Absolute Shaft Encoders – ACURO industry

BiSS, SSI, Parallel

Special Features

- Compact size: 50 mm length for single or multiturn
- Aids for start-up and operation: diagnostic LED, preset key with optical response, status information
- Interfaces: standard SSI, expanded SSI mode, parallel or BiSS
- Use of sine / cosine signals for fast control tasks possible

	ACURO industry with BiSS	ACURO industry with SSI	ACURO industry parallel
Technical Data – mechanical			
Housing diameter	58 mm	58 mm	58 mm
Protection shaft input	IP 64 or IP 67	IP 64 or IP 67	IP 64 or IP 67
Protection housing	IP 64 or IP 67	IP 64 or IP 67	IP 64 or IP 67
Flange	Synchro flange, clamping flange, spring plate	Synchro flange, clamping flange, spring plate	Synchro flange, clamping flange, spring plate
Shaft diameter	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm
Max. speed	Continuous: 10.000 min-1, Short term: 12.000 min-1	Continuous: 10.000 min-1, Short term: 12.000 min-1	Continuous: 10.000 min-1, Short term: 12.000 min-1
Shaft load	Axial 40 N / Radial 60 N	Axial 40 N / Radial 60 N	Axial 40 N / Radial 60 N
Operating temperature	-40 ... 100 °C	-40 ... 85 °C	-40 ... 85 °C
Weight approx. ST / MT	260 g / 310 g	260 g / 310 g	350 g / 400 g
Technical Data – electrical			
Supply voltage	5 V, -5 % / + 10 % or 10-30 V	5 V, -5 % / + 10 % or 10-30 V	10-30 V
Max. intrinsic power consumption ST / MT	50 mA / 100 mA	50 mA / 100 mA	200 mA / 300 mA
Interface	Standard SSI or BiSS	Standard SSI or BiSS	Parallel
Resolution Single turn	10-17 Bit, depend. on version, max 13 Bit in SSI-MT, Gray Excess: 360, 720 steps	10-17 Bit, depend. on version, max 13 Bit in SSI-MT, Gray Excess: 360, 720 steps	10-14 Bit, depend. on version, Gray Excess: 360, 720 steps
Resolution Multi turn	12 Bit	12 Bit	12 Bit
Optional incremental signals	Sine / Cosine 1 Vpp (2048)	Sine / Cosine 1 Vpp (2048)	
Absolute accuracy	±35"	±35"	±35"
Repeat accuracy	±7"	±7"	±7"
Connection	Cable or Conin connector, axial or radial	Cable or Conin connector, axial or radial	Cable or 17pole Conin connector, axial or radial, 37pole Sub-D
Parameterization	Resolution, code type, direction of rotation, warning, alarm	Resolution, code type, direction of rotation, warning, alarm	Resolution, code type, direction of rotation, warning, alarm
Control input	Direction	Direction	Direction
Reset key	Lockable with parametering	Lockable with parametering	Lockable with parametering
Alarm output	Alarm bit (SSI option), warning bit and alarm bit (BiSS)	Alarm bit (SSI option), warning bit and alarm bit (BiSS)	Alarm bit (SSI option), warning bit and alarm bit (BiSS)
Status LED	Green = OK.; red = alarm	Green = OK.; red = alarm	Green = OK.; red = alarm
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Absolute Shaft Encoders – ACURO industry

SSI programmable

Special Features

- Compact size: 50 mm length for single or multiturn
- Aids for start-up and operation: diagnostic LED, preset key with optical response, status information
- Interfaces: standard SSI, expanded SSI mode, parallel or BiSS
- Use of sine / cosine signals for fast control tasks possible

