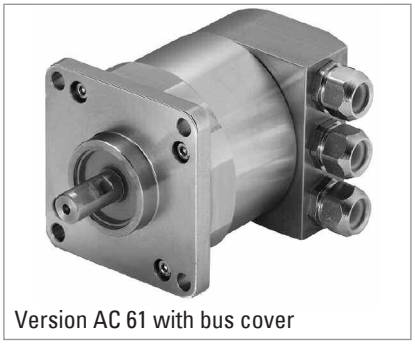
# TECHNICAL DATASHEET

## Stainless Steel Encoders AC 61 - CANopen



Version AC 61 with bus cover

- Compact design
- Protection class IP67
- High corrosion resistance
- Robust design
- Resolution up to 28 Bit (16 Bit ST, 12 Bit MT)
- Versions with cable or demountable bus cover
- Programmable: Resolution, Preset, Offset, Direction
- Output of speed, acceleration
- Applications: packaging machine for food and beverage, ship equipment (e.g. cranes, winches, cable laying ships), offshore applications

HENGSTLER ACURO industry · CANopen · CE · c UL us LISTED · RoHS 2002/95/EG

### GENERAL INFORMATION

The absolute stainless steel encoders 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: machined housing, possible with cable or bus cover, access to control elements (DIP switch, Reset switch)

### TECHNICAL DATA mechanical

| | |
|---|---|
| Housing diameter | 61.5 mm |
| Shaft diameter | 9.52 mm / 10 mm (Solid shaft) |
| Flange (Mounting of housing) | Square flange 63.5 mm |
| Protection class shaft input (EN 60529) | IP67 |
| Protection class housing (EN 60529) | IP67 |
| Shaft load axial / radial | 40 N / 60 N |
| Max. speed | max. 6000 rpm (continuous), max. 10 000 rpm (short term) |
| Torque | ≤ 1 Ncm |
| Moment of inertia | approx. 20 gcm² |
| Vibration resistance (DIN EN 60068-2-6) | 100 m/s² (10 ... 500 Hz) |
| Shock resistance (DIN EN 60068-2-27) | 1000 m/s² (6 ms) |
| Operating temperature | -40 °C ... +85 °C |
| Storage temperature | -40 °C ... +85 °C |
| Material shaft | Stainless Steel |
| Material housing | Stainless Steel |
| Weight | approx. 980 g with 1.5 m cable / 1180 g with bus cover |
| Connection | Cable, axial or radial<br>Bus cover with 3 sealed cable exits |

### TECHNICAL DATA electrical

| | |
|---|---|
| General design | as per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II |
| Supply voltage | DC 10-30 V |
| Max. current w/o load | 220 mA (ST), 250 mA (MT) |

# TECHNICAL DATASHEET

## Stainless Steel Encoders AC 61 - CANopen

**TECHNICAL DATA**
**electrical (continued)**

| | |
|---|---|
| EMC | EN 61326: Class A |
| Resolution singleturn | 10 - 16 Bit |
| Resolution multiturn | 12 Bit |
| Output code | Binary |
| Linearity | ± ½ LSB (± 1 LSB for resolution 13, 14, 25, 26 Bit) |
| Profile/ protocol | CANopen according to DS 301 with profile DSP 406, programmable encoder according class C2 |
| Programmable | Resolution, Preset, Offset, Direction |
| Integrated special functions | Speed, Acceleration, Limit values, Operating time |
| Baud rate | set via DIP switches within a range of 10 through 1000 Kbit/s |
| Bus termination resistor | set via DIP switches |
| Updating of values | every millisecond (adjustable), on request |
| Basic identifier | set via DIP switches |

**ELECTRICAL CONNECTIONS**
**12 pole / cable**

| TPE cable | Cable pairs | Signal |
|---|---|---|
| yellow | Pair 1 | CAN in+ |
| green | | CAN in - |
| pink | Pair 2 | CAN out+ |
| grey | | CAN out - |
| blue | | CAN GND in |
| brown | | CAN GND out |
| white | Pair 3 | UB in |
| brown | | 0 V in |
| screen | screen | screen |

