



- Compact design: 59 mm length for single or multiturn
- Aids for start up and operation: diagnostic LED, preset key with optical response, status information
- Parameterization: Resolution, code type, direction, output format, warning, alarm
- Parameters can be stored in a non-volatile memory
- Integrated RS232 interface

### TECHNICAL DATA mechanical

Housing diameter	58 mm
Protection class shaft input	IP64 or IP67
Protection class housing	IP64 (IP67 optional)
Flange	Synchro flange, clamping flange, hubshaft with tether, square flange
Shaft diameter	Solid shaft 6 mm, 10 mm; hub shaft 10 mm, 12mm
Max. speed	12 000 min <sup>-1</sup> (short term), 10 000 min <sup>-1</sup> (continuous)
Starting torque	≤ 0.5 Ncm
Moment of inertia	3.8 · 10 <sup>-6</sup> kgm <sup>2</sup>
Spring tether (hollow shaft)	
Tolerance axial	±1.5 mm
Tolerance radial	±0.2 mm
Max. shaft load	axial 40 N / radial 60 N
Vibration resistance (IEC 68-2-6)	100 m/s <sup>2</sup> (10 - 500 Hz)
Shock resistance (IEC 68-2-27)	1 000 m/s <sup>2</sup> (6 ms)
Operating temperature	-40...+70 °C
Storage temperature	-40...+85 °C
Material shaft	Stainless steel
Material housing	Aluminium
Weight approx. ST/MT	260g/ 310g

### TECHNICAL DATA electrical

Supply voltage	DC 10 - 30 V
Max. current w/o load ST/MT	max. 250 mA
Interface	SSI programmable
Lines / drivers	Clock and Data / RS422
Output code	Binary or Gray
Resolution singleturn	10 - 17 Bit
Resolution multiturn	12 Bit
Parameterization	Resolution, code type, direction, output format, warning, alarm
Control input	Direction, Preset 1, Preset 2
Alarm output	Alarm bit
Status LED	Green = ok; red = alarm
Connection	Cable radial or axial Conin radial or axial

# Absolute Shaft Encoders

# Type AC 58

## ACURO industry

## SSI programmable

### RECOMMENDED DATA TRANSFER RATE FOR SSI

The max. data transfer rate depends on the cable length.  
For Clock/ Clock and Data/ Data please use twisted pairs. Use shielded cable.

Cable length	Baud rate
< 50 m	< 400 kHz
< 100 m	< 300 kHz
< 200 m	< 200 kHz
< 400 m	< 100 kHz

### SYNCHRONOUS-SERIAL TRANSFER (SSI)

A clock brush is applied at the SSI interface, causing the encoder data to be serially clocked out. With each new clock brush (min. interval 30 ms) new data is readout.

The following main parameters are programmable:

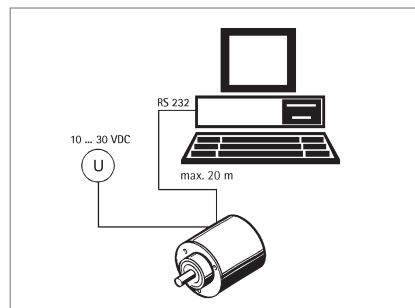
- **Preset:** Software-Preset and via input/pushbutton settable presets (can be inactivated)
- **Offset:** Relative shifting of actual encoder value.
- **Scaling:** The actual value of the encoder is multiplied with the factor < 1.  
Direct entry, increments per measuring distance or per revolution.

- **Direction of rotation:** Can be changed via software or input (can be inactivated)
- **Output formats SSI:** Tree format or standard format (MSB oriented)
- **Output code:** The choices are Gray or binary code, integer or two's complement representation. Selection of significant bit between 16 and 24 Bit.

In addition, programming of max. 7 status bits is possible:

- up to 4 warning positions
- overspeed
- encoder standstill
- parity
- encoder error
- direction of rotation

### PROGRAMMING WITH SSI



To program the absolute encoder you require a PC, the software WinSSI and the adapter cable.

The encoder is connected to the power supply and the serial interface of your PC with the adapter cable.

Using the menu-assisted programme you can then configure the encoder according to the parameters you require.

