

# Encoder Product Program



**HENGSTLER**

BEYOND THE STANDARD

	PC9	RI32-O
--	-----	--------



ICURO®  
industry



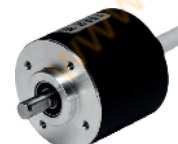
	Economy Incremental		Economy Incremental
Key specs	<ul style="list-style-type: none"> <li>➤ Provides digital control inputs from operators' panel</li> <li>➤ Bidirectional squarewave signal outputs</li> <li>➤ Up to 512 increments</li> <li>➤ Continuous and reversible rotation</li> <li>➤ Non-contacting</li> <li>➤ Operating temperature -40 °C... 100 °C</li> </ul>		<ul style="list-style-type: none"> <li>➤ Replacement for type Typ RIS and RI 31</li> <li>➤ The economical encoder for small appliances</li> <li>➤ High efficiency by means of ball bearing</li> <li>➤ Small torque</li> <li>➤ Very compact design: 30 mm housing diameter / mounting depth 27 mm</li> <li>➤ Up to 6,000 steps with 1,500 pulses</li> <li>➤ Solid shaft Ø 5 mm or 6 mm</li> <li>➤ Operating temperature -10°C ... +60°C</li> </ul>
Fields of application	<ul style="list-style-type: none"> <li>➤ Laboratory equipment</li> <li>➤ Crimping machines</li> <li>➤ Tampon printing machines</li> <li>➤ Miniature grinding machines</li> <li>➤ FHP motors</li> </ul>	<ul style="list-style-type: none"> <li>➤ Labelling machines</li> <li>➤ Plotters</li> <li>➤ Graphic machines</li> <li>➤ Textile machinery</li> </ul>	<ul style="list-style-type: none"> <li>➤ Laboratory Equipment</li> <li>➤ Training Equipment</li> <li>➤ Crimping Machines</li> <li>➤ Tampon Printing Machines</li> <li>➤ Miniature Grinding Machines</li> </ul>
Verticals	<ul style="list-style-type: none"> <li>➤ SMFB</li> <li>➤ FA (Light Duty)</li> </ul>		<ul style="list-style-type: none"> <li>➤ FA (Light Duty)</li> </ul>

	RI38-O	RI42-O
--	--------	--------

ICURO®  
industry



ICURO®  
industry



	Economy Incremental		Economy Incremental
Key specs	<ul style="list-style-type: none"> <li>➤ Replacement for type RI 39</li> <li>➤ Encoder for universal fitting and front or rear panel</li> <li>➤ High performance due to ball-bearings</li> <li>➤ Low torque</li> <li>➤ Up to 3,600 pulses</li> <li>➤ Operating temperature -10°C ... +60°C</li> </ul>		<ul style="list-style-type: none"> <li>➤ Economical miniature encoder</li> <li>➤ High protection IP65</li> <li>➤ Incremental output TTL or HTL</li> <li>➤ High mechanical efficiency</li> <li>➤ Up to 4,096 steps with 1,024 pulses</li> <li>➤ 10,000 rpm continuous operation</li> </ul>
Fields of application	<ul style="list-style-type: none"> <li>➤ Miniature Motors</li> <li>➤ Laboratory Equipment</li> <li>➤ Labelling Machines</li> </ul>	<ul style="list-style-type: none"> <li>➤ Plotters</li> <li>➤ Linear Encoders</li> </ul>	<ul style="list-style-type: none"> <li>➤ Textile Machinery</li> </ul>
Verticals	<ul style="list-style-type: none"> <li>➤ FA (Light Duty)</li> </ul>		<ul style="list-style-type: none"> <li>➤ FA (Light Duty)</li> </ul>