**ELECTRICAL CONNECTIONS**
**Bus cover with 3 sealed cable exits**

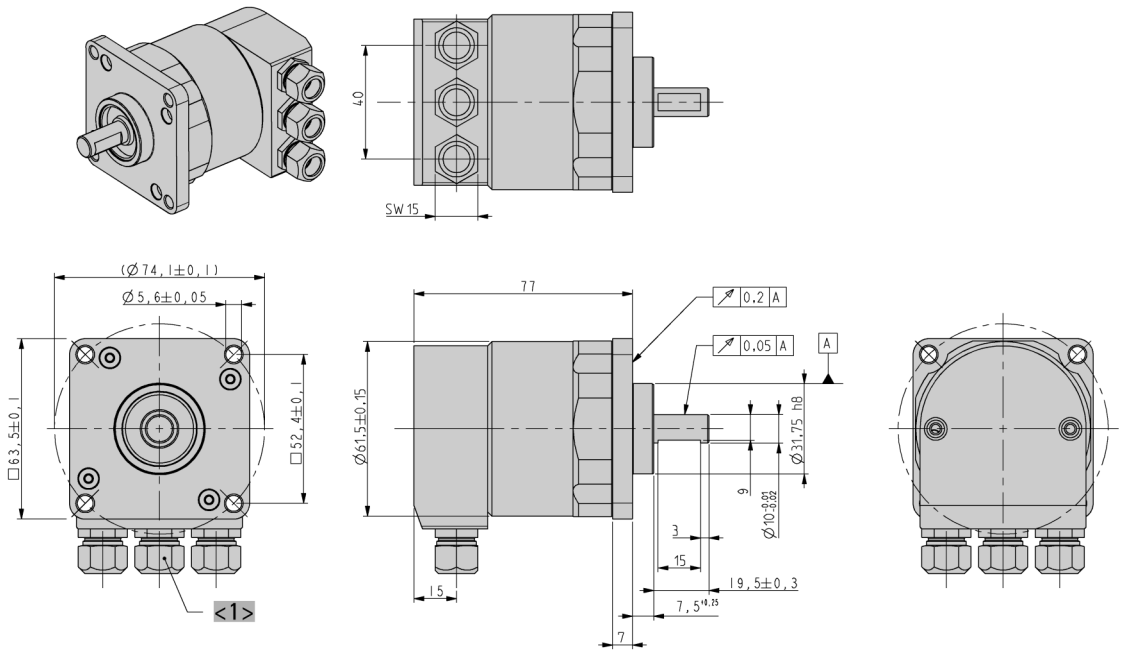
| Connecting block KL 1 (10 pole) | |
|---|---|
| **No.** | **Signal name** |
| 1 | UB in (DC 10-30V) |
| 2 | 0 V in |
| 3 | CAN in - (dominant L) |
| 4 | CAN in + (dominant H) |
| 5 | CAN GND in |
| 6 | CAN GND out |
| 7 | CAN out + (dominant H) |
| 8 | CAN out - (dominant L) |
| 9 | 0 V out |
| 10 | UB out (DC 10-30V) |

# TECHNICAL DATASHEET

## Stainless Steel Encoders AC 61 - CANopen

### DIMENSIONED DRAWINGS

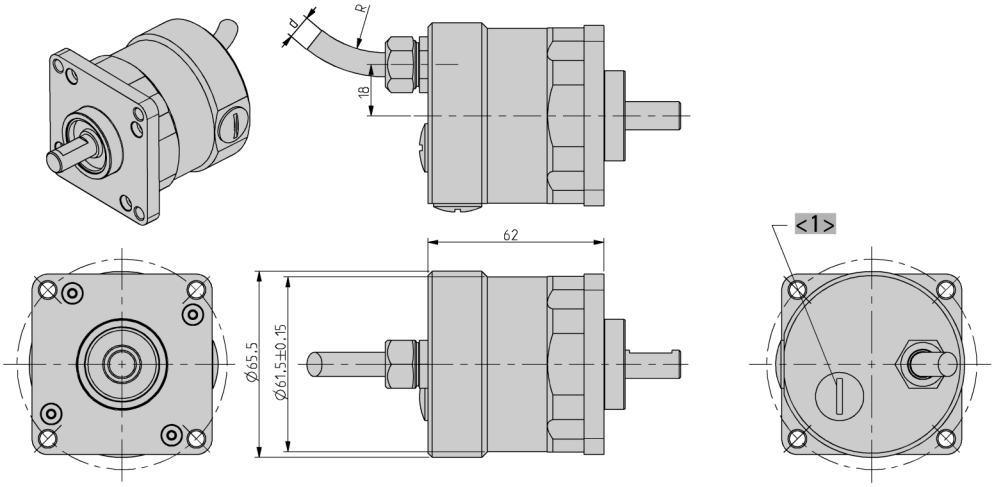
**AC 61 Connection cable "Z"**
**Interface: Profibus, CANopen, CANlayer2, DeviceNet, Interbus**