ACURO industry with SSI programmable

Technical Data – mechanical	
Housing diameter	58 mm
Protection shaft input	IP 64 or IP 67
Protection housing	IP 64 or IP 67
Flange	Synchro flange, clamping flange, spring plate
Shaft diameter	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm
Max. speed	Continuous: 10.000 min-1, Short term: 12.000 min-1
Shaft load	Axial 40 N / Radial 60 N
Operating temperature	-40 ... 85 °C
Weight approx. ST / MT	260 g / 310 g
Technical Data – electrical	
Supply voltage	5 V, -5 % / + 10 % or 10-30 V
Max. intrinsic power consumption ST / MT	50 mA / 100 mA
Interface	SSI programmable
Resolution Single turn	10-17 Bit, depend. on version, max 13 Bit in SSI-MT, Gray Excess: 360, 720 steps
Resolution Multi turn	12 Bit
Optional incremental signals	Sine / Cosine 1 Vpp (2048)
Absolute accuracy	±35"
Repeat accuracy	±7"
Connection	Cable or Conin connector, axial or radial
Parameterization	Resolution, code type, direction of rotation, warning, alarm
Control input	Direction
Reset key	Lockable with parametering
Alarm output	Alarm bit (SSI option), warning bit and alarm bit (BiSS)
Status LED	Green = OK.; red = alarm

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Absolute Shaft Encoders – ACURO industry

Fieldbus Interfaces

Special Features

- Overall length: 63 mm for single turn, 73 mm for multi turn, including bus cover
- The complete bus specific electronics is integrated in the connection cover
- Option: Display "tico"

	ACURO industry – Profibus DP	ACURO industry – DeviceNet	ACURO industry – CANopen/CANlayer 2
Technical Data – mechanical			
Housing diameter	58 mm	58 mm	58 mm
Protection shaft input	IP 64 or IP 67	IP 64 or IP 67	IP 64 or IP 67
Protection housing	IP 67	IP 67	IP 64 or IP 67
Flange	Synchro flange, clamping flange, spring plate	Synchro flange, clamping flange, spring plate	Synchro flange, clamping flange, spring plate
Shaft diameter	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm
Max. speed	Continuous: 10.000 min-1, Short term: 12.000 min-1	Continuous: 10.000 min-1, Short term: 12.000 min-1	Continuous: 10.000 min-1, Short term: 12.000 min-1
Shaft load	Axial 40 N / Radial 60 N	Axial 40 N / Radial 60 N	Axial 40 N / Radial 60 N
Operating temperature	-40 ... 85 °C	-40 ... 85 °C	-40 ... 85 °C
Weight approx. ST / MT	350 g / 400 g	350 g / 400 g	350 g / 400 g
Technical Data – electrical			
Supply voltage	10-30 V	10-30 V	10-30 V
Max. intrinsic power consumption ST / MT	220 mA / 250 mA	220 mA / 250 mA	220 mA / 250 mA
Interface	Profibus-DP, Encoder Profile	CAN-Highspeed accord. ISO/DIS 11898, CAN specification 2.0 B (11 and 29 Bit identifier)	CAN-Highspeed accord. ISO/DIS 11898, basic and full-CAN. CAN Specification 2.0 B (11 and 29 Bit identifier)
Profile / Protocol		Manufacturer specific profile, similar to encoder profile draft DeviceNet	CANopen accord. profile DSP 406, with additional functions
Programmable	Accord. Class 2: Resolution, preset, direction	Accord. Class 2: Resolution, preset, direction	CANopen: direction, resolution, preset, offset, limit values
Output code	Binary	Binary	Binary
Transfer mode		Poll mode (only on request), change of state (automatic if value changes), cyclical with adjustable cycle timer	Poll mode (only on request), change of state (automatic if value changes), cyclical with adjustable cycle timer
Baud rate	9.6 KBaud - 12 MBaud	Adjustable: 125, 250, 500 KBaud	Adjustable: 10 to 1000 KBaud
Resolution Single turn	12-14 Bit, depend. on version	10-14 Bit, depend. on version, 12 Bit for MT version	10-14 Bit, depend. on version, 12 Bit for MT version
Resolution Multi turn	12 Bit	12 Bit	12 Bit
Integrated special functions			Speed, acceleration / round axis, limit values only CANopen
Connection	Bus cover as T-manifold	Bus cover as T-manifold	Flange socket Conin 12 pole, axial or radial, bus cover as T-manifold
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Fieldbus Interfaces

Special Features

- Overall length: 63 mm for single turn, 73 mm for multi turn, including bus cover
- The complete bus specific electronics is integrated in the connection cover
- Option: Display "tico"