## RI30-O

ICURO®  
industry



## RI36-O

ICURO®  
industry



Industrial Incremental		Industrial Incremental	
<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; Incremental output TTL or HTL</li> <li>&gt; Protection class up to IP64</li> <li>&gt; Solid shaft Ø 5 mm</li> <li>&gt; Operating temperature -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; Small rotary encoder for industrial applications</li> <li>&gt; Compact design: 36 mm housing diameter / mounting depth 27 mm</li> <li>&gt; Up to 14,400 steps with 3,600 pulses</li> <li>&gt; Incremental output TTL or HTL</li> <li>&gt; Protection class up to IP64</li> <li>&gt; Solid shaft Ø 6 / 6,35 mm</li> <li>&gt; Operating temperature -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; Wide range power supply DC 3 - 38 V available on request</li> <li>&gt; 360° full screen</li> </ul>	
<ul style="list-style-type: none"> <li>&gt; CNC Machines</li> <li>&gt; Manipulators</li> <li>&gt; Motors</li> <li>&gt; Medical Technology</li> <li>&gt; Textile Machines</li> </ul>		<ul style="list-style-type: none"> <li>&gt; CNC Axes</li> <li>&gt; Machine Tools</li> <li>&gt; Robots</li> <li>&gt; Special Machinery</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Position Feedback in any kind of general machinery or factory automation application</li> </ul>
<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

## RI36-H

ICURO®  
industry



## RI41-O

ICURO®  
industry



Industrial Incremental		Industrial Incremental	
<ul style="list-style-type: none"> <li>&gt; Small rotary encoder for industrial applications</li> <li>&gt; Compact design: 36 mm housing diameter / mounting depth 40 mm</li> <li>&gt; Up to 14,400 steps with 3,600 pulses</li> <li>&gt; Incremental output TTL or HTL</li> <li>&gt; Protection class up to IP64</li> <li>&gt; Hub shaft Ø4 to 10 mm</li> <li>&gt; Operating temperature -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; Replacement for type RIM</li> <li>&gt; Economical miniature encoder</li> <li>&gt; Up to 14,400 steps with 3,600 pulses</li> <li>&gt; Incremental output TTL or HTL</li> <li>&gt; High mechanical efficiency</li> <li>&gt; Solid shaft Ø 6 mm</li> <li>&gt; Operating temperature -10°C ... +70°C</li> </ul>	
<ul style="list-style-type: none"> <li>&gt; Motors</li> <li>&gt; Machine Tools</li> <li>&gt; Robots</li> <li>&gt; Automated SMD equipment</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Position Feedback in any kind of general machinery or factory automation application</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Wood Working Machines</li> <li>&gt; FHP Motors</li> <li>&gt; Graphic Machines</li> <li>&gt; Table robots</li> </ul>	
<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

	RI58-O/T/C	RI58-D/TD/CD/-G/TG/CG
--	------------	-----------------------

ICURO®  
industry



ICURO®  
industry



	Industrial Incremental		Industrial Incremental	
Key specs	<ul style="list-style-type: none"> <li>&gt; Up to 40,000 steps with 10,000 pulses</li> <li>&gt; Solid shaft 6 to 12 mm 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> <li>&gt; Wide range power supply DC 3 - 38 V available on request</li> </ul>		<ul style="list-style-type: none"> <li>&gt; Up to 20,000 steps with 5,000 pulses</li> <li>&gt; 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 IP65</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>	
Fields of application	<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>		<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>	
Verticals	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Wind</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Wind</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

	RI58-F/TF/CF	RI58-H
--	--------------	--------

ICURO®  
industry



ICURO®  
industry



	Industrial Incremental		Industrial Incremental	
Key specs	<ul style="list-style-type: none"> <li>&gt; Up to 40,000 steps with 10,000 pulses</li> <li>&gt; Hub shaft or through hollow shaft (up to Ø 12mm) versions available</li> <li>&gt; Compact design</li> <li>&gt; High signal accuracy</li> <li>&gt; Protection class up to IP65</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; High accuracy by means of integrated flexible coupling</li> <li>&gt; Safe shaft mounting</li> <li>&gt; Up to 20,000 steps with 5,000 pulses</li> <li>&gt; Compact design</li> <li>&gt; High signal accuracy</li> <li>&gt; Protection class up to IP65</li> <li>&gt; Operating temperature range of -10°C ... +70°C</li> <li>&gt; 360° full screen</li> </ul>	
Fields of application	<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>		<ul style="list-style-type: none"> <li>&gt; Textile Machines</li> <li>&gt; Motors</li> <li>&gt; Drives</li> <li>&gt; Copiers</li> </ul>	
Verticals	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Wind</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Wind</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>