<1> Obsolete with DeviceNet

Dimensions in mm

**AC 61 Connection cable "A"**
**Interface: CANopen, CANlayer2**




<1> Settings
Cable bending radius R for flexible installation ≥ 15 x cable diameter
Cable bending radius R for fixed installation ≥ 7.5 x cable diameter
Cable Ø d BiSS/SSI/SSI-P: 7,1 +1,2

Cable Ø d ST-P: 7,8 +0,9
Cable Ø d MT-P: 9,3 +1,3
Cable Ø d Fieldbus: 7,1 +1,2

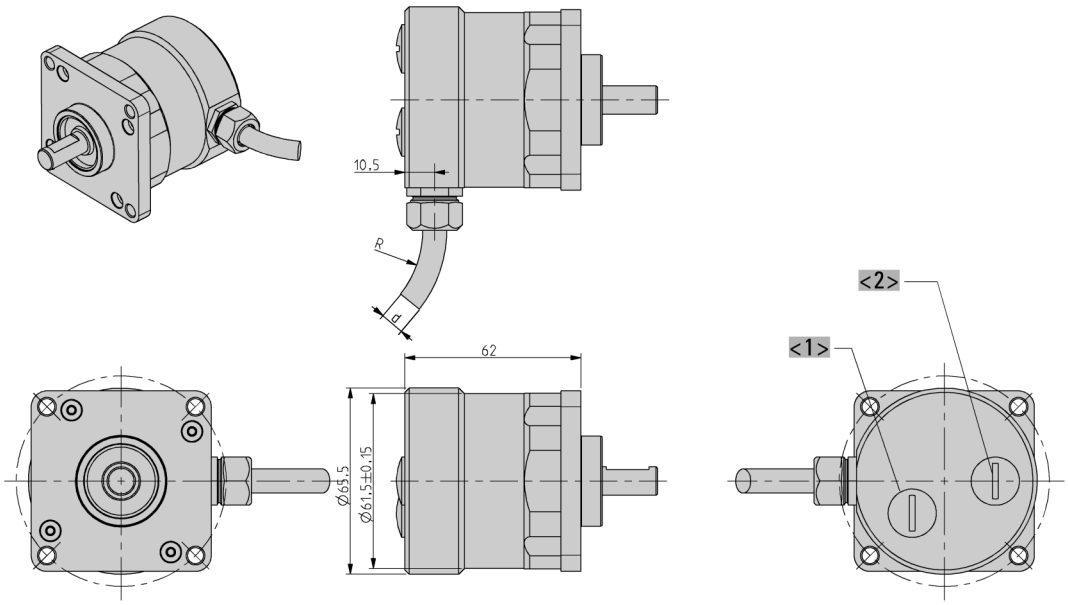
Dimensions in mm

# TECHNICAL DATASHEET

## Stainless Steel Encoders AC 61 - CANopen

### DIMENSIONED DRAWINGS (continued)

**AC 61 Connection cable "B"**




<1> Settings CAN/ CANopen
<2> Preset BiSS, SSI, SSI-P, MT-Parallel
Cable bending radius R for flexible installation ≥ 15 x cable diameter
Cable bending radius R for fixed installation ≥ 7.5 x cable diameter

Cable Ø d BiSS/SSI/SSI-P: 7,1 $^{+1,2}$
Cable Ø d ST-P: 7,8 $^{+0,9}$
Cable Ø d MT-P: 9,3 +1,3
Cable Ø d Fieldbus: 7,1 $^{+1,2}$