	ACURO industry – Interbus	ACURO industry – Suconet	
Technical Data – mechanical			
Housing diameter	58 mm	58 mm	
Protection shaft input	IP 64 or IP 67	IP 64 or IP 67	
Protection housing	IP 64 or IP 67	IP 64 or IP 67	
Flange	Synchro flange, clamping flange, spring plate	Synchro flange, clamping flange, spring plate	
Shaft diameter	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm	Full shaft 6 mm, 10 mm; Hollow shaft 10 mm, 12 mm	
Max. speed	Continuous: 10.000 min-1, Short term: 12.000 min-1	Continuous: 10.000 min-1, Short term: 12.000 min-1	
Shaft load	Axial 40 N / Radial 60 N	Axial 40 N / Radial 60 N	
Operating temperature	-40 ... 85 °C	-40 ... 85 °C	
Weight approx. ST / MT	350 g / 400 g	350 g / 400 g	
Technical Data – electrical			
Supply voltage	10-30 V	10-30 V	
Max. intrinsic power consumption ST / MT	220 mA / 250 mA	220 mA / 250 mA	
Interface	Interbus, ENCOM profile K3 (parametrizable), K2	RS485	
Profile / Protocol	K3 = IC-code 37 K2 = ID code 36	SUCOnet-K1	
Programmable	Direction, scale factor, preset, offset	Preset, offset, scale, code sequence	
Output code	32 Bit binary		
Transfer mode			
Baud rate	500 KBaud according to ENCOM	187.5 KBaud	
Resolution Single turn	10-17 Bit, depend. on version, 12 Bit in MT version		
Resolution Multi turn	12 Bit		
Integrated special functions			
Connection	Bus cover as T-manifold		
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Absolute Shaft Encoders

Stainless Steel/Ex-Proof

	RA 59/61 stainless steel	RX 70/71 TS, P (EX)	
Special features	Parallel, SSI, INTERBUS, CAN, CANopen, DeviceNet, Profibus DP Stainless steel encoder with high protection class High corrosion resistance Applications: - packaging machines in food area - ship equipment (e.g. cranes, winshes, cable laying ships) - offshore applications	ex-protection class EEX d IIC T6 or T4 singleturn, up to 13 Bit multiturn, up to 25 Bit SSI **New:** Profibus DP on request InterBus (K2/K3) on request programmable parameters and status bits for RX 70 TP	
Physical resolution (actual resolution of code disc; in addition the required resolution can be reduced for RA 58-P by programming the encoder parameters)	**Singleturn:** 9, 10, 12, 13, 14 Bit **Multiturn:** 4,096 pulses / 4,096 revolutions (24 Bit) 8,192 pulses / 4,096 revolutions (25 Bit) 16,384 pulses / 4096 revolutions (26 Bit)	**Singleturn:** 9, 10, 12, 13 Bit **Multiturn:** 4,096 pulses / 4,096 revolutions (24 Bit) 8,192 pulses / 4,096 revolutions (25 Bit)	
Technical Data – electrical			
Flange	Square flange 63.5 x 63.5 mm	K = clamping flange	
Shaft diameter	10 mm	10 mm	
Absolute max shaft load radial/axial	160/107 N (35/24 lbs)	100 N / 40 N	
Absolute max. speed	10,000 RPM	6,000 min-1 (T6), 10,000 min-1 (T4)	
Torque	≤ 1 Ncm	≤ 0.5 Ncm	
Protection class (EN 60529)	Housing IP 67, Bearing IP 67	Housing IP 65, Bearing IP 64	
General design	as per DIN EN 61,010, protection class III	as per DIN EN 61,010, protection class III	
Operating temperature	-25...+85 °C	-20...+60 °C	
Connection	Cable radial, bus terminal box	cable axial	
Size	Ø 61.5 mm	Ø 70 mm	
Weight approx. IP 67 on request		approx. 1,400 g	
Technical Data – electrical			
Output	The electrical data depends on the type of interface. Please refer to the specific interface chapter.	RS 485	
Supply voltage (SELV)		10...30 VDC	
Max. power consumption		0.2 A	
Baud rate		70 KB...1.5 MB	
Type of code		binary, Gray	
Alarm output		Alarm bit	
Linearity		± ½ LSB (±1 LSB with 13 Bit)	
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