## RI59-O/-T/-C

ICURO®  
industry

## RI76TD

ICURO®  
industry

Industrial Incremental		Industrial Incremental	
<ul style="list-style-type: none"> <li>&gt; Up to 40,000 steps with 10,000 pulses</li> <li>&gt; Solid shaft 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; Machine tools</li> <li>&gt; Packing Machines</li> <li>&gt; Injection Moulding Machines</li> <li>&gt; Sawing Machines</li> <li>&gt; Bottling Machines</li> <li>&gt; Washing plants</li> </ul>		<ul style="list-style-type: none"> <li>&gt; Mixers</li> <li>&gt; Cranes</li> <li>&gt; Hoists,</li> <li>&gt; Marine Outfitters</li> <li>&gt; Food &amp; Beverage</li> </ul>	
<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; O/G</li> </ul>		<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; Wind</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	

## RX70/71

ICURO®  
Xproof

## Dynapar Heavy Duty Rotary Encoder



Incremental Explosion Proof		Extreme robust Hollow and Solid Shaft Incremental Encoders	
<ul style="list-style-type: none"> <li>&gt; ATEX and IECEx certification for Gas and Dust <ul style="list-style-type: none"> <li>- Gas: Ex II 2 G Ex d IIC T6/T4 Gb</li> <li>- Dust: Ex II 2 D Ex tb IIIC T85°C/135°C Db IP6X</li> </ul> </li> <li>&gt; High precision standard as ICURO Industry</li> <li>&gt; Interfaces incremental: RS422, Push Pull</li> <li>&gt; Robust design</li> <li>&gt; Highest working reliability</li> <li>&gt; Extreme corrosion resistance: high grade stainless steel housing (1.4404 / AISI 316L)</li> <li>&gt; Protection class: IP64 or IP67</li> </ul>		<ul style="list-style-type: none"> <li>&gt; High Resolution Unbreakable Disks (1 - 5.000 ppr)</li> <li>&gt; Extreme robust design</li> <li>&gt; High shaft load (up to 440 N)</li> <li>&gt; Isolated shaft</li> <li>&gt; Protection class IP66, 67</li> <li>&gt; Different housing materials: stainless steel / nickel / aluminium</li> <li>&gt; Wide operating temperature range of -40°C ... +100°C</li> <li>&gt; Up to 6,000 rpm continuous operation</li> <li>&gt; Protection class: NEMA6 / IP67</li> <li>&gt; ATEX Certification for Intrinsically Safe Applications</li> <li>&gt; Redundant output</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> </ul>		<ul style="list-style-type: none"> <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> <li>&gt; Paper and Steel</li> <li>&gt; Food &amp; Beverage</li> <li>&gt; Packaging industry</li> <li>&gt; Material Handling</li> <li>&gt; AC - Motors</li> <li>&gt; Converting Machinery</li> <li>&gt; Wire line, any depth measurement</li> </ul>	
<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Elevator</li> <li>&gt; O/G</li> </ul>		<ul style="list-style-type: none"> <li>&gt; HD</li> <li>&gt; OHV</li> <li>&gt; FA</li> <li>&gt; Elevator</li> <li>&gt; O/G</li> <li>&gt; HD</li> <li>&gt; OHV</li> </ul>	