### OUTPUT FORMATS SSI

		Clock pulse																								! Status bits 7...1
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Number of data bits	24	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	
	23	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	
	22	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	
	21	M8	M7	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	
	20	M7	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	
	19	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	
	18	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	
	17	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	
	16	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	
	15	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	
	14	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	
	13	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	
	12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	
	11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

### MSB-oriented

Multiturn (not scaleable)

Number of data bits	Clock pulse																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
32	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	
32	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	
32	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	
31	M8	M7	M6	M5	M4	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	
30	M7	M6	M5	M4	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	
29	M6	M5	M4	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	
28	M5	M4	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	
27	M4	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	
26	M3	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	
25	M2	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	
24	M1	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	
23	M0	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	
22	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	
21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0
20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

### Tree format

Number of data bits multi-turn	Clock pulse																																Number of data bits single-turn
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	...							
12	M11	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	12							
11	0	M10	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	11							
10	0	0	M9	M8	M7	M6	M5	M4	M3	M2	M1	M0	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	10							
9	0	0	0	M8	M7	M6	M5	M4	M3	M2	M1	M0	S8	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	9							
8	0	0	0	0	M7	M6	M5	M4	M3	M2	M1	M0	S7	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	8							
7	0	0	0	0	0	M6	M5	M4	M3	M2	M1	M0	S6	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	7							
6	0	0	0	0	0	0	M5	M4	M3	M2	M1	M0	S5	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	6							
5	0	0	0	0	0	0	0	M4	M3	M2	M1	M0	S4	S3	S2	S1	S0	0	0	0	0	0	0	0	0	5							
4	0	0	0	0	0	0	0	0	M3	M2	M1	M0	S3	S2	S1	S0	0	0	0	0	0	0	0	0	0	4							
3	0	0	0	0	0	0	0	0	0	M2	M1	M0	S2	S1	S0	0	0	0	0	0	0	0	0	0	0	3							
2	0	0	0	0	0	0	0	0	0	0	M1	M0	S1	S0	0	0	0	0	0	0	0	0	0	0	0	2							
1	0	0	0	0	0	0	0	0	0	0	0	M0	S0	0	0	0	0	0	0	0	0	0	0	0	0	1							
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							

Data multiturn  
(number of revolutions)
Data singleturn  
(Resolution per revolution)

### PIN ASSIGNMENT

Cable Colour	Conin Pin	Signal
green	1	Clock
yellow	2	clock
pink	3	Data
grey	4	Data
brown	5	RS 232 TxD
white	6	RS 232 RxD
black	7	0 V-signal output
blue	8	Direction
red	9	Preset 1
violet	10	Preset 2
white <sup>1</sup>	11	DC 10 - 30 V
brown <sup>1</sup>	12	0 V (supply voltage)

<sup>1</sup> thick wires 0.5 mm<sup>2</sup>

### ACCESSORIES

	Ordering code
Position indication signo-SSI	see chapter "Accessories" (page 236)
User manual SSI-P, German	2 565 287 (Web)
User manual SSI-P, English	2 565 289 (Web)
Clamping eccentric for synchro flange	0 070 655
Diaphragm coupling (hub 6/6 mm)	3 520 081
Diaphragm coupling (hub 10/10 mm)	3 520 088
Software Win SSI as download from our homepage	www.hengstler.com
Win SSI PC connecting cable, incl. power pack 230 VA, for CONIN 12 pole, CCW (suited for supply voltage E and connection G or H)	1 543 010

### ORDERING INFORMATION

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Interface	Connection
<b>AC58</b>	<b>0010</b> 10 Bit ST <b>0012</b> 12 Bit ST <b>0013</b> 13 Bit ST <b>0014</b> 14 Bit ST <b>0017</b> 17 Bit ST <b>1212</b> 12 Bit MT+12 Bit ST <b>1213</b> 12 Bit MT+13 Bit ST <b>1214</b> 12 Bit MT+14 Bit ST <b>1217</b> 12 Bit MT+17 Bit ST *	<b>E</b> DC 10 - 30 V	<b>S.41</b> Synchro, IP64, 6x10mm <b>S.71</b> Synchro, IP67 <sup>1</sup> , 6x10mm <b>K.42</b> Clamping, IP64, 10x19.5mm <b>K.72</b> Clamping, IP67 <sup>1</sup> , 10x19.5mm <b>K.46</b> Clamping, IP64, 9.52x19.5mm <b>K.76</b> Clamping, IP67 <sup>1</sup> , 9.52x19.5mm <b>F.42</b> Hubshaft with tether, IP64, 10x19.5mm hollow shaft <b>F.47</b> Hubshaft with tether, IP64, 12x19.5mm hollow shaft <b>F.46</b> Hubshaft with tether, IP64, 9.52x19.5mm hollow shaft <b>Q.42</b> Square, IP64, 10x19.5mm <b>Q.72</b> Square, IP67 <sup>1</sup> , 10x19.5mm <b>Q.46</b> Square, IP64, 9.52x19.5mm <b>Q.76</b> Square, IP67 <sup>1</sup> , 9.52x19.5mm	<b>SP</b> SSI programmable	<b>G</b> Conin 12 pole axial ccw <b>H</b> Conin 12 pole radial ccw

<sup>1</sup> Protection class IP67 not available in combination with preset key and LED display

\* higher resolution on request

**Preferably available versions are printed in bold type.**