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# HENGSTLER

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**HENGSTLER**

## Absolute Shaft Encoders Type AC 59 / 61

### Stainless steel



Version AC 59 with cable outlet



Version AC 61 with bus cover or cable

#### TYPES

#### TECHNICAL DATA mechanical

#### TECHNICAL DATA electrical

- Compact design
- Protection class IP67
- High corrosion resistance
- Robust design
- Resolution up to 29 Bit (17 Bit ST, 12 Bit MT)
- Connection with cable or with bus cover
- Applications:
  - Packaging machine for food and beverage
  - Ship equipment (e.g. cranes, winches, cable laying ships)
  - Offshore - Applications

The absolute stainless steel encoder are available in the Versions AC 59 and AC 61

- AC 59: drawn stainless steel housing, only together with cable outlet, no access to control elements
- AC 61: massive turned housing, possible with cable or bus cover, access to control elements (DIP switch, Reset switch)

The stainless steel encoder is available with following interfaces:

- Single- or multiturn with cable radial/ axial and interfaces SSI, BiSS, Parallel, SSI-P, CANopen, CANlayer2
- Single- or multiturn with bus cover and interfaces Profibus, CANopen, CANlayer2, DeviceNet, Interbus

Flange	Square flange 63.5 x 63.5 mm
Shaft diameter	10 mm
Protection class (EN 60529)	IP67
Max. Speed	Short term: 10 000 min <sup>-1</sup> , continuous: 6 000 min <sup>-1</sup>
Torque	< 1 Ncm
Moment or inertia	approx. 20 gcm <sup>2</sup>
Max. shaft load	axial 40 N/ radial 60 N
Vibration proof (IEC 68-2-6)	100 m/ s <sup>2</sup> (10 - 500 Hz)
Shock resistance (IEC 68-2-27)	1000 m/ s <sup>2</sup> (6 ms)
Operating temperature	SSI, BiSS, Parallel, : -40...+100°C SSI-P, Interbus: -40...+70°C Profibus, CANopen, CANlayer2, DeviceNet: -40...+ 85°C
Storage temperature	-40...+ 85°C
Material Shaft/ Housing	Stainless steel
Weight approx.	AC 59 with 1.5 m cable: 700 g AC 61 with 1.5 m cable: 980 g AC 61 with bus cover (MT): 1 180 g

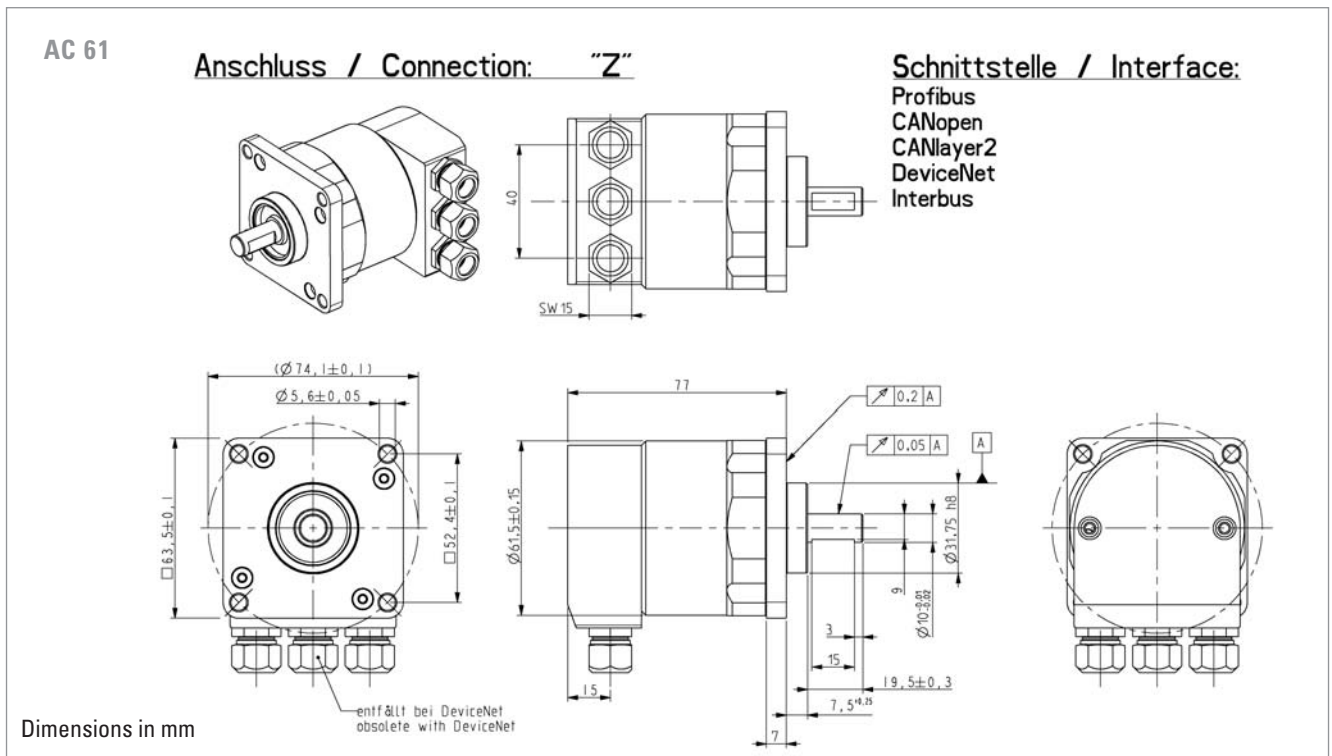
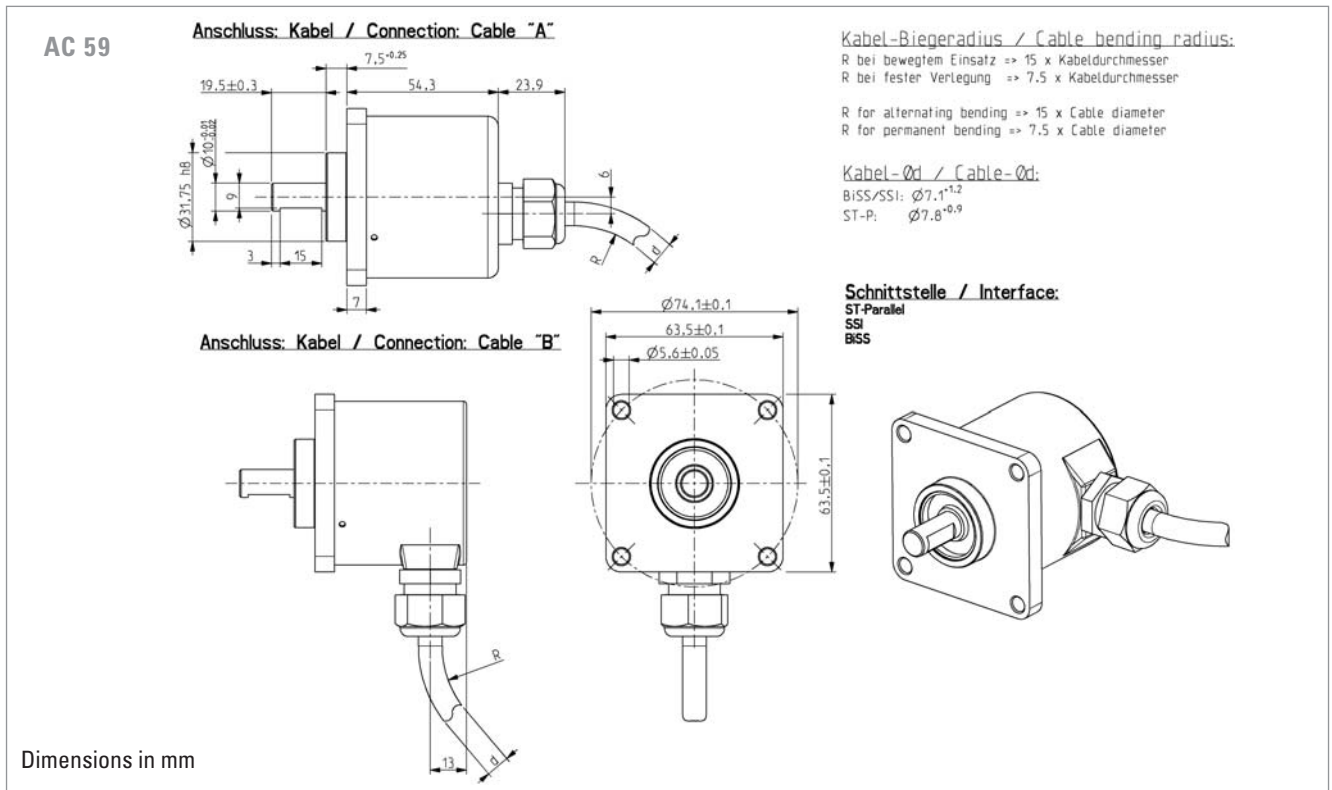
The electrical data and pin assignment see for:

