

# 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

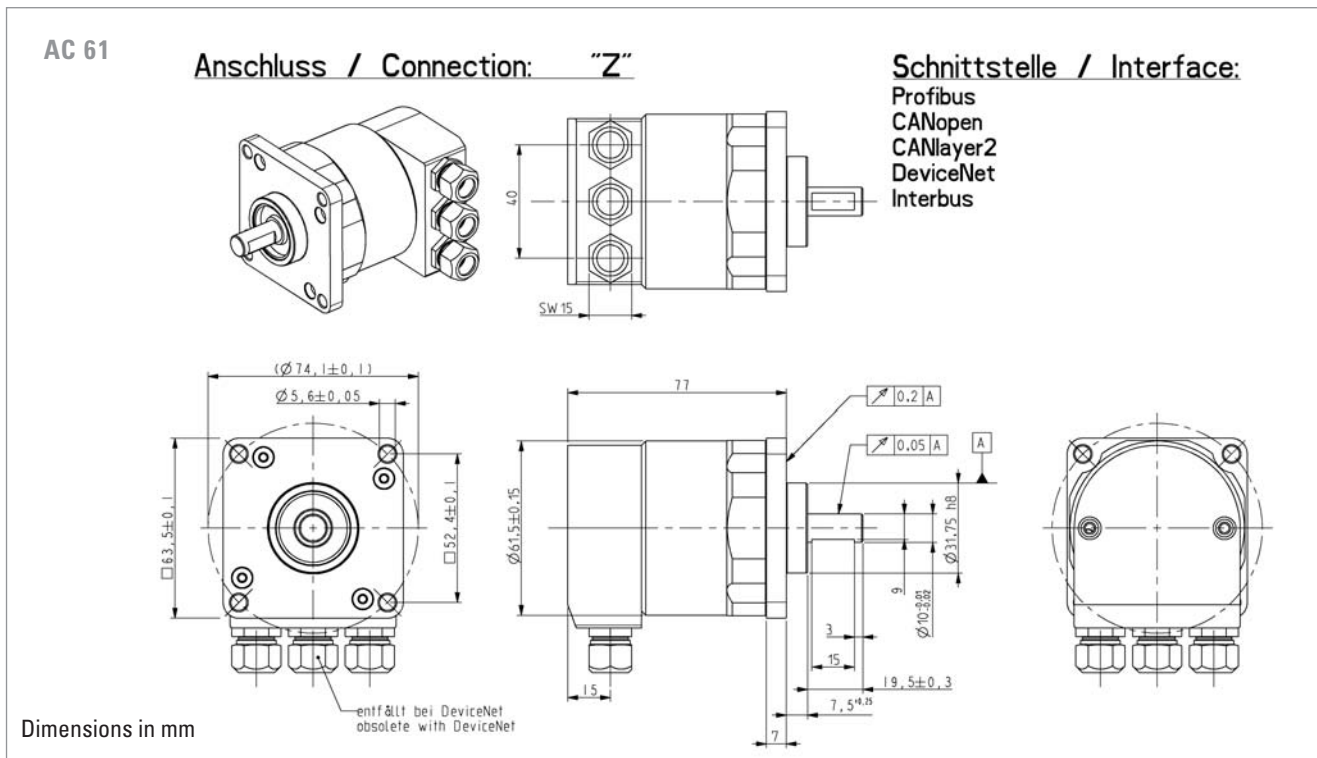
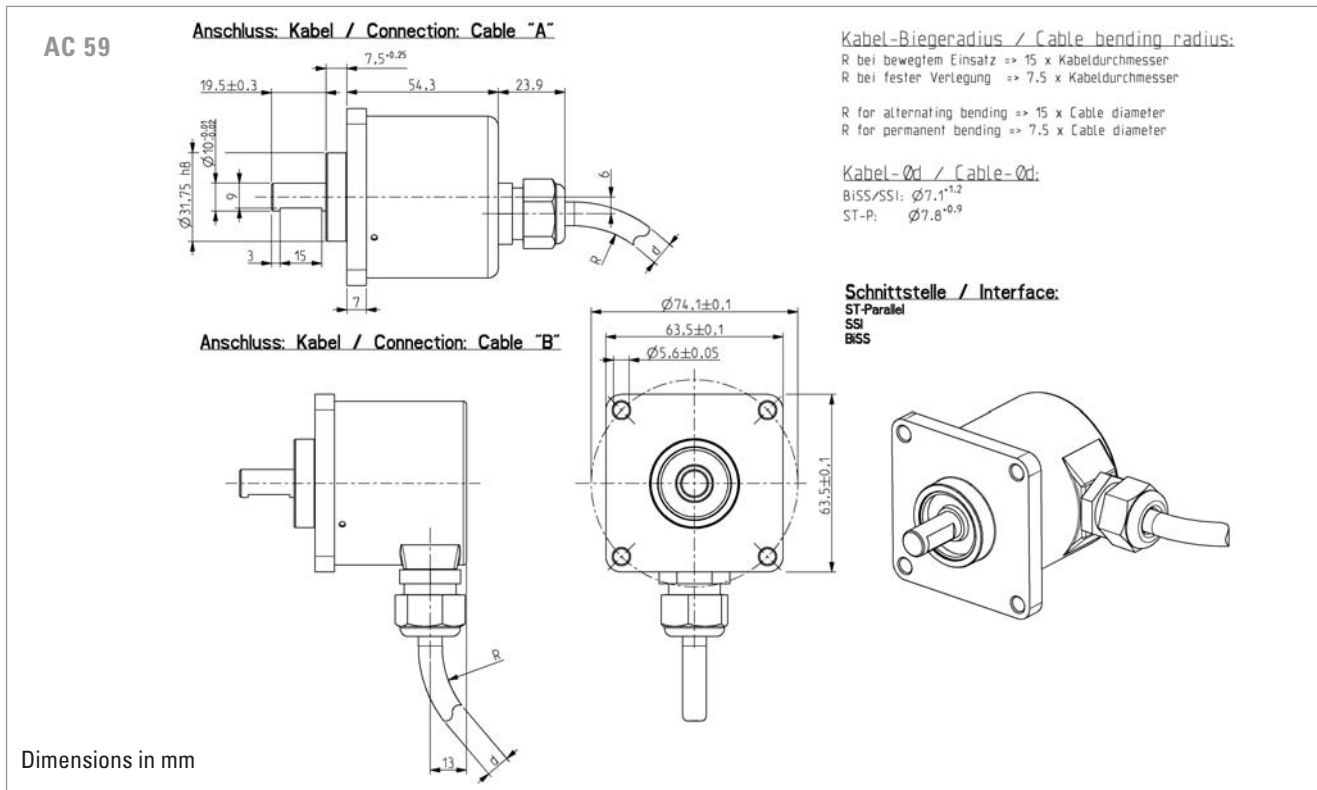
The electrical data and pin assignment see for:

- 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



### DIMENSIONAL DRAWINGS (continued)

AC 61

Anschluss: Kabel / Connection: Cable "A"

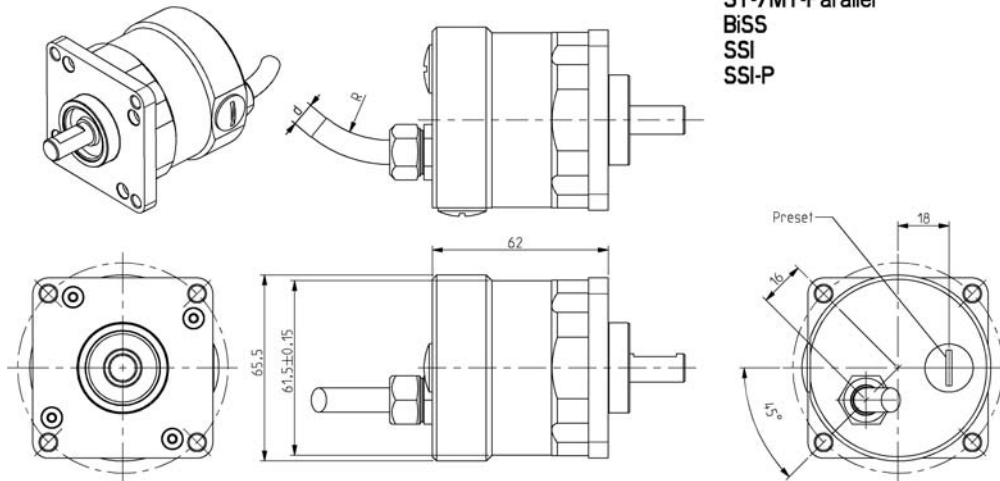
Schnittstelle / Interface:

ST-/MT-Parallel

BiSS

SSI

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

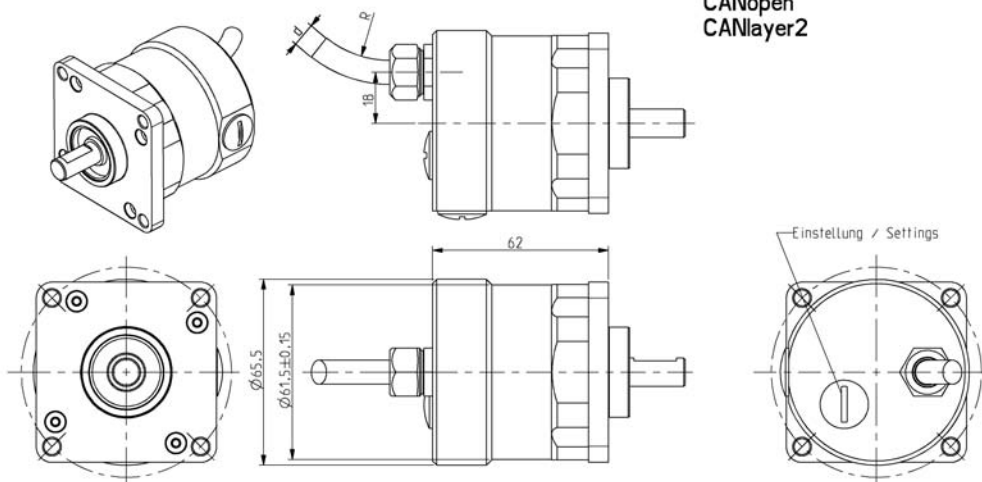
AC 61

Anschluss: Kabel / Connection: Cable "A"