## AC36

ACURO®  
industry

## AC58

ACURO®  
industry

	Industrial Absolute	Industrial Absolute
Key specs	<ul style="list-style-type: none"> <li>&gt; Resolution up to 22 Bit Singleturn + 12 Bit Multiturn</li> <li>&gt; High accuracy +/- 35"</li> <li>&gt; 6mm solid shaft or 8mm hubshaft</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>	<ul style="list-style-type: none"> <li>&gt; Solid or hollow shaft versions available</li> <li>&gt; Wide temperature range of -40°C ... + 100°C</li> <li>&gt; Resolution up to 22 Bit Singleturn + 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, Parallel, BiSS-B and BiSS-C, OPC UA ready for IIoT</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® AC59 and AC61 available</li> </ul>
Fields of application	<ul style="list-style-type: none"> <li>&gt; For equipment engineering and industry</li> <li>&gt; Robots</li> <li>&gt; Surveying equipment</li> <li>&gt; Patient beds</li> <li>&gt; Surgical robots</li> <li>&gt; C-Arc CT</li> <li>&gt; AGV</li> </ul>	<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>
Verticals	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; Wind</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

AC59/61

ACURO®  
industry



AR60

ACURO®  
industry



(E<sub>1</sub>) 10-036823

Industrial Absolute	Absolute Robust
<ul style="list-style-type: none"> <li>&gt; Solid shaft version</li> <li>&gt; Wide temperature range of -40°C ... + 100°C</li> <li>&gt; Resolution up to 22 Bit Singleturn + 12 Bit Multiturn</li> <li>&gt; High EMC – Resistance</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Protection class IP67</li> <li>&gt; High corrosion resistance: high grade stainless steel housing</li> <li>&gt; High shock and vibration resistance</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; Interfaces: EtherCAT, Profinet, SSI, BiSS, Parallel, Profibus, CANopen, CANlayer2, DeviceNet and Interbus</li> <li>&gt; Wide range of programmable functions</li> <li>&gt; Versions with cable or bus cover available</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Resolution up to 12 Bit Singleturn + 16 Bit Multiturn</li> <li>&gt; Wearless electronic Multiturn: contact- and attery-less, self-energetic</li> <li>&gt; 40N axial and 110N radial load</li> <li>&gt; 200 g shock resistance / 20 g vibrations resistance</li> <li>&gt; Protection class IP64</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; Interfaces: SSI, CANopen, Analog</li> <li>&gt; CANopen interface with E1 approval for vehicle applications</li> </ul>
<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> </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 MachinesIndustry</li> <li>&gt; Presses</li> <li>&gt; Food &amp; Beverage</li> <li>&gt; Harvester</li> <li>&gt; Fire-fighting Trucks</li> </ul>
<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Elevator</li> <li>&gt; Wind</li> <li>&gt; O/G</li> <li>&gt; HD</li> <li>&gt; OHV</li> <li>&gt; Food</li> </ul>	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

## AR62/63

ACURO®  
robust

## AX65

ACURO®  
Xproof

	Absolute Robust	Absolute Explosion Proof
Key specs	<ul style="list-style-type: none"> <li>&gt; Resolution up to 12 Bit Singleturn + 16 Bit Multiturn</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, 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> <li>- Mining: Ex I M2 Ex db I</li> </ul> </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, CANopen</li> </ul>
Fields of application	<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 Industry</li> <li>&gt; Harvester</li> <li>&gt; Fire-fighting Trucks</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>
Verticals	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Wind</li> <li>&gt; O/G</li> <li>&gt; AGV</li> <li>&gt; HD</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; FA</li> <li>&gt; Elevator</li> <li>&gt; O/G</li> <li>&gt; HD</li> <li>&gt; OHV</li> </ul>



## AX70/71

ACURO®  
Xproof



## AX73

ACURO®  
Xproof



### Absolute Explosion Proof

- > ATEX, IECEx and AEx certification for Gas and Dust
  - Gas: Ex II 2 G Ex d IIC T6/T4 Gb
  - Dust: Ex II 2 D Ex tb IIIC T85°C/135°C Db IP6X
- > High precision standard as ACURO Industry
- > Interfaces absolute: SSI, BiSS, Profibus, CANopen, DeviceNet
- > Resolution up to 22 Bit Singleturn + 12 Bit Multiturn
- > Optical encoder with a true geared Multiturn
- > Robust design
- > Highest working reliability
- > Extreme corrosion resistance: high grade stainless steel housing (1.4404 / AISI 316L)
- > Protection class: IP64 or IP67