- BiSS/ SSI, page 113
- Parallel, page 118
- Profibus, page 123
- CANopen, page 127
- CANlayer2, page 130
- DeviceNet, page 133
- Interbus, page 136
- SSI-P, page 142

# Absolute Shaft Encoders    Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS



# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS (continued)

**AC 61**

**Anschluss: Kabel / Connection: Cable "A"**      **Schnittstelle / Interface:**  
 ST-/MT-Parallel  
 BiSS  
 SSI  
 SSI-P

Dimensions in mm

**Kabel-Biegeradius / Cable bending radius:**  
 R bei bewegtem Einsatz => 15 x Kabeldurchmesser  
 R bei fester Verlegung => 7.5 x Kabeldurchmesser  
 R for alternating bending => 15 x Cable diameter  
 R for permanent bending => 7.5 x Cable diameter

**Kabel-Ød / Cable-Ød:**  
 BiSS/SSI/SSI-P:  $\varnothing 7.1^{+1.2}$   
 ST-P:  $\varnothing 7.8^{+0.9}$   
 MT-P:  $\varnothing 9.3^{+1.3}$   
 Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

**AC 61**

**Anschluss: Kabel / Connection: Cable "A"**      **Schnittstelle / Interface:**  
 CANopen  
 CANlayer2

Dimensions in mm

**Kabel-Biegeradius / Cable bending radius:**  
 R bei bewegtem Einsatz => 15 x Kabeldurchmesser  
 R bei fester Verlegung => 7.5 x Kabeldurchmesser  
 R for alternating bending => 15 x Cable diameter  
 R for permanent bending => 7.5 x Cable diameter

**Kabel-Ød / Cable-Ød:**  
 BiSS/SSI/SSI-P:  $\varnothing 7.1^{+1.2}$   
 ST-P:  $\varnothing 7.8^{+0.9}$   
 MT-P:  $\varnothing 9.3^{+1.3}$   
 Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

# Absolute Shaft Encoders    Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS (continued)

**AC 61**

**Anschluss: Kabel / Connection: Cable    "B"**      **Schnittstelle / Interface:**  
 BiSS  
 SSI  
 ST-/MT Parallel  
 CANopen  
 CANlayer2  
 SSI-P

**Kabel-Biegeradius / Cable bending radius:**  
 R bei bewegtem Einsatz => 15 x Kabeldurchmesser  
 R bei fester Verlegung => 7.5 x Kabeldurchmesser  
 R for alternating bending => 15 x Cable diameter  
 R for permanent bending => 7.5 x Cable diameter

**Kabel-Ød / Cable-Ød:**  
 BiSS/SSI/SSI-P:  $\varnothing 7.1^{+1.2}$   
 ST-P:  $\varnothing 7.8^{-0.9}$   
 MT-P:  $\varnothing 9.3^{-1.3}$   
 Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

Dimensions in mm

### ACCESSORIES

<b>Profibus</b>	
GSD-file as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>
Technical manual German	2 565 090 (or homepage)
Technical manual English	2 565 255 (or homepage)
<b>CANopen</b>	
EDS-file as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>
Technical manual	2 565 250 (or homepage)
<b>DeviceNet</b>	
EDS-file as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>
Technical manual German	2 565 094 (or homepage)
Technical manual English	2 565 256 (or homepage)
<b>Interbus</b>	
Technical manual K3 German	2 565 217 (or homepage)
<b>SSI programmable</b>	
Technical manual German	2 565 287 (or homepage)
Technical manual English	2 565 289 (or homepage)
Software Win SSI as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

**ORDERING INFORMATION**  
ACURO industry with BiSS

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC59</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>0360</b> 360 Incr. ST <sup>1</sup> <b>0720</b> 720 Incr. ST <sup>2</sup> <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>A</b> DC 5 V <b>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>BI</b> BiSS (Digital) <b>BC</b> BiSS (+SinCos 1Vpp)	<b>A</b> Cable axial 1.5 m <b>A-FO</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-FO</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m

<sup>1</sup> with Offset 76 (value range 76...435)  
<sup>2</sup> with Offset 152 (value range 152...871)

**ORDERING INFORMATION**  
ACURO industry with SSI

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC59</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>0360</b> 360 Incr. ST <sup>1</sup> <b>0720</b> 720 Incr. ST <sup>2</sup> <b>1212</b> 12 Bit MT+12 Bit ST <b>1213</b> 12 Bit MT+13 Bit ST	<b>A</b> DC 5 V <b>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>SB</b> SSI Binary <b>SG</b> SSI Gray <b>SC</b> SSI Gray (+SinCos 1Vpp)	<b>A</b> Cable axial 1.5 m <b>A-FO</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-FO</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m

<sup>1</sup> with Offset 76 (value range 76...435)  
<sup>2</sup> with Offset 152 (value range 152...871)

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### ORDERING INFORMATION

ACURO industry with Parallel

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC59 *</b> <b>AC61</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>0360</b> 360 Incr. ST <sup>1</sup> <b>0720</b> 720 Incr. ST <sup>2</sup> <b>0412</b> 04 Bit MT+12 Bit ST <b>0812</b> 08 Bit MT+12 Bit ST <b>1212</b> 12 Bit MT+12 Bit ST	<b>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>PB</b> Parallel Binary <b>PG</b> Parallel Gray	<b>A</b> Cable axial 1.5 m <b>A-F0</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-F0</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m
* only with ST <sup>1</sup> with Offset 76 (value range 76...435) <sup>2</sup> with Offset 152 (value range 152...871)					