Schnittstelle / Interface:

CANopen

CANlayer2



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:  $\varnothing 9.3^{+1.3}$

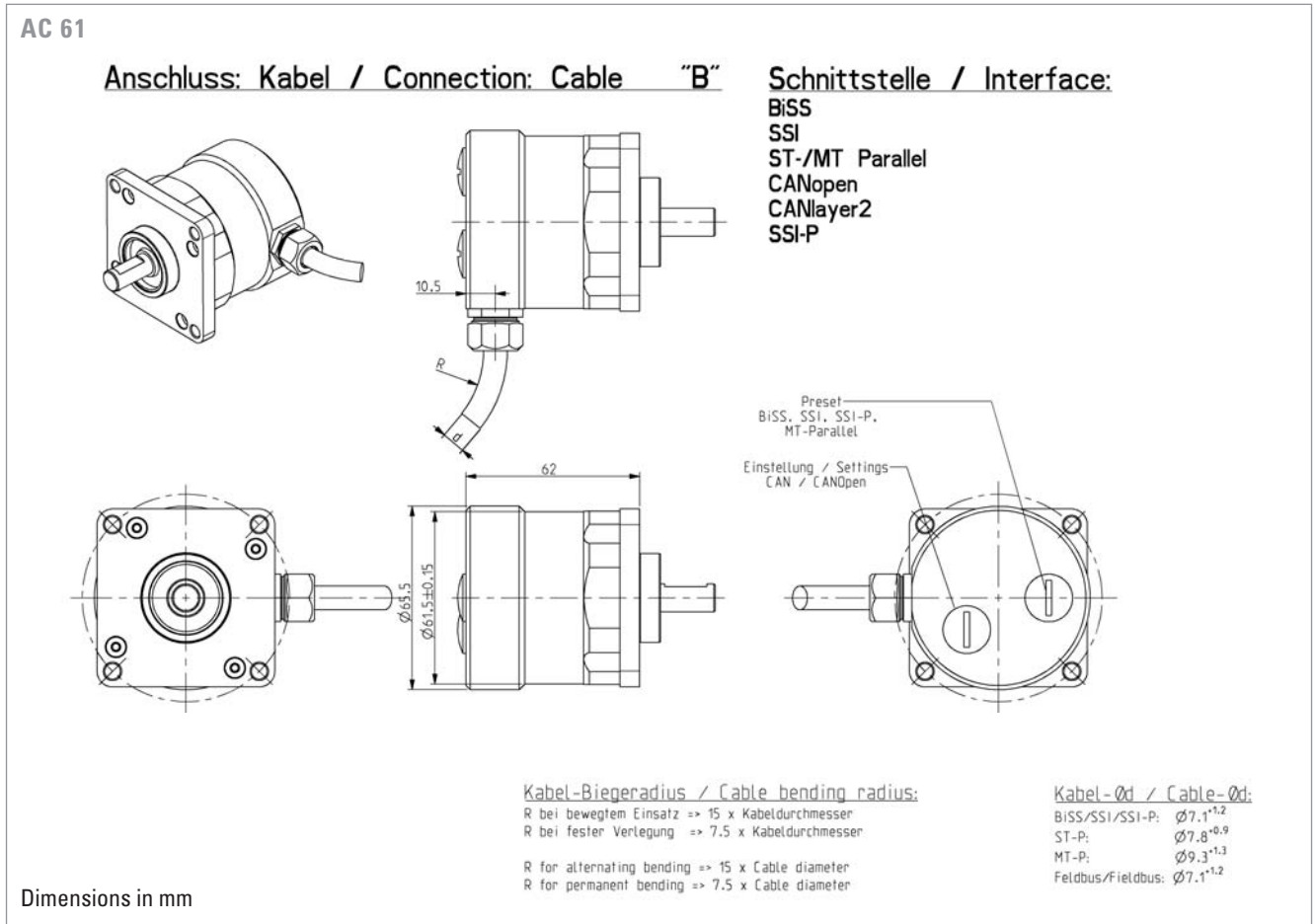
Feldbus/Fieldbus:  $\varnothing 7.1^{+1.2}$

Dimensions in mm

# Absolute Shaft Encoders Type AC 59 / 61

## Stainless steel

### DIMENSIONAL DRAWINGS (continued)



### 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

### 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