### Absolute Explosion Proof

- > ATEX and IECEx certification for Gas and Dust
  - Gas: Ex II 2 G Ex d IIC T4 Gb
  - Dust: Ex II 2 D Ex tb IIIC T130 Db
- > High precision standard as ACURO Industry
- > Resolution up to 22 Bit Singleturn + 12 Bit Multiturn
- > Optical encoder with a true geared Multiturn
- > Interfaces: SSI/BISS and Profibus
- > Easy field installation
  - Free choice of cable in the field (terminal box with cage clamp technology)
  - In case of emergency service, encoder and cable can be removed separately
  - Access to control elements (DIP)
- > Robust design
- > Extreme corrosion resistance: high grade stainless steel housing (1.4404 / AISI 316L)
- > Protection class IP66 / IP67

- > Drilling Equipment
- > Winches
- > Cranes
- > DrawWorks
- > Topdrive
- > Pipe Handling
- > Mills
- > Enameling Production Line
- > Petro Chemistry
- > Bottling Machines
- > Mixers

- > Drilling Equipment
- > Winches
- > Cranes
- > DrawWorks
- > Topdrive
- > Pipe Handling
- > Mills
- > Enameling Production Line
- > Petro Chemistry
- > Bottling Machines
- > Mixers
- > Silo Works

- > FA
- > Elevator
- > O/G
- > HD
- > OHV

- > FA
- > Elevator
- > O/G
- > HD
- > OHV

	AD34	AD35
--	------	------

ACURO®  
drive



ACURO®  
drive



	Absolute Feedback	Absolute Feedback
Key specs	<ul style="list-style-type: none"> <li>&gt; Operating temperature up to +120°C</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; Compact design: 24 mm (ST), 33 mm (MT) mounting depth</li> <li>&gt; Resolution up to 22 Bit Singleturn + 12 Bit Multiturn</li> <li>&gt; High accuracy +/- 35"</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Interfaces: SSI, BiSS-B or BiSS-C</li> <li>&gt; Option Sine wave 1 Vpp</li> <li>&gt; Notched shaft 6 mm</li> <li>&gt; Bandwidth 500 kHz</li> <li>&gt; Unique mounting concept: Save installation time and cost</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Operating temperature up to +120°C</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; Compact design: 24 mm mounting depth</li> <li>&gt; Resolution up to 22 Bit Singleturn</li> <li>&gt; High accuracy +/- 35"</li> <li>&gt; Interfaces: SSI, BiSS-B or BiSS-C</li> <li>&gt; Option Sine wave 1 Vpp</li> <li>&gt; Hub shaft 8 mm</li> <li>&gt; Bandwidth 500 kHz</li> </ul>
Fields of application	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Medical technology</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Medical technology</li> <li>&gt; surveying equipment</li> <li>&gt; camera equipment</li> </ul>
Verticals	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

	AD36	AD58
--	------	------

ACURO®  
drive




ACURO®  
drive



	Absolute Feedback	Absolute Feedback
Key specs	<ul style="list-style-type: none"> <li>&gt; Operating temperature up to +120°C</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; Compact design: 33,5 mm mounting depth</li> <li>&gt; Resolution up to 22 Bit Singleturn</li> <li>&gt; High accuracy +/- 35"</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Interfaces: SSI, BiSS-B or BiSS-C</li> <li>&gt; Option Sine wave 1 Vpp</li> <li>&gt; Hub shaft or through hollow shaft 8 mm</li> <li>&gt; Bandwidth 500 kHz</li> <li>&gt; Resolver size 15 compatible</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Operating temperature up to +120°C</li> <li>&gt; 10,000 rpm continuous operation</li> <li>&gt; Resolution up to 22 Bit singleturn + 12 Bit Multiturn</li> <li>&gt; High accuracy +/- 35"</li> <li>&gt; Interfaces: SSI, BiSS-B or BiSS-C</li> <li>&gt; Option Sine wave 1 Vpp: Harmonic distortion less than 1%</li> <li>&gt; Optical encoder with a true geared Multiturn</li> <li>&gt; Tapered solid or hollow shaft</li> <li>&gt; Bandwidth 500kHz</li> </ul>
Fields of application	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Medical technology</li> <li>&gt; surveying equipment</li> <li>&gt; camera equipment</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Medical technology</li> </ul>
Verticals	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