### ORDERING INFORMATION

ACURO industry with Profibus

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>DP</b> Profibus	<b>Z</b> Bus terminal box with 3x screwed cable gland

### ORDERING INFORMATION

ACURO industry with CANopen / CANlayer2

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>OL</b> CANopen <b>CL</b> CANlayer2	<b>A</b> Cable axial 1.5 m <b>A-F0</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-F0</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m <b>Z</b> Bus terminal box with 3x screwed cable gland

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### ORDERING INFORMATION ACURO industry with DeviceNet

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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	E DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>VD</b> DeviceNet	<b>Z</b> Bus terminal box with 2x screwed cable gland

### ORDERING INFORMATION ACURO industry with Interbus

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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	E DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>I3</b> Interbus K3 <b>I2</b> Interbus K2	<b>Z</b> Bus terminal box with 3x screwed cable gland

### ORDERING INFORMATION ACURO industry with SSI programmable

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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 *	E DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>SP</b> SSI programmable	<b>A</b> Cable axial 1.5 m <b>A-F0</b> Cable axial 5 m <b>A-K0</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-F0</b> Cable radial 5 m <b>B-K0</b> Cable radial 10 m

\* higher resolution on request



## Absolute Shaft Encoders Type AC 59 / 61

### Stainless steel



Version AC 59 with cable outlet



Version AC 61 with bus cover or cable

#### TYPES

#### TECHNICAL DATA mechanical

#### TECHNICAL DATA electrical

- Compact design
- Protection class IP67
- High corrosion resistance
- Robust design
- Resolution up to 29 Bit (17 Bit ST, 12 Bit MT)
- Connection with cable or with bus cover
- Applications:
  - Packaging machine for food and beverage
  - Ship equipment (e.g. cranes, winches, cable laying ships)
  - Offshore - Applications

The absolute stainless steel encoder are available in the Versions AC 59 and AC 61

- AC 59: drawn stainless steel housing, only together with cable outlet, no access to control elements
- AC 61: massive turned housing, possible with cable or bus cover, access to control elements (DIP switch, Reset switch)

The stainless steel encoder is available with following interfaces:

- Single- or multiturn with cable radial/ axial and interfaces SSI, BiSS, Parallel, SSI-P, CANopen, CANlayer2
- Single- or multiturn with bus cover and interfaces Profibus, CANopen, CANlayer2, DeviceNet, Interbus

Flange	Square flange 63.5 x 63.5 mm
Shaft diameter	10 mm
Protection class (EN 60529)	IP67
Max. Speed	Short term: 10 000 min <sup>-1</sup> , continuous: 6 000 min <sup>-1</sup>
Torque	< 1 Ncm
Moment or inertia	approx. 20 gcm <sup>2</sup>
Max. shaft load	axial 40 N/ radial 60 N
Vibration proof (IEC 68-2-6)	100 m/ s <sup>2</sup> (10 - 500 Hz)
Shock resistance (IEC 68-2-27)	1000 m/ s <sup>2</sup> (6 ms)
Operating temperature	SSI, BiSS, Parallel, : -40...+100°C SSI-P, Interbus: -40...+70°C Profibus, CANopen, CANlayer2, DeviceNet: -40...+ 85°C
Storage temperature	-40...+ 85°C
Material Shaft/ Housing	Stainless steel
Weight approx.	AC 59 with 1.5 m cable: 700 g AC 61 with 1.5 m cable: 980 g AC 61 with bus cover (MT): 1 180 g

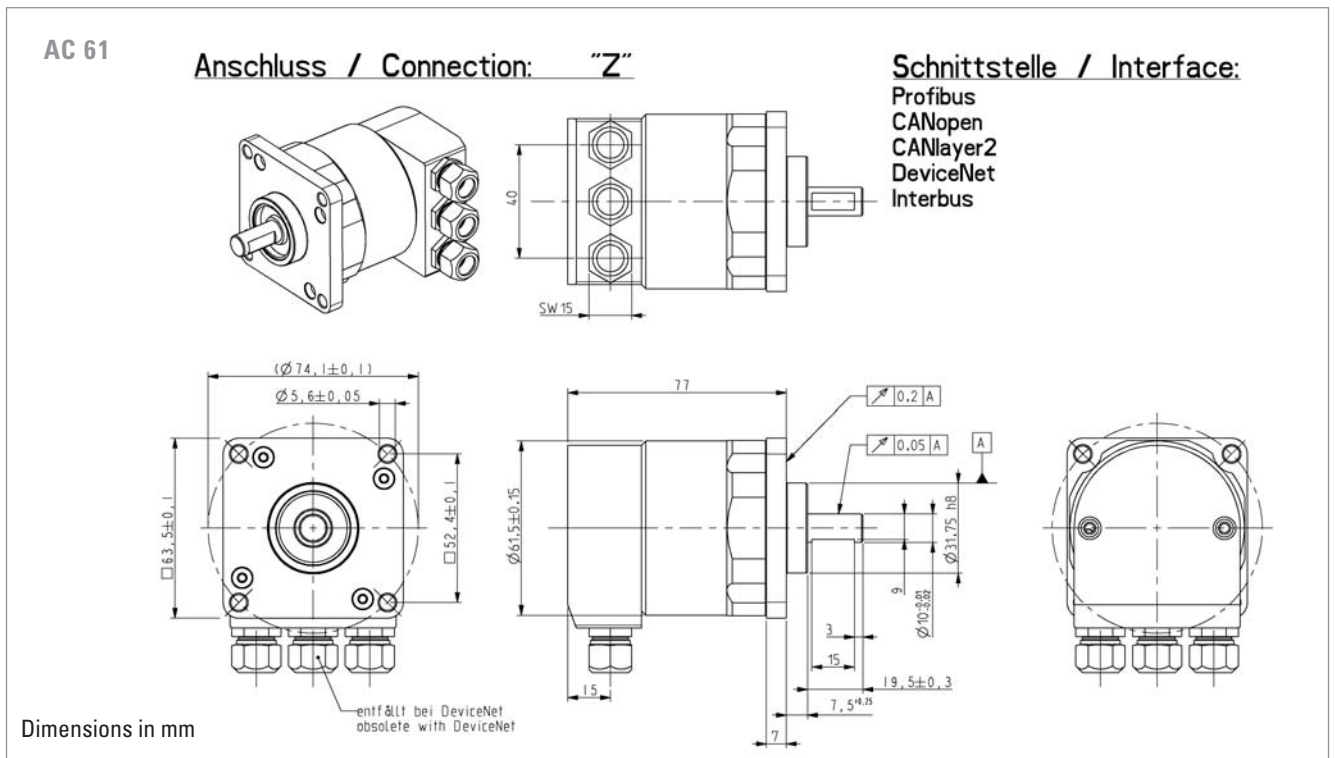
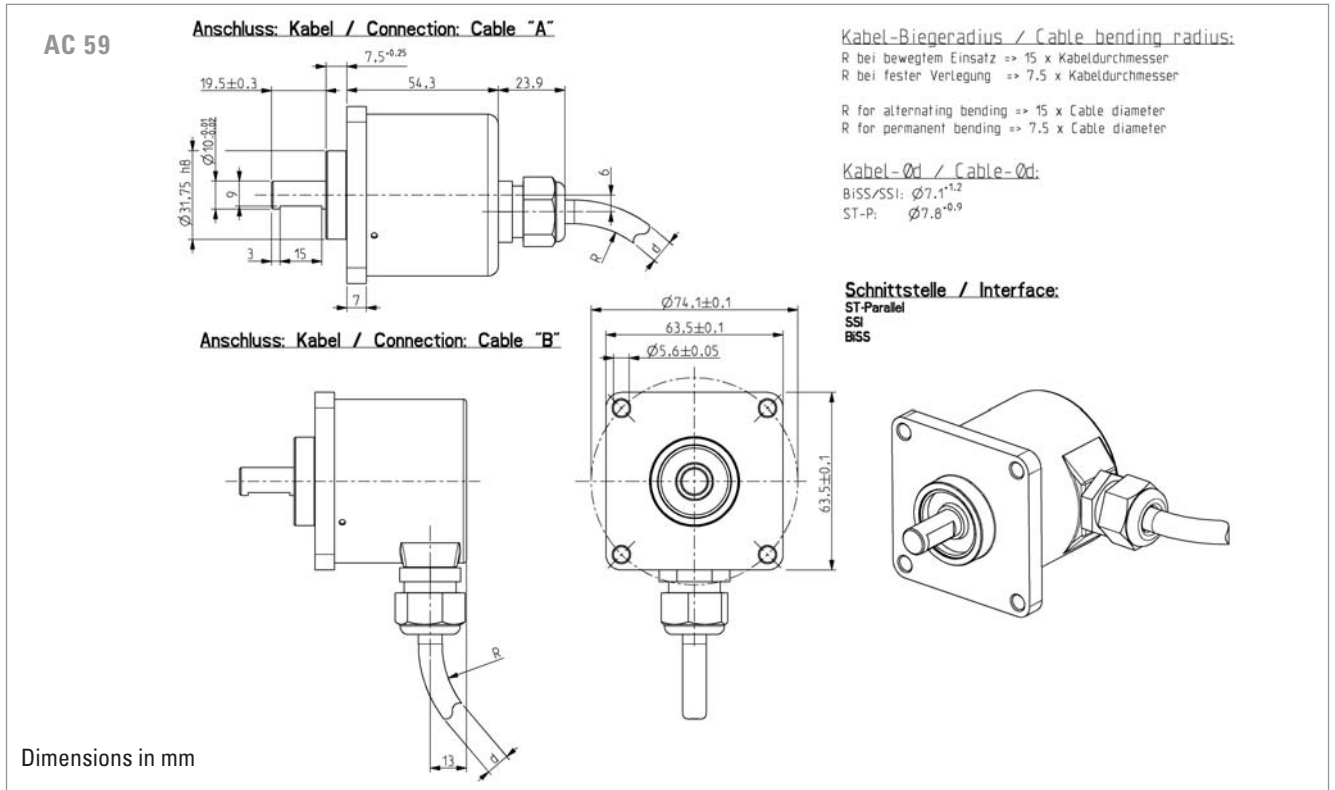
The electrical data and pin assignment see for:

- BiSS/ SSI, page 113
- Parallel, page 118
- Profibus, page 123
- CANopen, page 127
- CANlayer2, page 130
- DeviceNet, page 133
- Interbus, page 136
- SSI-P, page 142

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS



# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS (continued)

**AC 61**

**Anschluss: Kabel / Connection: Cable "A"**      **Schnittstelle / Interface:**  
 ST-/MT-Parallel  
 BiSS  
 SSI  
 SSI-P

Dimensions in mm

**Kabel-Biegeradius / Cable bending radius:**  
 R bei bewegtem Einsatz => 15 x Kabeldurchmesser  
 R bei fester Verlegung => 7.5 x Kabeldurchmesser  
 R for alternating bending => 15 x Cable diameter  
 R for permanent bending => 7.5 x Cable diameter

**Kabel-Ød / Cable-Ød:**  
 BiSS/SSI/SSI-P:  $\varnothing 7.1^{+1.2}$   
 ST-P:  $\varnothing 7.8^{+0.9}$   
 MT-P:  $\varnothing 9.3^{+1.3}$   
 Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

**AC 61**

**Anschluss: Kabel / Connection: Cable "A"**      **Schnittstelle / Interface:**  
 CANopen  
 CANlayer2

Dimensions in mm

**Kabel-Biegeradius / Cable bending radius:**  
 R bei bewegtem Einsatz => 15 x Kabeldurchmesser  
 R bei fester Verlegung => 7.5 x Kabeldurchmesser  
 R for alternating bending => 15 x Cable diameter  
 R for permanent bending => 7.5 x Cable diameter

**Kabel-Ød / Cable-Ød:**  
 BiSS/SSI/SSI-P:  $\varnothing 7.1^{+1.2}$   
 ST-P:  $\varnothing 7.8^{+0.9}$   
 MT-P:  $\varnothing 9.3^{+1.3}$   
 Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

# Absolute Shaft Encoders    Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS (continued)

**AC 61**

**Anschluss: Kabel / Connection: Cable    "B"**

**Schnittstelle / Interface:**  
 BiSS  
 SSI  
 ST-/MT Parallel  
 CANopen  
 CANlayer2  
 SSI-P

**Kabel-Biegeradius / Cable bending radius:**  
 R bei bewegtem Einsatz => 15 x Kabeldurchmesser  
 R bei fester Verlegung => 7.5 x Kabeldurchmesser

**Kabel-Ød / Cable-Ød:**  
 BiSS/SSI/SSI-P:  $\varnothing 7.1^{+1.2}$   
 ST-P:  $\varnothing 7.8^{-0.9}$   
 MT-P:  $\varnothing 9.3^{-1.3}$   
 Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

R for alternating bending => 15 x Cable diameter  
 R for permanent bending => 7.5 x Cable diameter

Dimensions in mm

### ACCESSORIES

<b>Profibus</b>	
GSD-file as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>
Technical manual German	2 565 090 (or homepage)
Technical manual English	2 565 255 (or homepage)
<b>CANopen</b>	
EDS-file as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>
Technical manual	2 565 250 (or homepage)
<b>DeviceNet</b>	
EDS-file as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>
Technical manual German	2 565 094 (or homepage)
Technical manual English	2 565 256 (or homepage)
<b>Interbus</b>	
Technical manual K3 German	2 565 217 (or homepage)
<b>SSI programmable</b>	
Technical manual German	2 565 287 (or homepage)
Technical manual English	2 565 289 (or homepage)
Software Win SSI as download from our homepage	<a href="http://www.hengstler.com">www.hengstler.com</a>