Dimensions in mm

### ORDERING INFORMATION

| Type | Resolution | Supply voltage | Flange, Protection, Shaft | Interface | Connection |
|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **AC61** | **0010** 10 Bit ST<br>**0012** 12 Bit ST<br>**0013** 13 Bit ST<br>**0014** 14 Bit ST<br>**0016** 16 Bit ST<br>**1212** 12 Bit MT + 12 Bit ST<br>**1213** 12 Bit MT + 13 Bit ST<br>**1214** 12 Bit MT + 14 Bit ST<br>**1216** 12 Bit MT + 16 Bit ST | **E** DC 10 - 30 V | **Q.76** Square, IP67, 9.52 mm<br>**Q.72** Square, IP67, 10 mm | **OL** CANopen | **A** Cable, axial<br>**B** Cable, radial<br>**Z** Bus cover with 3 sealed cable exits |

# TECHNICAL DATASHEET

## Stainless Steel Encoders AC 61 - CANopen

### ORDERING INFORMATION
**Selection of cable length**

Versions with cable outlet (connection A, B, E or F) are available with various lengths of cable. To order your desired cable length, please add the respective code to the end of your ordering code. Further cable lengths on request.

| Code | Cable length |
|---|---|
| without code | 1.5 m |
| -D0 | 3 m |
| -F0 | 5 m |
| -K0 | 10 m |
| -P0 | 15 m |
| -U0 | 20 m |
| -V0 | 25 m |

# TECHNICAL DATASHEET

# Stainless Steel Encoders AC 61 - CANopen Accessories

## FLEXIBLE COUPLINGS



Bellows coupling



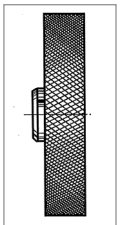
Helical coupling



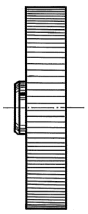
Isolated disk coupling

| | | Ordering code |
|---|---|---|
| Bellows coupling | 10 mm / 10 mm | 3 520 037 |
| Bellows coupling | 8 mm / 10 mm | 3 520 077 |
| Helical coupling 25/32 | 6 mm / 10 mm | 3 520 066 |
| Helical coupling 25/32 | 10 mm / 12 mm | 3 520 065 |
| Helical coupling 25/32 | 10 mm / 10 mm | 3 520 074 |
| Isolated disk coupling | 6 mm / 10 mm | 3 520 082 |
| Isolated disk coupling | 10 mm / 10 mm | 3 520 088 |

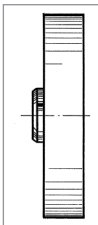
## MEASURING WHEELS



Tread 2 + 3



Tread 4



Tread 6

**Tread 2 B**
with glued-on rubber profile B = low-wear rubber surface with good grip (white)
Applications such as paper and cardboard, measuring cables, nongreasy metals, fleece, undressed or surface-treated wood, soft and hard plastics

**Tread 3**
vulcanized rubber surface with parallel knurl
Applications such as rubber, leather, fabrics, flooring and glass

**Tread 4**
Aluminum with parallel knurl
Applications such as rubber, soft plastics, wood with rough surface, and to a limited extent for fabrics

**Tread 6**
plastic surface
Applications such as wire, greasy metals and steel sections

| Material | Bore diameter (mm) fitting to encoder shaft | Circumference | Tread | Width of bearing surface | Ordering code |
|---|---|---|---|---|---|
| Aluminum | 10 mm | 0.2 m | 2 B | 12 mm | 0 601 049 |
| Aluminum | 10 mm | 0.5 m | 2 B | 25 mm | 0 601 151 |
| Aluminum | 10 mm | 0.5 m | 3 | 25 mm | 0 601 156 |
| Aluminum | 12 mm | 0.5 m | 3 | 25 mm | 0 601 159 |
| Aluminum | 10 mm | 0.5 m | 6 | 25 mm | 0 601 163 |
| Aluminum | 10 mm | 0.5 yd | 4 | 25 mm | 0 601 157 |

# TECHNICAL DATASHEET

## Stainless Steel Encoders AC 61 - CANopen Accessories

### TECHNICAL MANUALS

| | Ordering code |
|---|---|
| Technical manual, English, CANopen | 2 565 329 (or homepage) |
| Technical manual, German, CANopen | 2 565 250 (or homepage) |

### SOFTWARE

| | Ordering code |
|---|---|
| EDS-file, as download from our homepage | www.hengstler.com |