AD37 ACURO®link



ACURO®  
drive





SIL2  
PLd

SIL3  
PLe

Absolute Safety
<ul style="list-style-type: none"> <li>&gt; High performance motor feedback</li> <li>&gt; Single Cable Solution with ACURO® link interface for 4 wire applications</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 + 12 Bit Multiturn</li> <li>&gt; High accuracy +/- 35"</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> <li>&gt; Internal encoder temperature sensor</li> <li>&gt; Condition monitoring data</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Functional Safety Applications</li> <li>&gt; Single Cable Solution</li> </ul>
<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; Medical</li> <li>&gt; AGV</li> </ul>

AD58 ACURO®link	AD58 DRIVE-CLiQ
<div> <div>ACURO® drive</div>  <div> <div>SIL2 PLd</div> <div>SIL3 PLe</div> </div> </div>	<div> <div>ACURO® drive</div>  <div> <div>SIL2 PLd</div> <div>SIL3 PLe</div> <div>DRIVE-CLiQ</div> </div> </div>
Absolute Safety	Absolute Safety
<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 24 Bit Singleturn + 12 Bit Multiturn</li> <li>&gt; High accuracy ±20 arcsec</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 + 12 Bit Multiturn</li> <li>&gt; High accuracy up to ±20 arcsec</li> <li>&gt; Motor Temperature Logging and Temperature Monitoring of Encoder</li> <li>&gt; EDS</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Functional Safety Applications</li> <li>&gt; Single Cable Solution</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; SINAMICS motion control</li> <li>&gt; Functional safety applications</li> </ul>
<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; Medical</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> <li>&gt; Wind</li> </ul>

	E9		M9	
				
	Incremental Feedback		Incremental Feedback	
Key specs	<ul style="list-style-type: none"> <li>&gt; Feedback device for small DC motors</li> <li>&gt; Ideal for position and speed sensing in small Machines and actuators</li> <li>&gt; Low power consumption ideal for battery powered devices</li> <li>&gt; Incremental signals A, A/ , B, B/ , N, N/</li> <li>&gt; Resolution up to 512 ppr</li> <li>&gt; Frequency response up to 200 kHz</li> <li>&gt; Wide temperature range of -40°C ... +100°C</li> <li>&gt; Compact design: 22 mm housing diameter / 20 mm mounting depth</li> <li>&gt; Hub shaft Ø 1.5 to 4 mm</li> </ul>		<ul style="list-style-type: none"> <li>&gt; Ideal for position and speed sensing in small machines and actuators</li> <li>&gt; Max. output frequency: 200 kHz</li> <li>&gt; Resolution up to 512 lines/rev</li> <li>&gt; Compact design</li> <li>&gt; Easy "snap-on" installation</li> </ul>	
Fields of application	<ul style="list-style-type: none"> <li>&gt; DC motors</li> <li>&gt; Medical devices</li> <li>&gt; Small apparatus devices</li> </ul>		<ul style="list-style-type: none"> <li>&gt; Small Servo and Stepper Motor Feedback</li> </ul>	
Verticals	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