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

**ORDERING INFORMATION**  
ACURO industry with BiSS

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC59</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>0360</b> 360 Incr. ST <sup>1</sup> <b>0720</b> 720 Incr. ST <sup>2</sup> <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>A</b> DC 5 V <b>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>BI</b> BiSS (Digital) <b>BC</b> BiSS (+SinCos 1Vpp)	<b>A</b> Cable axial 1.5 m <b>A-FO</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-FO</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m
<sup>1</sup> with Offset 76 (value range 76...435) <sup>2</sup> with Offset 152 (value range 152...871)					

**ORDERING INFORMATION**  
ACURO industry with SSI

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC59</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>0360</b> 360 Incr. ST <sup>1</sup> <b>0720</b> 720 Incr. ST <sup>2</sup> <b>1212</b> 12 Bit MT+12 Bit ST <b>1213</b> 12 Bit MT+13 Bit ST	<b>A</b> DC 5 V <b>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>SB</b> SSI Binary <b>SG</b> SSI Gray <b>SC</b> SSI Gray (+SinCos 1Vpp)	<b>A</b> Cable axial 1.5 m <b>A-FO</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-FO</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m
<sup>1</sup> with Offset 76 (value range 76...435) <sup>2</sup> with Offset 152 (value range 152...871)					

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### ORDERING INFORMATION

ACURO industry with Parallel

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC59 *</b> <b>AC61</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>0360</b> 360 Incr. ST <sup>1</sup> <b>0720</b> 720 Incr. ST <sup>2</sup> <b>0412</b> 04 Bit MT+12 Bit ST <b>0812</b> 08 Bit MT+12 Bit ST <b>1212</b> 12 Bit MT+12 Bit ST	<b>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>PB</b> Parallel Binary <b>PG</b> Parallel Gray	<b>A</b> Cable axial 1.5 m <b>A-F0</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-F0</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m
* only with ST <sup>1</sup> with Offset 76 (value range 76...435) <sup>2</sup> with Offset 152 (value range 152...871)					

### ORDERING INFORMATION

ACURO industry with Profibus

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>DP</b> Profibus	<b>Z</b> Bus terminal box with 3x screwed cable gland

### ORDERING INFORMATION

ACURO industry with CANopen / CANlayer2

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>OL</b> CANopen <b>CL</b> CANlayer2	<b>A</b> Cable axial 1.5 m <b>A-F0</b> Cable axial 5 m <b>A-KO</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-F0</b> Cable radial 5 m <b>B-KO</b> Cable radial 10 m <b>Z</b> Bus terminal box with 3x screwed cable gland

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### ORDERING INFORMATION ACURO industry with DeviceNet

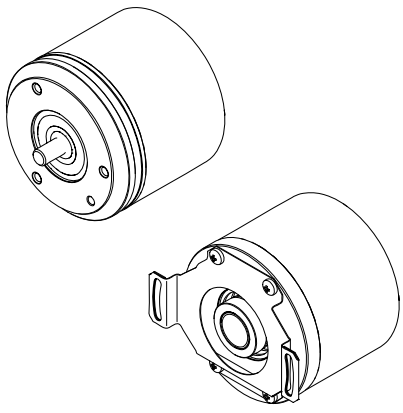
Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</b>	<b>0010</b> 10 Bit ST <b>0012</b> 12 Bit ST <b>0013</b> 13 Bit ST <b>0014</b> 14 Bit ST <b>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>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>VD</b> DeviceNet	<b>Z</b> Bus terminal box with 2x screwed cable gland

### ORDERING INFORMATION ACURO industry with Interbus

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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>E</b> DC 10 - 30 V	<b>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>I3</b> Interbus K3 <b>I2</b> Interbus K2	<b>Z</b> Bus terminal box with 3x screwed cable gland

### ORDERING INFORMATION ACURO industry with SSI programmable

Type	Resolution	Supply voltage	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>AC61</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>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>Q.72</b> Square flange, IP67, 10x19.5 mm <b>Q.76</b> Square flange, IP67, 9.52x19.5 mm	<b>SP</b> SSI programmable	<b>A</b> Cable axial 1.5 m <b>A-F0</b> Cable axial 5 m <b>A-K0</b> Cable axial 10 m <b>B</b> Cable radial 1.5 m <b>B-F0</b> Cable radial 5 m <b>B-K0</b> Cable radial 10 m
* higher resolution on request					



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## HENGSTLER

- D** Absoluter Drehgeber  
AC 58 / 59 / 61 Interbus  
Installationsanleitung
- GB** Absolute Shaft Encoders  
AC 58 / 59 / 61 Interbus  
Installation instructions
- F** Capteur angulaire absolument  
AC 58 / 59 / 61 Interbus  
Instructions d'installation
- I** Trasduttori assoluti di velocità angolare  
AC 58 / 59 / 61 Interbus  
Istruzioni di installazione
- E** Transmisores giratorios absolutos  
AC 58 / 59 / 61 Interbus  
Instrucciones de instalación

Art. No.: 2 565 068  
Edition.: 3 xxxxxx Ste

**GB 2. Safety**

**Authorised persons**  
The encoder should only be assembled and dismantled by a qualified electrician, as the unit contains sensitive electronic circuits.

**Risk of injury due to rotating shafts**  
Hair and items of clothing may become caught up in rotating shafts.  
→ Prior to commencing all works, disconnect all power supplies and ensure that the working environment is safe!

**Risk of destruction due to static electricity**  
The CMOS modules contained in the encoder are very sensitive to high voltages such as can arise due to friction of the clothing.  
→ Do not touch plug contacts or electronic components!

**Risk of destruction due to mechanical overload**  
Rigid mounting will give rise to constraining forces which will permanently overload the bearings.  
→ Never restrict the freedom of movement of the encoder! Use only the enclosed sheet steel springs or a suitable coupling to secure the unit!

**Risk of destruction due to mechanical shock**  
Violent shocks, e.g. due to hammer blows, can lead to the destruction of the optical sensing system and the ball bearings.  
→ Never use force! Assembly is simple provided that correct procedure is followed.

**Risk of destruction due to overloading**  
→ The unit may only be operated within the limits specified in the technical data.

**Fields of application: industrial processes and controls.**  
Overvoltage at the connecting terminals must be limited to overvoltage-class-II values (SELV).  
The connecting cable is not for dragline mounting, only for fix mounting.  
This encoder is a supply part destined for mounting to an appliance (motor, machine). It is not provided for customer sale.  
Manufacturers integrating this encoder to their facilities are responsible as well for compliance with CE guidelines as for the CE mark.

**F 2. Sécurité**

**Personnel autorisé**  
Du fait que le codeur renferme des circuits électroniques sensibles, seul le personnel compétent est autorisé à monter ou démonter le codeur.

**Mise en garde contre les arbres en rotation**  
Les cheveux et les vêtements peuvent être happés par les arbres en rotation.  
→ Prière de sécuriser l'environnement de travail avant de mettre les machines en service.

**Risque de destruction par des décharges électrostatiques**  
Les composants CMOS contenus dans le codeur sont très sensibles aux décharges électrostatiques provoquées par exemple par le frottement de certains vêtements.  
→ Ne pas toucher aux contacts enfichables ni aux composants électroniques.

