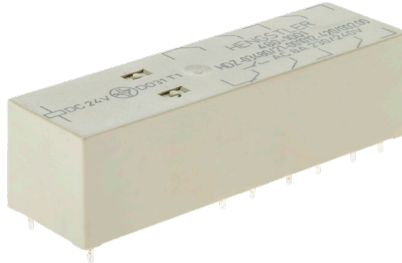
## >Safety Relays

O&G

Self-Powered Counter / SPC

H-480 – Safety Relay  
6 contacts

H-480 – Safety Relay  
4 contacts



### Battery-Free Counter

- > Simple, Innovative and Cost Effective
- > ATEX Certification for Gas Applications
- > No Power Supply Required
- > Extreme Shock and Vibration Resistance:
- > 300 g Shock; 20 g Vibration
- > Most Compact Design of its Class: 36.5 mm
- > Mounting Depth; 28 mm Diameter
- > Suitable for all Fluid Media Types: Gas, Water, etc.
- > Easy, Fast Field Installation
- > Protects against Fraud
- > Various Communication Protocols Available: NAMUR, HART, M BUS, Wireless
- > 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

### Fields of application:

- > Industrial Gas Metering
- > Industrial Water Metering

### Compact. High Performance. Economical.

- > 6 contacts
- > Max. switching current 8 A
- > Forcibly guided contact set
- > Reinforced insulation between all contacts
- > Low coil power consumption
- > Low height (15,7 mm)
- > Ambient temperature -25°C ... +75°C

### Fields of application:

- > Safety Modules
- > Elevators / Escalators
- > Railway
- > Sensors
- > Machine Building
- > Drive Systems
- > Medical Systems

### Compact. High Performance. Economical.

- > 4 contacts **NEW**
- > Max. switching current 8 A
- > Forcibly guided contact set
- > Reinforced insulation between all contacts
- > Low coil power consumption
- > Low height (15,7 mm)
- > Ambient temperature -25°C ... +75°C

### Fields of application:

- > Safety Modules
- > Elevators / Escalators
- > Railway
- > Sensors
- > Machine Building
- > Drive Systems
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