	M53		F-Series	
				
	Incremental Feedback		Incremental + Comtracks	
Key specs	<ul style="list-style-type: none"> <li>&gt; Modular hollow shaft encoder, ideal for BLDC, DC-Servo and Stepper feedback</li> <li>&gt; Through hollow shaft Ø 6 ... 12,7 mm</li> <li>&gt; Up to 2048 PPR with Commutation Tracks</li> <li>&gt; Incremental + Commutation</li> <li>&gt; Incremental signals A, B, N and 4, 6 or 8 pole</li> <li>&gt; Outside diameter 53 mm</li> <li>&gt; Mounting depth: only 23 mm</li> <li>&gt; Maximum speed: 12,000 rpm</li> <li>&gt; Standard Operating temperature: 0 ... +120°C</li> <li>&gt; Easy installation and alignment</li> </ul>		<ul style="list-style-type: none"> <li>&gt; Resolver compatible mounting Size 10, 15, 21</li> <li>&gt; Ideal for BLDC, DC-Servo and Stepper motor</li> <li>&gt; Through hollow shaft up to Ø 9.52 mm</li> <li>&gt; Incremental signals A, B, N</li> <li>&gt; Resolution up to 2.048 ppr</li> <li>&gt; 6, 8 or 10 pole commutation signals</li> <li>&gt; Frequency response up to 300 kHz</li> <li>&gt; Operating temperature up to 120° C</li> <li>&gt; Mounting depth: 22.4 mm</li> </ul>	
Fields of application	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> </ul>		<ul style="list-style-type: none"> <li>&gt; Brushless Servomotors</li> </ul>	
Verticals	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Elevator</li> <li>&gt; AGV</li> <li>&gt; OHV</li> </ul>

## RF53



## Resolver



Incremental Feedback	Absolute Singleturn
<ul style="list-style-type: none"> <li>&gt; Operating temperature up to +120°C</li> <li>&gt; 12,000 rpm continuous operation</li> <li>&gt; Incremental up to 10 000 ppr + commutation up to 32 pole</li> <li>&gt; Tapered solid shaft</li> <li>&gt; Tether front or back mounted</li> <li>&gt; IP54</li> <li>&gt; 360° full screen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Ambient temperature up to 220°C</li> <li>&gt; Absolute position feedback</li> <li>&gt; Rugged: high shock and vibration</li> <li>&gt; Pollution resistant</li> <li>&gt; No electronic components</li> <li>&gt; Maintenance-free</li> <li>&gt; Size 10 ... 55</li> <li>&gt; Frameless and housed resolvers available</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Speed and position feedback in asynchronous geared and non-geared motors as well as point of motion measuring in any type of machine</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> <li>&gt; Medical technology (can be sterilized)</li> <li>&gt; Robots</li> <li>&gt; Gearless drives</li> <li>&gt; Military devices</li> </ul>
<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; Medical</li> </ul>

## S21



## RI64



ICURO<sup>®</sup>  
industry

Sin/Cos	Incremental Feedback
<ul style="list-style-type: none"> <li>&gt; Operating temperature up to +120°C</li> <li>&gt; 12,000 rpm continuous operation</li> <li>&gt; Sine-Cosine 1 Vpp</li> <li>&gt; Excellent immunity to interference</li> <li>&gt; Higher signal quality</li> <li>&gt; Low harmonics (THD)</li> <li>&gt; High functional safety</li> <li>&gt; Tapered solid or hollow shaft</li> <li>&gt; Bandwidth 500 kHz with excellent signal quality</li> <li>&gt; 360° full screen</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Through Hollow shaft Ø 10 -16 mm</li> <li>&gt; Unbreakable code disc</li> <li>&gt; Protection class up to IP67</li> <li>&gt; Isolated shaft</li> <li>&gt; High shock and vibration resistance</li> <li>&gt; Wide operating temperature range of -40°C ... +100°C</li> <li>&gt; Up to 20,000 steps with 5,000 pulses</li> <li>&gt; Wide power supply range DC 5-26 V</li> <li>&gt; Suitable for high shock ratings</li> <li>&gt; 360° full screen</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Servo Motors</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Speed and position feedback in asynchronous geared and non-geared motors as well as point of motion measuring in any type of machine</li> </ul>
<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; SMFB</li> <li>&gt; FA</li> <li>&gt; Medical</li> <li>&gt; Elevator</li> </ul>