**Risque de destruction par des surcharges mécaniques**  
Une fixation rigide conduit à une contrainte permanente sur les paliers due aux forces de réaction.  
→ Ne jamais entraver le mouvement de l'arbre du codeur. Pour la fixation, utiliser uniquement les tôles élastiques à ressorts livrées avec le codeur ou un accouplement adéquat.

**Risque de destruction par des chocs mécaniques**  
De fortes vibrations ou des chocs, par ex. des coups de marteau, peuvent provoquer la destruction du système optique de balayage du codeur et des roulements à billes.  
→ Ne jamais forcer. Un montage correct permet un assemblage facile des éléments.

**Risque de destruction par surcharge**  
→ Mettre l'appareil en œuvre uniquement dans les limites prescrites sur les notices techniques.

**Domaine d'application : commandes et processus industriels.**  
Les surtensions sur les bornes de raccordement doivent être limitées aux valeurs de la catégorie II concernant les surtensions (SELV).  
Ce codeur correspond à une fourniture prévue pour être intégrée dans un appareil (moteur, partie mécanique). Il n'est pas destiné à la vente directe au client final.  
Le constructeur intégrant ce codeur dans son équipement est tenu de respecter les directives CE ainsi que le marquage CE.

**D 1. Vorwort**  
Dieses Anleitung soll Ihnen den Anschluss und die Inbetriebnahme des Drehgebers ermöglichen.  
Weitere Informationen finden Sie im Drehgeberkatalog bzw. erhalten Sie auf Anfrage oder per Download von unserer Internetseite www.hengstler.de.

**GB 1. Preface**  
These installation instructions are provided for the connection and starting procedure of your shaft encoder.  
You will get further information from the Acuro datasheet, on request or on download from our Internet site www.hengstler.de.

**F 1. Avant-propos**  
Ces instructions ont pour but de vous permettre la mise en route du capteur angulaire.  
Vous trouverez de plus amples informations dans la fiche technique ou sur simple demande ou par téléchargement à partir de notre site Internet www.hengstler.de.

**I 1. Introduzione**  
Questo manuale d'installazione ha il compito di darle la possibilità di allacciare e mettere in funzione i trasduttori.  
Ulteriori informazioni riceve del foglio caratteristiche o a richiesta o servivite die download nel nostro sito internet www.hengstler.de.

**E 1. Prólogo**  
Este manual de instalación le permite la conexión y puest en marcha de los transmisores giratorios.  
Encontrará mayor información en el hoja de especificaciones o obtendrá esta en ruego, o bien, solicítela directamente a nuestra empresa www.hengstler.de.

**D 2. Sicherheitshinweise**

**Befugte Personen**  
Der Drehgeber darf nur von einer Elektrofachkraft montiert und demontiert werden, da im Drehgeber empfindliche elektronische Schaltkreise enthalten sind.

**Verletzungsgefahr durch rotierende Wellen**  
Haare und Kleidungsstücke können von rotierenden Wellen erfasst werden.  
→ Vor allen Arbeiten alle Betriebsspannungen ausschalten und Arbeitsumgebung sichern!

**Zerstörungsgefahr durch Körperelektrizität**  
Die CMOS-Bausteine im Drehgeber sind sehr empfindlich gegen hohe Spannungen, wie sie z. B. durch die Reibung der Kleidung entstehen können.  
→ Steck-Kontakte und elektronische Komponenten nicht berühren!

**Zerstörungsgefahr durch mechanische Überlastung**  
Eine starre Befestigung führt zu dauerhafter Überlastung der Lager durch Zwangskräfte.  
→ Die Beweglichkeit der Geberwelle niemals einschränken! Zur Befestigung nur die beigelegten Federbleche oder eine geeignete Kupplung verwenden!

**Zerstörungsgefahr durch mechanischen Schock**  
Starke Erschütterungen, z. B. Hammerschläge, können zur Zerstörung der optischen Abtastung und der Kugellager führen.  
→ Niemals Gewalt anwenden! Bei sachgemäßer Montage lässt sich alles leichtgängig zusammenfügen.

**Zerstörungsgefahr durch Überlastung**  
→ Das Gerät darf nur innerhalb der Grenzen betrieben werden, wie sie in den technischen Daten vorgegeben sind.

**Anwendungsbereich: Industrielle Prozesse und Steuerungen.**  
Überspannungen an den Anschlussklemmen müssen auf Werte der Überspannungskategorie II begrenzt werden (SELV).  
Das Anschlusskabel ist nicht schleppfähig und nur für feste Verlegung geeignet.  
Dieser Geber ist ein Zulieferteil, das für den Einbau in ein Gerät (Motor, Maschine) vorgesehen ist. Er ist nicht für den Verkauf an den Endkunde bestimmt.  
Der Hersteller, der diesen Geber in sein Gerät integriert, ist verantwortlich für die Einhaltung der CE-Richtlinien und die CE-Kennzeichnung.

**I 2. Avvertenze sulla Sicurezza**

**Persone autorizzate**  
Il trasduttore di rotazione può essere montato e smontato solo da un elettricista specializzato, poiché il trasduttore di rotazione è dotato di circuiti elettronici sensibili.

**Pericolo di lesioni dovute ad alberi in rotazione**  
I capelli e gli indumenti possono impigliarsi negli alberi in rotazione.  
→ Prima di eseguire qualsiasi lavoro disinserire tutte le tensioni d'esercizio e proteggere la zona di lavoro!

**Pericolo di distruzione dovuta all'elettricità formatasi nel corpo**  
I componenti CMOS del trasduttore di rotazione sono molto sensibili alle alte tensioni come quelle che possono formarsi in seguito allo strofinio degli indumenti.  
→ Non toccare i connettori a spina ed i componenti elettronici!

**Pericolo di distruzione dovuta a sovraccarico meccanico**  
Un fissaggio troppo rigido provoca un sovraccarico permanente dei cuscinetti per via delle forze ad azione forzata.  
→ Non limitare mai la mobilità dell'albero del trasduttore! Per il fissaggio utilizzare solo le lamiere elastiche in dotazione oppure un giunto adeguato!

**Pericolo di distruzione dovuta a shock meccanico**  
Forti urti, ad esempio i colpi di martello, possono causare la distruzione del sistema di scansione ottica e dei cuscinetti a sfera.  
→ Non usare violenza! Lavorando appropriatamente si può unire tutto più leggeremente.  
→ Pericolo di distruzione dovuta a sovraccarico.  
Fare funzionare l'apparecchio entro i limiti che sono stati specificati nelle caratteristiche tecniche

**Campo d'impiego: processi industriali e dispositivi di comando.**  
Le sovratensioni sui morsetti devono essere limitate ai valori della categoria di sovratensione II (SELV).  
Questo trasduttore è un elemento complementare destinato al montaggio in un apparecchio (motore, macchina), e non può essere venduto al cliente finale.  
Il produttore che incorpora questo trasduttore nel suo apparecchio è tenuto a far rispettare le direttive CE e a farlo contrassegnare col marchio CE.

**E 2. Seguridad**

**Persona autorizada**  
Dado que el codificador rotatorio contiene circuitos electrónicos sensibles, únicamente un electricista especializado está autorizado a montarlo y a desmontarlo.

**Peligro de lesión mediante ejes en rotación**  
Los cabellos y las prendas de vestir pueden ser arrastrados por los ejes en rotación.  
→ ¡Antes de comenzar cualquier trabajo, desconecte todas las tensiones de alimentación y asegure el entorno de trabajo!

**Peligro de destrucción por electricidad electrostática**  
Los componentes de CMOS del codificador rotatorio son muy sensibles a las altas tensiones, que se producen p.ej. por el frotamiento de la ropa.  
→ ¡No toque los contactos enchufables y componentes electrónicos!

**Peligro de destrucción por sobrecarga mecánica**  
Un soporte rígido produce una sobrecarga permanente de los cojinetes ocasionada por las fuerzas de ligadura.  
→ ¡No limite nunca la libertad de movimiento del eje del codificador! ¡Para fijarlo, utilice únicamente las chapas elásticas adjuntadas o un dispositivo de acoplamiento adecuado!

**Peligro de destrucción por choque mecánico**  
Las vibraciones fuertes, p.ej. las que se producen por los golpes de un martillo, pueden destruir el dispositivo de exploración óptica y los rodamientos de bolas.  
→ ¡No recurra nunca a la violencia! El montaje es sencillo, siempre y cuando se sigan los pasos correctos.

**Peligro de destrucción por sobrecarga**  
→ No está permitido utilizar el aparato fuera de los límites prescritos en la hoja de datos técnicos.

**Campo de aplicación: Procesos industriales y unidades de mando.**  
Es imprescindible limitar las sobretensiones en los bornes de conexión a los valores correspondientes a la categoría de sobretensión II (SELV).  
Este codificador forma parte del suministro y está destinado a la instalación en un aparato (motor, máquina). No está previsto para la venta al cliente.  
Todo fabricante, que integre este codificador en uno de sus aparatos, se responsabiliza por el cumplimiento de la normativa CE y de la marca CE.

### 3. Montage • Assembly • Montage • Montaggio • Montaje

(1) • Befestigungsexcenter  
• Securing eccentric  
• Excentrique de fixation  
• Eccentrico di fissaggio  
• Excéntrico de sujeción

(A) • Montageglocke  
• Assembly dome  
• Cloche de montage  
• Campana di montaggio  
• Campana de montaje

**A** Synchroflansch • Synchro flange • Bride synchrone • Flangia sincrona • Brida sincrónica

(A) • Befestigungsgewinde  
• Securing thread  
• Filetage de fixation  
• Filetto di fissaggio  
• Rosca de fijación

(B) • Klemmflansch  
• Clamping flange  
• Bride de serrage  
• Flangia di bloccaggio  
• Brida de fijación

(C) • Befestigungswinkel  
• Securing bracket  
• Equerre de fixation  
• Squadretta di fissaggio  
• Ángulo de fijación

**B** Klemmflansch • Clamping flange • Bride de serrage • Flangia di bloccaggio • Brida de fijación

(A) • Befestigungsgewinde  
• Securing thread  
• Filetage de fixation  
• Filetto di fissaggio  
• Rosca de fijación

**C** Quadratflansch • Square flange • Bride carrée • Flangia quadrata • Brida cuadrada

(A) • Federblech  
• Spring plate  
• Tôle élastique à ressorts  
• Lamiera elastica  
• Chapa para láminas de contacto

**D** Federblech, Hohlwelle • Spring plate, hollow shaft • Tôle élastique à ressorts, arbre creux  
Lamiera elastica, albero cavo • Chapa para láminas de contacto, eje hueco



4. Mechanische Daten Mechanical data • Caractéristiques mécaniques Dati meccanici • Datos mecánicos		
d = 6 mm		
d = 9,52/10 mm		
	- kurzzeitig - short term - brièvement - per breve durata - de corta duraci- - òn	= 12 000 min <sup>-1</sup>
	- Dauerbetrieb - continuous duty - Fonctionnement - ininterrompu - Servizio continuo - Funcionamiento - continuo	= 10 000 min <sup>-1</sup>
		-40 ... +85 °C
- Vibration - Shock		100 m/s <sup>2</sup> (10 ... 500 Hz) 1 000 m/s <sup>2</sup> (6 ms)

5. Elektrische Daten Electrical data • Caractéristiques électriques Dati elettrici • Datos eléctricos		
	Singleturn	Multiturn
U <sub>in</sub> =	10...30VDC <sup>1)</sup>	10...30VDC <sup>1)</sup>
I <sub>max</sub> (only Encoder) =	220 mA	250 mA
I <sub>max</sub> (incl. Output) = Fuse	2 A	2 A
- Schnittstelle - Interface - Interface - Interfaccia - Interfaz	Interbus (RS 422)	
- Kabellänge - Cable length - Longueur de câble - Lunghezza cavo - Longitud de cable	gemäß Interbus-Spezifikation 	
ESD		

1) Mit Verpolschutz  
1) Reverse protection against false polarity

6. Identifikationscode Ordering data • Code d'identification Chiave per l'ordinazione • Código de pedido
--

AC 58 / 1212 E K.42 I3 I						
<b>Auflösung</b>	<b>Versorgung</b>	<b>Flansch</b>	<b>Schutzart</b>	<b>Welle-Ø</b>	<b>Schnittstelle</b>	<b>Anschluss</b>
0010 10 Bit ST	E = 10 - 30 V	S. 41 Synchro	IP 64	6 mm	I2 = Interbus K2	I = Doppelconin
0012 12 Bit ST		S. 71 Synchro	IP 67	6 mm	I3 = Interbus K3	Z = Bushaube 3x Kabel verschr.
0013 13 Bit ST		K. 42 Klemm	IP 64	10 mm		T = Bushaube 4 pol. M12 für Tico
0014 14 Bit ST		K. 72 Klemm	IP 67	10 mm		Anzeige + 2x Kabelverschr.
1212 12 Bit MT + 12 Bit ST		F. 42 Federblech	IP 64	10 mm Hohlw.		
		F. 47 Federblech	IP 64	12 mm Hohlw.		
Hinweis: Bus- Anschlüsse radial/ axial über Stecker + Kabel optional auf Anfrage.						
<ul style="list-style-type: none"> <li>• Diagnose- Kit 230 VAC für Geber mit Bushaube, inkl. ACURO soft und „tico“- Anzeige, Art. Nr 1 565 070</li> <li>• „tico“- Anzeige, Art. Nr. 0 731 205</li> <li>• Verbindungskabel Bushaube (T) zu „tico“, 1,5 m, Art. Nr. 3 539 575</li> </ul>						

7. Anschlussbilder Connection diagrams • Symboles de raccordement Denominazione collegamento • Denominación de los cables			
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7.1 Anschlussbelegung Flanschdose 2-fach • Pinout (2xConin 8 pol.) (Code H)			
Pin	In	Out	
1		GND1	Data Ground (M5V)
2	A	A	Receive /Transmit Data-Negative (A)
3			
4	B	B	Receive /Transmit Data-Negative (B)
5			
6		VCC1	+5V <sup>2)</sup> (P5V)
7	10...30 VDC	10...30 VDC	+UB <sup>3)</sup> (P24)
8	0 V	0V	Ground <sup>2)</sup> (M24)

2) Signalausgang signal output 3) Versorgungsspannung supply voltage

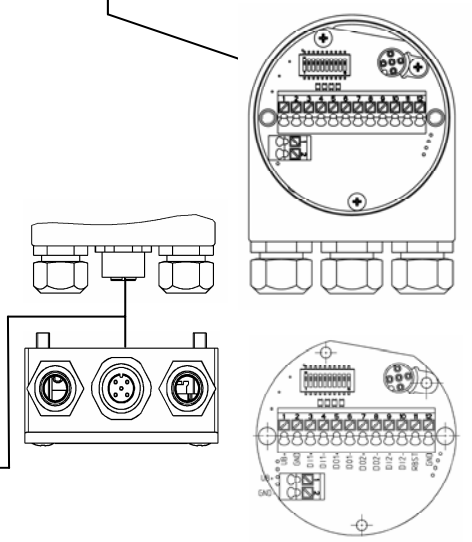
7.2 Anschlussbelegung (Standardbelegung für Installationsbus) • Connection assignment (for installation remote bus)		
Pin	IN (9-poles, pins)	OUT (9-poles, socket)
1	DOT	DO2
2	DO1	DO2
3	DI1	DI2
4	DI1	DI2
5	GND-signal output <sup>1)</sup>	GND-signal input <sup>1)</sup>
6	PE <sup>2)</sup>	PE <sup>2)</sup>
7	10...30 VDC (SELV)	10...30 VDC (SELV)
8	0V (supply voltage)	0V (supply voltage)
9	n.c.	RBST

<sup>1)</sup> Signalausgang; wegen der Potenzialtrennung nicht mit 0V (Versorgungsspannung) identisch; wird verwendet, um den RBST-Eingang auf logisch "0" zu legen.  
<sup>1)</sup> Due to the potential separation not identical with 0V (supply voltage), used in the T- manifold to set the RBST input to logically "0".  
<sup>2)</sup> Funktionserde; mit dem Gebergehäuse verbunden.  
<sup>2)</sup> Functional earthing; connected to the encoder housing.

7.4 Anschlussbelegung M12 für Tico <sup>1)</sup> • M12 Connector for Tico <sup>1)</sup>	
Pin	Signal
1	+ UB out (supply for Tico)
2	Clock (Count input)
3	0V
4	Data (Reset input)
5	N.C.

<sup>1)</sup> Optional; auf Anfrage erhältlich  
<sup>2)</sup> Optional; available on request

7.3 Anschlussbelegung Kabelklemme (Bushaube) • Connection diagramm for version „Bus cover“	
Pin	Signal
1	+UB
2	GND
3	DI1+
4	DI1-
5	DO1+
6	DO1-
7	DO2+
8	DO2-
9	DI2+
10	DI2-
11	RBST
12	GND
1	+UB
2	-GND

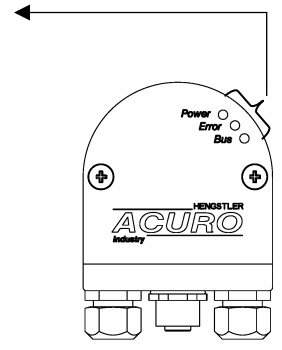


## 8. CE Declaration of Conformity

- Placeholder -

9. Störmeldung Malfunction • Message d'erreur Avviso di malfunzionamento • Aviso de falla		
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(D)	LED	Bedeutung
Power (grün)	○ AUS	Spannungsversorgung fehlt oder Unterspannung
	● EIN	Spannungsversorgung ist in Ordnung
Error (rot)	○ AUS	Geberteil liefert fehlerfreie Positionsdaten
	● BLINKEND	Geberteil liefert keine oder falsche Positionsdaten Mögliche Ursachen: - Unterbrechung BUS-Teil zu Geberteil - Gültiger LED-Sendestromregelbereich verlassen
Bus (grün)	○ AUS	Keine Verbindung zum Master Mögliche Ursachen: - Datenleitungsunterbrechung - Vertauschte Datenleitung
	● BLINKEND	Verbindung zum Master, nicht konfiguriert.
	● EIN	Verbindung zum Master, konfiguriert, data exchange möglich
(GB)	LED	meaning
Power (green)	○ OFF	Voltage supply interrupted or under-voltage
	● ON	Voltage supply OK
Error (red)	○ OFF	Encoder provides correct position data
	● BLINKING	Encoder provides no position data or wrong position data Potential reasons: - BUS-to-encoder connection interrupted - Valid LED-current regulation range exceeded
Bus (green)	○ OFF	Connection to master interrupted Potential reasons: - Data line interrupted - Data line misconnected
	● BLINKING	Connection to master not configured
	● ON	Connection to master, configured, data exchange is possible
(F)	LED	signification
Power (vert)	○ éteinte	Absence d'alimentation ou alimentation insuffisante
	● allumée	Alimentation correcte
Error (rouge)	○ éteinte	Transmission des données sans problème
	● clignotante	Pas de transmission des données de position ou transmission des données de position incorrecte Causes possibles: - Connexion Bus-Codeur interrompue - Plage de régulation du courant émetteur utile de la LED hors limites
Bus (vert)	○ éteinte	Aucune connexion avec l'élément maître Causes probables: - Coupure dans le câblage transmission des données - Câblage transmission des données inversé
	● clignotante	Connexion avec l'élément maître non configurée
	● allumée	Connexion avec l'élément maître configurée, Echange de données possible



(E)	LED	significado
Power (verde)	○ OFF	Falta de tensión de alimentación o tensión de alimentación baja
	● ON	Tensión de alimentación correcta.
Error (rojo)	○ OFF	El encóder proporciona información correcta sobre la posición
	● Intermitente	El encóder no proporciona información sobre la posición o la información proporcionada es incorrecta Posibles motivos: - Se ha interrumpido la conexión del encóder al bus - Se ha sobrepasado el rango de regulación de corriente del LED
Bus (verde)	○ OFF	Conexión con el Maestro interrumpida Posibles motivos: - Cable de comunicación sin conectar - Cable de comunicación conectado incorrectamente
	● Intermitente	Conexión del Maestro sin configurar
	● ON	Conexión con el Maestro configurada. El intercambio de datos es posible
(I)	LED	descrizione
Power (verde)	○ OFF	Tensione di alimentazione interrotta o insufficiente
	● ON	Tensione di alimentazione corretta
Errore (rosso)	○ OFF	L'encoder fornisce dati di posizionamento corretti
	● lampeggiante	L'encoder non fornisce dati di posizionamento o quelli forniti non sono corretti. Possibili motivi: - Interruzione della connessione BUS - Superamento del range di funzionamento del LED regolatore di corrente
	○ OFF	Connessione con il master interrotta (baudrate non identica) - Linea dati interrotta - Linea dati scollegata
Bus (verde)	● lampeggiante	Connessione con il master Status: "pre-funzionamento"
	● ON	Connessione con il master, configurato, possibilità di scambio dati; Status: "in funzione"

Interbus ID K2: 36h  
Interbus ID K3: 37h